



Western
Pacific
Regional
Fishery
Management
Council

November 20, 2009

Mr. Kyle Fujimoto
Naval Facilities Engineering Command, Pacific
258 Makalapa Dr., Ste. 100
Pearl Harbor, HI 96860

Dear Mr. Fujimoto:

Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §1852), the Western Pacific Regional Fishery Management Council (Council) has the management authority for fisheries and fisheries resources seaward of the jurisdictions of Guam and the Northern Mariana Islands. Today, we downloaded the Draft Environmental Impact Statement for the Guam and CNMI Military Relocation. We noticed that the document, including its appendices, is over 8,000 pages. While we understand that the U.S. Navy extended the original public comment period from 45 days to 90 days, we believe that an additional 30 days (120 days total) is appropriate given the size of the document and complexity of the potential impacts from the proposed action.

Not only do we request the comment period to be extended for our own review, but we make this request on behalf of the public and fishing communities of Guam and the Northern Mariana Islands, so that they will have adequate time to review the DEIS and make informed comments. We also believe that this extension is warranted given the current review period is occurring during the holiday season when many people are traveling and spending time with family.

Thank you for your attention to this request.

Sincerely,

Kitty M. Simonds
Executive Director

Cc: Joint Guam Program Office

A-001-001

Thank you for your comment. The DoD carefully considered all requests to extend the length of the comment period beyond the 45-day minimum required by NEPA. In evaluating multiple options, DoD leadership determined that a 90-day comment period best balanced the need for sufficient time to review a complex document with the requirement to reach a timely decision regarding the proposed military buildup on Guam.



United States Department of the Interior

NATIONAL PARK SERVICE
Pacific West Region
1111 Jackson Street, Suite 700
Oakland, California 94607-4807



IN REPLY REFER TO:
L7619 (PWRO-PP)

DEC 02 2009

Darell J. Molzan
Environmental Director
Joint Guam Program Office
Office of the Assistant Secretary of the Navy
1000 Navy Pentagon
Washington DC 20350

Dear Mr. Molzan:

Because of circumstances explained in our previous letter dated November 10, 2009, the National Park Service (NPS) did not have the opportunity to provide timely comments on the early review Draft Environmental Impact Statement (eDEIS) for the Guam and CNMI Military Relocation. Based on a brief review of the eDEIS and information provided to us during partner meetings, we have ongoing concerns regarding the proposed projects. It is our desire that this letter, with the attached summary of our concerns, be included in the administrative record for the project. The NPS will also provide more substantive comments on the DEIS now available for public review.

A-002-001

Two units of the National Park System, War in the Pacific National Historical Park on Guam and American Memorial Park on Saipan, may be affected by the proposed actions. In addition, as custodian of the National Historical Landmark (NHL) program, NPS is concerned about potential impacts to the North Field Historic District NHL on Tinian. These areas encompass significant cultural and historic resources, as well as a great variety of terrestrial and marine resources.

While no new facilities are proposed as part of this action within the parks or NHL, the sites may be adversely affected by indirect impacts caused by the large increase in numbers of military personnel and their dependents, and the large number of construction personnel needed to implement the proposed actions and their families.

We understand that most new construction will take place on existing DoD installations and lands; however, Guam will need major infrastructure improvements, particularly roads and utilities to support the proposed actions. In addition, water and wastewater infrastructure is out of compliance and Guam burns high-sulfur fuel for power. Increased population pressures will likely worsen the negative impacts and may threaten public health and safety.



A-002-001

Thank you for your comment. As noted, the comments in this December 2, 2009 concerned DoD's early release DEIS that was provided to several Guam and Federal agencies in July 2009. The DoD received many written suggestions from these agencies as well as other input during a number of interagency meetings on the DEIS that were held during the fall 2009. The November 20, 2009 DEIS incorporated more information as a result of the input from the Guam and Federal agencies review.

It is in the interest of both DoD and NPS that there is adequate analysis and consideration of impacts on the national park units in the draft EIS. As you know, the decision maker must consider all relevant impacts prior to making a decision. The NPS looks forward to reviewing the draft EIS for the requisite analyses and disclosures that will allow for an adequate public review of the proposed action.

The NPS is pleased to continue to offer our available resources to assist DoD as necessary to improve the final EIS. These resources include park plans, policies, and regulations, analysis and summary of potential conflicts with the proposed action, and other relevant studies. In addition, the NPS looks forward to discussing possible mitigation measures with DoD in the future.

Sincerely,



Rory D. Westberg
Acting Regional Director

Attachment

cc w/o atch:
WAPA-B.Alberti
PWR-D.Louter
NPS-R.Rossman

NPS Concerns Regarding the NEPA Process for the Guam and CNMI Military Relocation

The proponent of an action such as this is required by The Council on Environmental Quality (CEQ) regulation to disclose in an EIS the direct and indirect effects of all alternatives, and their significance.¹ NPS believes the potential indirect effects of the proposed actions may significantly impact the park units on Guam and Saipan and the National Historic Landmark on Tinian.

With reference to the term "significance," the EIS must evaluate the context and intensity of the impact, and consider the extent to which the action is proximal to unique characteristics of the geographic area such as historic or cultural resources, park lands...and ecologically critical areas.² Further, the EIS must evaluate the degree to which the action may adversely affect sites, structures, or objects listed in the National Register of Historic Places or may cause the destruction of significant scientific, cultural or historical resources.³ Since the national park units and resources therein, meet the criteria expressed in this section of the regulations, the EIS needs to disclose the requisite analysis specific to the parks, and make a determination of significance. It is our concern and our preliminary conclusion that the impacts are likely to be significant, by definition.

A-002-002

The CEQ regulations also require that the proponent evaluate and disclose possible conflicts between the proposed action and the objectives of Federal land use plans, policies, and controls for the area concerned.⁴ In this case, the EIS must specifically consider the plans, policies and controls for the national park units on Guam and CNMI. The park units each are managed according to a formal plan, and must conform to a large body of National Park Service policies⁵ and regulations.⁶

We are concerned that there will be insufficient disclosure of potential direct and indirect impacts to the park units and NHL. Consequently, there is likely to be no effective determination of the significance of the impacts on the parks. Finally, we have not seen adequate consideration of how the proposed action might conflict with park plans, policies and controls, as required in the CEQ regulations.

Further, if the EIS does not adequately disclose the potential direct and indirect impacts on the park units, then there cannot be an adequate evaluation of cumulative impacts. With a population increase such as that being proposed, the NPS is concerned that its resources and staff are likely to be overwhelmed. This relates to our responsibilities for the current park operations and conditions, which are nearing a threshold of acceptability and for the oversight of the Guam and CNMI historic preservation programs that will need to review the myriad proposed projects.

¹ 40 CFR 1502.16 (a) and (b)

² 40 CFR 1508.27 (a), (b)(3)

³ 40 CFR 1508.27 (b)(8)

⁴ 40 CFR 1502.16 (c)

⁵ Management Policies 2006

⁶ Code of Federal Regulations, Title 36, Parts 1 through 79

A-002-002

Thank you for your comment. Volume 2, Chapter 9, Section 9.2.2.2 (Central [Guam]) of the EIS has been expanded to include the existing visitor data for the War in the Pacific National Historical Park (NHP) from 2004 to 2010. At present, it does not appear that the National Park Service Public Use Statistics Office does not have accessible visitor data for the American Memorial Park in Saipan; as such, it is not known how many visitors are received.

With the exception of the War in the Pacific NHP and recreational resources at Andersen Air Force Base (AFB), visitor data to the recreational resources on Guam and CNMI under Federal, Department of Defense, governments of Guam and CNMI administration do not exist. Because of the absence of visitor (to specific recreational resource) data, it is not possible to ascertain what the capacity of each resource is: in another words, impacts have not been quantified. Therefore, a mitigation measure is suggested in the draft EIS for a recreational resource carrying-capacity study to be performed. Data gained from the carrying-capacity study would be used to facilitate resource management.

A-002-003 These concerns are in addition to previously expressed comments regarding the NEPA process for the military relocation. These include the inadequacy of the purpose and need statement, the pre-decisional nature of the alternatives, and the lack of a suitable range of alternatives that address local issues. The NPS agrees with other agencies that the documents thus far available to us have been too lengthy, complex, laden with jargon, and generally in violation of CEQ regulations that require a document to allow effective review by the public. The data gaps and lack of important analyses in the DEIS, as discussed during the NAVFAC meeting of October 8, 2009, exacerbate the process problems that remain evident in the erDEIS.

A-002-004 The NPS review of the DEIS will focus on the analysis of impacts of the proposed actions on the issues detailed below, including impacts from the large population increase. The NPS believes that an assessment of direct and indirect impacts, cumulative impacts, including those present in the socio-economic analysis, should include analysis of:

- effects of increased visitation on park operations and safety
- effects of increased visitation above park carrying capacity such as visitor conflicts over use of facilities (restrooms, parking, picnic sites), traffic, noise, and trash
- effects of wastewater runoff on coral reefs in the park and Marine Protected Areas due to increased population and traffic
- effects of sedimentation on coral reefs due to increased erosion and sediment migration from construction outside and within DoD lands
- effects of new housing (permitted and illegal) and homelessness on water quality
- effects of increased power generation on air quality
- threats to marine resources due to increased recreational and subsistence harvesting
- threats to park viewsheds, historic sites and settings by construction outside DoD land
- effects of increased population such as trash dumping, fire/arson, hunting, vandalism, artifact looting, resource damage, unauthorized occupancy, boundary disputes
- damage to upland park units due to increased illegal ORV use

A-002-005 The NPS is concerned about the analysis of potential impacts to the North Field National Historic Landmark on Tinian including:

- cumulative impacts from training exercises, leading to loss of historic integrity
- potential, indirect, adverse effects to the historic setting from training exercises and developments outside the NHL but within the larger historic landscape
- potential loss of public access to NHL, one of the most significant WWII sites

A-002-006 Finally, the NPS concerns also extend to the impacts on the Guam and CNMI historic preservation programs. For example:

- The Guam Historic Preservation Office lacks capacity to respond to the numerous project proposals associated with the buildup
- Guam and CNMI lack capacity to store artifacts discovered during proposed projects; artifacts stored in DoD facilities will be inaccessible
- NAGPRA does not include Guam, CNMI, and the territories, therefore human remains discovered during proposed projects may not be repatriated

A-002-003

Thank you for your comment. The proposed actions are complex and have many components. In order to characterize the affected environment and potential impacts, sufficient detail needed to be included in the Draft EIS. The Draft EIS was broken down by Volumes for each major action, and the Executive Summary provides an overview of the proposed actions to facilitate readability. The Draft EIS was developed with the intent to balance readability with sufficient technical information.

A-002-004

Thank you for your comment. The recreational resources (Chapter 9), cultural resources (Chapter 12), and socioeconomics and general services (Chapter 16) sections of Volume 2 have been updated based on NPS comments. Volumes 1 and 7 have also been updated.

A-002-005

Thank you for your comment. Chapter 12 in Volume 3 of the DEIS discusses both direct and indirect impacts to the North Field National Historic Landmark (NHL) on Tinian. Although there are no anticipated direct impacts to the NHL from construction and operations and access to the NHL will be maintained through 8th Avenue, there are concerns that restricting access through Broadway Avenue and general increase in use of military facilities on Tinian may have indirect impacts to the NHL. Because of this, and at the request of the National Park Service, the Programmatic Agreement will contain specific mitigations including the development of a Cultural Landscape Report for the NHL and updating the Navy's Self-Guided Tour of Historic North Tinian pamphlet. The Programmatic Agreement also has a stipulation that 8th Avenue will be open at all times so that the public can access the NHL.

A-002-006

Thank you for your comment. The Programmatic Agreement (PA) that has been developed as part of the Section 106 process has been designed to address these issues. The PA has stipulations for the review and approval of individual projects that would streamline the process reducing some of the burden on the Guam Historic Preservation Office.

The PA also has specific provisions for the curation of artifacts in a federally-approved facility for materials excavated on DoD lands and the curation of artifacts excavated on non-DoD lands on Guam at the Guam Museum. All materials from Guam would be curated on Guam and would be accessible to the public. Materials excavated in Tinian would be curated in the CNMI and would also be accessible to the public. Display quality materials excavated on Tinian would remain on Tinian.

Although NAGPRA does not include Guam, CNMI, and other territories, the PA has specific procedures for the treatment of human remains that incorporates local guidance from each area and includes repatriation, if appropriate.

December 22, 2009

VIA EMAIL

Valerie Curtis
Naval Facilities Engineering Command Pacific
258 Makalapa Drive, Suite 100
Pearl Harbor, Hawaii 96860-3134
valerie.n.curtis@navy.mil



Re: Consulting Party Request Letter for the Guam Buildup

Dear Ms. Curtis:

A-003-001

On behalf of the National Trust for Historic Preservation (National Trust), we write to express our concern with the potential impacts of the large military buildup in Guam on the island's significant historic properties. The recently released Draft Environmental Impact Statement for the Project indicates that approximately 8,600 Marines and their 9,000 dependents will be relocated to Guam, necessitating rehabilitation of existing and construction of new operational and support facilities, as well as training facilities on Guam and other areas within the Mariana Islands. (74 Fed. Reg. 60,244) (Nov. 20, 2009)). In addition to review under the National Environmental Policy Act, the buildup on Guam requires consultation under the National Historic Preservation Act to resolve impacts of the buildup on the islands significant historic resources. Given the potential impacts of this Project on nationally significant historic resources, the National Trust formally requests approval to participate actively in the review process as a "consulting party" in accordance with 36 C.F.R. §§ 800.2(c)(5), 800.3(f)(3).

Interests of the National Trust

The National Trust is a private, nonprofit organization chartered by Congress in 1949 to promote public participation in the preservation of our nation's heritage, and to further the historic preservation policy of the United States, 16 U.S.C. §§ 461, 468. With the strong support of more than 211,000 members, the National Trust works to protect significant historic sites and to advocate historic preservation as a fundamental value in programs and policies at all levels of government. The National Trust has seven regional offices around the country, including our Western Office in San Francisco, California, which is specifically responsive to preservation concerns in Guam.

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A-003-001

Thank you for your comment. Although the comment letter and Navy response were prepared within the public comment period, the subject is not related to the EIS contents. The letter and response are included in the Final EIS with other agency correspondence in Volume 9, Appendix B.

A-003-001

The National Trust has been designated by Congress as a member of the federal Advisory Council on Historic Preservation, which gives the National Trust a unique place in the Section 106 process. *Id.* § 470i(a)(8). We have participated as a consulting party in a wide variety of Section 106 reviews with many different federal agencies, including many undertakings involving Department of Defense-managed lands and historic properties. We believe our experience in the Section 106 process will provide a valuable perspective as a consulting party, helping to identify and resolve issues raised as the Section 106 process continues and as the proposal moves forward.

Specific Concerns

One of our particular concerns regards proposed impacts to an ancient Chamorro village site in the district of Pagat, where a Spanish church was built in 1672. The Pagat Site complex is a traditional cultural property (TCP) listed on the National Register of Historic Places with prehistoric sites dating back more than a thousand years. It contains at least 20 *lattes*, foundations of ancient homes, more than 50 mounds of artifacts and midden, remnants of trails, mortars and grinding areas, caves and rock shelters. A recent study found that at least three other NRHP-eligible sites are located in the near vicinity.

The Proposed Action includes a new live fire range complex in the Route 15 area that would have significant impacts on the ancient Pagat Village. Construction of the complex would include fencing the firing range and restricting access to the public to the site. In addition, in areas that would still be available for public access, the audible impacts of live firing will effectively exclude visitors. Since the Pagat site is a TCP and eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community, restricting access to the site would have a profound impact on the ability of that community to celebrate its beliefs. Thus, we encourage the Navy to select an alternative location for this proposed firing range.

Conclusion

As stated above, the National Trust formally requests to participate as a consulting party in the Section 106 process for the Project pursuant to 36 C.F.R. § 800.2(c)(5), 800.3(f)(3). Additionally, please include the National Trust in any distribution of public notices of meetings, and for the circulation of any documents for comment. We would appreciate receiving two separate copies of notices at the following addresses:

Brian Turner
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Western Office
National Trust for Historic Preservation
5 Third Street, Suite 707
San Francisco, CA 94103
Brian_Turner@nthp.org

Elizabeth Merritt
Deputy General Counsel
National Trust for Historic Preservation
1785 Massachusetts Ave. NW
Washington, DC 20036
Betsy_Merritt@nthp.org

A-003-001

We look forward to working with the Navy to address the serious impacts associated with this proposal on this site. Please contact Brian Turner at 415-947-0692 if you have any questions or concerns.

Respectfully submitted,



Brian Turner
Regional Attorney

Cc (by email): Louise Brodnitz, Advisory Council on Historic Preservation
Caroline Hall, Advisory Council on Historic Preservation
Reid Nelson, Advisory Council on Historic Preservation
Lynda Bordallo Aguon, Guam State Historic Preservation Officer
Joe Quinata, Guam Preservation Trust

COMMENT RESPONSE MATRIX
Andersen AFB, Guam
Guam and CNMI Military Relocation DEIS/OEIS
February 17, 2010

#	Volume/ Chapter/ Page	Section/ Paragraph/ Line	Reviewer/Unit	Comment
1.	Volume 6/ Chapter 3/page 3-25	Section 3.1.4.2, Paragraph 1, line 5	B.Torres/36 CES/CEV	Current operation and maintenance of the AAFB Landfill is AAFB military and civilian personnel staff of the Civil Engineering Squadron. Sampling and Analysis of leachate and methane gas is being conducted by the base operator support contractor. Groundwater monitoring is being conducted by the Installation Restoration Program (IRP) as part of its overall base groundwater monitoring program.
2.	Volume 6/ Chapter 3/page 3-25	Section 3.1.4.2, Paragraph 1, line 5	B.Torres/36 CES/CEV	The AAFB Landfill is operated and maintained under the Guam EPA Permit No. 99-1001LF, Renewal Permit Application, and Permit Modifications for the vertical and horizontal expansion has been submitted to Guam EPA to allow additional operations until the GovGuam Landfill begins its operations.
A-004-001	Volume 6/ Chapter 3/page 3-25	Section 3.1.4.2, Paragraph 2, line 1-3	B.Torres/36 CES/CEV	Please state what federal law prevents expansions to be constructed over sole-source aquifers as a siting restriction. When and who provided the AAFB Landfill the exemption. Please provide a copy of the exemption approval.
4.	Volume 6/ Chapter 3/page 3-26	Section 3.1.4.2, Paragraph 3, line 3-4	B.Torres/36 CES/CEV	The 2-ac expansion to meet its disposal needs through 2009 was established through the reconfiguration of the original design of the existing vertical expansion. Reconfiguration consisted of increasing the slope and height and remaining within the footprint of the vertical. AF is proposing to horizontally expand the footprint of the vertical expansion over the cover system of the old landfill below to continue operation up to July 2011 when the new GovGuam landfill is expected to begin its operations.
A-004-002	Volume 6/ Chapter 3/page 3-60	Section 3.2.5.1, Paragraph 1, line 1-4	B.Torres/36 CES/CEV	The Preferred Alternative for the Disposal of Solid Waste is to the Navy Landfill and then to the Layon Landfill when it opens. However, no discussion was made on how the solid waste generated from the military buildup is to be collected, processed, and transported to either the Navy Landfill or the Layon Landfill.
6.	Volume 6/ Chapter 3/page 3-61	Section 3.2.5.1, Paragraph 4, line 1-4	B.Torres/36 CES/CEV	The first study should also include how MSW waste is to be collected and processed to increase recycling goals required by Executive Order XX, and transported to either the Navy Landfill or the Layon Landfill through the use of a material resource recovery facility and/or a transfer facility.
7.	Volume 6/ Chapter 3/page 3-61	Section 3.2.5.2, Paragraph 1, line 1-1	B.Torres/36 CES/CEV	Information on the estimated waste and waste types from the military buildup (housing, commercial, and industrial activities) should be discussed as is discussed in Volume 2, Chapter 17 for Hazardous Waste. There should be some discussion on solid waste activities in Okinawa, if possible as is discussed in Vol2, Chapt.17, on page 17-39 for HW. This will provide an idea of the impact to the overall island's integrated solid waste management activities and the impacts associated (the use of existing and propose solid waste management facilities such as landfills, transfer station, and household hazardous waste). Further defining appropriate alternative or to support the "Less than

Comments - Draft Guam and CNMI Military Relocation DEIS/OEIS

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A-004-001

Thank you for your comment. The statement that federal law prevents locating a landfill over a sole source aquifer is incorrect and will be removed from the report text.

A-004-002

Thank you for your comment. DoD has prepared the Guam Solid Waste Utility Study that looks at the existing and projected solid waste volumes generated from the future Marine Corp buildup. Estimates for this Utility Study were developed using Marine Corps Base (MCB) Hawaii, Kaneohe Bay (KB) solid waste characterization analysis. Solid waste generation activities for military installation on Guam and MCB Hawaii-KB are similar. Both military installations have similar facilities including maintenance shops, administrative offices, commissary and exchange facilities, fast-food establishments, club operations, family housing and unaccompanied personnel housing. The results of the solid waste characterization study will be incorporated into the FEIS.

The Navy is preparing a Recycling and Solid Waste Diversion Study for DoD Bases, Guam that has established a diversion goal of 50 percent, not including construction and demolition debris. The Study is considering the following alternatives: 1) DoD would construct two refuse transfer facilities, one in northern Guam and one in Southern Guam; 2) DoD would implement a source separation recycling program at all facilities; 3) DoD would construct recycling center(s); and 4) DoD would construct a materials resource recovery facility.

The DoD has also prepared a Construction and Demolition (C&D) Debris Reuse and Diversion Study which addresses the anticipated waste streams during the demolition of old buildings and construction of new facilities identified in the EIS. The study also addresses green waste that will be generated from clearing many acres of vegetation. The goal of

the study is to divert 50% of the C&D debris by the end of fiscal year 2015.

The non-DoD project solid waste volumes will be handled in accordance with the existing Guam Integrated Solid Waste Management Plan (ISWMP). GBB is expediting the closure of Ordot and the opening of Layon in the most expeditious manner possible.

DoD is in the process of updating the military Integrated Solid Waste Management Plan (ISWMP) to reflect how waste will be managed now and in the future. The updated DoD ISWMP will include any new information from studies and reports that have been conducted as part of the NEPA process.

#	Volume/ Chapter/ Page	Section/ Paragraph/ Line	Reviewer/Unit	Comment
8.	Volume 2/ Chapter 17/ Page 17-26	Section 17.1.3.2, Paragraph 2, line1.	B Torres/36 CES/CEV	significant finding". The management of hazardous materials is established by AFI 32-7086. The management of hazardous waste is established by AFI 32-7042, AFPAM 32-7043.
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COMMENT RESPONSE MATRIX
 Andersen AFB, Guam
 Guam and CNMI Military Relocation DEIS/OEIS
 February 16, 2010

Comments by David T. Lotz, 36 CES/CEV, Andersen AFB, Guam

#	Volume/ Chapter/ Page	Section/ Paragraph/ Line	Reviewer/Unit	Comment
A-005-001	1/Overview/1-10	1.2.2.1	David Lotz 36 CES/CEV	The Air Force land at BARRIGADA has no current Air Force communications facilities. It is currently only used for weather radar facility in cooperation with the National Weather Service. Mount Santa Rosa also has a water reservoir and FAA radar facility.
A-005-003	1/Overview/2-29	Table 2.7-2	David Lotz 36 CES/CEV	This table is labeled for Marine Corps Construction. The Air Embarkation Campus is an Air Force project of Air Mobility Command with some expansion to accommodate Marine Corps requirements. The EIS needs to be revised, where applicable, that this is an Air Force project.
A-005-002	2/2-7	Table 2.1-1	David Lotz 36 CES/CEV	In this table, I do not see the ACE Breakdown (Table 2.4-1) or the Andersen MSA1 improvements. It appears the intent is for Table 2.1-1 to be a summary of the projects and then the subsequent tables (such as Table 2.2-1, Table 2.4-1, and table 2.4-4) to be a listing of all the specific projects. Recommend that Table 2.1-1 include a reference to subsequent tables where the specific projects are listed. It is essential to list all the projects to insure that they have received the required NEPA review in this EIS. Furthermore, the Andersen MSA1 improvements listed in Figure 2.3-12 should also be in a table. I have not been able to locate a listing of the projects, summarized in Table 2.1-1 regarding those stating "Aviation Training" although Table 2.3-1 appears to list these as projects, although it is unclear if they are (1) designations for current areas with no improvements or (2) specific construction projects. More specific plans are required for the "Improve Airfield" training improvements at main field or for Northwest Field at Andersen AFB. Page 2-51 discusses Improved Airfield Training as an existing improved airfield at North Ramp or NWF, but clarification is need if this is using these improved airfields as is or if construction is required.
	2/2-37, 2-40, and 2-53	Table 2.3-1 Table 2.3-2 Figure 2.3-9	David Lotz 36 CES/CEV	These two tables and one figure have identified four non-continuous landing zones for Marine Corps' aviation training requirements with some limited environmental review at these specific locations for impacts. However, there are no maps or environmental review regarding the flight routes to and from these four locations and Andersen AFB. With the statement that TERF flights will be made at 50 to 200 ft above ground level day and night and with the knowledge that the DoD real estate at the four landing zones is apparently too small to contain aircraft maneuvers and the certainty that flights will originate at Andersen AFB, it has to be realized and evaluated that flights will occur over non-DoD land. Wherever TERF flights occur and other aviation training types, there is a requirement for the environmental of this element of the military buildup to be evaluated in the EIS.
	2/2-51	2.3.1.5	David Lotz	There is discussion of Marine Corps night airfield operations at Northwest Field. However, in Vol.

Comments - Draft Guam and CNMI Military Relocation DEIS/OEIS

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A-005-001

Thank you for your comment. The text has been updated to reflect the functions at USAF Barrigada.

A-005-002

Thank you for your comment. Table 2.1-1 in the DEIS includes both the improvements at MSA 1 and the ACE projects. References to additional information in the text and the figures are included under the "Component" heading in the table. Information on the level of construction necessary for aviation training is presented on pages 2-53 through 2-55 of Volume 2 of the the DEIS.

The information on the locations of TERF routes will be corrected in the Final EIS. No routes would be established as part of the Proposed Action. Flights would follow random paths and military flight procedures and policy for overflight of populated areas would be followed.

A-005-003

Thank you for your comments. The table referenced is a summary table of actions related to projects covered by this EIS. For readers who want details as to the funding, scope of project, etc. They can review the information in volumes 2 and 6.

It is acknowledged that the USAF has ongoing construction at Andersen AFB, including construction for the air embarkation campus. However, that effort is being changed to accommodate the Marines. The construction project has some Marine Corps funding and it is associated with the Marine Corps relocation. Therefore, the table has not been changed.

#	Volume/ Chapter/ Page	Section/ Paragraph/ Line	Reviewer/Unit	Comment
A-005-004			36 CES/CEV	2, Ch 10, section 10.2.2.1, North, Andersen AFB, Operation, Mariana Fruit Bat, (pp. 10-91 to 10-94) there is no discussion of aircraft night operations and the night foraging by fruit bats.
A-005-005	2/2-51	2.3.1.5	David Lotz 36 CES/CEV	Marine Air Control Group (MACG) Training: Where is the location proposed for the Tactical Air Operations Center?
7.	2/2-51	2.3.1.5	David Lotz 36 CES/CEV	Last paragraph on the page indicates the establishment of a military flight corridor potentially over southern Guam with mountainous areas and low population density. This proposal needs to be the subject of this EIS and appears not to be.
8.	2/2-52	2.3.1.6	David Lotz 36 CES/CEV	The last sentence on this page indicates the need for a "formal joint military airspace proposal" as necessary for this proposed military relocation and a need for "further environmental documentation requirements". This airspace requirement is tied to this proposal and should be part of the EIS. If not then it is being segmented. There is more than a documentation requirement. There is a requirement for NEPA review.
9.	2/2-56	2.3.2.2	David Lotz 36 CES/CEV	Will there be requirements to upgrade the roads in MSA1 and install utilities? This needs to be stated and could require an additional cultural resource survey and additional vegetation clearing in MSA1.
10.	2/2-58	Table 2.3-12	David Lotz; 36 CES/CEV	For reference this figure should also indicate the location of the proposed Army and Air Force ammunition storage facilities at MSA1.
11.	2/2-60	Table 2.3-6	David Lotz 36 CES/CEV	There needs to be an adequate narrative justifying when several of these alternatives are not being carried forward for analysis as alternatives.
12.	2/2-62	Table 2.3-7	David Lotz 36 CES/CEV	There needs to be an adequate narrative justifying when several of these alternatives are not being carried forward for analysis as alternatives. Also add to this discussion the locations listed at the bottom of page 2-61.
13.	2/2-67	Table 2.3-12	David Lotz 36 CES/CEV	This table lists a location at Northwest Field and also a reference to Figure 2.1-4. However, Figure 2.1-4 does not have a location map for these facilities at Northwest Field.
14.	2/2-69	Table 2.4-1	David Lotz; 36 CES/CEV	For sake of clarity, are these facilities identical to construction project titles?
A-005-006	2/2-70	Figure 2.4-1	David Lotz 36 CES/CEV	Show the sinkhole and the boundary of the overlay wildlife refuge on this drawing. Recommend locating on this figure with a number code (applicable to other similar figures) the structures listed in Table 2.4-1.
A-005-007	2/2-75	Figure 2.4-5	David Lotz 36 CES/CEV	Include a Table with these facilities/projects for North Gate and Access Road similar to the other projects.
A-005-008	4/4-73	4.3.2.1	David Lotz 36 CES/CEV	The discussion of storm water discharge uses the term "relative minor increase in storm water discharge intensities and volume". Of specific concern is the increase of impervious surface for the ACE. Specific quantifiable information should be provided to justify this statement. Also, a figure that illustrates the planned runoff channels and their destinations should be provided.
A-005-009	5/5-15	5.2.1.1	David Lotz 36 CES/CEV	Operational Activities: Standby generators should be added to this listing of power sources, and elsewhere in the EIS, and hence sources of air pollutants.
A-005-010	5/5-23	5.2.2.2	David Lotz	The statement regarding construction on non-DoD land in central Guam is in error as portions of the

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A-005-004

Thank you for your comment. Night operations are discussed in Volume 2, Chapter 2. Indirect impacts from these operations are evaluated through the use of buffer areas surrounding areas where operations will take place. Night foraging will be added to the discussion on fruit bats.

A-005-005

Thank you for your comments. As requested, here are the following explanations and clarifications.

The Tactical Air Operations Center would be located at both North Field and Northwest Field. It would consist of mobile equipment and would use a paved surface if one is available.

The establishment of a military flight corridor is not part of the Proposed Action. The use of existing airspace would satisfy requirements associated with the Marine relocation and therefore, the establishment of additional airspace for aviation training is not part of the proposed action.

Existing utilities and roadways would be used in Munitions Storage Area 1. Figure 2.3-12 presents Munitions Storage Area 1 improvements associated with the proposed action.

The narrative relating to the discussion of the alternatives selection process will be expanded in the Final EIS.

The reference to Figure 2.1-4 should be Figure 2.1-3. The text will be revised in the Final EIS.

A-005-006

Thank you for your comment. Specific natural resources are not shown on figures in Chapter 2. They are shown in subsequent chapters, specific to the resource area.

#	Volume/ Chapter/ Page	Section/ Paragraph/ Line	Reviewer/Unit	Comment
A-005-010	20, 6/6-23	6.2.2.1	36 CES/CEV David Lotz	firing range will be on current non-DoD land at the Route 15 parcel. Construction on Andersen AFB would also include ammunition storage facilities at MSA1 and possibly some unspecified facilities at Northwest Field, ref. item 3 above.
A-005-011	27, 2/6-25 to 6-30	6.2.2.1	36 CES/CEV David Lotz	Andersen AFB, Operation: There is only discussion of aviation noise and none for the noise from the operation of the MSA1 igloos, AMC, Northgate, and ACE.
A-005-012	32, 2/7		36 CES/CEV David Lotz	Page 2-51 indicates there will an establishment of a military flight corridor potentially over southern Guam with mountainous areas and low population density. This proposal is not included in the Air Space chapter and needs to be the subject of this EIS.
A-005-013	32, 8-8-20	8.1.2.1	36 CES/CEV David Lotz	Land use constraints should include the overfly Guam National Wildlife Refuge on Andersen Air Force Base and a map should be included to illustrate this overfly Guam National Wildlife Refuge
A-005-014	37, 2/9-9-3	Table 9.1-1	36 CES/CEV David Lotz	Pati Beach is open by reservation use only. This lists only natural resource oriented outdoor recreation facilities. Indoor facilities should be listed to include the bowling alley, youth center, movie theater and the gymnasium. Outdoor recreation facilities that should be added include the swimming pool and the golf course. Information on use figures should be included. There is a question as to what is the "Nature Centers" on Andersen AFB?
	35, 2/9-9-16	9.2.2.1	36 CES/CEV David Lotz	The sharp increase in the number of users at Andersen AFB recreational facilities should be quantified. There needs to be specific Marine Corps mitigation for impacts to Andersen AFB's recreation resources specifically funding for facilities, staffing, and controls.
A-005-015	37, 10/10-18	10.1.2.1	36 CES/CEV David Lotz	In this general discussion of Andersen AFB wildlife – native species, there is no section for mammals specifically the fruit bats. While the fruit bats are discussed subsequently, this overview should state their existence and that further discussion will follow. This comment also applies to the other species listed in Table 10.1-4.
	37, 2/10/10-19 and 2/10/10-20	Figure 10.1-7 and Figure 10.1-8	36 CES/CEV David Lotz	What is meant by the term "Mariana Fruit Bat Locations"?
	38, 2/10/2-86	10.2.2.1	36 CES/CEV David Lotz	These three paragraphs under Wildlife are only generalized assumptions and conclusions. They need to be justified by research data and sound analysis. The assumptions that animals will just freely move is not necessarily correct. Inadvertent killing during construction is still loss of wildlife. While the statement is made that loss of nesting habitat for the bittern is inconsequential as compared to habit islandwide, where is the cumulative impact of bittern habitat loss in the EIS due to direct and indirect impacts of this proposed action and other actions as cumulative impacts? It is not presented in sufficient quantified terms in Volume 7.
	39, 2/10/10-90	10.2.2.1	36 CES/CEV David Lotz	Regarding Operations and the Mariana Fruit Bat, lights at night is a significant obstacle to night foraging by the fruit bats. There needs to be a significant analysis of the effects of additional lights on Andersen. What is not listed is the North Gate lighting. Regarding MSA1 there needs to be a base line of current night lighting and night operations. Recommend obtaining a night aerial photograph of Andersen AFB and subsequently develop night lighting impacts for the alternatives.

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A-005-007

Thank you for your comment. Specific information on facilities to be constructed with size of area (in ft² and m²) can be found under Section 2.4.1.3 in bulleted form.

A-005-008

Thank you for your comment. The Final EIS contains a value for the approximate increase in impervious surface area. The DoD is currently conducting a Low Impact Development (LID) study that will identify specific types of alternative designs that can be incorporated into the construction of facilities associated with the buildup. DoD is also preparing a stormwater pollution prevention plan and will apply for permits that regulate stormwater discharges during construction. Final project design will describe general flow patterns and runoff channels; in general, the LID-influenced project design will aim to mimic area topography.

A-005-009

Thank you for your comment. Stand by generators are not included in air modeling as they are seldom used. This approach is consistent with air regulations and EPA guidance on estimating emissions. By and large, these generators are only installed for critical facilities.

A-005-010

Thank you for your comment. The statement that "no construction would occur on non-DoD lands" has been amended to clarify that construction at Route 15 was discussed under the subsection pertaining to construction at Andersen South.

A-005-011

Thank you for your comment. Operational noise levels at the MSA Igloos, AMC, and ACE would be consistent with current operations and

#	Volume/ Chapter/ Page	Section/ Paragraph/ Line	Reviewer/Unit	Comment
A-005-016	11/11-30	11.1.5.1	David Lotz 36 CES/CEV	The statement is made that Andersen AFB's marine study area is not included because there are no direct impacts from the proposed action. However, indirect impacts could impact Andersen's marine environment such as increased recreation use of the Tarague to Pati beaches that are nesting habitat for Green Sea Turtles.
A-005-017	12/12-3	12.1.1.2	David Lotz 36 CES/CEV	Were cultural resource surveys tasked to identify current land use practices such as a Chamorro ranch, a traditional cultural property?
32.	2/12		David Lotz 36 CES/CEV	The concise listing of prior survey reports, summary tables of sites, base wide probability maps, and absence of the JGPO cultural resource survey reports (not complete as of this review) as an item in the appendix does not provide the reviewer the necessary information to conduct a sufficient and timely review of the impact on cultural resources.
33.	2/12/12-35	12.2.2.1	David Lotz 36 CES/CEV	Overlay maps of cultural resource sites and the project footprints should be provided for an essential accurate assessment of project impacts' to cultural resources. What could and should then be developed is a listing of Section 106 cases with a related discussion.
34.	3/12/2-65	Table 12.2-6	David Lotz 36 CES/CEV	Without the above two steps being completed, this table is premature.
A-005-018	2/13/13-17	Figure 13.1-22	David Lotz 36 CES/CEV	This is not a view of Ritidian Point. It appears to be a reverse image of a portion of the eastern coastline of Andersen AFB.
A-005-019	6/9/9-2	9.2.2	David Lotz 36 CES/CEV	The closure of the operation areas to hunting during certain times could be stated in this document as closing due to hunting should not be considered classified.
37.	8/9/9-8	Table 9.2-3	David Lotz 36 CES/CEV	The weapon emplacement sites would remove areas from hunting.
A-005-020	5/12/12-15	Table 12.2-3	David Lotz 36 CES/CEV	Having not seen the cultural resources survey report for the emplacement sites, but aware that some cultural resources have been identified, these statements cannot currently be accepted.
A-005-021	6/2/2-46	Figure 2.2-1	David Lotz 36 CES/CEV	This figure would be more meaningful if it indicated the current supply system and the proposed components to expand onto the system. As currently mapped this gives the impression that the Air Force water line from Andersen South to Andersen AFB Main base would be abandoned.
40.	6/2/2-49	Figure 2.2-2	David Lotz 36 CES/CEV	This figure on constraints should also show the locations of the Habitat Management Unit (Adjacent to Potts Junction) and the Ungulate Exlosures (immediately north of Northwest Field), that are mitigation measures for Air Force actions. These areas should not be considered for water well development unless JGPO is prepared to discuss with the Air Force replacement mitigation that would also be acceptable by regulatory agencies. There would also be constraints within the overlay Guam National Wildlife Refuge and areas of archaeological resources.
41.	6/2/2-55	Figure 2.2-3	David Lotz 36 CES/CEV	What is the source of water to the water storage tank at Barrigada and where is the water line?
42.	6/2/2-60	Figure 2.2-4	David Lotz 36 CES/CEV	Regarding the two rows of proposed brackish water wells: 1. Insure that no wells are located on the aerial approach route into Northwest Field. 2. Many of the proposed wells north of Northwest Field are located within the Ungulate Exlosures (Ref. ISR/Strike EIS Figure 2.2-7 page 2-39). Again if the wells are to be located at the location of the planned Ungulate Exlosures, the comment in item 40 above

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located well within the boundaries of Andersen AFB such that detailed analyses is not warranted. Traffic noise associated with the access roads by the Northgate are discussed in Volume 6, Chapter 8.2.

A-005-012

Thank you for your comment. Section 2.3.1.5 has been clarified to state, "However, the establishment of a military flight corridor is not part of the Proposed Action and is not necessary for the relocation of Marines to Guam."

A-005-013

Thank you for your comment. The National Guam Overlay Refuge is shown on Volume 2, Figure 10.1-2 of the Draft EIS.

A-005-014

Thank you for your comment. The contents of Table 9.1-1 in Volume 2, Chapter 9 of the EIS are from Chapter 9, Table 4 ("Summary of Outdoor Recreation Resources") on Page 9-3 of "Integrated Natural Resource Management Plan (INRMP) for Andersen Air Force Base, Guam, Mariana Islands," dated February 2002. According to the INRMP, public access for Pati Beach is stated "offlimits". Said table will be expanded to include outdoor features such as swimming pool and Palm Tree Golf Course, however. Table 4 defines activities at "Nature Study Sites" to be birding, photography, and etc.

Volume 2, Chapter 9, Section 9.1.1 ("Definition of Resource") of the EIS states that for the purposes of the EIS, recreational use of an area include any type of outdoor activity in which area residents, visitors, or tourists may participate. As such, indoor uses have not been included for consideration throughout the document.

As the Marines and their dependents relocation has yet to take

#	Volume/ Chapter/ Page	Section/ Paragraph/ Line	Reviewer/Unit	Comment
A-005-021	6/2-63 to 2/2-64	2.2.5.5	David Lotz 36 CES/CEV	applies. The results of this study are required to be available as a part of this DEIS as (1) the potential exists that the plan could change as a result of the study results, (2) the environmental impacts could change, and (3) the public is required to provide an opportunity to review and comment. The statement that the "Completion of the study with report documentation is anticipated at the end of 2010 with the preliminary results available in time for the Final EIS/OEIS" is flawed because the final EIS/OEIS is scheduled to be finished in the summer of 2010. As of February 2010, the test borings at Andersen AFB have not even been drilled.
A-005-022	6/77-7	7.2.1.1	David Lotz 36 CES/CEV	Are standby generators included in this analysis methodology?
A-005-023	6/14/ 74-5 to 14-6	14.2.2.1	David Lotz 36 CES/CEV	The statement is made that "Aside from Marbo on Andersen South, the affected areas have not been surveyed. All areas should be surveyed for cultural resources prior to the DEIS and included in the DEIS. The further statement that "Surveys are currently being conducted in these areas and more information will be provided in the FEIS" effectively precludes any public involvement and/or project changes as a result of the cultural resource surveys.
	6/14/14-13	14.2.3.1 Last paragraph	David Lotz 36 CES/CEV	There is a discussion that a well on Andersen AFB would impact two NRHP-eligible cultural resources, the Torres Farmhouse and the Guerrero Water Catchment, but this is not stated as an effect or defined as to the type of effect. This needs to be accomplished and consideration should be given in planning that a simple movement of the well would avoid an adverse effect. I need the JGPO CRS for this area which I currently do not have.
	6/14/14-14	14.2.3.1	David Lotz 36 CES/CEV	Under Potential Mitigating measures, recommend avoidance as the mitigation regarding the Torres Farmhouse and the Guerrero Water Catchment.
A-005-024	6/15/15-9	15.2.6	David Lotz 36 CES/CEV	Regarding "Occasional Motorists", the perception is that local occasional motorists are those who infrequently drive a road. Thus occasional motorists will be surprised at visual changes as compared to their last view.
	6/15/15-23	Figure 15.2-3	David Lotz 36 CES/CEV	This view is incorrect as the road will be lined by a fence on both sides of the road. Would the overpass and new MOUNT be visible from the road?
A-005-025	7/1/1-6	1.3.1	David Lotz 36 CES/CEV	State when the Spanish first discovered Guam and when the Spanish colonized the island. They were about 150 years apart. The Japanese did not invade Guam on December 8, 1941. Guam, after the liberation, was developed solely as a military base.
A-005-026	7/1/1-6	1.3.2	David Lotz 36 CES/CEV	There is no such thing as a "special law of Congress". Please fix correctly that residents of Guam pay the federal tax income because the Organic Act of Guam passed by the U.S. Congress imposed the IRS code on Guam which is administered by the Government of Guam and the income goes to the Government of Guam. Why mention foreign aid? What are the large transfer payments from the U.S. Treasury to Guam? You have specifically neglected to mention that Guam cannot vote in U.S. elections and that the representative to Congress has no vote on the floor. What is the point of this historical narrative in Vol. 7? Could just omit.
A-005-027	7/1/1-10	1/3/3/1	David Lotz	This should reflect the current status of the infestation of the coconut rhinoceros beetle, not on a discovery report from 3 years ago.

place, presently the number of new visitors to the recreational resources at Andersen Air Force Base. A mitigation measure is proposed wherein, a carrying capacity of the recreational resources on the island of Guam would be conducted. A study would facilitate the development of a baseline for a recreational resource use as well as visitor numbers.

The EIS currently contains a mitigation measure to "Offer resources in forms of time and donation or use of equipments to assist the volunteer conservation officer at Andersen Air Force Base."

A-005-015

Thank you for your comment. Throughout the EIS, wildlife is specific to species that are not Federal- or Guam-listed. A statement will be added up front to this effect. Discussing them twice would be redundant. Mariana fruit bat locations are where fruit bats have been sighted. Impacts to common wildlife species are acknowledged but these impacts are not significant and are not evaluated in detail because it would unnecessarily lengthen the document. Cumulative impacts are currently being discussed and additional information may be added to the final EIS. Night lighting impacts are recognized as potentially significant. Hooded lights have been specified in the DEIS. Night lighting is being discussed with the U.S. Fish and Wildlife Service in connection with the Biological Assessment and Biological Opinion. The results of these discussions will be included in the final EIS.

A-005-016

Thank you for your comment.

Text has been revised and AAFB indirect impacts from recreational activities have been evaluated. These impacts are anticipated to be similar to those seen at Haputo ERA.

#	Volume/ Chapter/ Page	Section/ Paragraph/ Line	Reviewer/Unit	Comment
			36 CES/CEV	
A-005-027	1/1-11	1.3.3.1	David Lotz 36 CES/CEV	The paragraph titled "Tinangaja is not correct. For instance, the dense forests of northern Guam have been largely replaced by thick tangantangan brush. If that were the case, why is Andersen AFB committed to preserving native limestone forest in the overlay Guam National Wildlife Refuge? Also, dead and infested coconut trees are not seen throughout the forests of Guam.
	1/1-11	1/3(3/1)	David Lotz 36 CES/CEV	Be specific on the threat to the Fadang.
A-005-028	1/1-13	1.3.3.1	David Lotz 36 CES/CEV	World War II, not World War I.
A-005-029	1-23 to 2-24	Table 2.2-1	David Lotz 36 CES/CEV	For Cultural Resources, an additional mitigation measure should be facility siting to avoid cultural resources.
A-005-030	7/4-6	Table 4.3-1	David Lotz 36 CES/CEV	This table needs to be updated for the Air Force.
	7/4-13	Figure 4.3-1	David Lotz 36 CES/CEV	No knowledge of the project Fleet Area Control and Surveillance Facility at Northwest Field, Andersen Air Force Base. Omit. Update map based upon #57 above and revise the locations to be more accurate.
	7/4-21	Table 4.3-3	David Lotz 36 CES/CEV	Summary of potential effects should be meaningfully quantified to be meaningful. Not all are. The "Various small scale projects at Andersen AFB" should be a complete listing of each of the projects to insure that all current projects are included.
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A-005-017

Thank you for your comment. Archaeological surveys did not identify ranches; however, DoD did conduct an inventory in Guam for traditional cultural properties. The study identified 27 traditional resources that met the criteria for eligibility to the National Register of Historic Places.

Tables of previous surveys and eligible sites on Andersen AFB are provided in the DEIS in Tables 12.1-1 through 12.1-6. The probability map for Andersen AFB is shown in Figure 12.2-1. Copies of archaeological survey reports are not included in the appendices because of the sensitive nature of archaeological site locations. The locations of archaeological sites are withheld from the public in accordance with the Archaeological Resources Protection Act.

An overlay of sites and project footprints were developed for the impact analysis in Section 12.2. However, the exact locations of these sites are not provided in the DEIS for the reasons discussed above.

Table 12.2-6 presents potential mitigation measures for the adverse effects to resources eligible or listed on the National Register of Historic Places. This table was generated from the detailed impact analysis of project footprints using information from surveys of over 5,000 acres on Guam conducted over the last 3 years specifically for this undertaking.

A-005-018

Thank you for your comment. The picture was taken from Tarague Beach looking in the direction of Ritidian Point.

A-005-019

Thank you for your comment. Recreational resources potentially impacted by the proposed classified activities are discussed in Appendix L, Volume 9 of the draft EIS.

A-005-020

Thank you for your comment. More detailed information on sites and surveys has been included in the FEIS.

A-005-021

Thank you for your comment.

39) Additional components of the existing Andersen AFB water system has been presented on Figure 2.2-1 in the FEIS including the waterline from Andersen South wells to the main base.

40) Figure 2.2-2 has been updated to show the Habitat Management Unit, Ungulate Enclosures, Guam National Wildlife Refuge and areas excluded from development by archaeological studies conducted by DoD.

41) Potable water is supplied to the Barrigada Tank by wells on Navy Barrigada (shown as a solid black line on Figure 2.2-3) and by the Navy Island Wide system (shown as a dashed line on Figure 2.2-3).

42) Proposed brackish water wells for this long-term alternative which fall within the Ungulate Enclosures or the aircraft approach route to Northwest Field has been relocated to other areas of Andersen AFB in Figure 2.2-4 for the FEIS.

A-005-022

Thank you for your comment. Standby generators are not included in the analysis methodology. This is standard practice and consistent with EPA guidance on estimating emissions because standby generators are used for short periods of time during power outages.

A-005-023

Thank you for your comment. All areas potentially impacted by the

proposed action have been surveyed for NRHP-list or eligible resources. Proposed utilities now avoid the Torres Ranch and the Guerrero Water Catchment. In all cases, avoidance of impacts to NRHP-listed or eligible resources is preferable and has been an important part of the early planning process.

A-005-024

Thank you for your comment. Occasional refers to an infrequent traveler rather than a regular traveler. It is anticipated that the occasional motorist is not familiar enough with the corridor to the point of recognizing the changes.

The simulation shows the point where Route 15 merges back into the existing alignment. The crossing is not visible from this point due to the distance between the two points and the curve of the roadway. However, fencing would be present along the roadway at approximately 50 ft from the centerline of the roadway.

A-005-025

Thank you for your comment. The paragraph is a short summary of the history of Guam. A larger discussion can be found in Volume 2, Chapter 12. The reference to the invasion of Guam by the Japanese will be revised to say "shortly after the attack on Pearl Harbor."

A-005-026

Thank you for your comment. The language in Volume 7 Chapter 1 that you mention (i.e., foreign aid, special law) was deleted. The information on voting rights was added. The background information on island-wide natural and human events is presented in Volume 7 as a basis for the summary of preferred alternatives and cumulative impact sections that are in Chapters 3 and 4, respectively, of Volume 7.

A-005-027

Thank you for your comment. This information will be updated.

A-005-028

Thank you for your comment. A correction from WW I to WW II was made in the Final EIS.

A-005-029

Thank you for your comment. The DoD conducted cultural resources surveys (including archaeological, architectural, and ethnographic surveys) of over 5,000 acres of land to identify historic properties.

During a three-year planning process, the DoD was able to effectively design projects in such a way that the vast majority of these historic properties were avoided by the proposed construction. Additional avoidance, minimization, and mitigation measures will be considered during the final design phase.

A-005-030

Thank you for your comment. The project list was developed with and reviewed by the Air Force staff prior to publication of the Draft EIS.

The Fleet Area Control and Surveillance facility was identified in the Training Concept Plan (2009) and may be a future project. It is not omitted from the EIS.

Volume 7, Chapter 3 provides trends in resource health for each resource and quantitative data is provided when available. Quantitative cumulative impact analysis is not provided when there is insufficient quantified baseline or project-specific data.

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February 17, 2010

VIA US Mail and Email

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**Re: Comments on Guam and CNMI Military Relocation Draft
Environmental Impact Statement/Overseas Environmental Impact
Statement**

Dear Mr. Fujimoto,

The National Trust for Historic Preservation (National Trust) appreciates the opportunity to comment on the Draft Environmental Impact Statement/Overseas Environmental Impact Statement (Draft EIS) for the proposed military buildup (Buildup) on Guam and the Commonwealth of the Northern Mariana Islands (CNMI). The proposed action has three principal components, including (1) relocation of nearly 9,000 Marines and their dependants from Okinawa to Guam along with new facilities and infrastructure; (2) a new deep-draft wharf in Apra Harbor; and (3) new Army facilities on Guam. The increase in population and military operations on the island will have direct and indirect effects on cultural resources in the project area, as well as significant cumulative effects.

The Buildup will result in an unprecedented population increase on Guam of approximately 80,000 additional people by 2014, which will put added pressures on Guam's unique natural and cultural resources. (Vol 1; ES-7). Our comments are focused on the proposal's potential adverse effects on cultural resources, with particular attention to the impacts resulting from the Marine Corps buildup on Guam. Overall, we believe the Draft EIS has several critical flaws, including a failure to

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examine a reasonable range of alternatives and inadequate discussion of mitigation measures. Given the significant public concern with the impacts of the Buildup, a supplemental analysis should be prepared to correct these shortcomings.

A-006-001 Interest of the National Trust

The National Trust is a private, nonprofit organization chartered by Congress in 1949 to promote public participation in the preservation of our nation's heritage, and to further the historic preservation policy of the United States. See 16 U.S.C. § 468. With the strong support of more than 204,000 members, the National Trust works to protect significant historic sites and to advocate historic preservation as a fundamental value in programs and policies at all levels of government. The National Trust has nine regional and field offices around the country, including our Western Office in San Francisco, California, which is specifically responsive to preservation concerns in Guam and CNMI.

Congress has also designated the Chairman of the National Trust as one of twenty members of the Advisory Council on Historic Preservation (Advisory Council), the independent federal agency whose regulations govern the implementation of Section 106 of the National Historic Preservation Act (NHPA). See 16 U.S.C. §§ 470f, 470i(a)(8); 36 C.F.R. Part 800. The Advisory Council works with other federal agencies, including the Department of Defense, to assist them in fulfilling their responsibilities under the NHPA. We are a consulting party to the Section 106 process for the proposed actions on Guam and CNMI.

A-006-002 The Buildup Will Have Significant Direct, Indirect, and Cumulative Impact on Guam's Cultural Resources

The relatively small island of Guam has a wealth of irreplaceable cultural resources, with archaeological records dating back thousands of years. Among these sites are places the native Chamorro people consider "traditional cultural properties" (TCPs): places rooted in their community's history and important for maintaining a continued sense of cultural identity. See National Register Bulletin #38. Many of these places have been designated or determined eligible for listing on the National Register of Historic Places (National Register) as well as designated locally. We believe it is particularly important to protect TCPs in Guam in light of the extensive, occasionally forced limitations on traditional practices that have occurred over nearly 400 years of colonial and territorial rule.

A-006-001

Thank you for your comment.

A-006-002

Thank you for your comment. The DoD understands the importance of the cultural and historic issues related with land in Guam. The DoD conducted a number of studies, including a traditional cultural property (TCP) study on Guam and Tinian. The TCP study used information from oral histories, archival and documentary research, archaeological investigations, and natural resource inventories. Seventeen TCPs were identified that included landforms, historical sites, archaeological sites with latte stones, and gathering places. DoD will continue to work very closely with the Guam SHPO and other interested parties to avoid, minimize, and/or mitigate any adverse effects to these resources.

A-006-002 We are concerned with prospective impacts of the Buildup on several TCPs on Guam, particularly those impacted by the Marine Corps Relocation. The Draft EIS concludes that there would be a "less than significant" impact to all cultural sites, a statement that is not supported by the analysis. (Vol VII; 3-41). Further, we believe the Draft EIS fails to consider a reasonable range of alternatives to avoid these impacts. The National Trust is particularly concerned about the effects of these procedural deficiencies on the following cultural resources:

A-006-003 1) Tarague Historic District and Jinapsan Complex (Anderson AFB)

The Draft EIS indicates that the Tarague Historic District and Jinapsan Complex are "eligible for listing on the [National Register of Historic Places]" as traditional cultural properties and are located on military property in the Anderson Air Force Base Region (Vol II; 12-9). However, the Draft EIS omits any further information on how these sites will be impacted by future military activities. Under Alternatives 1, 2, 3, and 8, development at Anderson would include the construction of an Air Combat Element Beddown Project, Air Embarkation project, new access roads, landing zones, and earth covered magazines. The Beddown Project, in particular, would disturb "100% of the area." (Vol II; 12-35). Additionally, future operations at Anderson include increased personnel in the area that "could increase site vandalism," and additional traffic from aviation activities. (Vol II; 12-35). We note that all alternatives would have the same impact with the exception of the "no action" alternative.

The analysis of impacts of the Buildup on cultural resources at Anderson AFB is woefully inadequate. It lacks any discussion of the prospective impacts to these two significant TCPs and suggests no mitigation measures. By excluding further analysis of the impacts to these TCPs, the Draft EIS precludes meaningful public disclosure, review, and comment.

A-006-004 2) Finegayan Sites and TCPs: Haputo Beach, Pugua Point and Latte Stone Park

The area known as Finegayan in the northeast corner of Guam contains densely concentrated cultural resources. Among them are three TCPs and 28 archaeological sites eligible for the National Register. The Draft EIS indicates that Finegayan would undergo major changes during the Marine Corps Relocation, including construction of the main cantonment, family housing, and community support facilities. Additional impacts will occur from the development of infrastructure at Finegayan for a U.S. Army Air and Missile Defense Task Force. The Draft EIS indicates that the increase in personnel could, in turn, increase site vandalism "especially to sites such as Haputo on the coast and Latte Stone Park" (Vol II; 12-37). Additionally, development will result in

A-006-003

Thank you for your comment. Section 12.2 of Volume 2 of the DEIS discusses impacts to cultural resources from the proposed action on Andersen AFB. Areas of the Tarague Historic District and the Jinapsan Complex are included on the probability maps in Figure 12.2-1. Projects associated with the Marine Relocation are also depicted on this figure. The ACE Beddown is located to the southeast of the Tarague area, and there would be no impacts to this TCP from the project. Although there would be increase traffic in certain areas, Andersen AFB has restricted access, which would reduce the likelihood of vandalism along the coastal areas. And, even though air traffic would increase with the Marine Relocation at Andersen AFB, it is an existing airfield. Noise level associated with the airfield training on Andersen AFB would not increase perceptibly at Tarague. It would increase from 57 dB DNL at Jinapsan to 62 dB DNL; however these changes are within historic levels considering the proximity to Northwest Field.

A-006-004

Thank you for your comment. Early identification, consultation, and predictive modeling resulted in much fewer sites directly impacted by designing installations away from or around areas that contained high densities of historic properties. Thus, the vast majority of impacts to resources were avoided as part of the initial design process. In particular, all alternatives for the Main Cantonment were sited along the limestone plateau and avoided the coastal areas where Haputo and Pugua are located. In addition, planners sited locations of facilities so that Latte Stone Park would not be affected by construction. The intent was to avoid impacts to cultural resources during the early planning stages. As a result, a total of 27 National Register eligible sites would be disturbed as part of the construction on Guam; however, none of these are burial sites or intact latte sites.

A-006-004 the loss of an unspecified number of *dukduk* trees, a traditional resource used for making canoes.

The alternatives analysis in the Draft EIS does not clearly indicate the differences among alternatives in impacts to cultural resources at Finegayan. All alternatives, with the exception of the "no action" alternative, locate a substantial portion of the main cantonment in this area. The differences in alternatives appear premised only on where to locate another portion of the main cantonment, not on limiting impacts to historic properties. We have serious concerns that the Draft EIS does not seriously consider ways to avoid impacts to cultural resources in this area.

A-006-005 3) Pagat Site and Marbo Cave (Non-DoD Land)

The Pagat Site is an ancient Chamorro village in the district of Pagat, where a Spanish church was built in 1672. It contains at least 20 *lattes* (foundations of ancient homes) more than 50 mounds of artifacts and midden, remnants of trails, mortars and grinding areas, caves and rock shelters. It is listed on the National Register as a TCP. A recent study found that at least three other National Register-eligible sites are located in the near vicinity of Pagat. The area is actively used and visited by the Chamorro people.

Draft EIS alternatives 1, 2, 3, and 8 all include a new live fire range complex to the east of Route 15 that would have significant impacts on Pagat. Specifically, five ranges and a grenade house would be located approximately a half mile from the frequently used area. Construction of the complex would result in severely restricted access to the public. The Draft EIS does not specify how often the Pagat site will be available for public visitation, if at all. With the exception of the no action alternative, all alternatives identified in the Draft EIS would result in the same loss of access.

The Pagat site is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of the Chamorro people. Therefore, restricting access to the site would have a profound impact on the ability of that community engage in its practices and beliefs. This impact is not acknowledged in the Draft EIS. Instead, the Draft EIS contains the misleading conclusion that cutting off public access "would have a beneficial impact to the sites" because it would "reduce the incidence of vandalism." (Vol II; 12-43). The Draft EIS further concludes that the preparation of a preservation plan and public education will reduce impacts to "less than significant." This analysis reflects a grave misunderstanding of the nature of TCPs. Continued access to places like Pagat is essential for the site to retain its integrity. Any loss of access caused by military operations is a significant impact.

A-006-005

Thank you for your comment. DoD understands the importance of the cultural and historic issues related with land in Guam, and in particular those associated with the Pagat site, which is listed on the National Register of Historic Places. As stated in the DEIS in Section 12.2, no direct disturbance to the Pagat site would occur from the construction or operation of the proposed firing range. Because of a drop of 300 feet in elevation from the plateau containing the firing range to the Pagat site on the coast, there would not be a visual impact to the site. Noise would be equivalent to existing levels from the raceway when it is in use. It is the intent during the final design phase to contain all rounds and effects within the footprint of the range through the use of berms and other media.

A preservation plan would be updated to protect and guide the stewardship of this resource. DoD would work with stakeholders to develop plans for access that balance operational needs, public safety concerns, and continuing public access to the area.

Additionally, the analysis of impacts to Pagat is insufficient as it lacks any quantitative measures to determine the extent of the impacts to cultural resources. The Draft EIS omits any information related to the frequency of the live fire training, the noise and visual impacts of the training, or information about security measures that is necessary for the public to understand the nature of the impact to Pagat and neighboring cultural properties. New fencing and signage in the area, for instance, could alter the setting of the property and significantly change the character of the sites.

The Draft EIS also omits any information as to the prospective physical harm the live fire training may have on the resources in and around Pagat. Since the firing ranges face east—towards the cultural sites—there may be potential damage caused by misfires or ricocheting bullets. Further, the Draft EIS does not contain any analysis of the impacts from cleanup of bullets in the area. The statement that “only 1 in 10,000 rounds falls outside the target impact area” does not allay our concerns, because there is no context for how many rounds will be fired per year or where stray bullets will land. (Vol VII; 3-41).

The Draft EIS Does Not Discuss Mitigation Measures in Sufficient Detail

The Draft EIS indicates that adverse impacts to four TCPs will be “mitigated to less than significant through public education and implementation of a preservation plan.” (Vol VII; 3-41). We disagree with this conclusion because the mitigation proposed is simply inadequate to reduce effects to less than significant. As explained above, a TCP will lose a key quality of its significance when access is restricted. It is simply improper to argue that a TCP will not be affected when the public is unable to access the site. Additionally, public education alone cannot fully mitigate for the increased vandalism and looting that is projected to occur at important Chamorro sites. While education and planning is laudable, it cannot reduce impacts to less than significant.

NEPA requires the agency to discuss mitigation measures with “sufficient detail to ensure that environmental consequences have been fairly evaluated.” Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 352 (1989).¹ In fact, the Supreme Court

¹ See also S. Fork Band Council of W. Shoshone v. United States DOI 588 F.3d 718, 727 (9th Cir. 2009) (holding that an essential component of a reasonably complete mitigation discussion is an assessment of whether the proposed mitigation measures can be effective). Compare Neighbors of Cuddy Mountain v. U.S. Forest Serv., 137 F.3d 1372, 1381 (9th Cir. 1998) (disapproving an EIS that lacked such an assessment) with Okanogan Highlands Alliance v. Williams, 236 F.3d 468, 477 (9th

A-006-005 has required a mitigation discussion precisely for the purpose of evaluating whether anticipated environmental impacts can be avoided. Id., 490 U.S. at 351-52 (citing 42 U.S.C. § 4332(2)(C)(ii)). A mitigation discussion without at least *some* evaluation of effectiveness is useless in making that determination. However, instead of including such a discussion in the Draft EIS, the DoD provides a litany of excuses for not proposing mitigation. In one egregious example, when discussing the potential for added burdens on the Guam State Historic Preservation Office (SHPO), the Draft EIS states:

in the long run there would be a far lessened burden on SHPO with the preferred alternatives as the [Department of Defense (DoD)] would continue to manage large tracts of land on Guam and afford the culture [sic] resources on those lands a higher level of protection than if they were not under DoD protection.

(Vol VII; 3-42). This conclusion ignores several crucial facts. Far from being relieved of future burdens, the Guam SHPO will have review authority over all future DoD activities affecting properties eligible for or listed in the National Register pursuant to the National Historic Preservation Act. See 36 C.F.R. § 800.2(c)(1) (requiring SHPO consultation over federal undertakings that may affect historic properties). Additionally, the arrival of tens of thousands of military service members, their families, and others in DoD controlled areas makes it more likely than not that sensitive cultural sites will be exposed to looting and vandalism, as acknowledged elsewhere in the Draft EIS. As a result of this misstatement, no serious consideration is given to providing the SHPO with added personnel, which we believe would be an appropriate type of mitigation measure.

Further, it is inaccurate to simply assume that sensitive cultural resource sites will be better protected by the DoD than any other public or private owner. In our experience working with various DoD agencies, mission needs are commonly given the first priority in project planning. This is not necessarily true with land management agencies, non-profit institutions, or even private owners that may steward sites without these competing goals. The assumption that sites will be better protected by the DoD appears to be intended to dismiss the need to discuss actual mitigation measures in the Draft EIS.

Cir. 2000) (upholding an EIS where "[e]ach mitigating process was evaluated separately and given an effectiveness rating").

A-006-006

The Draft EIS Fails to Consider a Reasonable Range of Alternatives

The Draft EIS fails to analyze a reasonable range of alternatives, including alternatives that would not destroy, alter, or impair historic properties and landscapes listed in or eligible for the National Register. NEPA requires federal agencies to analyze a reasonable range of alternatives, including alternatives not within the agency's jurisdiction. 40 C.F.R. §§ 1502.14(a),(c). Pursuant to the Council on Environmental Quality's (CEQ) regulations implementing NEPA, the development and analysis of alternatives is the "heart of the environmental impact statement." See *id.* The purpose of the NEPA alternatives requirement is to prevent the environmental analysis from becoming a "foreordained formality." *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 196 (D.C. Cir. 1991), citing *City of New York v. Dep't of Transp.*, 715 F.2d 731, 743 (2d Cir. 1983).

With the exception of the "no action" alternative, the Draft EIS does not evaluate any alternatives that would avoid impacts to cultural resources, particularly those at Pagat. Because the development and analysis of alternatives is the "heart of the environmental impact statement," a failure to propose more than one technically viable alternative raises considerable questions about the adequacy of the Draft EIS.

The failure to consider alternatives that protect cultural resources also prejudices review under the National Historic Preservation Act whereby the DoD must seek ways to avoid adverse effects to historic properties. NHPA regulations state that "the goal of consultation is to identify historic properties potentially affected by the undertaking, assess its effects and seek ways to avoid, minimize or mitigate any adverse effects on historic properties. 36 CFR § 800.1(a). Consultation to resolve these impacts becomes much less meaningful when prospective alternatives are eliminated from consideration because they were not discussed concurrently during NEPA review.

A-006-007

Need for Supplemental Analysis

The NEPA regulations state that a supplemental analysis is required in the event "there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." 40 CFR § 1502.9(c)(1)(ii). In a series of public meetings post-dating publication of the Draft EIS, the people of Guam have expressed widespread interest in the cumulative impacts to Chamorro heritage and identity associated with the massive projected population increase on the island. These meetings have produced significant new information about the public's primary concerns and the nature of the impacts that were not available when the Draft EIS was

A-006-006

Thank you for your comment. The DEIS describes the intensive selection process that the DoD went through to select alternatives for all aspects of the Proposed Action in Section 2.1.2. The alternatives selection process for the location of the firing range on Guam is discussed in Section 2.3.1. First, planners examined all DoD lands on Guam. Because of the size of the firing ranges and the need to include all safety zones as part of the acquired lands, or conflicts with existing land uses (housing, Won Pat International Airport), the firing range could not be placed on DoD lands. Other locations on non DoD lands were eliminated because of topography or settlements. During this entire process, the results of archaeological surveys, consultation with the Guam SHPO, and predictive modeling resulted in many fewer sites directly impacted by designing installations away from or around areas that contained high densities of historic properties. Thus, the vast majority of impacts to resources were avoided. DoD will continue to work very closely with the Guam SHPO and other consulting parties to mitigate any adverse effects to cultural resources and to provide information necessary to protect historically important archaeological sites.

A-006-007

Thank you for your comment. Through the process of public involvement that has accompanied this proposed action, the Chamorro people of Guam have voiced clearly and concisely their concern that the traditional Chamorro culture, including dance, language and traditions, will be forgotten. While population increases can highlight cultural differences, they also present unique opportunities for cultural learning and sharing. The DoD plans for cultural sensitivity orientation and awareness programs will focus on mutual respect and tolerance and strive to educate all incoming and currently present military personnel on the rich and varied cultural history that has created the culture that is Guam today. In terms of cultural and historical sites, every effort is being made to leave sites undisturbed. It has also been noted that DoD should work

A-006-007 published. In addition, the Guam Preservation Trust has submitted a nomination to list Guam's cultural properties impacted by the Buildup on the National Trust's 2010 list of America's 11 Most Endangered Places. Given this new information and the significant shortfalls in the current Draft EIS, we believe a supplemental analysis of alternatives and mitigation measures more protective of cultural resources is required.

A-006-008 Limitation on Public Comment

Finally, we have serious concerns that no email address was provided in the Draft EIS so the public could conveniently provide comment. We believe that by requiring all comments on the Draft EIS to be mailed via US Mail to the Joint Guam Program Office, the DoD has limited the amount of public input it would have otherwise received on the Draft EIS had email been an acceptable form of receipt. We consider this limitation to be inexcusable given that email is the most common and most convenient form of communication and is standard procedure in today's NEPA process. The Navy's regulations implementing NEPA, for instance, recommend that "commands proposing an action develop a plan to ensure appropriate communication with affected and interested parties." 32 CFR § 775.11. We do not believe the spirit of this regulation was followed in this case.

A-006-009 Conclusion

In conclusion, the National Trust believes the DoD should supplement the Draft EIS to correct the serious deficiencies in its analysis of the impact of the Buildup on Guam's sensitive cultural resources. If you have any questions or concerns, please contact me at 415.947.0692 or brian_turner@nthp.org.

Sincerely,

Brian R. Turner
Regional Attorney, Western Office

Cc: The Honorable Felix P. Camacho, Governor of Guam
Louise Brodnitz, ACHP
John Fowler, ACHP
David Louter, NPS
Lynda B. Aguon, Guam SHPO
Joe Quinata, Guam Preservation Trust
Tom King

closely with the Guam Museum to respectfully manage important Chamorro artifacts so that the current population of Guam can learn from them. Finally, the DoD plans to increase military civilian joint activities in order to foster strong and mutually beneficial military civilian relationships that include the sharing and understanding of culture. Given these mitigations and practices, a supplemental NEPA document is not warranted.

A-006-008

Thank you for your comment. The public was able to provide comments both in hand written form and electronically. DoD provided a form on the project website where people could easily leave their comments without the limitation of having an email account. All the websites of the local papers had links directly to the comment form for the duration of the public comment period. People were also able to give verbal testimony at any of 6 public hearings, submit written comments at public hearings, and mail their written comments. Overall, the DoD provided ample opportunity for the public to comment on this project.

A-006-009

Thank you for your comment. The DoD conducted archaeological surveys of over 5,000 acres of areas that could be disturbed as part of the Marine Relocation. DoD also conducted studies of traditional cultural properties on Guam and the CNMI, as well as archival studies and oral histories. This early identification and consultation with the SHPO from Guam and the CNMI resulted in many fewer resources being directly impacted by designing installations away from or around areas that contained high densities of historic properties. Thus, the vast majority of impacts to resources were avoided and a supplemental document is not needed. DoD will continue to work very closely with the Guam and CNMI SHPOs to mitigate any adverse effects to cultural resources and to provide information necessary to protect historically important archaeological sites.



Preserving America's Heritage

February 23, 2010

Mr. Darrell Molzan
Joint Guam Program Office, c/o Naval Facilities Engineering Command
258 Makalapa Drive, Suite 1000
Pearl Harbor, Hawaii 96860-3134

ATTN: GPMO

REF: *Proposed Guam Build-up
Guam and Commonwealth of the Northern Mariana Islands*

Dear Mr. Molzan:

Thank you for affording the Advisory Council on Historic Preservation the opportunity to review the DEIS/OEIS for the Guam Build-up provided to our office on November 20, 2009. We appreciate the work involved in evaluating this action under the National Environmental Policy Act.

Attached please find our comments on the DEIS/OEIS for the Guam Build-up. The document involves multiple federal activities and includes numerous activities undertaken by non-federal entities specifically supporting the Build-up. We note that these proposed actions have been evaluated at a level of generality through the NEPA process that does not allow for resolution of specific adverse effects in accordance with the National Historic Preservation Act (NHPA); thus, the Programmatic Agreement that is being developed to satisfy the requirements of Section 106 of the NHPA concurrent with the EIS will lay out procedures for consulting regarding individual Section 106 undertakings within the Build-up.

While the DEIS/OEIS identifies mitigation measures that the Joint Guam Program Office believes will reduce the majority of significant adverse impacts from the Build-up Activities to "less than significant", we believe that avoidance measures have not been fully evaluated. To the extent possible, we urge that reasonable alternatives to avoid or minimize adverse effects on historic properties not be precluded prior to individual Section 106 consultations. In addition, we believe that a range of effective mitigation measures not yet identified in the DEIS/OEIS may merit consideration, given the loss to the cultural heritage of Guam and CNMI that the Build-up entails. Finally, we hope that the review burden placed on the State Historic Preservation Offices by the enormous breadth and scale of these activities be fully acknowledged and considered in project planning.

ADVISORY COUNCIL ON HISTORIC PRESERVATION

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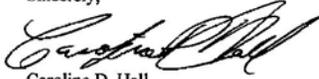
A-007-001

Thank you for your comment. Early identification, consultation, and predictive modeling resulted in many fewer sites being directly impacted by designing installations away from or around areas that contained high densities of historic properties. Thus, the vast majority of impacts to resources were avoided. DoD will continue to work very closely with the Guam SHPO and other consulting parties to avoid, minimize, and/or mitigate adverse effects to cultural resources and to provide information necessary to protect historically important archaeological sites. The Programmatic Agreement helps the GHPO with staffing issues by streamlining the Section 106 process so that extraneous review in areas where there are no historic properties and for projects that do not affect historic properties have already been consulted upon. Therefore, the Guam SHPO can concentrate their efforts on specific projects which may have an effect on historic properties.

A-007-001

If you have any questions or would like to discuss this further, please contact Louise D. Brodnitz at 202-606-8527 or via e-mail at lbrodnitz@achp.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Caroline D. Hall". The signature is fluid and cursive, with the first name "Caroline" being the most prominent part.

Caroline D. Hall
Assistant Director
Office of Federal Agency Programs

Enclosure

Vol	Chap	Page	Paragraph	Issue	Comment	
A-007-002	2	12-1	12.1.1.1		"Other sites or structures are important": replace "eligible for listing on the National Register of Historic Places(NRHP)" Instead of "Important".	
	2	12-1	12.1.1.1		"Determination of significance is made in consultation with the Guam Historic Preservation Officer (HPO)": add "along with consulting parties as per Section 106 of NHPA."	
	2		12.1.1.1		"This approach is in accordance with the Secretary of the Navy's Instruction 4000.35A": applies to Marine Corps?	
	2		12.1.1.1		NHPA also includes responsibilities for stewardship, per Section 110 of NHPA	
	2	12-2	12.1.1.1		"both the Advisory Council for Historic Preservation and the Secretary of the Interior are consulted if any adverse effects are likely to occur to such resources": change "are likely to" to "may"	
	All		12-2	12.1.1.1		"Federal agencies are required to comply with federal laws, which supersede local laws; however, such compliance would meet local historic preservation goals." This plainly cannot be asserted. The loss of control over lands owned or leased by the federal government will have a great many impacts which do not meet local historic preservation goals (loss of control over disposition of artifacts unearthed by construction to name just one.)
	All		12-2	12.1.1.2 and wherever this text occurs in DEIS		"The ROI for cultural resources is synonymous with the Area of Potential Effect": This is not the case. The APE is developed through the consultation process of Section 106, the ROI is not.
	2	12-3	12.1.1.3			"Impact areas": should be designated ROI for consistency?
	2	12-4	12.1.1.3			Last sentence of Early Settlement: Pre-Latte Period "doubts" should be corrected to read "droughts"
	2		12.1.1.3		Federal Protections	Explain the extent to which lands on Guam/CNMI, whether federal lands, lands leased by the federal government,, state-owned land or private lands are protected under ARPA, NAGPRA, and other cultural resource laws.

A-007-002

Thank you for your comments. Changes to the text will be made as requested or clarified. ROI will be defined as areas of direct and indirect impacts. These may include building footprints or areas adjacent to construction or occupation.

A-007-003

Vol	Chap	Page	Paragraph	Issue	Comment
All		12-15 and where occurs	12.1.1.3 and wherever the term APE is used in the DEIS		"There are no NRHP-eligible or listed architectural resources in ... APE": An APE is concurred upon within a Section 106 consultation for a particular undertaking. Consultation on these individual undertakings has not occurred. Substitute the term "ROI".
	2	12-22	12.1.4.2		Text and matrix don't match. Example: three NHRP-listed properties are shown "eligible" on chart.
	2	12-33	12.2.1.2		"Regional ICRMP for Navy property in Guam has established standard operating procedures for protecting known NRHP-eligible or listed cultural resources": within what area? Seems like there would be procedural differences between owned vs. leased land. And do Navy procedures cover Marine Corps property?
All		12-33 and where occurs	12.2.1.2 and anywhere this text occurs throughout DEIS		"DoD would ensure...before the project is completed or prior to the initiation of any part of the project with the potential to impact historic properties": First, regarding the PA, the term is "affect". Second, ID and evaluation of historic properties within the APE must happen during Section 106 consultation prior to authorization for any part of the project to proceed; ensure alternatives to avoid or minimize adverse effects are not precluded.
All		12-33 and where occurs	12.2.1.2 and anywhere this text occurs throughout DEIS		"...when data is easily obtainable without having to demolish existing facilities or infrastructure." It's possible that destructive testing could be agreed upon, including where demolition is part of the undertaking.
	2	12-34	12.2.1.3		Issues Identified During Public Scoping Process: Disposition of artifacts off-island or outside of Guam Museum was an identified issue, as was lack of storage space in Guam Museum.

A-007-003

Thank you for your comment. The Area of Potential Effects in the DEIS is defined as the impact area and includes areas with proposed ground disturbance, as well as areas that could be subject to increase vandalism. Previous consultation with the Guam State Historic Preservation Officer (SHPO) and the CNMI Historic Preservation Officer have identified these areas as the APE.

Inconsistency between the text and table have been resolved.

The Regional ICRMPs are for Navy lands on Guam. Currently there are no leased lands on Guam, however, Regional ICRMPs for Tinian, which is leased lands has Standard Operating Procedures that protect historic properties and comply with the National Historic Preservation Act.

"Impact" has been changed to "affect" in this sentence. In accordance with the Programmatic Agreement, the area would be surveyed and a work plan would be approved by the appropriate SHPO prior to the initiation of the construction.

Where there is potential for buried deposits, monitoring would occur to identify subsurface remains once demolition has occurred.

A-007-004

Vol	Chap	Page	Paragraph	Issue	Comment
All		12-35 and where occurs	12.2.2.1 and anywhere this text occurs throughout DEIS		The terms "adverse" "Adverse impact" "adversely affect" and "adversely impact" are used interchangeably throughout the document. "Adverse effect" is determined within a Section 106 consultation and thus is not likely the appropriate term for assertions regarding Impacts within the DEIS.
All		Throughout document (example is p. 12-35 and 12-63)	12.2.2.1 and wherever impacts are discussed within the text as well as in a matrix.		It is inappropriately difficult to cross-check between assertions within the text vs. within the matrix summary of impacts. First, the terminology for the separate projects are different. Example, where the text refers to "Anderson AFB", the corresponding matrix column would seem to be "Main Cantonment North", but it is not clear at all.
All		Throughout document (example is p. 12-35 and 12-63)	12.2.2.1 and wherever impacts are discussed within the text as well as in a matrix.		Non-concur. The matrices regarding impacts (p. 12-63 for example) seem to routinely assert that identified adverse impacts will be mitigated to less-than-significant in every case (SI-M) even where the text within the spreadsheet does not. Even if mitigations were named in every case (which they currently are not), it is not correct or possible to assert that these impacts can be mitigated to less-than-significant when direct impacts from the projects will either destroy or damage the integrity of NRHP-listed or eligible properties.
2, 5		12-37	12.2.2.1		Merely avoiding site 811 (Latte Stone Park) would not eliminate impacts, as these could include change to the setting, increased vandalism etc.
2, 9		12-38	12.2.2.1		It would make sense to show Latte Stone Park on map.

A-007-004

Thank you for your comment. Terminology when discussing disturbance under NEPA have been referred to as "impacts." A detailed mitigation table has been added to Volume 9, Appendix G, Chapter 4, Cultural Resources, that indicates the area, site number, type of impact, and possible mitigation for all direct and indirect impacts in the EIS. Indirect impacts relating to vandalism to Latte Stone Park were discussed in the DEIS in section 12.2 of Volume 2. Almost all impacts to NRHP-eligible resources are to those eligible under Criterion D (containing information important to prehistory or history). In these cases, data recovery can reduce the significant impact to less than significant by extracting that information.

A-007-005

All	Where occurs (examples 12-39, 12-48)	Where occurs in DEIS (examples 12.2.2.1, 12.2.2.5)	"surface recording and subsurface testing of prehistoric sites...conducted during survey is considered adequate mitigation of these adverse effects." Construction has the potential to disturb previously unrecorded archaeological sites within medium and high probability areas. These are not mitigated. Use of the term adverse effects implies a Section 106 process has occurred for the particular project and so is inaccurate.
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A-007-005

Thank you for your comment. The Programmatic Agreement, which stipulates mitigation measures to reduce impacts to historic properties, has provisions for monitoring during construction as well as conducting additional surveys, testing and data recovery from archaeological sites.

Vol	Chap	Page	Paragraph	Issue	Comment
A-007-006	2	12-41	"Operation"		"Reduction in public access could be perceived...": use "has been perceived"
A-007-007					"These sites would not be affected by cleanup activities associated with the operations at the range because the sites are located outside of any potential impact areas". Please clarify: there is some chance (1 in 10,000) that ordinance would land outside the target impact area and on the Paget site. Would this have a chance of impacting the site? How many of these off-target area rounds would occur per year according to this ratio? Would there be a need for cleanup of these (albeit rare) off-target rounds? If yes, that would have an adverse impact. If no, would that pose a danger to the public during allowed access or would the possibility of ordinance on the ground make it unsafe for public access at any time? Are the rounds live and dangerous to step on? Would the existence of bullets on the ground attract bullet-hunters who would damage the resources by foot traffic?
A-007-008	2	12-41	"Operation"		Would the dredging material placement impact any cultural resources? Do not use the term APE - the APE is defined within a public consultation. Use ROI.
		12-43 and where occurs	Throughout (example: 12.2.2.3)		Even where no demolition of existing buildings would take place, there may be construction or renovation that could impact historic properties.
All		Impact maps	Throughout		Show installation boundaries. Show lease boundaries. Clearly identify any projects that occur outside of these boundaries.
All					Discuss loss of tourism to potential cultural sites as economic impact.

A-007-006

Thank you for your comment. The text has been changed as suggested.

A-007-007

Thank you for your comment. DoD understands and recognizes the significance of cultural and recreational sites located on DoD property in Guam. Restricting access to certain DoD areas at certain times is required to maintain public safety. It is the intent of DoD to maintain public access to DoD lands that contain cultural sites consistent with safety and operational requirements. Access will be granted at approved times such as when the lands are not being used for military training. Final plans concerning access to sites potentially impacted by the proposed action have not been developed. DoD looks forward to working with stakeholders to develop plans for cultural stewardship and access that balances operational needs, public safety concerns, and the continuing public use and enjoyment of these sites.

A-007-008

Thank you for your comment. As discussed in the DEIS in section 12.2 of Volume 2, the dredged material would not impact any NRHP-listed or eligible cultural resources. Impacts to resources from construction and renovation of structures are analyzed in the DEIS. Installation boundaries and areas of land acquisition are discussed in Chapter 2 of the DEIS.

	Voi	Chap	Page	Paragraph	Issue	Comment
A-007-009	All					There is only a single alternative offered in many cases. This is disingenuous and non-compliant with NEPA. Every alternative considered at all must be mentioned, with a short paragraph showing why they were removed from further consideration. The EIS is marked by a lack of appropriate consideration of alternatives and discussion of why those rejected were rejected, or detailed evaluation of the merits of those alternatives that were further studied.
A-007-010	All			Throughout		*Alternative...would have significant adverse impacts to cultural resources. However, with implementation of the proposed mitigation measures listed below and in accordance with the PA for this EIS/OEIS, these impacts would be resolved through consultation." The problem with this assertion is that sites have been selected within the EIS process without sufficient evaluation of full range of alternatives that would meet the purpose and need including some which have been ruled out due to the cost of acquiring properties which would have fewer impacts on historic properties. The corresponding consideration of alternatives within the PA to avoid or minimize adverse effects through consultation has not occurred, and available mitigation options have been limited by DoD.
A-007-011	All		Example: 12-63 to 12-64	Example: Tables 12.2-1 to 12.2-4	Mitigation Matrices	The conclusions in these matrices do not consistently correspond to text portions of the chapter.

A-007-009

Thank you for your comments. The action proponent must consider a reasonable range of alternatives based upon the purpose and need for the proposed action. NEPA does not require consideration of every alternative but only a reasonable range of alternatives.

Reasonable ranges of alternatives were developed for the proposed actions. For example, Figure 1.2-1 of Volume 2 depicts each of the proposed actions and the associated reasonable alternatives. Each alternative is different from the other. In cases where only one action alternative is available that meets the purpose and need, it is permissible to bring it forward for consideration since the no action alternative is also available.

The comment regarding the lack of alternatives and analysis infers that the action proponent should have broken up each alternative into many smaller alternatives. The EIS does provide alternatives and analyses for a reasonable range of alternatives. Each of the existing alternatives contain sufficient diversity of actions to allow for a reasonable range of alternatives for consideration without breaking up the alternatives into many smaller alternatives.

A-007-010

Thank you for your comment. The DEIS describes the intensive selection process that the DoD went through to select alternatives for all aspects of the Proposed Action in Section 2.1.2. Other locations on non DoD lands were eliminated because of topography or settlements. During this entire process, the results of historic property surveys, consultation with the Guam SHPO and other stakeholders, and predictive modeling resulted in many fewer sites directly impacted by designing installations away from or around areas that contained high densities of historic

A-007-012					This matrix does not address mitigation measures considered but dismissed. These would include: Enlarge storage facilities at Guam Museum to accommodate artifacts unearthed by the DoD projects; provide staffing assistance to SHPOs to manage dramatic increase in review requirements; provide resources/space to SHPOs for needed additional reviews (both due to direct and indirect activities under the Guam Buildup); realign control of underground artifacts found on federal land; treat unearthed human remains as if NAGPRA applied to Guam/CNMI, create artifact storage facility on Tinian, replica of House of Tags, etc.
All		Example: Vol. 2, 12-65	Example: Vol. 2, Table 12.2-6	Mitigation Matrices	
All		Example: Vol. 2, 12-65	Example: Vol. 2, Table 12.2-6	Mitigation Matrices	The mitigation matrix does not include many of the mitigations stated elsewhere in the DEIS/OEIS, such as updating ICRMP, making certain kinds of wood available to the public,
All				Significance	Few archaeological and architectural resources show evidence of the area's status as a colony of Spain and Germany. Thus, those that exist should be elevated in significance due to rarity.

properties. Thus, the vast majority of impacts to resources were avoided. DoD will continue to work very closely with the Guam SHPO and other consulting parties to mitigate any adverse effects to cultural resources and to provide information necessary to protect historically important archaeological sites.

A-007-011

Thank you for your comment. The tables of mitigation measures and BMPs in Volume 7 have been modified based on revisions to Volumes 2 through 6 and have been reviewed for consistency with the other volumes prior to finalization of the EIS.

A-007-012

Thank you for your comment. The DEIS does not list mitigations considered but dismissed. It does include potential mitigations considered by the Marine Corps. Mitigation measures that will be implemented by the DoD will be in the Record of Decision.

If archaeological sites date to the Spanish period and have integrity, they would be considered eligible for the National Register of Historic Places.

Vol	Chap	Page	Paragraph	Issue	Comment
A-007-013	3	12-14	Figure 12.2-1		Map would be more useful if important features were indicated: Broadway, 8th Avenue, Control points for public access, Interpretive trail mentioned on p. 12-9
	2, 3	12-15 to 12-16	12.2.1.3		The list is identical to that of Guam, yet the public comments/issues were quite different. Some comments were excluded from this list: Access to memorials and shrines, access to places where cultural ceremonies are held, concern about where unearthed artifacts would be stored, concern about effects to tourism from reduced access, etc. The nature of public concerns is quite different from island to island.
			12.2.2.1 and 12.2.3.3		Public comment requested that Churo Village be instead called "Old Village"
	3				Use of "light training" and "limited training" used interchangeably. Need to use consistent terminology.
	3	12-17	12.2.2.1		What is the impact on access and on historic properties of the stray rounds (1 in 10,000) that fall outside the target impact area? How many rounds per year are fired?
	3	12-17	12.2.2.1		Will there be cleanup within the target area of rounds that land in the water? Will that cleanup or lack thereof have any impacts?
	3	12-20	12.2.2.1		"Therefore access restrictions would be less than significant": Access would still be impacted, as the security measures would impose increased complication and time involved in the access.
	All				Request that symbol keys on all archaeological probability maps throughout use consistent symbols/terminology
	7	3-42	3.3.11.2		No action alternative would also avoid significant off-installation (private) impacts would be avoided.

A-007-013

Thank you for your comment. Changes were made in section 12.2 of Volume 3 in the following items: maps were updated with roads and symbols made consistent, Churo Village was also referred to as "Old Village", and public comments were updated with inputs from the most recent public meetings. Access to areas in northern Tinian would not be restricted or delayed. Control points would be manned only to prevent people from going on to ranges when they are in use. These control points would not prevent access to the North Field National Historic Landmark. Impacts from stray rounds would be restricted to the ranges. Impacts from ricochet munitions would be minimal, especially when compared to agricultural use of the area today. Stray munitions are unlikely to land in the water.

Under the no action alternative, off installation construction may be reduced. However, some construction and development would still occur as has occurred in the recent past through the tourism industry.

A-007-014

					"DoD would continue to manage large tracts of land on Guam and afford the culture [sic] resources on those lands a higher level of protection than if they were not under DoD protection.": There is a problem with this logic; higher level of protection due to applicability of federal laws but higher level of damage to historic properties due to ongoing activities. As noted under no-action, local laws protect cultural resources. It is not clear that federal management is superior or better-funded than local government management.
7		3-42	3.3.11.1		
All					Disposal locations for asbestos and lead paint materials must be re
Vol	Chap	Page	Paragraph	Issue	Comment
All					Information about plans for worker housing is insufficient.
					"During operation, there would continue to be some vandalism and deterioration by weather": include "and plant overgrowth of above-ground features".
7		3-42	3.3.11.3		
					"but overall the impact to cultural resources on DoD land would be less than significant due to a high level of protection and site management." Damage or loss to the characteristics that make a historic property significant are by definition adverse effects. Protection and site management after that loss are minimal relative to resource loss.
7		3-42	3.3.11.2		
					"but the assessment assumes the mitigation concludes with the construction phase": Cultural resources training and public education must be ongoing. Continued public access to certain sites must be ongoing. Monitoring must be ongoing. Updating of ICRMP due to discoveries must be ongoing. Thus, operational impacts to cultural properties are significant but mitigable, not "no impact".
7		3-41 and 3-42	3.3.11.2 and Table 3.3-29		

A-007-014

Thank you for your comment. Federal management does afford more protection for cultural resources than local laws. For sites not directly impacted by construction or other ground disturbing activities, long term federal management requires us to protect and maintain historic properties or if there are any effects to try and minimize or mitigate them in the future. The impact from vegetation growth has been added to the FEIS. Public education and site protection for sites that may be indirectly affected by operations would be an on-going activity. Disposal of lead based paint and asbestos containing materials are in accordance with federal regulations and would be handled through an existing facility on base.

A-007-015	7	3-42	3.3.11.2 and 3.3.11.3	"In the absence of the preferred alternative, there is a potential for significant but mitigable impact on cultural resources. The cultural resources would continue to decline in the future": Add that under No Action Alternative, the public will have access to all cultural resources as they do now, and under no action, the public will retain control of artifacts and buried remains
	7	3-42	3.3.11.3	Under the preferred alternative, Installation commanders would control curation and disposition of all artifacts on lands for which DoD takes title under this action. Thus every three years a new commander will decide on treatment and storage locations for artifacts regardless of statutory requirements and the public interest.
	7	3-42	3.3.11.1 and 3.3.11.3	Non concur. The mitigation of documentation and curation does not bring the loss of cultural sites to less than significant. It is a significant loss, particularly on a cumulative basis.
A-007-016	All			Are there any projects associated with the Build-up funded or permitted exclusively by foreign governments? If so, are these projects exempt from compliance with NEPA/NHPA?
A-007-017	All			Insufficient information on potential impacts of upland placement sites of dredge material on land to cultural resources fill of berms in new military ranges.

A-007-015

Thank you for your comment. Under the No Action Alternative, the public would continue to have access to the Pagat site and Marbo Cave has been added to the FEIS. Installation commanders must comply with federal regulations and with stipulations in agreements on curation of artifacts. Impacts to sites that are eligible under Criterion D can be mitigated through data recovery to less than significant levels. In the majority of cases, these sites are small ceramic scatters. Other larger, more complex sites would be avoided and/or preserved through long term management plans.

A-007-016

Thank you for your comments. Foreign governments do not permit activities on U.S. soil. Funding has been received by foreign governments, however the proposed action on Guam is being proposed by a federal agency and therefore subject to NEPA and NHPA.

A-007-017

Thank you for your comment. Dredge materials would be used if possible to construct berms at the live fire ranges. These berms would be placed within the impact areas as depicted in Section 12.2 and analyzed in the DEIS.

	Vol	Chap	Page	Paragraph	Issue	Comment
A-007-018						"Special purpose entities will be formed to operate, manage, upgrade or develop utility plants and associated infrastructure such as collection or distribution systems." And, "The Navy will not exercise any authority or control over the SPEs but is committed to facilitate discussions between GOJ, the Special Purpose Entities (SPE) and Guam to focus SPE efforts on addressing utility impacts associated with the short-term construction work force and long term population growth": Formation and operation of SPE's which are intended to address the demands of the Build-up, is an undertaking of the federal government and thus subject to Section 106 review under NHPA. Specific projects undertaken by SPE's are subject to individual review. Compliance with NHPA is essential especially for short-range projects. Non-compliance with the NHPA of SPE's serving the Build-up is inconsistent with the intention if not the explicit requirement of the NHPA.
	All					
A-007-019						"Construction of the GRN is required to provide mission-critical transportation infrastructure as part of the planned construction, training, and operations associated with the Marines, Navy, and Army proposed actions." Improvements to and development of the Guam Road Network (GRN) related to enabling the Guam Build-up should be considered an undertaking of the federal government and thus subject to Section 106 review under NHPA. Specific projects on the GRN should be subject to individual review. Failure to comply with NHPA is inconsistent with the intention if not the explicit requirement of the NHPA.
	All					
A-007-020						3.1.1 Summary of Applicable Regulations to Protect Environmental Resources on Guam and Tinian: ALSO: CHAPTER 2. CONSISTENCY WITH OTHER FEDERAL, STATE, AND LOCAL LAND USE PLANS, POLICIES, AND CONTROLS: Why is NHPA not included? Also, NAGPRA, ARPA, ETC. If federal law is not applicable in Guam, should so state.
	All					

A-007-018

Thank you for your comment. DoD concurs with this comment and would ensure that SPE projects comply with the NHPA.

A-007-019

Thank you for your comment. FHWA/DPW is consulting with the Guam Historic Preservation Office under Section 106 of the National Historic Preservation Act for potential impacts from roadway projects. All projects will comply with NHPA.

A-007-020

Thank you for your comment. A discussion of these laws has been added to Volume 8.

A-007-021						Please identify the source of funding for the significant increase in responsibilities imposed upon the Guam and CNMI Historic Preservation Offices to support this project.
	All					Are any architectural features impacted by this project?
	All					

A-007-021

Thank you for your comment. The Programmatic Agreement helps the Guam and CNMI SHPOs with staffing issues by streamlining the Section 106 process so that extraneous review in areas where there are no historic properties and for projects that do not affect historic properties have already been consulted upon. Therefore, the Guam and CNMI SHPOs can concentrate their efforts on specific projects which may have an effect on historic properties.

No architectural resources would be adversely affected by the Proposed Action.



United States Department of the Interior

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Office of Environmental Policy and Compliance
Pacific Southwest Region
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IN REPLY REFER TO:
ER09/1197

17 February 2010

Kyle Fujimoto
JGPO c/o NAVFAC Pacific
258 Makalapa Drive, Suite 100
Pearl Harbor, HI 96860-3134
Attention: GPMO

Subject: Review of the Draft Environmental Impact Statement/Overseas Environmental Impact Statement (DEIS/OEIS) for the Guam and Commonwealth of the Northern Mariana Islands Military Relocation

Dear Mr. Fujimoto:

The Department of the Interior has received and reviewed the subject document and has the following comments to offer.

After review of subject DEIS, the Fish and Wildlife Service (FWS), the National Park Service (NPS) and the Office of Insular Affairs (OIA) have a number of specific comments and suggestions regarding both process and projects described in this document. Specific comments from each organization can be found in attached appendices:

- A-008-001** | Although the Department does not specifically oppose subject military relocation, we find an inadequate range of alternatives, and insufficient assessment of impacts to NPS and FWS lands and resources.
- A-008-002** | The Department recommends developing a more pragmatic Draft EIS/OEIS given the timeframes. The DEIS intends to be a “hybrid” document, wherein some projects are analyzed at a programmatic level, while other projects are analyzed with sufficient detail so construction can begin without further environmental planning. It is not clear which projects in the DEIS are intended to be programmatic and which are “construction ready.”
- A-008-003** | Furthermore, the analysis of impacts of various project elements in the DEIS often lacks data to support conclusions or conclusions appear to run counter to supporting data. No analysis appears to have been conducted on projects that may have additive effects to impacts of the proposed action. Lastly, the geographic scope of analysis for the entire project is erroneously considered separately for Guam and Tinian.
- A-008-004** |

A-008-001

Thank you for your comment. DoD continues to work cooperatively with the Department and its agencies in preparing the EIS for the proposed military relocation. The EIS includes adequate descriptions of alternatives and environmental impacts to provide decision makers and the public with sufficient information to understand the consequences of the proposed actions.

A-008-002

Thank you for your comment. An overview of site specific analysis vs. long-term projects is presented in Section 1.6 of Volume 1. A more detailed description is presented in the introduction of Chapter 2 for Volume 6. Additional changes to the document have been made to more specifically illustrate which projects are site-specific vs. long-term.

A-008-003

Thank you for your comment. Due to the complexity of the project, there are two parts of the cumulative impact analysis: the summary of impacts for all components of the proposed action (Volume 7 Chapter 3) and an assessment of the additive impacts of the proposed action in combination with other past, present and reasonably foreseeable projects (Volume 7, Chapter 4). A systematic methodology was applied in both analyses.

Volume 7, Chapter 3 summarizes the combined potential impacts of all of the preferred alternatives on Guam and Tinian. The impacts of Volumes 2 through 6 are discussed by resource. At the end of Volume 7, Chapter 3.3 there is a table summarizing the combined impacts of all long-term (operational) components of the preferred alternatives. Significant impacts are identified. Trends in the resource health on Guam and Tinian since World War II are described. This section includes

- A-008-005** Continued and future partnership between the Department and Department of Defense is welcomed to further explore the range of alternatives' indirect effects outside the military "footprint," thereby contributing to protection, preservation, maintenance, safety, and enhancement of national parks and FWS land and resources.
- A-008-006** Impact assessment for proposed marine projects does not sufficiently characterize impacts to marine resources, including coral reefs, and underestimates both impacts and required mitigation.
- A-008-007** The DEIS has not adequately assessed potential impacts of proposed action on freshwater wetlands, aquatic biological resources and habitats because aquatic resources have not been sufficiently identified. The DEIS lacks sufficient information on wild land fire management to assess its effectiveness for reducing potential impacts of wild land fire on Federal trust resources.
- A-008-008**
- A-008-009** The DEIS does not include a discussion of potential impacts that climate change may have on training activities and facilities and does not consider how near-term impacts of climate change may compound adverse impacts resulting from proposed activities on fish and wildlife resources of Guam and Commonwealth of the Northern Mariana Islands. The DEIS does not adequately discuss project-related invasive species impact on Guam and Tinian's economy, agriculture, power supply, and human health, nor does it evaluate the risk of invasive species introductions outside of project areas such as Hawaii and U.S. mainland.
- A-008-010**
- A-008-011** The proposed military relocation to Guam and the CNMI will likely have significant impact on Guam's civilian infrastructure, including an increased need for housing, power, roads, water, wastewater treatment, health, public safety and educational facilities. The Department believes that sufficient attention to public and other agency issues following scoping could have resulted in a range of alternatives that would better address the indirect, but significant, adverse impacts especially on Guam.
- A-008-012** Full collaboration on an adaptive management strategy that addresses long-term monitoring and mitigation of impacts to resources and values will prove beneficial. Attention to logistics of the construction workforce and mitigation for their housing and transportation so as to eliminate or minimize potential for off-base impacts is recommended. Other alternatives are recommended to assess impacts on Guam as a whole, since it clearly will be affected significantly by a 45% population increase, short-term and a 20-30% increase long-term.
- A-008-013** The Department suggests that, military budgets and timeframes notwithstanding, what is needed is publication of a supplemental Draft EIS/OEIS that incorporates all necessary information (biosecurity including endangered species, mitigation, infrastructure needs) and an appropriate range of alternatives. The Department further recommends that, in accordance with CEQ regulations, the eventual record of decision state whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted.

Thank you for the opportunity to review this project.

Sincerely,

limited quantitative data for proposed action impacts. For example, special-status species habitat loss due to the proposed action and current amount of habitat available island wide is presented in Volume 7, Section 3.3. There is no quantitative island-wide data readily available for most of the resource areas assessed and the impact analysis is often qualitative.

Volume 7, Chapter 4, Cumulative Impacts, assesses the potential additive impact of the EIS proposed actions when combined with potential impacts of other past, present and reasonably foreseeable future actions. The period of consideration for the cumulative impact analysis is 2004 to 2019. The project list is based on best available information from DoD and the Guam Land Use Commission database. There is no National Environmental Policy Act (or similar) document disclosing project impacts for most of the cumulative projects listed; therefore, there is insufficient data on most cumulative projects listed to conduct a quantitative impact analysis. In Chapter 4 a table summarizes the potential cumulative impacts on Guam and another table summarizes the potential cumulative impacts on Tinian. Potential additive cumulative impacts are identified for a number of resources. Mitigation measures are proposed earlier in the EIS. The cumulative impacts analysis has been expanded in the FEIS, including the addition of climate change analysis and analysis of cumulative impacts to coral.

A-008-004

Thank you for your comment. Geographic scope was based on areas of potential effect for each resource. For biological resources, effects analysis was localized. However, discussions of regional issues for specific topics (e.g., threatened and endangered species, non-native species) were included in the impact analysis when appropriate.

A-008-005

Thank you for your comment. DoD recognizes the importance of



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CC:
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NPS, Regional Director, Oakland
OIA, Director.

Appendices

- A. US Fish and Wildlife Service**
- B. National Parks Service**
- C. Office of Insular Affairs**

managing efforts in implementing the proposed military relocation to reduce adverse effects on the people of Guam, its natural resources and infrastructure. The EIS process identifies ways to implement the proposed relocation while minimizing adverse impacts. DoD will continue to work with the people and Government of Guam to ensure that the short term impacts of construction are managed effectively and that the long term effects of the military relocation reflect DoD policies to be good neighbors and responsible citizens on Guam.

A-008-006

Thank you for your comment. The Navy collected a robust data set to include coral distribution, benthic cover, fish biomass, and fish and invertebrate species abundance. A standard functional assessment technique that accurately characterized and quantifies losses and gains of coral aquatic resource functions, would ideally be used. However, functional assessment methodologies are an evolving science and the adequacies of existing methodologies are heavily debated in the scientific community. Further, the Compensatory Mitigation Rule recognizes the evolving nature of science on this issue and does not mandate any particular assessment methodology. The Navy assessment used a historically approved methodology followed by the USACE and NMFS for quantifying impacts to coral reef ecosystems. For well over 30 years coral reef ecosystem monitoring and impact assessments have been based on percent coral cover. Due to the complexity of this ecosystem percent coral cover has been identified as "the best current available science" standard (or proxy) to attempt capturing the thousands of elements that comprise a coral reef ecosystem.

Specifics include:

- 1). Revision of the initial impact assessment addresses the agencies' concern of percent coral cover being the only parameter. Rugosity addresses the 3-dimensionality (3-D) of the reef and reef complexity was added to the impact assessment. Per Veiman et.al (NOAA, December,

Appendix A US Fish and Wildlife Service Comments

This enclosure contains the general and specific comments on the Draft Environmental Impact Statement/Overseas Environmental Impact Statement (DEIS) for the Guam and Commonwealth of the Northern Mariana Islands Military Relocation. It is organized into two parts:

- (1) "General Comments" that overarch multiple volumes of the DEIS and encompass larger policy- and NEPA-related issues. These comments are organized by topic.
- (2) "Specific Comments" that contain text-, table- or figure- level comments restricted to specific volumes of the DEIS. These may include general comments specific to a particular volume as well as technical comments. These comments are ordered sequentially by volume and page.

General Comments

Analysis of alternatives and project impacts

A-008-014 The proposed action is large and complex. Given the timeline for this project, it would be difficult to meet the standards of adequacy for a non-programmatic NEPA document. The DEIS is intended to be a "hybrid" document, wherein some projects are analyzed at a programmatic level, while other projects are analyzed with sufficient detail so construction can begin without further environmental planning.

However, it is not clear which projects in the DEIS are intended to be programmatic and which are "construction ready." We recommend that any project receiving only a programmatic level of analysis be identified in the Final EIS (FEIS) and that the FEIS state clearly for each of these projects that additional environmental documentation (*i.e.*, an EIS or Environmental Assessment, as appropriate) will be completed prior to implementation of that project.

A-008-015 The analysis of impacts of various project elements in the DEIS often lacks data to support conclusions or conclusions appear to run counter to supporting data. Frequently, conclusions appear to have been drawn without apparent analysis. We recommend that all data used to reach a conclusion be provided in the FEIS and that all analyses used to reach conclusions are clear and logical. The attached general and specific comments identify several topics where we recommend supporting data be included in the FEIS.

Indirect and cumulative impact analysis in the DEIS is insufficient and incomplete. In addition to direct impacts of a proposed action, a NEPA document must evaluate all indirect impacts as well as cumulative impacts related to past, present and reasonably foreseeable future actions. Indirect impacts, such as worker housing, have not been sufficiently analyzed.

A-008-016 The cumulative impact assessment includes an extensive list of projects (for time period 2004 to 2019) that may have an additive effect to impacts of the proposed action, but no analysis appears to have been conducted. Although this approach to consideration of recent activities, reaching back 7 years and projecting 8 years into the future, may be acceptable according to the Council

2008), a percent coral cover metric combined with other metrics that provide for a 3-D representation of the habitat lost could be used to determine adequate compensatory mitigation via a HEA. A coral habitat index was generated from the field data and incorporated into the DEIS.

2). The seafloor tends to be hard material at the CVN project site. In areas of soft sediment, organisms either infaunal (residing within the mud), or epifaunal (residing on the sediment surface), and the potential additional deposition of sediment associated with dredging would not represent a change in habitat integrity. Any impact to infaunal or epifaunal organisms would be short-term and localized. References supporting this have been included in the DEIS

3). Quantitative Fish Survey data collected for the DEIS identifies no rare or unique species.

4). The Navy has proposed a suite of potential options for in-water mitigation measures and compensatory mitigation for the loss in ecological service and function provided by coral reef ecosystem in Outer Apra Harbor. These may include upland reforestation (to improve nearshore water quality), artificial reefs (to provide increased fish habitat) or a combination these and other compensatory mitigation alternatives. The mitigation measures are subject to approval by USACE, under the CWA, through the Section 404/10 permit requirements.

DoD recognizes the importance of reducing adverse effects on the people of Guam, its natural resources, and infrastructure. The EIS process identifies ways to implement the proposed relocation while minimizing adverse impacts through BMPs and mitigation measures. DoD will continue to work with the people and the Government of Guam agencies to ensure that the short-term impacts of construction are managed effectively and that any long-term effects of the military

- A-008-016** on Environmental Quality (CEQ) guidance, it is unclear how evaluation of additive effects was accomplished. Reasonable and appropriate scientific methods should be used to evaluate each impact, yet only qualitative assessments of significance were provided.
- We recommend that cumulative impact analysis include an assessment of aggregate impacts to trust resources resulting from all project elements, including construction and operation. For example, quantify amount of various habitat types essential to trust resource (e.g., limestone forest, wetlands, coral reef, etc.) that will be lost, degraded, and fragmented as a result of proposed action and other related projects including those conducted in recent past or to be developed in reasonably foreseeable future.
- A-008-017** In the DEIS, geographic scope of analysis for entire project is considered separately for Guam and Tinian, not cumulatively, based on the presumption that the two islands are sufficiently distant from each other so as to have minimal aggregate effects.
- This presumption is erroneous in the context of cumulative impact analysis. Fish and wildlife resources of Tinian would not likely be subjected to additive impacts of the overall project were it not for the primary activity of relocating military forces to the island of Guam. Some of these activities that could import/export invasive species between Tinian and Guam include movement of construction materials for development of infrastructure, training and movement of munitions and equipment, transportation and shipment of people and goods, and movement of vehicles, boats and other watercraft.
- We recommend the FEIS include an alternatives analysis that evaluates impacts to fish and wildlife resources of Guam and Tinian in aggregate.
- A-008-018** The DEIS does not include sufficient analysis of indirect impacts from related actions. For example there is no analysis for relocation of the Guam International Raceway, construction of off-island worker housing, relocation of cattle leases on Tinian, and increased recreational use by military, civilians, dependents and off-island workers due to increased population on Guam.
- We recommend the FEIS contain a description and analysis of all potential indirect impacts of related activities, particularly with regard to effects on candidate, endangered, and threatened species and their habitats.
- A-008-019** The DEIS often selects a preferred alternative that has greater negative impacts to fish and wildlife resources than other alternatives. For example, Alternative 2 for main cantonment area has greater negative impacts to Guam National Wildlife Refuge (GNWR) and habitat essential to recovery of threatened and endangered species than do other proposed alternatives.
- Also, the preferred alternative for nuclear aircraft carrier (CVN) berthing facility impacts at least 10 acres more of marine habitat than the other alternative. In the case of terrestrial impacts, we recommend the alternative with lowest impact to Federal trust species (i.e., alternative 1 or 8) be selected.
- If the alternative selected has greater environmental impacts than other alternatives, then a clear justification for selecting that alternative should be provided in the FEIS. For marine and aquatic resources, the Clean Water Act (CWA) requires analysis to determine least environmentally damaging practicable alternative (LEDPA). We recommend that LEDPA selected be the
- A-008-020**

relocation are appropriately addressed and when necessary, properly mitigated.

A-008-007

Thank you for your comment. The FEIS contains updated wetland information.

A-008-008

Thank you for your comment. Additional information on wildfire management will be added for the FEIS.

A-008-009

Thank you for your comment. The Navy acknowledges there is potential for marine resources and aquifers to be affected by sea level rise, inundations from more extreme storm events and other consequences of climate change. The impacts may be both adverse and beneficial. The current level of scientific knowledge can predict trends in sea level rise based on historic data but there are no established methods for assessing and quantifying potential impacts on marine resources or aquifers.

The University of Guam provides analysis of the aquifer responses to sea level change and recharge in a November 2007 study. Climate change may impact the success of production wells in the future (e.g., the placement of the well screen may not be optimal if the sea level rises or falls). Given the uncertainty of climate models including lack of information that is directly applicable to northern Guam and lack of specificity regarding the time and degree of impacts to conditions that could impact the aquifer, the DoD wells would be installed based on current conditions. Monitoring would be conducted during well operation. If production or water quality declines over time, DoD would take actions to mitigate the impacted wells.

A-008-020 alternative that has least impact to marine and aquatic resources. Please see our comments on the CVN Berthing Facility (below) for additional details.

A-008-021 The DEIS does not sufficiently address a reasonable range of alternatives (including no action) for many of the described projects. For some projects, apparently reasonable alternatives that would result in lower impacts to fish and wildlife resources have not been described or analyzed. For example, Proposed Route 15 has two alternatives; however, we recommend a third alternative that combines the best aspects from both alternative 1 and 2 be developed and considered.

This third alternative should relocate the road per alternative "1" and place the two largest firing ranges in the Sasajyan area. This will allow for the firing range that currently infringes upon Guam Raceway to be located in shrub grassland habitat and should not require movement of the raceway.

This third alternative would reduce the overall footprint in the limestone forest and eliminate need to develop conservation measures to address relocation of Guam International Raceway. We recommend that additional alternatives that could result in lower impacts to fish and wildlife resources be analyzed in the FEIS. Early in the planning process we worked with the Navy to discuss several specific alternatives that should be evaluated and do not appear to have been considered in the DEIS.

The DoD appears to create artificial constraints to limit the reasonable range of alternatives to analyze in the DEIS. For example, given that there are nine golf courses on Guam, failing to consider placing project facilities on an already existing golf course as a viable alternative to impacting habitat essential to threatened or endangered species is not an objective approach. We recommend the FEIS analyze reasonable and practicable alternatives without creating artificial constraints.

Specifically, we recommend the FEIS consider an alternative that redevelops the Navy golf course to accommodate development that would otherwise occur in habitat essential to recovery of threatened and endangered species.

A-008-022 Actions to avoid and minimize impacts to habitat essential for recovery of threatened and endangered species are not sufficiently described in the DEIS.

For example, habitat loss can be further reduced in most alternatives by: (1) locating buildings closer together in the Former FAA and NCTS Finegayan areas; (2) constructing condominiums, or multi-family homes without yards and using community parks, recreation areas, and open space in the main cantonment to fulfill need for outdoor space without each family having a separate yard; and (3) placing utilities in road right-of-ways instead of through forest habitat.

We recommend implementing measures that will avoid and minimize impacts to trust resources to the maximum extent practicable. Conservation measures recommended as part of the Endangered Species Act (ESA) section 7 consultation process should be included in the FEIS.

A quantitative assessment of the additive or cumulative impact of climate change on the proposed action and natural resources, including aquifers, is not practical.

A-008-010

Thank you for your comment. Potential impacts will be assessed through risk assessments. Funding has been provided to several Federal Agencies (e.g, USDA-APHIS) to conduct these risk assessments and assist with the writing of the Micronesia Biosecurity Plan. The risk assessments will be completed prior to the Micronesia Biosecurity Plan. Interim measures have been identified to address potential risks posed by invasive species until the Micronesia Biosecurity Plan is completed.

A-008-011

Thank you for your comments. The DoD incorporated public and agency comments from the public scoping of the EIS as well as recommendations for agencies during Partnering Session meetings in 2007 and 2008. In addition, the DEIS describes the intensive selection process that the DoD went through to select alternatives for the location of projects associated with the Proposed Action on Guam in Section 2.1.2 that meet the purpose and need. DoD will continue to look for ways to reduce adverse impacts to the environment and people of Guam.

A-008-012

Thank you for your comments. As discussed in Vol. 7, Section 2.3, adaptive program management strategies will include consideration of mitigation under Department of Defense (DoD) control and also actions that are not under DoD control. Collaboration with appropriate agencies with regard to both data monitoring and mitigation strategies will ensure successful adaptive management strategy.

A-008-023 Alternatives analysis for each proposed project elements is examined exclusive of other elements and often in different volumes of the DEIS, making it difficult to determine which combination of proposed project elements has lowest environmental impact. For example, alternatives for road alignments or water supply are evaluated and summarized in one volume while alternatives for locations of housing and recreation are in a different volume. We recommend the FEIS contain a single summary of impacts from each alternative for all project elements, including their construction and operation.

Impacts to federally listed threatened and endangered species

A-008-024 The DoD has selected a preferred alternative with greater negative impacts to habitat essential to threatened and endangered species than other alternatives. We recommend alternative with lowest impact to Federal trust species (*i.e.*, alternative 1 or 8) be selected. If alternative selected has greater environmental impacts than do other alternatives, a clear justification for selecting that alternative should be provided in the FEIS.

A-008-025 The list of conservation measures, monitoring, and basic best management practices (BMPs) to avoid and minimize impacts to threatened and endangered species is not sufficient. More detail on each measure is needed to assess whether goals to avoid, minimize, or mitigate can be achieved to support the determinations in the DEIS of less than significant impacts or mitigated to less than significant.

Additional conservation measures may be warranted, including the need to rescind or provide an exception to the current Navy policy that bans reintroducing federally listed species onto DoD land. Currently, much habitat necessary to recover species such as Guam Micronesian kingfisher and Mariana crow is located on DoD lands within GNWR Overlay. Without possibility to reintroduce these species back into the wild on Navy lands once their primary threats have been abated, the chance for recovery for these species is significantly reduced.

We recommend that DoD continue to work with our Pacific Islands Fish and Wildlife Office during ESA section 7 consultation and follow-up NEPA meetings to develop additional conservation methods and sufficiently define measures currently listed in the DEIS so we can assess the measures' ability to reduce impacts to listed species. We recommend DoD consider consolidating conservation actions for threatened and endangered species into watershed-based mitigation plans proposed for other project elements to offset multiple project-related impacts.

We recommend that Navy either rescind or provide an exemption to the April 15, 2003, letter documenting Navy's opposition to reintroducing listed species on DoD lands, and that the FEIS contain a conservation measure that will allow for reintroduction of listed species once their primary threats have been abated or managed.

A-008-026 Many proposed projects in the DEIS appear to overlap with other projects that have been addressed in prior ESA section 7 consultations, and it is not clear whether they are duplicate actions or separate actions occurring in a location already identified for project impacts. For example, Andersen Air Force Base (AAFB) recently completed a Biological Assessment (BA) for the construction of 12 new magazines in and around the area proposed for new magazines in the DEIS.

As discussed in Vol. 7, Section 2.3.2, effects from the construction workforce are specifically targeted for adaptive management. Support of the work force and associated housing are part of the process. In addition to a general focus on the effects of the workforce, DoD intends to utilize adaptive management for specific resource areas such as utilities and air quality. Further, DoD has determined that altering the tempo of construction to manage the quantity of workers is another potential mitigation measure to be used in its adaptive management of effects of the workforce.

With regard to alternatives to assess the impacts of population increase, DoD has a reasonable range of effective methodologies to assess, monitor, and address those impacts. Collaboration among DoD and relevant agencies, however, provides a venue to determine if an alternative strategy/methodology would be more effective.

A-008-013

Thank you for your comment. In accordance with the National Environmental Policy Act, the EIS contains a comprehensive analysis of potential impacts of the proposed actions and alternatives. Additional studies have been completed following preparation of the Draft EIS; the Final EIS has been updated with this information. Furthermore, revisions have been made to the EIS based on comments from agencies and the public. In addition, a chapter has been added to Volume 1 (Chapter 4) summarizing changes made to the Final EIS. Consequently, the Final EIS contains sufficient information for the decision maker to make an informed decision.

A-008-014

Thank you for your comment. An overview of site specific analysis vs. long-term projects is presented in Section 1.6 of Volume 1. A more detailed description is presented in the introduction of Chapter 2 for

Volume 6. Additional changes to the document have been made to more specifically illustrate which projects are site-specific vs. long-term.

A-008-026 If facilities are not co-located and new facilities are needed, additional habitat removal may be necessary. We recommend that each proposed facility be assessed to determine if it can be co-located with existing or recently proposed facilities from other reviewed projects. We also recommend that all maps, tables, and impact analyses be revised to include all actions planned for JGPO in relation to those actions previously reviewed under ESA and NEPA.

The DEIS contains descriptions of existing facilities and ongoing training, but it is not clear which facilities and training are new and which previously reviewed through NEPA or the ESA as part of other projects (e.g., training under the Mariana Island Range Complex). We recommend discussion and analysis of facilities and training be divided into categories and discussed separately: (1) existing facilities and training; (2) facility and training existing but to be expanded beyond what has been previously reviewed; and (3) new facilities and training. As necessary, we recommend analysis of impacts to federally listed species be revised in the FEIS to reflect these categories.

A-008-027 On January 6, 2010, the DoD requested initiation of formal ESA section 7 consultation on proposed action. During informal consultation we reviewed a draft BA of proposed action and provided recommendations to avoid and minimize impacts to federally listed species. We also proposed conservation measures.

We recommend the FEIS be revised to include recommendations provided through consultation process thus far and also any additional recommendations that result from forthcoming completed formal consultation. This will ensure consistency between these two documents.

A-008-028 The proposed alternatives could result in increased negative effects from brown treesnake and other invasive species on continued survival and recovery of listed threatened and endangered species throughout Pacific Islands and Continental U.S. These increased negative effects must be analyzed and addressed in the FEIS as well as in the ESA section 7 consultation. These FEIS recommendations are also reflected in our comments under "Biosecurity Concerns" below.

Impacts to National Wildlife Refuge Lands

A-008-029 The proposed action will have greater impacts on the GNWR Overlay than appear necessary to achieve the action's stated purpose because: (1) preferred alternative has greater impacts to the GNWR Overlay than other alternatives that will also meet the stated purpose; (2) impacts to the GNWR Overlay have not been avoided and minimized to the extent practicable; and (3) activities inconsistent with the purpose of the refuge have been proposed on refuge lands when it appears they could be placed elsewhere. We recommend the following:

- Alternative 1 or 8 be selected as preferred alternative for the main cantonment facility. As noted earlier in our comments, either one of these alternatives will result in lower acreage of impact within the GNWR Overlay than alternative 2, which is currently preferred alternative.
- All projects proposed within the GNWR should be consistent with the purposes for which the refuge was established. All projects found to be inconsistent with established purposes of the refuge should be placed outside the GNWR Overlay.

A-008-015

Thank you for your comment. DoD has augmented a number of the discussions of impacts and provided additional results of surveys that were not available at the time of the DEIS publication; for example, a report of the natural resources surveys is included in the appendix of the FEIS.

A-008-016

Thank you for your comment. Due to the complexity of the project, there are two parts of the cumulative impact analysis: the summary of impacts for all components of the proposed action and an assessment of the additive impacts of the proposed action on other past, present and reasonably foreseeable projects. A systematic methodology was applied in both analyses that were necessarily qualitative.

Volume 7, Chapter 3 summarizes the combined potential impacts of the preferred alternatives for the entire proposed action on Guam and Tinian. This is the aggregate analysis requested in the comment. The impacts of Volumes 2 through 6 are discussed by resource. At the end of Volume 7, Chapter 3.3 there is a table summarizing the combined impacts of all components of the preferred alternatives. Significant impacts are identified. Trends in the resource health due to anthropogenic and non-anthropogenic factors that impact resource health on Guam and Tinian since World War II are described. This section includes limited quantitative data for proposed action impacts. For example, special-status species habitat loss due to the proposed action and current amount of habitat available island-wide is presented in Volume 7, Section 3.3. There is no quantitative island-wide data readily available for most of the resource areas assessed and the impact analysis was qualitative.

A-008-029

- Incorporate all measures to avoid and minimize impacts to the GNWR Overlay into all alternatives analyzed in the FEIS.

A-008-030

- Adoption of conservation measures that will enhance habitat essential for recovery of threatened and endangered species. For example, a multi-species barrier fence to exclude invasive species has been proposed in the GNWR's Comprehensive Conservation Plan (CCP), but currently lacks funding for construction. This fence could serve in-part as DoD security and quarantine fencing, while excluding invasive species (particularly BTS) from the refuge, and enhancing habitat.
- DoD support a minimum of two permanent full-time U.S. Fish and Wildlife Service Refuge biologists to work cooperatively with DoD to monitor, manage and restore GNWR Overlay lands. Biologists would coordinate with DoD to ensure that build-up activities are in compliance with the Cooperative Agreements establishing the GNWR Overlay.
- DoD work cooperatively with the FWS to revise the GNWR Overlay Cooperative Agreement, define its status as a refuge, and reaffirm agency roles and responsibilities.

Biosecurity Concerns

A-008-031

The DEIS does not adequately describe proposed biosecurity measures and instead defers most discussion to plans yet to be developed or reviewed. Therefore, the FWS cannot adequately assess effectiveness of proposed biosecurity mitigation measures. Additionally, the existence of plans and policies, as well as development of new plans alone, cannot be considered mitigation for impacts. Implementation of appropriate plans should be considered mitigation.

If timing of Biosecurity Plan (BSP) or other appropriate plans does not allow for their inclusion in the FEIS, we recommend that specific interim actions be taken to minimize impacts from invasive species and these actions be completely described in detail in the FEIS. We also recommend the FEIS include language that clearly identifies the DoD commitment to implement all plans proposed as mitigation.

Moreover, no construction, operations, or transportation of materials should commence until appropriate biosecurity measures (*i.e.*, a finalized BSP with FWS concurrence or FWS-agreed-upon interim biosecurity measures) are in place and implemented.

Biosecurity measures described in the DEIS focus on preventing new introductions of invasive species to and from Guam and Tinian. However, few measures are proposed to control movement and eradicate invasive species already on Guam and Tinian. The proposed action has potential through movement of materials, equipment, vehicles, and personnel to spread invasive species to locations within each island where they currently do not occur, resulting in additional direct and indirect impacts to Federal trust species.

Volume 7, Chapter 4, Cumulative Impacts, assesses the potential additive impact of the Draft EIS proposed actions when compared to potential impacts of past, present and reasonably foreseeable projects. The period of consideration for the cumulative impact analysis was 2004 and 2019. The project list was based on best available information from DoD and the Guam Land Use Commission database. There was no National Environmental Policy Act (or similar) document disclosing project impacts for most of the non-federal cumulative projects listed; therefore, there was insufficient existing data on most cumulative projects listed to conduct a quantitative impact analysis. There is a table at the end of Chapter 4 that summarizes the potential cumulative impacts. Potential significant cumulative impacts are identified for some resources.

A-008-017

Thank you for your comment. It is true that if the Marine Corps were not relocating to Guam, then new ranges would not be proposed for Tinian. However, while the actions on Guam and Tinian may be similar in purpose and need, they are geographically and politically distinct and the impacts would not be additive. Additionally, the ecosystems between the two islands vary substantially.

CEQ's "Considering Cumulative Effects Under the National Environmental Policy Act" provides guidance on establishing a geographic scope for a project. Watersheds, species habitats, political boundaries, and breeding grounds are identified as guidance for establishing scope and none of these distinctions would support an aggregate assessment of Tinian and Guam impacts.

A-008-018

Thank you for your comment. The impacts on the Guam International Raceway, the Tinian agricultural leases, and recreational resources are

A-008-032

We recommend the DoD implement biosecurity measures to control spread of species within Guam and Tinian and, where possible, eradicate these species on DoD land.

The DEIS provides several general reviews of impacts of brown treesnakes on natural resources; however, insufficient information is provided on brown treesnake control and mitigation measures. Brown treesnakes have documented impacts to threatened and endangered species, human health, and infrastructure, and have resulted in significant impacts to the local economy.

Eradicating BTS from Guam and preventing establishment of the snake on other islands or continental U.S. has been a long-term goal of numerous territorial and Federal agencies, including the DoD. We recommend the FEIS contain adequate discussion of and commitment to implement specific actions the DoD will take to support and facilitate: (1) basic BTS research necessary to develop control and eradication measures; (2) island-wide BTS control efforts; and (3) actions to avoid, minimize and mitigate impacts of BTS on the human environment.

The DEIS does not thoroughly address related project impacts of moving DoD personnel and goods through commercial carriers and ports and does not include biosecurity measures to address invasive species in non-DoD cargo.

If DoD cannot ensure proper conservation measures are implemented, these measures cannot be considered BMPs or mitigation and impacts should be analyzed accordingly as if BMPs have not occurred. Therefore, we recommend impacts of moving DoD personnel and goods through commercial carriers and ports be reanalyzed in the FEIS with consideration for only existing implemented BMPs and conservation measures used by those carriers and ports, unless the DoD can ensure additional BMPs will be implemented.

We also recommend the DoD continue to coordinate with non-DoD carriers and ports and attempt to formalize roles and responsibilities via formal agreements to ensure that adequate BMPs and conservation measures are fully implemented.

Impacts of the Aircraft Carrier Berthing Facility and Inner Apra Harbor Improvements

A CWA section 404 permit from the U.S. Army Corps of Engineers (ACOE) will be required to conduct the dredging necessary for both Inner and Outer Apra Harbor projects. The Navy has stated an intention to use analysis within the FEIS for their ACOE permit application. Requirements for analysis of impact and compensatory mitigation differ between the CWA and NEPA.

To assist the Navy with their expedited timeline, we reviewed proposed actions for adequacy of evaluation of impacts to marine resources, and especially to special aquatic sites, pursuant to section 404 of the CWA. This review is consistent with the CEQ guidance provided for this action, and our commitment as a cooperating agency to ensure the project does not include substantial and unacceptable impacts to the waters of the United States, including aquatic resources of national importance.

Our comments about adequacy of analysis and recommendations to improve it are provided below. These comments, however, do not preclude the FWS from submitting further comments and recommendations on the Navy's ACOE permit application.

considered direct impacts (not indirect) and the impacts are described as adverse. Mitigation measures for these direct impacts are being evaluated. Workforce housing is outside the scope if the EIS, but is identified in EIS, Volume 6 Section 1.2, as a related action. There are private development proposals to provide workforce housing to support the military build-up described in the EIS. These proposals are being reviewed by the Guam Land Use Commission. The Government of Guam controls the type and location of development and is responsible for ensuring the development is consistent with the existing and future community development plans. The developers are likely to proceed with the construction or renovation for workforce housing before the EIS Record of Decision is signed. The Navy will issue construction contracts requiring the contractor to provide housing in accordance with specified health and safety standards. Contractors will be required to provide medical services and transportation for the workers. The Navy would not dictate the pay scale of the workers. Secondary impacts, also known as indirect impacts, are described in Volume 7, Section 3.4.

A-008-019

Thank you for your comment. The preferred alternative was selected based on optimizing the military mission criteria and on impacts to all the resource areas evaluated in the EIS. Terrestrial biological resources are only one of those resource areas.

A-008-020

Thank you for your comment. DoD recognizes the importance of reducing adverse effects on the people of Guam, its natural resources, and infrastructure. The EIS process identifies ways to implement the proposed relocation while minimizing adverse impacts. Volume 4, Section 4.3 is the LEDPA Analysis. DoD will continue to work with the people and Government of Guam to ensure that the short-term impacts of construction are managed effectively and that the long-term effects of

A-008-033

Impact assessment for proposed marine projects does not sufficiently characterize impacts to marine resources, including coral reefs, and underestimates both impacts and required mitigation. This results from: (1) insufficient assessment of ecological function and use of incomplete and inappropriate inputs in the Habitat Equivalency Analysis (HEA); (2) inappropriate use of “three dimensional coral area” (previously called “100% coral equivalents”); (3) no mitigation proposed for areas that have no coral cover; and (4) proposed mitigation projects that cannot replace all lost ecological functions of impacted marine habitats. These points are discussed below in further detail.

The ACOE–Environmental Protection Agency’s (EPA) 2008 Compensatory Mitigation Rule (40 CFR Part 232.3) requires compensatory mitigation sufficient to replace “lost aquatic resource functions” and states a preference for use of functional assessment methods where available and practicable.

The DEIS has not sufficiently described function of marine habitat impacted by proposed actions. For areas with coral, the DEIS proposes to use percent cover of live coral. Based on accuracy of provided data, this amounts to a presence/absence examination for coral in Outer Apra Harbor.

No data have been specifically provided for corals indirectly impacted by proposed Inner Harbor dredging project. Use of percent cover of live coral is not adequate to describe functional contribution of corals to coral reef ecosystem. Additionally, no functional assessment for areas without coral has been provided in the DEIS.

We recommend the following:

- Data on coral size-frequency, density, and morphology be used to describe the functional contribution of corals to coral reef ecosystem and be used in all impact assessments and for development of appropriate compensatory mitigation.
- Data describing function of non-coral dominated habitats be used in all impact assessments and for development of appropriate compensatory mitigation. Appropriate data will depend upon marine habitat type (*e.g.*, algae- and sediment-dominated areas). The Pacific Islands Fish and Wildlife Office is available to assist with development of appropriate data set.

The DEIS uses a Coral Habitat Index (CHI) to assess potential impacts and compute equivalency for compensatory mitigation. This index uses “three dimensional coral area.” “Three dimensional coral area” is a measure of acreage of only coral within a given area of the reef. It is derived by multiplying the percent cover of a live coral derived from a habitat map by total area occupied by that coverage type.

For example, 1 acre of coral reef with 20 percent cover of live coral constitutes 0.2 acres of “three dimension coral area.” This approach fails to account for importance of inter-coral colony spaces on the reef, which have been shown to be ecologically important.

Consequently, this approach devalues reefs that have less than 100 percent cover of live coral. Additionally, the method used to compute the CHI is mathematically flawed because it violates

the military relocation reflect DoD policies to be good neighbors and responsible citizens on Guam.

A-008-021

Thank you for your comment. The DEIS describes the intensive selection process that the Department of the Navy went through to select alternatives for the location of the firing range on Guam in Section 2.3.2.5. First, planners examined all DoD lands on Guam. Because of the size of the firing ranges and the need to include all safety zones as part of the acquired lands, or conflicts with existing land uses (housing, Won Pat International Airport), the firing range could not be placed on DoD lands, including the golf course on Navy Barrigada. Placing the firing range at the golf course on Navy Barrigada would be in direct conflict with the airspace associated with the Guam International Airport.

A-008-022

Thank you for your comment. DoD has been in consultation under Section 7 of the Endangered Species Act between the publication of the Draft EIS and this Final EIS. As referenced in your comment, DoD has incorporated conservation measures that resulted from this consultation into the text of the Final EIS. Additional information is contained, primarily, in Chapter 10 Terrestrial Biological Resources, in Volume 2 of this Final EIS.

A-008-023

Thank you for your comment. DoD recognizes the complexity of the proposed actions and the various alternatives for each component. To address this, the summary (additive impacts) of potential impacts resulting from all of the components of the preferred alternative is presented in Volume 7, Chapter 3, by resource area. The impacts of each component of the project are assessed in conjunction with all other components of the proposed action. Significant impacts are identified.

A-008-033 assumptions of underlying probability model used to correct errors associated with the coral habitat map, thus resulting in inaccurate, and likely underestimated, acreage estimates.

Finally, this approach treats all corals as planar, thus ignoring their structural contribution to habitat. Our concerns with the CHI approach were provided to the Navy on December 11, 2009. We recommend that the CHI not be used to scale compensatory mitigation, and instead data that adequately describe ecological function and structure of corals are used in the analysis.

The DoD explicitly states in the DEIS that no mitigation will be proposed for sites that contain no coral cover. Under the CWA, the requirement for compensatory mitigation is not limited to only “special aquatic sites” such as coral reef habitat.

We recommend that impacts to all marine habitats be analyzed and that compensatory mitigation be developed to replace all functions unavoidably lost in all aquatic and marine habitats as a result of proposed action.

A-008-034 The DEIS contains mitigation plans that cannot replace all ecological functions lost from natural coral reef and may result in additional impacts to marine environment if implemented. Scientific literature has repeatedly shown that artificial reefs fail to replace lost ecological functions of natural reefs and almost always result in communities that are significantly different from nearby natural reef communities.

Additionally, concerns have been raised by artificial reef proponents that improper design and installation of artificial reefs can result in additional adverse impacts to marine environment. Moreover, coral transplants have a poor long-term record of success as mitigation, particularly in the Pacific.

A review of coral transplantation as mitigation has shown these projects have a poor record as compensatory mitigation (USFWS 2003), and mitigation benefits gained do not appear to be high relative to cost incurred. We recommend the following:

- Artificial reefs be removed from consideration as compensatory mitigation in the FEIS.
- The DoD consider the generally poor, long-term success of coral transplantations when analyzing this project as potential compensatory mitigation.
- The Navy continue to work with EPA, NOAA, FWS and ACOE to identify appropriate and practicable mitigation alternatives for unavoidable impacts to all marine and aquatic habitat. Once a range of appropriate mitigation alternatives has been identified, we recommend that appropriate data on ecological function be obtained and analyzed to appropriately scale compensatory mitigation. This analysis should be included as part of mitigation plan in the FEIS with stated understanding that it will be finalized during the ACOE permit process.

A-008-035 For the CVN Berthing Facility, the LEDPA selected in the DEIS results in more environmental damage than dismissed alternative. No LEDPA has been described or analyzed for proposed Inner Apra Harbor projects. The CWA 404(b)(1) Guidelines, require a clear demonstration that

A-008-024

Thank you for your comment. The preferred alternative was selected based on optimizing the military mission criteria and on impacts to all the resource areas evaluated in the EIS. Terrestrial biological resources are only one of those resource areas.

A-008-025

Thank you for your comment. The EIS has been updated with additional and more detailed conservation and mitigation measures as the result of the Endangered Species Act (ESA) section 7 formal consultation process with the US Fish and Wildlife Service (USFWS). The Navy would implement these conservation measures to avoid, minimize, and compensate for effects on listed species due to proposed construction and operations. The conservation measures are intended to support the re-introduction of native endangered & threatened species on Guam, consistent with the species recovery plans. When the constraints to successful reintroduction of native threatened or endangered species have been minimized to a point that the Navy and USFWS mutually agree that there is an opportunity for feasible and successful re-introduction of a listed species, the Navy will work with USFWS to develop a programmatic biological opinion to ensure that such re-introductions are consistent with the species recovery plans and will not conflict with the military mission on Guam.

A-008-026

Thank you for your comment. The alternatives analysis and associated review assessed the potential for collocating proposed facilities within existing facilities and that was done to the maximum extent possible. All proposed facilities and activities are new and have not been assessed in previous NEPA documents or ESA consultations. However, there is a small overlap in the project area for the proposed new Andersen AFB access gate. The area of overlap has not been assessed in the EIS or

A-008-035

alternative permitted by the ACOE is the LEDPA and there is no practicable alternative that would have less adverse impact on aquatic environment.

Consideration of operational issues, quality of life/aesthetics differences, traffic, and utility costs are not appropriate factors in the LEDPA unless they have demonstrable environmental impacts to aquatic environment. Based on data provided, the DEIS incorrectly identifies alternative 1 (Polaris Point) as the LEDPA for the proposed CVN Berthing Facility.

The DEIS presents data that show alternative 2 (Former SRF) would result in approximately 1.5 acres of less direct impacts to coral reef and a dredging footprint that is 9 acres smaller than alternative 1. The DEIS does not explain why the LEDPA is not selected as the preferred alternative. We recommend that a LEDPA be selected that is supported by the appropriate data and analysis.

We are also concerned that a sufficient range of practicable alternatives has not been analyzed. An alternative with a reduced turning basin proposed by NOAA early in the planning process does not appear to have been evaluated in the DEIS. We recommend the FEIS include an alternative with a reduced turning basin in its LEDPA analysis.

Impacts to freshwater wetlands, aquatic biological resources and habitats

A-008-036

The DEIS has not adequately assessed potential impacts of proposed action on freshwater wetlands, aquatic biological resources and habitats because aquatic resources have not been sufficiently identified. The DEIS describes an additional investigation to be included in the FEIS that will use a remote sensing method to verify the presence of wetlands. Additionally, the DEIS notes that individual CWA permit applications for each construction project will be submitted for ACOE review, as needed, and that detailed jurisdictional delineations will be provided with each application.

However, this approach is inconsistent with a programmatic or landscape level evaluation of impacts, postpones public disclosure and review, and does not comply with NEPA's requirement to assess individual and cumulative impacts of proposed suite of actions on wetlands and other aquatic resources.

We recommend the FEIS use standard field methods to delineate aquatic resources and conduct an appropriate analysis of potential impact associated with proposed action.

The DEIS does not describe mitigation plans for unavoidable impacts to freshwater wetlands, aquatic biological resources and habitats. Under the CWA, unavoidable losses of function must be compensated. We recommend DoD consider a watershed-based mitigation plan to mitigate for impacts to aquatic resources.

Additionally, we are concerned that referenced remote sensing technique (*i.e.*, Ohara 2000) to be used to verify presence of wetlands for the FEIS will not produce level of detail necessary for an adequate analysis. The proposed technique is comparable to methods employed by the National Wetland Inventory (NWI) and uses same data sources for interpretation.

However, in contrast to NWI, which uses a trained photo-interpreter for image processing, the proposed method uses automatic image processing. NWI has experienced mixed results with

the BA, and the area that is new and proposed as part of the JGPO action has been addressed in the EIS and BA analysis.

A-008-027

Thank you for your comment. The FEIS will be revised to reflect the discussions and, if completed, the outcome of the ongoing Endangered Species Act (ESA) Section 7 consultation.

A-008-028

Thank you for your comment. Responses to this comment will be addressed under the specific items in the "Biosecurity Concerns" portion of your letter.

A-008-029

Thank you for your comment. Alternatives were evaluated for numerous factors in addition to terrestrial biological resources. All factors were considered in the selection of the preferred alternative.

A-008-030

Thank you for your comment. DoD will continue to work cooperatively with the USFWS on these important issues.

A-008-031

Thank you for your comment. Interim measures have been identified for the proposed action that will reduce the risk of introducing and spreading invasive species. The Navy has identified the implementation of Hazard Analysis and Critical Control Point (HACCP) planning as a prevention measure that is being written into planning documents and contractor specifications. HACCP can be used for terrestrial and aquatic projects. In addition, the Navy has funded risk assessments for invasive species, vectors, and pathways. As part of the process of conducting the risk assessments, the Navy asked the Federal Agencies carrying out this

A-008-036 automatic processing software programs and has found them to be inaccurate for identifying wetland communities, especially in vegetated areas. Given limitations of automatic image processing, results of proposed technique may be suitable for basic planning, like the NWI approach, but not accurate enough for a CWA Section 404 wetland determination or delineation.

We recommend all wetlands, streams, and associated riparian areas within area of potential impact from proposed action be delineated in accordance with 1987 Wetlands Delineation Manual and that their function is assessed using standard methods.

Regardless of jurisdictional determinations, all wetlands should be mapped for purposes of impact evaluation and mitigation planning. For example, Volume 3, Page 4-19 describes wetlands on Tinian that have not been field-verified and are of questionable jurisdictional status. The DEIS refers to these wetlands as "potential jurisdictional wetlands." Although field inspection might indicate these wetlands are not jurisdictional due to isolation or other site conditions, these wetlands may still provide important habitat for endangered species such as the Mariana common moorhen.

We recommend that all wetland systems be mapped and considered in impact analysis within the FEIS, consistent with NEPA.

A-008-037 No LEDPA for aquatic resources has been identified in the DEIS. Without detailed, ground-truthed delineation of aquatic habitat, insufficient data exist to compare alternatives and identify the LEDPA, in accordance with Section 404(b)(1) guidelines of the CWA. We recommend that all practicable alternatives be examined to determine the LEDPA for this action. While not a requirement of NEPA, the LEDPA analysis should be included in the FEIS in order to facilitate the timely submittal of the CWA permit application to the ACOE.

Under the CWA, all related aquatic projects (e.g., Inner Apra Harbor dredging, road crossing, etc.) would be considered inseparable and should be evaluated comprehensively with a single LEDPA selected. We recommend the FEIS contain sufficient data and analysis to select the LEDPA for inseparable marine and aquatic projects associated with the proposed action.

A-008-038 Text and associated figures in the DEIS do not include sufficiently detailed descriptions of construction projects that will impact wetlands and freshwater aquatic habitats. We recommend the FEIS include maps (or series of maps with plan views) at a legible scale that show delineated wetlands, streams and associated riparian or ravine habitats in relation to planned construction.

Additionally, we recommend the FEIS include basic plan views and cross sections for all construction (e.g., for road crossings, shoreline development, utilities, etc.) that will directly, indirectly, and cumulatively impact wetlands, streams or other aquatic resources. For example, Vol. 3, Page 4-20, figure 4.2-1 provides an adequate example of a plan view that demonstrates relationship of project footprint and proposed construction to wetlands on site.

After reviewing an earlier working draft of the DEIS, the FWS recommended the assessment of impacts to aquatic biological resources be extracted from terrestrial biological resources sections and compiled into a separate dedicated volume. However, aquatic resources have remained within terrestrial biological resources section of the DEIS. Placement in its own volume would facilitate assessment of potential impacts to these aquatic resources from proposed action. We

work to provide drafts of the risk assessments and a review of best management practices that could be included into the FEIS. These activities are for terrestrial and aquatic species, vectors, and pathways. Another proactive step on the part of the Navy is to include invasive species biosecurity issues into contract specifications. These specifications include the implementation of measures for feral cats and dogs, vehicle inspection and cleaning procedures, on-site waste storage/waste removal procedures, brown tree snake information, and guidance for native plantings in its landscaping. These additional protective measures are expected to be covered in the Micronesia Biosecurity Plan (MBP). The Navy is in consultation and has proposed protective measures related to established invasive species. A commitment to integrate biosecurity into its activities is demonstrated in several ways. The Navy works with USDA-APHIS to inspect and interdict brown tree snakes from cargo areas and vehicles and provide brown tree snake educational materials for military personnel. This partnership prevents the spread of the brown tree snake from Guam. DoD also actively participates in the brown tree snake working group and supports research and control techniques (e.g., 100 hectare control project). In addition, the Navy has developed new interim measures to address preventing the spread and locally controlling several established invasive species.

A-008-032

Thank you for your comment. Additional measures for BTS control and mitigation are being considered in connection with the continuing Section 7 consultation and are being added to the FEIS. Regarding evaluation of moving DoD goods and personnel through commercial carriers and ports, additional information on procedures and responsibilities are being added to the FEIS. It is anticipated that increased customs and agricultural inspection recommendations resulting from military cargo and personnel at the airport and port will be coordinated through both Guam and relevant Federal officials, including the U.S. Department of

recommend evaluation of aquatic resources be separated into its own volume or section in the FEIS.

Analysis of impacts to trust resources from wildfire

- A-008-039** The DEIS lacks sufficient information on wildland fire management to assess its effectiveness for reducing potential impacts of wildland fire on Federal trust resources. We recommend that a wildland fire management plan be included in the FEIS, and the DoD commit to implementing it. This plan should include descriptions of measures to be taken under various observed and forecasted fire danger conditions to prevent, detect, prepare for, and suppress wildfires. Wildland fire management plan should also describe fuels management, firebreak, and prescribed fire aspects of proposed action.

Global Climate Change

- A-008-040** The DEIS does not include a discussion of potential impacts that climate change may have on training activities and facilities and does not considered how near-term impacts of climate change may compound adverse impacts resulting from proposed activities on fish and wildlife resources of Guam and Commonwealth of the Northern Mariana Islands. We recommend the FEIS consider: (1) how climate change may affect proposed facilities; (2) how influence of climate change may affect impacts of proposed actions (e.g., reduction in rainfall may increase wildfire occurrence); (3) how these changes in potential impacts may affect fish and wildlife resources; and (4) proposed measures to monitor effects of climate change and to make near-term adaptive changes to proposed actions and/or operations in order to minimize adverse impacts to fish and wildlife resources.

Agriculture. DoD will also work with the same entities to develop plans to ensure that required inspections are conducted prior to release of materials to DoD construction sites. Formal agreements with Federal and Guam agencies on inspections will be pursued.

A-008-033

Thank you for your comment. Habitat assessment methodologies which evaluate the function of affected aquatic resources, such as coral reef ecosystems, are an evolving science and the adequacies of existing and new methodologies are heavily debated in the scientific community. Ideally, a standard assessment technique that accurately characterizes and quantifies losses and gains of coral reef ecosystem functions would be used. However, rulemaking for the Compensatory Mitigation Rule recognizes the wide variety of aquatic resources present in the United States and the evolving nature of science regarding aquatic ecosystem restoration make the establishment of standard assessment methodologies impracticable. The assessment for this EIS used an historically approved methodology (percent coral cover), supplemented by other methods such as the use of Light Detection and Ranging (LIDAR) satellite photos, for quantifying impacts to affected coral reef ecosystems impacted by the proposed transient CVN wharf and associated dredging. DoD believes that use of the percent coral cover methodology, supplemented by use of LIDAR satellite photos, is the "best currently available science" to attempt to capture the thousands of elements that comprise the function of a coral reef ecosystem. DoD's assessment is currently under review by the US Army Corps of Engineers, the agency charged with implementing dredge and fill permits under CWA Section 404, and other Federal agencies. The FEIS will be updated to reflect the latest developments in this review.

The DEIS states that no compensatory mitigation will be performed for removal of soft bottom communities. As evidence by historical data related to maintenance dredging of existing harbors, impact to non-coral

Specific Comments

Executive summary

- A-008-041** 1) Exec. Sum., Tbl. ES-4, P. ES-35: In rows of the table outlining potential "Terrestrial Biological Resources" impacts, introduction of invasive species to Guam is discussed under "Construction" heading, but invasive species accidental export is not mentioned. Additionally, invasive species issues are not mentioned under "Operation" heading. It is expected that invasive species introductions to the Mariana Islands as well as export in both Construction and Operation may result in significant impacts. We recommend potential introductions of invasive species to and from Guam are addressed under both the Construction and Operation headings of this table in the FEIS.
- A-008-042** 2) Exec. Sum., Tbl. ES-4, P. ES-35: In rows of the table outlining potential "Marine Biological Resources" and "Water Resources" impacts, introductions of invasive species to and from Guam are not discussed under "Construction" heading. It is expected that introduction of invasive species as well as export during Construction may be significant impacts of proposed action. We recommend the potential introductions of invasive species to and from Guam are addressed under "Construction" heading of this table in the FEIS for marine and freshwater biological resources.
- A-008-043** 3) Exec. Sum., Tbl. ES-4, P. ES-35: In rows of the table outlining potential "Terrestrial Biological Resources" impacts, Micronesian Biosecurity Plan (BSP) is referenced as being developed and listed as a source of potential mitigation. Existence of plans and policies, as well as development of this new plan, alone should not be considered mitigation for impacts. Implementation of plans should be considered actual mitigation. We recommend the FEIS include language that clearly identifies the Department of Defense (DoD) commitment to implement all plans proposed as mitigation for impacts expected to occur as a result of proposed action.
- A-008-044** Volume 1
1) Vol. 1, Ch. 2, Sec. 2.2.1, P. 2-8: Biosecurity searches of cargo and baggage at the airfield are mentioned in second paragraph of this section. However, no specific details of these biosecurity inspections are provided. We recommend that additional detail is provided in the FEIS, including: (1) who will conduct the searches; (2) how searches will be conducted; (3) if seizure and quarantine of contraband will be legally authorized; and (4) if infrastructure currently exists or will be required to effectively contain known or potential invasive species purposefully or accidentally imported or exported at the airfield.
- A-008-045** 2) Vol. 1, Ch. 2, Sec. 2.7.1.4, P. 2-8, Par. 2: This paragraph roughly outlines an excellent salvage and re-use plan for existing indigenous and/or native plants within Construction Requirements Section. However, we have concerns that plant salvage and re-use may result in: (1) potential impacts to listed species; (2) spread of invasive species if adequate control measures are not implemented; and (3) plants harvested for future reuse on site may not survive for replanting at a later date. We further recommend: (a) prior to construction at any project site, identify all plants to determine if any are protected or listed species by the Government of Guam (GovGuam). If protected or listed species are present, we recommend DOD contact the appropriate GovGuam agency; (b) The salvage and re-use plan include procedures that will be implemented to ensure that plants offered to the public for reuse off-site are free of biological contaminants, including invasive species and their propagules; and (c) a component of the plant

communities would be short-term and localized. Furthermore, biological organisms associated with these habitats are frequently exposed to natural disturbances and therefore have adapted to that environment.

A-008-034

Thank you for your comment. A detailed compensatory mitigation plan would be submitted as part of the Clean Water Act 404 permit application for construction affecting the navigable waters of the United States (including the CVN transient wharf). Due to the ongoing review of DoD's habitat assessment methodology for coral reef ecosystems and associated uncertainties regarding the scope of mitigation required, a detailed mitigation plan has not been developed nor will one be available for incorporation into the FEIS. However, a number of mitigation options, including watershed restoration and the use of artificial reefs, are discussed in a programmatic nature in Volume 4, Section 11.2 of the FEIS. DoD recognizes that, as part of the CWA Sec. 404 permitting process, additional NEPA documentation may be required to address specific permitting requirements and implementation of required compensatory mitigations.

A-008-035

Thank you for your comment. Only practicable alternatives to the proposed project need be considered in determining the least environmentally damaging alternative (LEDPA). An alternative is practicable where "it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." As described in Volume 4, Chapter 2, several alternatives for wharf location, wharf alignment, channel alignment, and turning basin were considered based on selection criteria including security/force protection; operations; and logistics and minimizing impacts to the environment to the extent practicable. As Chapter 2 explains, the DoD undertook several measures to avoid environmental impacts, including choosing a channel alignment that

- A-008-045** salvage and re-use plan is developed to ensure proper storage of salvaged plants for reuse on-site at a later date.
- A-008-046** 3) Vol. 1, Ch. 2, Sec. 2.7.1.4, P. 2-8, Par.2: Although a common invasive non-native tree species on Guam, we recommend that the movement of *Leucaena leucocephala* from the proposed construction area be minimized as opposed to the current plan to use it for mulch or cooking fire wood, to prevent further spread of this invasive plant species.
- A-008-047** 4) Vol. 1, Ch. 4, P. 4-1: As described, the BSP will focus on invasive plants and animals. It is not clear if the plan will address non-vertebrate animals and pathogens that may have an adverse impact on ecological, economic, or human health systems. If the BSP does not already cover non-vertebrate animals and pathogens, we recommend the BSP is expanded to include all invasive species, including undesirable agents such as pathogens and viruses.
- A-008-048** 5) Vol. 1, Ch. 4, P. 4-1: The definition of “Biosecurity” addresses introduction and establishment of new invasive species on Guam and Tinian but does not provide for invasive species transport off Guam as a possible result of proposed action. We recommend expanding the definition to include protection of ecological, economic and human health systems from transport of invasive species to other Pacific islands.
- Volume 2
- A-008-049** 1) Vol. 2, general comment (also see Sec.10.1.5, P. xi): No analysis of training impacts to biological resources has been provided in the DEIS. We recommend including a section in the FEIS that describes how training will impact all biological resources.
- A-008-050** 2) Vol. 2, general comment: Discussions of impacts on biological resources are split into terrestrial and marine, but the DEIS has no dedicated section that evaluates project impacts on aquatic (*i.e.*, freshwater) biological resources. Instead aquatic resources are discussed under terrestrial resources. Their placement here makes them difficult to locate and assess. We recommend a separate chapter be included in the FEIS that will specifically address impacts to aquatic, biological resources (*e.g.*, Mariana Common Moorhen or native stream species).
- A-008-051** 3) Vol. 2, general comment: During informal consultation the FWS reviewed a draft Biological Assessment (BA) for the proposed project and noted multiple, specific areas that needed clarification or correction. These clarifications and corrections are not included in the DEIS. Additionally, we will be providing a detailed review of the final Biological Assessment submitted to our office on January 6, 2010. We recommend incorporating all clarifications and corrections from our reviews of the BA into the FEIS.
- A-008-052** 4) Vol. 2, general comment: The DoD is not proposing to mitigate for impacts to marine habitat in Inner Apra Harbor and has not identified compensatory mitigation measures for aquatic habitats across Guam and Tinian. However, this action will require a Clean Water Act (CWA) 404 permit issued by the Army Corps of Engineers (ACOE) to dredge and to place fill into the waters of the U.S. This permit requires compensatory mitigation for all unavoidable loss of functions to the aquatic environment (freshwater and marine habitats) that will occur as a result of the proposed action. Although the ACOE has regulatory authority to make final determination for the permit, it is the opinion of the FWS that compensatory mitigation is required to offset impacts from proposed dredging of Inner Apra Harbor, including all soft sediment areas, as well as direct and indirect impacts to corals. Additionally, compensatory

avoided dredging of coral shoals, reducing the aircraft carrier turning basin radius, and choosing a parallel to shore wharf alignment with a reduced clearance for the aircraft carrier.

After careful consideration of the alternatives based on the selection criteria, it was determined that Polaris Point and the Former SRF were the only two locations that met the criteria. This is also explained in Chapter 2 of Volume 4. Volume 4, Chapter 4 highlights the differences between these two alternatives in the LEDPA discussion. These alternatives may appear similar but they are different, as explained in Chapter 4. The table presented in the LEDPA discussion in Chapter 4, Volume highlights the differences between the two alternatives including the reasons why Polaris Point is considered the LEDPA.

The LEDPA discussion does not warrant a wider alternatives analysis because as the information presented in Chapter 1 and 2 indicate, many alternatives (including Kilo Wharf and Inner Apra Harbor locations) could not be carried forward because they are not operationally practical, would result in security/force protection issues, or have logistics issues. Other locations in Guam and/or the Pacific were also ruled out as options for the reasons presented in Chapter 1 and 2, including not meeting the overall purpose and need.

The turning basin alternative proposed by the National Marine Fisheries Service (NMFS) was based on preliminary dredge areas. In the DEIS, further modifications to the turning basin were made to minimize impacts, including decreasing the size and moving it south (see Volume 4, Section 2.3.3). Based upon a review of operational and safety factors, it has been determined that the alternative proposed by NMFS is not a reasonable alternative under the National Environmental Policy Act, nor a practicable alternative under the Clean Water Act (CWA) 404(b) permitting process.

- A-008-052** mitigation will be required to offset losses to wetlands to ensure no net loss. We recommend that appropriate mitigation to off-set these unavoidable losses be developed and analyzed in the FEIS.
- A-008-053** 5) Vol. 2, Ch.2, Sec. 2.1.2.2, P. 2-13, Par. 1 and 2: Building “assumptions” should not overlook environmental considerations. For example maximum building heights may need to be adjusted to reduce impacts to essential habitat, especially within the Guam National Wildlife Refuge Overlay(GNWR Overlay). We recommend measures taken to keep the Overlay Refuge as intact as possible are incorporated into all designs and development plans.
- A-008-054** 6) Vol. 2, Ch. 2, Sec. 2.2.3, P. 2-28, Par. 2 and 3: Preferred Alternative 2 is not compatible with purposes of the GNWR Overlay and does not appear to meet the DEIS alternative selection criteria. Similar to Alternative 4, Alternative 2 does not appear to meet environmental criteria (threshold of significant impact) because Alternative 2 would result in a significant impact on areas of essential habitat. Given this, the rationale to move Alternative 2 forward for further analysis is not clear. We recommend data and analysis used to conclude that Alternative 2 meets environmental criteria established in the DEIS are clearly provided in the FEIS. However, if Alternative 2 fails to meet environmental criteria, we recommend that additional information is provided to justify moving this alternative forward in the analysis.
- A-008-055** 7) Vol. 2, Ch. 2, Sec. 2.3.1.3, P. 2-39, Fig. 2.3-3 and P. 10-126 to 10-133: The DEIS indicates there will be aviation training occurring over Fena Lake reservoir, but the DEIS does not provide analysis of how this training may impact wetland resources such as water quality of the reservoir or habitat functions of surrounding wetlands; for example, species such as Mariana common moorhen are known to be present in the reservoir and surrounding wetlands. Aviation training over or near Fena Lake is also indicated by Figure 2.3-9. We recommend the FEIS include: (1) description of proposed aviation training; (2) a figure showing proximity of this training to wetland; and (3) analysis of potential impacts to wetlands and impacts on the Mariana common moorhen that may result from proposed training.
- A-008-056** 8) Vol. 2, Ch.2, Sec. 2.3.2.1, pp. 2-60 and 2-64, Table 2.3-6 and 2.3-8: The proposed Naval Munitions Site (NMS) does not meet the feasibility criteria due to environmental considerations. The majority of NMS is located within the GNWR that provide important habitat used by the endangered Mariana gray swiftlet and Mariana common moorhen. We recommend selecting another alternative or modifying existing alternative so less habitat essential to Mariana gray swiftlet and Mariana common moorhen is impacted by proposed project.
- A-008-057** 9) Vol. 2, Ch. 2, Sec. 2.5.1.1, P. 2-82, Par. 6: Paragraph six describes use of vehicle and equipment wash down procedures for entry into designated areas to prevent introduction of foreign agricultural and public health threats. However, the DEIS does not clearly state that wash down will be done on outbound vehicles or equipment. To prevent potential spread of ecological, agricultural and public health threats from Guam to other areas, we recommend the FEIS contain a description of specific wash down implementation measures of vehicles/equipment at both ingress and egress points within designated sites.
- A-008-058** 10) Vol. 2, Ch. 2, Sec. 2.5.1.1, P. 2-82, Par.6: The DEIS does not clearly identify that BTS barriers will be installed at vehicle/equipment wash down areas. To prevent potential spread of BTS from Guam to other areas, we recommend the FEIS include a clear commitment from DoD to installing BTS barriers at designated vehicle and equipment wash down areas.

A-008-036

Thank you for your comment. The FEIS contains updated information on potential wetland areas and steps DoD has taken to avoid/minimize impacts. The project will avoid wetlands wherever possible and many of the projects have been adjusted to avoid wetland areas. Volume 7 contains information regarding BMPs and potential mitigation measures that will be implemented to minimize impacts to wetland areas.

A-008-037

Thank you for your comment. The LEDPA discussion is in Section 4.2.8 and has been expanded for the FEIS. DoD's goal is to avoid/minimize impacts to wetlands, other Waters of the US and other aquatic resources to the maximum extent possible through project planning, siting and design and selection of the LEDPA. DoD recognizes that additional information may be requested/required following completion of the FEIS to assist with permitting actions.

A-008-038

Thank you for your comment. The Final EIS contains updated information reflecting the on-going investigation of potential wetland areas, to include (where applicable) detailed maps of water resources. The project design will avoid wetlands. We believe that freshwater aquatic natural resources can be adequately covered under the terrestrial biological resources section.

A-008-039

Thank you for your comment. The wildfire management plan is referenced in the EIS and additional areas to be covered will be added to the plan. The plan is too large to include as part of the EIS but additional information from the plan will be added to the final EIS.

- A-008-059** | 11) Vol. 2, Ch. 2, Sec. 2.5.1.2, P. 2-92, Par. 3, second bullet: The placement of fill is proposed at military firing ranges on Guam with no description of the fill's origin. Fill from off-site, including from off-island, could contain biological contaminants (e.g., weeds, insect pests, pathogens, vertebrates, invertebrates, and nonnative plant propagules, etc.) that may adversely impact fish and wildlife resources. If off-site fill is proposed for use in construction, we recommend the FEIS include a description of procedures to ensure the fill is free of biological contaminants.
- A-008-060** | 12) Vol. 2, Ch. 2, Sec. 2.5.1.2, pp. 2-95 to 2-97: The DEIS indicates that LCAC and AAV vessels will be enclosed by a BTS barrier on Guam and that a wash down system will be used to remove sand and salt from the vehicles. The wash-down facilities in the laydown area are described as being "smaller and less complex than the wash facility proposed at the cargo laydown area at Victor Wharf." It is anticipated that LCAC and AAV training and operations will entail movement of personnel, vehicles and equipment with these vessels to and from terrestrial area on other islands. Equipment, including individual clothing and boots, as well as vehicles should be contaminant-free when departing or returning to the LCAC/AAV Laydown. We support enclosure of the LCAC/AAV Laydown by a BTS barrier, but we recommend the FEIS include: (1) a description of the wash down facilities similar to that of the cargo laydown at Victor Wharf; and (2) a description of wash down procedures not only for sand and salt but also for soil or other invasive species, and that these procedures are conducted not only upon ingress but also at egress to prevent transport of invasive species.
- A-008-061** | 13) Vol. 2, Ch. 2, Sec. 2.5.1, P. 2-97: The width of the AAV ramp is provided in the DEIS, but other dimension of the AAV ramp and all dimensions of the LCAC ramp are not. Because size of ramp is directly related to impact, it is not possible to assess ramp impacts without dimensions. We recommend the FEIS include ramp dimensions, including the dimension expected to be placed in the intertidal and submerged habitat for both AAV and LCAC ramps.
- A-008-062** | 14) Vol. 2, Ch. 2, Sec. 2.5.1.2, P. 2-100, Par.3, second bullet: The DEIS contains the conclusion that no contamination from trash, debris disposal, and alien species introductions would be permitted as a result of proposed action. However, it is not possible to derive this conclusion from information provided. We recommend the FEIS include additional detail on how biosecurity and other measures will ensure contaminants and alien species are managed or contained.
- A-008-063** | 15) Vol. 2, Ch. 4, Sec. 4.1.1 to 4.1.5, pp. 4-1 to 4-64: No information on wetland-dependent wildlife species has been provided in the DEIS. We recommend the FEIS include a description of wetland-dependent wildlife resources within proposed project area and an analysis of potential impacts of proposed action on these resources.
- A-008-064** | 16) Vol. 2, Ch. 4, P. 4-24: The map provided in Figure 4.1-6 is not legible, and its scale is too large to be useful for identifying potential locations where impacts to wetlands may occur from road crossings. The figure also does not clearly indicate which roadway plans are the preferred alternative versus other alternatives, on DOD and non-DOD lands.
- There are several crossings per alternative for each proposed roadway that are not shown clearly. Text associated with this figure does not clearly describe proposed in-water work for all stream crossings. Additionally, specific roadway best management practices (BMPs) that will be

A-008-040

Thank you for your comment. The Navy acknowledges there is potential for marine resources and aquifers to be affected by sea level rise, inundations from more extreme storm events and other consequences of climate change. The impacts may be both adverse and beneficial. The current level of scientific knowledge can predict trends in sea level rise based on historic data but there are no established methods for assessing and quantifying potential impacts on marine resources or aquifers.

The University of Guam provides analysis of the aquifer responses to sea level change and recharge in a November 2007 study. Climate change may impact the success of production wells in the future (e.g., the placement of the well screen may not be optimal if the sea level rises or falls). Given the uncertainty of climate models including lack of information that is directly applicable to northern Guam and lack of specificity regarding the time and degree of impacts to conditions that could impact the aquifer, the DoD wells would be installed based on current conditions. Monitoring would be conducted during well operation. If production or water quality declines over time, DoD would take actions to mitigate the impacted wells.

A quantitative assessment of the additive or cumulative impact of climate change on the proposed action and natural resources, including aquifers, is not practical.

A-008-041

Thank you for your comment. This additional information will be added to the Executive Summary Table.

A-008-042

Thank you for your comment. There are existing protocols in place for

A-008-064 implemented to avoid and minimize impacts to waters or wetlands are not described in detail. We recommend the FEIS include: (1) a clear map or series of maps that show all roadway crossings of wetlands and waters regardless of whether impact area is on or off of DOD land; (2) clarified text regarding: a) description of alternative alignments for roadways shown in the figure; b) references to analyses used to select preferred alternative; c) descriptions of proposed in-water work activities; and d) descriptions of all proposed BMPs for all stream and wetland crossings.

A-008-065 17) Vol. 2, Ch. 4, P. 4-30: The DEIS contains a description of two wetland areas on and adjacent to Air Force Barrigada (NAVFAC Marianas unpublished data 1998, and USFWS 2009), one of which was mapped by the National Wetland Inventory (NWI) and appeared to no longer exist. Biologists who surveyed the site suggested that the NWI-indicated wetland areas may represent historical data because they did not observe any obvious wetland areas. Hence, these mapped wetlands are referred to as “potential” wetlands (see Table 4.1-2) in the DEIS.

The biologists also noted that areas indicated on NWI maps are being used for agricultural activities and do not reflect a typical wetland condition. However, this conclusion was based on an “informal observation.” Additionally, the DEIS did not clearly identify whether construction or operational activities are proposed at these referenced sites.

We recommend: (1) In coordination with the Natural Resource Conservation Service (NRCS), the lead federal agency responsible for wetland delineations on agricultural land under Section 404 of the Clean Water Act (CWA), conduct a more thorough wetland delineation of the area with consideration for atypical site conditions; and (2) Clarify in the FEIS if construction or operational activities are proposed for the referenced sites. If development or other habitat alteration is not proposed or indirect impacts from activities in close proximity are not anticipated, there would be no need for a more thorough delineation. If further analysis shows that impacts to wetlands are proposed, compensatory mitigation under CWA will be required and should be identified in the FEIS.

A-008-066 18) Vol. 2, Ch. 4, P. 4-40: The DEIS contains a statement that erosion upstream of crossings within proposed project area is common and contributes to downstream sedimentation. The DEIS does not adequately describe individual (site-specific), indirect, or cumulative impacts on aquatic resources or mitigation for these impacts from sedimentation. We recommend the FEIS include: (1) a thorough analysis of all impacts associated with stream crossing regardless of whether work is occurring in-water or otherwise. (2) a description of mitigation to off-set these impacts. We recommend that DOD consider using a watershed-scale approach to collectively mitigate for all stream and wetland impacts.

A-008-067 19) Vol. 2, Ch. 4, P. 4-40: The DEIS contains a statement that stream-derived sediment in Agana (Hagatna) Bay has been found to contain heavy metals, such as copper and zinc. However, it was not clear if sediment from other areas has been analyzed for heavy metal contamination. We recommend clear description in the FEIS and appending data if sediment analyses have been conducted to determine if other areas have contaminants in the sediment. If these analyses have not been conducted, we recommend that these analyses are included in the FEIS as well as appropriate mitigation to off-set these potential impacts.

A-008-068 20) Vol. 2, Ch. 4, Sec. 4.1.4.1, P. 4-46: The dredging areas provided in Figure 2.5-3 (P. 2-84) and 4.1-28 (P. 4-46) do not appear to be the same. It is not clear from the description where

invasive species. Additionally, protocols for invasive species are included in the Biosecurity Plan that is under development.

A-008-043

Thank you for your comment. In addition to continuing to implement existing standard operating procedures and DoD requirements covering the inspection and transport of material and personnel from Guam to other locations, the Navy is also funding and coordinating the preparation of a Micronesian Biosecurity Plan. This plan will address all aspects of the potential for the transport of the brown tree snake, and all potential non-native invasive species, to other Pacific Islands and from other locations to Guam due to the military activities originating on Guam.

A-008-044

Thank you for your comment. These details will be provided in the FEIS, included in the risk assessments, and discussed in the Micronesia Biosecurity Plan.

A-008-045

Thank you for your comment. Prior to any clearing, surveys would be conducted in any areas that potentially harbor protected plant species. Procedures and disposition of these plants would be decided with input from the appropriate authorities. A salvage and re-use plan for plants would be developed or required of contractors before clearing began.

A-008-046

Thank you for your comment. This will be incorporated into any plant re-use plan.

A-008-047

Thank you for your comment. There are risk assessments being

A-008-068 dredging will occur in Inner Apra Harbor. We recommend the dredging area is consistently and clearly delineated on all figures.

A-008-069 21) Vol. 2, Ch. 4, Sec. 4.1.4.1, pp. 4-46 through 4-47: Information on sediment depth at which sediment samples were collected is not provided in the DEIS. Dredging will remove from 3-15 feet of sediment/rock. Sediment samples should reflect changing chemical characteristics at various sediment depths, and therefore, should be sufficiently deep to capture changes in chemical and physical characteristics. We recommend the FEIS include additional information on methods used to collect the sediment samples, or cite the appropriate study. If sediments were only taken at the surface, we recommend that deeper, more representative sediment cores be obtained and analyzed.

22) Vol. 2, Ch.4, Sec. 4.1.4.1, P. 4-50: The text refers to Table 3-2 that cannot be located. We recommend that appropriate table is referenced in the FEIS.

A-008-070 23) Vol. 2, Ch.4, P. 4-72: The DoD appropriately considered several factors when evaluating significance of impacts to wetlands and water resources. However, information on specific location of wetland resources and the scale of potential wetland impacts was not provided and is necessary to apply these factors to determination of significance, consistent with NEPA and CWA guidelines. We recommend the FEIS include adequate information describing boundaries and functions of wetlands and fresh water resources and use this information in determining significance of impacts.

24) Vol. 2, Ch.4, P. 4-72: We are concerned that DoD views avoidance of impacts and use of BMPs as compensatory mitigation. However, these actions do not constitute compensatory mitigation as described under the CWA. Any unavoidable impacts to wetlands will require compensatory mitigation. We recommend that the DoD identify unavoidable project impacts to aquatic habitats and develop appropriate compensatory mitigation to off-set these potential functional losses. This mitigation should be consistent with the 2008 Compensatory Mitigation Rule. We recommend that DOD use a watershed-scale approach to collectively mitigate for all stream and wetland impacts.

A-008-071 25) Vol. 2, Ch. 4, Sec. 4.2.2.3, P. 4-88: The data to support the conclusion that sediment will disperse 1,650 feet from the edge of the dredged footprint have not been provided. We are concerned that this distance will bring sediment plume into a coral-rich area within the channel between Inner and Outer Apra Harbor and may result in indirect impacts to these organisms. We recommend the FEIS include the data to support the sediment dispersion distance.

26) Vol. 2, Ch. 4, Sec. 4.2.2.3, P. 4-89: Given the fine grain size of the sediment particles described for Inner Apra Harbor, it seems unlikely the visible plume would dissipate within an hour or two from cessation of dredging. Settlement rates of clays and silt are on the order of less than 2 meters per hour and can be as low as 0.008 meters per hour. We recommend the FEIS include the data used to reach this conclusion.

27) Vol. 2, Ch.4, Sec. 4.2.2.3, P. 4-89: The dispersion modeling study referenced in the text does not appear in Appendix D. If text actually refers to CVN dispersion study in Appendix E, this study does not appear to be appropriate for Inner Apra Harbor because no dispersion modeling was done within proposed dredge area. We recommend that an analysis using appropriate dispersion study be included in the FEIS and the study be appended.

conducted that include invertebrates, plants and diseases. The results of these risk assessments (e.g., human and wildlife diseases) will be included in the Micronesia Biosecurity Plan.

A-008-048

Thank you for your comment. The definition will be updated.

A-008-049

Thank you for your comment. Training impacts have been included in the analysis. Much of this analysis has been from indirect impacts of noise and disturbance and has been accomplished by calculating the amount of habitat areas that would be affected.

A-008-050

Thank you for your comment. We believe freshwater aquatic impacts are best evaluated under the terrestrial biological resources section. Changing it now would be confusing to many reviewers.

A-008-051

Thank you for your comment. The FEIS will be revised to include Final BA updates that were submitted to the USFWS to initiate the ESA Section 7 consultation process.

A-008-052

Thank you for your comment. As depicted in Volume 2 of the EIS, the proposed dredging in Inner Apra Harbor would excavate marine sediment from the Harbor floor as well as remove coral that is attached to structures that would be replaced. DoD will work with the USACE during the permitting phase of the proposed project to incorporate required mitigation measures. Best Management Practices such as the use of silt curtains would be installed to mitigate adverse effects of suspended sediment caused by dredging and in-water

- A-008-072** | 28) Vol. 2, Ch.4, Sec. 4.2.2.3, P. 4-89: The literature citation for Erikson (2009) is not in the reference list for chapter 4. We recommend that all references cited in the DEIS are included in the FEIS reference lists.
- 29) Vol. 2, Ch.4, Sec. 4.2.8.1, P. 4-128: Referenced discussion cannot be located in appendix cited. We recommend the FEIS include all correct appendices and/or citations.
- A-008-073** | 30) Vol. 2, Ch. 4, Sec. 4.2.8.1, P. 4-129 and P. 4-131: The conclusion that no coral will be potentially impacted by Inner Harbor dredging operation is not supported by data presented. On page 4-88 it has been estimated that “the uncontrolled turbidity plume downstream of a typical clamshell operation may extend approximately 990 ft (302 m) at the surface and 1,650 ft (503 m) near the bottom.” On page 4-29, coral are identified as being 1,500 ft. from the dredge area. Based on this information, uncontrolled turbidity plume will reach areas of coral. We recommend the FEIS contain a reanalysis of these potential impacts from Inner Apra Harbor dredging operation, and any unavoidable impacts to corals are appropriately mitigated.
- A-008-074** | 31) Vol. 2, Ch.10, Sec.10.1.1.3, P.10-9, Par. 3: The DEIS includes a statement that “[t]he [GNWR] Overlay Refuge encompasses lands identified in recovery plans as essential habitat for the recovery of the Mariana fruit bat, Guam Micronesian kingfisher, Mariana crow, and Guam rail.” This statement should also include the Mariana gray swiftlet and Mariana common moorhen. Both endangered species are currently present on GNWR Overlay. Additionally, the GNWR Overlay also contains essential habitat for green and hawksbill sea turtles. We recommend that: (1) this statement is revised in the FEIS to acknowledge that the GNWR Overlay includes essential habitat for the Mariana gray swiftlet, Mariana common moorhen, and green and hawksbill sea turtles and that (2) the FEIS include a map showing where referenced habitat is in relation to proposed actions; and (3) the FEIS include an analysis of impacts to biological resources and their habitats.
- A-008-075** | 32) Vol. 2, Ch.10, Sec.10.1.1.3, pp. 10-12 to 10-13: The DEIS contains a statement that recovery plans for Guam Mariana fruit bat, little Mariana fruit bat, Guam Micronesian kingfisher, Mariana crow, and Guam rail list control of BTS contain important management actions. We agree that BTS control and eradication are paramount to threatened and endangered species recovery; however, these plans also identify numerous additional invasive species affecting recovery. These threats may include ungulates, monitor lizards, cats, and rodents. While recognition of BTS is important, we recommend that: (1) sections of the FEIS that list BTS as a threat to listed species also include recognition of other potential invasive species threats; and (2) that important management actions referenced in recovery plans will be implemented.
- A-008-076** | 33) Vol. 2, Ch. 10, pp.10-12 and 10-14: The DEIS provides estimates for amount of habitat necessary for the Guam Micronesian kingfisher and Mariana crow to ensure their long-term survival and recovery. We have recently updated information on amount and type of habitat and the number of individuals necessary to recover these species and have provided this information to the Navy as part of the Section 7 consultation. We recommend this information is included in the FEIS for consistency with the Section 7 consultation.
- 34) Vol. 2, Ch. 10, P. 10-12: The DEIS indicates there are approximately 170 breeding pairs of Mariana crows. This number is outdated and currently the population has declined to approximately 60 breeding pairs of Mariana crow, all of which are on Rota (Ha *et al.* 2008, p. 9).

construction. DoD does not concur that the dredging of soft sediment or the removal of coral on man-made structures requires specific mitigation measures. After the short term impacts from dredging cease, the Harbor floor would continue to be soft sediment and coral would be expected to grow on replacement marine structures.

A-008-053

Thank you for your comment.

A-008-054

Thank you for your comment. DoD recognizes that there would be environmental impacts associated with the proposed military relocation program. The alternatives analysis presented in the Final EIS depict impacts associated with each action alternative. The EIS process identifies ways to implement the proposed relocation while minimizing adverse impacts.

A-008-055

Thank you for your comment. The proposed action does not include additional aviation training over Fena Reservoir. The maneuver training area that is depicted in Fig 2.3-3 is for land training and not aviation training. The only aviation training that would occur as part of the proposed action within the NMS is associated with the use of the Landing Zones (LZs) and aircraft would not need to transit over Fena Reservoir for training to and from the LZs. Additional aviation training is proposed south of Fena Reservoir.

A-008-056

Thank you for your comment. The Naval Munitions Site (NMS) is an operating munitions storage area. Existing conservation measures on these lands would be continued under the proposed action. According to Section 10.2.2.6, no maneuver and navigation training would occur in

A-008-076

We recommend the FEIS include updated information on breeding pairs of Mariana crows and this information is used in analysis of impacts on these species.

35) Vol. 2, Ch. 10, pp. 10-12 and 10-14: The DEIS indicates that recovery plans are established for four species on Guam (Mariana fruit bat, Guam Micronesian kingfisher, Mariana crow, and Guam rail). The FWS also has approved recovery plans for the Mariana common moorhen, Mariana swiftlet, and a native tree, *Serianthes nelsonii*, and joint plans with National Marine Fisheries Service for the green sea turtle and the hawksbill sea turtle. We recommend the number of recovery plans noted in the FEIS is corrected as six recovery plans and two joint plans.

36) Vol. 2, Ch. 10, pp. 10-14, Tbl. 10.1-2: Impacts to candidate species in general were not properly assessed because surveys for some species were incomplete or not conducted and known locations were not included in the DEIS.

For example: (1) candidate tree snails were observed at Orote Point in 1989, in the Aguada/Sasa Bay area near Naval Base Guam in 1996, and near the main gate of Naval Base Guam in 2003; and (2) the Mariana eight-spot butterfly was recorded on or near NCTS Finegayan, the former FAA parcel, Navy Barrigada, Air Force Barrigada, Naval Base Guam, NMS, and the NMS Access Road in 1995 or 1996.

Although surveys for the Mariana wandering butterfly (*Vagrans egistina*) have failed to detect the species on Guam since 1979, these surveys have not been comprehensive. The species was considered widespread but rare when first described on the island and therefore, may exist within proposed action area. Candidate tree snails, the Mariana eight spot butterfly and the Mariana wandering butterfly are not listed as occurring at these sites in the Table 10.1-2, and it appears that no surveys were conducted to demonstrate they no longer exist at these locations.

We recommend that surveys to detect presence of candidate tree snails, the Mariana eight spot butterfly, and the Mariana wandering butterfly (*Vagrans egistina*) are conducted at any location within proposed action area that is potential habitat for the species. If located, we recommend that appropriate analysis is conducted to assess potential impacts of proposed action on these species.

A-008-077

37) Vol. 2, Ch.10, Sec. 10.1.2.1, P.10-18, Par. 6: The DEIS contains the statement: "...ten (10) reptile species... are considered native..." Guam lists eight native species as threatened or endangered. Three additional non-listed native reptiles are known from Guam, including the mutilating gecko, blue tailed skink, and the mourning gecko, for a total of eleven (11) native species. We recommend this number is revised in the FEIS.

38) Vol. 2, Ch.10, Sec.10.1.2.2, P.10-21, Par 5: The DEIS contains a statement that "Air Force provides annual funding to support a BTS trapping program and other studies." However, the Air Force provides only partial funding to support the BTS trapping program and other studies. We recommend that this statement is revised in the FEIS.

39) Vol. 2, Ch. 10, P. 10-28: The DEIS includes a statement that there is only one mature fire tree (*Serianthes nelsonii*) remaining on Guam (Adams 2009), and the number of surviving outplanted individuals and wild seedlings is unknown. No surveys of three outplanting areas

areas with known Mariana common moorhen nesting activity. In addition, the policy for maintaining the 328 ft (100 m) radius No-Training Areas around the three known Mariana swiftlet caves within the NMS would continue. Therefore, there would be no adverse impact to the habitat for these species.

A-008-057

Thank you for your comment. Additional information on biosecurity has been included in Chapters 10 and 11 of Volume 2 of this Final EIS.

A-008-058

Thank you for your comment. The Final EIS includes information about avoiding the spread of the invasive Brown Tree Snake (BTS). In addition, DoD has on-going preventive and inspection measures as well as sponsoring the development of a Bio-Security Plan aimed at preventing the spread of BTS.

A-008-059

Thank you for your comment. DoD has procedures to inspect off site fill material when appropriate. Additional discussion of biosecurity procedures are included in Chapter 10 and 11 of Volume 2 of this Final EIS.

A-008-060

Thank you for your comment. Information on biosecurity procedures have added to Chapters 10 and 11 of Volume 2 of this Final EIS.

A-008-061

Thank you for your comment. Information on the dimensions of these proposed ramps and impacts on intertidal area has been clarified in Volume 2 Chapter 4 of the Final EIS.

- A-008-077** have been conducted. It is not clear in the DEIS if the area where wild seedlings has been observed has actually been resurveyed.
- We recommend that: (1) the outplanted area and the area where wild seedlings were last observed should be surveyed; and (2) the FEIS include analysis of potential impacts to this species and description of measures that will be implemented to conserve it (e.g., protect and manage areas with seedlings to ensure survival, growth, and encourage recruitment).
- 40) Vol. 2, Ch.10, Sec.10.1.2.2, P.10-31 and 10-62: The presence of the coconut rhinoceros beetles, an invasive species, is not acknowledged in the DEIS. This species has been found in traps at the Naval Computer and Telecommunications Station (NCTS) and at Spanish Steps. This beetle's host plant is the coconut palm tree and damage resulting from this species is known to negatively affect biological, aesthetic, and economic resources. We recommend the FEIS include an analysis of potential for DoD activities to exacerbate the spread and impact of this species. Additionally, we recommend that biosecurity measures be identified and implemented to reduce risk of transporting this beetle within and off Guam.
- A-008-078** 41) Vol. 2, Ch. 10, P. 10-53, Fig. 10.1-20: The figure does not include a proposed footprint for the laydown area. We recommend the FEIS include a revised figure with proposed laydown footprints for Navy Barrigada and Air Force Barrigada.
- 42) Vol. 2, Ch.10, Sec.10.1.5.1, P. 10-73, Fig. 10.1-27: Figure 10.1-27 includes only Mariana gray swiftlet sightings that occur around caves known to be used by swiftlets. Mariana gray swiftlets are known to feed at great distance from their roosting sites. Most importantly there have been numerous sightings by the GNWR, FWS, and the Guam Division of Aquatics and Wildlife biologists in the southern portion of the GNWR Overlay where training has been proposed. We recommend that Figure 10.1-27 include all Mariana gray swiftlet sightings, not just sightings occurring in small areas around caves known to be used by swiftlets.
- A-008-079** 43) Vol. 2, Ch.10, Sec. 10.2.1.1, P.10-78, Par. 2: The DEIS does not contain an assessment of proposed actions within the GNWR Overlay for compatibility with its established purposes. We recommend that (1) purposes of the GNWR Overlay are added to bulleted list of general principles used to evaluate impacts; and (2) that all actions proposed to occur within GNWR Overlay are evaluated for their consistency with purposes for which the refuge was established. Actions not consistent with purposes of the refuge should be considered significant and general avoided to the extent possible.
- 44) Vol. 2, Ch.10, Sec. 10.2.1.1, P.10-78, Par. 2: The DEIS does not include data or describe analysis used to conclude that actions impacting a significant amount of the GNWR Overlay are "very minor in the context of the surrounding forest areas." We recommend the FEIS include data and analysis used to reach this conclusion.
- A-008-080** 45) Vol. 2, Ch. 10, Sec. 10.2.1.2, P. 10-78, Par. 4: The DEIS contains the conclusion that only impacts to primary forest are significant. Disturbed limestone forest is valuable habitat for many native plants and animals and can aid in recovery of some threatened, endangered, and island-extirpated species. Additionally, disturbed limestone forest is easier to restore than grass lands. We recommend that: (1) significance criteria are changed in the FEIS to account for the importance of disturbed limestone forest to threatened and endangered species; and (2) that

A-008-062

Thank you for your comment. The Final EIS includes more detailed information on measures that DoD would undertake, in addition to current control practices, to prevent the spread of invasive species. Efforts have been underway in the development of a bio-security plan. Although the bio-security plan is not completed, the Final EIS provides more detailed information based on the progress on the bio-security plan. Details of this information are provided in the terrestrial biology sections, primarily in Volumes 2 (Chapter 10) and 7.

A-008-063

Thank you for your comment. Very few wetland-dependent species would be impacted because there are very few impacts to wetlands. Impacts to the wetland-dependent Mariana common moorhen have been evaluated.

A-008-064

Thank you for your comment. Figure 4.1-6, Volume 2, Chapter 4 illustrates only significant surface waters and watersheds for purposes of describing existing conditions of water resources within the roadway project limits. Wetlands and other Waters of the US (WUS) within the roadway project limits are discussed in Volume 2, Chapter 10. Roadway project alternatives and their projected impacts to wetlands and crossings are discussed in Volume 6, Chapter 12. The FEIS has been updated to reflect the latest wetlands/WUS information.

A-008-065

Thank you for your comment. The FEIS will contain updated information reflecting the on-going additional investigation of this and other potential wetland areas. As depicted on Figure 4.2-4 and explained in the preceding text, the area would be developed for proposed cantonment, housing/support, and non-fire training facilities.

A-008-080 impacts to disturbed limestone habitat are reduced by shifting proposed projects to grassland or other previously developed areas.

A-008-081 46) Vol. 2, Ch. 10, P. 10-89 and throughout Ch. 10: The impact assessment tables within the DEIS are greatly improved from previous drafts of this document reviewed by FWS. However, additional clarification is still necessary to fully compare alternatives. The DEIS does not include impacts to the Mariana fruit bat (*Pteropus mariannus mariannus*) from construction noise, lighting, and human activity at munitions storage area's (MSA) new magazines. Additionally, totals within a column do not add correctly. For some areas, direct and indirect effects are likely to overlap if totals are added, resulting in an overestimation of potential impacts due to double counting of effects. Currently the reader must flip back and forth through multiple pages of text to compare alternatives. As a result, the summary on page 10-133 is not clear. We recommend the FEIS include: (1) analysis of impacts on the Mariana fruit bat from magazine construction noise, lighting, and human activity; (2) a revised table #10.2-2 (and others, as appropriate) that clearly shows direct and indirect effects and that these effects are additive within a column, and that a grand total for direct and indirect impacts can be easily calculated; and (3) a separate summary table for direct, indirect, interrelated, interdependent, and cumulative impacts for each threatened or endangered species. These tables should include all projects in each action area, including roads, utilities, Air and Missile Defense Task Force (AMDTF), etc. Additionally, we recommend that summary tables are developed for each alternative, so a reader can easily compare impacts from various alternatives.

A-008-082 47) Vol. 2, Ch., Sec.10.2.2.1, P.10-90; and Sec.10.2.2.2 pp. 10-112 and 10-119; Sec. 10.2.2.3, P. 10-123; Sec. 10.2.2.4, pp. 10-126 to 10-128, and P. 10-131: Regarding project operation and vegetation, we do not concur with the conclusion that impacts from Alternative 1, including direct impacts and potential indirect impacts from invasive plant species are less than significant. The DEIS notes that invasive plant species are likely to expand ranges and new species are likely to become introduced in some areas as a result of Alternative 1. The DEIS contains the conclusion that impacts would be less than significant since most proposed activities occur outside primary limestone forest. However, invasive species could be expected to expand their range over time and impact limestone forest and associated species outside the project area. We recommend the FEIS include: (1) reanalysis of impacts associated with spread of invasive species resulting from Alternative 1, with consideration for potential that invasive species will expand beyond project areas; and (2) descriptions of specific mitigating measures to prevent spread of invasive plants. If spread of these species cannot be ameliorated with implementation of these measures, we recommend that this impact is considered significant to primary limestone forests.

A-008-083 48) Vol. 2, Ch. 10 Sec. 10.2.2.1, P. 10-90; and Sec.10.2.2.6, P. 10-138: The DEIS contains a description of the need to update an ungulate management plan that would ultimately be implemented at Joint Region (NCTS Finegayan, Andersen Air Force Base [AAFBB], new non-DOD Lands, former FAA Parcel, and Harmon Annex) as potential mitigation. It is not clear who will implement the plan or whether implementation is being funded as part of this proposed action. Without a clear commitment to fund and implement that plan, it is not appropriate to consider it a mitigation action. We recommend the plan be developed, funded, and implemented, and that the FEIS clearly describe the plan, how and by whom it will be implemented, and the funding source.

A-008-066

Thank you for your comment. Volume 2, Chapter 4, page 4-40 makes no statement with regards to erosion upstream of crossings within the proposed project area as being common and contributing to downstream sedimentation. This page provides a summary of findings of field investigations relating to the existing condition of bridges and where erosion has occurred or is occurring. Impacts to water resources and corresponding mitigation measures are described in Volume 6, Chapter 6, Section 6.2.6. Impacts to surface water/stormwater, groundwater and nearshore waters were identified and best management practices, including but not limited to, temporary soil stabilization, temporary sediment control, scheduling, waste management, materials handling, water diversion, etc., are proposed.

A-008-067

Thank you for your comment. Volume 2, Chapter 4 describes the existing conditions of water resources, specifically that of Agana Bay in the Central region, indicating the presence of contaminated sediments, as derived from past studies. It is not anticipated that heavy metal-contaminated sediment would be deposited to downstream water resources as a result of constructing and operating the improved roads and new bridges, with the implementation of mitigation measures and best management practices (BMPs) described in Volume 6, Chapter 6, Section 6.2.6 of the EIS. Information derived from a sediment analyses would be useful only in refining mitigation measures and BMPs if the contamination source is identified and controlled.

A-008-068

Thank you for your comment. Dredge locations depicted on 4.1-28 are associated with Sierra Wharf and other dredging projects in Outer Apra Harbor for Charlie and SRF Wharves; the polygons have been removed from this figure to avoid confusion. The proposed dredge areas for Inner Apra Harbor are correctly presented on Figure 2.5-3.

A-008-084

49) Vol. 2, Ch.10, Sec.10.2.2.1, pp.10-97 to 10-98: The DEIS describes the DoD's intention to develop biosecurity plans (*i.e.*, the BSP), but does not clearly state a commitment to implement these plans on the ground. The existence of plans and policies, as well as development of new plans, alone cannot be considered mitigation for impacts. Implementation of plans should be considered actual mitigation. We also recommend the FEIS include language that clearly identifies the DoD's commitment to implement all plans proposed as mitigation for impacts.

50) Vol. 2, Ch. 10, Sec.10.2.2.1, P.10-105: The Haputo Beach area contains the only known fragile tree snail (*Samoana fragilis*) colony on Guam, and status of the species on Rota is uncertain. Therefore, any impacts to this colony are significant, as individuals at this site may be the last of the species. This species is candidate for listing under the ESA. The proposed mitigation for impacts to this colony (*i.e.*, restricted use of the area) is not sufficient to protect this species from adverse impacts. We recommend this area be fenced from human intrusion, and all ungulates removed from this site to minimize impacts to snail habitat. We also recommend the Pugua area be fenced, all ungulates removed, and access be limited (guided trips by trained personnel) to reduce potential impacts to tree snails.

51) Vol.2, Ch.10, Sec. 10.2.2.2, pp. 10-112, 10-115, 10-117: Training or ordnance-ignited fires at proposed ranges under each alternative could impact areas supporting the Mariana eight-spot butterfly under both Alternatives A and B. Potential impacts of these fires on this species were not considered in the DEIS. Sites known to support this species on Guam are limited and impacts to the species at this site could have significant impacts on long-term viability of the Guam population. We recommend the FEIS include: (1) an analysis of potential impacts from training-related fires to the Mariana eight-spot butterfly; (2) a commitment to fence the entire area below the range and remove all ungulates from the area prior to initiation of training at the site. This will remove ungulate impacts and promote regeneration of host plants for the Mariana eight-spot butterfly; and (3) A statement that clearing for fences and the access road will not be conducted until after Mariana eight-spot host plants in the area are identified to be free from eggs or larvae of this species.

52) Vol. 2, Ch. 10, Sec. 10.2.2.3 P. 10-123: Mariana moorhen is not the correct common name for this species. We recommend the correct common name for this species, Mariana common moorhen, is used throughout the FEIS.

A-008-085

53) Vol. 2, Ch. 10, P. 10-134: The DEIS indicates that existing conservation measures will continue to be implemented at AAFB. However, at least two Alternatives proposed for the AMDTF will impact mitigation areas set up during the ISR Strike Record of Decision and Section 7 Consultation. No mitigation is proposed to offset impacts. In addition, impacts to an already established mitigation area would require double the mitigation to offset impacts for habitat lost. We recommend all alternatives are modified so that they do not affect existing mitigation or conservation areas.

A-008-086

54) Vol. 2, Ch. 10, Sec. 10.2.2.6, P. 10-136, Bullets 6 - 9: The DEIS contains the statement that only military personnel will be allowed to use the road to the NMS southern training area. We recommend that DoD allow refuge staff conducting management activities on GNWR Overlay to use this access road.

55) Vol. 2, Ch. 10, Sec. 10.2.2.6, P. 10-136, Bullets 6 - 9: The DEIS does not provide sufficient details on proposed avoidance and mitigation measures for effects on special status species. For

A-008-069

Thank you for your comment. Sediment samples were taken at depths up to -52 feet MLLW, which translates into sediment core lengths of up to 43 feet. On average sediment cores were approximately 11 feet long. Information on sediment depths and source of study has been added to EIS.

The reference to table was incorrectly cited from source document and has been removed from EIS.

A-008-070

Thank you for your comment. The FEIS contains updated information on potential wetland areas, functions and projected impacts. Projects have been sited and designed to avoid wetlands and other WUS. As explained in the FEIS, if avoidance is not possible, then the Navy would minimize potential impacts. Unavoidable wetland impacts will be mitigated. Compensation for the unavoidable fill of the wetlands would be accomplished by creating new wetlands, restoring or enhancing existing wetlands or preserving existing wetland areas on Guam. Final mitigation requirements will be determined as part of the USACE permitting process.

A-008-071

Thank you for your comments. There is no data provided in the source document for this estimate. This is a general statement presented as a general observation of unconstrained sediment plume behavior under a variety of conditions from several dredging projects. Actual project-specific dredge plume predictions are presented in the document and are based on monitored conditions observed within the project area and the use of silt curtains for turbidity control. The model data and results are presented in Appendix E of the EIS.

26.) This statement is in regards to general observation of

A-008-086 example, additional information is needed to define the lighting levels that will occur near beaches and to describe the propagation efforts for *Heritiera longipetiolata*. We recommend the FEIS include: (1) specified levels and locations for all lighting; and (2) identification of the responsible entity for propagation efforts, locations and timelines for transplanting.

56) Vol. 2, Ch. 10, Sec. 10.2.2.6, P. 10-136, first bullet; also see Vol. 3, Ch. 10, P. 10-12: The DEIS does not describe biosecurity measures that will be implemented to minimize impacts from invasive species. The FWS cannot adequately assess effects of proposed biosecurity measures without sufficient detail. Additionally, the existence of plans and policies, as well as development of new plans, alone cannot be considered mitigation for impacts. Implementation of appropriate plans should be considered mitigation. If the timing of the BSP or other appropriate plans does not allow for inclusion in the FEIS, we recommend the DoD: (1) take specific interim actions to minimize impacts from invasive species and describe these actions in detail in the FEIS; and (2) include specific language in the FEIS that clearly identifies the DoD commitment to implement all plans proposed as mitigation for impacts. Moreover, no construction, operations, or transportation of materials should commence until appropriate biosecurity measures are in place (finalized BSP that has received FWS concurrence or other FWS-agreed upon interim biosecurity measures) and implemented.

57) Vol. 2, Ch. 10, Sec. 10.2.2.6, P. 10-137, third bullet; also see Vol. 3, Ch. 10, P. 10-11: The DEIS does contain specific descriptions of the responsibilities of each collaborator on how the Joint Region BTS Control Plan will be funded. Since the DEIS references actions of this BTS Plan in relation to proposed activity, we recommend that the FEIS contain a full description of agency roles and responsibilities, funding, and implementation of the Joint Regional BTS Control Plan. Moreover, the plan should be fully implemented on Guam prior to initiating any proposed actions.

58) Vol. 2, Ch. 10, Sec. 10.2.2.6, P. 10-137, fourth bullet; also see Vol. 3, Ch. 10, P. 10-11: The DoD Defense Transportation Regulations: Chapter 505 protocols regarding the 100% inspection of outgoing vessels and aircraft with dog teams does not address inspections of incoming vessels and aircraft. We recommend standards described in DOD Defense Transportation Regulations: Chapter 505 protocols also be applied to incoming vessels and aircraft.

59) Vol. 2, Ch. 10, Sec. 10.2.2.6, P. 10-137, fifth bullet; also see Vol. 3, Ch. 10, P. 10-11: Although the DEIS contains the statement that “[t]he Navy could support rapid response...” and that they “could establish temporary snake-free quarantine areas...,” no commitment to implement these actions has been made. Without commitment to conduct these actions, they should not be considered as mitigation. If DOD intends to conduct these actions, we recommend that: (1) the FEIS contain clear language indicating a commitment by the DoD to do the listed items (*i.e.*, “will” instead of “could”); (2) include specific information in the FEIS on how each mitigative action will be accomplished; and (3) the FEIS should contain a clear statement that these actions will be implemented prior to initiating any proposed actions.

A-008-087 60) Vol. 2, Ch. 10, Sec. 10.2.1.2, P. 10-137, Par. 2: The proposed action includes military housing within the GNWR Overlay. Currently, pets are not allowed on the GNWR Overlay. We recommend the FEIS include a description of intended policy on pets within the proposed housing area. If DOD proposes to allow pets within the GNWR Overlay, we recommend coordination with refuge staff to determine actions needed to mitigate this potential impact to refuge resources. This use, if found inconsistent with the purpose of the refuge, may necessitate

unconstrained sediment plume behavior under a variety of conditions from several dredging projects. Actual project-specific TSS settlement predictions are presented in the document and are based on monitored conditions observed within the project area and the use of silt curtains for turbidity control. The model data and results are presented in Appendix E of the EIS.

27.) The three-dimensional circulation and transport model of the project area was developed using the Environmental Fluid Dynamics Code (EFDC). The model included wind and tide forcing, and fresh water inflow into the Inner Apra Harbor; the dredge plume was simulated by loading the water column with specified quantities of suspended sediment composed of 5 different grain sizes. The sediment grain distribution was determined from bottom samples taken in the project area. The model calculated transport, dispersion and deposition of the plume suspended sediments and was verified by comparing results for a simulation of December 15 to 17, 2007 trade wind conditions with the actual instrument measurements. Use of a silt curtain was simulated based on 145 days of TSS measurements inside and outside of the silt curtain deployed for the Alpha-Bravo dredging project in Inner Apra Harbor and model computed TSS levels compared well with the Alpha-Bravo measurements. Possible worst case conditions were simulated by approximating the highest 10% TSS levels recorded outside of the silt curtain during the Alpha-Bravo dredging project, during strong trade wind conditions. This worse case scenario data generated by the model is presented as a conservative estimate of conditions that would be observed during the dredging of Inner Apra Harbor. Actual conditions are expected to be less.

A-008-072

Thank you for your comment. Reference for Eriksen 2009 has been added to the reference section. Reference section updated.

- A-008-087** | these lands be withdrawn from the GNWR Overlay. If this occurs, we recommend that DOD work with refuge staff to develop appropriate mitigation to offset this loss of habitat.
- A-008-088** | 61) Vol. 2, Ch. 10, Sec. 10.2.2.6, P. 10-139, Par. 4: The DEIS notes that the Navy cannot require inspection for invasive species in non-DoD cargo, but the plan would be available for others to use. However, the FEIS should more thoroughly address related project impacts of moving DoD personnel and goods through commercial carriers and ports. If the DoD cannot ensure proper conservation measures are implemented, these measures cannot be considered BMPs or mitigation and impacts should be analyzed accordingly as if BMPs have not occurred. Therefore, we recommend: (1) the FEIS should include re-analyzed impacts of moving DoD personnel and goods through commercial carriers and ports with consideration for only existing implemented BMPs and conservation measures used by those carriers and ports, unless the DoD can ensure additional BMPs will be implemented; and (2) the DoD should continue to coordinate with non-DoD carriers and ports and attempt to formalize roles and responsibilities via formal agreements to ensure that adequate BMPs and conservation measures are fully implemented.
- 62) Vol. 2, Ch. 10, Sec. 10.2.2.6, P. 10-140, Par. 1: Please refer to our comment for Vol. 2, Ch. 10, Sec. 10.2.2.6, P. 10-137.
- 63) Vol. 2, Ch. 10, Sec. 10.2.3.1 P. 140-141 Par. 4: The DEIS contains a description of fenced enclosures. However, the type of fencing proposed for these enclosures is unclear regarding if fencing is for exclusion of BTS, ungulates, rats, dogs, monitor lizards, cats, etc. The proposed action presents an opportunity for the FWS and DOD to work cooperatively to establish an area free of vertebrate invasive species that could serve as a location for reintroduction of threatened and endangered bird species. We recommend the DoD install a multi-species barrier to exclude all feral animals.
- 64) Vol. 2, Ch. 10, Sec. 10.2.2.6, P. 141, Par. 3: The DEIS contains the statement that *Acacia* will be used in greenbelt, but does not identify the species. Many *Acacia species* are aggressive invasive species in the tropics and subtropics, including the Pacific Islands, and can be hard to manage. We recommend planting native species in the greenbelt where possible. If not possible, we recommend the FEIS include additional information on the non-native trees, including an identification of specific species, and analysis of the trees' potential impact on federal trust resources.
- A-008-089** | 65) Vol. 2, Ch. 10, Sec. 10.2.2.6, P. 141, Par. 4: Air Force personnel have stated concerns about poaching of bats, crows, coconut crabs etc. We recommend the DoD commit to additional patrolling and enforcement and using Federal law enforcement officers.
- A-008-090** | 66) Vol. 2, Ch. 10, Sec. 10.2.3.1, P. 141, Par. 6: Disturbed limestone forest is valuable habitat for many native plants and animals and can aid in recovery of some threatened, endangered, and island-extirpated species. Additionally, disturbed limestone forest is easier to restore than grass lands. We recommend: (1) the significance criteria in the FEIS is revised to account for the importance of disturbed limestone forest to threatened and endangered species; and (2) reduce impacts to disturbed limestone habitat by shifting proposed projects to grassland areas.
- A-008-091** | 67) Vol. 2, Ch. 10, Sec. 10.2.3.1, P. 143, Par. 4: As described in the DEIS, surveys for Mariana fruit bat are inadequate. Description of survey methods is not clear. For example, it is not clear if observation days mentioned are 24 hour periods or 2 hour periods. Additionally, ten

A-008-073

Thank you for your comment. The turbidity plume created by dredging within the Inner Apra Harbor will be controlled through mitigation measures and BMPs employed per USACE permit requirements. Silt curtains will be utilized, which have contained up to 90% of the resuspension based on data from previous inner harbor dredging projects. It is not anticipated that the coral reef ecosystem at the entrance channel to Inner Apra Harbor (closest reef) will experience TSS levels above the already turbid existing conditions.

A-008-074

Thank you for your comment. The DEIS contains maps showing where all of the Guam Overlay Refuge has been designated in relation to proposed projects and it also includes an analysis of impacts to all those designated habitat areas. Essential habitat has not been specifically identified for for the moorhen, swiftlet, or sea turtles within their respective Recovery Plans.

A-008-075

Thank you for your comment. The addition of other specific invasive species will be added where appropriate. The identification of additional species and management needs may result from the risk assessments being conducted. Management actions are currently being discussed with USFWS in connection with the Biological Assessment and Biological Opinion and the outcome of these discussions will be added to the FEIS.

A-008-076

Thank you for your comment. The referenced information on endangered species will be updated. Candidate species were evaluated in the field in all known areas where there is a reasonable potential for them to occur based on existing information except possibly for a tree snail

- A-008-091** | observation days are not sufficient to draw conclusions. However, given low total number of bats on Guam (approximately 30 individuals at Pati Point roosting site, communication with Jeff Quitugua), two sightings would appear to be a significant number. We recommend the FEIS contain description of all efforts to locate roosting areas, including date last roosting area survey was completed.
- A-008-092** | 68) Vol. 2, Ch. 10, Sec. 10.2.4.2, P. 10-151: The DEIS contains a proposal to minimize impacts to less than significant for the Guam tree snail (*Partula radiolata*) by relocating them to another site. A translocation plan for this species has not been provided in the DEIS. Translocation sites have not been identified. Previous experience with other Pacific tree snails has shown them to have high site fidelity. Guam tree snails are known only from a limited number of sites on Guam, and loss of snails at this site due to construction and translocation could impact long-term viability of the Guam population. Due to these factors, insufficient information is presented to conclude that impacts to the species will be less than significant. We recommend that a translocation plan be developed and approved by the FWS, Guam, and species experts prior to any translocation. If this plan is not included in the FEIS, we recommend impact be considered significant until translocation plan can be assessed by our office.
- A-008-093** | 69) Vol. 2, Ch. 10, Sec. 10.2.7, pp. 10-157 to 10-160; Tbl. 10.2-15, 10.2-16, 10.2-17, 10.2-18, and 10.2-19: Each of four alternatives lists a summary of impacts to vegetation, wildlife, and special status species. In alternatives where removal of primary limestone forest is not anticipated, vegetation impacts are typically categorized as a "less than significant impact." It is understood that direct construction, operation, or training may not impact the vegetative communities of these forests. However, the DEIS notes that invasive plant species are likely to expand their ranges, and new species are likely to be spread into some areas due to increased activities associated with proposed action. As a result, we do not concur with the conclusion that impact of the proposed action will be "less than significant" for forest vegetation. We recommend the FEIS include: (1) an analysis of impacts of invasive plant species spreading into new areas, including primary limestone forest, as a result of proposed action; and (2) mitigating measures that will prevent spread of invasive plant species as a result of proposed activities.
- A-008-094** | 70) Vol. 2, Ch. 11, Sec. 11.1.6.3, P. 11-39: The National Park Service (NPS) represents a significant conservation stakeholder in the Asan-Piti area, including ownership and/or management of over 500 acres of submerged land, yet it is not mentioned in the text and does not appear on any figures. We recommend that the NPS boundary be identified on all maps and is mentioned within text in the FEIS.
- A-008-095** | 71) Vol. 2, Ch. 11, Sec. 11.2.2, P. 11-71, Par. 4; also see Vol. 7, Sec. 3.3.10.1, P. 3-34, Par. 3: The DEIS indicates that the Navy will prepare a Regional BSP with Risk Analysis. It is not clear if this is the same as the Micronesian BSP. We recommend that these plans, if different, are described in the FEIS. If these names refer to the same plan, we recommend that a consistent name is used throughout the FEIS.
- A-008-096** | 72) Vol. 2, Ch. 11, Sec. 11.2.2.2, pp. 11-73 to 11-74: The impact analysis has not sufficiently identified or analyzed indirect impacts to coral. Based on information provided, corals are potentially within the area of an uncontrolled turbidity plume (see comment Vol. 2, # 30). We recommend the FEIS include these potential indirect impacts in the analysis.

site along the lower Fonte River near Hwy 1. Information on the historical sighting in this area has been added to the EIS and the need for pre-construction surveys are being evaluated. Within the project areas where disturbance is possible, sites where species have been historically documented based on information available to the Navy have been included in the report such as on site figures. As mentioned, the Fonte River tree snail site will be added. Several locations of eight-spot butterfly were added to figures.

A-008-077

Thank you for your comment. The recommended changes will be made. Information on the coconut rhinoceros beetle and outplanted fire trees has been added to the EIS.

A-008-078

Thank you for your comment. Figure 10.1-20 that is referenced shows existing conditions, not proposed actions. Information on locations of Mariana gray swiftlet foraging has been added to the text.

A-008-079

Thank you for your comment. Information on the Overlay Refuge purposes and an evaluation of impacts is already present in the document. Regarding the determination of an impact unless "very minor in the context of the surrounding forest areas", this statement refers only to vegetation and specifically primary limestone forest. There is no reference to Overlay Refuge with respect to this statement.

A-008-080

Thank you for your comment. Information on the Overlay Refuge purposes and an evaluation of impacts is already present in the document. Regarding the determination of an impact unless very minor in the context of the surrounding forest areas, this statement refers only

A-008-097 73) Vol. 2, Ch. 2 and 11, pp. 2-85, Par. 5; P. 2-87, Tbl. 2.5-2, and P. 11-67: The DEIS indicates that transport of Marines between Guam and CNMI would likely occur via High Speed Vessels (HSVs) and these vessels would be home-ported on Guam. It is our understanding that HSVs were not intended to be part of the current proposed action. HSV use poses significant invasive species risk, and proposed use of HSV between Guam and CNMI would require additional regulatory review from a NEPA and ESA perspective. We recommend that all reference to HSV use is removed from the FEIS.

A-008-098 *Volume 3*
1) Vol. 3, Ch. 2, Sec. 2.3.3.2, P. 2-14, Par. 2: No timetable for developing and implementing brown tree snake (BTS) control to prevent unintentional snake introductions to Tinian is provided. Additionally, no mention of a timetable for developing and implementing Biosecurity Risk Assessment and Plan is provided in the DEIS. We recommend the FEIS include: (1) a time able for BTS control, a Biosecurity Risk Assessment and a Biosecurity Plan; (2) a statement that implementation of these control measures will occur prior to starting any proposed action.

A-008-099 2) Vol.3, Ch. 2, Sec. 2.5, P. 2-23, Par. 3: The preferred alternative allows for fragmentation and weapons training in the mitigation area for Tinian monarchs set aside by DOD, CNMI, and USFWS through the Section 7 Consultation process. Preferred alternative also allows live-fire training in or close to area where Tinian monarch monitoring has been conducted by the USFWS and DOD since July 1994. Monitoring should be allowed to continue in this area, and no training should occur within long-term monitoring area. We recommend a new Preferred Alternative that avoids training impacts to designated mitigation area is selected in the FEIS. The training area should be located in non-native habitat because Tinian Monarchs occur in higher density and with higher reproductive success in limestone forest than in non-native forest. Any area removed from mitigation as a result of proposed action should be replaced by new mitigation in adjacent native forest to the north of current mitigation area.

3) Vol.3, Ch. 2, Sec. 2.5, P. 2-23, Par. 3: Alternative 1 has been selected as the preferred alternative for Tinian. However, this alternative proposes actions that will impact the Tinian Monarch mitigation area established by an MOU between FWS, DOD, and the CNMI. Alternative 3 proposes no training with the main area of the mitigation site and has similar overall impacts to alternative 1. We recommend that alternative 3 is selected as the preferred alternative.

4) Vol.3, Ch. 10, Sec. 10.1, P. 10-11, Par. 3: The DEIS is misleading when it suggests that the current population numbers of Tinian Monarch represent an increase for the species. In fact, population density levels may have declined since delisting (Camp et al. 2009); any additional habitat loss and fragmentation resulting from the proposed action are therefore of concern. We recommend that the FEIS incorporate the best available information on the current status of the Tinian Monarch, including Camp et al. (2009), and that the FEIS include an analysis of the potential for all project elements to affect population decline in the species across a longer time scale, as described by Camp et al. (2009) (see Appendix 3.1 of the survey report).

5) Vol. 3, Ch. 10, Sec. 10.2.1.2, P. 10-12, Par. 6: The DEIS contains a discussion of the importance of primary native limestone forest. However, the importance of secondary forest and non-native tangantangan to many species, including the Tinian Monarch, is not discussed. For example, although density of Tinian monarchs in tangantangan is less than in native forest, more Tinian monarchs use tangantangan than use extant native forest because of the large amount of

to vegetation and specifically primary limestone forest. There is no reference to Overlay Refuge with respect to this statement.

A-008-081

Thank you for your comment. Impacts to the fruit bat from construction noise, lighting and activity at the new magazines will be added. All relevant information on impacts for a species or for an area is presented. For example A revision of tables showing direct and indirect impact acreages was completed throughout Volume 2 and the tables have all the relevant information; acreages for any one area or species can be easily determined. Specific analyses per species are not included here because the focus of the EIS impact assessment is not on a species by species basis. Species specific analyses are included in the Biological Assessment. A table that summarizes all direct construction impacts across volumes and areas is included in Volume 7, Chapter 3.

A-008-082

Thank you for your comment. Based on observations during field studies for this EIS, impacts to primary limestone forest and other areas that have a predominantly limestone substrate (typical of primary limestone forest) are much more resistant to invasion by non-indigenous species (with the possible exception of *Triphasia trifolia*) than areas with a predominantly soil substrate. This was also noted in a comment submitted on the DEIS by Haldre Rogers of the University of Washington who has done extensive research on Guam. Since much of the areas surrounding the proposed development sites have a predominantly rocky substrate (e.g. Haputo ERA cliffline adjacent to NCTS Finegayan and areas along the cliffline at the Rt 15 site), invasive species would be less successful in these areas. In addition, many project areas are adjacent to areas that currently have disturbed habitat and these are already a source for potentially invasive species. Thus, it is concluded that the proposed action would not result in significant impacts to primary limestone forest from invasive species. However, for other resource

- A-008-099** | tangantangan habitat that is available on island. Additionally, Tinian monarchs occur more densely in secondary forest than in tangantangan, so all three forest types are important habitat for this species. We recommend that all forested habitat be considered important to native species on Tinian and that proposed actions are relocated to the extent possible to avoid and minimize impacts to forested habitat.
- 6) Vol. 3, Ch. 10, Sec. 10.2.2.1, P. 10-19, Par. 2: Indicates that construction and related disturbance would result in direct, significant impacts to the Tinian monarch that would need to be mitigated to less than significant via implementation of conservation measures. A significant threat such as this loss of habitat may require a reanalysis on the listing status of this species. We recommend a less environmentally damaging alternative be selected (see comment: Vol.3, #3) so that there are not significant impacts to this species.
- A-008-100** | 7) Vol. 3, Ch. 10, Sec.10.2.2, P. 10-22, Par. 4: The DEIS does not describe biosecurity measures that will be implemented to minimize impacts from invasive species on Tinian. The FWS cannot concur with this conclusion without details on biosecurity measures that will be implemented on Tinian. Development of a BSP alone is not considered mitigation for impacts. Implementation of the BSP should be considered actual mitigation. If timing of the BSP or other appropriate plans does not allow for inclusion in the FEIS, we recommend that: (1) specific interim actions be taken to minimize impacts from invasive species on Tinian and that these actions are completely described in detail in the FEIS; and (2) the FEIS should include language that clearly identifies DoD commitment to implement the BSP as mitigation for impacts on Tinian. Moreover, no construction, operations, or transportation of materials should commence until appropriate biosecurity measures are in place (finalized BSP that has received FWS concurrence or other FWS-agreed upon interim biosecurity measures) and implemented.
- A-008-101** | 8) Vol.3, Ch.10, Sec. 10.2.2.3, P. 10-24, Par. 4: The DEIS contains a statement that a management plan for the Tinian Monarch will be developed, but no timeline is given for its development or implementation. The DEIS includes no discussion of who will be involved in developing and implementing this plan or details on its funding. We recommend the FWS and the CNMI Division of Fish and Wildlife (DFW) are consulted on a time line for the development and implementation of the Tinian Monarch Management Plan. The FEIS should clearly state that DOD will coordinate with the FWS and DFW to develop and implement this plan. The FEIS should also describe in detail funding (e.g., source, amount, etc.) for developing and implementing the plan prior to initiating any proposed actions on Tinian.
- A-008-102** | 9) Vol.3, Ch.10, Sec. 10.2.2.3, P.10-24, Par. 5: Reforestation is discussed in the DEIS, but insufficient detail has been provided to assess potential benefits of this management action. It is unclear who will be involved in development and implementation of reforestation plan. We recommend the FEIS include: (1) a statement that DOD will coordinate with the FWS and DFW to develop and implement reforestation plan; and (2) a description of estimated costs and funding sources to develop and implement the plan prior to initiating any proposed actions on Tinian.
- A-008-103** | 10) Vol. 3, Ch. 11, Sec.11.2.2, pp. 11-22 to 11-23: The DEIS contains the conclusion that increased vessel traffic is a not significant conduit for introduced species. Yet, a discussion is included on page 11-21 regarding ballast water and hull fouling organisms as a source of introduction for non-native marine species. No measures have been described in Vol. 3 to mitigate for potential ballast water and hull fouling impacts. Significant conduits for introduction of non-native marine species through increased vessel traffic within proposed action

types there would be significant impacts from invasive species and mitigation has been proposed in the DEIS. Conservation measures included in the Biological Assessment and discussed in the Section 7 consultation include the identification of incipient populations, rapid alert, initial response and longterm maintenance (if needed).

A-008-083

Thank you for your comment. Additional information will be added on the Ungulate Management Plan and its implementation. The Ungulate Management Plan is being prepared through NAVFAC Marianas. This project will implement the ungulate management on Andersen Air Force Base and the Naval Munitions site as part of this action.

A-008-084

Thank you for your comment. The FEIS has been updated to add specific biosecurity measures to supplement existing practices that address invasive species. The FEIS has been updated to add specific biosecurity measures to supplement existing practices that address invasive species. No fence is proposed for the snail colonies at Haputo ERA to prevent human intrusion as this may attract attention to the area. If necessary, the access trail to Haputo Beach will be moved to help prevent human disturbance of the Haputo Beach snail colony. Fencing is being considered for the entire Haputo ERA along the cliffline to prevent unauthorized human entry. Depending on the recommendations in the final Ungulate Management Plan, this fencing may also be used as part of an Ungulate exclusion fence. Limitations on human use of other areas beyond the beach area would also be put in place. At the proposed ranges at the Rt 15 site a limited analysis of fire impacts to the eight-spot butterfly will be added to the EIS. Management of the area below the ranges is being discussed with Guam DAWR and they may have management control of this area. Fencing of the area would be discussed with that agency but no decision can be made at this time. Clearing at the site would not be conducted until after preconstruction

A-008-103 area exist without adequate implementation of biosecurity measures. Therefore, we recommend the FEIS include a description of existing ballast water and hull fouling BMPs applicable to vessels transporting materials to and from Tinian. If BMPs do not exist, we recommend ballast water and hull fouling be considered a significant conduit for potential introduction of invasive species and that these impacts are reanalyzed accordingly. We also recommend the FEIS describe specific BMPs that will be implemented to minimize and mitigate potential impacts.

Volume 4

A-008-104 1) Vol.4, Ch.4, general comment: Many of the literature citations in Chapter 4 do not appear in reference list. We recommend all literature citations appear in reference list.

A-008-105 2) Vol. 4, Ch. 2, Sec. 2.3, pp. 2-6 to 2-27: An alternative that reduces size of the proposed turning basin by changing the configuration has not been analyzed. NOAA has previously suggested a turning basing that is not entirely circular would meet Navy regulations because the carrier does not have a 360 degree exit arc. This alternative may have been considered yet dismissed. However, this alternative would reduce amount of dredging, reduce environmental impacts and could constitute the Least Environmentally Damaging Practicable Alternative (LEDPA). We recommend this alternative is analyzed in the FEIS.

A-008-106 3) Vol. 4, Ch. 3, Sec. 3.2.2.3, P. 3-6: The DEIS contains the conclusion that removal of 3 to greater than 13 feet of reef material will constitute minimal impact to geological resources. Removal of significant topography and organisms (corals) that are responsible for that production and maintenance of that topography may be a significant impact. It is not clear from data provided how the conclusion of "minimal impact" was reached in Table 3.2-2. We recommend the FEIS describe criteria used to reach the conclusion of minimal impact. If appropriate criteria cannot be supplied to support this conclusion, we recommend the conclusion be revised to accurately reflect anticipated impact.

4) Vol. 4, Ch. 3, Sec. 3.2.4, P. 3-8: The DEIS concludes the no action alternative, which will require no dredging or other ground removal, will result in impacts to geological resources. No data have been provided to support the conclusion. We recommend that data are provided to support conclusion of impacts to geological resources under no-action alternative. If appropriate data cannot be supplied to support this conclusion, we recommend conclusion be revised to accurately reflect anticipated impact.

5) Vol. 4, Ch. 3, Sec. 3.2.6, P. 3-9, Tbl. 3.2-4: The table identifies dredging activities as having less than significant impacts on topography of Apra Harbor, no impacts on geology of harbor, and beneficial impacts on soil. These conclusions do not appear to be supported by the fact that 3 to greater than 13 feet of reef are proposed to be removed by proposed project. Impacts to topography and geology in Apra Harbor will be significant and permanent. We recommend that further justification for stated conclusions is provided in the FEIS or that dredging impacts are described as significant and permanent.

A-008-107 6) Vol. 4, Ch. 4, Sec. 4.2.2.2, P. 4-9: The DEIS contains the statement that 3.6 acres of intertidal area and open water will be filled for the Polaris Point alternative. It is unclear where this fill will be placed and if it will constitute additional marine area lost, or if it will back-fill the riprap that is being placed on freshly dredged slopes beneath wharves. This is in contrast to the description of fill for SRF alternative that will result in filling sub-and intertidal areas on which shoreline facilities will be constructed. The distinction is important when analyzing impacts for

surveys have identified host plants in the area to be free of eggs and larvae; this statement has been added to the FEIS. The correct moorhen name has been added to the FEIS.

A-008-085

Thank you for your comment. The conservation measures proposed in the Biological Assessment and discussed during the formal Section 7 consultation address the impacts to terrestrial resources.

A-008-086

Thank you for your comment. The preferred alternative for the NMS access is now to use the existing trail with no road (Alternative B) and Alternative A (non-preferred alternative) specifying a new road has been modified to allow access to others at certain times with approval of the Navy. The specific locations and requirements for lighting cannot be determined at this time. Identification of details for propagation efforts of *Heritiera longipetiolata* cannot be determined at this time.

A-008-087

Thank you for your comment. The Chief of Naval Operations issued a policy letter on January 10, 2002 on preventing feral cat and dog populations on Navy property. It requires Navy commands to institute pro-active pet management procedures in order to prevent establishment of free roaming cat and dog populations. Free roaming cats and dogs pose a potential public health threat to personnel on Navy installations, and they pose a threat to wildlife including endangered species and migratory birds. There is no plan to allow pets on Overlay Refuge lands but if this were changed the suggested coordination would be undertaken. As stated in the Biological Assessment, approximately 1,387 acres of the Overlay Refuge will be directly impacted due to construction or other ground disturbing activities.

A-008-107 | the LEDPA and for development of appropriate compensatory mitigation for functional loss. We recommend location of fill be clearly shown on appropriate figures in Chapter 2 and be incorporated in the LEDPA analysis, which currently focuses on dredging impacts only. The LEDPA analysis should include impacts to marine environment from all sources.

A-008-108 | 7) Vol. 4, Ch. 4, Sec. 230.11, P. 4-30: The DEIS concludes that because the area was recently dredged (60 plus years ago) it will quickly recover from proposed dredging action except where changed by presence of pilings and riprap. No data have been provided to support conclusion that the area will require fewer than 60 plus years to recover to its current state, especially for slow-growing, long-lived organisms such as corals. We recommend data be provided to support the conclusion or revise the statement to reflect that soft bottom communities will most likely recover quickly.

8) Vol. 4, Ch. 4, Sec. 230.11, P. 4-31: The DEIS concludes that non-coral benthic organisms will recover quickly and that impacts will therefore be less than significant. This assumes that non-coral benthic organisms are not dependent on coral for their survival. While this may true in general for sessile organisms that compete with corals for space on the bottom, it is not true for many benthic invertebrates that rely upon live coral either directly for habitat (*e.g.*, corallivores, certain species of crabs, etc.) or rely on the three dimensional structure that is provided by corals (*e.g.*, many shrimp, mollusks, etc.). These organisms will be unable to recover until coral community has sufficiently recovered. We recommend the FEIS acknowledge that non-coral mobile invertebrates will not recover on the same timescale as coral.

9) Vol. 4, Ch. 4, Sec. 230.31, P. 4-35: The DEIS concludes that mobile invertebrates will vacate the area of dredging and will not be subjected to removal and fill impacts. With few exceptions (*e.g.*, pelagic invertebrates such as squid), this conclusion is inconsistent with invertebrate behavior. Coral reef invertebrates tend to be small and not particularly mobile at the scale at which dredging and filling activities will take place. Most mobile invertebrates retreat into holes or assume defensive postures when threatened and will not vacate the area. These individuals will be removed by dredge or buried by fill, resulting in their permanent loss. We recommend the impact analysis in the FEIS acknowledge this potential loss of invertebrates.

10) Vol. 4, Ch. 4, Sec. 230.44, pp. 4-38 to 4-43: Descriptions in this section contain too many different relative measures making it difficult to understand the number of acres actually impacted. For example, acreage is described as percent of acres with coral, percent of acres to be dredged, and percent of total acres all within the same paragraph. For example, the following statement is not clear: “[a]reas with the greatest coral abundance (>70 to <90%) would comprise the smallest portion (10%) of the total coverage category that would be lost...” Using relative measures makes it difficult to actually compare between alternatives that have different acres of coral, dredging, and impact. We recommend the FEIS describe impacts using actual acreage values.

11) Vol. 4, Ch. 4, Sec. 230.44, P. 4-38: No mitigation has been proposed for losses to resources other than coral. Under the Clean Water Act, mitigation is required for all unavoidable impacts to marine habitat regardless of habitat type or duration of impact. We recommend the FEIS describe appropriate compensatory mitigation for all impacts to marine ecological functions, not simply for permanent unavoidable losses to coral.

A-008-088

Thank you for your comment. Regarding evaluation of moving DoD goods and personnel through commercial carriers and ports, additional information on procedures and responsibilities are being added to the FEIS. It is anticipated that increased customs and agricultural inspection recommendations resulting from military cargo and personnel at the airport and port will be coordinated through both Guam and relevant Federal officials, including the U.S. Department of Agriculture. DoD will also work with the same entities to develop plans to ensure that required inspections are conducted prior to release of materials to DoD construction sites. Formal agreements with Federal and Guam agencies on inspections will be pursued. Information on this subject in the MBP will also be implemented and progress will be tracked. For proposed fencing multi-species barriers are being considered in the Section 7 consultation that is ongoing and decisions are being incorporated into the FEIS. For proposed greenbelts Acacia species are listed because, based on previous experience, establishment of native plants in the areas being considered requires some shade. Acacia species are not aggressive invasives in Guam and are used to create areas for establishing native plant species.

A-008-089

Thank you for your comment. The FEIS has been updated to indicate that two Federal law enforcement personnel will be hired to prevent poaching, trespassing, etc. on DoD lands.

A-008-090

Thank you for your comment. The impacts to disturbed limestone forest is evaluated in the EIS because this forest type is almost always recovery habitat and impacts to recovery habitat are evaluated. Shifting project areas is not possible because of the many factors and resource areas other than terrestrial biology that were evaluated to determine the currently placement of facilities.

12) Vol. 4, Ch. 4, Sec. 230.44, P. 4-38: It is not clear what the acreage describing the three dimensional view represents because the calculation has not been adequately described in Appendix D, Sec. F. Specifically, it is unclear if areas computed for each Coral Habitat Index category are based on “three-dimensional area” or on “three dimensional coral area.” If based on “three-dimensional coral area,” the “three dimensional view” is not “habitat with some coral coverage” as described in the DEIS but quantifies only coral and ignores non-coral habitat. We recommend computation of acreage for “three dimensional view” is clarified in the FEIS. Based on the definition for “three dimensional view,” we recommend that “three-dimensional area” is the more appropriate metric to be used in the computation.

13) Vol. 4, Ch. 4, Sec. 230.44, P. 4-39: Tables referenced in first and third paragraphs do not appear to be correct. We recommend correct table be included or corrected references be provided in the FEIS.

14) Vol. 4, Ch. 4, Sec. 230.44, P. 4-40: Use of artificial reefs as mitigation in the DEIS to replace all ecological functions of a natural coral reef is not supported by the FWS. After reviewing available scientific literature, it is the opinion of the FWS that artificial reefs are primarily fishery management tools and therefore should not be used as compensatory mitigation for replacing lost ecological functions or structure of natural coral reefs. We recommend that artificial reefs be removed from consideration as compensatory mitigation.

15) Vol. 4, Ch. 4, Sec. 230.44, P. 4-40: The proposal in the DEIS to place artificial reefs in greater than 80 feet of water in Apra Harbor to compensate for unavoidable impacts to reefs in less than 60 feet may be problematic. Abundance of coral and other reef-associated organisms decreases with depth in Apra Harbor and some coral species are abundant only in shallow water. Reasons for this may be the availability of hard substrate and/or low light levels associated with high turbidity. No data are provided to demonstrate that artificial reefs placed at greater than 80 feet depth will support significant coral growth. The FWS does not support use of artificial reefs as appropriate compensatory mitigation, but if artificial reefs remain in the FEIS, we recommend they be placed in shallow water (less than 60 ft) to increase likelihood that corals impacted by the project will recolonize them.

16) Vol. 4, Ch. 4, Sec. 230.44, P. 4-40: Impact analysis in the DEIS uses only percent cover of live coral. Percent cover of live coral does not adequately describe coral ecological functions or structure contributed by corals to the coral reef and may result in inadequate assessment of impact and compensatory mitigation. The FWS does not support use of percent coral cover as primary metric for coral reef impact assessments or for success criteria for coral reef mitigation projects. We recommend data and analysis be included in the FEIS that captures structure, size and density of coral colonies be used for final impact analysis and as success criteria for any compensatory mitigation project.

17) Vol. 4, Ch. 4, Sec. 230.44, P. 4-40: Discussion of watershed restoration in the DEIS is limited to afforestation efforts and stream bank stabilization. While afforestation and stream bank stabilization are viable components of watershed restoration, other erosion control measures should be considered, including, but not limited to, runoff control structures for roadways, sediment retention basins, and management actions such as ungulate control, and wildfire prevention and control. We recommend discussion of watershed restoration in the FEIS include these other erosion control measures.

A-008-091

Thank you for your comment. The FEIS has been updated to include a more complete description of the efforts that have been completed for fruit bat monitoring.

A-008-092

Thank you for your comment. The FEIS has been updated to specify a translocation plan would be developed with input from species experts prior to any relocation of tree snails. Other translocation efforts have been completed on Guam for the species in question which should provide valuable lessons learned. Impacts are described as significant and potentially mitigable contingent on review of the translocation plan.

A-008-093

Thank you for your comment. Based on observations during field studies for this EIS, impacts to primary limestone forest and other areas that have a predominantly limestone substrate (typical of primary limestone forest) are much more resistant to invasion by non-indigenous species (with the possible exception of *Triphasia trifolia*) than areas with a predominantly soil substrate. This was also noted in a comment submitted on the DEIS by Haldre Rogers of the University of Washington who has done extensive research on Guam. Since much of the areas surrounding the proposed development sites have a predominantly rocky substrate (e.g. Haputo ERA cliffline adjacent to NCTS Finegayan and areas along the cliffline at the Rt 15 site), invasive species would be less successful in these areas. In addition, many project areas are adjacent to areas that currently have disturbed habitat and these are already a source for potentially invasive species. Thus, it is concluded that the proposed action would not result in significant impacts to primary limestone forest from invasive species. However, for other resource types there would be significant impacts from invasive species and mitigation has been proposed in the DEIS. Additional mitigation from

A-008-108

18) Vol. 4, Ch. 4, Sec. 230.44, P. 4-40: For watershed restoration, DoD is proposing to plant native seedlings directly into badland areas on Guam. However, prior to out-planting with native species (if natives are the desired end outcome), appropriate soil restoration is needed. This may be possible through planting of selected non-natives species (e.g., non-invasive) followed by planting of natives once conditions are appropriate. We recommend the FEIS include: (1) a revised description of aforestation method to accurately describe the process as currently implemented by the Guam Division of Forestry, the NRCS and Navy; and (2) The DoD should consult with NRCS for technical assistance on approaches to soil stabilization through agricultural methods, or Guam Division of Forestry for soil restoration via silvicultural practices.

19) Vol. 4, Ch. 4, Sec. 230.44, P. 4-41: The DEIS contains the conclusion that the Kilo Wharf mitigation project "has not been successful." It is premature to conclude that Kilo Wharf mitigation project has or has not succeeded. The project is less than half way through its ten-year planting timeline and several decades will be needed to assess effects of the project on nearshore coral reefs. We recommend that no conclusion is drawn as to success or failure of Kilo Wharf mitigation project until timeline for its completion has passed, but we would support inclusion of discussion in the FEIS of challenges faced in conducting the work.

20) Vol. 4, Ch. 4, Sec. 230.44, P. 4-41: The DoD has proposed coral transplantation as a potential mitigation project. Coral transplantations have a poor long-term record of success as mitigation, particularly in the Pacific. A review of coral transplantation as mitigation shows these projects have a poor record as compensatory mitigation (USFWS 2003), and mitigation benefits gained do not appear to be high relative to cost incurred. The FWS would support beneficial use of corals removed from dredging site, and some compensatory mitigation credit may be possible depending upon beneficial use selected. We recommend the FEIS include discussion of generally poor long-term success of coral transplantations when analyzing this project as potential compensatory mitigation. Additionally, we recommend other beneficial uses for corals within dredge area be considered; for example collection by UOG Marine Lab for scientific use or collection by the "Underwater World" for inclusion in their aquarium displays.

21) Vol. 4, Ch. 4, Sec. 230.44, P. 4-41: Paragraph beginning "A direct and predictable relationship..." appears to be misplaced. This paragraph appears to belong with discussion of watershed restoration option. We recommend this paragraph be reviewed and moved or revised in the FEIS as appropriate.

A-008-109

22) Vol. 4, Ch. 4, pp. 4-46 to 4-49: This section in the DEIS is unclear and may benefit from better organization of material. We recommend the FEIS include a reorganized section and that each sub-section have consistent discussion so that readers are not confused by presentation of information.

23) Vol. 4, Ch. 4, P. 4-46: Discussion of dredge and fill activities lacks information on total number of acres dredged and instead reports only Vol. of dredge, acres of coral, and acres of fill. The LEDPA should provide information on entire environmental impact, not just potential impacts to sensitive resources. Based on information provided in Chapter 11, Alternative 1 will result in 71.18 acres of dredge and 171.78 acres of direct and indirect impact (Table 11.2-1). Alternative 2 will result in 60.77 acres of dredge and 154.69 acres of direct and indirect impact (Table 11.2-10). We recommend these dredge acreages be used in the FEIS in the LEDPA analysis.

ongoing Section 7 consultation have added additional specific mitigation actions.

A-008-094

Thank you for your comment. Figure 9.1-5 in the DEIS shows NPS property on Guam, including War in the Pacific Museum. NPS properties are included with scores of other recreational resources in Guam, so the location of the submerged lands owned and managed by the NPS for the Asan -Piti area was not readily identified on the map. The FEIS has been revised to identify and discuss all federally submerged lands in Sec. 8.1.1.1.

A-008-095

Thank you for your comment. Comment noted and title of plan has been changed throughout FEIS.

A-008-096

Thank you for your comment. Indirect impacts were evaluated to coral reef communities at the entrance channel to Inner Apra Harbor, which are the only potentially impacted coral area from the proposed action. Information provided in Volume 2, Chapter 11, Section 11..1.7 and Section 11.2.2.2, page 11-73 to 11-75 describe this. The Navy would comply with USACE permits while dredging in Inner Apra Harbor, so turbidity levels at the entrance channel are not expected to exceed ambient conditions.

A-008-097

Thank you for your comment. High speed vessels are not part of the proposed action. This has been clarified in Chapter 2.

A-008-098

Thank you for your comment. The EIS has been updated to include

A-008-109

24) Vol. 4, Ch. 4, P. 4-46: Total fill needed for the “finger pier area” in the SRF alternative has not been provided and should be included in the LEDPA analysis. We recommend acreage of fill be included in the FEIS as part of the LEDPA analysis.

25) Vol. 4, Ch. 4, P. 4-46: It is unclear how SRF alternative (Alternative 2) would impact sea turtles and essential fish habitat (EFH). We recommend additional information is provided in the FEIS on impacts to sensitive resources from Alternative 2.

26) Vol. 4, Ch. 4, P. 4-46: We were not able to locate Table 2.8-1. This table reference may be incorrect. We recommend correct table reference be included in the FEIS.

27) Vol. 4, Ch. 4, P. 4-47: Consideration of operational issues, quality of life/aesthetics differences, traffic, and utility costs are not appropriate in the LEDPA unless they have demonstrable environmental impacts to the marine resource. By including an alternative in the LEDPA, it has been determined to be practicable and to meet the purpose of the project. We recommend these factors be removed from the LEDPA analysis. This revision should be applicable to both the text and Table 4.3-1.

28) Vol. 4, Ch. 4, P. 4-48: Area of dredge in Table 4.3-1 and in Chapter 2 does not match those in Chapter 11. The dredge areas used in the LEDPA analysis for coral are from Chapter 11. Therefore, we recommend that areas from Chapter 11 are used throughout the LEDPA for consistency and because these are values on which the environmental impact analysis will be conducted.

29) Vol. 4, Ch. 4, P. 4-49: Data in the DEIS do not support selection of Alternative 1 as the LEDPA. Alternative 1 will result in dredging of 11 more acres of marine habitat and directly and indirectly impact 17 more acres of marine habitat than Alternative 2. Alternative 1 will directly impact 1 acre more of coral habitat than Alternative 2. Additionally, the DEIS concludes that Alternative 1 and 2 may “affect, but not adversely affect, ESA-listed species,” which contradicts conclusion on page 4-49 that Alternative 1 will have “fewer impacts to threatened and endangered species.” We recommend the FEIS include additional information in the analysis to support conclusion reached in the DEIS, or final conclusion be revised to select the appropriate LEDPA.

30) Vol. 4, Ch. 4, P. 4-49: Impacts on operation of Guam Shipyard and co-location of nuclear assets are not appropriate for inclusion in the LEDPA analysis and should not be considered when selecting the LEDPA. Both Alternatives 1 and 2 have been stated to be practicable. We recommend these factors be removed from the LEDPA analysis.

31) Vol. 4, Ch. 4, P. 4-49: It is not clear what percentages provided in conclusion represent. If percentages of coral cover are intended to represent coral quality, it is not clear how these percentages do so. We recommend this statement is clarified in the FEIS.

A-008-110

32) Vol. 4, Ch. 10, Sec. 10.2.2, P. 10-10: The DEIS appears to include BTS activities copied from the MIRC (Marianas Islands Range Complex) EIS. We recommend description of these activities be revised in the FEIS to reflect activities associated with the JGPO proposed action.

33) Vol. 4, Ch. 10, Sec. 10.2.2, P. 10-10: The DEIS contains the statement that temporary barriers for BTS control are preferable to permanent snake enclosures. In the opinion of the

timetables for Micronesia Biosecurity Plan (MBP) completion, (See Volume 2, Chapter 10, Section 10.2.2.6). The risk assessments for the MBP and a review of BMPs will be completed in 2010. Specific biosecurity measures have been added to the FEIS to supplement existing practices that address invasive species. These include recommended BMPs and contract specifications, including HACCP plans that would be reviewed prior to construction, briefings to workers on invasive species, inspections of materials and vehicles, and cleaning equipment. Other interim actions already in place or planned are 100% inspections on DoD shipments, education on invasive species, supporting research on BTS, active trapping at installations, proposed development of rapid response teams, best management practices for vehicle inspection and cleaning, proposed wash down facility inspections, a BTS-free area for cargo storage, and a possible DoD BTS Working Group to develop an action plan eradicating BTS from DoD facilities. The FEIS has been updated to incorporate these measures.

A-008-099

Thank you for your comment. A new Alternative is not possible given all the other constraints on the siting of these ranges. An expanded mitigation area is being proposed during the Section 7 consultation process to compensate for proposed impacts to the FAA mitigation area and this is being incorporated into the FEIS.

Regarding the DoD preference for Alternative 1 over Alternative 3, Alt 3 is close to the airport and will cause air space issues and the terrain requires large amounts of earth movement. With Alternative 3, the Platoon Battle course cannot be used when the KD range and AFF range are being used. Alternative 3 makes access to the northern part of the island more difficult because it cuts the only paved access, which is 86th St.

Primary limestone forest is not affected by Alternative 1. All of the ranges have been situated in non-native habitat. The importance of habitat types other than limestone forest will be discussed. The

A-008-110

FWS, this statement is inaccurate. We recommend revising the FEIS to acknowledge: (1) type of snake enclosure used for quarantine purpose is dependent on activities it would support; (2) both temporary and permanent snake enclosures should be supported in association with proposed action; and (3) construction of permanent snake enclosures for quarantine purposes on Guam is an essential component of proposed action.

34) Vol. 4, Ch. 10, Sec. 10.2.2, P. 10-10: The DEIS contains discussion of BTS mitigation that was proposed in the MIRC EIS. We recommend the FEIS include measures to avoid, minimize and mitigate for BTS impacts associated with proposed action and be consistent with what is discussed in the JGPO Biological Opinion.

A-008-111

35) Vol. 4, Ch. 11, Sec. 11.1.1, P. 11-3: It is not clear why a lengthy discussion of the Viehman *et al.* (2009) paper has been included here because it has not been used to illustrate anything about the Navy's coral assessment methodology. Instead it provides general background information about the Natural Resource Damage Assessment (NRDA) process and inputs for Habitat Equivalency Analysis (HEA). We recommend the discussion be re-written to provide insight into the Navy's coral assessment methodology or that it be moved to a more appropriate place in the FEIS.

36) Vol. 4, Ch. 11, Sec. 11.1.1, P. 11-3: The DEIS incorrectly cites Viehman *et al.* (2009) as stating that "[a] nearly complete understanding of coral reef ecological services is required to objectively determine whether selected compensatory restoration projects adequately restore lost services for a given injury." However, Viehman *et al.* state that a "more complete understanding of coral reef ecological services is required to objectively determine whether selected compensatory restoration projects adequately restore lost services for a given injury" (Viehman *et al.*, page 186). Substitution of "nearly complete" for "more complete" significantly changes the meaning of the statement. We recommend that the FEIS is revised to reflect the actual statement in the Viehman *et al.* paper.

37) Vol. 4, Ch. 11, Sec. 11.1.1, P. 11-3: The DEIS contains the statement that five studies were used in description of baseline conditions of marine resources, but only a list with four studies follows. It is unclear if fifth study is comparison study provided by resource agencies, because in section 11.1.1.1 it states that comparison study "did not provide data for this EIS/OEIS." We recommend this discrepancy be clarified in the FEIS.

38) Vol. 4, Ch. 11, Sec. 11.1.1, P. 11-4: The study conducted by Smith (2007) could not be located in appendices. We recommend that this study be included in Vol. 9 of the FEIS.

39) Vol. 4, Ch. 11, Sec. 11.1.1, P. 11-5: It is unclear why concerns raised about quality of some data (*e.g.*, coral colony size) used in the DEIS were not addressed. At request of the Navy, resource agencies conducted a comparison study (2009) that demonstrated significant concerns with validity of some data used in impact analysis in the DEIS. We recommend the FEIS address concerns raised by this study.

40) Vol. 4, Ch. 11, Sec. 11.1.1, P. 11-5: Although resource agency comparison study (2009) was not designed to collect baseline data in the project area, it represents some more detailed data on biodiversity and for some benthic organisms, such as algae. While it would be inappropriate to try to estimate abundance of organisms from resource agency study, information on biodiversity provided in the study is valuable. It is unclear why this information wasn't used to augment

analysis from Camp *et al.* (2009) has been used to update the FEIS. There is no data to suggest that long-term effects of the project on Tinian monarch populations would be different from what is predicted in the DEIS based on habitat loss, therefore no changes were made in the FEIS.

A-008-100

Thank you for your comment. Measures are planned to be put into place as the necessary protective measures prior to any proposed actions. These include recommended best management practices (BMPs) and contract specifications, including Hazard Analysis Critical Control Point (HACCP) plans that would be reviewed prior to construction, briefings to workers on invasive species, inspections of materials and vehicles, and proper techniques for cleaning equipment. Other interim actions already in place or planned are 100% inspections on DoD shipments, education on invasive species, supporting research on BTS, active trapping at installations, proposed development of rapid response teams, best management practices for vehicle inspection and cleaning, proposed wash down facility inspections, a BTS-free area for cargo storage, and a possible DoD BTS Working Group to develop an action plan eradicating BTS from DoD facilities. The FEIS will be updated to incorporate approved measures.

A-008-101

Thank you for your comment. Coordination between the Navy and the FWS and CNMI DFW will occur for any proposed management plans, mitigation actions, or additional items identified during the ESA Section 7 consultation process with the FWS. The details of funding will not be included in the FEIS.

A-008-111 | other baseline studies in the DEIS. We recommend information from this study be used to augment description of marine environment as appropriate.

A-008-112 | 41) Vol. 4, Ch. 11, Sec. 11.1.2, P. 11-6: The DEIS contains the statement that included photos are “not necessarily representative of conditions throughout each secondary biotope.” If the photos are not representative of the secondary biotope, it is not clear why they have been included. We recommend the FEIS include representative photos or that referenced photos be removed.

42) Vol. 4, Ch. 11, Sec. 11.1.2, P. 11-6: It is not clear why a lengthy discussion of community sub-types is provided when analysis does not make use of this information, and instead lumps all sub-types together. If sub-types are not to be used in description of the environment, we recommend that this discussion be removed from the FEIS.

43) Vol. 4, Ch. 11, Sec. 11.1.2, P. 11-11: From information provided in Appendices, it is not entirely clear how coral coverage classes have been assigned to each dredging alternative. To compute areas of each coverage class, values generated directly from the map are corrected using a probabilistic mathematical model. This model is based on known misclassification errors of individual pixels of a known area across the map, and assumes errors are uniform and random across the entire map. Therefore, it is impossible to identify which specific pixels are incorrect; only that a certain percentage are incorrect. Some coral cover classes have a higher probability of being misclassified than others and coral cover is randomly distributed across the project. We recommend that additional information is provided to explain validity of assigning specific coral cover values to specific pixels (and thus to specific alternatives which comprise only a portion of total map.).

44) Vol. 4, Ch. 11, Sec. 11.1.2, P. 11-13: The final paragraph contains discussion of methods used to collect data and is misplaced in this discussion of survey results. We recommend this paragraph be moved to a section that discusses all aspects of survey methodology or is removed entirely because it already appears in the Appendices.

45) Vol. 4, Ch. 11, Sec. 11.1.2, P. 11-15: Accuracy of a habitat map is critical to determining its usefulness. We recommend the FEIS include both overall accuracy of the map and accuracy for each coral class.

46) Vol. 4, Ch. 11, Sec. 11.1.2, P. 11-15: See comment for Vol. 9, #43.

47) Vol. 4, Ch. 11, Sec. 11.1.2, P. 11-15: The paragraph beginning “Examination of the coverage table...” is confusing. For example, the sentence “It is also evident that the area...reefs bordering the project area” is cumbersome and difficult to understand. We recommend this paragraph be revised to more clearly describe coral cover in the area.

48) Vol. 4, Ch. 11, Sec. 11.1.2, P. 11-15: Use of relative statistics, especially when used for areas of different size, can be misleading when trying to compare area of impact. For example, the DEIS states that “about 35% and 39% of the area to be dredged...contains some level of coral coverage for the Polaris Point and Former SRF alternatives, respectively.” This statement implies that less coral will be impacted by the Polaris Point alternative. However, because the Polaris Point alternative impacts more area, actual acreage values of coral impact for the Polaris Point alternative is 25.2 acres; versus 23.74 acres for the SRF alternative. We recommend that

A-008-102

Thank you for your comment. The Navy would be responsible for the development of the restoration plan and implementation and would coordinate with USFWS and DFW through an INRMP. Costs and funding are internal Navy information.

A-008-103

Thank you for your comment. The sentence will be revised to state: “and no increased introduction of non-native species into the marine environment is expected, as construction vessels would comply with USCG and Navy requirements for ballast water and hull management policies, with the implementation of Alternative 1.” Additionally, Table 11.2-2 to 11.2-7 and supporting text will be revised to include appropriate mitigation measures and BMPs as identified in other marine biological resource volumes.

A-008-104

Thank you for your comment. The reference section has been updated to include all literature referenced in the text.

A-008-105

Thank you for your comment. The alternative proposed by NMFS was based on preliminary dredge areas. In the DEIS, further modifications to the turning basin were made to minimize impacts, including decreasing the size and moving it south (see Section 2.3.3, Volume 4). Based upon a review of operational and safety factors, it has been determined that the alternative proposed by NMFS is not a reasonable alternative under NEPA, nor a practicable alternative under the CWA 404(b) permitting process.

A-008-106

Thank you for your comment.

- A-008-112** relative statistics are not used to describe affected environment or assess impacts because they are misleading. Instead we recommend that actual acreage values are provided in the FEIS.
- A-008-113** 49) Vol. 4, Ch. 11, Sec. 11.1.2, P. 11-15: The DEIS contains the statement that Polaris Point has “approximately 4% less coral removed.” This value was determined by subtracting relative amounts and is inappropriate and misleading because underlying areas for each alternative from which these relative statistics were derived are not the same. Area of coral impact is higher for Polaris Point than the SRF alternative. We recommend this inaccurate statement be corrected in the FEIS; and to not use relative statistics to describe affected environment or assess impacts in the FEIS because they are misleading.
- 50) Vol. 4, Ch. 11, Sec. 11.1.2, P. 11-15: The DEIS contains the statement that 67 sites were surveyed within the direct impact area. This is not correct. Six to seven total sites were surveyed in both the area of direct (*i.e.*, the dredge area) and indirect impact area. We recommend these numbers be corrected in the FEIS.
- 51) Vol. 4, Ch. 11, Sec. 11.1.2, P. 11-15: It is not clear why 14 survey sites exclusive to either Alternative 1 or 2 are analyzed separately. It would be more appropriate to analyze all survey sites occurring within an alternative. We recommend only analysis using all survey sites occurring within an alternative be included in the FEIS.
- 52) Vol. 4, Ch. 11, Sec. 11.1.2, P. 11-19: It is not clear how the ranks were assigned to areas surveyed by Smith (2007), so it is not possible to assess appropriateness of this analysis. The study conducted by Smith could not be located in the appendices. We recommend that additional information on Smith’s method is included in the FEIS or that this study be appended.
- 53) Vol. 4, Ch. 11, Sec. 11.1.2, P. 11-20, Fig. 11.1-13: The figure did not reproduce clearly. We recommend that a clear figure is included in the FEIS.
- 54) Vol. 4, Ch. 11, Sec. 11.1.2, P. 11-21: The DEIS contains the statement that “it is arguable whether or not the Polaris Point/Bay community should be considered a coral reef.” This statement is not supported by data provided. Photographs from sites within the bay (See Appendix J, Dollar and Hochberg) clearly show coral growing on the bottom. Based on data provided, it is clear Polaris Point/Bay community supports a natural coral reef community not dependent on debris. We recommend this statement be removed from the FEIS.
- 55) Vol. 4, Ch. 11, Sec. 11.1.2, P. 11-25: Relative statistics are used to dismiss terrestrial fraction of dredge material as “not a major component of the sediment in the proposed area.” The DEIS contains the statement that 79 to 96 percent of the sediment is presumably of a marine origin but does not provide an actual estimate of sediment tonnage. As discussed in the appendix on sediment impacts (Appendix E, Section D), impacts are related to sediment composition, amount, and duration of effect. Terrestrial sediments have a disproportionate impact on many corals compared to marine sediments. What is important to this analysis is actual amount of terrestrial sediment load, not relative percentage. We anticipate that given the amount of sediment removed from the area, even a 4 to 21 percent terrestrial component will correspond to a large tonnage of terrestrial sediment released onto the reef. We recommend that proposed amount of terrestrial sediment is estimated and its impact on the coral reef ecosystem is evaluated.

3) This section addresses impacts of offshore construction and operations on the geological and soil resources of the shoreline area. The removal of reef material is analyzed in the Marine Biological Resources chapter.

4) This is a typographical error; it should read "Therefore, the no-action alternative would not have impacts to geology or soils." This will be corrected in the Final EIS.

5) Again, reef removal is analyzed in Marine Biological Resources chapter. This section addresses geologic and soil disturbances.

A-008-107

Thank you for your comment. The 3.6 acres of fill corresponds to the "wharf" area as depicted on Figures 2.5-2 and 2.5-5. As shown on Figure 2.5-6, this fill area is within the dredging footprint - it would backfill the riprap that would be placed on the dredged area beneath the wharf. EIS revised to make this proposed action clear, both in the discussion and accompanying figures.

A-008-108

Thank you for your comment. 7. You are referring to Chapter 4, Water Resources, please see Chapter 11, Marine Biological Resources for further details. The statement regarding the Affected Environment being dredged 60 years ago provides an example of the anticipated recovery time based on those organisms currently inhabiting the area and does not make any reference to recovering quickly. See comment A-008-034 regarding soft bottom communities and No. 11 below. References and text are present in the DEIS and have been revised for the FEIS.

8. The FEIS has been revised to indicate that there may be a time lag between the recovery of some non-coral mobile invertebrates compared

56) Vol. 4, Ch. 11, Sec. 11.1.2, P. 11-25: The Weston Solutions (NAVFAC Pacific 2006) reference is not included in the appendices. If this referenced study was conducted specifically for this project, we recommend it is included the appendices. If this study was not specifically conducted for this project, we recommend its relevance to the project be described in the FEIS.

57) Vol. 4, Ch. 11, Sec. 11.1.2, P. 11-26: The data on coral size have been presented as if they were coral colony size-frequency data. The resource agency comparison study (2009) raised significant concerns about validity of coral colony size data collected using photographic method. Specifically, measurement of size of a coral colony only measured the longest dimension visible within the photograph. Any colony that extended off the edge of the photograph was incorrectly measured, and its size would be smaller than the true size of the coral colony. This will create a systematic bias in the data which eliminates any coral larger than the photograph's largest dimension, and biases size toward small size classes. Thus, the coral colony sizes presented in the DEIS are meaningless. Concerns raised in the resource agency comparison study are not mentioned or addressed in the DEIS. We recommend coral colony size data that were included in the DEIS be removed and that valid size frequency data be collected and analyzed in the FEIS.

58) Vol. 4, Ch. 11, Sec. 11.1.2, P. 11-27: It is not clear how areas of coral cover shown in figure 11.1-4 were delineated. Specifically, no area with zero coral cover is marked on the map. We recommend: (1) providing additional information in the FEIS on methods used to generate data for this map; (2) discussing absence of "no coral" category; and (3) identifying the coral cover within grey areas in the figure.

59) Vol. 4, Ch. 11, Sec. 11.1.2.3, P. 11-29: Dollar and Hochberg (2009) concluded that no significant differences were found among strata. Therefore, it is not necessary to discuss strata separately because they are all considered statistically the same. We recommend discussion of composition of individual strata and that Table 11.1-17 be removed from the FEIS.

60) Vol. 4, Ch. 11, Sec. 11.1.2.3, P. 11-32: Information on marine algae is cited from Smith (2007). However, comprehensive algal surveys were also conducted at 30 survey sites by the resource agencies as part of their comparison study. These data have been provided to the Navy but were not used in the analysis. While the resource agency survey was not designed to be a baseline assessment, information on biodiversity and relative abundance of species would be valid for inclusion to augment other baseline survey data. We recommend marine algae data from the resource agency comparison study be included in the FEIS as part of the description of effected environment. In addition, we recommend that more comprehensive baselines algal data is collected and analyzed in the FEIS.

61) Vol. 4, Ch. 11, Sec. 11.1.2.3, P. 11-32: Two apparently conflicting descriptions of distribution of elephant ear sponges (*Ianthella basta*) has been provided in the DEIS. Second paragraph on page 11-32, DEIS contains the statement: "Elephant ear sponges (*Ianthella basta*)...were common on the slopes of most shoals in the study areas." In second bullet, the DEIS contains the statement: "Probably the most conspicuous member of the *Porifera* within the survey area was the "elephant-ear sponge" (*Ianthella* spp.), with individuals up to one meter in width commonly occurring in the deeper areas of the harbor floor." We recommend apparently conflicting opinions about distribution of elephant ear sponges are reconciled.

to coral. Additionally, the EFHA has been revised.

9. The impact analysis in the DEIS acknowledges what the comment recommends. "Those mobile invertebrates in the ROI that are not directly subjected to removal or fill activities could sustain impacts as a result of transport, suspension and deposition of dredging-generated sediments. Removal of soft bottom substrate overlying hard substrate would provide additional potential habitat for coral and non-coral benthic organisms." Chapter 11, identifies significant impacts to non-coral invertebrates removed during the dredging process and nearby due to indirect impacts.

10. Please refer to Chapter 11, Marine Biological Resources section for a description on coral coverage. The FEIS has been revised to remove "relative percent" for comparison.

11. As evidenced by historical data related to maintenance dredging of existing harbors, impacts to non-coral communities would be short-term and localized. Furthermore, biological organisms associated with these habitats are frequently exposed to natural disturbances and therefore have adapted to that environment. No text change to FEIS.

12. The area is already specified in the text. No change to the FEIS.

13. Table references in the text have been corrected.

14. The Navy has, within this EIS, disclosed those compensatory mitigation options on a programmatic basis. This programmatic analysis is sufficient to allow the Navy to make a decision regarding the location of the transient CVN wharf. However, the Navy recognizes that the programmatic analysis of mitigation is insufficient at this time to support the CWA Section 404 permitting process. The CWA Section 404 permit application process will include further site specific analysis under NEPA.

A-008-115 | 62) Vol. 4, Ch. 11, Sec. 11.1.3, P. 11-34: Resolution of the habitat layer used in Figure 11.1-18 has not been identified, but the NOAA habitat data tend to have coarse resolution and are often restricted to depths less than 100feet. Based on surveys within project area, it is known that numerous areas of hard bottom and coral are present in areas designated as unconsolidated in Figure 11.1-8. We recommend resolution of the habitat layer (as well as its depth limitations) be included in the figure to reduce misinterpretation.

63) Vol. 4, Ch. 11, Sec. 11.1.4, P. 11-37: See comment for Vol. 4, #61.

A-008-116 | 64) Vol. 4, Ch. 11, Sec. 11.2.2.2, P. 11-45: comment for Vol. 4, #9.

65) Vol. 4, Ch. 11, Sec. 11.2.2.2, P. 11-47: The DEIS concludes that “beneficial long-term impact[s]” will be provided by clearing soft sediments and exposing hard bottom. Replacement of a soft bottom community by a hard bottom community represents a large-scale, significant shift in ecosystem and there is no ecological justification for designating this as “beneficial.” Soft bottom communities are critically important ecosystems and provide direct benefits to coral reef-associated organisms. Their loss is significant and could have long-term negative impacts to coral reef species that rely on them for foraging or other habitat. We recommend removal as described here is quantified and considered permanent and significant in the impact analysis.

66) Vol. 4, Ch. 11, Sec. 11.2.2.2, P. 11-49: Description of selection of the 200-meter buffer boundary provided in the DEIS is not accurate. During early discussions on designating the boundary for environmental surveys, the FWS, in discussion with other resource agencies and Navy biologists (meeting on Jan 21, 2009, notes have been previously supplied to the Navy), suggested a boundary that dissected the middle of each shoal and was parallel to the boundary of dredge area. For shoals that were particularly wide, dissecting line was moved toward dredge area to reduce size of survey area. Boundaries were considered “best scientific opinion” until results of sediment modeling were completed. Navy contractors later established a hard 200-meter boundary using GIS maps, which at the time was agreeable to the resource agencies. We recommend this section be revised in the FEIS to reflect this information.

67) Vol. 4, Ch. 11, Sec. 11.2.2.2, P. 11-50: It is misleading to describe indirect impact area estimated by modeling conducted by consultants to the Navy as “actual indirect impact zone.” We recommend that alternate wording be used in the FEIS that acknowledges indirect impact area estimated by consultants to the Navy is based on an oceanographic model.

68) Vol. 4, Ch. 11, Sec. 11.2.2.2, P. 11-51: Modeling of ocean currents was conducted several years ago for the Kilo Wharf expansion and dredging has been ongoing for several months. Dredging has encountered numerous issues with elevated sediment levels that have resulted in work stoppages. With the exception of occasional high wave events at the Kilo Wharf site, current and tidal conditions described by consultants to the Navy are nearly identical for the Kilo Wharf and the CVN project areas, and the same BMPs are recommended. We recommend a discussion of the current Kilo Wharf dredging be included in the FEIS and that possible improvements to BMPs and dredging operations are proposed that could be implemented to reduce probability that similar sediment-related issues will occur.

69) Vol. 4, Ch. 11, Sec. 11.2.2.2, P. 11-56: Data on sediment suspension from passing ships have not been provided to support the statement that sand from storms and passing ships is “re-

Additionally, the Navy cannot select the compensatory mitigation plan that will be implemented until the permit application has been reviewed by USACE. The proposed project would not be initiated prior to FY12.

15. The Navy has, within this EIS, disclosed those compensatory mitigation options on a programmatic basis. This programmatic analysis is sufficient to allow the Navy to make a decision regarding the location of the transient CVN wharf. However, the Navy recognizes that the programmatic analysis of mitigation is insufficient at this time to support the CWA Section 404 permitting process. The CWA Section 404 permit application process will include further site specific analysis under NEPA.

Additionally, the Navy cannot select the compensatory mitigation plan that will be implemented until the permit application has been reviewed by USACE. The proposed project would not be initiated prior to FY12.

16. Thank you for your comment. Habitat assessment methodologies which evaluate the function of affected aquatic resources, such as coral reef ecosystems, are an evolving science and the adequacies of existing and new methodologies are heavily debated in the scientific community. Ideally, a standard assessment technique that accurately characterizes and quantifies losses and gains of coral reef ecosystem functions would be used. However, rulemaking for the Compensatory Mitigation Rule recognizes the wide variety of aquatic resources present in the United States and the evolving nature of science regarding aquatic ecosystem restoration make the establishment of standard assessment methodologies impracticable. The assessment for this EIS used an historically approved methodology (percent coral cover), supplemented by other methods such as the use of Light Detection and Ranging (LIDAR) satellite photos, for quantifying impacts to affected coral reef ecosystems impacted by the proposed transient CVN wharf and associated dredging. DoD believes that use of the percent coral cover methodology, supplemented by use of LIDAR satellite photos, is the

A-008-116 | suspended at levels that likely exceed the potential from proposed dredging activities.” We recommend that data are provided to support this statement or that it is removed from the FEIS.

A-008-117 | 70) Vol. 4, Ch. 11, Sec. 11.2.2.2, P. 11-57: Discussion of coral fragments accounting for high dominance of two coral species on Guam’s inner reef flats is not relevant in dredge area which is in deeper water (greater than 50 feet) and for down slope areas, covered with sand. We recommend that this statement be removed from the FEIS.

71) Vol. 4, Ch. 11, Sec. 11.2.2.2, P. 11-57: Relevance of discussion of *Acropora palmata* to proposed project is not clear. *Acropora palmata* is a shallow water, high energy environment, Caribbean coral species. We recommend discussion of *A. palmata* be removed from the FEIS.

72) Vol. 4, Ch. 11, Sec. 11.2.2.2, P. 11-57: Using the coral data (*i.e.*, percent cover of live coral) provided in the DEIS, it is not possible to adequately assess if significant changes in ecological function will occur as a result of the project. The ACOE has authority over issuance of the permit necessary for dredging and filling in U.S. waters. However, it is our opinion that lack of information on coral colony physical structure (*e.g.*, size and morphology of colonies) and demographics (*e.g.*, recruitment, survival, growth) needed to determine likelihood and time to recovery will lead to an inadequate assessment of lost ecological function provided by corals to the coral reef ecosystem. Additionally, functions of areas not dominated by coral have not been assessed in the DEIS. We recommend that the Navy provide and analyze appropriately collected data that will: (1) assess functions of corals to the coral reef ecosystem using measures that will capture coral morphology and demographics, and (2) assess functions of marine environment that are not dominated by coral.

73) Vol. 4, Ch. 11, Sec. 11.2.2.2, P. 11-58: The conclusion about distribution of corals and presence of suitable substrate is not supported by data. The argument has been presented that: (1) corals occupy all substrate that is suitable (defined in the DEIS as hard stable surfaces), and (2) where corals are currently not found is unsuitable substrate. Contrary to this argument, it appears that suitable substratum exists in Apra Harbor that is not covered with coral. Numerous areas of stable hard bottom are covered with algae, much of which grows primarily on hard stable surfaces. Additionally, survey reports in the appendices identified an artificial structure comprised of concrete blocks within the CVN project area that had little (if any) coral growing on it, but was covered with algae. Algae are well-documented in scientific literature to be a direct competitor with corals for space on hard substrate, especially in the presence of some environmental conditions (*e.g.*, eutrophication). No effort was described in the DEIS to confirm that stable, hard substrate colonized by algae was unsuitable for coral settlement and growth. We recommend the statement be removed from the FEIS.

74) Vol. 4, Ch. 11, Sec. 11.2.2.2, P. 11-58: The acronym “CRE MUS” is used and not defined in this Volume. We recommend that the acronym be defined on first use and appear in the list of acronyms for the Volume.

75) Vol. 4, Ch. 11, Sec. 11.2.2.2, P. 11-59: The DEIS contains the statement that indirect impacts are assumed to be permanent, yet later concludes that indirect impacts are “short and localized.” These conclusions are in conflict. We recommend the FEIS clearly state whether it considers indirect impacts to be permanent or short-term and to conduct an analysis based on the conclusion.

“best currently available science” to attempt to capture the thousands of elements that comprise the function of a coral reef ecosystem. DoD’s assessment is currently under review by the US Army Corps of Engineers, the agency charged with implementing dredge and fill permits under CWA Section 404, and other Federal agencies. The FEIS will be updated to reflect the latest developments in this review.

17. The Navy has, within this EIS, disclosed those compensatory mitigation options on a programmatic basis. This programmatic analysis is sufficient to allow the Navy to make a decision regarding the location of the transient CVN wharf. However, the Navy recognizes that the programmatic analysis of mitigation is insufficient at this time to support the CWA Section 404 permitting process. The CWA Section 404 permit application process will include further site specific analysis under NEPA. Additionally, the Navy cannot select the compensatory mitigation plan that will be implemented until the permit application has been reviewed by USACE. The proposed project would not be initiated prior to FY12.

18. All mitigation options associated with the proposed CVN transient wharf, including the use of artificial reefs and watershed restoration, are being considered by the Navy. When the Navy develops its proposed compensatory mitigation plan, mitigation options contained within the plan will be evaluated by the USACE to determine compliance with the Compensatory Mitigation Rule. The final conceptual determination would not be made until the Record of Decision on this EIS.

19. Text has been revised in the FEIS.

20. All mitigation options associated with the proposed CVN transient wharf, including the use of artificial reefs and watershed restoration, are being considered by the Navy. When the Navy develops its proposed compensatory mitigation plan, mitigation options contained within the plan will be evaluated by the USACE to determine compliance with the

A-008-118

76) Vol. 4, Ch. 11, Sec. 11.2.2.2, P. 11-60: The DEIS concludes that “[b]ased on wind and current measurements, planktonic larvae of many species most likely never leave confines of the harbor.” No supporting discussion or data are provided to support this conclusion. Marine species can spend several months in the plankton and are capable of dispersing widely. No estimate is provided on how long it would take passive larvae to be flushed from Apra Harbor to support conclusions. In a rough calculation based on a westward surface current of 4 to 8 centimeters per second, a passive particle could travel approximately 3.5 to 7.0 kilometers per day. This estimated transport distance appears sufficient to flush a planktonic larva out of Apra Harbor in 1 to 2 days. We recommend additional data or discussion be provided to support the conclusion drawn in the DEIS or remove it from the FEIS.

77) Vol. 4, Ch. 11, Sec. 11.2.2.2, P. 11-61: Table 11.2-2 summarizes indirect impacts to corals/coral reefs habitat as “expected to re-colonize quickly from adjacent, undisturbed areas.” No data or other information on re-colonization has been provided, and data have been presented that conditions within the harbor are optimal for corals. Without evidence that corals are actively recruiting to the area (either through larval settlement or fragmentation) or are capable of recovering from damage, it is not possible to conclude the area will recover. Information that would support this conclusion could include data on coral recruitment rates, size-frequency distributions, or rate of coral fragmentation and survival. We recommend data to support this conclusion be included in the FEIS.

78) Vol. 4, Ch. 11, Sec. 11.2.2.2, P. 11-62 to 11-64: Soft bottom communities are important ecosystems and provide direct benefits to coral reef-associated organisms. Their loss is significant and could have long-term negative impacts to coral reef species that rely on them for foraging or other habitat. Replacement of a soft bottom community by a hard bottom community represents a large-scale, significant shift in the ecosystem and their respective ecological functions. We recommend removal of soft bottom habitat is quantified and considered permanent and significant in the impact analysis of the FEIS.

79) Vol. 4, Ch. 11, Sec. 11.2.2.2, P. 11-64: The DEIS contains the statement that “[b]ased on this assessment, Alternative 1 may adversely affect Essential Fish Habitat (EFH) in Outer Apra Harbor. However, these direct impacts would be either offset or reduced through implementation and management of the BMPs.” Under the CWA, unavoidable impacts will need to be mitigated. We recommend the statement, “Unavoidable loss of ecological function will be offset with appropriate compensatory mitigation” or a similar statement, be added to the FEIS.

80) Vol. 4, Ch. 11, Sec. 11.2.2.2, P. 11-67: Paulay *et al.* (2002) has been incorrectly cited as recording 5,500 non-native species on Guam. Paulay *et al.* recognized 85 non-indigenous species. We recommend that Paulay *et al.* (2002) be correctly referenced or the appropriate reference for the 5,500 non-native species be provided.

81) Vol. 4, Ch. 11, Sec. 11.2.2.2, P. 11-72: The DEIS includes a list of BMPs for lighting and construction, but their effectiveness to reduce impacts on turtles has not been analyzed. We recommend BMPs proposed for implementation for this project are clearly identified and analyzed in the FEIS.

A-008-119

82) Vol. 4, Ch. 11, Sec. 11.2.2.4, P. 11-74, Tbl. 11.2-6: Table states that unavoidable adverse impacts will occur to “coral habitat” and “benthic habitat” (with 0 percent coral cover), and that

Compensatory Mitigation Rule. The final conceptual determination would not be made until the Record of Decision on this EIS.

21. Noted paragraph has been moved.

A-008-109

Thank you for your comment.

22. The FEIS has been revised and strives to present information in the clearest manner possible. Impact acreage data will be included in the FEIS.

23. The FEIS has been revised.

24. The FEIS has been revised to include the approximate fill for the finger piers.

25. The Former SRF is located closer to sea turtle resting and foraging areas; FEIS has been revised to clarify this point.

26. Table references have been corrected in the FEIS.

27. In our evaluation of the alternatives considered in the EIS (Polaris Point, Former SRF), Polaris Point was determined to be the LEDPA. Text has been revised to provide clarifications.,

28. Verified for consistency.

29. In our evaluation of the alternatives considered in the EIS (Polaris Point, Former SRF), Polaris Point was determined to be the LEDPA. Text has been revised to provide clarifications.

A-008-119 compensatory mitigation would be required for unavoidable adverse impacts to “coral” and “coral reef ecosystems.” It is unclear from the wording if compensatory mitigation will be done for “benthic habitat” as required under the CWA. We recommend the FEIS clearly state that compensatory mitigation will be done for all unavoidable adverse impacts to marine and aquatic habitats.

A-008-120 83) Vol. 4, Ch. 11, Sec. 11.2.2.5, P. 11-77: The FWS conducted a detailed analysis of the Coral Habitat Index (CHI). While the CHI has several positive features, FWS is concerned that it underestimates the area of impact and subsequently amount of required compensatory mitigation. Specifically, the CHI: (1) only quantifies area of live coral cover (called “3-d coral area”); (2) violates assumptions of underlying probability model used to correct errors associated with coral habitat map, thus it is inaccurate and likely underestimates area; and (3) treats all corals as planar, thus ignoring their structural contribution to the habitat. Results of the FWS analysis were provided to the Navy on December 11, 2009. We recommend CHI data are not used to scale compensatory mitigation, and instead, coral size and morphology data are used in the analysis.

84) Vol. 4, Ch. 11, Sec. 11.2.2.5, P. 11-77: Compensatory mitigation is scaled only for coral. Under the CWA, compensatory mitigation is required to offset all unavoidable losses to ecological function resulting from the proposed action. The DEIS has identified unavoidable loss to habitats and organisms other than coral. We recommend that compensatory mitigation be developed and scaled to offset all unavoidable losses of marine habitat.

85) Vol. 4, Ch. 11, Sec. 11.2.2.5, P. 11-77: The DEIS includes a misleading statement that “Much of the habitat within the dredge footprint is unconsolidated soft sediment with no coral cover (Smith 2007, Dollar et al. 2009). Soft bottom habitat was not addressed in the HEA.” Compensatory mitigation has been proposed only for habitat with greater than 0.0 percent coral cover. Readers may be led to believe that only soft bottom areas have been excluded from the HEA analysis, when all areas, hard or soft bottom with no coral on it have been excluded from analysis. We recommend that mitigation is developed and scaled to offset all unavoidable losses to marine habitat (not just coral).

86) Vol. 4, Ch. 11, Sec. 11.2.2.5, P. 11-78: In the discussion on mitigation, the DEIS contains the statement that a “scientifically defensible ratio” is desirable for scaling mitigation and states that such a ratio is available for artificial reefs. Scaling for artificial reef mitigation has been derived from an Army Corps Permit issued for a coral reef project in Hawai‘i (the “HASEKO Inc.” Permit originally issued in 1993) and not from a published scientific source. Prior to issuance of a state permit to proceed with deployment of the HASEKO artificial reef, Hawai‘i State fisheries biologists raised concerns that the reef was too small and “would lead to greater vulnerability of reef fish to over-fishing, due to concentration of fish at a site readily accessible to fisherman, with no enhancement of fish reproductive rates or growth” (Hawai‘i Department of Land and Natural Resources 2008). They further conclude that the HASEKO artificial reef “would not be sufficient to create useful coral-reef habitat” and that it “would function primarily as a fish aggregation device...[that would]...concentrate fish near the structures without providing productive habitat for community growth.” To alleviate their concerns, the state requested that a contiguous reef of at least 100 acres was necessary to address their concerns. If artificial reefs remain under consideration, we recommend artificial reef are scaled using the 100:1 ratio proposed by the State of Hawai‘i, and that no areas less than 100 contiguous acres be used when considering places to deploy the structure.

30. Noted. Text has been revised.

31. Text has been revised to reflect acres instead of percentages.

A-008-110

Thank you for your comment. All BTS-related activities described are applicable to the JGPO action. The FEIS has been revised to indicate that a combination of temporary and permanent barriers for BTS control, depending on site conditions, would be employed. Volume 2, Chapter 10, Section 10.2.2.6 has been updated to include information on the Micronesia Biosecurity Plan (MBP) and other efforts that concern the prevention of BTS spread to islands.

A-008-111

Thank you for your comments.

35). The Viehman et. al. (2009) paper is as stated in Section 11.1.1 and is appropriately placed before describing the recent studies (i. – iv.) and their general objectives. No re-write is necessary for this section.

36). Sentence will be revised as suggested.

37). Five revised to four on Page 11-3. The fifth study was reviewed, but was considered to dissimilar to the other studies and due to the lack of substance to conclusions reached by authors.

38). If this study (Smith 2007) is not in the Appendices it was inadvertently left out and will be included with the FEIS.

39). As stated by the Department of the Army (17 Feb 2010 response to DEIS), “the employed survey methodology to assess coral reef resources within the proposed CVN wharf and dredge project area has been an extremely contentious subject. Functional assessment

A-008-120

87) Vol. 4, Ch. 11, Sec. 11.2.2.5, P. 11-78: It is not clear how the ratio of artificial to natural reef used for each category of the CHI will equitably replace the lost CHI category. The DEIS acknowledges that the artificial reef will be equivalent to the lowest CHI category, which has been described as having the lowest amount of coral and topographic relief. The lowest CHI category could equate to a flat “pavement” environment with 1 percent encrusting coral cover. It is not clear how 10 times this amount will equitably offset an area of highly diverse coral, with numerous morphological types (e.g., branching, tabular, mounding), and considerable topographic relief. Available scientific data, including information from survey work included in the DEIS, would not support these communities as equitable. The FWS does not support use of artificial reefs for compensatory mitigation, and we recommend that artificial reefs be removed from consideration as compensatory mitigation. While we acknowledge that other mitigation options may exist, and we are encouraged by recent discussions with the Navy to explore options, we recommend that a coral reef restoration project via watershed erosion control be developed and examined as mitigation.

88) Vol. 4, Ch. 11, Sec. 11.2.2.5, P. 11-81: Placement of an artificial reef on sand habitat will result in the permanent loss of this habitat. The DEIS contains the proposal to place artificial reefs on sand habitat and the statement that “[a]lthough the HEA assumes permanent loss of habitat due to dredging, in reality there would be coral re-growth that would provide minor functions/services in the dredged areas. This could offset losses of habitat on which artificial reefs are placed.” It is unclear how coral re-growth will offset functional losses of sand habitat. We recommend this statement be removed from the FEIS and that permanently lost ecological function associated with the sand habitat lost to artificial reef placement is included in scaling the artificial reef mitigation project.

89) Vol. 4, Ch. 11, Sec. 11.2.2.5, P. 11-82: The title provided to Mitigation Option 2 may be misleading. The title implies mitigation is restoration of watershed, when in fact mitigation project is restoration of coral reefs via water quality improvements (e.g., sediment/pollution reduction via land-based erosion control). We recommend title of this Mitigation Option is changed in the FEIS to “Coral Reef Restoration” to better describe the actual project.

A-008-121

90) Vol. 4, Ch. 11, Sec. 11.2.2.7, P. 11-83: In most cases, the three-dimensional structure of an artificial reef is assumed to attract fish, not the attached organisms (see Brock 2005 for some discussion). We recommend this statement be revised in the FEIS to be consistent with general scientific opinion about what attracts fish to artificial reefs.

91) Vol. 4, Ch. 11, Sec. 11.2.2.7, P. 11-83: The manner in which Carr and Hixon (1997) has been cited is misleading. Carr and Hixon did not document similar reef fish communities on artificial and natural reefs when standardizing for reef size, age and isolation. Carr and Hixon state “[f]or the particular structural features of the natural and artificial reefs that we studied, these results suggest that, even when reef age was controlled, and the surrounding habitat and degree of isolation was standardized, the resulting number of individuals and species of fishes on natural reefs after two years was greater than on artificial structures. Thus, the greater vertical relief and shelter available (number of holes) of artificial reefs did not compensate for the greater structural complexity (variety of holes) and natural forage base provided by the corals and associated benthos of the natural reefs. These results suggest that artificial reefs intended to mitigate the degradation of natural reefs should be structurally as similar as possible to natural reefs, especially promoting the development of naturally dominant benthos (such as coral or

methodologies are an evolving science and the adequacies of existing methodologies are heavily debated in the scientific community. A standard functional assessment technique that accurately characterized and quantifies losses and gains of coral reef aquatic resource functions, as would ideally be utilized for the proposed action for Section 10/404 compensatory mitigation purposes, is not currently available. Considering that our office will ultimately be responsible for determining compliance with federal regulations requiring an appropriate and practicable functional assessment, we have engaged our Engineer Research and Development center (ERDC) to provide an independent technical review of the adequacy of the employed methodology to date and recommendations for improvements, if necessary. Preliminarily, ERDC has determined that while the methodology is scientifically valid and statistically defensible, a more intensive level of data collection may be necessary to adequately measure habitat function for compensatory mitigation purposes. We expect a more specific and detailed accounting of their review in the coming weeks.” The Navy will continue to work with the USACE and EPA/GEPA to satisfy the requirements of Section 10/404 and Section 401 permit documentation.

40). Please see comment No. 37.

A-008-112

Thank you for your comment.

41). No revision required. All photos used in this EIS were derived from the marine biology field surveys that were conducted. The photos are provided to the reader for a visual representation.

42). Describing the 8 secondary biotopes within the 3 major biotopes provide the Affected Environment “structure of the marine benthic environment” for the proposed aircraft carrier channel area. The information is used indirectly and directly throughout the document,

A-008-121 macroalgae” [Carr and Hixon pg. 30-31]. Additionally, in a recently published article, Burt *et al.* (2009) examined coral and fish communities on artificial compared to natural reefs to assess their effectiveness for mitigation. They concluded that “large artificial reefs can support diverse and abundant coral and fish communities. However, these communities differ structurally and functionally from those in natural habitats, and they should not be considered as replacements for natural coral and fish communities.” In light of these scientific studies, we recommend artificial reefs be removed from consideration as compensatory mitigation in the FEIS.

A-008-122 92) Vol. 4, Ch. 11, Sec. 11.2.2.7, P. 11-83: See comment Vol. 4, #14.
 93) Vol. 4, Ch. 11, Sec. 11.2.2.7, P. 11-85: See comment Vol. 4, #19.
 94) Vol. 4, Ch. 11, Sec. 11.2.2.7, P. 11-90: See comment Vol. 4, #20.

A-008-123 95) Vol. 4, Ch. 11, Sec. 11.2.2.7, P. 11-90: The paragraph beginning “A direct and predictable relationship...” appears to be misplaced. This paragraph appears to belong with discussion of “watershed restoration” option. We recommend that this paragraph be reviewed and moved or revised as appropriate.

A-008-124 96) Vol. 4, Ch. 11, Sec. 11.2.3.2, P. 11-92: The DEIS contains a statement that “[t]his equates to a percent coral cover impact of 46%, 39% direct and 50% indirect impacts of the total area affected, respectively.” It is unclear if these relative statistics pertain to the percentage of area with some coral on them or if this represents average coral cover of areas to be dredged. Relative statistics are often problematic when attempting to define absolute amounts. We recommend that relative statistics are not used when the absolute numbers will be clearer. If this value represents average coral cover of areas to be dredged, we recommend this is clarified in the FEIS.
 97) Vol. 4, Ch. 11, Sec. 11.2.3.2, P. 11-92: Table 11.2-9 does not correspond with the description provided in the text. We recommend citing the correct table in the FEIS.
 98) Vol. 4, Ch. 11, Sec. 11.2.3.2, P. 11-92: The final paragraph on this page summarizes the impacts expected from Alternative 1 and Alternative 2 using exclusively relative statistics. Relative statistics are a problem when assessing acres of habitat impacted by proposed project because two alternatives have different-sized footprints. We recommend that actual acres impacted be used in the FEIS.

A-008-125 99) Vol. 4, Ch. 11, Sec. 11.2.5, P. 11-99: Potential impacts from proposed project are discussed for “live coral reef benthos,” “coral reef habitat,” and “coral.” None of these of terms is clearly identified and it is unclear if impacts have been summarized for areas that do not contain coral (*e.g.*, sand and algae areas). We recommend the above terms be clearly defined and that impacts to all marine habitat are identified, analyzed and summarized in the FEIS.

A-008-126 Volume 5
 1) Vol. 5, general comment: Volume 5 references mitigation described in Volume 2 as sufficient to mitigate potential impacts to less than significant. However, mitigation proposed in Vol. 2 is inadequate to offset potential impacts of a project on the scale of the JGPO action. Through informal Section 7, ESA consultation, conceptual conservation measures have been proposed, but specific details of these measures have not been developed. We recommend that: (1) the

including caption below the photos, which helps the reader visualize percent coverage for each secondary biotopes of the survey area and the tables identifying the six levels of coral coverage. No change.

43). Information provided in the Appendices were used to develop a valuation of the action area and are appropriate in assessing potential impacts.

44). Noted paragraph has been removed from the FEIS.

45). The map is accurate in the EIS.

46). Comment noted.

47). Paragraph has been revised.

48). This statement was removed. Actual acreage values are provided in the DEIS and are provided in the FEIS.

A-008-113

Thank you for your comment.

49. The FEIS text has been revised to remove “relative calculations” and associated text for htis section.

50. The numbers have been corrected in the FEIS. Of the 67 transect sites, 27 and 26 were in the direct (co-located) and indirect area, respectively. The 14 direct sites exclusively associated with Alternative 1 and 2, respectively, remains the same.

51. Analyzing the 14 survey sites exclusive to either Alternative 1 or Alternative 2 provides some insight to LEDPA. Alternative 2’s proximity to Middle Shoals and Big Blue reef is apparent; however, based on review of survey data and coral coverage maps, Alternative 2 also has higher quality coral reef in the direct impact area.

52. This study has been added to the Appendices in the FEIS.

A-008-126 DoD continues to work with the Pacific Islands Fish and Wildlife Office to obtain the level of detail necessary to mitigate impacts to less than significant and (2) upon completion of the Section 7 consultation, details of specific conservation measures are incorporated into the FEIS.

A-008-127 2) Vol. 5, Ch. 2, P. 2-4: The DEIS indicates that 126 civilians will be associated with the AMDTF and these positions would be filled by a new population moving to Guam. The addition of these people, their families, and their housing and utility needs are not addressed in Chapter 5. We recommend the FEIS include an analysis of interrelated and interdependent impacts from increase in civilian population in its analysis.

3) Vol. 5, Ch. 2, pp. 2-4 and 2-5: The DEIS indicates that the administration/Headquarters (HQ) and maintenance facilities for the AMDTF would need a footprint of 28 acres (11 hectares). Table 2.3-2 on page 2-5, includes a project footprint and parking requirements; however, these areas do not total 28 acres. There should not be a discrepancy between tables and text. We recommend Table 2.3-2 be revised to reflect accurate footprint calculations. If the footprint does not total to 28 acres as indicated on page 2-4, please revise necessary acreage for this project.

4) Vol. 5, Ch. 2, P. 2-5: The DEIS indicates that lodging (billeting) will be necessary at weapons emplacement sites. However, no discussion of noise or human-related impacts is included in Chapter 10. We recommend an analysis of potential noise and lighting impacts at weapons emplacement sites and conservation measures be included in the FEIS.

5) Vol. 5, Ch. 2, P. 2-6, Tbl. 2.3-2: Table 2.3-2 does not include an estimate of housing requirements for the 1,580 personnel and dependents or the 126 civilians and their dependants, thereby precluding a complete analysis of potential impacts from construction of administration/HQ and maintenance facilities on federal trust species. We recommend housing areas for all civilian, enlisted, officers, and their dependants are identified and quantified and that impact analysis is modified accordingly. If this information and analysis appear in Volume 2, we recommend it be referenced (Volume, chapter, section, and page number) at first mention of the housing project, and that the FEIS clearly states that no additional habitat will be removed to accommodate these facilities.

6) Vol. 5, Ch. 2, pp. 2-5 and 2-6: Volume 5 of the DEIS does not include a total footprint needed to accommodate munitions storage or weapons emplacement sites. It is not clear if this information exists in another Volume of the DEIS. We recommend the FEIS include quantified physical space in acres (and hectares) required for munitions storage and weapons emplacement sites or clearly reference (Volume, chapter and page number) where in the FEIS this information can be located.

7) Vol. 5, Ch. 2, P. 2-8: The DEIS indicates that the AMDTF will use a radar system in its operations. However, impact analysis does not describe the electromagnetic field (EMF) and levels of electromagnetic radiation (EMR) that will be produced from this radar. EMR can raise temperatures in bats and can cause inadequate thermoregulation leading to harm and possible mortality. This phenomenon may also occur in birds. Many species of bats will avoid EMF thereby avoiding direct harm. However, the presence of the EMF renders otherwise suitable habitat unsuitable. We recommend the FEIS include a map of the area affected by EMR and corresponding EMF. These areas should be incorporated into the effects analysis in Chapter 10 as direct effects to individuals and as a loss of habitat.

53. The Figure has been "revised" so it will reproduce better in the FEIS.

54. This statement, as identified in the DEIS, are major findings from Smith (2007) dive surveys and transects. The DEIS attempted to provide the best available information from multiple historical dive survey and transect information to characterize the area.

55. The indirect impact analysis was performed on 100% (terrestrial and marine sediment) of the potential sediment resuspension. The EIS identified the areas (in distances from the dredge zone) that will received >6mm sedimentation (adverse effect) and <6mm sedimentation based on sediment transport modeling, which will be verified by OE ERDC.

A-008-114

Thank you for your comment.

56. This study (NAVFAC Pacific 2006) was provided to assist with screening of potential alternative wharf sites. Further, it offers valuable information regarding sediment characterization, which is the subsection header.

Comment noted that there is some confusion and edits have been made to the FEIS.

58. This is a Navy 2003b source figure and is not subject to revision.

59. Clarification has been added. The "strata" are not the typical strata that most ecologists think of, which are biologically defined, which if not statistically different would not need to be discussed separately. However, these strata are artificially defined in terms of dredging zones (direct, indirect impact etc) so they have to be discussed separately. In retrospect, the term "strata" which was first used by Duane Minton, is not the best term to define the different zones of impact. Because of the incompatibility of the methodology used with other Navy data, it was not representative of the entire impact area, and therefore it was not

A-008-127 8) Vol. 5, Ch. 2, pp. 2-11 to 2-12: The DEIS indicates that within Alternative 2 for the Headquarters/Housing alternatives that administrative/HQ, maintenance, housing, and quality of life (QOL) portions of this alternative are not included in any of the Marine Corps Alternatives. It is not clear where these facilities are located. We recommend Alternative 2 is clarified in the FEIS to reflect location of all facilities.

9) Vol. 5, Ch. 2, P. 2-13: Alternative 1 for munitions storage area indicates that existing munitions storage facilities may need to be relocated but a location has not been determined. Proposed construction of a new munitions storage site will likely result in loss of essential habitat for threatened and endangered species. Without disclosure of proposed location to which these existing structures will be moved, the impact analysis in the DEIS is incomplete. We recommend: (1) the FEIS should include proposed location for preferred munitions storage facilities. This location should be selected to avoid and minimize impacts to essential habitat to the greatest extent possible; and (2) The FEIS should include and impact analysis for habitat that will be impacted by moving existing munitions storage area.

10) Vol. 5, Ch. 2, P. 2-13: In Alternative 2, the DEIS indicates future expansion of preferred alternative for munitions storage areas may be required; however, an expansion is not needed for Alternatives 1 or 3. We recommend: (1) The FEIS include additional information that explains why a future expansion would be necessary for Alternative 2 but not for other alternatives; and (2) the magnitude of this expansion should be quantified, and impacts on habitat from ground disturbance and other indirect impacts should be analyzed.

11) Vol. 5, Ch. 2, P. 2-13: The DEIS indicates the preferred alternative for the AMDTF munitions storage is Alternative 1. This alternative requires the greatest amount of essential habitat removal and has un-quantified impacts that will occur from relocation of existing munitions storage. We recommend selection of munitions storage Alternative 3 as the preferred alternative. We based this recommendation upon: (1) a minimum amount of essential habitat will be removed; (2) no existing munitions would need to be relocated; (3) no expansion of the facility is proposed; and (4) explosive safety quantity distance (ESQD) Arc does not overlap with an existing mitigation area that is proposed for brown treesnake research as mitigation for the JGPO.

12) Vol. 5, Ch. 2, P. 2-15: The DEIS depicts the general areas proposed for locating weapons emplacement sites. Alternative 3 appears to encroach upon an existing mitigation area set aside from the Intelligence, Surveillance and Reconnaissance (ISR) Strike and Northwest Field Beddown projects on AAFB. We recommend location of four existing mitigation areas (three units in Northwest Field and the HMU) are identified in Figure 2.4-3. If Alternative 3 encroaches upon the mitigation area, we recommend the footprint is adjusted such that it does not overlap any mitigation area.

A-008-128 13) Vol. 5, Ch. 6, pp. 6-1 and 6-2: The DEIS does not address noise associated with training from the AMDTF. We recommend analysis of noise from training and daily operations of the AMDTF are included in the FEIS. This analysis should include noise curves and quantify the amount of habitat that will become unsuitable due to noise from daily operations.

A-008-129 14) Vol. 5, Ch. 10, Sec. 10.2.1.1, P. 10-1: The DEIS contains the statement that direct impacts associated with proposed construction activities include the "Potential loss of habitat due to disturbance..." While the statement indicates that direct impacts include but are not limited to

appropriate to extrapolate out to the greater area.

61. Revisions have been made to clarify.

A-008-115

Thank you for your comment.

62. The source for Figure 11.1-18 is the Guam Coastal Atlas, which includes revised data collected from 2004-2006. Although this figure is not as detailed as other benthic coral coverage figures shown in this Chapter, it is satisfactory for the purposes of showing sensitive marine biological resources, focusing on T&E species and EFH of the Apra Harbor region.

63. Text has been revised to reconcile the descriptions of distribution of elephant ear sponges for the FEIS.

A-008-116

Thank you for your comment.

64. Section 11.2.2.2, pp 11-45: same as comment Vol. 4, #9.

65. The FEIS has been revised as appropriate.

66. The 200 meter indirect zone, was selected to provide a conservative (error to benefit to coral) estimate of indirect impacts to coral. The FEIS has been revised to more accurately reflect the indirect impact area.

67. Text changed in FEIS.

68. In-water construction activities that the Navy proposes to minimize by using best management practices (BMPs) and mitigation measures will be determined and agreed upon during the US Army Corps of Engineers (USACE) permit phase of the projects. The Kilo Wharf project

- A-008-129** | bulleted items, it should also include a complete quantification of effects since habitat loss can occur from noise, lighting, and human disturbance during construction and routine operation. Direct and indirect impacts also include effects from EMF which were not addressed in the DEIS. The current analysis only includes habitat loss due to construction. We recommend that: (1) the statement is revised in the FEIS to read: "Potential loss of habitat due to disturbance of the surrounding area from noise, lighting, human activity, and the EMF during construction and routine operation of the AMDTF." (2) this information should be used throughout Chapter 10 in the effects analysis by identifying and quantifying where habitat will be lost due to direct removal and via indirect impacts such as noise, lighting, EMF, and other human activities.
- A-008-130** | 15) Vol. 5 Ch. 10, P. 10-16: The summary table 10.2-5 does not describe impacts to essential habitats or special status species expected from construction or operation under Alternative 1 or 3. We recommend the impacts to habitats and special status species are described in the FEIS, in this table while also referencing appropriate sections of Volume 2. This will make the summary table a stand-alone table.
- A-008-131** | 16) Vol. 5 Ch. 14, P. 14-1: The DEIS references Volume 6 for a complete discussion of roadways. However, it is not clear in Vol. 6 whether roads will be modified, or if new roads will be connected to any of the features proposed for AMDTF or how these connections will be made to ensure that additional habitat loss does not occur. A mass transit road is expected (see Andersen Shuttle, Vol. 6, Ch. 2, p. 2-113) but is not described or analyzed. We recommend that the FEIS contain references to the pages and figures within Vol. 6 that describe and analyze all roadways (new and improved, including shuttle service and construction of associated shuttle features) that will be installed for the AMDTF.
- A-008-132** | 17) Vol. 5 Ch. 15, P. 15-1: The DEIS references Volume 6 for a complete discussion of utilities. However, it is not clear in Vol. 6 whether utilities (power, potable water, wastewater) will be connected to features proposed for AMDTF and whether these connections will impact additional habitat. We recommend the FEIS contain references to the pages and figures within Vol. 6 that describe and analyze all utilities that will be installed for the AMDTF.
- A-008-133** | Volume 6
1) Vol. 6, general comment: Volume 6 describes roadways in terms of traffic flow and congestion; however, it does not provide analysis of impacts to terrestrial biological resources from roadway construction, improvements, and operation on DoD and non-DoD lands. The volume also does not address new access road to the naval magazine. We recommend the FEIS include an impact analysis describing effects from roadway construction or improvement on trust resources and their habitats. If information can be found elsewhere in the DEIS, we recommend a reference (volume, chapter, section, and page number) to its location be provided.
- A-008-134** | 2) Vol. 6, general comment: Volume 6 does not include complete analysis of all known related actions. For example, no impact assessment or mitigation measures are proposed for relocation of the Guam International Raceway, relocation of cattle leases on Tinian, or increased recreational use by military, civilians, dependants, and off-island workers due to increased population on Guam. We recommend the FEIS contain a description of all related actions and an impact analysis particularly with regard to effects on candidate, endangered, and threatened species and their habitats. If information can be found elsewhere in the DEIS, we recommend a reference (volume, chapter, section, and page number) to its location be provided.

and the proposed action occur in very different areas of Apra Harbor.

69. Text has been revised in the FEIS.

A-008-117

Thank you for your comments.

70. This statement is relevant regarding the potential compensatory mitigation sites within the inner reef flats associated with Guam watershed and stream discharge points.

71. The text was revised per resource agency comment for the ERDEIS. No text change will be made for the FEIS.

72. The Navy collected a robust data set to include coral distribution, benthic cover, fish biomass, and fish and invertebrate species abundance. A standard functional assessment technique that accurately characterized and quantifies losses and gains of coral aquatic resource functions, would ideally be used. However, functional assessment methodologies are an evolving science and the adequacies of existing methodologies are heavily debated in the scientific community. Further, the Compensatory Mitigation Rule recognizes the evolving nature of science on this issue and does not mandate any particular assessment methodology. The Navy assessment used a historically approved methodology followed by the USACE and NMFS for quantifying impacts to coral reef ecosystems. For well over 30 years coral reef ecosystem monitoring and impact assessments have been based on percent coral cover. Due to the complexity of this ecosystem percent coral cover has been identified as "the best current available science" standard (or proxy) to attempt capturing the thousands of elements that comprise a coral reef ecosystem. In light of the continued dispute on what parameters need to be collected to fully capture the impact to coral reefs, the Navy's assessment is currently under review by

- A-008-135** | 3) Vol. 6, general comment: Volume 6 references mitigation in Volume 2, but Volume 6 also lists mitigation for specific actions. However, mitigation proposed in Vol. 2 is inadequate to offset potential impacts of a project on the scale of the JGPO action. Through informal Section 7, ESA consultation, conceptual conservation measures have been proposed, but specific details of these measures have not been developed. We recommend that: (1) the DoD continue to work with our office to obtain the level of detail necessary to mitigate impacts to less than significant and (2) upon completion of the Section 7 consultation, details of specific conservation measures are incorporated into the FEIS.
- A-008-136** | 4) Vol. 6, Ch. 1, P. 1-5, Sec. 1.2.1: The DEIS indicates that increased demand for imported goods will occur due to military buildup, increase in off-island construction workers, and induced population. The DEIS also notes that port improvements will be needed. No analysis is provided that estimates expected or potential changes in the amount of goods or materials coming to Guam. Information appears to be available in final draft Port Master Plan; however, no citation was provided so this document may be obtained and reviewed. Increased shipments result in increased risk of introducing non-native invasive species to Guam, and this risk needs to be minimized. Since goods and materials to support implementation of JGPO will arrive through the port, we recommend the FEIS: (1) contain a summary of projected increase in materials and goods; (2) a summary of best management practices (*i.e.*, cargo and container tracking, pre-shipment inspections, arrival inspections and quarantine procedures) that are proposed by the port; and (3) include a statement regarding technology transfer of the BSP to the port and describe how the Port will participate.
- A-008-137** | 5) Vol. 6, Ch. 1, P. 1-6, Sec. 1.2.2: The DEIS indicates that contractors will be providing workforce housing, and states that DOD will require design-build contracts to accommodate specified health and safety standards. However it does not include discussion regarding potential direct effects resulting from workforce housing on endangered and threatened species due to habitat loss or indirect effects such as predation from domestic animals. We recommend the FEIS include: (1) a mitigation measures requiring the DoD to include in design-build contracts that all worker-housing will be built in areas not essential habitat for endangered or threatened species or in areas known to support candidate species and (2) the design-build contracts that specify no domestic animals are allowed outside unless leashed. These conditions of the contract should be strictly enforced.
- A-008-138** | 6) Vol. 6, Ch. 2, P. 2-3, Fig. 2.5-3: Not all road projects have been included in Figure 2.5-3, yet no explanation is provided to describe why these projects were excluded. We recommend the FEIS include a justification for exclusion of these projects from Figure 2.5-3 or provide road projects in the figure.
- 7) Vol. 6, Ch. 2, pp. 2-110 and 2-116, Fig. 2.5-2 and 2.5-6: Figures 2.5-2 and 2.5-6 depict municipal solid waste landfills, concrete batch plants, and rock quarries. However, these facilities are generally not discussed in the text. We recommend the FEIS include information that identifies whether landfills, concrete batch plants, and rock quarries are proposed or existing. If features are proposed as a JGPO action or a related action, we recommend that appropriate impact analyses for these features is included in the FEIS.
- A-008-139** | 8) Vol. 6, Ch. 12, P. 12-2: The DEIS indicates that many of the proposed roadway projects are not analyzed either because the action would occur within the existing footprint or because the action would have no appreciable effect to terrestrial biological resources (*i.e.*, vegetation

USACE . Upon completion of that in-depth review, if USACE feels additional information is warranted the Navy will seek additional data a revise its analysis prior to submitting a permit application.

73. For the sake of discussion, the text specifically states “Areas that lack hard stable surfaces, such as sand, mud, and algae covered sea floor areas do not support substantial coral growth. Algae are clearly a limiting factor for coral growth. The text has been further clarified for the FEIS.

74. Text has been revised in FEIS.

75. Text has been revised in FEIS to clarify the indirect impacts.

A-008-118

Thank you for your comment.

76. The information provided was based on best currently available information.

77. Information in the EIS associated with this comment has been removed.

78. The Navy disagrees that soft bottom community removal constitutes a significant impact, as evidenced by historical data related to maintenance dredging of existing harbors. Furthermore, biological organisms associated with these habitats are frequently exposed to natural disturbances and therefore have adapted to that environment. Impacts to soft bottom community would be short-term and localized. No text change to FEIS.

79. Text has been revised as suggested in the FEIS.

A-008-139 removal would occur in heavily degraded, modified, or urban vegetation). However, this edge vegetation, though disturbed, degraded, or modified can serve as a buffer to help prevent further encroachment of invasive species within surrounding vegetation that could be suitable habitat for trust resources. Also pavement strengthening can result in temporary increases in noise which could disturb nesting for species such as endangered Mariana common moorhen. Moorhen have been detected in the vicinity of the junction of Highways 8 and 16. We recommend all road projects be analyzed in the FEIS.

A-008-140 9) Vol. 6, Ch. 12, P. 12-5: The DEIS concludes that terrestrial biological resources would not be impacted by any of the electrical power alternatives. However, a new fuel storage facility will be built under Alternative 3 and all alternatives include upgrades to underground and above-ground transmission lines. The DEIS explains that this work would be conducted in “already developed areas.” However, work conducted in right-of-way next to essential habitats may not necessarily impact habitat, but it could create a temporary noise and vibration disturbance (*i.e.*, trenching in limestone substrates). We recommend the FEIS include: (1) description of proposed locations for new fuel storage facility (Alternative 3) and power lines (all alternatives); (2) definition of “already developed areas”; and (3) any proposed action conducted in a right of way and near essential habitat in analysis of impacts on terrestrial resources.

A-008-141 10) Vol. 6, Ch. 12, Sec. 12.2.3, P. 12-6 to 12-14: Each alternative indicates that multiple new water supply wells will be constructed along with rehabilitating existing wells; however, well locations are not clearly described in the text or a figure. We recommend these figures in the FEIS clearly depict new wells (Figures 12.2-1) and existing wells (Figure 12.2-2) and show all proposed alternatives.

11) Vol. 6, Ch. 12, Sec. 12.2.3, P. 12-7 and 12-9: Figures 12.2-1 and 12.2-2 clearly identify habitat features and species that may be impacted by proposed potable water system project. In our review of these two figures, it is clear the footprint of potable water system is within or near essential habitat for listed species. We are concerned that impacts have not been avoided and minimized to the extent practicable. For example, potable water line is planned to leave Andersen Air Force Main Base and traverse forest eventually running parallel to, but not within, the right-of-way for Highway 9. Two water mains also traverse forest from this main line and do not follow roadways, encroaching on an area known to be used by bats. Running lines through forest instead of right-of-ways creates fragmentation and edge, which contribute to overall habitat loss and degradation and increases opportunities for invasive species to impact essential habitat. We recommend project footprint be minimized within essential habitat for listed species by constructing water line within Highway 9 right-of-way and that two secondary water lines also be constructed or trenched along existing roadways.

12) Vol. 6, Ch. 12, Sec. 12.2.3, P. 12-9: Potable water system lines appear to require removal of *Tabernaemontana rotensis*, a rare species of tree. The scale of the figure does not allow for clear depiction of the trees relative to proposed water system lines, and no discussion has been provided that clarifies if rare trees will be removed. We recommend the FEIS incorporate a mitigation measure that indicates no *T. rotensis* will be removed during construction of the water system.

A-008-142 13) Vol. 6, Ch. 12, P. 12-11, Tbl.12.2-4: The Table indicates that limestone forest at Navy Barrigada will be removed but is already accounted for in development of the Army Cantonment

80. Text has been revised to correctly reference Pauley et al. (2002) or appropriate reference has been provided in FEIS.

81. The Navy, in accordance with all applicable USACE guidance, will implement appropriate BMPs.

A-008-119

Thank you for your comment.

82. As evidenced by historical data related to maintenance dredging of existing harbors, impacts to non-coral communities would be short-term and localized. Furthermore, biological organisms associated with these habitats are frequently exposed to natural disturbances and therefore have adapted to that environment. No text change to FEIS.

A-008-120

Thank you for your comments.

83. Habitat assessment methodologies which evaluate the function of affected aquatic resources, such as coral reef ecosystems, are an evolving science and the adequacies of existing and new methodologies are heavily debated in the scientific community. Ideally, a standard assessment technique that accurately characterizes and quantifies losses and gains of coral reef ecosystem functions would be used. However, rulemaking for the Compensatory Mitigation Rule recognizes the wide variety of aquatic resources present in the United States and the evolving nature of science regarding aquatic ecosystem restoration make the establishment of standard assessment methodologies impracticable. The assessment for this EIS used an historically approved methodology (percent coral cover), supplemented by other methods such as the use of Light Detection and Ranging (LIDAR) satellite photos, for quantifying impacts to affected coral reef ecosystems impacted by the proposed transient CVN wharf and associated

- A-008-142** in Vol. 5, Alternative 2. We recommend the FEIS include a single set of tables for an overall impact summary, listing each action within each alternative for comparison.
- 14) Vol. 6, Ch. 12, P. 12-17:** The DEIS indicates that “the proposed Layon landfill and its impacts were analyzed in a separate environmental impact statement by the GovGuam.” No citation is provided for this document. We recommend the FEIS include a citation for Layon landfill NEPA documentation.
- 15) Vol. 6, Ch. 12, Sec. 12.2.6, P. 12-17:** The DEIS includes an analysis of roadway projects, but does not include an overall figure (nor references an appropriate figure elsewhere in the DEIS) that depicts roadways on non-DoD land. We recommend that this section reference Figure 2.5-8 on page 2-123 to help the reader understand general locations of all projects.
- 16) Vol. 6, Ch. 12, P. 12-18:** The DEIS indicates that bridge replacements can result in a variety of downstream habitat impacts; however no description of potential upstream habitat impacts (e.g., headcutting, ponding, or damming due to undersized culverts or debris blockage, etc.) are disclosed in the DEIS. We recommend that the FEIS include a description of potential for upstream impacts due to bridge replacements and provide an analysis supporting the conclusion that upstream impacts are unlikely to occur.
- A-008-143** **17) Vol. 6, Ch. 12, pp. 12-22 to 12-24; and 12-34 to 12-39:** Only one road project (35) in the central portion of Guam and Apra Harbor acknowledges potential impacts to the endangered Mariana common moorhen, yet two additional projects (24 and 26) may affect moorhen and the GNWR Overlay. No description is included in the DEIS of either BMPs or mitigation measures to ensure these bridge repairs avoid, minimize, or mitigate impacts on the moorhen or on the GNWR Overlay. Additionally it is not clear where Projects 26 and 35 are located. We recommend the FEIS include: (1) descriptions of all project locations; (2) disclosure and analysis of, as appropriate, the impacts on the Mariana common moorhen and the GNWR Overlay; and (3) description of measures to avoid, minimize, or mitigate these impacts.
- 18) Vol. 6, Ch. 12, pp. 12-26; and 12-27, Fig. 12.2-4 and 12.2-5:** Figures 12.2-4 and 12.2-5 indicate road right-of-way will remove mixed limestone forest in essential habitat. Based upon these figures, it is clear that essential habitat has not been avoided to the maximum extent practicable. We recommend moving construction of project footprint to existing right-of-way or move it to south side of Highway 9 to avoid impacts to essential habitat.
- A-008-144** **19) Vol. 6, Ch. 12, pp. 12-33 and 12-35, Tbl. 12.2-15 and 12.2-16:** Tables 12.2-15 and 12.2-16 appear to be missing some road construction activities. Additionally, no tables are presented for Alternatives 2, 3, or 8. We recommend the FEIS: (1) include roadway Projects 38, 39, and 41A to tables or provide a rationale for their exclusion and (2) include impact assessment tables for other alternatives to allow for easy comparison of vegetation and habitat impacted by each alternative.
- A-008-145** **20) Vol. 6, Ch. 12, p. 12-38:** The DEIS indicates that mitigation measures for the central region will be developed in coordination with GEPA, FHWA, and DPW. If these actions will affect the endangered Mariana common moorhen or essential habitat, we recommend mitigation measures be developed in coordination with the FWS and included in the FEIS.

dredging. DoD believes that use of the percent coral cover methodology, supplemented by use of LIDAR satellite photos, is the "best currently available science" to attempt to capture the thousands of elements that comprise the function of a coral reef ecosystem. DoD's assessment is currently under review by the US Army Corps of Engineers, the agency charged with implementing dredge and fill permits under CWA Section 404, and other Federal agencies. The FEIS will be updated to reflect the latest developments in this review.

84. As evidenced by historical data related to maintenance dredging of existing harbors, impacts to non-coral communities would be short-term and localized. Furthermore, biological organisms associated with these habitats are frequently exposed to natural disturbances and therefore have adapted to that environment. No text change to FEIS.

85. As evidenced by historical data related to maintenance dredging of existing harbors, impacts to non-coral communities would be short-term and localized. Furthermore, biological organisms associated with these habitats are frequently exposed to natural disturbances and therefore have adapted to that environment. No text change to FEIS.

86. All mitigation options associated with the proposed CVN transient wharf, including the use of artificial reefs and watershed restoration, are being considered by the Navy. When the Navy develops its proposed compensatory mitigation plan, mitigation options contained within the plan will be evaluated by the USACE for permitting to determine compliance with the Compensatory Mitigation Rule. The final determination for permitting would not be made until after the Record of Decision on this EIS.

Volume 7

A-008-146

1) Vol. 7, general comment; and see: Ch. 2, pp. 2-31 to 2-56: Adaptive management techniques such as change in construction tempo, timing, or sequence could result in adverse impacts to terrestrial biological resources. However, these potential effects are not discussed. Rather, these adaptive management techniques are considered a benefit to some resources, not identified. No information on the analysis to reach this conclusion is provided. We recommend the FEIS include: (1) identification of who would be responsible for developing recommending the adaptive management changes; (2) descriptions of internal and external review processes for suggested changes; and (3) descriptions of how these changes will be implemented and monitored to ensure they will not adversely impact listed species and their habitats.

A-008-166

2) Vol. 7, Ch. 1, Sec. 1.4.3.1, P. 1-15: The DEIS is misleading when it suggests current population numbers of Tinian monarch represent an increase for the species. The current population of this species is 50% lower than estimates obtained by Camp *et al.* (2009) between time periods 1982 and 1996. The current population level for this species still raises concerns, especially if proposed action will result in additional habitat loss and fragmentation. We recommend the FEIS include: (1) analysis of potential impacts from proposed action on the Tinian monarch; (2) description of measures to avoid and minimize loss to limestone forest, as well as secondary native habitat; and (3) relocation of all live-fire training out of Tinian monarch habitat.

3) Vol. 7, Ch. 2, Sec. 2.1, P. 2-3, Tbl. 2.1-1, seconded bullet: The DEIS contains a recommendation to control the carabao population to prevent soil erosion, yet means for population control have not been clearly described. It is unclear if this action has been or will be described in the Ungulate Management Plan that is being developed. We recommend carabao control actions are fully described in the FEIS including: (1) details on roles and responsibilities of parties involved in control action; (2) funding to conduct the actions; and (3) management goals (*e.g.*, eradication, population reduction).

4) Vol. 7, Ch. 2, P. 2-4: The DEIS indicates that a stormwater management plan will be developed and implemented and that stormwater ponds, wetlands, and diversions may be created or modified. Stormwater ponds and wetlands may serve as an attractant for the endangered Mariana common moorhen. Depending on quality of water, these features could either benefit recovery of the moorhen or adversely impact the species. We recommend that DoD coordinate with our office regarding site-specific stormwater management plans to help ensure that these wetland features capture stormwater that may benefit the Mariana common moorhen.

5) Vol. 7, Ch. 2, Sec. 2.1, P. 2-20, Par. 3: The DEIS contains a statement that “[p]ursuant to the ROD..., DoD will seek resources to implement management actions identified in the biosecurity plan...” For the FWS to assess effectiveness of proposed measures to avoid, minimize, and mitigate potential impacts from the proposed action, biosecurity planning must be completed, funded and implemented. We recommend that DoD clearly commit to fund and implement biosecurity plans in the FEIS.

6) Vol. 7, Ch. 2, Tbl. 2.2-1, pp. 2-22 to 2-23, Par. 3-5: The primary threats to candidate snails and butterflies on Guam are habitat loss, degradation, predation, and/or parasitism by introduced species. For example, ant predation of Mariana eight-spot butterfly eggs and larvae is an important mortality factor. Additionally, control of ants at host plant sites for this species may increase recruitment of the adult population. Similarly, *Platydemus manokwari* is believed to be

A-008-121

Thank you for your comment.

90. The intent of the artificial reef is to provide a surface by which macroalgae and sessile invertebrates may attach increasing surface area and habitat for fish and other organisms. As stated in the DEIS, the HEA includes a discussion of pros and counterpoints/cons of artificial reefs and watershed management projects. The text has been modified as appropriate in the FEIS

91. Statement has been reviewed and revised as appropriate in FEIS. While your comment regarding artificial reefs not being able to exactly recreate the coral and fish communities that may have existed prior to the action has merit, the aggregate beneficial effects of the total compensatory mitigation measures that will be approved by the USACE must be considered.

A-008-122

Thank you for your comment. Please refer to the previous respective responses for Volume 4, comment numbers 14, 19, and 20.

A-008-123

Thank you for your comment. The text has been revised as appropriate.

A-008-124

Thank you for your comments.

96. The text has been modified as appropriate to clarify the percentages

A-008-146 | an important introduced predator of native tree snails. The development and implementation of control measures for this introduced snail predator could help increase native snail populations. Any proposed mitigation measures to offset impacts to these species should address these threats. Prior to any project work commencing, we recommend: (1) ungulate removal and fencing should be conducted on forested areas on DoD lands where these species or their host plants are known to be present (e.g., the Haputo ERA and Mount Alamagosa area) and (2) develop and implement an invasive invertebrate control plan that addresses primary predators and parasites of candidate snails and butterflies.

A-008-147 | 7) Vol.7, Ch. 3, P. 3-6, Tbl. 3.3-3: The summary of construction impacts to wetlands is inaccurate due to lack of jurisdictional determinations described in the DEIS. Impacts to palustrine wetlands are documented only for the platoon battle course and not for roadway, waterline repair or rerouting, and other construction activities. The DEIS contains the conclusion that “there would be no reduction in wetland area or functionality on Guam.” Without habitat characterization, functional analysis or jurisdictional determinations, this conclusion is unsupported. It is also inconsistent with the statement that “some wetlands could be permanently lost on Guam” which appears in Volume 8, Chapter 4, P. 4-1. Moreover, given the level of detail provided in the DEIS, additional wetland impact analysis will be required prior to initiating construction activities for any project that may impact wetlands. We recommend that on-the-ground delineations be conducted and potential wetland losses be quantified and analyzed in the FEIS. Additionally, we recommend that all volumes are consistent with their stated conclusions.

A-008-148 | 8) Vol. 7, Ch. 3, Sec. 3.3.4.1, P. 3-13, Par. 2: The DEIS contains the assumption that no increase in green house gas emissions will occur because activities are being relocated within the region. This assumption would require that facilities in Okinawa will not be reused and will be restored to a natural condition similar to the areas proposed for development on Guam. This scenario appears unlikely. Therefore, we recommend that green house gas emissions are treated as additive and analyzed accordingly.

A-008-149 | 9) Vol. 7, Ch. 3, Sec. 3.3.9.3, P. 3-32: The DEIS contains the statement that “there are many acres of suitable habitat on non-federally controlled land, but land is not the limiting factor.” This statement is misleading because habitat on non-federal land alone is not sufficient to achieve recovery goals for listed species. We recommend the statement is changed in the FEIS to read “there are many acres of suitable habitat on non-federally controlled land; however, acreage on non-federally controlled land is not large enough alone to achieve recovery goals that are outlined in approved recovery plans. The majority of the suitable breeding habitat for the Mariana crow and the Guam Micronesian kingfisher is only located on DOD lands. Land will become a limiting factor if too much essential habitat is lost. Habitat on DOD lands in conjunction with non-federal lands is necessary to ensure enough physical space with appropriate vegetation types to ensure foraging, breeding, and sheltering of listed species are available once threats are controlled or abated.”

A-008-150 | 10) Vol. 7, Ch. 3, Sec. 3.3.10.1, P. 3-33, Tbl. 3.3-25 and 3.3-26: See comments for Vol. 2, #69. We do not concur with the conclusion that impact of proposed project alternatives will be less

of coral cover impact.

97. The table reference in the text has been modified in the FEIS.

98. While presenting this information in terms of acres may have some value, it is felt that the discussion of percentages may present the relative situation between the Alternatives in a more meaningful manner to the public. The text has been modified as appropriate in the FEIS to enhance its readability for the public.

A-008-125

Thank you for your comment. The FEIS has been revised to standardized text describing coral reef.

A-008-126

Thank you for your comment. The FEIS has been updated to incorporate information from the ESA Section 7 consultation.

A-008-127

Thank you for your comment. Responses to numbered comments follow. 2) interrelated impacts are addressed in Volume 2 (Chapter 16 Socioeconomics), Volume 6, and Volume 7. 3) The footprint includes some open space areas that are not part of facilities sizes; text was modified accordingly. 4) As stated in Chapter 2, analysis of weapons emplacement sites is contained in a classified appendix. 5) Chapter 2 has been updated with references to the housing information presented in Volume 2; no additional land area is needed to accommodate the housing facilities, and that has been added to the text. 6) Munitions storage facilities information is presented in Section 2.3.2.2, Table 2.3-3, and Figure 2.4-2. 7) Analysis of EMR associated with radars is in the classified appendix; the text of Chapter 2 was updated to make that clear. 8) Figure 2.4-1 has been updated with proposed housing

A-008-150 | than significant with regard to direct and indirect impacts from invasive species. We recommend the FEIS analysis the movement of invasive species to areas outside the proposed action.

A-008-151 | 11) Vol. 7, Ch. 3, Sec. 3.5, pp. 11-80 to 11-83: Summary table does not include indirect or temporary impacts for Alternative 1 identified in Volume 4. We recommend all impacts identified in the text are included in summary table.

A-008-165 | 12) Vol. 7, Ch. 3, p. 3-82 Tbl. un-numbered: Summary table describes a total of 4,550 linear feet of streambed directly impacted by roadway construction at 5 river or palustrine wetland crossings. Indirect, temporary or permanent impacts have not been identified or quantified. Yet, for all roadway crossings of wetlands and streams the DEIS concludes that impacts are less than significant based on implementation of "roadway-specific BMPs as identified in the CNMI and Guam Stormwater Management Manual." Although these impacts may be less than significant for individual roadway crossings (particularly those that do not require in-water work, such as road strengthening), a quantitative assessment or description of area of impact and function of impacted resources has not been provided. Therefore, cumulative impact assessment is unsupported. We recommend the FEIS include: (1) boundaries, habitat characterization and functional assessment of each stream or wetland crossed by any aspect of road construction and operation, including segments where no in-water work is proposed; (2) specific BMPs used to protect all aquatic resources from direct and indirect impacts, including storm water runoff; and (3) description of proposed compensatory mitigation for loss of aquatic function associated with proposed action.

A-008-152 | 13) Vol. 7, Ch. 4, Sec. 4.2, P. 4-2: Cumulative impacts analysis in the DEIS does not include categorically excluded actions. Including only those actions for which other NEPA analyses are being prepared does not meet the intent of regulations because it underestimates the number of future projects. The intent of addressing cumulative impacts is to account for individually insignificant actions that are significant in aggregate. We recommend that all projects, whether categorically excluded or not, are included in cumulative impact analysis in the FEIS.

14) Vol. 7, Ch. 4, Sec. 4.3.2, P. 4-4, Par. 2: ISR/Strike mitigation includes a new 148 ac (60 ha) Habitat Management Unit that incorporates an Ungulate Management Control Plan, fencing, and planting trees that are important to Mariana Fruit Bat or the Mariana Crow. Additionally, we are concerned that unless BTS-proof barriers are used for Habitat Management Unit, the unit will not be adequately protected from BTS. We recommend the FEIS describe: (1) how Ungulate Management Plan for this unit will be developed, funded, and implemented; and (2) measures to exclude BTS from impacting visiting, roosting, and/or nesting Mariana Fruit Bats or Mariana Crows. If no BTS exclusion measures are proposed, the FWS recommends changing "ungulate-proof" fencing to a BTS barrier capable of excluding both ungulates and BTS.

15) Vol. 7, Ch. 4, pp. 4-13 through 4-19: Location of Urnao Dump clean up in Figure 4.3-1, Defense Access Road in Figure 4.3-2, and Tinian and Rota Seaport Rehabilitation in Figure 4.3-5 appear to be incorrect. We recommend that all project locations on these figures are reviewed to ensure their accuracy.

16) Vol. 7, Ch. 4, Sec. 4.3.4.1, P. 4-20, Par. 4 and subsequent tables: Cumulative impacts analysis for terrestrial resources does not contain sufficient analysis to support conclusions reached in the DEIS. We recommend the FEIS include an assessment of all impacts in their entirety on terrestrial resources, including threatened and endangered species and their habitat

footprints. 9) This statement is accurate, so no additional information is available on whether the existing facilities will need to be relocated, nor where that could occur. 10) Statement about allowing for future expansion was removed, as it is not part of the proposed action. 11) Munitions Storage Alternative 1 is the Army's preferred alternative. 12) The impact of Alternative 3 to designated mitigation areas is part of the impact analysis; analysis of weapons emplacement sites effects on mitigation areas is presented in the classified appendix.

A-008-128

Thank you for your comment. Operational noise from the AMDTF would be minimal because no live-fire exercises are proposed. Any noise generated by these activities would be location dependent and the specific activities and locations are classified and have been addressed in the classified annex to this EIS.

A-008-129

Thank you for your comment. Indirect impacts for non-classified actions have been added to the FEIS. Utilities would not result in additional impacts to habitat. The construction of the Army Missile Defense Task Force weapons emplacement sites will take place on Guam on Andersen Northwest Field. The project will consist of three separate fenced areas where construction and operations will take place. The projects footprint includes all activities within the 30-foot clear zone outside of the outer fence line and all construction, maintenance, operations, and training that are necessary to support the Army Missile Defense Task Force at the weapons emplacement sites. This includes but is not limited to: new facilities, internal access roads, security, lighting, and electromagnetic radiation hazard areas. Existing roads will be used to access the sites and utilities will be connected to the project site along already existing disturbed areas (i.e., right-of-way). The total action area of the weapons emplacement sites is 129.1 acres (52.1 hectares). This consists of approximately 2.1 acres (0.8 hectares) of limestone forest, 21 acres (8.5

A-008-152 and other species of conservation concern. This analysis should be consistent with NEPA guidelines for cumulative impact assessment.

Volume 9

A-008-153 1) Vol. 9, general comment: When presenting mean values derived from statistical sampling, it is standard convention to include a measure of variability associated with estimate. It is important to include this information because the variability around the mean represents the amount of error in the estimate and provides an indication of confidence in the estimate. We recommend that either standard deviations or standard errors of the mean be supplied for all mean values throughout the FEIS.

A-008-154 2) Vol. 9, general comment, Appendix E, Sec. A: Inconsistent inclusion of “pros” and “counterpoints/cons” in Tables 2 and 3 gives an unbalanced and biased view of potential mitigation projects. We recommend either listing all “pros” and “counterpoints/cons” that apply to each project in their respective tables or excluding all shared “pros” and “counterpoints/cons” from both tables. See comments below for specific examples.

3) Vol. 9, general comment, Appendix E, Sec. A: Tables 2 and 3 give an unbalanced and biased view of potential mitigation projects because they do not uniformly present information with same level of detail. For example, within table on watershed projects, discussions of “Counterpoints/Cons” are often lengthy and detailed which provides a significant amount of text to “Counterpoints/Cons” column. In contrast, discussions of “Counterpoints/Cons” in artificial reef table are brief, lacking same level of detail, and incorporate references to other sections of the document, creating short entries into “Counterpoints/Cons” column.

4) Vol. 9, Appendix E, Sec. A, P. 13: The DEIS contains the statement that a “Navy study prepared during preparation of the Kilo Wharf Extension EIS, identified potential artificial reef locations within Outer Apra Harbor and there would likely be sufficient area available to meet the compensatory mitigation requirements.” However, this study identified only approximately 20 acres of potential artificial reef habitat, which is less than one-sixth the necessary area for proposed artificial reef mitigation. This study further excludes as unsuitable many other locations both inside and outside of Apra Harbor. While additional areas may exist on Guam, no additional information on potential location of these areas is provided. The FWS does not support use of artificial reefs as appropriate compensatory mitigation, but if artificial reefs remain in the FEIS, we recommend that the statement be corrected to accurately reflect findings of the cited study and that additional possible location be identified in the FEIS.

5) Vol. 9, Appendix E, Sec. A, P. 13: See comment for Vol. 4, #89.

6) Vol. 9, Appendix E, Sec. A, Tbl. 2, P. 14: The “counterpoints/cons” for #2 in Table 2 (watershed approach to mitigation) contains a large amount of information that simply repeats the “pro.” By placing this statement in “counterpoints/cons” it gives visual impression of a significant “con” when one actually does not exist. We recommend that “counterpoints/cons” for #2 is removed from the FEIS.

7) Vol. 9, Appendix E, Sec. A, Tbl. 2, P. 14: No citation or additional information to describe the “statistically flawed” HEA is provided in “counterpoints/cons” for #5a in Table 2 (watershed approach to mitigation). Discussion between Navy and FWS to determine the nature of the statistical flaw has not demonstrated a flaw that invalidates the method or data. We recommend

hectares) of disturbed limestone forest, 66 acres (27 hectares) of scrub or scrub forest, 12 acres (4.8 hectares) of Vitex-closed canopy or sparse canopy, 2.0 acres (0.8 hectares) coconut grove and 26 acres (11 hectares) of developed lands. Of the total project footprint, 101 acres (41 hectares) is within the Guam National Wildlife Refuge Overlay.

A-008-130

Thank you for your comment. The impacts for Alternatives 1 and 3 have been added to the table.

A-008-131

Thank you for your comment. The AMDTF is located at Andersen and new roadways would be limited to the AMDTF site. The current roadways near the site have enough capacity for the buildout of the AMDTF site.

The Andersen shuttle is an existing shuttle service.

A-008-132

Thank you for your comment. The impacts for Alternatives 1 and 3 have been added to the table.

A-008-133

Thank you for your comment. Roadways not used by the general public on Guam are not evaluated in Volume 6 but in other volumes.

A-008-134

Thank you for your comment. The Proposed Action would result in the acquisition of lands on the east side of Guam near Route 15 and the existing Andersen Air Force Base South property and the construction of a live fire training range complex on the site. The lands consist of Government of Guam controlled parcels as well as a few privately owned

A-008-154

that additional information be provided in the FEIS to better assess this statement or that it is removed from the FEIS.

8) Vol. 9, Appendix E, Sec. A, Tbl. 2, P. 14: Relevance of "counterpoints/cons" #5b in Table 2 (watershed approach to mitigation) to mitigation discussion is not clear. We recommend "counterpoints/cons" #5b is removed from the FEIS.

A-008-155

9) Vol. 9, Appendix E, Sec. A, Tbl. 2, P. 14: Relevance of "counterpoints/cons" #5c in Table 2 (watershed approach to mitigation) to stated "pro" is not clear in watershed table. A similar "counterpoints/cons" could be supplied in artificial reef table in its discussion of the ACOE permit, but does not. We recommend "counterpoints/cons" #5c is removed from the FEIS.

10) Vol. 9, Appendix E, Sec. A, Tbl. 2, P. 15: "Counterpoints/Cons" #5d in Table 2 (watershed approach to mitigation) is unsupported by data and no study has been cited to support it. We recommend that appropriate data or study be cited or "counterpoints/con" is removed from the FEIS.

11) Vol. 9, Appendix E, Sec. A, Tbl. 2, P. 15: "Counterpoints/Cons" #5e in Table 2 (watershed approach to mitigation) concludes the Kilo Wharf mitigation project "has not been successful." See comment for Vol. 4, #19.

12) Vol. 9, Appendix E, Sec. A, Tbl. 2, P. 15: In Table 3 (artificial reef approach to mitigation), the DEIS notes that "Artificial reef placement is practicable and has been done," yet no similar entry occurs in Table 2 (watershed approach to mitigation). Aforestation has been accomplished on Guam and other erosion control methods have been shown to be effective. These projects are practicable. Therefore, we recommend that a statement of practicability for watershed projects is placed in Table 2.

13) Vol. 9, Appendix E, Sec. A, Tbl. 2, P. 15: No item #6 in Table 2 (watershed approach to mitigation) has been provided. We recommend the number of the items be corrected.

14) Vol. 9, Appendix E, Sec. A, Tbl. 2, P. 15: Argument in "counterpoints/cons" #7 in Table 2 (watershed approach to mitigation) does not apply when it suggests that coral reefs outside of Apra Harbor are not the same ecological system as coral reefs inside of Apra Harbor. Mitigation project is coral reef restoration through improved water quality which is achieved by erosion control measures on land. These coral reef systems share a high proportion of identical species, including specific coral, fish, non-coral invertebrate, and algae species and have similar geological structure and life zones. It is unclear how these represent different "marine ecological systems." We recommend that "counterpoints/cons" #7 is removed from the FEIS.

15) Vol. 9, Appendix E, Sec. A, Tbl. 2, P. 15: It is not clear how restoration of coral reefs by improving water quality through upland erosion control does not represent "in-kind" mitigation for coral reef losses on Guam. The ACOE provides an example of in-kind mitigation online at: <http://www.swt.usace.army.mil/PERMITS/Mitigation.cfm>. We recommend that "counterpoints/cons" #8 in Table 2 (watershed approach to mitigation) is removed from the FEIS.

16) Vol. 9, Appendix E, Sec. A, Tbl. 2, P. 15: Presence of similar species and/or morphological types, similar ecological communities and geomorphological structure on reefs outside of Apra

parcels. The Government of Guam parcels are held by two entities, the Chamorro Land Trust and the Ancestral Lands Commission. These entities manage certain Government of Guam land holdings to support native Chamorro interests and compensate land owners for lands currently controlled by the federal government.

In the northern most parcel, under the control of the Chamorro Land Trust, there exists the Guam International Raceway. This entity, which is a non-profit organization, operates a raceway complex consisting of a drag strip and various motorcycle and off-road vehicle courses pursuant to a 20 year license with the Chamorro Land Trust. These recreational facilities satisfy a significant component of the public demand for racing as well as accommodating periodic police vehicle training. The license is set to expire in 2018. Under the terms of the license the Guam International Raceway is able to remove aggregate mined from the site to improve its operations, but at the option of the Chamorro Land Trust must return the property in "pristine" condition upon the termination of the license. The license clearly states that the Guam International Raceway has no interest in the underlying property pursuant to its license. Further, there is no right to renew the license.

Should DoD decide to acquire land for the Route 15 training range complex, an offer of just compensation would be made to the owners of the property, including the lands held by the Chamorro Land Trust. The just compensation offer would be at the full fair market value of the property, based upon an appraisal of the property and its highest and best use. Since DoD would acquire the property from the fee owners, any compensation to the operators of the Guam International Raceway would be a matter to be determined between the current land owner, the Chamorro Land Trust, and the tenant, the Guam International Raceway.

In the event DoD acquires the land, the Guam International Raceway would have to decide whether to continue operation in another location.

- A-008-155** Harbor appears to be evidence that a coral reef restoration project outside the harbor has potential to replace functions unavoidably lost in Apra Harbor with similar functions. We recommend that “counterpoints/cons” #9 in Table 2 (watershed approach to mitigation) is removed from the FEIS.
- A-008-156** 17) Vol. 9, Appendix E, Sec. A, Tbl. 2, pp. 15 through 16: Items #11 and #14 in Table 2 (watershed approach to mitigation) appear to be the same. We recommend these two items are combined into a single point.
- 18) Vol. 9, Appendix E, Sec. A, Tbl. 2, P. 16: Item #13 in Table 2 (watershed approach to mitigation) is duplicative. We recommend that Item #13 be removed from the Table.
- 19) Vol. 9, Appendix E, Sec. A, Tbl. 2, P. 16: See comment for Vol. 9, #12.
- 20) Vol. 9, Appendix E, Sec. A, Tbl. 2, P. 16: Determining success or lack of success of a coral reef restoration project would be directly measureable over time. Ecological performance standards have been developed for coral reef mitigation on Guam (*i.e.*, Kilo Wharf Mitigation). We recommend that a “pro” is added to Table 2 (watershed approach to mitigation) that states “Success/lack of success is directly measurable over time” or similar wording.
- 21) Vol. 9, Appendix E, Sec. A, Tbl. 3, P. 17: “Pro” #2 in Table 3 (artificial reef approach to mitigation) suggests that artificial reefs represent “in-place” mitigation. However, in place mitigation is usually considered on the site of impact, which does not appear to be what has been proposed in the DEIS. Conducting mitigation on sites other than impact site is “off-site” mitigation. We recommend location of artificial reefs be clarified and that appropriate designation (on-site or off-site) be provided in the FEIS.
- 22) Vol. 9, Appendix E, Sec. A, Tbl. 3, P. 17: “Pro” #2 in Table 3 (artificial reef approach to mitigation) contains the statement that “sufficient contiguous area based on preliminary siting studies” has been identified for artificial reefs. No citation for referenced studies is provided. The Artificial Reef Feasibility Study (NAVFAC 2007) does not identify 123 contiguous acres of suitable habitat for artificial reefs that would be necessary for proposed mitigation project. We recommend that if artificial reefs are still considered as proposed compensatory mitigation in the FEIS, preliminary siting studies that identify 123 contiguous acres of suitable habitat for artificial reefs are referenced in the FEIS.
- 23) Vol. 9, Appendix E, Sec. A, Tbl. 3, P. 17: “Pro” #4 in Table 3 (artificial reef approach to mitigation) contains the statement that “...if the structure does serve initially as a [Fish Aggregating Devices] FAD it does not diminish the function of the coral reef ecosystem.” This statement runs counter to scientific concerns about FADs in areas experiencing high fishing pressure, especially if fishing on the FAD is not rigorously controlled. In a review of artificial reefs provided to the Navy, Brock (2005) advises against use of artificial reefs in areas with high fishing pressure because they may lead to overfishing. In Hawaii, the state denied a permit to build an artificial reef because they were concerned that it would lead to damage to the state’s fishery resources because it would aggregate fish without providing sufficient shelter to avoid overharvesting. The DEIS contains discussion about deploying artificial reefs within explosive safety arc of Kilo Wharf to limit access, but insufficient area has been identified in this area of Apra Harbor and it is unclear what additional measure would be taken to enforce the “fishing ban” in these publicly accessible waters. The FWS does not support use of artificial reefs as

If it chose to continue operations it may be eligible for relocation assistance from DoD pursuant to the Uniform Assistance and Real Property Acquisition Policies Act of 1970. If eligible, DoD would provide relocation assistance in the form of advisory services, and some specific financial assistance related to a move, but would not be responsible for the physical relocation of the operations of the Guam International Raceway.

As to possible sites for the relocation of the Guam International Raceway, such actions would be under the control of Government of Guam officials as they are responsible for non-federal land use decisions on Guam. Given that a raceway complex is an industrial activity, it is most likely that any siting of a future raceway complex will be on lands zoned for such industrial activities and not within lands deemed recovery habitat for ESA listed species. Should the Guam International Raceway decide to continue operations and be eligible for relocation assistance from DoD, DoD will work with Government of Guam land use and natural resource officials to ensure that habitat concerns for ESA listed species are taken into account in any relocation effort.

A-008-135

Thank you for your comment. The Navy is currently in formal consultation and continues to work with the USFWS and will incorporate additional appropriate conservation measures into the FEIS as applicable.

A-008-136

Thank you for your comment. The projected increase in tonnage and number of boxes handled is approximately double or slightly more than

- A-008-156** appropriate compensatory mitigation, but if artificial reefs remain in the FEIS, we recommend this statement be removed from the FEIS.
- A-008-157** 24) Vol. 9, Appendix E, Sec. A, Tbl. 3, P. 17: “Pro” #4a in Table 3 (artificial reef approach to mitigation) is a general statement that is applicable to either mitigation project. We recommend that it added as a “pro” to Table 2 or removed from Table 3.
- 25) Vol. 9, Appendix E, Sec. A, Tbl. 3, P. 17: “Counterpoints/Con” #5 appears to be better suited for Item #4. We recommend that “counterpoints/cons” #5 is moved to Item #4 in the FEIS.
- 26) Vol. 9, Appendix E, Sec. A, Tbl. 3, P. 17: “Counterpoint/Con” #5 in Table 3 (artificial reef approach to mitigation) does not appear to fit with associated “pro” for that item. In Brock’s (2005) review of artificial reef programs and literature, he notes that few programs collect data on organisms other than fish. We recommend data source (for tropical Pacific Ocean artificial reefs) for the “pro” be referenced in the FEIS, and provided “counterpoints/cons” is modified to state “Data for artificial reefs focus on fishery resources and usually include data on coral or other benthic organisms” or other similar wording.
- 27) Vol. 9, Appendix E, Sec. A, Tbl. 3, P. 17: “Pro” #8 in Table 3 (artificial reef approach to mitigation) has already been stated in “pro” #2. We recommend that “pro” #8 is removed from the FEIS.
- 28) Vol. 9, Appendix E, Sec. A, Tbl. 3, P. 17: “Counterpoint/Con” #8 in Table 3 (artificial reef approach to mitigation) does not appear to fit the associated “pro” for that item. We recommend the “counterpoints/cons” #8 is removed from the FEIS.
- 29) Vol. 9, Appendix E, Sec. A, Tbl. 3, P. 18: “Pros” #9 in Table 3 (artificial reef approach to mitigation) gives the impression that sufficient scientific information exists to scale an artificial reef project using HEA. Currently the proposed ratio to scale mitigation has come from a 1992 ACOE permit issued in Hawaii. No scientific literature has been cited or supplied. We recommend appropriate scientific literature is cited or that this “pro” is removed from the FEIS.
- 30) Vol. 9, Appendix E, Sec. A, Tbl. 3, P. 18: “Pro” #11 in Table 3 (artificial reef approach to mitigation) is not a valid argument. We recommend that Item #11 is removed from the table.
- 31) Vol. 9, Appendix E, Sec. A, Tbl. 3, P. 18: Several “counterpoints/cons” that appear in Table 2 (watershed approach to mitigation) are also appropriate for Table 3 (artificial reef approach to mitigation). These include “counterpoints/cons” #7, 8, 9, 10, 11, & 13 from Table 2. We recommend that similar “counterpoints/cons” are added to Table 3 in the FEIS.
- 32) Vol. 9, Appendix E, Sec. A, P. 23: DEIS contains the statement that comments on the Draft HEA and Supporting Studies were provided in 2008. We recommend correct year of 2009 is included in the FEIS.
- 33) Vol. 9, Appendix E, Sec. A, P. 23: The DEIS contains the statement that rugosity is used as an input (via the composite Coral Habitat Index [CHI]) into the HEA. The rugosity used in the CHI is not rugosity in the conventional sense used in marine scientific literature. We recommend that either the term “landscape rugosity” or other term is used to avoid confusion.

double from present to the 2010-2014 timeframe according to the Port of Guam 2009 report to the legislature. Increases in cargo due to the military buildup are discussed in Volume 2 Chapter 14 (marine transportation), using the Port of Guam Master Plan as a primary reference. In addition, Volume 2 Chapter 10 Section 10.2.2.6 includes updated information on the Micronesia Biosecurity Plan. Regarding evaluation of moving DoD goods and personnel through the port, additional information on procedures and responsibilities are being added to the FEIS. It is anticipated that increased customs and agricultural inspection recommendations resulting from military cargo and personnel at the port will be coordinated through both Guam and relevant Federal officials, including the U.S. Department of Agriculture. DoD will also work with the port to develop plans to ensure that required inspections are conducted prior to release of materials to DoD construction sites. Formal agreements with Federal and Guam agencies on inspections will be pursued. Information on this subject in the MBP will be provided to the port and DoD will provide technical assistance to develop the procedures and progress will be tracked. DoD anticipates agreements with the Port and relevant Guam and federal officials to handle the costs of customs and agricultural inspections.

A-008-137

Thank you for your comment. Workforce housing would be provided by the contractors as described in Volume 2, Chapter 16, “Socioeconomics and General Services.” DoD would not provide workforce housing, but design/construction contracts would require the contractor to accommodate the workforce in accordance with specified health and safety standards. Various proposals are being developed by potential contractors in anticipation of winning a contract. The timing and location are unknown for construction and/or renovation of housing to accommodate the construction workforce, but it is possible that some of the workforce housing projects would begin independently of DoD’s Record of Decision.

34) Vol. 9, Appendix E, Sec. A, P. 23: Resource agency concerns regarding data collection and methods have been incorrectly portrayed. Agencies have raised the following concerns regarding data type and methods: (1) percent cover data are insufficient to describe the functional contribution of corals to the coral reef ecosystem; (2) some measure of coral structure (e.g., morphology, rugosity, etc.) and population dynamics from which recovery can be estimated (e.g., size frequency distribution, recruitment rate, etc.) are needed; and (3) the method selected by the Navy (i.e., photographic analysis) is not an appropriate method to collect agency-recommended data. We recommend description of agency concerns include points made above.

35) Vol. 9, Appendix E, Sec. A, P. 23: The DEIS gives the impression that agency concerns have been addressed within current documents. Agency concerns regarding type of data collected and the methods to collect those data have not been addressed. (1) In the DEIS, percent cover of coral is still the primary data source for coral. Data to assess recovery of coral colony structure have not been provided in the DEIS. While incorporation of “landscape rugosity” is a positive step, these data are not at a fine enough scale to measure coral colony structure and instead measure large-scale topographic relief. It is misleading to call these data “rugosity” in the DEIS. These data are different from rugosity data generally described in the literature. In the few scientific articles on “landscape rugosity,” care is taken by authors to differentiate “landscape rugosity” from conventional rugosity. Additionally, the DEIS presents coral colony size-frequency data. These data have been demonstrated through a Navy-requested resource agency comparison study (2009) and through supporting scientific literature to have been collected incorrectly. These data have been incorporated into the DEIS without referencing or addressing concerns raised in the comparison study. (2) The FWS has always maintained the method selected by the Navy is suitable for collection of percent cover data, but not suitable for collection of coral colony density-size-morphology data. This comparison study demonstrated that the Navy photographic method has failed to collect valid coral colony density and size data. We recommend that agency concerns regarding methods used in the DEIS are addressed by either a) incorporating recommendations for types of data to use in the analysis; or b) providing a clear, accurate description of how data provided by Navy captures colony size and morphology, and recovery potential for coral populations.

36) Vol. 9, Appendix E, Sec. A, P. 23: The DEIS gives the impression that peer-reviews of the Navy’s method have eliminated agency concerns regarding photographic method. Peer-reviews were solicited by the Navy on a document that did not include most of the data with which the FWS had expressed concerns (i.e., coral colony density, coral colony size, coral fragment density, partial coral mortality, and coral colony fission). The document consisted primarily of percent cover data. The FWS has repeatedly agreed with the Navy that the photographic method is suitable to collect percent cover data, but not for the data that the FWS has recommended for use in the analysis. It should be noted that the FWS position is often supported by the peer-reviews. We recommend last sentence in paragraph two be revised to read: “The field survey methodologies were peer-reviewed for their appropriateness to collect percent cover data, develop and index of coral stress, and to generate remote sensing habitat maps.” We further recommend results of the peer-reviews be discussed briefly in the FEIS.

37) Vol. 9, Appendix E, Sec. A, P. 26: Discussion in the DEIS uses relative statistics which are problematic when comparing areas of different absolute size. Analysis must be based on amount of habitat adversely impacted, not percentage of the total. For example, the DEIS states that 36-37 percent of the area has coral cover, but this 1 percent difference equates to a 1.5 acre absolute

There are no plans to allow contractors to locate workforce housing on DoD-controlled land. Therefore, it is anticipated that should workforce housing needs require the construction of new housing, such workforce housing would be located on either private or Government of Guam lands. In either instance Guam officials would control the underlying land use and permit decisions associated with the siting of such housing. DoD would work with Government of Guam land use and natural resource officials to identify any contractor plans or efforts to construct workforce housing and DOD shall ensure that contractors are informed of their responsibilities to comply with Government of Guam land use restrictions. In particular, the Guam Land Use Commission recently issued GLUC 2009-1 which specifically addresses the issue of zoning for workforce housing.

A-008-138

Thank you for your comment. Figure 2.5-3 does not illustrate proposed road projects. Figure 2.5-3 shows the existing mass transit network and demand service areas on Guam.

As indicated by the figure titles, Figures 2.5-2 and Figures 2.5-6 depict the preferred haul routes for cargo and the Guam road network. They also include locations of EXISTING rock quarries, landfills, concrete batch plants, and precast concrete fabrication facilities. They have been included in the figures to illustrate the most likely travel routes that will be taken when transporting construction materials from either the port or from the quarries, concrete batch plants, and prefab facilities to various project sites and also when transporting construction waste from the project sites to municipal landfills for disposal. The DoD does not propose to establish rock quarries, landfills, concrete batch plants and precast concrete fabrication facilities and are therefore not included in the environmental impact analysis.

A-008-158

difference in the coral habitat. To alleviate possible misunderstanding, we recommend actual acreage of each coral cover class is provided in the FEIS instead of relative values.

A-008-159

38) Vol. 9, Appendix E, Sec. A, P. 27: The size data provided appear to be derived from Smith 2007, but the source of the data has not been cited. We recommend the source of this estimate is cited in the FEIS. If the source is Dollar and Hochberg (2009), we recommend the data are removed from the FEIS because Dollar and Hochberg collected coral colony size data with inappropriate methods, and therefore, their data are inappropriate for use in this analysis.

39) Vol. 9, Appendix E, Sec. A, P. 27: The DEIS states that “[a]s observed with the coral in the channel bend, the abundance of coral is less on the edge nearest the existing navigation channel versus the edge furthest from the ship traffic.” Based on data provided, coral cover is high on side nearest navigation channel for Jade Shoals, the unnamed deep water shoal north of Jade, and the middle shoal between Big Blue and Western Shoal. We recommend that this statement is removed from FEIS.

40) Vol. 9, Appendix E, Sec. A, P. 28: It is not clear what the amount of sand bottom has to do with dredging impacts on coral “reproductive potential (*i.e.*, coral spawning).” Soft bottom habitat currently exists at the site and is unsuitable for coral settlement, but has no impact on coral spawning. We recommend relevance of this statement to coral spawning be provided or that it is removed from the FEIS.

41) Vol. 9, Appendix E, Sec. A, P. 31: The DEIS contains the statement that “coral communities in Apra Harbor are growing on manmade vertical wharf structures.” We recommend that this statement is clarified so that it refers to “Inner Apra Harbor” instead of “Apra Harbor”.

42) Vol. 9, Appendix E, Sec. A, P. 31: Data cited in the DEIS for the Inner Apra Harbor surveys are from Belt Collins (2003), but not the most recent study from the area. A survey of Inner Apra Harbor by the University of Guam (UoG) was conducted more recently and is included in Appendix J, but does not appear to have been used. This study should be incorporated into analysis. We recommend UoG Inner Apra Harbor Survey be used in the analysis in the FEIS.

43) Vol. 9, Appendix E, Sec. A, P. 31: No mitigation has been proposed in the DEIS for projects in Apra Harbor that may result in loss of marine and aquatic function. Under the CWA, unavoidable losses to ecological function of aquatic habitat need to be mitigated. Mitigation is not restricted to corals or permanent impacts. We recommend appropriate mitigation be developed for impacts anticipated from the Inner Apra Harbor dredging and construction of the LCAC/AAV ramps.

A-008-160

44) Vol. 9, Appendix E, Sec. B, general comment: Baseline water quality conditions for Apra Harbor have been established using only two samples collected at each of 30 stations. This does not represent adequate sampling to represent a baseline water quality condition. Baseline conditions for water quality generally require extensive sampling over space and through time. Water quality conditions are generally highly variable. Conditions often change with tides, seasons, and weather events. Instead the sampling in the DEIS represents a snapshot of a potential water quality condition found in Apra Harbor. We recommend that if the baseline water quality condition of Apra is to be established that an appropriate sampling effort is conducted, including frequent sampling throughout the year and during different weather and tidal conditions.

A-008-139

Thank you for your comment. The exclusion of analysis for certain projects and certain project types are for direct impacts. Encroachment of invasive species from disturbed-scrub edge vegetation was considered as an indirect impact when vegetation removed was adjacent to habitat areas (e.g. along roads edged with scrub vegetation adjacent to Northern Guam forests). Project types, such as pavement strengthening, may indirectly affect Mariana common moorhens through noise during the construction phase. The FHWA has committed to pre-construction Mariana common moorhen surveys during the Section 7 ESA consultation between the Navy and the USFWS PIFO. Text has been included in Volume 2 Chapter 12 discussing these indirect impacts and the inclusion of pre-construction monitoring for moorhens in the roadways mitigation discussion. These surveys will occur along roadway projects adjacent to moorhen habitats (e.g. palustrine wetlands along Rt 1, and the wetland area in the vicinity of Rt 8 & Rt 16 junction).

A-008-140

Thank you for your comment. The new fuel storage facility has been removed from the proposed action. Additional discussion of impacts from proposed powerlines has been added.

A-008-141

Thank you for your comment. The figures have been updated to more clearly indicate wells. Locations of waterlines and wells are being re-evaluated to determine if they can be moved. Discussion has been added regarding avoidance of *Tabernaemontana rotensis* trees.

A-008-142

Thank you for your comment. The possibility of including a single set of tables for an overall impact summary and the format in the context of the entire EIS is being considered.

45) Vol. 9, Appendix E, Sec. B, general comment: It is difficult to interpret water quality findings without additional environmental data. No weather or tidal data have been provided to give context to the water quality data. We recommend weather data such as rainfall, wind speed and direction, cloud cover, and tidal height be supplied for each sample.

46) Vol. 9, Appendix E, Sec. C and D, general comment: An argument is made in DEIS that corals in the Apra Harbor are sediment-tolerant apparently to support the conclusion that moderate increases in sediments will not have lasting environmental impacts. This argument assumes that corals found in areas with high turbidity and sedimentation are physiologically adapted to conditions. The scientific literature supports this assumption. However, water quality data present in Appendix E, Section B do not demonstrate high turbidity or high levels of suspended sediment in Apra Harbor. They conclude that turbidity and total suspended sediment had: "...overall relatively low values throughout the area. Most values of turbidity were below 1 ntu [1.0 nephelometric turbidity units], and most values of TSS [total suspended sediment] were below 2 mg/l [2.0 milligrams/liter]. Measures of turbidity and TSS indicated very little vertical or horizontal stratification within the region of study. Results indicated little effect on turbidity and TSS within the Outer Harbor from either the Inner Harbor or Sasa Bay. Stations that showed anomalously high values in November had low values in January, and vice versa of all water quality constituents within each transect" [Dollar (2009) P. 21]. We recommend apparent inconsistency between collected data and stated conclusion be reconciled in the FEIS either by presenting data that support the conclusion or by reaching a conclusion that is supported by the presented data.

47) Vol. 9, Appendix E, Sec. C, P. 9, Fig. 4: Figure 4 has been misidentified as being the benthic habitat map. We recommend correct figure (Figure 3) is cited in the text.

48) Vol. 9, Appendix E, Sec. C, P. 11, Tbl. 3: Table 3 contains accuracy estimates for benthic habitat map and not revised area estimates as described in the text. We recommend correct table is referenced.

49) Vol. 9, Appendix E, Sec. C, P. 15: Data on fish in the DEIS are taken from Smith (2007), yet fish surveys conducted by the University of Guam (UoG) (Taylor *et al.* 2009) a month prior to completion of this section are not included. We recommend the UoG surveys that provide most current quantitative data available on fish abundance and biodiversity be used in analysis in the FEIS.

50) Vol. 9, Appendix E, Sec. C, P. 20: The author concludes that stratified water column is a permanent condition and not the result of ship activity in the area. This conclusion is reached because author noted a similar condition in 1992 when diving in the same area. However, no information on ship traffic or operations is provided, so it is not possible to conclude that stratified water column is or is not a result of ship traffic. We recommend that either additional data on ship activity be provided to support this conclusion or that the conclusion is removed from the FEIS.

51) Vol. 9, Appendix E, Sec. C, P. 20: Several wharves identified in text of the DEIS are not shown on Figure 6 which makes it difficult to identify where in the Inner Harbor proposed projects will occur. We recommend all of the wharves and ancillary construction discussed in this section of text are added to Figure 6.

A-008-143

Thank you for your comment. Volume 6 Chapter 2.5 provides the roadway project descriptions which the subsequent resource chapters refer to. Volume 6 Table 2.5.1 lists each roadway project (off-base) by project number with location description. Project 35 includes bridge crossings at Atantano, Laguas, Sasa, and Fonte Rivers. Projects 24 and 26 occur along Route 1 and 2A (respectively) and are adjacent to palustrine wetlands with suitable habitat for the Mariana common moorhen. These projects, however, are pavement strengthening projects and will not directly affect the Mariana common moorhen habitat. Because these projects do not widen in these areas, there will be no impact on overlay refuge units on Navy properties. Because these projects may indirectly affect Mariana common moorhens through noise during the construction phase, the FHWA has committed to pre-construction Mariana common moorhen surveys during the Section 7 ESA consultation between the Navy and the USFWS PIFO. Text has been included in Volume 2 Chapter 12 discussing these indirect impacts and the inclusion of pre-construction monitoring for moorhens in the roadways mitigation discussion. The FHWA examined ROW issues on both the north side and south side of Route 9. Existing ROW to the south will be used to the extent possible to minimize widening into the essential habitat. The south side of Route 9 is predominantly residential where ROW acquisition may not be possible. Therefore, since the south side of Route 9 residential properties were a mitigatable restraint, FHWA designed the project to expand on the north side of Route 9. Mitigations and conservation measures for habitat removal on the north side of Route 9 are included in the Section 7 ESA consultation between the Navy and the USFWS Pacific Islands Field Office.

A-008-144

Thank you for your comment. Tables for each alternative are not necessary because of the similarity of projects that require vegetation clearing across all alternatives. As stated in Vol 6 Ch 12.2.6.2, proposed

A-008-160

52) Vol. 9, Appendix E, Sec. C, P. 22: The text refers to Figure 7 while discussing bottom cover of coral, but the figure includes a picture of a coral head. It is not clear if this is the correct figure. We recommend correct figure is reference or supplied.

53) Vol. 9, Appendix E, Sec. C, P. 22: The DEIS concludes that presence of the coral *Porites rus* in an area of high sediments “indicates that this species is particularly well adapted to thrive in areas of low light and continuous suspended sediment deposition.” This conclusion appears overstated based on data provided. While *P. rus* appears to be tolerant of environmental conditions in the channel, data have not been provided to demonstrate that it “thrives” in this location. Abundance (based on percent cover) is low for much of the area, compared to other locations outside the harbor channel (e.g., the shoals). No information has been provided on population to demonstrate that it is healthy, successfully reproducing, or experiencing sufficient recruitment to persist. We recommend the statement be revised in the FEIS, and suggest this alternate wording: “...indicates that this species is tolerant of low light and continuous suspended sediment deposition...”

54) Vol. 9, Appendix E, Sec. C, P. 27: The statement that the “physical conditions in the entrance channel are characterized by consistently high turbidity and low light relative to most oceanic settings where corals proliferate (including Outer Apra Harbor)” is not consistent with water quality data provided Appendix E, Section B. In Baseline Assessment of Water Quality Chemistry, station WQ3 is in the channel mouth and total suspended sediment is similar to many other sites within outer Apra Harbor (for example, see sites 4, 6, 8, 9, 13, 15, 16, 18, 19, 22, 23, 24, 25, 26, and 30). This assessment of water quality condition in Appendix E, Section C appears to be based on perception of the author and not water quality data provided in the DEIS (Appendix E, Section B). We recommend that this discussion be removed or that data upon which this conclusion was reached be presented in the FEIS.

55) Vol. 9, Appendix E, Sec. C, P. 29: The DEIS contains the statement that “surveys indicate that overall coral community composition within the dredge area are of marginal to modest ecological value, based upon the eight criteria...” but no reference or information on how this determination was derived from the criteria is provided. Based on other sections of the DEIS where Smith (2007) is referenced, this ranking appears to come from his study. Smith (2007) has not been provided with the DEIS. We recommend that Smith (2007) be included in the appendices or that a description of the methods and criteria that Smith used to determine “modest ecological value” be included in the FEIS.

A-008-161

56) Vol. 9, Appendix E, Sec. D, P. 3: The DEIS contains a calculation error. Ten square meters do not equal 10.7 square feet. We recommend appropriate conversation be included in the FEIS.

57) Vol. 9, Appendix E, Sec. D, P. 4: Normalized Difference Vegetation Index (NDVI) has been used to try to measure stress in corals. This is a new technique to measure coral stress and there is no consensus in the scientific community with regard to its validity (see the peer-reviews provided in Appendix J). While lower levels of chlorophyll could represent stress, chlorophyll levels can vary with species by depth, orientation, and through individual genotypic variation. Because this information does not appear to play a significant role in the analysis or discussion, we recommend that it is removed from the FEIS.

58) Vol. 9, Appendix E, Sec. D, P. 4: The DEIS defines coral reefs from Executive Order 13089. We would suggest that definitions provided in either the CWA or the Coral Reef

road projects under Alternative 2 are the same as the proposed road projects under Alternative 1, with the exception of military access point locations at NCTS Finegayan and Andersen AFB. These military access point projects that are included as part of Alternative 2 (GRN # 38, 39, and 41) would have the same direct and indirect impacts as those military access point projects included as part of Alternative 1 (GRN # 38A, 39A, and 41A). As stated in Vol 6 Ch 12.2.6.3, gate locations for Alternative 3 are the same for Alternative 1, except that NCTS Finegayan Main Gate and commercial gate locations (GRN # 38 and 39) are in different locations than the Main Gate and commercial gate locations in Alternative 1 (GRN #38A and 39A). The GRN # 38 and 39 locations would have the same direct and indirect impacts as GRN # 38A and 39A. Therefore, impacts to terrestrial biological resources of Alternative 3 are similar to Alternative 1 for each region. As stated in Vol 6 Ch 12.2.6.4, proposed road projects under Alternative 8 are the same as the proposed road projects under Alternative 1, with the exception of the military access point location at Barrigada (Air Force). This gate location project included as part of Alternative 8 (GRN # 49A) would have the same direct and indirect impacts as the military access point project included as part of Alternative 3 (GRN # 49); therefore, impacts to terrestrial biological resources of Alternative 8 are similar to Alternatives 1 and 3 for each region.

A-008-145

Thank you for your comment. The Navy is in formal consultation with the USFWS under section 7 of the ESA. Based on the on-going consultation, mitigation measures for the moorhen will be incorporated into the FEIS as appropriate.

A-008-146

Thank you for your comment. The FEIS has been updated to include additional information on adaptive management. DoD anticipates that

Conservation Act (CRCA) are more appropriate legal definitions based on their appearance in the Statutes. We recommend that one or both definitions (CWA or CRCA) replace the E.O. 13089 definition.

59) Vol. 9, Appendix E, Sec. D, P. 4: Use of relative statistics in this section of the DEIS, especially when used for areas of different size, can be misleading when trying to compare actual acreage of impact. To alleviate possible misunderstanding, we recommend actual acreage of each coral cover class is provided in the FEIS instead of relative values.

60) Vol. 9, Appendix E, Sec. D general comment: Review of scientific literature regarding sediment effects on corals is commendable. The only topic that is not sufficiently addressed is effect of terrestrially-derived sediments on coral. Impacts from terrestrially-derived sediments can occur at much lower loads than carbonate sediments, and thus have larger adverse impacts on corals. In the DEIS, terrestrially-derived sediments have been dismissed as a significant potential impact due to their low percentage in sediment cores. However, although the percentage of terrestrially-derived sediment within sediment cores may be relatively low, absolute tonnage of terrestrially-derived sediment is directly related to absolute tonnage of material proposed to be dredged. Absolute tonnage of terrestrial-derived material is unknown and could not be located in the DEIS, but we expect it to be sufficiently high that it may adversely impact corals upon resuspension. We recommend a discussion of terrestrially-derived sediment effects be included in literature review and that these potential impacts be analyzed.

61) Vol. 9, Appendix E, Sec. D, P. 17: The DEIS attributes the following statement to Yap *et al.* (1998): “[*Porites rus* and *P. cylindrical*] are especially pre-adapted for existence in areas of high sedimentation throughout their life histories.” However, this study transplanted and monitored coral pieces 8 centimeters in size, which do not represent the life history of these species. Adverse impacts of sediment on coral larvae, settlement, and other critical phases in coral life history are well documented in the literature. Yap *et al.* (1998) do not address these coral life stages. We recommend the FEIS revise the statement to more accurately cite findings presented in Yap *et al.* (1998).

62) Vol. 9, Appendix E, Sec. D, P. 19: An argument is made that bottom ocean currents are sufficiently strong to remove sediments from coral, and thus result in lower potential sediment impacts in proposed CVN project area. However, ocean bottom currents within project site were measured during trade wind conditions and represent maximum current strength. Tradewinds conditions on Guam occur approximately 70 percent of the time (255 days of the year) and result in higher bottom current rates than non-trade wind conditions (110 days of the year). Based on data presented in the ocean current study (Erikson 2009), currents were significantly weaker over the entire time period of the study (a period of variable winds) than the measurement estimated from for tradewind-only period. For entire study period, currents within the CVN project area ranged from 0.5 to 3.0 centimeters per second, with all but one study site having currents less than 2.0 centimeters per second. We recommend range of current speeds estimated from entire study period is used in analysis.

63) Vol. 9, Appendix E, Sec. D, P. 19: Low current speeds reported by Brown (1990) were for mound shaped and branching corals which are not the most common coral morphology in project area. *Porites rus*, the dominant coral in proposed project area, tends to have a mixed morphology, with upright fingers and plates (see photos provided in Appendix E, Sec. C). It can be assumed that a flat-plate morphology will require a higher current speed to remove sediments.

a multi-agency workgroup chaired by DoD will be established to oversee adaptive management implementation and decision-making.

A-008-147

Thank you for your comment. The FEIS will contain updated information reflecting the on-going investigation of potential wetland areas. The platoon battle course will be located such that no wetland habitat is impacted during construction and all construction will begin during the dry season so that noise impacts to Mariana common moorhen are avoided. If the action cannot begin in the dry season, pre-construction surveys will be completed. DoN will work with the U.S. Department of Transportation and Guam Public Works Department to ensure road and bridge work will be designed, to the maximum extent practical, so that wetland impacts are minimized up and downstream of the site such that habitat for listed species is not negatively impacted (i.e., permanently altering habitat such that the moorhens will no longer use it) due to the improvements. Bridge and road construction and improvements at the Atantano and other wetland areas adjacent to Route 1 on Guam will occur when moorhen are not nesting at or near (within 300 meters) the project site to avoid effects to moorhen (Takara 2010). Pre-construction surveys, one week prior to the onset of work will be completed by a biologist (experienced in the identification of the Mariana common moorhen by sight and vocalizations and experienced with implementation of USFWS protocol survey methodology) to ensure that no nesting moorhens are present. If nesting moorhens are present, clearing and construction will be postponed until the chicks have fledged. If work stops for more than 1 week, pre-construction surveys should be repeated to ensure that no moorhens have begun nesting (Takara 2010). All bridge replacements occur along Route 1 and most include minimal if any wetland habitat. None of them are within the Guam National Wildlife Refuge Overlay. The Atantano wetlands are secondary habitat as identified in the recovery plan for the Mariana common moorhen (USFWS 1992, p. 5-10). Conservation measures will be

We recommend discussion of relevance of low current value obtained from Brown (1990) to different coral morphologies at project site in Apra Harbor is added to discussion in the FEIS.

64) Vol. 9, Appendix E, Sec. D, P. 19: Sediment threshold (1000 milligrams per square centimeter per year) used in the cumulative sediment accumulation analysis seems inappropriate. See comment for Vol. 9, #71.

65) Vol. 9, Appendix E, Sec. D, P. 23: See comment for Vol. 4, #9.

66) Vol. 9, Appendix E, Sec. D, P. 24: The DEIS concludes: "As sediment is presently resuspended during ship operations and by natural processes (*e.g.*, storm waves), it is not anticipated that chemical composition of dredged sediment in the water column would differ from the present situation." However, sediment resuspension from ships and dredging greater than 2 feet of sediment are not comparable. Chemical composition of sediments often changes with sediment depth, and no information has been provided to demonstrate that sediment composition is uniform from the surface to the maximum depth of the proposed dredging. We recommend that either additional sediment data are presented to support the uniform nature of sediments with depth or that this conclusion is reassessed without reference to ship resuspension.

67) Vol. 9, Appendix E, Sec. D, P. 24: The DEIS concludes that "[w]hile the CVN project mitigation models assume 100% loss of this area (Industrial Economics Inc. 2009), within approximately 60 years the second phase of post-dredging regrowth could be comparable to the present conditions." This conclusion is based on the assumption that environmental conditions within the harbor will be identical to those from the past 60 years. This is unlikely considering that the harbor use has changed significantly over this time period and will continue to change. It cannot be assumed that reefs in Apra Harbor will recover to their current condition in 60 years without information on recruitment, growth, and survival. We recommend that data be provided in the FEIS to support this conclusion or the conclusion is removed.

68) Vol. 9, Appendix E, Sec. E, P. 8: The authors have overlooked current studies conducted by Wolanski *et al.* (2003a) and to a lesser extent Wolanski *et al.* (2003b) and Wolanski *et al.* (2004) in their literature review. We recommend these references be included in the FEIS.

69) Vol. 9, Appendix E, Sec. E, P. 139: Figure 7-2 has presented only the 1000 milligrams per square centimeter cumulative sediment contour. This figure lacks resolution, making it difficult to determine spatial extent of sediment plume. We recommend additional cumulative sediment contours ranging from 32 to 1000 milligrams per square centimeter are provided on the figure to better illustrate extent of sediment plume.

70) Vol. 9, Appendix E, Sec. E, P. 141: We commend the Navy and SEI, Inc. for attempting to model cumulative sediment accumulation. However, description of method used to estimate cumulative sediment accumulation is not clear. It appears Figure 7-2 was derived by multiplying number of days dredge machinery spent in each 23.3 by 23.3 meter dredge grid by sedimentation rate estimate from the model that was run nearest to that grid. Cumulative sediment accumulation estimate does not appear to take into account additional sediment contributed from dredging that has or will occur in adjacent grids. We are concerned that in some cases these amounts could be a significant. We recommend methods used to calculate cumulative sediment accumulation are clearly described in the FEIS.

incorporated into the projects where wetlands are present to ensure wetland habitat function and value are not altered.

A-008-148

Thank you for your comment. The change in climate conditions caused by the burning of fossil fuels is a global effect, and requires that an analysis of greenhouse gas emissions impact on climate change be assessed on a global or regional scale, not at the local scale of a city or an island. The proposed alternatives mostly involve the relocation of the military operations already occurring in the West Pacific region; therefore, fossil fuel burning activities in the region are unlikely to change significantly. The analysis presented in the FEIS does not make the assumption that GHG emissions would not increase as a result of the relocation of activities within the region and estimates the GHG emissions resulting from relocating activities on Guam. Overall global greenhouse gas emissions are likely to remain near the current levels on a regional or global scale, resulting in an insignificant impact to current global climate change trends. As discussed in Volume 7, Chapter 4 of the FEIS, the operational CO₂ equivalent emissions from the preferred alternatives would comprise less than 0.00085% of the U.S. 2007 CO₂ equivalent emissions. Given this very slight contribution, it is difficult to speculate on the potential impacts of global warming on the resources of the project area. It should also be noted that DoD operations incorporate reductions of GHGs through energy reduction initiatives, the Leadership in Energy and Environmental Design (LEED) system, recent Executive Orders (EOs) on GHGs and other measures (see Volume 2, Chapter 5 and Volume 7, Chapter 4 of the FEIS).

A-008-149

Thank you for your comment. The suggested text has been added.

71) Vol. 9, Appendix E, Sec. E, P. 141: Sediment threshold (1000 milligram per square centimeter per year) used in cumulative sediment accumulation analysis seems inappropriate. The value is derived by extrapolating sedimentation rate from Randall and Birkeland (1978) to one year, to reflect estimated time for dredging. This would be consistent with 32 milligram per square centimeter per day provided settlement of resuspended sediments from proposed dredging was constant over entire dredging time period. Sediment deposition from dredging is not anticipated to be constant over a year, however; the authors note that "rapid passage of the dredging operation means prolonged exposure to plumes, and significant accumulation of sediment would not occur in most of the project area." This would imply that areas within the 1000 milligram per square centimeter per year threshold would actually receive greater than 1000 milligram per square centimeter in a single day or two. This level of sediment deposition would prove to be catastrophic if the nearly one inch of sediment were not removed from corals prior to it killing the corals. Threshold provided by Randall and Birkeland (1978) is assumed to be maximum daily load that can be removed from corals on a healthy, diverse reef in a single day. Daily rates in excess of this could result in adverse impacts. Data from literature provided by Dollar (Appendix E, Sec. C), show coral mortality can occur within 20 hours to 120 days depending upon the coral species, and it may be possible to develop a more accurate sediment threshold from this information. However, it should be noted that it is unclear if literature studies assumed physical processes would assist with removing sediments from buried coral. We recommend a significantly lower sediment threshold be used for cumulative sediment accumulation analysis, and the FWS is willing to assist with development of a mutually-agreeable threshold.

72) Vol. 9, Appendix E, Sec. F, general comment: We do not support use of percent coral cover as primary coral data input for Habitat Equivalency Analysis. Percent cover of live coral does not adequately describe ecological functions or structure contributed by corals to the coral reef, and may result in inadequate or inappropriate compensatory mitigation. We recommend data which capture structure, size and density of coral colonies be used in impact analysis and for development of success criteria for any compensatory mitigation project.

73) Vol. 9, Appendix E, Sec. F, general comment: The HEA does not attempt to scale compensatory mitigation for functional losses to marine habitat other than coral. Under the CWA, compensatory mitigation is required for all unavoidable losses of marine and aquatic ecosystem function. Unavoidable losses will occur to areas with 0 percent coral cover. We recommend the FEIS include appropriate mitigation that will equitably compensate for all unavoidably lost marine and aquatic ecosystem function.

74) Vol. 9, Appendix E, Sec. F, P. 5: The economic value of coral reefs as discussed in this section is not relevant to the mitigation requirement under the CWA. We recommend this discussion is removed from the FEIS.

75) Vol. 9, Appendix E, Sec. F, P. 7: See comment for Vol. 9, #33.

76) Vol. 9, Appendix E, Sec. F, P. 8: The CHI uses "three-dimensional coral area," which is conceptually identical to the "100% coral equivalents" from previous versions of the HEA. We have previously recommended that the "100% coral equivalents" be removed from the HEA. Use of "three-dimensional coral area/100% coral equivalents" ignores the functional importance of space between colonies and de-values any area with less than 100 percent coral. Inter-colony spaces are important habitat where coral reef associated organisms forage, rest, shelter, spawn

A-008-150

Thank you for your comments. The Navy's various operational instructions and technical guides contain instructions and procedures on how to manage ballast water and hull fouling-- the two primary pathways of potentially invasive marine species. In addition, the Navy's Micronesia Biosecurity Plan (MBP), scheduled for completion in late 2010, will contain recommended BMPs for further reducing the likelihood of marine invasive species introductions.

A-008-151

Thank you for your comment.

There was an error in the summary of impacts in Volume 7 of the Draft EIS. The Final EIS has been corrected to identify a significant and mitigable impact to recreational resources, including reefs, during construction and operation of the proposed action.

A-008-152

Thank you for your comments.

13) Categorically excluded projects are considered in the Final EIS cumulative impact assessment as requested.

14) These specific mitigation measures are being discussed in the Section 7 consultation with USFWS. Mitigation measures resulting from the consultation have been included in the Final EIS, if they were available in time for publication.

15) Edits are made to the Figures, as suggested, in the Final EIS.

16) The assessment is consistent with CEQ guidelines and the references to specific guidelines are provided. Due to the complexity of the project, there are two parts of the cumulative impact analysis: the summary of impacts for all components of the proposed action and an assessment of the additive impacts of the proposed action on other past,

A-008-162 etc., and should not be excluded from analysis of coral reef ecosystem function. We recommended an approach that assesses ecological function and structure of the coral reef ecosystem be used in the HEA.

77) Vol. 9, Appendix E, Sec. F, P. 10: The method to compute area associated with each CHI category is flawed. The underlying assumptions of probabilistic model used to correct for coral habitat map errors and to generate three-dimensional coral area (an input into the CHI) are violated. The probability model to correct for errors in the habitat map assumes that all pixels have a constant area (true for the 2-d map), but this assumption is violated when the 3-dimension surface area of the pixel is calculated. Based on an analysis conducted by FWS, this contributes to an underestimation of area and level of impact needed to be offset by compensatory mitigation. We recommend the CHI is not used to scale compensatory mitigation. Rather, we recommend data that adequately describe ecological function and structure of corals is used in the HEA.

78) Vol. 9, Appendix E, Sec. F, P. 12: The DEIS states that “coral habitat expected to be affected by the CVN project currently is, in general ‘of marginal to modest ecological value,’” and Smith (2007) is referenced. Sufficient information on how Smith (2007) reached his conclusion has not been provided, and his study has not been appended. We recommend that Smith (2007) be included in appendices or that description of methods and criteria Smith used to determine “modest ecological value” be included in the FEIS.

79) Vol. 9, Appendix E, Sec. F, P. 12: See comment Vol. 4, #54.

80) Vol. 9, Appendix E, Sec. F, P. 14: See comment for Vol. 4, #57.

81) Vol. 9, Appendix E, Sec. F, P. 21 through 22: The DEIS contains a proposal to use an artificial reef “proxy” approach to mitigation. This approach includes generating a dollar-value cost estimate (with an associated cost ceiling) and then applying this dollar-value estimate to an entirely different mitigation project. This approach is not based on accomplishing equitable functional replacement, as required under the CWA and the 2008 Compensatory Mitigation Rule. We recommend artificial reef “proxy” be removed from the FEIS.

82) Vol. 9, Appendix E, Sec. F, P. 22: Use of artificial reefs as compensatory mitigation occurred before adoption of the 2008 Compensatory Mitigation Rule. This rule requires functional replacement of unavoidable habitat losses. Available scientific literature has not demonstrated that artificial reefs can equitably replace ecological functions of a natural coral reef. In FWS’s opinion, prior acceptance of artificial reefs as compensatory mitigation does not make them valid compensatory mitigation under the new Rule. We recommend artificial reefs be removed from consideration as compensatory mitigation in the FEIS.

83) Vol. 9, Appendix E, Sec. F, P. 22: The DEIS does not include reference to “defensible scientific literature” for artificial-to-natural reef ratios. Scaling for artificial reef mitigation has been derived from an Army Corps Permit issued for a coral reef project in Hawai’i (the “HASEKO Inc.” Permit originally issued in 1993) and not from a “scientifically defensible” source. Prior to issuance of a state permit to proceed with deployment of the HASEKO artificial reef, Hawai’i State fisheries biologists raised concerns the reef was too small and “would lead to greater vulnerability of reef fish to over-fishing, due to concentration of fish at a site readily accessible to fisherman, with no enhancement of fish reproductive rates or growth” (Hawai’i

present and reasonably foreseeable projects. A systematic methodology was applied in both analyses.

A-008-153

Thank you for your comment.

A-008-154

Thank you for your comments. The FEIS has been updated to reflect the latest mitigation commitments and to present a balanced review of pros and cons. The report you refer to (artificial reef mitigation) is a final report and will not be edited at this time. There may be updates to the report, along with other new mitigation information, to support the Army Corps of Engineers permits following the ROD.

A-008-155

Thank you for your comments. The report you refer to is a final report and will not be edited. There may be updates to the report to support the Army Corps of Engineers permits, but they would be considered new reports with new information.

A-008-156

Thank you for your comments. The report you refer to is a final report and will not be edited. Mitigation regarding impacts to coral habitat is continually being updated as consultation progresses. There may be updates to the report to support the Army Corps of Engineers permits, but they would be considered new reports with new information.

A-008-157

Thank you for your comments. The report you refer to is a final report and will not be edited. There may be updates to the report to support the

Department of Land and Natural Resources 2008). They further concluded that the HASEKO artificial reef “would not be sufficient to create useful coral-reef habitat” and that it “would function primarily as a fish aggregation device...[that would]...concentrate fish near the structures without providing productive habitat for community growth.” To alleviate their concerns, the state requested that a contiguous reef of at least 100 acres was necessary to address their concerns. If artificial reefs remain under consideration, we recommend artificial reef is scaled using the 100:1 ratio proposed by the State of Hawai‘i, and that no areas less than 100 contiguous acres be used when considering places to deploy the structure.

84) Vol. 9, Appendix E, Sec. F, P. 23: See comment for Vol. 4, #86.

85) Vol. 9, Appendix E, Sec. F, P. 23: In the DEIS, supporting information for use of artificial reefs to replace natural coral reefs is based on species-specific coral colony size and growth rate data from the literature. However, data used in DEIS for the impact assessment and HEA include primarily percent cover of live coral and not species-specific coral colony data. It is unclear how information from literature was used in the DEIS to derive estimates for coral recovery potential on artificial reefs. We recommend the FEIS include a description of methods used to derive the following estimates: (1) “artificial reefs will provide 10% of baseline service levels in the year immediately following deployment;” (2) “comparable functions and services can be provided...within a decade;” and (3) “artificial reefs will replace 85% of natural reef functions within 10 years of deployment.”

86) Vol. 9, Appendix E, Sec. F, P. 23 through 24: Average size of colonies in impact area is stated as 16-22 centimeters but no reference is provided for this estimate. We recommend the source of this estimate is cited in the FEIS. If source is Dollar and Hochberg (2009), we recommend data are removed from the FEIS because Dollar and Hochberg collected coral colony size data with inappropriate methods, and therefore, their data is inappropriate for use in this analysis.

87) Vol. 9, Appendix E, Sec. F, P. 24: See comment Vol. 4, #88.

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- Camp, R. J., T. K. Pratt, F. Amidon, A. P. Marshall, S. Kremer, and M. Laut. 2009. Status and trends of the land bird avifauna on Tinian and Aguiguan, Mariana Islands. Appendix 3.1 in *Terrestrial Resource surveys of Tinian and Aguiguan, Mariana Islands, 2008*. Working Draft. U.S. Fish and Wildlife Service, Pacific Islands Fish and Wildlife Office, Honolulu, HI.
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Army Corps of Engineers permits, but they would be considered new reports with new information.

As stated by the Department of the Army (17 Feb 2010 response to DEIS), “the employed survey methodology to assess coral reef resources within the proposed CVN wharf and dredge project area has been an extremely contentious subject. Functional assessment methodologies are an evolving science and the adequacies of existing methodologies are heavily debated in the scientific community. A standard functional assessment technique that accurately characterized and quantifies losses and gains of coral reef aquatic resource functions, as would ideally be utilized for the proposed action for Section 10/404 compensatory mitigation purposes, is not currently available. Considering that our office will ultimately be responsible for determining compliance with federal regulations requiring an appropriate and practicable functional assessment, we have engaged our Engineer Research and Development center (ERDC) to provided an independent technical review of the adequacy of the employed methodology to date and recommendations for improvements, if necessary. Preliminarily, ERDC has determined that while the methodology is scientifically valid and statistically defensible, a more intensive level of data collection may be necessary to adequately measure habitat function for compensatory mitigation purposes. We expect a more specific and detailed accounting of their review in the coming weeks.”

The Navy will continue to work with the USACE and EPA/GEPA to satisfy the requirements of Section 10/404 and Section 401 permit documentation.

A-008-158

Thank you for your comment. The report you refer to is a final report and will not be edited. There may be updates to the report to support the Army Corps of Engineers permits, but they would be considered new

- Pacific island of Rota. Report to CNMI DFW. University of Washington, Seattle, WA. 52pp.
- Hawaii Department of Land and Natural Resources. 2008. Amendment to Related Conservation District Use Permit OA-2670, Condition #17.
- NAVFAC. 2007. Artificial Reef Feasibility Study. Helber Hastert & Fee Planners for Pacific Division, Naval Facilities Engineering Command.
- USFWS. 2003. Compensatory Mitigation for Coral Reef Impacts in the Pacific Islands. United States Fish and Wildlife Service, Pacific Islands Fish and Wildlife Office Honolulu, HI. 39 pp.
- Wolanski, E., R. H. Richmond, G. Davis, E. Deleersnijder, and R. R. Leben. 2003a. Eddies around Guam, an island in the Mariana Islands group. *Continental Shelf Research* 23(10): 991-1003.
- Wolanski, E., R. H. Richmond, G. Davis, and V. Bonito. 2003b. Water and fine sediment dynamics in transient river plumes in a small, reef-fringed bay, Guam. *Estuarine, Coastal and Shelf Science* 56: 1029-40.
- Wolanski, E., R. H. Richmond, and L. McCook. 2004. A model of the effects of land-based, human activities on the health of coral reefs in the Great Barrier Reef and in Fouha Bay, Guam, Micronesia. *Journal of Marine Systems* 46: 133-44.

reports with new information.

Habitat assessment methodologies which evaluate the function of affected aquatic resources, such as coral reef ecosystems, are an evolving science and the adequacies of existing and new methodologies are heavily debated in the scientific community. Ideally, a standard assessment technique that accurately characterizes and quantifies losses and gains of coral reef ecosystem functions would be used. However, rulemaking for the Compensatory Mitigation Rule recognizes the wide variety of aquatic resources present in the United States and the evolving nature of science regarding aquatic ecosystem restoration make the establishment of standard assessment methodologies impracticable. The assessment for this EIS used an historically approved methodology (percent coral cover), supplemented by other methods such as the use of Light Detection and Ranging (LIDAR) satellite photos, for quantifying impacts to affected coral reef ecosystems impacted by the proposed transient CVN wharf and associated dredging. DoD believes that use of the percent coral cover methodology, supplemented by use of LIDAR satellite photos, is the "best currently available science" to attempt to capture the thousands of elements that comprise the function of a coral reef ecosystem. DoD's assessment is currently under review by the US Army Corps of Engineers, the agency charged with implementing dredge and fill permits under CWA Section 404, and other Federal agencies. The FEIS will be updated to reflect the latest developments in this review.

A-008-159

Thank you for your comments. The report you refer to is a final report and will not be edited. There may be updates to the report to support the Army Corps of Engineers permits, but they would be considered new reports with new information.

As stated by the Department of the Army (17 Feb 2010 response to

Appendix B National Park Service Comments

Introduction

A-008-167 Proposed actions may potentially affect National Park Service (NPS) sites and programs both directly and indirectly. Two sites are War in the Pacific National Historical Park (NHP), listed in National Register of Historic Places and comprised of multiple units on Guam (see Figure 1), and American Memorial Park on Saipan. These areas encompass significant cultural and historic resources, as well as a great variety of terrestrial and marine resources. NPS also represents the Secretary of the Interior for the National Historic Landmark (NHL) program and is charged by the Secretary with administration of the Micronesian Historic Preservation Program. Thus, potential impacts to NHLs on Tinian and Saipan and Historic Preservation Offices in the territories are of concern.

A-008-168 These comments are structured to assist Department of Defense (DoD) in amending Draft Environmental Impact Statement /Overseas Environmental Impact Statement (Draft EIS/OEIS) to incorporate necessary information about NPS and its holdings on behalf of people of the United States, Guam and Commonwealth of the Northern Mariana Islands (CNMI) into Final EIS/OEIS (FEIS). Initial sections explain relevant findings about DRAFT EIS/OEIS and the legal and policy framework (authorities) for NPS in Pacific. These represent basis for NPS concerns about proposed actions. The next section is an assessment of the current condition of NPS resources, written as an affected environment discussion. This is followed by an assessment of how those resources and values may be affected by the proposed actions, such as they may be determined. This information, derived through NPS special expertise, is written as a consequences section. Finally, comments conclude with additional findings and recommendations for DoD in proceeding with FEIS and eventual decision.

These comments have been prepared by an interdisciplinary NPS Task Force instituted specifically to deal with issues affecting NPS relative to military relocation plans. Please see endnote. Members of this team, or their predecessors, and other NPS personnel have participated actively in Joint Guam Program Office (JGPO) partnering sessions since their inception. NPS has provided comments on scoping and earlier working documents that should be present in administrative record for the EIS. NPS participation to date has indicated concern about proposed action(s) and indirect impacts on NPS and units within the scope of the EIS.¹ Since NPS input was sought (NPS was invited to be a cooperating agency on the project²), NPS made observations about National Environmental Policy alternatives considered, and the undue complexity of earlier versions.

¹ JGPO Working Group Notes May 21, 2008, pp.3-4.

²Correspondence of May 17, 2007, D.F. Bice (JGPO) to Mary Bomar (NPS) requested cooperating agency status for NPS. "This would help the JGPO adequately evaluate the potential environmental effects of the proposed action and would provide assistance in the development of the EIS/OEIS...." NPS response, dated July 20, 2007, notes that NPS looks forward to cooperating with DoD to ensure park resources are protected, but more information is needed due to broad scope of proposal before NPS can formally accept cooperating agency status.

DEIS), "the employed survey methodology to assess coral reef resources within the proposed CVN wharf and dredge project area has been an extremely contentious subject. Functional assessment methodologies are an evolving science and the adequacies of existing methodologies are heavily debated in the scientific community. A standard functional assessment technique that accurately characterized and quantifies losses and gains of coral reef aquatic resource functions, as would ideally be utilized for the proposed action for Section 10/404 compensatory mitigation purposes, is not currently available. Considering that our office will ultimately be responsible for determining compliance with federal regulations requiring an appropriate and practicable functional assessment, we have engaged our Engineer Research and Development center (ERDC) to provided an independent technical review of the adequacy of the employed methodology to date and recommendations for improvements, if necessary. Preliminarily, ERDC has determined that while the methodology is scientifically valid and statistically defensible, a more intensive level of data collection may be necessary to adequately measure habitat function for compensatory mitigation purposes. We expect a more specific and detailed accounting of their review in the coming weeks."

The Navy will continue to work with the USACE and EPA/GEPA to satisfy the requirements of Section 10/404 and Section 401 permit documentation.

A-008-160

Thank you for your comment. The report you refer to is a final report and will not be edited. There may be updates to the report to support the Army Corps of Engineers permits, but they would be considered new reports with new information.

A-008-161

Thank you for your comment. The report you refer to is a final report and

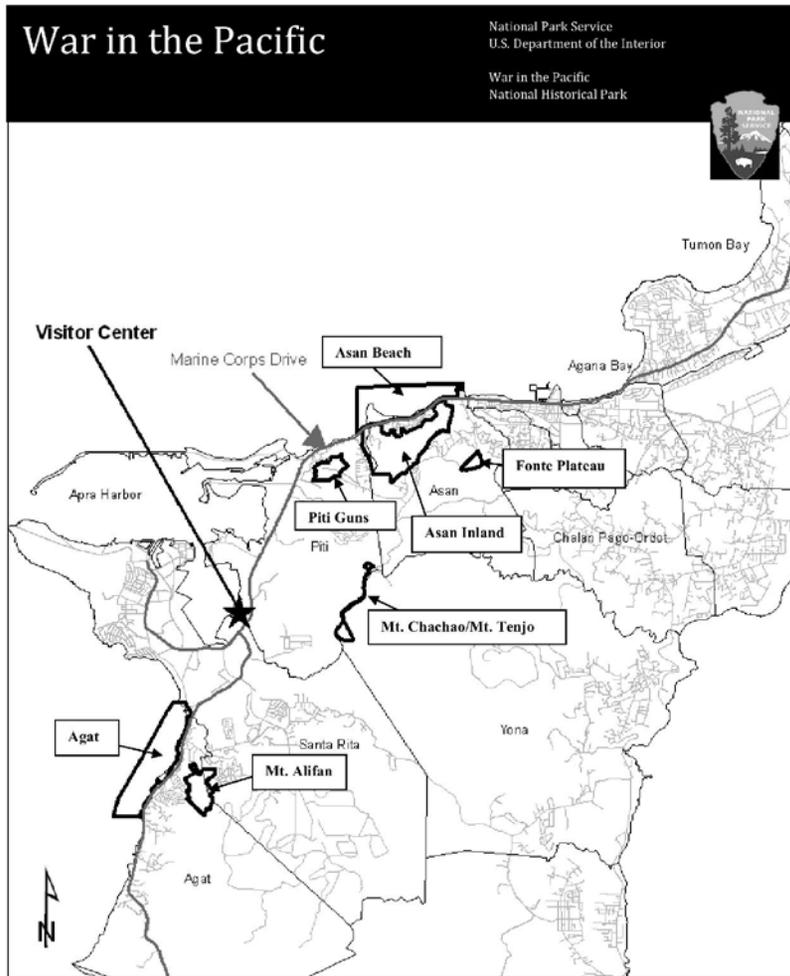


Figure 1: Park Units

will not be edited. There may be updates to the report to support the Army Corps of Engineers permits, but they would be considered new reports with new information.

The FEIS body of the document contains appropriate conversions. The FEIS text has been revised, replacing EO 13089 definition of coral reefs with the CWA definition as requested, not in the Appendices, but in the Methodology Section of Volumes 2 and 4.

A-008-162

Thank you for your comment. The report you refer to is a final report and will not be edited. There may be updates to the report to support the Army Corps of Engineers permits, but they would be considered new reports with new information. Some of these comments are repeats from the DEIS Volumes and have been addressed appropriately.

A-008-169 | It should have been clear that some consideration or analysis of impact on the NPS, and lands within its jurisdiction, was necessary. To this end, NPS had offered assistance and special expertise for analysis of potential impacts on parks. Other than being invited to consult regarding development of Programmatic Agreement regarding impacts of proposed actions on cultural and historic resources, specifically for National Historic Landmark on Tinian, our services or special expertise were not requested by DoD or its contractors. In fact, the NPS contact was removed from the distribution list prior to sending out the partners' early review DRAFT EIS/OEIS, so NPS had no opportunity to comment and provide information at that stage of EIS development.³

Findings

A-008-170 | As supported by following discussions, NPS can reasonably anticipate significant impacts on Guam and CNMI park units as an indirect result of increased population associated with the action. The DRAFT EIS/OEIS does not adequately explore myriad effects of the proposed population increase on Guam, its resources, and its social and physical infrastructure. However, the increase and its demographics are readily disclosed in the document as being substantial – over 79,000 additional people during “peak load” year of 2014. Based on a comparison with 2008 interim census figure, this increase would represent a 45% expansion in population of Guam. How the population of the construction workforce component would decline immediately following this period is a matter of speculation rather than assumption.

A-008-172 | The DRAFT EIS/OEIS appears to dismiss potential for any direct or indirect impacts on NPS, despite aforementioned concerns expressed during scoping and subsequent JGPO partnering sessions. Whether DoD agrees that there are potential impacts or not, NPS concerns should have been reflected in DRAFT EIS/OEIS. Since they are not, and since NPS was prepared to provide its special expertise in this regard, NPS finds the DRAFT EIS/OEIS deficient and incomplete in evaluating potential impacts on other federal agencies, namely NPS, including possible conflicts with their plans, policies and controls. These comments are structured in such a fashion as to assist DoD in rectifying deficiency for the FEIS.

Sufficiency of DRAFT EIS/OEIS

A-008-173 | Potential effects of the proposed action on parks are likely to be indirect in nature, although they may directly affect NHL on Tinian. The source of impact, long term, is expected to be related to increased military population, including dependents. Potential short term and long-term impacts may accrue due to increased population of construction personnel, their dependents, and the extent to which they remain on Guam following construction phase. It is important to note that park units and desired visitor experiences can be impacted significantly by activities related to military relocation, even though they may not be direct. Parks can be affected by actions that can be seen and heard from the park, such as at overlooks that view a battlefield and commemorate lives lost there.

A-008-174 | Proponent of an action such as this is required by Council on Environmental Quality (CEQ) regulation to disclose in an EIS direct and indirect effects of all alternatives, and their significance.⁴ NPS believes potential indirect effects of the proposed actions will have significant adverse effects that could directly impact critical resources and park values. In the event that

³ Documented in letter dated Nov. 10, 2009, from NPS Acting Regional Director to Mr. Darrell Molzan (JGPO)

⁴ 40 CFR 1502.16 (a) and (b)

A-008-174 DoD disagrees with NPS, they must disclose NPS view in the EIS. As stated in CEQ regulations, an agency shall make every effort to disclose and discuss in the draft statement all major points of view on environmental impacts of the proposed action and alternatives to it.⁵ Clearly, the DRAFT EIS/OEIS is deficient in this regard.

With reference to the term “significance,” EIS must evaluate context and intensity of the impact, and consider the extent to which action is proximal to unique characteristics of the geographic area such as historic or cultural resources, park lands...and ecologically critical areas.⁶ Further, EIS must evaluate the degree to which action may adversely affect sites, structures, or objects listed in, or eligible for, National Register of Historic Places (NRHP) or may cause destruction of significant scientific, cultural or historic resources.⁷ Since War in the Pacific NHP, which is listed in National Register, and resources within it meet criteria expressed in this section of regulations, the EIS needs to disclose requisite analysis specific to parks, and make a determination of significance. It is our concern and our preliminary conclusion that impacts are likely to be significant, by definition.

A-008-175 CEQ regulations also require that the proponent evaluate and disclose possible conflicts between proposed action and objectives of Federal land use plans, policies, and controls for the area concerned.⁸ In this case, EIS must specifically consider plans, policies and controls for national park units on Guam and CNMI. Park units each are managed according to a formal plan, and must conform to a large body of NPS policies⁹ and regulations.¹⁰ Regarding DRAFT EIS/OEIS, we are concerned because there is insufficient disclosure of potential direct and indirect impacts to park units in question. Consequently, there is likely to be no effective determination of the significance of impacts on parks. Finally, it does not appear likely that there will be adequate consideration of how the proposed action might conflict with park plans, policies and controls, as required in CEQ regulations.

A-008-176 Further, if EIS does not adequately disclose potential direct and indirect impacts on park units, then, by extension there will be no adequate evaluation of cumulative impacts. Potential for indirect impacts on parks is superimposed on current park conditions, which are at or near a threshold of acceptability. Park staffing currently is not sufficient to deal effectively with issues of pollution, sedimentation, coral reef impacts, Off-Road Vehicle (ORV) use, solid waste, illegal use and occupancy, and other significant problems associated with use by the present population. All such considerations are matters of park service regulation and policy. With a population increase such as that being proposed, NPS is concerned that park resources and staff are likely to be overwhelmed.

A-008-177 These concerns are in addition to previously expressed comments from NPS regarding NEPA process for this EIS. These include inadequacy of scoping effort and lack of effective attention to local issues, inadequacy of the purpose and need statement and scope of analysis, pre-decisional nature of alternatives, and lack of a suitable range of alternatives that address local issues. NPS

⁵ 40 DFR 1502.9 (a)

⁶ 40 CFR 1508.27 (a), (b)(3)

⁷ 40 CFR 1508.27 (b)(8). War in the Pacific NHP is listed in the NRHP because it is a national historical park as authorized by Congress.

⁸ 40 CFR 1502.16 (c)

⁹ Management Policies 2006

¹⁰ Code of Federal Regulations, Title 36, Parts 1 through 79.

A-008-177 agrees with other agencies that DRAFT EIS/OEIS and related documents thus far available to us have been too lengthy, complex, laden with jargon, and generally not in compliance with CEQ regulations that require a document to allow effective review by public.¹¹ That the DRAFT EIS/OEIS lacks certain important analyses and data, as discussed during NAVFAC meeting of October 8, 2009, merely exacerbates process issues evident in Early Review DRAFT EIS/OEIS.

Impacts on National Park Service

A-008-178 NPS is charged with implementing relevant laws and policies in park units and it has a duty to comment, in accordance with CEQ regulations, on actions that can affect their implementation. DoD should understand that national park lands are not, *per se*, recreation areas. Laws that define NPS mandate, and policies that proceed therefrom, range widely from natural resource conservation to protection and commemoration of cultural and historical treasures. Secondly, these resources and treasures are to be provided for education and enjoyment of the public, in concert with purposes and values for which a park was established by Congress. It is not correct to simply label national parks as playgrounds or recreation areas.

It is of great concern that, to date, DoD appears not to have taken note of the role and responsibility of NPS in implementing National Historic Preservation Act (NHPA) of 1966, as amended, in the area affected by this proposed action. Pacific West Regional Office of NPS provides oversight of programmatic, financial, and administrative requirements and assists in administration of contracts to local governments, State agencies, universities, non-profit organizations, museums, and individuals. As DoD deals with historic and cultural resource issues, and attempts to obtain clearance through Historic Preservation Offices (HPO) attached to territorial or other local government entities, it should understand that NPS has oversight responsibilities in these areas and must fund those offices to provide suite of actions made necessary by proposed military relocation activities. In other words, NPS is not merely another federal land management agency in Marianas whose "small" holdings are not expected to be impacted by DoD action. As local HPOs are impacted by massive workloads created by this action, so too are NPS and Department of the Interior.

A-008-179 Authorities

This section provides basics in law and policy for management/controls of National Park units and NHLs. It describes, for topics relevant to military relocation actions, desired conditions for those lands, resources and qualities that are likely to be affected.

NPS Mandates

Organic Act and Core Mission

NPS and its basic mandate are authorized under its Organic Act of 1916,¹² and General Authorities Act, as amended by Redwood Act.¹³

"The purpose [of the NPS] is to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of same ... by such means as will leave them unimpaired for the enjoyment of future generations." "The...protection, management and administration of these areas shall be conducted in light of the high public value and integrity of the National Park System... The Secretary of the Interior has an absolute duty, which is not to be compromised, to fulfill the mandate of the 1916 Act to take whatever actions and seek whatever relief as will safeguard the units of the National Park System."

¹¹ 40 CFR 1500.1 (b), 1500.4(a), (b), (d), and (f), et al.

¹² 16 USC 1, 2-4

¹³ 16 USC 1a-1 through 1a-8, amended under P.L. 95-250, 92 Stat. 163, 16 USC 1a-1

All units of NPS are established and authorized under these guiding principles. Further, each individual unit has been authorized by an Act of Congress that specifies in most instances particular resources and values¹⁴ for which area is set aside, in addition to the core mission set out by Organic Act.

Legislation establishing American Memorial Park and War in the Pacific National Historical Park provides specific park purposes as follows:¹⁵

"American Memorial Park shall be administered for the primary purpose of honoring the dead in the WWII Mariana Islands campaign."

"In order to commemorate the bravery and sacrifice of those participating in the campaigns of the Pacific theater of World War II and to conserve and interpret outstanding natural, scenic, and historic values and objects on the island of Guam for the benefit and enjoyment of present and future generations, the War in the Pacific National Historical Park is hereby established."

War in the Pacific NHP and American Memorial Park accomplish this mission by, among other things, providing memorial sites for appreciation of events of the war and the many peoples of all origins sacrificed for it. By their nature, a quiet and solemn setting is requisite in order to achieve these purposes.

There are a number of other federal laws and executive orders that NPS, as a land management agency, must implement or adhere to through its management practices and regulations. Again these cover a wide range of topics, including air and water quality, noise, endangered species, marine mammals, historic preservation, and ORV use. NPS Management Policies, discussed below, are intended to provide greater detail and guidance for implementing this range of mandates. Activities that occur on or are authorized for national park lands are subject to these legal requirements. If actions of another agency place a burden on NPS relative to these laws, NPS has a duty to comment.

National Historic Preservation Act

NHPA authorizes the Secretary of Interior to grant funds to Territories and Freely Associated States of Micronesia (FAS) for Historic Preservation activities. Historic Preservation Fund (HPF) was established by Congress to provide grants to Territories and FAS to administer direct project activities and grants for performing various historic preservation activities. The HPF grant program, administered by NPS, provides funding for Historic Preservation Offices for, among a number of other things, review of federally funded, licensed, or permitted undertakings for projects that may affect historic properties.¹⁶

¹⁴ What constitutes park resources and values is defined specifically in NPS Management Policies (MP 1.4.6). Park resources and values must not be impaired, in accordance with core NPS principles. These include attributes that are cited in a park's establishment legislation, in addition to a park's scenery, natural and historic objects, ecological and physical processes, landscapes, soundscapes, native plants and animals, etc. Opportunities to experience and enjoy these attributes are considered to be values, as is the park's role in contributing to national dignity, superlative environmental quality, and source of inspiration provided to American people.

¹⁵ P.L. 95-348, August 1978, 92 Stat. 491

¹⁶ Authorities for HPF are: National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470(c) 6(A).

A-008-179 | The NPS represents Secretary of the Interior in matters relating to National Historic Landmarks.¹⁷ It authorizes NPS to act in behalf of an NHL during a federal undertaking that may adversely affect it:

(f) Prior to the approval of any Federal undertaking which may directly and adversely affect any National Historic Landmark, the head of the responsible Federal agency shall, to the maximum extent possible, undertake such planning and actions as may be necessary to minimize harm to such landmark, and shall afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking.

A-008-180 | Section 106 of NHPA, as set forth in 36 CFR Sections 800.6 and 800.10, requires an agency identify presence of NHLs and other historic properties within the undertaking's area of potential effects and assess whether implementation of undertaking will have an adverse effect on such properties. If it is determined that an undertaking may affect an NHL, the Agency is required to notify Secretary of the Department of the Interior of any consultation involving an NHL, and formally invite the Secretary to participate in Section 106 consultation when there may be an adverse effect to these properties.

A-008-181 | Consolidated Natural Resources Act of 2008

NPS has gained significant new authority to spend appropriated funds outside of park boundaries in order to benefit a park's natural resources. This authority supports implementation of current policy, as described in 2006 Management Policies: "The Service will use all available tools to protect park resources and values from unacceptable impacts. The Service will also seek to advance opportunities for conservation partnerships." NPS can enter into cooperative agreements with willing state, federal, local or tribal governments [and other entities] to protect natural resources in units of NPS. Activities outside of park boundaries can have significant positive or negative impacts to park resources and values. This authority will assist NPS in working with other agency proponents on proposed actions to avoid or mitigate potential impacts and expands opportunities for cooperation and collaboration. The authority can facilitate management to benefit natural resources within and surrounding parks, regardless of ownership.

NPS Management Policies

NPS management policies,¹⁸ while not having direct force of law, represent a guide for managers to implement laws relevant to national park lands and resources. Adherence to policy is mandatory, but can be waived for specific cases by Secretary of the Interior or NPS Director. This brief discussion is provided to facilitate analysis of how proposed actions could conflict with plans, policies or controls required to manage NPS areas and programs. Given the comprehensive body of policies, it is the intent of this discussion to focus on the vital few that present a management challenge in light of proposed actions. Specific policy statements with an indicator (MP) are indexed to policy document.

Visitor Use Policies

Key features of management policies relating to use of national parks are summarized here. Part of NPS mission is to provide for appropriate public use and enjoyment of national park units. It should be noted that use and enjoyment does not always equate to "recreation." However, to achieve the core mission, park resources and values must be preserved in order to sustain public

¹⁷ NHPA Section 110(f) and 36 CFR 800 Section 800.10. [16 U.S.C. 470h-2(f) — Federal undertakings affecting National Historic Landmarks]

¹⁸ Management Policies 2006, USDI, NPS

use and enjoyment for current and future generations (NPS Organic Act). Visitor use policies are not to be applied without due prior consideration of natural and cultural resource values. This summarized in MP 8.2:

- ❖ NPS will provide opportunities for forms of enjoyment that are uniquely suited and appropriate to natural and cultural resources found in parks.
- ❖ NPS will defer to other entities, governmental or private, to meet the broader spectrum of recreational needs and demands.
- ❖ To provide for enjoyment, NPS will encourage visitor activities that:
 - Are appropriate to purposes for which park was established
 - Are inspirational, educational, or healthful, and otherwise appropriate to park environment
 - Will foster understanding and appreciation for park resources and values
 - Can be sustained without causing unacceptable impacts to park resources and values

Natural Resource Policies

Key features of management policies relating to natural resources summarized here.

- ❖ Since ecological processes, landscapes, scenic views and soundscapes, etc., (often) cross park boundaries, activities occurring adjacent or outside parks can have significant impacts on park resources and values. By policy, it is NPS' intent to anticipate and resolve potential conflicts through cooperative conservation efforts (MP 1.6, 4.1.4).
- ❖ NPS will preserve and protect the natural resources, processes, systems and values of units in an unimpaired condition to perpetuate their inherent integrity (MP Section 4, entire)
 - Physical resources such as water, air, soil, topographic features, soundscapes and clear skies
 - Physical processes such as erosion, wildland fire
 - Biological resources such as native plants, animals, marine life
 - Ecosystems
 - Highly valued associated characteristics such as scenic views.
- ❖ NPS has an affirmative responsibility under law and policy to perpetuate best possible air quality in park unit (MP 4.7.1).
- ❖ NPS will preserve to the greatest extent possible natural soundscapes of parks, restoring natural condition where it is degraded (MP 4.9). Through planning, parks will retain character of soundscape required to achieve purposes of park, though it may not be natural.¹⁹

Cultural and Historic Resource Policies

Key features of management policies relating to cultural and historic resources are summarized here. For the most part, NPS operates in this arena directly according to dictates and terms of relevant laws and regulations. See authorities, above.

- ❖ NPS administers parks in Hawaii, Guam, CNMI, and other US territories. The Service will maintain open, collaborative relationships with native peoples for whom these islands are their ancestral homes. NPS will also meet any responsibilities that may have been defined in enabling legislation of these island parks in administration of Native American Graves Protection and Repatriation Act and NHPA (MP 1.12).

¹⁹ Management policy (MP 4.9) serves to recognize that parks whose purpose is to commemorate the dead, and memorialize sacrifices and bravery in combat should be managed to provide a quiet and solemn environment suitable to the need. This applies to the setting for a cemetery, such as Arlington National Cemetery, or a monument like the Vietnam War Memorial and other sites within the National Mall.

- ❖ Archeological resources will be protected against human agents of destruction and deterioration whenever practicable. These resources subject to vandalism and looting will be periodically monitored and, if appropriate, fencing, warning signs, remote-sensing alarms and other protective measures will be installed (MP 5.3.5.1.4).

Current Conditions

This section describes as far as possible current condition of parks and NHL likely to be affected by proposed actions. Areas of greatest concern, discussed below, are Visitor Use and Enjoyment, Natural Resources, and Historical and Cultural Resources. Park Operations or administrative capacity is also presented because it reflects the ability of NPS to manage its stewardship responsibilities in accordance with law and policy.

Visitor Use and Enjoyment

War in the Pacific NHP and American Memorial Park were authorized by Congress in 1978 and support a variety of uses in relation to the purposes, resources and values of parks. The key resources and values are described below sections. These resources represent basis for park visitation and visitor enjoyment. Enjoyment takes form of educational opportunities, discovering historical and natural resource phenomena, viewing historical objects and artifacts, and appreciating values of being in places where important events of WWII actually happened. Though not a park unit, the NHL on Tinian is an opportunity to experience staging area for unique and climactic events associated with bombing of Japan, which precipitated the end of war in the Pacific.

War in the Pacific NHP

The park's seven units preserve and interpret significant World War II invasion sites and have the most diverse coral reef system within the National Park System. Submerged resources encompass a portion of a Marine Protected Area, sunken WWII artifacts, two culturally significant traditional fishing areas, and habitat for over 3500 marine species, including over 200 coral species and threatened hawksbill and green sea turtles.

The visitor center is located adjacent to the main gate of Naval Base Guam in a facility leased from the Navy (see Figure 1). It houses an exhibit area and theater, a small bookstore, offices for interpretive staff, and museum collections for both War in the Pacific NHP and American Memorial Park. Individuals and large tour groups visit the center during its open hours seven days a week, year-round. In 2011, the center will house new, permanent exhibits that should attract increased visitation and provide more opportunities for visitors to learn about park resources and values. Parking at visitor center is presently limited on weekdays when adjacent naval offices are busy.

The park unit at Asan Beach preserves the site of northern landing beach for U.S. forces during the 1944 liberation of Guam. In addition to significant historical value, the area also provides a physical setting that is used for healthful activities such as running, walking, flying kites, and water recreation when conditions permit. Many people enjoy beach for picnicking and scenery. Often during the year, large group-sanctioned events are held on the open field. NPS stages 'Movies in the Park' periodically, where family-oriented and conservation-themed movies draw people into the park for evening activities. This unit contains marine acreage used for fishing and marine wildlife watching, while divers and snorkelers are particularly drawn to Marine Preserve and Camel Rock. The area is clearly a focal point for local community and island visitors alike. In order to support visitors at this site, a number of facilities are present including parking, restrooms, trails, picnic tables, and trash receptacles. The facilities are maintained to a high

standard to protect the integrity of resources, and provide quality experience that most people expect and are entitled to.

Similarly, the Agat Unit preserves site of U.S. forces southern landing beach in 1944. In addition, the area contains marine acreage with popular dive sites, including Hap's Reef. Fishing from beach and from sea by boat is also a popular activity for island residents. This unit, though smaller, contains a variety of facilities such as restrooms, tables, grills, and trash receptacles. These facilities are found near historic guns displayed alongside the Japanese fortifications at Ga'an Point. With these attractions and facilities in close proximity, multiple uses can be found at this unit, which also includes similar fortifications and facilities at Apaca Point.

Other park units at War in the Pacific NHP (Piti Guns, Fonte Plateau, Mt. Chachao/Mt. Tenjo, and Mt. Alifan) are each considerably smaller than Asan Beach and Agat Units, but they contain wartime artifacts and structures and are attended by interpretive exhibits that draw visitors into drama and horror of what occurred there. The story is one that appeals to all former wartime antagonists, including the Japanese who defended Guam during occupation and subsequent American assault. The Asan Bay Overlook (located on a ridge at the top of Asan Inland Unit), is significant in that it memorializes those who died in conflict while defending Guam during the Japanese invasion, who suffered from atrocities of occupation, and those who died in retaking it from the Japanese. The memorial wall here is composed of engraved panels giving the names of those casualties; it is this wall that was vandalized in 2008 by metal thieves in an unconscionable and incomprehensible disregard of history and culture. This site also, as indicated by its name, provides a panoramic view of the invasion beach along with several interpretive panels that explain the campaign. This memorial is at the core of the mission for War in the Pacific NHP, and as such is the location for numerous ceremonies and functions commemorating sacrifice.

These four smaller units are enjoyed less for recreation and social purposes, and more for education, quiet commemoration, reverie, and appreciation of history, and display and preservation of war artifacts. For the most part, NPS is required to protect visual quality of setting, and maintain a solemn and respectful sound environment in order to meet fundamental park purposes. Present visual quality is suitable to the need, except for times at the Asan Bay Overlook and Asan Beach when emissions from Piti Power Station are particularly high. At most times, the sound environment is suitable except for occasional vehicular noise, infrequent direct overflights and sounds of other visitors. The visual and audible quality of the setting, and the maintained state of its facilities, make the park an enjoyable place to engage in numerous activities that may be observed there.

The sites described here are held in high regard particularly by veterans groups. Organized veterans groups are sensitive to care, maintenance, and sustained quality of these units as a reflection of high value placed on their service during wartime. To allow them to deteriorate, apart from being a breach of law and policy, would be taken as an unacceptable affront to the memory of their comrades and brothers in arms. Less critical, but undeniably significant, is importance placed on national park units and visitor centers to the local economy. The parks represent additional opportunities for tourist activities, which are taken advantage of by local guides. Finally, parks bring a needed focus to local history and culture because both are purposefully celebrated there, and kept in a state whereby they can be appreciated by people who lived the history and their descendants.

Since it is often difficult to sort reasons why people visit national park units into discrete categories, in part because people visit with multiple goals, use figures are mostly reported as recreation. This should be considered a generalization comprising multiple uses such as education, historic appreciation, viewing scenery, exercising, and so forth. Total recreation use visits at War in the Pacific NHP have steadily increased since park's establishment, interrupted only by the effects of super typhoon Pongsona in 2003 when visitor center and administrative facilities were destroyed. The preponderance of use occurs at Asan Point (where the NPS has a traffic counter), and visitation by bus passengers is increasing. The total estimated number of visitors to all units at War in the Pacific NHP, including the visitor center, was about 166,500 in Fiscal Year (FY) 2007, 197,800 in FY 2008, and 271,900 in FY 2009.²⁰

American Memorial Park

Visitation and use of American Memorial Park on Saipan is similar to that of Asan Beach and Asan Overlook combined. An additional feature is co-located Visitor Center, which houses a collection of war artifacts placed in interpretive displays. There is also an amphitheater that is available for community events of all types. A great deal of social interaction by Saipan residents occurs here, including extensive use of tennis courts that are maintained by NPS within park boundary. A great deal of use is also made of open fields located within the park by sports enthusiasts, and marina is extensively used by boaters and fishermen.

Natural Resources

War in the Pacific NHP contains significant natural resources and consists of seven units that were important to World War II liberation of Guam in 1944, including invasion beaches, adjacent offshore lands, and inland areas on west central coast (Figure 1). The two marine units, Agat and Asan Beach, have 1,002 acres of marine resources along 4.0 miles of coastline bounded by fringing reefs almost 100 yards offshore, including intertidal shores, coral reefs, reef flats and seagrass beds. Terrestrial natural resources include upland savanna, mesic forest, and habitat including some plant species protected under the Endangered Species Act. Coral reef organisms in Mariana Islands are diverse, with at least 1019 fish species, several thousand species of marine invertebrates including over 200 coral species, and hundreds of marine plants – algae and seagrasses -- many of which occur nowhere else in the National Park System. The detailed information in this section is supported by a comprehensive research base. Supporting literature used in preparing this section is listed at end of this document.

The major threats to natural resources include land use practices such as hunting-related arson, ORV use, and development, all of which contribute to vegetation loss, creation of “badlands” (areas devoid of vegetation), erosion and runoff of soil. Sedimentation of this upland material then occurs in streambeds, coastal areas and coral reefs. Sedimentation stresses and kills corals and many other marine organisms, and contributes to extremely low levels of juvenile coral recruitment, which is essential for maintaining the ecological structure, function and resiliency of coral reefs. High fishing pressure has resulted in unsustainable overfishing. Fisheries have been exploited to a point from which they may not recover. Other disturbances have resulted in significant reductions in essential fish habitat, exploited resources, and ecological function of reefs in the parks and throughout Guam.

American Memorial Park on Saipan includes a 27-acre wetland that provides critical habitat for migratory and resident waterfowl, including two Federally listed endangered species, Marianas

²⁰ War in the Pacific NHP Monthly Public Use Report.

gallinule (*Gallinula chloropus guami*) and the nightingale reed warbler (*Acrocephalus luscina*). Human activity and development are reducing or eliminating similar wetlands throughout Pacific islands, leaving this only known federally protected insular area possessing viable populations of these species. The park is situated between the CNMI capital Garapan and an unlined, World War II-era dump. Threats from Saipan's rapid population expansion and associated urban development have been well documented. Park managers are concerned for safety of both visitors who often fish or harvest wildlife in potentially contaminated waterways and preservation of reef ecosystems that receive both drainage from Garapan and runoff from Puerto Rico Dump.

Invasive Species

There are over 60 species of terrestrial and aquatic invasive species on Guam, many likely occur in park, and some are dominant. The Brown Tree Snake was apparently introduced by the military, most likely after WWII. The Brown Tree Snake and its effect on Guam's environment need little discussion; it is responsible for: 9 of 13 native birds and 2 of 12 native lizards becoming extinct or extirpated, and extirpation of 2 of 3 native bats. Disturbances to ecosystems, insects and plants from Brown Tree Snakes are unknown, but they are a threat to NPS areas on Saipan, Hawaii, American Samoa and US mainland as more goods and people are transported to and from Guam.

Feral dogs, cats, deer, pigs and cattle also occur on War in the Pacific NHP. In addition to damage caused by animals, hunting of deer and pigs in park occurs illegally. Historical and present disturbances on land have resulted in land plant communities often dominated by alien or invasive vegetation.

Terrestrial Conditions

Land Use Practices

Sediment, nutrients and other pollutants from a variety of land-based activities adversely impact coral reefs, including those in park. These pollutants are transported in surface water runoff, groundwater seepage, and atmospheric fallout into coastal waters as a result of human-induced changes to watersheds. In Guam, and elsewhere on U.S. high islands in Pacific and Caribbean, significant changes to watersheds due to agriculture, feral grazing, fires, and urbanization have altered the character and volume of land-based pollution released onto coral reefs. Sediment runoff from land (and associated nutrients and contaminants) and deposition on coral reefs have significant impacts on coral health by blocking light and inhibiting photosynthesis, directly smothering and abrading coral, and triggering increases in macro algae.

Along coastline of west-central Guam, in vicinity of several units of park, two major impacts to region's coral reef ecosystems include pollution and coastal land use/development. Pollution threats include point-sources, such as: municipal wastewater (Northern District, Hagatna, Naval Station Guam, and Agat-Santa Rita Waste Water Treatment Plants), cooling water (Tanguisson Steam and Cabras Power Plants), and numerous storm water, ballast water, and tank outfalls. Nonpoint sources include septic systems, urban runoff, illegal dumping, and groundwater discharges. Poor land-use practices include development without use of effective soil runoff management measures, increased area of impervious surfaces and decreased area of vegetative cover, and recreational off-road vehicle use. In addition, feral ungulates and illegal wildfires remove vegetative cover and result in increased soil erosion. While point sources have recently been reduced in many areas due to better management practices, nonpoint sources have stayed either constant or increased. Between 1975 and 1999, it is estimated that Guam lost more than a

A-008-181 quarter of its tree cover, and more than 750 wildfires each year have resulted in a greater proportion of badlands and other erosion-prone land surfaces with high erosion rates.

Approximately 450 acres of Asan Bay, in west-central Guam, lies within War in the Pacific NHP Asan Beach Unit; the bay is sink for material coming from Asan sub-watershed. Human modification of watersheds adjacent to Asan Bay, including intentionally set wildfires, construction and agriculture, are believed to have increased over the past 25 years. These land-use practices cause accelerated erosion by removing grasses and small trees that stabilize soil. Modest rains on Guam cause sediment plumes discharged from many rivers to coastal waters, including Asan River. Typhoons pass close enough to Guam every 2-3 years to cause heavy precipitation (greater than one inch/hour), which rapidly flushes unstabilized soil down to coast and onto NHP's nearshore reefs.

This terrestrial sediment discharge to coastal waters has resulted in sedimentation, eutrophication, and pollution affecting park's coral reef ecosystem. Sediment collection rates in tube traps on the fore reef of Asan Bay's fringing reef are very high. The trapped material is predominantly composed of fine-grained terrestrial sediment that typically has nutrients, bacteria, and pesticides adsorbed to particles. Trap collection rates are both spatially and temporally heterogeneous. They show that input of terrestrial sediment to park's nearshore waters is greater during wet season (July-December), which is of serious concern as this is also time of peak coral spawning and larval settlement.

Often large quantities of terrestrial sediment collect in traps on fore reef, covering deployed coral recruitment tiles. The reefs themselves do not remain buried in mud. This indicates that oceanographic processes limit net sedimentation on fore reef. Some quantitative information on deposition, residence time and movement of this fine-grained terrestrial material through the bay's fringing reef system, along with controls on these processes, was recently collected with goal of informing better management of park's marine resources.

Fire

Wildfire is a significant ecological driver in savanna and grassland communities, and it has an important role in formation, maintenance, and function of these ecosystems. Currently, savanna communities comprise approximately 1/3 of Guam's vegetated area. Prior to human arrival, savanna grasslands are believed to have been rare on island, but human caused fire contributed to their expansion. Guam's savannas are a xeric ecosystem characterized by a relatively continuous grass layer intermixed with solitary trees, shrubs and bare patches of exposed clay. Invasive grass species are present in island's savannas, but their distribution and ecological effects are poorly understood. Their potential role in altering island fire regimes could create significant adverse affects on native plant community.

Intentionally set wildfires are a common occurrence during Guam's dry season (January-June). They remove soil-stabilizing vegetation. Between 1990 and 1998 over 3500 fires burned over 25,000 acres of land in Guam's southern watersheds, resulting in erosion that has impacted the terrestrial and aquatic environments as well as human health and standard of living. Illegal wildfires have been identified by Government of Guam, Department of Agriculture, as one of the primary threats to Guam's watersheds. A 34% increase in erosion in Uguam watershed on southern Guam has been attributed to illegally set fires.

A-008-181 Between 1979 and 2000, Guam averaged 730 fires per year that burned 4,800 acres, or approximately 4% of Guam's total land. Fire occurrence was highly variable among years, ranging from a low of 152 ignitions in 1994 to a high of 1,944 fires in 1998. Majority of fires occur in southern Guam, which is less populated and has a higher percentage of volcanic soils suitable for savanna habitat. Presence of savanna vegetation instead of forest may also be contributing to elevated soil loss, as erosion in savanna areas may be 100 times higher than in scrub forest.

Between June 2003 and April 2005 four fires burned approximately 48 acres, almost 2% of Asan sub-watershed. This comprised almost 5% of sub-watershed's savanna lands and nearly 9% of Asan Inland Unit of War in the Pacific NHP. Fires ranged in size from 2-33 acres.

Upland Erosion

On southern Guam, upland erosion, assisted by fire and other forces that remove vegetation cover, is primary threat to both terrestrial and aquatic ecosystems. Erosion removes topsoil layer, exposing inhospitable clays to plant root systems to further erosion. Soil chemistry and permeability are altered by soil loss, thereby affecting which vegetation types, if any, recolonize bare soil. Eroded soils transported into streams alter water quality and negatively affect coastal marine ecosystems, such as coral reefs.

Guam experiences high annual rainfall (greater than 100 inches per year) with 70% occurring between July and December. During this wet season, island often experiences large, intense rain events in form of tropical storms and cyclones. In 2002, Guam experienced two typhoons that had hourly rainfall rates greater than 6 inches.

The physical and chemical properties of Guam's soil make it particularly sensitive to degradation and contribute to rapid runoff and potential for severe erosion. Coupled with steep terrain, these characteristics make soil highly susceptible to erosion. In areas where upper soil horizons have been removed, exposed underlying layers are incapable of supporting vegetation. These badlands, devoid of vegetation, are actively eroding. Erosion was significantly higher in rainy than dry season across all vegetation types. Badlands experienced highest overall erosion rate, which was not significantly different from burned area.

As a result of poor soil infiltration, water deposited in the Asan sub-watershed moves primarily as laminar sheet flow. Some water flows directly into the marine environment as non-point source runoff. Remaining water flows into gullies and streams where it is transported down watershed to ocean. Streams are affected by sediments, which cause adverse changes in water quality and channel morphology. In Asan sub-watershed, one primary stream outlet exists (Asan River), forming sole natural runoff point source.

A recent study in the Mt. Tenjo unit of the NHP showed frequent use by people for hiking, running, picnicking, hunting, mountain biking, motorbiking, and driving off-road vehicles. Of these activities, ORVs are expected to have the largest impacts on vegetation and incidence of erosion. Obvious ORV trails are prevalent and cover many of the hillsides on the Mt. Tenjo unit. High, intense rainfall, warm temperatures, scant vegetation, steep slopes, and poor soils that occur in Mt. Tenjo unit all contribute to making this area very susceptible to erosion, runoff, and sedimentation. ORV use appears to be having a major impact on soils at Mt. Tenjo. Total soil movement was higher in badlands created by ORV trails than in control sites during all 3 months of study. The percentage of total area impacted by ORV use has more than doubled from 1994 to

2005. Although civilians comprised majority of ORV users at Mt. Tenjo, military personnel accounted for approximately 20% of ORV use observed during this study. Observations at Mt. Tenjo are relevant to upland areas elsewhere in park and on Guam.

Knowledge of the complex interaction of fire, vegetation, erosion and sedimentation on coral reefs was, until recently, limited on Guam. With modest funding, resource managers at park have done rigorous studies to improve watershed management and marine resources conservation.

This work included land based monitoring of erosion rates in burned versus non-burned areas and use of erosion flumes to assess possible badland mitigation techniques. Ongoing work is assessing level of sedimentation and its impact on reefs at War in the Pacific NHP. Data collected includes total sediment, percent organic, percent carbonate, sediment grain size, water temperature, light penetration, benthic cover and coral recruitment. In addition, at War in the Pacific NHP, NPS has begun monitoring of water quality, marine benthic and reef fish communities, a marine algae inventory will be completed in 2010, and protocol development for fish harvest monitoring is underway.

Sedimentation

On Guam, sedimentation is the single greatest human-caused impact to coral reefs. Over the last 25 years, increases in population and changes in land use practices have led to significant increases in runoff and sedimentation, and associated declines in coral abundance, cover, and recruitment. Sediments can bury adult and juvenile corals, lower adult survival, reduce calcification rates, impair reproduction, and reduce recruitment rates and juvenile survival. While sediment impacts may not always be lethal, coral reef decline is linked to sediment runoff from adjacent watersheds when sub-lethal effects impair the coral's ability to recover from acute disturbance, such as tropical cyclones, coral bleaching or disease, or crown-of-thorn sea star outbreaks.

Sediment can impact coral reef ecosystems through a variety of mechanisms, both direct and indirect. Sediments can bury coral (sedimentation or siltation), lower light availability by increasing turbidity, introduce particulate organic matter or dissolved nutrients. While all affect coral reef ecosystems, sedimentation effects are believed to have the largest negative impacts relative to the other disturbances.

The park manages 445 acres of coral reef in Asan sub-watershed. The coastal edge of sub-watershed is well developed, containing a small village with a population of approximately 2,000 people. Inland, the watershed is protected by its inclusion within the National Park, but is still impacted by frequent wildland fires, off-road vehicles, and development along its boundary, all of which contribute to increased soil erosion.

Sediment plumes on Asan reef are a frequent sight following even modest rains. Sites with high sediment loads were adjacent to sediment point sources. Asan River drains just west of Asan Cut; an intermittent storm drainage pipe empties into park waters inshore; and Fonte River enters just east of Adelup Point. Sediment collection rates declined significantly with distance downstream from a sediment point source. Sediment collection rates varied significantly with time. Guam has pronounced wet (July-December) and dry (January-June) seasons, and average daily rainfall during 2004 dry season was approximately one third of that during 2003 and 2004 wet seasons. Sediment collection rates during 2004 dry season were approximately half those observed during 2003 and 2004 wet season. In general, sediments collected from near Asan Cut had a significantly higher percentage of terrestrial material than sites away from the cut. During wet season, sites around Asan Cut showed a higher percent of terrestrial material compared to

A-008-181 sites away from cut, where little difference was observed. The fore reef slope at the base of Asan sub-watershed (excluding sites to east and west of watershed boundary), is impacted by approximately 25,200 tons/year of terrestrial sediment.

Related to sedimentation onto reef noted above, range of soil loss in Asan sub-watershed has been estimated from 2,500-12,000 tons/year (latter from soil loss calculated in Fena watershed). While estimates of range of soil loss and sedimentation are of the same order of magnitude, it is likely that soil lost from other watersheds is also transported to Asan by ocean currents, thereby contributing to sedimentation on fore reef slope. Within Asan sub-watershed, it is estimated that over 88.6% of soil was lost off savanna complex (including badlands). Model results using above data show that distance and direction from nearest point source is the best single predictor of sediment collection rates on Asan fore reef slope, and suggests that non-point source runoff does not contribute significantly to sedimentation on Asan reef. This is supported by visual observations of sediment plumes originating from Asan River.

During dry season, rain events are small, usually less than 2.5cm, and total rainfall is low. This lack of rainfall quantity and intensity may not flush sediments entirely through the watershed. Instead sediments are probably transported into gullies and slow flowing streams where they collect in dry season. With onset of wet season, quantity of rainfall and intensity of events are sufficient to flush these accumulated sediments onto fore reef slope. Timing of this flushing event is problematic to coral reefs on Guam. Principal coral spawning season corresponds with the full moon from June-August, when sedimentation is elevated. Processes affecting coral early life history stages (e.g., larval survival and settlement) are adversely impacted at significantly lower sedimentation levels than those affecting adult corals. This raises concerns that although some adult corals are surviving on nearby reefs at Asan and elsewhere, they are not being adequately replaced by new coral juveniles.

Human-caused sediment loads impact successful coral reproduction and/or recruitment to the reef, presenting a significant threat to long-term health and survival of coral reefs at Asan and elsewhere on Guam. Coral recruitment rates on Asan fore reef slope are very low, as is the case throughout the park and Guam overall, and are among the lowest coral recruitment rates reported worldwide, with no apparent correlation to sedimentation rates. Reasons for lack of correlation between coral recruitment and sedimentation are unclear, but are likely related to nearshore hydrodynamics.

Upland erosion and consequent sedimentation rates on nearshore reefs in past several thousand years could have been as low as 20% of the current estimate. If Guam corals evolved under these environmental conditions, it would follow that Guam's marine species are poorly adapted to high erosion and sedimentation rates.

Both length of exposure and magnitude of sedimentation event contribute to degree of degradation of coral reefs. Chronic, small events can be as harmful to coral survival as large periodic events. Based on a variety of studies, it can be concluded that sediment collection rates over 0.01 g/cm²/day are sufficient to cause negative impacts on corals. Research predicts severe to catastrophic impacts to coral reefs at chronic sedimentation rates greater than 0.05 g/cm²/day. Sedimentation rates greater than 0.1 g/cm² have been shown to kill exposed coral tissue with a few days.

The sedimentation rates measured in War in the Pacific NHP are among the highest reported in literature and exceed reported lethal levels. Numerous studies conducted on Great Barrier Reef using comparable methods found sediment collection rates 1-3 orders of magnitude less than peak rates observed on Asan fore reef. Rates reported from Caribbean tend to be even lower. Extremely elevated rates of sediment collection raises serious concerns about long-term health and survival of Guam's reefs.

Given the extremely high rate of sediment collection, it may at first seem surprising that reefs of Asan are not permanently buried in mud. Presence of living corals suggests that much of the sediment is removed from the system by periodic storm-driven water motion or prevailing oceanographic conditions. Indeed, water circulation in Asan Bay is primarily to the west and offshore due to seafloor topography in Asan Cut and trade winds from east to west. Strong offshore surface flow also occurs during strong wind and/or large wave conditions (e.g. typhoon), either of which would transport suspended sediments offshore. Sediments from adjacent coastal areas can also be transported in along-shore currents and, under some ocean conditions, may be transported to coral reefs at War in the Pacific NHP.

Although typhoons are an extreme type of water movement, they are frequent events on Guam, and play a significant role in transport and (re-)suspension of accumulated sediments. While presence of seasonally high wave energy and periodic large storms may be sufficient to flush sediments from, or deposit them onto, the Asan reef, high turbidity from suspended fine sediments is common on Asan fore reef and can significantly impact coral survival, reproduction and recruitment. Adult corals there often show signs of stress; low coral recruitment along Asan fore reef may be linked to sediment accumulation on the bottom or reduced light availability resulting from suspended sediments under a variety of ocean conditions.

Sediment collection rates have been correlated with distance downstream from nearest point source. Point source, as opposed to non-point source runoff, appears to be the main vector for sediment transport from Asan sub-watershed onto adjacent reef. While no significant difference in sediment collection rate was found between 10- and 20-meter collectors, plume effects were more evident in shallow water, indicating influxed sediments were moving parallel to reef crest and not being transported immediately offshore. After some rain events, sediment plumes 2-3 meters deep were observed on ocean surface and moving parallel to reef crest. Similar plumes have been documented at Fouha Bay on southern Guam.

Sediment composition also plays a significant role in amount of damage to coral tissues. Coral damage increases with increasing organic content and with decreasing grain size of sediment. While little variation was observed in organic content, percentage of fine materials in sediments collected at Asan significantly increased with depth and by season. Ocean conditions in Asan are at their calmest in rainy seasons, when sediment inputs are elevated and a greater proportion of terrestrial-derived clays are washed into nearshore waters. This accounts for the increase in percentage of fines in collected sediment.

So called healthy coral reefs have been observed in nearshore areas where sediment inputs are common, suggesting that these reefs may be adapted to intense sediment regimes; however, coral health is often unknown. While some coral may be able to adapt to chronic, elevated sediment conditions that might allow them to survive in areas receiving consistent but elevated sediment inputs (e.g., river mouths), in Asan, corals surviving at sites receiving highest sediment loads tend to be those with massive or mound shaped growth forms. This relatively robust massive

growth form generally displays a higher tolerance to elevated sedimentation rates compared to smaller, more fragile forms. However, the true health of these corals is uncertain, and sedimentation effects can be sub-lethal, inducing physiological stresses, or impairing successful reproduction and recruitment, which minimize chances that corals are rejuvenated and that living reefs remain in the near future.

Marine Conditions

Marine resources at War in the Pacific NHP and many other areas throughout Guam are severely degraded or imperiled in comparison to their past condition, and compared to other reefs on Guam and other volcanic high islands elsewhere in the western Pacific. NPS is especially concerned about these resources because they are otherwise unrepresented in the U.S. National Park System.

Health of Guam's coral reefs varies considerably around the island, depending on a variety of factors including geology, human population density, level of coastal development, level and types of uses of marine resources, oceanic circulation patterns, coral predator outbreaks and natural disasters such as typhoons and earthquakes. Similar to decline in health of reefs across Indo-Pacific, the vitality of many of Guam's reefs has declined over the past 40 years. Average live coral cover on fore reef slopes was approximately 50% in the 1960s, but by the 1990s had dwindled to less than 25% live coral cover, with only a few sites having over 50% live cover.

Coral Reefs

A recent study determined that coral recruitment rates across Asan Bay are very low, with an average of approximately three coral recruits per 11 square feet. Low recruitment may have been result of oceanographic factors, including low larval supply to bay, poor water quality conditions within bay and/or poor benthic conditions that interfered with successful larval settlement. Studies show a trend of declining coral recruitment on Guam's leeward reefs. In studies conducted prior to 1981, a two-order of magnitude higher recruitment rate was observed compared to 1989 studies using nearly identical methodologies. The results for Asan Bay are consistent with these later studies, further indicating that this declining trend is not the result of annual variation but a real decline in successful juvenile coral recruitment on Guam's reefs. Coral recruitment rate in Asan and elsewhere on Guam is among the lowest reported worldwide; this raises serious concerns regarding sustained presence of coral reefs in the near future.

While high quality coral reef habitat exists in War in the Pacific NHP, some areas are dominated by algal growth. Fish population diversity and abundance in War in the Pacific NHP have been reduced relative to adjacent Piti Bay and other marine protected areas in territory and beyond. There is a noticeable lack of large predators such as jacks and sharks. Fishery catch has shown a consistent steady decline over the past 20-25 years. Fish are fewer and smaller, all classic signs of overfishing. Recent studies have shown that fish biomass in Guam is among the lowest reported worldwide. Prior to military presence on Guam, fishery resources were probably lightly exploited. As has been shown in coral reefs worldwide, declining fish populations have significant ecological impacts on coral reefs.

Fisheries

Guam's coral reef fisheries are both economically and culturally important and target a large number of reef fishes and invertebrates. Despite improvement in gear and technology, Guam's fishery catches have declined over last few decades. A recent analysis of small-scale fishery catches for Guam suggests that catches have declined by up to 86% since 1950.

While there is no clear consensus on cause of this decline, fisheries impacts certainly contribute. This is supported by offshore catch experiments conducted by Guam Division of Aquatic and Wildlife Resources (DAWR) at three offshore banks that experience different levels of fishing pressure. Data indicate that number of high-level predators decrease with fishing pressure while number of small groupers increase. Data also indicate a shift in fish size frequency distribution with increased fishing pressure. Additionally, data from creel surveys performed by DAWR suggest that Guam's fisheries have not recovered from a sharp decline in the 1980s. For a number of methods, including hook and line and cast net, harvest has continued to decline despite increasing effort. While catch per unit effort (CPUE) for spear fishing has remained relatively stable, the species composition of the catch has changed over time. *In situ* visual surveys have also indicated that large reef fish are conspicuously absent from many reefs. Two fishing methods used on Guam have raised particular concern: use of SCUBA and artificial light for spear fishing and use of monofilament gill nets. These methods have been banned or heavily restricted in most of the region, including Commonwealth of the Northern Mariana Islands and American Samoa. In Guam, local fisheries biologists state that these methods may have led to a boom and bust harvest of large Napoleon wrasse, depletion of large groupers, a shift from preferred species (large slow-growing fish) to smaller faster growing species and a decrease in the number of other large wrasse, parrotfish, snapper and grouper caught by other methods. Abandoned gill nets also cause physical damage to the reef and DAWR regularly removes nets from nearshore reefs.

To combat fishery declines, government of Guam created a system of five marine preserves designed to increase fish stocks by establishing areas where limited or no harvest of marine species is permitted. Initial surveys indicate that fish stocks in preserves have increased and appear to be working as designed. Unfortunately, large fish in preserve areas are targets for fishermen who disregard marine preserve designation. Guam DAWR law enforcement officers have made more than 140 arrests related to illegal fishing within preserves since they began enforcing regulations in January 2001. Arrests are highest in Tumon Bay and Piti Bomb Holes Marine Preserves, but infractions have been documented in all five of the preserves.

A recent study of fishing at War in the Pacific NHP concluded that the park is subject to considerable fishing pressure from recreational and subsistence fishers. This is evidenced by lower biomass of nine out of ten common reef fishes in exploited areas of Asan Bay, compared to adjacent protected areas of Piti Bomb Holes Marine Preserve. Most of fishing effort was directed at reef fishing using rod and reel or Hawaiian sling, but SCUBA spear fishing commonly occurs. Octopus is also harvested, using crowbars to pry them from the reef causing direct damage to corals, other organisms and benthic habitat. Heavy fishing pressure is also resulting in degradation of the reef through discarded gear and trampling of corals, but further research is needed to determine secondary, physical impacts of fishing on reef ecosystem. Fishing is also well documented to have other serious deleterious impacts on coral reef structure and function.

Sensitive Species

Sea turtles using beaches in the park's Agat Unit have nested successfully elsewhere on Guam. Recently hatched juvenile sea turtles use natural light cues to move from nesting beaches into the ocean. It is well documented that artificial lighting in coastal areas causes juvenile sea turtles to become disoriented, resulting in significant declines in their survival. Non-natural lighting on Orote Peninsula, which forms the southern part of Apra harbor, impinges on the adjacent Agat

A-008-181 | coast. Impact of this artificial light may reduce potential for this park unit to serve as a viable sea turtle nesting site.

Marine mammals including spinner dolphins occur along the coast of Guam, and are center of one of the most economically valuable tourism industries.

Recreation/Tourism

Overuse and misuse of certain high-profile reef areas for recreational activities continues to be a concern. Of particular concern is the extraordinary number of divers, snorkelers, swimmers, and SeaWalker and SCUBA customers that continue to use relatively small areas in Piti Bomb Holes Marine Preserve and Hap's Reef. Number of divers in the Piti Bomb Holes Marine Preserve increased considerably after access to other popular dive sites in Apra Harbor was restricted. An estimated 50-200 dives occur daily within a popular 0.6 acre "bomb hole" (i.e., solution hole) in Piti Bomb Holes Marine Preserve. Even a conservative estimate based on these observations suggests that the number of dives that occur at this small site each year (greater than 18,000) vastly exceeds the 4,000-6,000 divers per year threshold value above which coral cover loss and coral colony damage levels may increase rapidly. A study of this impact is in progress in order to assist with marine resources management.

Guam's coral reefs and other tourism attractions generate significant economic benefits in the form of sales and jobs in local economy. Benefits generated by these transactions further reverberate through the economy in a domino effect of spending by supporting businesses and households. Additionally, visitors to these attractions gain economic benefits from their use and appreciation of resources such as coral reefs. These direct use values are associated with direct, on-site use of resources by people. Benefits derived from diving, snorkeling, and swimming are examples of direct use values. Finally, public obtains economic benefits from knowledge that resources exist, or will be preserved, in a given condition. These passive use values are particularly relevant to management of National Park System resources and uses given the mandates of NPS Organic Act and Redwood Act (see Authorities). Those mandates establish fundamental purposes of National Park System as conserving park resources and values, and providing for their enjoyment by the public. Conservation of park resources and values directly relates to passive use values through motives of existence and bequest. Passive use values also relate to public enjoyment of park resources and values since the public includes both people who directly experience parks on-site and those who enjoy them from afar.

Cultural and Historic Resources

NPS responsibilities for cultural and historic resources within the area affected by military buildup include National Historic Landmarks, cultural and historic resources of parks, and NPS historic preservation programs for Micronesia.

National Historic Landmarks

National Historic Landmark (NHL) status is the highest recognition given to historic properties in United States. NPS monitors the status of NHLs, provides assistance to NHL owners, and represents Secretary of the Interior when a federal undertaking might adversely affect a NHL. There are two NHLs within CNMI that may be affected by military buildup; both commemorate events surrounding World War II (WWII) in the Pacific.

North Field Historic District NHL (formally known as Landing Beaches, Ushi Point Field, and North Field, Tinian Island National Historic Landmark) is significant for its association with the

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most important event in history of WWII. It served as the airfield from which B-29 bombers were deployed to raid Japan during WWII—most notably, to drop atomic bombs on Hiroshima and Nagasaki, the first and only time this occurred in history, thus bringing about an end to the war. Today NHL, though overgrown in many places with vegetation, retains its historic character as a large, WWII era airfield. Built on a plateau on northern tip of Tinian, the airfield conveys its significance through relatively unchanged physical setting—a landscape of historic runways, bomb pits, taxiways, and other historic structures and features, set in an undeveloped and remote location.

Other NHL is Saipan International Airport and Beaches NHL (formally known as Saipan Landing Beaches, Aslito/Isley Field, and Marpi Point, Saipan Island National Historic Landmark). Located on Saipan, NHL for Saipan Island consists of three separate geographical areas that are closely united in terms of their WWII history and reflect events surrounding the campaign by U.S. forces to capture the Mariana Islands. These include battle to take the island, development of airfield to deploy B-29s, and the tragic history of thousands of unknown Japanese civilians, military, and others who committed suicide as the campaign ended. Today, though spread out at separate locations across the island and bordered in some areas by urban development, the landmark retains its historic integrity and conveys significance of the events for which it was established.

NHLs on Tinian and Saipan, while relatively intact, have old and outdated documentation, and need to have their NHL nominations updated to include better descriptions and justifications for their boundaries, as well as descriptions of contributing and non-contributing resources. If appropriate, revised nominations could also incorporate newer scholarship on World War II, specifically as it relates to themes for which NHLs were designated. Without this information, it is increasingly difficult for local historic preservation offices and NPS to assess the effect that proposed undertakings will have on NHLs. In addition, historic preservation offices currently are not fully staffed with qualified historic preservation professionals and thus cannot adequately address all of current issues associated with monitoring NHLs and other historic properties within CNMI and Guam.

War in the Pacific NHP

Located on Guam, War in the Pacific NHP is the only site in the National Park System (comprised of nearly 400 parks) that honors bravery and sacrifices of all those who participated in Pacific Theater of World War II. This includes United States, Japan, and Allied nations: Australia, Canada, China, France, Great Britain, New Zealand, Netherlands, and Soviet Union. At the park, visitors have the opportunity to learn about events that led to outbreak of the Pacific War, Battle of Guam and role that the Mariana Islands played in helping to end World War II (1941-1945).

Focus at War in the Pacific NHP is the recapture of Guam, an event that serves as an example of island defense and invasion that characterized WWII operations in the Pacific Theater. The park comprises invasion beaches used in recapture of Guam and hills that overlook them. Assault on Guam by U.S. forces in July 1944 was part of the crucial Marianas campaign against Japan's inner defense perimeter. Here the park preserves and interprets former battlefields, gun emplacements, trenches, and historic structures; these tangible and intangible remains all serve as reminders of bloody battles that ensued on the Island of Guam, over 65 years ago.

Because it is a national historical park, War in the Pacific NHP is listed in National Register of Historic Places. For this reason, its cultural resources, some of which were formally listed in National Register prior to park's creation, are located throughout the park's seven units. These units and their historic properties not only illustrate the battle to liberate Guam, starting in July 1944, but also more broadly war in the Pacific Theater. See Figure 1 for a map representation of these units.

- ❖ Asan Beach Unit is the site of northern landing beach, where 3rd Marine Division came ashore in the initial assault.
- ❖ Asan Inland Unit, lying directly opposite Asan Beach Unit, is where American landing forces met with heavy resistance on the area's cliffs and hillsides. Included in this unit is Asan Bay Overlook, featuring a view of the historic landscape of the battle scene below, and the memorial wall honoring both American service members who died liberating the island and Chomorros who died or suffered atrocities during battle for Guam.
- ❖ Piti Guns Unit, located on a ridge behind Piti village, contains three Japanese coastal defense guns.
- ❖ Mt. Chachao/Mt. Tenjo Unit preserves the area from which Japanese defenders had an expansive view of United States troops landing at Asan Beach and of Apra Harbor and Orote Point.
- ❖ Agat Unit is the site of southern landing beach where American forces, including First Provisional Marine Brigade and 305th Regimental Combat Team of 77th Army Infantry Division, came ashore and engaged Japanese 1st Battalion, 38th Infantry. Here the historic scene, composed of beach and offshore area, remains largely unchanged from 1944, complete with several pieces of American military equipment submerged near the edge of the reef.
- ❖ Mt. Alifan Unit is the site of a Japanese command post, where intense battles between U.S. Marines and defending Japanese forces ensued.
- ❖ Fonte Plateau Unit is the site of a former Japanese naval communications center.

Like NHLs on Tinian and Saipan, units of War in the Pacific NHP need better baseline inventory and documentation of their historic resources to ensure their preservation, management, and interpretation and to meet the administrative obligations of the NPS. Without this information, park managers are limited in their ability to address issues associated with resource use, primarily from visitation, and damage, largely through vandalism.

Properties Listed in the National Register of Historic Places (NRHP)

The following properties within National Park System are listed in NRHP and are subject to potential impacts of the proposed action.

- War in the Pacific National Historical Park (1978)
- Agat Invasion Beach (1975)
- Asan Invasion Beach (1979)
- Asan Ridge Battle Area (1975)
- Matgue River Valley Battlefield (1975)
- Memorial Beach Park (1974)
- Piti Coastal Defense Guns (1975)

American Memorial Park

American Memorial Park on Saipan honors American and Marianas people who gave their lives during the Marianas Campaign of World War II. Over 5,000 names are inscribed on a memorial, which was dedicated June 15, 1994, during the 50th anniversary of Invasion of Saipan. The Memorial rests at the park's Court of Honor and Flag Circle, where U.S. flag proudly flies 24

A-008-181 hours a day, surrounded by flags of U.S. Army, Marine Corps, Navy, and Coast Guard. As a "living memorial", park offers activities, such as baseball, bicycling, running, tennis, picnicking, and swimming, enjoyed over half a century ago by American service men and women. Within the 133-acre boundary are beaches, sports fields, picnic sites, boat marinas, playgrounds, walkways, and a 30-acre wetland and mangrove forest. No properties within American Memorial Park are listed in National Register.

Park Operations

Current level of staffing at the two parks, which are jointly managed, is inadequate to meet existing needs, particularly in the area of law enforcement and protection. Needs are dictated primarily by use of park areas, both legal and extralegal. In the past three years at War in the Pacific NHP, bronze name plaques at the most important commemorative site were stolen for scrap metal; there have been three suspicious fires; vegetation monitoring plots were destroyed twice; and maintenance yard and resource laboratory have been broken into five times, with equipment stolen and repeated major damage done to the lab building and park fuel tank. There has also been a significant rise in vehicle break-ins, gasoline theft from park vehicles and storage tanks, vandalism to park facilities, off-road vehicle use, and general resource damage. There are ongoing cases of illegal, or at least contentious, use and occupancy of lands for residential purposes within legal boundaries of the park units. Recognizing ongoing law enforcement issues, NPS has requested funding to establish a law enforcement program on Guam.

A large staff is required for maintenance and repair of facilities, historic structures, restrooms, picnic areas and historic landscapes as well as solid waste collection and removal. Resource management division is responsible for preservation, inventory and monitoring of terrestrial and submerged natural and cultural/historical resources. They are charged with implementing the myriad policies that apply to those resources. Resource education division provides programs for visitors, school groups, veterans groups, military groups, and others when requested, both in parks and offsite in other venues. Staffs at both parks are supported by a small group of administrative personnel.

Impacts of the Proposed Actions

This section describes potential changes in conditions as impacts associated with proposed actions are imposed upon current conditions in parks and NHLs. Topics are organized similarly to those under Current Conditions: Visitor Use and Enjoyment, Natural Resources, Historic and Cultural Resources, and Park Operations. Within each topic, possible mitigation measures are presented for inclusion in FEIS; however, these should be considered a starting point for discussions, not a comprehensive and final list.

A-008-182 **Visitor Use and Enjoyment**

Primary concern for impacts on visitor use and enjoyment (and on resources) is population increase on Guam associated with proposed actions and activities connected with it. Further, there are potential synergistic and cumulative impacts of this increase combined with increases in tourism that are highly sought by economic interests on Guam. It is certain that, according to the DRAFT EIS/OEIS, population will increase by 45% during peak construction period. Beyond that, population growth is less certain and speculative regarding how many of the construction work force (and their families) will remain on Guam or in CNMI. In line with the "worst case" bias used by DoD in the DRAFT EIS/OEIS, NPS could assume that impacts on the park units on Guam, indexed to population, would increase to at least the same degree. That is,

- A-008-182** | park use and visitation could increase through this period of time by 45% or more. This would have an immediate and significant impact on park resources, values, facilities, and other users.
- A-008-183** | War in the Pacific NHP
 If the FEIS and subsequent record of decision ignores connected actions (housing, food, sanitation, transportation, water, wastewater, social controls, etc.) associated with the construction work force through time, NPS would have to assume a maximal impact on War in the Pacific NHP.²¹ If the construction work force is housed off the base, with no effective controls or provisions, NPS would expect a high degree of illegal use and occupancy on park grounds²² as well as increased amounts of legitimate usage. Resulting conflict would inhibit NPS from meeting its mandates and mission. NPS is concerned that large worker populations, unmanaged or unregulated, would be unaware of the importance and appropriate use of national park lands and resources. This would affect not only resources themselves, but also conflict with those who currently enjoy parks for a variety of purposes.
- A-008-184** | Asan and Agat units are accessible from major roads that are presently congested at times and peak use hours. The proposed action, or activities connected to it, will exacerbate this congestion and impede safe access to and from these sites. In addition, access to the visitor center will be significantly impacted as the “Navy main gate intersection operations” degrade to Level of Service (LOS) F in 2014.
- A-008-185** | Other park units at War in the Pacific NHP would be less at risk. However, since they contain wartime artifacts and structures, and are somewhat remote, the potential for vandalism, theft, and illegal occupancy becomes greater. Metal thieves in an incomprehensible disregard of military history and culture vandalized Asan Bay Overlook in 2008. This kind of impact would be expected to increase in number and frequency at all of the isolated units.
- Desired experience for visitors at these units is less for recreation and social purposes, and more for education and appreciation of history, and viewing war structures or artifacts. NPS is required to protect visual quality of the setting, and maintain a solemn and respectful sound environment in order to meet fundamental park purposes. It would be expected, with increased use and occupancy issues and the potential for vandalism, that this desired condition would likely not be maintained. The visual and audible quality of the setting would likely deteriorate significantly, and facilities would be more expensive to rehabilitate and maintain or, alternately, their quality would also decline.
- A-008-186** | Without specificity in the EIS regarding military use of Guam’s airspace, it can also be expected that desired solemnity and quiet at memorial sites would decline. Passing aircraft, especially

²¹ An analogous issue to illustrate the concept, not listed here, is that of medical support and health care. A large workforce engaged in heavy construction activities will create a large need for medical attention. If that need falls on the non-DoD medical infrastructure, it will be an enormous impact on the infrastructure and those who currently depend on it.

²² See Volume 2, page 16-54, which indicates that contractors will be responsible for employee housing, and that it is unlikely there will be sufficient housing for all employees. This is cause for concern in that some workers, perhaps many, will be left to their own devices for housing and food services, etc.

- A-008-186** | helicopters, would be an unwarranted intrusion in areas where memorial events are often held, and where visitors expect to have a respectful and quiet setting.
- A-008-187** | Since sites described here are held in high regard by veterans groups and local citizens and families whose names are inscribed on memorials, impacts as described would also represent a significant effect on these people due to decreased regard for honoring their suffering and war dead. To allow memorial facilities to deteriorate, or to be unable to maintain them effectively, would clearly be a breach of law and policy. More egregiously, it would represent an unacceptable affront to the memory of those lost in battle, and those who suffered under Japanese occupation.
- A-008-188** | Given the importance placed on national park units and visitor centers to local economy, evident in number of visits and those increasingly visiting by busload, probable impacts on resource and facility conditions, and thus visitor enjoyment, would have significant economic ramifications as well.
- A-008-189** | American Memorial Park
American Memorial Park on Saipan is not likely to be significantly affected by the proposed action, unless large portions of workforce on Guam visit or migrate to Saipan subsequent to their employment. In this event, many of the impacts described above for Asan Beach, Asan Inland Unit and Asan Bay Overlook could be experienced here.
- A-008-190** | Mitigation
DRAFT EIS/OEIS states as mitigation for overcrowding at recreational facilities on DoD installations, that new ones will be constructed on Guam (no specific locations), on military installations and/or at the temporary worker housing sites by contractors. It also states that mitigation for overcrowding at DoD facilities and sites in Apra Harbor when the CVN is in port will be to transport personnel to other recreational facilities in Tumon. It does not however analyze impact of this “mitigation” on the other facilities. In fact, throughout volumes, mitigation for overcrowding at recreational facilities is vague, ambiguous and possibly contradictory. It is impossible to construct new facilities that duplicate experiences of standing at the historic landing beaches, diving submerged WWII artifacts, or visiting ancient cultural sites. DoD should commit to tangible, operational support of national and territorial parks and museums as places for temporary and permanent residents to enjoy islands’ resources and take advantage of learning opportunities.
- Some of the potential impacts listed could be avoided or minimized during peak construction phases by educating, regulating and managing workforce. Alternatively, housing workforce on DoD installations, and providing suitable access to food services, water, power, sanitation facilities and regulated transportation would relieve pressure on NPS and island infrastructure. Providing on-base access to indoor and outdoor recreation facilities, beach areas, etc. would help relieve some concerns about what large number of workers would do in their off time. Orderly and compliant visitation to national park units by workforce is welcome, of course. NPS would appreciate opportunity to work with Navy and contractors to develop outreach and education programs targeted to cultural makeup of the workforce.
- Permanent increase in military population will likely increase backcountry ORV use, diving, and group use of Asan and Agat Beach, their resources and facilities. Recommended mitigation in

A-008-190 | this case is similar to that noted above. NPS would appreciate the opportunity to work with Navy, Marine, and Army recreation and other appropriate offices to develop joint outreach programs aimed at preventing inappropriate uses of parks, and avoiding overuse. Programs would focus on education, appropriate recreation and access, military history and awareness, and scheduled/approved group uses.

DoD should commit to clean up of unexploded ordnance dumped near Camel Rock and Asan Beach after liberation of Guam during World War II. This poses a significant safety risk to visitors, park staff and visiting researchers as they dive, snorkels, fish, swim, and enjoy the area. Promotion of heritage tourism on Guam and the CNMI, including rich military history, should be mitigation for impacts on recreational resources. Once again, NPS would be pleased to assist DoD in developing this with the territories.

A-008-191 | **Natural Resources**

Earlier discussion on the current condition of park natural resources illustrates downward trends in resource conditions due to a variety of ongoing impacts, terrestrial and otherwise. Downward trends can be reasonably attributed to terrestrial impacts adjacent to the park, and to unregulated use of marine environment for tourism, recreation and fishing. Adding further impacts by military and related commercial activities, and by increasing use as a function of population growth, it is likely that resources will be further impacted.

Effects of increased population size and development associated with military build-up would have direct, indirect and synergistic or cumulative negative impacts on status and trends of natural resources under NPS stewardship. Increased tourism on land and in ocean, extractive activities such as hunting and fishing, and increased sedimentation and pollution as a result of military build-up are inherently and widely understood, and there is a long and unfortunate history of similar impacts on Guam, Hawaiian Islands, Johnson Atoll and many other insular areas associated with military activity.

A-008-192 | **Invasive Species**

As noted above, impacts of invasive species can be far-reaching and devastating on biodiversity and ecosystem health. Any increase in military traffic in and out of Guam increases possibility of the introduction into the island of potentially invasive species. Therefore, impacts from possible introduction of invasive species, such as the coconut rhinoceros beetle that threatens cultural, gastronomic and economic health of Micronesian islands, must be considered significant.

There is an accompanying increased risk of dispersal of potentially invasive species from the island, including the brown tree snake. Military should be commended for efforts they have made to control brown snakes on Guam. Aggressive inspections and prevention programs to prevent brown tree snakes from leaving the island have been put in place. Despite these efforts, a small number of snakes have been located during inspections in Hawaii and on the west coast. These incidents highlight that increased activities in Guam will likely result in increased risk of brown tree snakes being transported off the island. Proposed increase in military activities should be accompanied by an increase in resources to prevent invasive species from getting to and leaving the island.

DRAFT EIS/OEIS asserts that these impacts will be mitigated by Micronesian Biosecurity Plan currently being developed; however, no assurances are given that DoD will assist local agencies on Guam in implementing the plan. The fact that this issue needs to be addressed across the

A-008-192 Pacific region as vast quantities of people and goods are transported to and from numerous nations is not even analyzed is a serious oversight in DRAFT EIS/OEIS. NPS is concerned that new invasive species on Guam and CNMI could have significant impacts on natural and cultural resources of the park and that invasive species from Guam and elsewhere could be transported to Hawaii, American Samoa, Alaska and US mainland. This could have potential to significantly affect parks throughout the Pacific basin.

A-008-193 Terrestrial Impacts

Connectivity between land uses and terrestrial impacts causing sedimentation and impacts on marine environments is amply demonstrated in the earlier affected environment discussion. ORV use appears to be having a major impact on soils in the Mt. Tenjo Unit of War in the Pacific NHP. Although civilians comprised the majority of ORV users at Mt. Tenjo, military personnel accounted for approximately 20% of ORV use observed during recent study. Based on recent trends and upcoming military buildup, the area impacted by ORVs is expected to continue to increase substantially throughout the park in the future.

Increased numbers of military and civilian personnel (and their dependents) living on Guam that engage in motorized or wheeled vehicle recreation activities in Guam's backcountry will exacerbate the impact. Present military population has been shown to pursue such recreation. Current levels of impact have been shown to be significant and ultimately damaging to marine and terrestrial resources in the park and beyond. Table 2.1-2 in DRAFT EIS/OEIS indicates that the total "steady state" population increase coming from off-island (direct, indirect and induced) is estimated at 33,608. Additional transient populations of up to 7,200 naval personnel will frequently visit and recreate on Guam. It is reasonable to assume that, even if only a small percentage of these people choose to recreate in this fashion, it would still represent a significant number of users contributing to natural resource degradation in several units of the park. Given that soil erosion and associated nearshore sedimentation are the primary threat to the park's and Guam's terrestrial and marine ecosystems, the only way to successfully reduce nearshore sedimentation that impacts marine resources is to arrive at a long-term solution to upland erosion. This erosion will be exacerbated by secondary impacts of new, particularly civilian, development associated with buildup.

In addition, Guam is attempting to attract new tourism markets and is actively permitting and constructing new shoreside hotels for that purpose. Both Agana and Tumon Bays are largely devoid of previously high quality reef environments because of previous development.

A-008-194 Marine Impacts

Coral Reefs

Given present reef conditions at War in the Pacific NHP, it is expected that cumulative impact of an increased island population and military build-up actions will affect coral reefs and other natural resources in the park. There is a high probability of large negative impacts of CVN action, associated military build-up population and development increases on Guam. Existing marine resource conditions are degraded or imperiled in many respects, and loss of coral reef and diving sites in Apra Harbor due to CVN action will make coral reefs in War in the Pacific NHP increasingly important, both for resource protection and visitor use. Increased pressure on, and degradation of, many of the park's already tenuous marine resources is unsustainable, and may result in failure of marine resources recovery and restoration through natural processes or human interventions. Unlike some terrestrial environments, coastal and marine ecosystems are open and interconnected and the coast on Guam is certainly no exception. Spillover effects from Piti Bomb

A-008-194 Holes Marine Preserve to adjacent unprotected reef at Asan are well documented. Currents link numerous reefs and ocean processes, and can transport sediment or contaminants from dredging and other activities in Apra Harbor into coastal and ocean habitats under NPS stewardship. DoD dismissal of potential impacts is not consistent with current scientific information, as shown.

Given the close proximity of Apra Harbor (3/4 mile) to Piti Bomb Holes Marine Preserve, and Asan Beach and Agat Units in War in the Pacific NHP; that predominant current flow in Apra Harbor is to the west; and that plumes of fine grained sediments from dredging can occur kilometers from the dredge site,²³ it is probable that sediments suspended from large dredging activities such as the proposed action for the Carrier Vessel Nuclear (CVN) can be transported from the harbor mouth, where alongshore currents can transport sediments to adjacent reefs. Studies found that a dominant northwestward-flowing North Equatorial Current prevailed from June to December 2000, and that small eddies at scales of local topographic features such as headlands (e.g., Cabras Island and Glass Breakwater, Orote Peninsula) and embayments (e.g., Apra Harbor) were apparent. Further, internal tidal bores transport particulate and dissolved materials onshore at Asan. While the quantity of transported sediment that could originate from dredging in Apra Harbor is not clear, any additional sedimentation on reefs at War in the Pacific NHP would add to the cumulative negative impacts that these reefs are currently experiencing. Moreover, any contaminants associated with dredged sediments could have further negative impacts on coral reefs and associated organisms.

Proposed dredging of a large, thriving coral reef in Apra Harbor is the largest such effort known in the history of the U.S. Clean Water Act, if not globally, and the first project under new CWA mitigation rules. Therefore, this action is precedent setting and should be identified as such in the EIS.²⁴ As a consequence, DoD has the requirement and opportunity to perform this action in ways that will provide a positive example for similar actions elsewhere. If done incorrectly or inadequately, similar future actions elsewhere could be done poorly and cause widespread deleterious impacts to already imperiled coral reef ecosystems worldwide. Throughout military build-up DRAFT EIS/OEIS artificial reefs are supported by the proponent as adequate mitigation for loss of coral reef due to dredging in Apra Harbor. Other types of mitigation are not being considered. The large body of scientific literature as well as policies of NEPA and Clean Water Act indicate that artificial reefs do not replace lost ecosystem function and hence are ineffective and do not fulfill NEPA and CWA requirements. Moreover, artificial reefs and other man-made structures such as wharf sheet piles provide extensive open surface area for colonization of many marine invasive or alien species.

Numerous marine alien or invasive species presently exist in Apra Harbor. Increase in military and commercial shipping activity in Apra Harbor as a result of military build-up will increase risk of further impact to Guam's reefs by marine alien and invasive species. Although diverse tropical systems appear to be more resistant to impacts from introduced species, such impacts, particularly from invasive algae species, have occurred elsewhere and have potential to significantly alter native ecosystems.

In the DRAFT EIS/OEIS, DoD strongly advocates use of artificial reefs as mitigation for the CVN project; however, ineffectiveness of artificial reefs is well documented. Artificial reefs cannot replace

²³ DRAFT EIS/OEIS Volume 4, and Appendix J, review of marine resources technical report by J. McManus

²⁴ 40 CFR 1508.27(b)(6)

A-008-194 ecological function of natural coral reefs, as is required for compensatory mitigation under NEPA, US Environmental Protection Agency, US Army Core of Engineers and Government of Guam policies.

Fisheries

A large number of laborers are expected to come from Micronesia, Philippine Islands, and other western Pacific nations. Virtually all of these people traditionally harvest fish and marine invertebrates for subsistence and will likely continue to do so on Guam. This would increase pressure on marine resources within the park, which provides access to traditional fishing areas. The park will need to increase monitoring and enforcement of fishing regulations within park jurisdictional boundaries.

Coral reef fisheries and fish habitat in the park will likely suffer from increased recreational diving and snorkeling displaced from Apra Harbor resulting in increased disturbance, trampling, and other physical impacts.

Sensitive Species

It is well documented that artificial lighting in coastal areas causes juvenile sea turtles to become disoriented, resulting in significant declines in their survival. Protected migratory sea birds are also negatively affected by artificial lighting. Non-natural lighting on the Orote Peninsula, which forms the southern part of Apra Harbor, impinges on the adjacent Agat coast including the Agat Unit of War in the Pacific NHP. With CVN project and its connected actions, this impact will greatly increase, reducing the potential for this area as a viable sea turtle nesting site and increasing potential impacts on sea birds.

Light, chemical, or sound pollution resulting from military build-up activities potentially affects marine mammals such as spinner dolphins, thus requiring review under Endangered Species and Marine Mammal Protection Acts.

Recreation/Tourism

Increased impacts from diving, fishing and snorkeling as a function of population increase have not been analyzed in the DRAFT EIS/OEIS. Many military personnel and their dependents dive and snorkel in Apra Harbor, within park waters and elsewhere on Guam. DRAFT EIS/OEIS notes that many of the Apra Harbor dive areas will be restricted due to the CVN project and many more divers will therefore use other areas on Guam, including the park's Asan Beach and Agat Units. Cumulative impacts from displaced recreational usage at Apra Harbor are not analyzed in the DRAFT EIS/OEIS.

A-008-195 Mitigation

FEIS should analyze cumulative impacts of increased tourism, increased island population due to the military buildup, and construction/operations associated with military buildup. FEIS should include a long-term adaptive management strategy in collaboration with NPS and other entities to monitor and mitigate impacts of the proposed actions on terrestrial and marine resources. It should also include all necessary and relevant plans mentioned as mitigation for significant impacts.

A-008-196 For example, Micronesian Biosecurity Plan (MBP), when completed, will provide requirements for management of terrestrial and marine alien and invasive species. The public and other agencies should be able to evaluate and comment on the plan in concert with the EIS, and then DoD should commit to the plan in its record of decision. Unfortunately, this plan will not be completed before the decision is made and therefore its implementation is uncertain at best. DoD must provide assurance of financial and material support to fully implement Micronesian Biosecurity Plan throughout the Pacific region.

- A-008-197** Soft sediment benthic habitats should be included in Habitat Equivalency Analysis. Loss of coral reef habitat and related sediment transport into park marine units from dredging in Apra Harbor must be mitigated through physical barriers, cessation of dredging during coral spawning and recruitment periods, incorporation of in lieu fee mitigation and/or migration banking, as well as such projects as: translocation of live coral colonies to park reefs and elsewhere; long term monitoring of ecological functioning of reefs on Guam's west side including those in the park; and immediate and ongoing removal of ordnance resulting from range activities to prevent introduction of pollutants to land and marine habitats. Numerous other mitigation actions can be listed, but should instead become part of the adaptive management strategy.
- A-008-198** Watershed restoration is vital to long-term health of Guam's terrestrial and marine ecosystems. DoD must commit to restoration projects that will reduce erosion, runoff and sedimentation. For example, soil erosion and associated coastal sedimentation would be reduced by 18% if actions were taken to restore disturbed (badland) areas in Asan's savannas and elsewhere on Guam, and by a further 7-8% if burning were also decreased. Thus, a total of 25% reduction in soil loss could be achieved.
- DoD should limit all construction activities involving earth movement or exposure – upland and coastal – to the dry season, and halt such activity during significant rains. Exposed soil is to be held to minimum period necessary and covered by impermeable material when active construction is not taking place. Exposed earth is to be revegetated with native plants without delay to prevent erosion, runoff and sedimentation.
- A-008-199** Restriction of new and alteration of current lighting along the shoreline at Apra Harbor and Orote peninsula should be implemented to prevent interference with or impacts to sea turtles or sea birds using DoD and adjacent park resources and marine preserves. Live ordnance activity, dredging, or pile driving should cease in places or at times of sea turtle haulout or nesting, or when marine mammals are present. Implement Biological Observer presence during all construction activity including dredging, and such activity ceased until large marine vertebrates leave the area.
- A-008-200** Protection and restoration of the Rizal Beach wetland at the north end of the Agat Unit of War in the Pacific NHP should be mitigation for amphibious craft landings at nearby Dadi Beach. DoD should also commit to full collaboration with CNMI and NPS to protect significant natural areas on Saipan, Tinian, and Rota as mitigation for habitat loss on Guam.
- A-008-201** **Cultural and Historic Resources**
 In general, as for natural resources, the DRAFT EIS/OEIS makes overarching statements about effects to cultural and historic resources, and presents these statements as if they were actually mitigation. Moreover, there is a general lack of analysis about effects on cultural and historic resources by actions described. DRAFT EIS/OEIS presents listed or eligible resources without broader context and therefore provides little evaluation of their relative significance. In other words, an action might have an adverse effect on 18 properties listed in or eligible for National Register but there is no discussion of whether these are commonly found or representative property types or rare properties that will be lost to history. There appears to be no consideration given to alternatives based on an assessment of cultural resources. It may be assumed that a programmatic agreement for Section 106 of NHPA will go into further detail about adverse effects to historic properties, but this DRAFT EIS/OEIS should as well. Currently, the decision

A-008-201 process for alternative selection and proposed mitigation is not sufficiently explained and appears to be based primarily on an assumption that it could have been worse.

War in the Pacific NHP

War in the Pacific NHP is one of the most important historic resources on Guam, given its charge to preserve and interpret WWII and the Pacific Theater to the public. However, it briefly and rarely appears in DRAFT EIS/OEIS and then only in passing. DRAFT EIS/OEIS should have described the park and its resources, recognizing and acknowledging the park's importance as a historic property, one authorized by Congress, its listing in National Register of Historic Places and the number of specific properties within the park's separate units that are also listed in National Register.

DRAFT EIS/OEIS did not consider the potential for direct and indirect impacts to the park and its historic resources. While the physical imprint of military buildup on Guam may not have been proposed to take place within boundaries of the park, DRAFT EIS/OEIS should analyze potential for buildup to impair the park's historic character and its ability to convey historic events for which it was created and for which it is listed in National Register. This is especially true for its surrounding landscape – namely alterations to the historic views of or from units of the park. In this regard, DRAFT EIS/OEIS should consider applying the same evaluation of an adverse effect to a cultural resource as it states in Volumes 1-5, Section 12.2.1.1: "A significant resource is a cultural resource for or listed on the NRHP. A project affects a significant resource when it alters the resource's characteristics, including relevant features of its environment or use that qualify it as significant according to NRHP criteria. Adverse effects may include the following: physical destruction, damage, or alteration of all or part of the resources; alteration of the character of the surrounding environment that contributes to the resource's qualifications for the NRHP; introduction of visual, audible, or atmospheric elements that are out of character with the resource; neglect of the resource resulting in its deterioration or destruction; and transfer, lease, or sale of the property without adequate and legally enforceable restrictions or conditions to ensure long term preservation of the property's historic significance (36 CFR 800.5(a)(2))."

Historic Preservation Programs: Guam and CNMI

DRAFT EIS/OEIS recognizes that military buildup on Guam would adversely affect the ability of Guam HPO to carry out its duties of reviewing compliance projects under Section 106 and permitting and monitoring projects. DRAFT EIS/OEIS, while stating this in Appendix F (section 4.4.6.4), makes no recommendations for mitigating this condition. The study states that with increased workload caused by buildup, Guam HPO will need to increase its professional staff by 4 FTE, noting that its current staff, listed at 13 FTE, is understaffed and operating with some 6 unfilled positions. DRAFT EIS/OEIS should propose potential mitigation for this issue that will lead to providing additional staff for office.

Mitigation

Mitigation recommendations for impacts to cultural and historic resources by proposed actions have been and will continue to be presented by NPS to DoD for inclusion in Programmatic Agreement and throughout the consultation process required by Section 106 of NHPA. DoD should recognize and state in DRAFT EIS/OEIS that consultation will be ongoing, long term, and continue after Record of Decision is issued and especially as specific projects are implemented.

A-008-201 It will be critical for DoD to fund Guam and CNMI HPO's to increase their capacity to review and monitor individual projects as well as process permits as proposed actions are implemented. Likewise, DoD must recognize and mitigate need for increased NPS capacity to oversee historic preservation programs in Micronesia. To ensure full protection of resources within NHLs, DoD should commit to updating National Register nominations for those on Saipan and Tinian. As mentioned in natural resource mitigation, DoD should collaborate with CNMI and NPS to protect significant cultural areas on Saipan, Tinian, and Rota to mitigate loss of cultural heritage.

A-008-202 **Impacts on Park Operations**

In 2008, population of Guam was 176,000. By 2014, it will increase by 80,000 or 45%, as non-residents fill over 18,000 construction and 17,000 other jobs, in addition to arriving military personnel. Nearly all military and many civilian personnel are expected to bring their families. Although EIS states that all construction laborers and their dependents will leave Guam by 2017, that expectation may not be realistic (e.g. despite collapse of the garment industry on nearby Saipan in the past 5 years, many foreign workers still remain). Thus, long-term "steady state" population increase may be more than the predicted 34,000. Therefore, depending upon the nature of the workforce and demographics associated with it, NPS could expect a significant increase in:

- subsistence fishing, hunting, camping/residing, homelessness
- introduction of exotic species, affecting the visual and resource character of the park
- trash dumping
- biowaste
- utilities usage – water, wastewater, power, solid waste
- levels of normal wear and tear on facilities²⁵
- vandalism/crime associated with facilities, over and above normal wear and tear
- parking lot theft and vehicular damage
- archeological or cultural site impacts; looting, vandalism
- backcountry use for recreation and ORV/mountain bike use
- access into closed areas
- noise and decreased solitude – vehicle/air/pedestrian traffic
- crowding and displacement or loss of existing uses and visitors
- boundary disputes and development near or abutting the park

Since all or most of these impacts presently occur to the degree that park staff can barely contain them, it is reasonable to expect that resource conditions and visitor experiences will decline below desired standard of quality (as expressed in law and policy) with a minimum of 45% increased incidence. Most of these incidents demand an emergency response and follow-up, as well as an investigation and law enforcement action. There is currently no NPS law enforcement personnel located on Guam who can take immediate action. Although presence of Guam police on routine patrols is much appreciated and undoubtedly helps with deterrence, relying on local law enforcement for emergency response will be impractical as they will also be responding to a similar need for increased law enforcement and emergency services elsewhere on island due to proposed actions.

²⁵ e.g., tables, grills, waste receptacles, toilets, fences, gates, parking areas, displayed artifacts and monuments

A-008-202 In the longer term, some of the listed impacts will also occur solely with increased population of core military personnel (Marines, Navy, and Army). With residual workforce and their families, and laborers who remain without jobs beyond construction phase, it is clear that significant, long-term, irreversible and irretrievable impacts on national parks are probable.

General impacts presented above would apply to some degree to all seven units in War in the Pacific NHP. Due to accessibility from major roads, Asan Beach, Asan Inland Unit and Agat Units would likely be at greatest risk for the range of potential illegal use and occupancy issues, as well as overuse. NPS would expect greatly increased use of restrooms, trash receptacles, picnic sites, and marine resources. To the extent that this occurs, those who presently use the area for healthful and relaxing activities would likely be displaced or discouraged from visiting the area. Deteriorating resource and facility conditions would have the same effect. Sponsors of large group-sanctioned events that are important to the community might also be discouraged from use of the area. Areas of clean, well-maintained and open beachfront land suitable for family recreation, like Asan and Agat Beaches, are scarce on Guam; thus, they would be at risk under the proposed action.

NPS has requested long-term funding in order to increase resource protection, outreach, and maintenance operations in response to expected rise in visitation, vandalism, hunting, and illegal fishing.²⁶ Even in the short-term, the park will be faced with unprecedented increases in requirements for coordination of numerous activities related to military relocation, such as traffic management plans, to maintain access to park units during roadway improvements. The buildup will strain already limited resources required for these mandates.

DRAFT EIS/OEIS summarizes the following impacts from military relocation on Guam. "Military recreational users, off-island visitors, and Guam residents would be competing for recreational use island wide. Increased uses at existing recreational facilities would likely lead to conflicts between recreational users; examples include competition between surfers and swimmers for space at a popular beach park; between kayakers and snorkelers; spelunking and underwater cave swimmers; hikers and bike trail riders. Such conditions may already exist or are expected to, based on human uses in many other locations; the spike in recreational users may exacerbate the condition beyond current levels. Further, increased user numbers will likely cause an increase in the use of existing recreational facilities such that substantial physical damage and deterioration of the facilities would occur."²⁷ Though unstated in DRAFT EIS/OEIS, this general assessment applies as well to National Park units.

These statements highlight need for increased park operational resources to provide outreach, maintain park facilities, and resolve conflicts over competition for facilities. Special Use Permit requests will rise as demand for public event sites increases and with the loss of other sites proposed to be closed due to military activities. The park will also need to increase partnership activities with Navy and Air Force, and establish new partnerships with Marines, Army and the foreign worker groups.

Increased population is also expected to increase SCUBA diving in the park, off-road vehicle use, illegal occupancy, and development along or near park boundaries. The park will need

²⁶ Significant secondary impacts are described in Volume 7, Chapter 3, pp. 77-79

²⁷ DRAFT EIS/OEIS Volume 2, Chapter 9, page 9-31

A-008-202 additional staff to survey and post boundaries (currently there has been no survey for six of the seven park units).

Mitigation

Again, DoD should develop and implement an adaptive management strategy in collaboration with NPS and other entities as part of FEIS. This would provide a framework for NPS to plan future operational needs in order to preserve the parks' cultural and natural resources and to maintain visitor satisfaction. Adaptive management strategy should address all aspects of operations on Guam and CNMI needed for NPS to manage its stewardship responsibilities.

Conclusions and Recommendations

A-008-203 Adequacy of the Scope of Analysis and Range of Alternatives

Although NPS does not specifically oppose the military relocation, it finds numerous process issues resulting in an inadequate range of alternatives, and precluding assessment of impacts on NPS lands. NPS believes the DRAFT EIS/OEIS could have been developed more programmatically within the timeframes, thereby being more comprehensive and comprehensible at the same time. NPS also believes that sufficient attention by DoD to public and other agency issues following scoping could have resulted in a range of alternatives that would better address the indirect, but significant, adverse impacts, especially on Guam. In the current range of alternatives, the no action alternative is the least damaging to NPS interests and concerns. All other alternatives, unmitigated, would have the same potential for unacceptable level of impact in regard to lands and programs under NPS jurisdiction. Were DoD to have developed a programmatic approach, as recommended long ago, and included in the purpose and need statement the desire to improve or enhance quality of life on Guam, the range of alternatives would have dealt with key issues raised about indirect effects outside military "footprint." This includes disposition of the construction work force. The scope of analysis and range of alternatives is too narrow, and action alternatives are not substantively different from one another in terms of impacts they engender. NPS recommends other alternatives be developed to assess impacts on Guam as a whole, since it clearly will be affected significantly in many respects by a 45% population increase. NPS also suggests that, military budgets and timeframes notwithstanding, what is needed to comply with NEPA and other law and policy are publication of a new DRAFT EIS/OEIS that incorporates all necessary information (analysis, biosecurity, mitigation, and infrastructure needs) and an appropriate range of alternatives.

A-008-204 Adequacy of DRAFT EIS/OEIS Impact Disclosure

NPS finds the analysis of resource impacts from proposed CVN actions inadequate. Analysis is absent or arbitrarily truncated; as such, it ignores potential for indirect impacts on marine resources of the Asan Beach Unit of War in the Pacific NHP. Despite expressions of concern by NPS beginning at scoping, DRAFT EIS/OEIS is silent on potential direct and indirect impacts on park units, which as elaborated upon above are highly significant and unacceptable. It is in interest of both DoD and NPS that there be adequate disclosure and analysis of these impacts. The decision maker must consider all relevant impacts, including these, prior to making a decision. The public is entitled under law to review a Draft EIS that is complete and comprehensible. Unfortunately, it would appear that requisite analyses and disclosures, among other things, are not present in DRAFT EIS/OEIS precluding an adequate public review. NPS requests inclusion in FEIS of information presented here, and suggests it be placed in Volume 8, Chapter 2 or its equivalent when FEIS is published. Alternatively, this entire assessment could be placed in an appendix and summarized in Volume 8. NPS views its assessment as substantive

A-008-204 throughout and it must be published with FEIS in any event.²⁸ NPS recommends, generally, that DoD revisit its procedures and incorporate thorough and rigorous analyses of indirect impacts for all topics. NPS suggests that inadequacy of disclosure merits publication of a new DRAFT EIS/OEIS.

A-008-205 **Recommendations**

Due to the extent of possible impacts during implementation of the decision, NPS encourages DoD to become a partner in contributing to protection, preservation, maintenance, safety, and enhancement of national parks. Considering the essential nature of these park units as commemorating bravery and sacrifice of members of armed forces, this would seem to be a highly logical and mutually beneficial step. Similarly, recognition of the National Historical Landmark on Tinian as a vital piece of military history should represent a unique opportunity for DoD/NPS partnership.

NPS strongly recommends attention to logistics of the construction work force and mitigation for their housing and transportation so as to eliminate or minimize potential for off-base impacts. As a connected action, this issue should be explored by evaluating it in several alternatives in DRAFT EIS/OEIS, in addition to the assumption that the construction workforce will leave Guam by 2017.²⁹ NPS recommends this be accomplished in FEIS or, more appropriately, in a new DRAFT EIS/OEIS.

NPS recommends that DoD review, consider and implement as appropriate the mitigation measures listed in this document; however, this list should not be considered exhaustive. As stated above, DoD should commit to full collaboration on an adaptive management strategy that addresses long term monitoring and mitigation of impacts to NPS resources and values discussed in these comments. NPS further recommends that, in accordance with CEQ regulations, the eventual record of decision state whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why not. In practice, for most agencies, this means that the proponent must commit to mitigation measures expressed in EIS to achieve acceptable levels of impact, and demonstrate proponent's ability to implement measures. If measures presented in an EIS are not to be adopted, proponent agencies must explain why not.

In addition, an agency must (shall) specify a monitoring and enforcement program within a ROD to be adopted and summarized for any mitigation.³⁰ Beyond the ROD, during implementation, there are stipulations in CEQ regulation about conditioning funding of actions on mitigation, about informing commenting agencies on progress in carrying out mitigation they had proposed and making monitoring results available to the public.³¹ NPS recommends that DoD articulate its intentions regarding these provisions in the ROD.

²⁸ 40 CFR 1503.4(b)

²⁹ Volume 2, Chapter 16, section 16.2.2.1 Population Impacts of Proposed Alternative.

³⁰ 40 CFR 1505.2(c)

³¹ 40 CFR 1505.3

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See Separate Attachment for NPS Comments in Excel Format.

Appendix C Office of Insular Affairs Comments

The Office of Insular Affairs (OIA) would like to submit the following comments on the DEIS/OEIS for the Guam and Commonwealth of the Northern Mariana Islands (CNMI) Military Relocation:

A-008-163

- **Civilian Infrastructure:** OIA believes that the proposed military relocation to Guam and the CNMI will have a significant impact on Guam's civilian infrastructure, including an increased need for housing, power, roads, water, wastewater treatment, health, public safety and educational facilities. While OIA is working closely with the Department of Defense (DOD) and many Federal agencies to secure funding for this, OIA remains concerned that Guam's civilian infrastructure will not be adequately prepared to absorb the population increase anticipated by this DEIS/OEIS. The DEIS/OEIS should consider including additional, solution-oriented, discussion on this important subject.

A-008-164

- **Micronesian Biosecurity Plan (MBP) Commitment:** The MBP is described as the tool that will address invasive species control and prevention during and after the military relocation in the DEIS/OEIS. However, the DEIS/OEIS avoids a clear commitment to implementing the MBP once it is completed. The Final Environmental Impact Statement (FEIS) should include a binding commitment to the implementation of the MBP and it should recognize the applicable legal mandates and authorities that guide invasive species control and prevention.
- **Disclosure of Risks:** The DEIS/OEIS does not adequately discuss project-related invasive species impacts on Guam and Tinian's economy, agriculture, power supply, and human health, nor does it evaluate the risk of invasive species introductions outside of project areas such as to Hawaii. These significant risks should be disclosed and mitigation discussed in the FEIS as well as in the MBP.
- **Biosecurity Mitigation:** The DEIS/OEIS must include adequate discussions of how the MBP will prevent, detect, mitigate and manage invasive species. The MBP is not expected to be completed in time for inclusion and analysis in the FEIS. Therefore, the FEIS should include: a realistic timeline for completion of the MBP; DOD's commitment to MBP completion; how and where the MBP will be made binding; commitment to MBP implementation prior to initiating the proposed actions, and commitments to interim measures (that have concurrence of appropriate regulatory agencies) pending MBP completion. In addition, the FEIS should provide a framework that ensures Federal, state, and territorial cooperation and oversight of MBP implementation.
- **Brown Treesnake (BTS) Mitigation:** The DEIS/OEIS lacks a comprehensive assessment of the necessary BTS control and mitigation measures. Given the extreme and well-documented threat of the spread of the invasive BTS from Guam to other areas, the DEIS/OEIS should include specific detail on what avoidance and minimization measures will be taken particularly since the MBP is not expected to be completed in time for inclusion and analysis in the FEIS. BTS impacts include biosecurity, endangered species, power distribution, human health and economies. Eradicating snakes from Guam and preventing establishment elsewhere has been a long-term goal of a range of Federal, state

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A-008-163

Thank you for your comment. DoD is working with OIA and other Federal agencies to coordinate solutions that will minimize adverse impacts to the citizens of Guam from the proposed military relocation program.

A-008-164

Thank you for your comment. The MBP will not be finalized until 2011. Specific biosecurity measures have been added to the FEIS to supplement existing practices that address invasive species. It is expected that the Legal authorities for invasive species control are listed in the MBP. Additional information has been added on invasive species risks as suggested. Additional details on mitigation of threats from BTS are being added to the EIS. Information pertaining to the MBP and biosecurity issues are discussed in Volume 2, Chapter 10, Section 10.2.2.6 for terrestrial species, and in Volume 2, Chapter 11, Section 11.2.2.6 for marine species.

A-008-165

Thank you for your comment. Volume 6 Chapters 6 (Water Resources), 12 (Terrestrial Biological Resources), and 13 (Marine Biological Resources) have been updated to include tables for direct impacts to stream crossings. Potential indirect impacts into specific drainages and watersheds have been updated in Volume 6 Chapter 12 in relation to aquatic habitats and Volume 6 Chapter 13 for marine habitats. Section 404 CWA permitting will be required and need not be completed for the NEPA analysis.

A-008-166

Thank you for your comment. The referenced incorrect information on Tinian monarchs has been removed. Impacts to the monarch have been evaluated in the EIS. The siting of the ranges has been carefully

and territorial agencies. The FEIS should discuss specific avoidance, minimization and mitigation actions the DOD will take to support and facilitate research and island-wide BTS control efforts both on and off DOD lands. The FEIS should identify how all DOD agencies under the FEIS will comply with Public Law (PL) 110-417, Oct. 14, 2008 which states: (DOD) *shall establish a comprehensive program to control and, to the extent practicable, eradicate (BTS) from military facilities in Guam and to ensure that military activities . . . do not contribute to the spread of brown tree snakes.*

In conclusion, the proposed actions while likely have a significant impact on Guam's civilian infrastructure and create significant invasive species risks to local, regional, Hawaiian, and U.S. mainland resources. DEIS/OEIS deficiencies can be remedied in the FEIS by taking a hard look at the issues, demonstrating a commitment to funding and implementing effective mitigation measures, and cooperating with affected Federal, Territorial and State of Hawaii agencies.

Thank you for the opportunity to comment on this DEIS/OEIS.

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considered and the current proposed locations were chosen to meet mission requirements as well as numerous other resource area requirements. Description of protection and conservation measures were included in the DEIS and have been expanded in the FEIS. Details that are requested on the Ungulate Management Plan are not currently available and would be in the Ungulate Management Plan when it is finalized. The engineer equipment and decontamination training area will result in the construction of a water runoff control pond. A wash-down pad and oil-water separator will be installed to ensure hazardous materials are not washed into the pond. The pond will be a small, rock-lined pit with a drainage sump and constructed such that it does not serve as an attractant for the endangered Mariana common moorhen or other shore or sea birds. Though the soils are porous limestone, the pond will have steeply sloping sides and vegetation will be mowed or removed such that foraging and nesting habitat is not created. A Biological Monitor will survey the water runoff control pond to ensure that the completed project does not serve as an attractant for the endangered Mariana common moorhen. The Biological Monitor shall survey the area for one year post-construction after all rainfall events sufficient to allow ponding in the area, to determine if it is an attractant. As part of the proposed action, the DoN has funded and is a participating agency in the development of the Micronesia Biosecurity Plan. Individual activities for various species will continue, but the DoN and others agree it is more efficient to manage pathways and prescribe corrective measures for a suite of species which will be monitored at discrete control points through time. This approach will be applied to transportation and handling of all the proposed action related cargos (construction and training activities; military and contractors), coming into and out of Guam and Tinian. However, the Micronesia Biosecurity Plan is much greater and is applicable to all agencies in Micronesia and will provide a platform for coordination and integration of inter-agency invasive species management efforts such as control, interdiction, eradication, and research. The purpose of the Micronesia Biosecurity Plan is to address

pathways and encourage a more holistic approach to managing invasive species. The National Invasive Species Council (NISC) will develop and coordinate risk assessments and the Micronesia Biosecurity Plan in cooperation with U.S. Department of Agriculture, Animal Plant Health Inspection Service (USDA APHIS) Wildlife Services, USDA APHIS Plant and Protection and Quarantine, USDA APHIS Veterinary Services; U.S. Geological Survey Biological Resources Division; NAVFAC Pacific; Smithsonian Environmental Research Center. The overall goal of biosecurity for the proposed action is to avoid and minimize the potential impacts posed by non-native invasive species to the natural resources of Guam and Tinian. Until the Micronesia Biosecurity Plan is developed, pathway analysis may be used as a tool to improve programmatic efficiency. Methods such as Hazard Analysis and Critical Control Points or similar will be used to conduct pathway analysis as applied to aspects of interdiction for brown treesnake and other potential invasive species. The approach for the Micronesia Biosecurity Plan will involve risk assessments which will provide decision support and corrective actions that integrate techniques involving exclusion, detection, eradication, and control of non-native and invasive organisms that can be readily developed into standard operating procedures, training instructions, and applied best management practices related to supporting and completing construction projects and infrastructure repairs. Many of these techniques already exist. The risk assessments will identify and prioritize hazards and risks for species, pathways, and vectors which could include, but are not limited to, non-native species, construction equipment, training materials, personal protective equipment, foot traffic, vehicles and vessels, and shipping/packing material. The outcomes from the risk assessments will be corrective measures, monitoring techniques, and best management practices to avoid and minimize the introduction of non-native invasive species to Guam, the CNMI, and other Pacific Islands. The control of ants that may be impacting the the eight-spot butterfly and the invertebrate *Platydemus*

Vol.	Chap	Page	Paragraph	Issue	Comment
			Global comment	Mitigation	Mitigation measures state what DoD "can" do, but not what they actually will do. In the Record of Decision (ROD) this should be clarified.
			Global comment	Climate Change	The Draft EIS/OEIS should also analyze long term effects of climate change on each of the alternatives. Will the proposed actions have a positive or negative impact on Guam and the CNMI capacity to adapt to changes in sea level, temperature, rainfall, and extreme weather events?
			Global comment	Adequacy of the scope of analysis and Range of Alternatives	Although NPS does not specifically oppose the military relocation it finds process issues resulting in inadequate range of alternatives, and precluding the assessment of impacts on NPS lands. NPS believes the Draft EIS/OEIS could have been developed more programmatically within the timeframes, thereby being more comprehensive and comprehensible at the same time. NPS also believes that sufficient attention to public and other agency issues following scoping could have resulted in a range of alternatives that would better address the indirect, but significant, adverse impacts especially on Guam. In the current range of alternatives, the no action alternative is the only one that would be less damaging to NPS interests and concerns. All the other alternatives, unmitigated, would have the same potential for unacceptable level of impact in regard to lands and programs in NPS jurisdiction. Were DoD to have developed a programmatic approach, as recommended during partners meetings long ago, and included in the purpose and need statement the desire to improve or enhance the quality of life on Guam, the range of alternatives would have dealt with key issues being raised about indirect effects outside the military "footprint." This includes the disposition of the construction work force. The scope of analysis and range of alternatives is too narrow, and the action alternatives are not substantively different in terms of the impacts they engender outside the footprint. NPS recommends other alternatives be developed to assess impacts on Guam as a whole, since it clearly will be affected significantly by a 45% population increase, short term and a 20-30% increase long-term. NPS also suggests that, military budgets and timeframes notwithstanding, what is needed is the publication of a new Draft EIS/OEIS that incorporates all necessary information (biosecurity, mitigation, infrastructure needs) and an appropriate range of alternatives.
			Global comment	Adequacy of disclosure and presentation of critical data	Despite expressions of concern by NPS from scoping, the Draft EIS/OEIS is silent on potential indirect impacts on park units. It is in the interest of both DoD and NPS that there is adequate disclosure of these impacts. The decision maker must consider all relevant impacts, including these, prior to making a decision. The public is entitled to review an Draft EIS/OEIS that is complete and comprehensible. Unfortunately, it would appear that the requisite analyses and disclosures, among other things, are not present in the Draft EIS/OEIS/Draft EIS/OEIS and that will preclude an adequate public review as required by CEQ regulations and NEPA. A good example is the lack of a biosecurity plan, which will not be available until after the ROD is to be published, though it is absolutely critical to the analysis and decision to be made. In NPS' view, our assessment is substantive throughout and must be published with the Final EIS/OEIS in any event. NPS recommends, generally, that DoD revisit its procedures and incorporate thorough analysis of indirect impacts for all topics. NPS suggests that the inadequacy of the disclosure merits the publication of a new Draft EIS/OEIS/Draft EIS/OEIS.

manokwari that may be impacting the native tree snails is being evaluated as possible mitigation for these species.

A-008-167

Comment noted.

A-008-168

Thank you for your comment.

A-008-169

Thank you for your comment. NPS has been an important team member during the agency partnering process and preparation of the Programmatic Agreement. The DoD will ensure NPS remains part of the team.

A-008-170

Comment noted.

A-008-171

Thank you for your comment. It is anticipated there would be a rapid rise in H2B visa foreign workers (for construction jobs), followed by a decline because their construction jobs would go away after structures and facilities for the buildup are completed. This would also occur because of the conditions of their employment status (to leave Guam when their job is completed). The result of this characteristic "boomtown" economy is discussed in the Socioeconomic Impact Assessment Study (SIAS) that is in Appendix F, Volume 9 of the DEIS (section 1.2.2).

A-008-172

Thank you for your comment.

National Park Service Comments

				Global comment	Mitigation of Impacts on National Parks Beyond the disclosure in the Draft EIS/OEIS, as a result of possible impacts experienced during implementation of the decision, NPS encourages DoD and Navy to become a partner with NPS in contributing to the protection, preservation, maintenance, safety, and enhancement of national parks. Considering the essential nature of these park units as commemorating the bravery and sacrifice of members of the armed forces, this would seem to be a highly logical and mutually beneficial step. Similarly, recognition of the National Historical Landmark on Tinian as a vital piece of military history should represent a unique opportunity for DoD/NPS partnership. NPS strongly recommends attention to the logistics of the construction work force, and provides mitigation for their housing and transportation as to eliminate or minimize the potential for off-base impacts. As a connected action, this issue should have been explored by evaluating it in several alternatives in the Draft EIS/OEIS, in addition to the assumption that the construction workforce will leave Guam by 2017. NPS recommends this be accomplished in the Final EIS/OEIS or, more appropriately, in a new Draft EIS/OEIS.
A-008-206				Global comment	Mitigation of Impacts on National Parks Recommended mitigation for impacts on natural resources within and near national park units is provided in NPS Comments on pages 29-31. The Consolidated Natural Resources Act of 2008 provides NPS with authority to spend funds with willing partners to improve natural resources outside park boundaries regardless of ownership.
				Global comment	Cumulative Impacts If the Draft EIS/OEIS does not adequately disclose the potential direct and indirect impacts on the park units, then, by extension there will be no adequate evaluation of cumulative impacts. The potential for indirect impacts on the parks is superimposed on current park conditions, which are at or near a threshold of acceptability. Park staffing currently is not sufficient to deal effectively with issues of pollution, sedimentation, reef impacts, ORV use, solid waste, illegal use and occupancy, and other significant problems associated with use by the present population. All such considerations are matters of park service regulation and policy. With a population increase such as that being proposed, NPS is concerned that its resources and staff are likely to be overwhelmed.
				Global comment	Paper work reduction and clarity of the Draft EIS/OEIS The Draft EIS/OEIS is too lengthy, complex, laden with jargon, and generally not in compliance with CEQ regulations that require a document to allow effective review by the public. NPS believes the document could have been written to be more comprehensible to the general public without additional expenditure of time and money. DoD should recognize, if it is serious about dealing with public comment, that people cannot comment effectively on what they don't understand. 40 CFR 1500.1 (b), 1500.4(a), (b), (d), and (f), et al.
1	2	35	2.7.1.10	Work Force Recreation	"Recreation would be provided at the housing operations. Workers would be provided transportation by the housing operators or take mass transit to public recreation and entertainment facilities." The impacts of contract workforce on recreation facilities on Guam is not analyzed in the Draft EIS/OEIS.

A-008-173

Thank you for your comment.

A-008-174

Thank you for your comment. The recreational resources (Chapter 9), cultural resources (Chapter 12), and socioeconomics and general services (Chapter 16) sections of Volume 2 have been updated based on NPS comments. Volumes 1 and 7 have also been updated. A determination of significance for impacts to NPS units is presented in the Volume 2 Chapter 9.

A-008-175

Thank you for your comment. Chapter 2 of Volume 8 discusses the consistency of the proposed actions with relevant federal, state, and local plans, policies, and controls. This chapter has been updated based on NPS comments.

A-008-176

Thank you for your comment. Volume 7, Chapter 3 summarizes the combined potential impacts of the preferred alternatives for the entire proposed action on Guam and Tinian. The impacts of Volumes 2 through 6 are discussed by resource. At the end of Volume 7, Chapter 3.3 there is a table summarizing the combined impacts of all components of the preferred alternatives. Significant impacts are identified. Trends in the resource health due to anthropogenic and non-anthropogenic factors that impact resource health on Guam and Tinian since World War II are described. This section includes limited quantitative data for proposed action impacts. For example, special-status species habitat loss due to the proposed action and current amount of habitat available island wide is presented in Volume 7, Section 3.3. There is no quantitative island-wide data readily available for most of the resource areas assessed and the impact analysis is often qualitative.

	2	9	31	1	Recreational Resources	"MCCS is planning for additional recreational facilities on Guam to meet the demands of the Marines and their dependents relocating to the area; this would serve to minimize impacts from increased demand resulting from implementation of the proposed action." Some recreational opportunities cannot be duplicated such as visits to the actual WWII landing beaches, diving WWII sunken vessels, or views from scenic vistas. There should be a discussion of recreational impacts from contract laborers, who will outnumber DoD personnel during the initial buildup years. Specify whether these "facilities on Guam" will be open to the public, or within military installations for DoD personnel only. (see comments below)
A-008-207	2	18	26	18.2.8	Safety	No mitigation given for UXO. If access to popular Apra Harbor dive sites is limited, there will be increased recreational diving activity at sites such as Camel Rock (where UXO was dumped). DoD should take responsibility for mitigation at this site to provide for safety of all divers.
A-008-208	2	9	10	Fig. 9.1-5	Recreational Resources	NPS Visitor Center not included on map. See map on page 2 of NPS comments.
A-008-209	2	9	12	Fig. 9.1-6	Recreational Resources	NPS Agat Unit, including Ga'an and Apaca Points, not included on map.
A-008-210	2	16	41-42		Socio-economics	"If there are a large number of 'stay-behind' workers (in-migrants that migrate for construction-period jobs and stay on Guam), the decline in population from the beginning of 2014 to the end of 2016 will not be as dramatic as shown in the population impact calculations below. If the stay-behind worker phenomenon leads to increased in-migration over time, then the population in the years 2017 forward would increase at a faster rate than illustrated." The DoD presents no rationale for an assumption that all in-migrant labor will leave in 2016. No examples of this phenomenon elsewhere in the world are provided. Thus, it appears to be speculation rather than an informed assumption.
A-008-211	2	16	60	Civilian Housing Demand	Socio-economics	Temporary Workforce Housing and "Stay-behind" worker housing "are not included in the housing analysis" (p. 16-54). The Draft EIS/OEIS also states that, "in reality it is unlikely that construction of new housing would fully respond to the demand to eliminate a housing deficit....Impacts would be adverse if sufficient housing supply cannot be developed and results in crowding, continued price increases, and/or substandard housing development. * This implies a significant adverse impact. The NPS is concerned that a lack of housing will force people to live on public lands, including the park. This is also summarized in Table 16.2-52 on page 16-96 and does not show that it will be mitigated for the construction phase.
A-008-212	2	16	97	Table 16.2-52	Socio-economics (Public Services)	"Significant adverse impact to public service agencies influenced by population increases due to difficulty in recruiting and funding adequate staffing during operational phase." There is no mitigation for that impact. "Significant adverse impacts to public service agencies influenced by population increases, due to difficulty in meeting fluctuating staffing requirements following the construction phase with an existing environment of staffing and budget shortfalls and recruitment complications." The NPS operations would be impacted by these same issues. Although the NPS enjoys a successful partnership with the Navy in attracting volunteers for park projects, most military dependents and spouses lack the specialized professional level skills needed to qualify for employment (suggested as mitigation).

Volume 7, Chapter 4, Cumulative Impacts, assesses the potential additive impact of the EIS proposed actions when compared to potential impacts of past, present and reasonably foreseeable projects. The period of consideration for the cumulative impact analysis is 2004 to 2019. The project list is based on best available information from DoD and the Guam Land Use Commission database. There is no National Environmental Policy Act (or similar) document disclosing project impacts for most of the cumulative projects listed; therefore, there is insufficient data on most cumulative projects listed to conduct a quantitative impact analysis. There is a table at the end of Chapter 4 that summarizes the potential cumulative impacts. Potential significant cumulative impacts are identified for some resources. Mitigation measures are proposed earlier in the EIS. The cumulative impacts analysis has been expanded in the FEIS.

A-008-177

Thank you for your comment. DoD conducted an extensive scoping effort back in 2007 that helped frame the issues analyzed in the Draft EIS. The Draft EIS evaluates a full range of alternatives and uses the best available information to assess impacts on the macro and localized level. DoD worked closely with local and Federal resource agencies to collect the latest information and provide a sufficient level of detail in the Draft EIS.

A-008-178

Thank you for your comment. NPS has been an important team member during the agency partnering process and preparation of the Programmatic Agreement. The DoD will ensure NPS remains part of the team.

A-008-179

Thank you for your comment.

A-008-213	2	16	100	Table 16.2-52	Socio-economics (Crime)	*Significant adverse impact due to increased overall crime, prostitution, alcohol/substance abuse, domestic offenses, and fights* would also affect the NPS. Crime and social disorder in the community spill over into recreational areas, thus the NPS will be impacted and need more law enforcement staff.
A-008-214	3	12	1	12.1.1	Cultural Resources	In addition to archaeological and architectural resources, and traditional cultural properties, the document should also consider historic resources (districts or cultural landscapes) to perhaps unite the various assortment of properties into a more coherent picture. In addition, the document's use of the traditional cultural property seems underdeveloped, in that it does not explore fully the ramifications of a cultural group's decision to propose that a site be designated as a traditional cultural property for the National Register of History Places—and potentially be in direct conflict with the proposed action.
A-008-215	3	12	14	Fig 12.2-1	Cultural Resources	Significance of pink colored areas is not identified in the legend.
A-008-216	3	12	17	12.2.2.2	Cultural Resources	As noted in the non-tabular NPS comments, the impacts assessed in this section for the construction of the training facilities on Tinian do not offer reasons for the site selection of these facilities given the knowledge presented of the significant archaeological sites that would be impacted. These alternatives also do not adequately address public access to the NHL during construction and once the ranges are operational, despite describing a series of check points for visitor safety. At the very least, the Draft EIS/OEIS should point out that restricted access, though evidently limited to 16 weeks a year, is an indirect adverse effect on the NHL. The Draft EIS/OEIS does not attempt to predict how the firing range training would coincide with training under the MIRC that would take place in the northern part of the island at North Field NHL, potentially further affecting public access to the NHL. It is also vague on what the total impact of all the training and facilities development would be on the NHL, for the numbers vary and it seems quite possible that the NHL would experience a tremendous increase in use.
A-008-217	3	12	17	12.2.2.3	Cultural Resources	Although the PA will cover much of this, the mitigation presented does not appear to be mitigation but simply statements of fact. Regarding impacts about access, there are no real guarantees or plans in place for visitors or residents to access the NHL or other areas. A plan of some kind will need to be in place to ensure access. For now, access seems to be something the military will decide on its own and control accordingly.
A-008-218	3	12	24	Table 12.2-4	Cultural Resources	Regarding impacts to historic properties, it is not clear when the two TCP's were formally determined eligible for the National Register and if they are eligible what constitutes an adverse effect.
A-008-219	4	9	2	3	Recreational Resources	*To alleviate potentially significant impacts to the existing recreational resources at Apra Harbor during carrier visits, it is suggested that additional on-base shuttle bus and taxi services be made available to ensure Sailors and airmen have the ability to access comparable and/or alternate recreational resources off-base.* This does not analyze the impact to off-base resources during carrier visits when over 5,000 people could be seeking recreational opportunities within a limited time period. It also appears to contradict the strategy in Volume 2 where additional recreational facilities on Guam are planned to alleviate the impacts on existing facilities and sites.

A-008-180

Thank you for your comment. NPS has been an important team member during the agency partnering process and preparation of the Programmatic Agreement. The DoD will ensure NPS remains part of the team.

A-008-181

Thank you for your comment.

A-008-182

Thank you for your comment.

A-008-183

Thank you for your comment. A new chapter (Chapter 4) has been added to Volume 1 identifying information and analysis that has been added between publication of the Draft EIS and the Final EIS. This includes a section specifying effects associated with indirect and induced growth. NPS effects are included in this chapter.

A-008-184

Thank you for your comment. There may be temporary impacts to traffic and public safety during the construction of the road. These temporary impacts will be mitigated by implementing a Traffic Management Plan that includes, but is not limited to, the use of traffic control devices, phasing of construction, reduced speed limits and lighting.

A-008-185

Thank you for your comment. The recreational resources analysis (Chapter 9) in Volume 2 has been updated based on NPS comments.

A-008-220	6	3	53	3.2.3.3	Water	Long-term alternative 1. Recommend against development of Lost River dredging, damming, and pumping into Fena Reservoir or water treatment plant. This would impact viable organisms and habitat upriver.
	6	3	54	3.2.3.4	Water	Long-term alternative 2. Desalinate brackish water by reverse osmosis (solar powered) to prevent discharge of hypersaline water into coastal receiving waters.
A-008-222	6	11	16	Table 11.2-5	Recreational Resources	SI-M (Significant Impacts-Mitigable) is shown in table, but preceding pages state no mitigation needed. This also contradicts the Summary of impacts in Volume 7, p. 3-23, Table 3.3-20, which shows NI (No Impact) on recreational resources for any of the acts in Volume 6.
A-008-223	6	11	9	1	Recreational Resources	"These temporary workers and their family members would increase the use of recreational facilities during the peak construction period. Because the increase in the number of construction workers has been projected and addressed in relevant planning documents, the relevant planning agencies within the island of Guam would be in a position to plan for this growth." Specify what planning documents and how the impacts have been addressed in them. It is inappropriate to assume that Guam and other agencies will absorb this impact. This statement implies DoD leaves the responsibility for its actions up to other agencies.
	7	3	23	2	Recreational Resources	"...a wide range of recreational facilities are proposed at the Main Cantonment site by the Marine Corps Community Service (MCCS)...to relieve potential impacts to the existing recreational resources on DoD, federal, and public properties..." Volume 2 mitigation suggests "new facilities on Guam" will be planned. Volume 4 suggests transient military personnel be shuttled to resources off-base, and this volume proposes facilities at Main Cantonment. These strategies appear to conflict with each other. Also, see comments above that new facilities on military installations cannot duplicate the experience of certain sites on island and that impacts of recreation use by contract laborers should be included in analysis.
A-008-225	7	3	77	4	Secondary Effects	"A Compatibility Sustainability Study (CSS) is being prepared as a joint effort between GovGuam and the military...The CSS would likely address many of the secondary impacts anticipated under the preferred alternatives." The CSS will not be completed until the end of 2010 or early 2011 (from one.guam.gov website). If the mitigation strategies addressing these secondary impacts have yet to be developed, the impacts of the proposed actions cannot be analyzed.
A-008-226	7	3	78	3.4.3	Natural Resources	"A secondary impact of the buildup on federal lands is the increased pressure to restore, protect and preserve natural resources on non-federal lands. Local legislation may need to be more aggressive in providing environmental protection and enforcement. Local and federal agencies may need to be more aggressive in applying for and obtaining grants, and discretionary funds to support the local natural resource managers. Additional funds could be required for watershed management studies, managing geographic information system (GIS) databases, pilot studies, natural resource monitoring, and public education. Labor and facilities would be required to support the biosecurity plan (described in Chapter 2) that is being developed. Insufficient budget and staff to enforce environmental management programs could be an adverse secondary impact." Since these are impacts from the buildup, they should be mitigated by DoD and not left to other agencies that have insufficient budget and staff.

A-008-186

Thank you for your comment. The recreational resources analysis (Chapter 9) in Volume 2 has been updated based on NPS comments.

A-008-187

Thank you for your comment.

A-008-188

Thank you for your comment. Effects to tourism are addressed in the recreation chapter (Chapter 9 of Volume 2), socioeconomic chapter (Chapter 16 of Volume 2) and the Socioeconomic Impact Assessment Study (SIAS) that is Appendix F, Volume 9 of the DEIS. More information on has been included in the FEIS relating to impacts on the national park units on Guam.

A-008-189

Thank you for your comment. The items identified in this comment are not part of the proposed action and are therefore not addressed in the EIS.

A-008-190

Thank you for your comment. A chapter has been added to Volume 1 (Chapter 4) summarizing changes made to the Final EIS. This includes a section specifying effects associated with indirect and induced growth. As one form of mitigation, the DoD would conduct historic property awareness training of Marines and soldiers to promote protections of sensitive sites. NPS has been an important team member during the agency partnering process and preparation of the Programmatic Agreement. The DoD will ensure NPS remains part of the team. This will continue following the Record of Decision. DoD will continue to work with NPS, other agencies, and the public to ensure that the short term impacts of construction are managed effectively and that the long term

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A-008-227						Recreation, Cultural and Tourist Activities	"The anticipated increase in civilians and tourists on Guam could put additional pressure on the use of recreational sites and visits to cultural sites, both of which are typical tourist and local population activities. The GDPR would need staffing and budget to prepare and implement a recreation plan. Additional dive/snorkeling sites and other recreational facilities may need to be constructed and maintained. Secondary impacts associated with a larger population on Guam might include increased vandalism of recreational and cultural sites, not necessarily from the military and their dependents." Since these are impacts from the buildup, they should be mitigated by DoD, not left to other agencies, including the NPS, that have insufficient budget and staff.
	7	3	79		3.4.8		
A-008-228						Cumulative Impacts	Use of the island of Pagan, CNMI, as a future Marine Corps training site is not included in reasonably Foreseeable Projects, presumably because it does not take place on Guam or Tinian; however, those actions may be connected if resource impacts on one island are to be mitigated on another. It is a major undertaking that should be analyzed for cumulative impacts given the close geographic proximity and similar natural and cultural resource values.
	7	4	5		Table 4.3-1		
A-008-229						Disclosure of Impacts on NPS lands in the Draft EIS/OEIS	Since DoD has not included disclosure of impacts on the national park service, or its units and stewardship responsibilities on Guam and CNMI, there are no volume, chapter, page or paragraphs to refer specifically to. Hence, those columns appear blank in some of these entries. NPS comments provided in its comment letter would apply to many sections throughout the entire document as written. As stated in several JGPO partner meetings, NPS concerns range from terrestrial and marine resources to cultural and historic to social and economic, and our comments cover this range. Essentially, our comments provide the affected environment and analysis of impacts lacking in the Draft EIS/OEIS. For a convention NPS suggests that it would be appropriate and economical to place its analysis in Volume 8, Chapter 2. Consistency with Other Federal, State, and Local Land Use Plans, Policies and Controls. This is because the proposed action(s) do have impacts that would conflict with the mandates and policies of NPS, as described in our comment letter on pages 6-9. This convention is used for following comments. As an alternative, NPS suggests that a suitable and complete summary of those impacts be placed at this location, while incorporating the NPS comment letter by reference or duplicating it in its own appendix.
	8	2					

effects of the military relocation reflect DoD policies to be good neighbors and responsible citizens on Guam.

A-008-191

Thank you for your comment. A new chapter (Chapter 4) has been added to Volume 1 identifying information and analysis that has been added between publication of the Draft EIS and the Final EIS. This includes a section specifying effects associated with indirect and induced growth.

A-008-192

Thank you for your comment. A percentage increase of invasive species cannot be predicted with any accuracy and the species that may become problematic are difficult to determine. The Micronesia Biosecurity Plan (MBP) that is being developed in conjunction with the proposed action will provide an analysis. The MBP will also provide inspection recommendations for cargo entering and leaving Guam and will recommend steps to prevent spread of invasive species. The MBP will address all aspects of the potential for the transport of brown treesnake and all potential non-native invaseive species to other Pacific Islands and to Guam due to military activities originating on Guam. The Navy is in ongoing discussions with the U.S. Fish and Wildlife Service regarding specific procedures and requirements for inspections of cargo and these will be incorporated into the EIS. Information pertaining to the MBP and general biosecurity issues are discussed in Volume 2, Chapter 10, Section 10.2.2.6 for terrestrial species, and in Volume 2, Chapter 11, Section 11.2.2.6 for marine species. Volume 2, Chapter 14 (marine transportation) has been updated to include estimated increases of cargo traffic associated with both organic growth and the military buildup.

A-008-193

Thank you for your comment. Watershed erosion studies and projects

A-008-230	8	2		<p>DoD has dismissed NPS concerns about indirect impacts on the national parks, without providing any rationale. Simply to say that such impacts are outside the scope of analysis is not sufficient. Indirect impacts are those engendered by proposed or connected actions that occur later in time or further in distance. Indirect effects may include growth inducing effects such as changes in land use patterns and population density. See 40 CFR 1508.8. National Park Units are significant, in accordance with CEQ regulatory criteria, particularly in that these units are listed in the National Register of Historic Places. NPS maintains that, under CEQ significance criteria, possible impacts on the national park system must be discussed and considered in a Draft EIS/OEIS. Further, even if DoD disagrees with NPS, it must still report NPS analyses pertaining to its jurisdiction and special expertise. 40 CFR 1502.9(a) states that an agency shall make every effort to disclose and discuss at appropriate points all major points of view on the environmental impacts of the proposed action and alternatives to it. The major impacts are summarized in following comments. However, NPS requests that the page references provided in the summary comments be reviewed and that the many substantive comments therein be attended to.</p> <p>Disclosure of Impacts on NPS lands in the Draft EIS/OEIS</p>
A-008-231	8	2	Impact on NPS lands from population growth and the construction work force	<p>NPS believes that the proposed action(s) will have significant indirect impacts on the National Park Service and its units particularly on Guam. To summarize: a variety of impacts would result from population growth and unregulated and unmitigated disposition of the workforce during and after peak construction phases. This includes consideration of housing, sanitation, wastewater, water supply, food service, transportation and recreation. These potential impacts are documented on pages 27 through 37 of the NPS comment letter. The comment letter supports the assessment of impacts by providing discussion of NPS authorities (laws and policies) and describes the current condition of the parks. NPS requests that these impacts be disclosed in the Final EIS/OEIS, and considered in the record of decision.</p>
A-008-232	8	2	Impact on NPS units from long term changes in the marine environment	<p>NPS believes that the proposed action(s) will have significant indirect impacts on the National Park Service and its units particularly on Guam. To summarize: Long term and significant indirect impacts on the marine environment within NPS' Agat and Asan Beach Units could result from dredging and loss of coral in Apra Harbor. These potential impacts are documented on pages 27 through 29 of the NPS comment letter. The comment letter supports the assessment of impacts by providing discussion of NPS authorities (laws and policies) and describes the current condition of the parks. NPS requests that these impacts be disclosed in the Final EIS/OEIS, and considered in the record of decision.</p>
A-008-233	8	2	Impact on NPS units from long term military, civilian, and other induced population growth	<p>NPS believes that the proposed action(s) will have significant indirect impacts on the National Park Service and its units particularly on Guam. To summarize: Long term and significant impacts could occur from a percentage of the permanent increased military and civilian population of over 33,000 that choose to recreate on public lands in and adjacent to national park units, especially if they engage in diving, fishing, and ORV use. These potential impacts are documented in the NPS comment letter. The comment letter supports the assessment of impacts by providing discussion of NPS authorities (laws and policies) and describes the current condition of the parks. NPS requests that these impacts be disclosed in the Final EIS/OEIS, and considered in the record of decision.</p>

are being considered as mitigation for marine impacts in Apra Harbor, and other greenbelt plantings are being considered.

Additional discussion on impact to national park units on Guam is provided in the Final EIS.

A-008-194

Thank you for your comment. A detailed compensatory mitigation plan would be submitted as part of the Clean Water Act 404 permit application for construction affecting the navigable waters of the United States (including the CVN transient wharf). Due to the ongoing review of DoD's habitat assessment methodology for coral reef ecosystems and associated uncertainties regarding the scope of mitigation required, a detailed mitigation plan has not been developed nor will one be available for incorporation into the FEIS. However, a number of mitigation options, including watershed restoration and the use of artificial reefs, are discussed in programmatic nature in Volume 4, Section 11.2 of the FEIS. DoD recognizes that, as part of the CWA Sec. 404 permitting process, additional NEPA documentation may be required to address specific permitting requirements and implementation of required compensatory mitigations.

An analysis of the effects of recreational fishing has been added to Chapter 16 of Volume 2.

A-008-195

Thank you for your comment. As documented in this EIS, DoD acknowledges the existing sub-standard conditions of key public infrastructure systems and social services on Guam and the interest to have DoD fund improvements to these systems and services. DoD's ability to fund actions is limited by Federal law. However, to minimize

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A-008-234	8	2		Impacts on National Park Units and their Significance	With reference to the term "significance," the Draft EIS/OEIS must evaluate the context and intensity of the impact, and consider the extent to which the action is proximal to unique characteristics of the geographic area such as historic or cultural resources, park lands.... and ecologically critical areas. Further, the Draft EIS/OEIS must evaluate the degree to which the action may adversely affect sites, structures, or objects listed in the National Register of Historic Places or may cause the destruction of significant scientific, cultural or historical resources. Since War in the Pacific NHP, which is listed in the National Register, and resources within it, meet the criteria expressed in this section of the regulations, the Draft EIS/OEIS needs to disclose the requisite analysis specific to the parks, and make a determination of significance. It is our concern and our preliminary conclusion that the impacts are likely to be significant, by definition.
A-008-235	8	2		Impacts on National Park Plans, Policies and Controls	The CEQ regulations also require that the proponent evaluate and disclose possible conflicts between the proposed action and the objectives of Federal land use plans, policies, and controls for the area concerned. In this case, the Draft EIS/OEIS must specifically consider the plans, policies and controls for the national park units on Guam and CNMI. The park units each are managed according to a formal plan, and must conform to a large body of National Park Service policies and regulations. These impacts are discussed in the NPS comment letter, as supported by a presentation of the NPS authorities.
A-008-236	9	B		Cooperating Agencies	NPS letter to Commander Scott Hinton, dated July 20, 2007, requesting additional information before NPS could formally accept invitation to serve as a cooperating agency, was never acknowledged by DoD.
A-008-237	9	C		Agency Correspondence	This should include agency responses to public scoping and other non-privileged correspondence throughout the process.
A-008-238	9	H		CCD	Coastal Zone Consistency Determination not yet available.
A-008-239	9	E		HEA	There is no data provided for the discount rate in the Habitat Equivalency Analysis (HEA) for marine resources
A-008-240	9	G	Chap 2-3	Resource Technical	Draft EIS/OEIS Resource Technical Appendix is inadequate; list of terrestrial species includes marine invertebrates and fishes; and terrestrial species are listed in the marine biological resource section.
A-008-241	9	G		Disclosure of Impacts on NPS lands in the Draft EIS/OEIS	Appendix G lists recreation sites on Guam, and includes incorrect and incomplete references to units of War in the Pacific National Historical Park. NPS points out that the mission for the park and its units is not specifically and exclusively that of recreation. As explained under NPS Mandates in the NPS comment letter, the fundamental mission incorporates visitor enjoyment as a component of the broader mission to protect the historic and natural resources, and honor the dead of WWII. NPS requests that units of the national parks on Guam, Saipan and Tinian be correctly identified in the Draft EIS/OEIS, and that impacts on them be disclosed. See Figure 1, and unit descriptions under Current Conditions section, of the NPS comment letter.

adverse impacts associated with the proposed military relocation program, DoD is leading a federal inter-agency effort to identify other Federal programs and funding sources that could benefit the people of Guam.

Due to the complexity of the project, there are two parts of the cumulative impact analysis: the summary of impacts for all components of the proposed action (Volume 7 Chapter 3) and an assessment of the additive impacts of the proposed action in combination with other past, present and reasonably foreseeable projects (Volume 7, Chapter 4). A systematic methodology was applied in both analyses. Volume 7, Chapter 3 summarizes the combined potential impacts of the preferred alternatives for the entire proposed action on Guam and Tinian. The impacts of Volumes 2 through 6 are discussed by resource. At the end of Volume 7, Chapter 3.3 there is a table summarizing the combined impacts of all components of the preferred alternatives. Significant impacts are identified. Trends in the resource health due to anthropogenic and non-anthropogenic factors that impact resource health on Guam and Tinian since World War II are described. This section includes limited quantitative data for proposed action impacts. For example, special-status species habitat loss due to the proposed action and current amount of habitat available island wide is presented in Volume 7, Section 3.3. There is no quantitative island-wide data readily available for most of the resource areas assessed and the impact analysis is often qualitative.

Volume 7, Chapter 4, Cumulative Impacts, assesses the potential additive impact of the EIS proposed actions when compared to potential impacts of past, present and reasonably foreseeable projects. The period of consideration for the cumulative impact analysis is 2004 to 2019. The project list is based on best available information from DoD and the Guam Land Use Commission database. There is no National Environmental Policy Act (or similar) document disclosing project

A-008-242	9	J		Supplemental Aircraft Carrier Marine Surveys	Peer review of the marine resources technical report by Dollar et al. (2009) apparently does not include specialists who has worked on coral reefs in Guam. An email characterizing the peer reviews as finding lack of problems in the marine technical report does not reflect many comments by peer reviewers regarding problems in the technical report.
A-008-243					DoD should state that it will follow Gov Guam Compensatory Mitigation Policy in addition to CWA and other Federal policy.
A-008-244	9	J		Supplemental Aircraft Carrier Marine Surveys	Supplemental CVN Marine Survey does not provide a spatial or temporal context. For example, there are no control sites. The survey report by Dollar et al. (2009) has no measures for ecosystem function, which limits the usefulness of the entire report for impact analysis or for mitigation purposes. The choice of parameters measured is not shown to actually respond specifically to changes in water quality of, not some other disturbance. Marine survey transects were only 10 meters long. A 25-50 meter long transect is needed to adequately sample rare taxa and habitat heterogeneity. This problem in sampling "design" significantly weakens the validity of the marine survey report results. In the analysis of photoquadrat images 50 points are used rather than 5-20 points. Besides greatly oversampling photoquadrat images at what must have been high cost, the large number of sampled points can often result in significant problems with autocorrelation of data. Size frequency of corals was not sampled as stated, rather small coral colony density was. Discussion of results on pigmentation of corals simplistically assumes that dark is equivalent to healthy, however corals can change pigmentation, and increases in pigmentation can be correlated with increase in nutrients. Macroinvertebrate data was not analyzed in a benthic community context; such data are as informative of habitat status as photoquadrat data. Photoquadrats alone do not capture much of the information needed to assess coral reef condition. Sediment grain size distribution and percent organic content is needed, not carbonate composition. Sediments are undersampled in the horizontal and depth dimensions. As such sediment data cannot be used as a predictive variable for benthic data. Sampling design confuses strata for sea floor and reef top sites. Multivariate analyses are unselective and redundant. Remote sensing data accuracy is less than the average for such studies 76% versus 80-90% accuracy. Use of remote sensing data seems somewhat overstated given the small area sampled. Dredge effects on reefs extend considerably beyond 200 meters, depending on hydrodynamics and grain size distribution. Sediments can be carried kilometers away from dredge site, with many negative impacts on corals which may be sublethal or lethal.

impacts for most of the cumulative projects listed; therefore, there is insufficient data on most cumulative projects listed to conduct a quantitative impact analysis. There is a table at the end of Chapter 4 that summarizes the potential cumulative impacts. Potential significant cumulative impacts are identified for some resources. Mitigation measures are proposed earlier in the EIS. The cumulative impacts analysis has been expanded in the FEIS, including the addition of climate change analysis and analysis of cumulative impacts to coral.

A-008-196

Thank you for your comment. In addition to continuing to implement existing standard operating procedures and DoD requirements covering the inspection and transport of material and personnel from Guam to other locations, the Navy is also funding and coordinating the preparation of a Micronesia Biosecurity Plan (MBP). This plan will address all aspects of the potential for the transport of the brown treesnake, and all potential non-native invasive species, to other Pacific Islands and from other locations to Guam due to the military activities originating on Guam. Information pertaining to the MBP and biosecurity issues are discussed in Volume 2, Chapter 10, Section 10.2.2.6 for terrestrial species, and in Volume 2, Chapter 11, Section 11.2.2.6 for marine species. Volume 2 Chapter 14 (marine transportation) has been updated to include projected cargo traffic through the Port of Guam associated with both organic growth and the military buildup.

A-008-197

Thank you for your comment. Although not included in the Habitat Equivalency Analysis, assessment of soft sediment benthic habitat effects is included in the impact analysis and mitigation measure strategies.

<p>A-008-245</p>				<p>Supplemental Aircraft Carrier Marine Surveys</p>	<p>The marine survey report has minimal value since the entire footprint of the dredging project impact area is not well defined and delimited other than the actual dredge area. The marine data are of limited utility for HEA, and only for the actual dredge area; the survey is not at all effective with respect to the broader dredging impacts beyond the rather limited 200 meter adjacent area considered. Table 7 is missing or mislabeled. Additional studies are needed on nearshore ocean circulation in Apra Harbor and along adjacent coastlines for 1-3 miles. No dredging curtain system is fully effective, particularly in areas with complex topography or relief such as coasts, wharves or reefs. There is no analysis of impacts from dredged sediments on wetlands, including mangrove forest important as nursery habitat for coral reef species, or for streams draining into Apra Harbor. The area indicated as indirect likely does not represent the full area of coral reef that will be potentially affected. Survey data are not applicable input for analysis of reefs deeper than 60 feet, or beyond the "direct" area. Assumptions regarding upland disposal of dredge materials are not supported by evidence. How is 100% of storm water capture and pretreatment to be accomplished? Approximately 3.5 acres of intertidal habitat would be filled. How will this be mitigated? There is no basis in evidence for statements made in 4-31 Section E and 4-37 subpart E, regarding no significant impacts to or no adverse effects on special status species, sanctuaries and refuges, or (230.4) coral reefs.</p>
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A-008-198

Thank you for your comment. Watershed erosion studies and projects are being considered as mitigation for marine impacts in Apra Harbor, and other greenbelt plantings are being considered. The Final EIS contains a number of additional mitigation measures that would lessen surface water runoff. This is in addition to the proposed surface water drainage measures that are included in the proposed design of the proposed main cantonment and other areas that would be developed as part of this proposed action.

A-008-199

Thank you for your comment. Monitoring of sea turtle harassment safety zones will be conducted by qualified observers. Pile driving or dredging will not be initiated or re-initiated during nighttime hours when visual clearance of the zone cannot be conducted.

A-008-200

Thank you for your comment. Amphibious craft landings are not part of the proposed actions.

A-008-201

Thank you for your comment. The recreational resources (Chapter 9), cultural resources (Chapter 12), and socioeconomics and general services (Chapter 16) sections of Volume 2 have been updated based on NPS comments. The Programmatic Agreement is a way to streamline the workload for the SHPOs. We would like to reiterate that the NPS has been an important team member during the agency partnering process and preparation of the Programmatic Agreement. The DoD will ensure NPS remains part of the team. This will continue following the Record of Decision.

A-008-202

Thank you for your comment. The recreational resources (Chapter 9), cultural resources (Chapter 12), and socioeconomics and general services (Chapter 16) sections of Volume 2 have been updated based on NPS comments. Funding for additional staffing for NPS and the Guam and CNMI HPOs is not included in the mitigation measures. However, NPS has been an important team member during the agency partnering process and preparation of the Programmatic Agreement. The DoD will ensure NPS remains part of the team. This will continue following the Record of Decision.

A-008-203

Thank you for your comment. In accordance with the National Environmental Policy Act, the EIS contains a comprehensive analysis of potential impacts of the proposed actions and alternatives. Additional studies have been completed following preparation of the Draft EIS; the Final EIS has been updated with this information. Furthermore, revisions have been made to the EIS based on comments from agencies and the public. In addition, a chapter has been added to Volume 1 (Chapter 4) summarizing changes made to the Final EIS. This includes a section specifying effects associated with indirect and induced growth. The DEIS describes the intensive selection process that the Department of the Navy went through to select alternatives for the location of the firing range on Guam in Section 2.3.1. The remaining alternatives do have different impacts in terms of individual environmental resources. Consequently, the Final EIS contains sufficient information for the decision maker to make an informed decision.

A-008-204

Thank you for your comment. Chapter 2 of Volume 8 discusses the consistency of the proposed actions with relevant federal, state, and local plans, policies, and controls. This chapter has been updated based on NPS comments. Also, the NPS comment package has been added

to Appendix G (Cultural Resources) which addresses consultations associated with the Programmatic Agreement.

A-008-205

Thank you for your comment. NPS has been an important team member during the agency partnering process and preparation of the Programmatic Agreement. The DoD will ensure NPS remains part of the team. A new chapter (Chapter 4) has been added to Volume 1 identifying information and analysis that has been added between publication of the Draft EIS and the Final EIS. This includes a section specifying effects associated with indirect and induced growth. The Record of Decision will contain a description of practicable means implemented to avoid or minimize environmental impacts. It will also specify the mitigation measures and associated monitoring efforts to be implemented by DoD.

A-008-206

Thank you for your comment. DoD appreciates NPS comments and the recommended mitigation measures.

A-008-207

Thank you for your comment. No direct or indirect impacts have been identified at this location.

A-008-208

Thank you for your comment. This figure has been corrected.

A-008-209

Thank you for your comment. This figure has been corrected.

A-008-210

Thank you for your comment. It is anticipated there would be a rapid rise in H2B visa foreign workers (for construction jobs), followed by a decline because their construction jobs would go away after structures and facilities for the buildup are completed. H2B workers must leave Guam after their work contracts or projects are completed.

A-008-211

Thank you for your comment. A new chapter (Chapter 4) has been added to Volume 1 identifying information and analysis that has been added between publication of the Draft EIS and the Final EIS. This includes a section specifying effects associated with indirect and induced growth.

A-008-212

Thank you for your comment. Funding for additional staffing for NPS and the Guam and CNMI HPOs is not included in the mitigation measures. However, there are a number of potential mitigation measures that have been added in the Final EIS to avoid, minimize, or compensate for adverse impacts.

A-008-213

Thank you for your comment. The Final EIS has been updated (Volume 2) to better address impacts on social services, including recreational areas such as NPS units.

As documented in this EIS, DoD acknowledges the existing sub-standard conditions of key public infrastructure systems and social services on Guam and the interest to have DoD fund improvements to these systems and services. DoD's ability to fund actions is limited by Federal law. However, to minimize adverse impacts associated with the proposed military relocation program, DoD is leading a federal inter-

agency effort to identify other Federal programs and funding sources that could benefit the people of Guam.

A-008-214

Thank you for your comment. The Final EIS has been updated with information on NRHP-eligible site complexes in the MLA. The site complexes are based on historic features rather than pre-Contact artifact distributions. A Cultural Landscape Report, Thematic Synthesis Publications, and Historic Properties Pamphlet Driving Tour Update were included as proposed mitigation measures.

A-008-215

Thank you for your comment. The pink area is where the boundary of the NHL overlaps a high probability area. This has been clarified in the Final EIS.

A-008-216

Thank you for your comment. Given the density of NRHP eligible sites on Tinian, it has been difficult to locate ranges in an area that would completely avoid impacting such sites. However, ranges were sited to avoid some of the most important sites on Tinian, such as Unai Dankulo, Unai Chulu, the North Field National Historic Landmark and various shrines. Information on the impacts to the NHL has been expanded in the Final EIS, as has a discussion of access to the NHL. DoD would not restrict access to the NHL; access would be maintained through 8th Avenue. Control points would be used to prevent the public from traveling on to ranges when in use, but would not delay or deny access to the North Field area. However, in recognition of the importance of the NHL, the potential for increased use, and that some areas to the east would be restricted during certain times of the year, DoD has proposed several mitigation measures to mitigate some of these indirect impacts. These include printing brochures about North Field for public distribution,

and incorporation of treatment recommendations from the Cultural Landscape Report on North Field into an updated Integrated Cultural Resources Management Plan for Tinian.

A-008-217

Thank you for your comment. The North Field NHL on Tinian would be accessed through 8th Avenue and this will be solidified in the Programmatic Agreement.

A-008-218

Thank you for your comment. The TCPs in Table 12.2-4 were evaluated in a study by the Micronesian Area Research Center in 2009. These TCPs were identified by interviewing local people. The TCPs had attributes such as: 1) spiritual power, 2) practice, 3) stories, 4) therapeutic quality, and 5) remembrances. All of the TCPs were tied to practices and remembrances. Some were also identified as places with therapeutic or healing properties. Impacts to such resources would occur if access were prohibited to areas that are important for traditional practices or if the character of the place changed so that it was no longer recognized as it is today. The Final EIS addresses impacts such as restricted access and changes in the setting and feeling of the location. DoD has proposed mitigation measures specifically to address these impacts.

A-008-219

Thank you for your comment. Significant impacts to NPS resources are not identified in Volume 4. However, this chapter was updated based on NPS comments.

A-008-220

Thank you for your comment.

A-008-221

Thank you for your comment. Evaluation of alternative energy options is presented in Section 2.1.2 of Volume 6.

A-008-222

Thank you for your comment. The text has been modified.

A-008-223

Thank you for your comment. The document has been modified.

A-008-224

Thank you for your comment. Mitigation measures were modified for each volume.

A-008-225

Thank you for your comment. The impact analysis and mitigation measures are based on the latest information available at the time of the Final EIS.

A-008-226

Thank you for your comment. DoD does not have the authority to restore, protect and preserve natural resources on non-federal land.

A-008-227

Thank you for your comment. The recreational resources (Chapter 9), cultural resources (Chapter 12), and socioeconomics and general services (Chapter 16) sections of Volume 2 have been updated based on NPS comments. Funding for additional staffing for NPS and the Guam and CNMI HPOs is not included in the mitigation measures. However, NPS has been an important team member during the agency partnering process and preparation of the Programmatic Agreement.

The DoD will ensure NPS remains part of the team. This will continue following the Record of Decision.

A-008-228

Thank you for your comment. In Volume 7, the study area is island-wide (Guam and Tinian) for each resource. The cumulative impacts study area extends 164 ft (50 m) from the coastline of each island into marine waters. The islands are sufficiently distant from one another that additive impacts between the islands are not anticipated. Cumulative impacts to Guam are addressed in Section 4.3.5.1 and cumulative impacts to Tinian are addressed in Section 4.3.5.2. Because climate change is a global problem, the climate change impacts resulting from the preferred alternatives, along with the projected impacts of climate change on Guam and Tinian, are assessed in Section 4.4., Climate Change and Global Warming.

A-008-229

Thank you for your comment. Chapter 2 of Volume 8 discusses the consistency of the proposed actions with relevant federal, state, and local plans, policies, and controls. This chapter has been updated based on NPS comments. Also, the NPS comment package has been added to Appendix G (Cultural Resources) which addresses consultations associated with the Programmatic Agreement.

A-008-230

Thank you for your comment. The Final EIS has been updated based on NPS comments. Responses to individual comments identify how each comment is addressed.

A-008-231

Thank you for your comment. A new chapter (Chapter 4) has been added to Volume 1 identifying information and analysis that has been

added between publication of the Draft EIS and the Final EIS. This includes a section specifying effects associated with indirect and induced growth. NPS effects are included in this chapter.

A-008-232

Thank you for your comment. Analysis of indirect marine biology and recreational fishing effects has been updated in Chapters 11 (Marine Biological Resources) and 16 (Socioeconomics and General Services) of Volume 2. The analysis of resulting effects to NPS units in Chapter 9 (Recreational Resources) has also been updated.

A-008-233

Thank you for your comment. The Final EIS has been updated based on NPS comments. Responses to individual comments identify how each comment is addressed.

A-008-234

Thank you for your comment. The recreational resources (Chapter 9), cultural resources (Chapter 12), and socioeconomics and general services (Chapter 16) sections of Volume 2 have been updated based on NPS comments. Volumes 1 and 7 have also been updated. A determination of significance for impacts to NPS units is presented in the Volume 2 Chapter 9.

A-008-235

Thank you for your comment. Chapter 2 of Volume 8 discusses the consistency of the proposed actions with relevant federal, state, and local plans, policies, and controls. This chapter has been updated based on NPS comments.

A-008-236

Thank you for your comment. NPS has been an important team member

during the agency partnering process and preparation of the Programmatic Agreement. The DoD will ensure NPS remains part of the team.

A-008-237

Thank you for your comment. This appendix has been updated with correspondence since the November 2009 Draft EIS. Agency comments are included in Volume 10.

A-008-238

Thank you for your comment. The CCD is included in the Final EIS.

A-008-239

Thank you for your comment. The discounted rate is identified in the example HEA. To clarify the HEA found within the DEIS is merely an example of how this tool may be used to aid in the development of a compensatory mitigation plan.

A-008-240

Thank you for your comment. Species lists have been updated for the Final EIS.

A-008-241

Thank you for your comment. The recreational resources portions of Volume 2 and Volume 9 have been updated in the Final EIS based on NPS comments.

A-008-242

Thank you for your comment. Appendix J has been updated for the Final EIS. A new chapter (Chapter 4) has been added to Volume 1 identifying information and analysis that has been added between

publication of the Draft EIS and the Final EIS. This includes a description of additional marine survey data and a comparative analysis of different coral assessment methods.

A-008-243

Thank you for your comment. A detailed compensatory mitigation plan would be submitted as part of the Clean Water Act 404 permit application for construction affecting the navigable waters of the United States (including the CVN transient wharf). Due to the ongoing review of DoD's habitat assessment methodology for coral reef ecosystems and associated uncertainties regarding the scope of mitigation required, a detailed mitigation plan has not been developed nor will one be available for incorporation into the FEIS. However, a number of mitigation options, including watershed restoration and the use of artificial reefs, are discussed in programmatic nature in Volume 4, Section 11.2 of the FEIS. DoD recognizes that, as part of the CWA Sec. 404 permitting process, additional NEPA documentation may be required to address specific permitting requirements and implementation of required compensatory mitigations.

A-008-244

Thank you for your comment. Appendix J has been updated for the Final EIS. A new chapter (Chapter 4) has been added to Volume 1 identifying information and analysis that has been added between publication of the Draft EIS and the Final EIS. This includes a description of additional marine survey data and a comparative analysis of different coral assessment methods.

A-008-245

Thank you for your comment. Appendix J has been updated for the Final EIS. A new chapter (Chapter 4) has been added to Volume 1 identifying information and analysis that has been added between

publication of the Draft EIS and the Final EIS. This includes a description of additional marine survey data and a comparative analysis of different coral assessment methods.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

February 17, 2010

OFFICE OF THE
REGIONAL ADMINISTRATOR

Mr. Roger M. Natsuhara
Acting Assistant Secretary of the Navy
Installations and Environment
1000 Navy Pentagon
Washington, D.C. 20350-1000

Subject: EPA comments on the Draft Environmental Impact Statement (DEIS) for the Guam and CNMI Military Relocation, November 2009

Dear Mr. Natsuhara:

A-009-001

The U.S. Environmental Protection Agency (EPA) has reviewed the above-referenced document pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act. EPA is a cooperating agency on the project EIS and has worked closely with the Department of Defense (DoD) to review and comment on the project since 2007.

Based on our review of the information provided in the DEIS, we have rated the DEIS as Environmentally Unsatisfactory; Inadequate Information (EU-3) (see enclosed "Summary of Rating Definitions"). There are two bases for the "EU" component of the rating: 1) by not providing a specific plan to address the wastewater treatment and water supply needs of the construction workers and induced population growth, the project will result in unsatisfactory impacts to Guam's existing substandard drinking water and wastewater infrastructure which may result in significant adverse public health impacts, and 2) the project will result in unacceptable impacts to 71 acres of high quality coral reef ecosystem in Apra Harbor.

Similarly, there are two reasons for the "3" component of the rating: 1) the DEIS acknowledges that the introduction of 56,000 additional residents (i.e., 23,000 construction workers and 33,000 from induced population growth in peak years) will greatly exacerbate an already environmentally unsatisfactory situation, but it offers no specific, workable plan for addressing this situation; and 2) EPA, and several other involved resource agencies, have determined that the methodology used in the DEIS for evaluating the full extent of impacts to coral reef habitat is not adequate and, as a result, the DEIS does not present an adequate plan for mitigating the unavoidable loss of coral reef habitat.

The military realignment, as proposed in the DEIS, will significantly exacerbate existing substandard environmental conditions on Guam. Presently, Guam's environmental and public health problems exceed those of most U.S. communities. For example, its population experiences boil water notices, sewage spills, exposure to waterborne diseases, and illegal dumping. Indeed, over the last seven years, EPA has issued enforcement orders to the Government of Guam to bring their environmental infrastructure into compliance with federal

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A-009-001

Thank you for your comment. The Navy appreciates the close coordination with EPA since scoping in 2007, and looks forward to continuing close coordination with EPA. The Navy, as the lead agency, anticipated the Guam and CNMI Military Relocation was a major federal action that would have a significant effect on the quality of the human environment and announced its intent to prepare an EIS in 2007 and circulated the DEIS for review in November 2009. The Navy has received EPA's comment letter and the rating of Environmentally Unsatisfactory: Inadequate Information (EU-3).

EPA rated the Guam and CNMI Military Relocation DEIS EU-3 because 1) the DEIS did not contain detailed plans to mitigate significant impacts to the existing substandard drinking water and wastewater infrastructure, and 2) the DEIS did not contain detailed plans to mitigate significant impacts to 71 acres of coral reef ecosystem in Apra Harbor.

The Navy analyzed a "worst-case" population growth scenario and is required to identify mitigation measures in the EIS, including those outside the Navy's jurisdiction as the lead agency. A detailed plan has not been provided in the EIS for the existing substandard environmental conditions on Guam because no plan has been made available and governance of Guam's population as well as repairing the existing substandard conditions on Guam is outside of the Navy's mission and the purpose and need of the Guam and CNMI Military Relocation. The Navy is committed to participate in an interagency adaptive management group to avoid significant impacts, but can not lead such a group as the Navy does not have authority over the governance of Guam, its agencies, and the missions and responsibilities of other federal resource agencies. Through implementation of adaptive management and as part of an interagency adaptive program management group, the Navy would have the authority to reduce or alter its plans and schedules to counteract the effects of population growth, but cannot make

A-009-001

environmental laws. Further, power production and transportation on the island depends on the highest sulfur content fuel currently used in the U.S.

EPA is concerned about the magnitude of the project impacts, including public health impacts, upon the existing substandard conditions on Guam, further impeding Guam's efforts to comply with federal environmental laws and policies. At the peak of construction, 79,000 new residents (a 45% increase over its current population of 180,000) will relocate to Guam because of the military realignment; however, the DEIS proposes to provide direct services for only 23,000 of that new population. The DEIS acknowledges the impacts to the water and wastewater infrastructure will be significant, but states that these impacts are mitigable to less than significant through upgrades to the local utility. Viable plans for these upgrades are not presented in the DEIS.

As stated in the DEIS, because of Guam's geographic and historical circumstances, Guam "faces two broad types of capacity challenges both of which will affect its ability to cope with the impacts of the proposed action: 1) human resources and 2) financial resources." We do not suggest DoD is responsible for existing conditions on Guam; however, the additional burden placed on existing conditions by the military realignment is the responsibility of DoD. Given the interwoven nature of DoD's impacts on civilian infrastructure in Guam, EPA has consistently advocated for a coordinated approach among federal agencies and the Government of Guam. DoD should provide leadership to articulate and implement a coordinated U.S. Government – Government of Guam funding strategy to address the impacts of the project, including the impacts of the off-island construction and induced population growth.

These impacts are of sufficient magnitude that EPA believes the action should not proceed as proposed and improved analyses are necessary to ensure the information in the EIS is adequate to fully inform decision-makers. Further, EPA believes that the information needed to address the aforementioned inadequacies should be circulated for full public review prior to the issuance of any decision regarding the project. In any event, if we are unable to resolve our concerns in the Final EIS, this matter may be a candidate for referral to the Council on Environmental Quality.

Given the importance of this project and the magnitude of the anticipated impacts, EPA has worked with DoD through the DEIS public comment period to address our environmental concerns about the project as proposed. We appreciate DoD's engagement of EPA and other federal agencies early in the NEPA process and acknowledge that this has resulted in project improvements. We understand the challenges DoD faces in meeting the 2014 deadline for the Marine relocation from Okinawa, and strongly support DoD's stated objective to avoid the creation of "two Guams." Within this context, urgent action is needed and EPA is committed to working with DoD to identifying solutions.

commitments during planning because doing so would not meet the timelines agreed to in international agreements. The Navy cannot make commitments for actions that would be the responsibility of the Guam government and other federal agencies to implement.

Due to increased durations of munitions operations, kilo wharf can no longer be relied on to berth the aircraft carrier during transient visits. Dredging of a channel and construction of a new wharf is required to support the increased presence of nuclear aircraft carriers in the Pacific. The extent of dredged area to support construction would result in significant impacts to corals. Although the appropriate science for measurement of the value of coral reef ecosystems is still debated at the scientific level, the Navy used standard methodology and procedures to assess impacts to coral reef ecosystems. The Navy has coordinated with EPA, USFWS, NMFS, and USACE since scoping in 2007 in attempt to resolve the scientific debate, but no resolution has been obtained and the debate continues at the scientific level. A compensatory mitigation plan would be submitted as part of the permit application for construction affecting the navigable waters of the United States of America, but one is not yet available for incorporation into the Guam and CNMI Military Relocation EIS.

A-009-001

The military realignment to Guam is an historic opportunity to develop a more environmentally, economically, and socially sustainable Guam. EPA strongly supports looking at how the military build-up can advance the goal of "One Guam." DoD has a long-standing policy to take the leadership role within the federal government in helping communities respond to the effects of defense-related activities.¹ This project is the opportunity for DoD, the federal government, and the Government of Guam to "get it right." Moreover, the recently proposed "Tiger Team" trip to Guam to assess priority needs, identify federal funding leveraging opportunities, and identify funding gaps is a positive undertaking. We want to help DoD ensure this effort is outcome oriented and can help achieve interagency cost sharing commitments for immediate, necessary improvements to ensure the long term integrity of Guam's infrastructure systems under the additional burden of the projected population growth associated with this project.

In brief, EPA's primary concerns and recommendations are the following:

A-009-002

Responsibility for Impacts of Construction Workers and Induced Population Growth

The DEIS inappropriately excludes the construction workers and the induced population growth for jobs, and their impacts, as part of DoD's proposed action. We understand DoD plans to use contracting requirements to ensure the service needs are provided for construction workers. However, the DEIS does not specify how these services will be provided for in time to meet demand, resulting in potentially unacceptable environmental impacts. DoD needs to address how the infrastructure needs of the construction workers and the induced population growth will be met.

A-009-003

Drinking Water

According to the DEIS, the military realignment to Guam will result in an immediate island-wide shortfall in water supply. By 2014 this shortfall will range between 6 and 13 million gallons per day. Drinking water shortfalls result in low water pressure, which has direct public health and safety impacts, including increased exposure to water borne diseases from sewage, stormwater infiltration into drinking water, and low water pressure for fire fighting. As the DEIS indicates, these impacts are likely to fall disproportionately upon minority and low-income communities. Eighty-five percent of Guam relies on a federally designated sole source aquifer for drinking water, as does DoD. DoD identifies the local utility, Guam Waterworks Authority (GWA) as the responsible party for providing services to the construction workers and the induced population growth. However, DoD acknowledges the low likelihood of GWA's ability to fund necessary upgrades.

The drinking water shortfall will result in a drawdown of this aquifer with potential long-term impacts, including saltwater intrusion and a reduction in the overall yield of the aquifer. There is uncertainty regarding the sustainable yield of the aquifer, yet DoD has not completed an updated assessment. Provisions for the drinking water demands by the construction workers and the induced population growth are not identified in the DEIS.

¹ Executive Order 12049 – Defense Economic Adjustment Programs.

A-009-002

Thank you for your comment. The FEIS has been substantially modified to assess potential impacts from the off-base indirect workforce and induced populations. This assessment is largely qualitative because DoD does not own the off-base utilities, control where construction workforce housing and induce populations will ultimately be, and because there is limited information on existing conditions of water and wastewater systems from GWA, GEPA and EPA Region IX reports. The FEIS looks at breakpoint years where water demand could exceed available supply, and commits to providing excess water to meet off-base demands during the construction phase of the military relocation by installing DoD wells early, and finding other sources of excess water from existing DoD systems. For wastewater, the FEIS commits to upgrading the NDWWTP that is expected to receive two-thirds of the wastewater flows from the construction workforce housing areas.

The FEIS also identifies off-base impacts that will be significant in the event that GovGuam and GWA do not complete needed repairs and upgrades to the water and wastewater systems as currently required under a 2003 Stipulate Order and the GWA Capital Improvements Program (CIP). The FEIS does not provide details of what projects are required off-base beyond what has already been identified in the GWA CIP and in follow-on assessment reports prepared by EPA Region IX which assessed the validity of the CIP.

DoD acknowledges the existing sub-standard conditions of key public infrastructure systems including the potable water and wastewater systems on Guam and the interest to have DoD fund improvements to these systems. The DoD cannot take full responsibility to repair GWA's off base water and wastewater systems to remedy these serious existing conditions because DoD's ability to fund infrastructure improvements is limited by Federal law. However, to minimize adverse impacts associated with the proposed military relocation program, the DoD is

A-009-003 | To ensure the environmental acceptability of this project DoD should complete an interim sustainable yield assessment and long-term comprehensive study, implement an aquifer management plan in conjunction with GWA, and develop a cost-share agreement, including financial and technical assistance to GWA to meet the drinking water needs of the construction workers and the induced population growth.

A-009-004 | Wastewater
All of the GWA-operated wastewater treatment plants are operating in non-compliance with their existing Clean Water Act discharge permits. The military realignment to Guam will increase sewage flows to these non-compliant plants. The likely public health result will be an increase in raw sewage spills and human exposure to pathogens through drinking water supply, ocean recreation, and shellfish consumption. Raw sewage spills are already occurring in Guam and have recently increased.

Notably, DoD has identified expansion and upgrade to secondary treatment of GWA's Northern District Wastewater Treatment Plant (NDWWTP) as the preferred alternative to serve both military and civilian populations. EPA strongly supports this approach, however several unresolved issues persist. DoD has not identified how upgrades to the NDWWTP will be funded, and, similar to drinking water, DoD has not identified the impacts or options for providing wastewater service to the construction workers and the induced population growth not serviced by the NDWWTP.

To ensure the environmental acceptability of this project, DoD should identify the reasonably foreseeable wastewater impacts from construction workers and induced population growth beyond those serviced by the NDWWTP and commit to cost-sharing upgrades to the NDWWTP and other treatment plants which will serve the construction and the induced population growth. These commitments should be made prior to the facilities receiving increased sewage flows resulting from the military realignment.

A-009-005 | Coral Reefs
The Carrier Vessel Nuclear (CVN) berth in outer Apra Harbor will affect over 71 acres of coral reefs, a magnitude unprecedented for the U.S. Pacific Islands in recent permit history. DoD has used an assessment method which underestimates coral reef impacts and does not provide the data needed to identify appropriate mitigation per the 2008 Army Corps of Engineers (Corps) – EPA Compensatory Mitigation Rule. DoD's inadequate characterization of coral reef impacts and insufficient mitigation proposals are of such serious concern EPA considers the CVN berth project a potential candidate for formal elevation within the context of the necessary Clean Water Act 404 permit. EPA senior political leadership and technical experts are actively participating in a facilitated process with DoD and the other resource and regulatory agencies to resolve these issues and ensure compliance with the Clean Water Act. EPA, the U.S. Fish and Wildlife Service (FWS), and the National Marine Fisheries Service (NMFS) have formally raised these concerns since 2008.

To ensure the environmental acceptability of this project DoD should commit to obtaining coral reef impacts data using the in-situ method recommended by EPA, FWS, and NMFS; and work with EPA, NMFS, FWS and the Corps to identify and assess suitable coral reef mitigation alternatives. Artificial reefs are not a suitable mitigation option.

leading a federal inter-agency effort to identify other Federal programs and funding sources that could benefit the people of Guam. DoD has identified mitigation measures within DoD control and outside DoD control, including measures that GWA and GovGuam could implement to address the shortfalls provided funding sources could be found. Because it is doubtful that GWA could fund and implement required upgrades in time for the start of the proposed DoD relocation, it is anticipated that public health and safety impacts from increased demand on potable water would be significant until the necessary off-base infrastructure improvements could be completed.

A-009-003

Thank you for your comment.

Interim Sustainable Yield Assessment: DoD agrees that protection of the sole source NGLA is imperative. The FEIS discussed the two available estimates of the NGLA that have been published, one by the Northern Guam Lens Study (NGLS) (CDM 1982) and one by Barrett Consulting with John Mink (Barrett 1992). The CDM 1982 study estimated the sustainable yield of the NGLA as 57.5 MDd, and the Barrett 1992 study estimated the sustainable yield as 80.5 MGd. University of Guam (UoG) Water and Environmental Research Institute (WERI) provided an expert technical review for DoD of the two sustainable yield estimates for the NGLA in 2009. The study concluded that the approach and methodology used in Barrett 1992 to estimate the sustainable yield are still valid and are appropriate for initial planning; and the Barrett 1992 sustainable-yield estimates should be used instead of the earlier 1982 sustainable-yield estimates because the later values are based on an additional decade of field data. Additionally, this expert communicated that the additional data that had been gathered from the NGLA since the 1992 study would not likely change the sustainable yield estimate for purposes of the FEIS because the data collected was from sub-basins of the aquifer that are not located where DoD proposes to withdraw water. Therefore, the

A-009-006

A-009-007

In addition to these primary concerns, EPA remains concerned about the continued use of high sulfur fuel for power and transportation on Guam and the air quality health impacts from increased project-related emissions. Additionally, DoD needs to demonstrate how the large volumes of waste generated by this project will be managed in the interim and long-term. All of the recommendations above, and in the enclosed detailed comments, should be addressed before the Final EIS (FEIS), and commitments should be included in the FEIS and the Record of Decision.

I will personally be engaged in this issue and look forward to working with DoD and our partnering agencies on next steps to move forward to achieve an environmentally acceptable project consistent with federal environmental law and the Presidential Executive Order on Environmental Justice. Your office can contact Enrique Manzanilla, Director of our Communities and Ecosystems Division. Mr. Manzanilla oversees this project within EPA Region 9 and can be reached at (415) 972-3850 and manzanilla.enrique@epa.gov.

Sincerely,



Jared Blumenfeld
Regional Administrator

Enclosures:

Summary of Rating Definitions
Detailed Comments

cc:

Cecilia Munoz, Director, White House Office of Intergovernmental Affairs
Dorothy Robyn, Deputy Under Secretary of Defense, Environment and Installations
David F. Bice, Joint Guam Program Office
Debra Walker, Assistant Secretary of the Air Force Installations, Environment and Logistics
Tony M. Babauta, Assistant Secretary of the Interior for Insular Areas
Victor Vasquez, Deputy Undersecretary for Rural Development, USDA
Robert Nabors, Deputy Director, Office of Management and Budget
Bill Corr, Deputy Secretary, Health and Human Services
Eileen Sobeck, Assistant Secretary for Fish, Wildlife, and Parks, U.S. Fish and Wildlife Service
Michael Ensck, Chief Operations Division, U.S. Army Corps of Engineers
Paul Doremus, Acting Deputy Assistant Administrator & Director of Strategic Planning, NOAA
Greg Nadeau, Deputy Administrator, Federal Highways Administration
Catherine Lang, Acting Associate Administrator, Federal Aviation Administration
Madeleine Z. Bordallo, Congresswoman, Guam
Gregorio Kilili Camacho Sablan, Congressman, CNMI
Felix Camacho, Governor, Guam
Benigno Fitial, Governor, CNMI

FEIS uses the Barrett 1992 sustainable yield estimate of approximately 80 million gallons per day. However, it is important to note that the estimated total average daily demand from the aquifer for all sources (DoD and non-DoD) during the peak construction year of 2015 is 50.33 MGd, which is below both sustainable yield estimates. Volume 6, Chapter 2, Section 2.2.4.1 and Chapter 3, Section 3.2.3.1 discuss this in detail. During meetings with GWA in November 2009, GWA, GEPA and DoD jointly met with UoG-WERI to discuss the proposed USGS study and it was agreed that a working group of stakeholders would be established to guide the efforts to successfully manage the NGLA. This working group which includes, EPA, GEPA, GWA, DoD, UoG-WERI, and USGS is meeting in Guam in early March 2010 to allow the stakeholders to collaboratively shape the USGS study that DoD is funding. This meeting will allow stakeholders to provide their input into the development of a 3-dimensional model that will be created as a management tool to guide and shape the long term development, protection and continued operation of the aquifer as a critical resource. It is expected that the stakeholders will agree on parallel efforts to leverage available information to address military buildup related impacts to the NGLA for the FEIS while defining the parameters that will shape the creation of the 3-dimensional model that will establish baseline conditions of the aquifer to support long term decisions related to groundwater quantity and quality management. GWA has placed significant weight on the timely development of the 3-D model and through its involvement in the upcoming stakeholder meeting and the near monthly meetings with DoD has the ability to influence the development of the model to address its specific concerns and interests raised in its comments in the DEIS. Data gathered during the DoD well siting study will be used to continue to guide and steer the co-management of the aquifer and development of a 3-D model, and It is also important to note that although GWA's comments stressed the need to involve UoG-WERI in the USGS study of the NGLA due to the body of information held at WERI; GWA, EPA and GEPA all questioned UoG-

SUMMARY OF EPA RATING DEFINITIONS*

This rating system was developed as a means to summarize the U.S. Environmental Protection Agency's (EPA) level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the Environmental Impact Statement (EIS).

ENVIRONMENTAL IMPACT OF THE ACTION

“LO” (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

“EC” (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

“EO” (Environmental Objections)

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

“EU” (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

ADEQUACY OF THE IMPACT STATEMENT

Category “1” (Adequate)

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category “2” (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category “3” (Inadequate)

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, Policy and Procedures for the Review of Federal Actions Impacting the Environment.

WERI's confirmation that the 1991 report "Groundwater in Northern Guam, Sustainable Yield and Groundwater Development" supports the adequacy of the NGLA to meet the water demand related to the military buildup. It is expected that the stakeholders will steer the USGS study to provide sufficient information to address the concerns about sustainable yield of the NGLA (at the sub-basin level) and provide that information to address the concerns raised in the review of the DEIS for inclusion in the FEIS.

Long-term Comprehensive Aquifer Study: DoD has already committed funds to conduct the NGLA 3-D model. During meetings with GWA in November 2009, GWA, GEPA and DoD jointly met with UoG-WERI to discuss the proposed USGS study and it was agreed that a working group of stakeholders would be established to guide the efforts to successfully manage the NGLA. This working group which includes, EPA, GEPA, GWA, DoD, UoG-WERI, and USGS is meeting in Guam in early March 2010 to allow the stakeholders to collaboratively shape the USGS study that DoD is funding. This meeting will allow stakeholders to provide their input into the development of a 3-dimensional model that will be created as a management tool to guide and shape the long term development, protection and continued operation of the aquifer as a critical resource. It is expected that the stakeholders will agree on parallel efforts to leverage available information to address military buildup related impacts to the NGLA for the FEIS while defining the parameters that will shape the creation of the 3-dimensional model that will establish baseline conditions of the aquifer to support long term decisions related to groundwater quantity and quality management. GWA has placed significant weight on the timely development of the 3-D model and through its involvement in the upcoming stakeholder meeting and the near monthly meetings with DoD has the ability to influence the development of the model to address its specific concerns and interests raised in its comments in the DEIS. Data gathered during the DoD well siting study will be used to continue to guide and steer the co-

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management of the aquifer and development of a 3-D model.

Aquifer Management Plan: In October 2009, fully comprehending the importance of protecting the sole source NGLA, DoD initiated an effort with GWA/CCU to co-manage the NGLA. In fact, co-management of the aquifer, and pursuit of a comprehensive 3-D model of the aquifer was a DoD recommendation, not one made by EPA, GWA or GEPA. This effort proposed that GWA and DoD, the two entities that rely on the NGLA as a major source of water would need to work as one to protect this critical resource. The proposal was to cooperatively assess the impacts of proposed developments, use the upcoming USGS study to guide efforts to manage the NGLA, and leverage DoD and GWA resources to cooperatively address potential impacts and propose alternatives to mitigate adverse impacts to the NGLA. Although this initiative to work together cooperatively has been advanced at subsequent meetings that created consensus on the way ahead, both GWA and EPA raised concerns with the DEIS knowing that many of the issues they raised are already being addressed. Additionally, EPA was invited to these meeting, but declined to attend unless DoD funded their participation. It is important to note that although GWA's comments stressed the need to involve UoG-WERI in the USGS study of the NGLA due to the body of information held at WERI; GWA, EPA and GEPA all questioned UoG-WERI's confirmation that the 1991 report "Groundwater in Northern Guam, Sustainable Yield and Groundwater Development" supports the adequacy of the NGLA to meet the water demand related to the military buildup. It is expected that the stakeholders will steer the USGS study to provide sufficient information to address the concerns about sustainable yield of the NGLA (at the sub-basin level) and provide that information to address the concerns raised in the review of the DEIS for inclusion in the FEIS.

Cost Share Agreement: Funding to meet on-base DoD water demand is described in the FEIS and is expected to come from Government of

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Japan loans. Additionally, DoD proposes to transfer excess DoD water to meet anticipated off-base shortfalls during the military relocation construction period, and will also seek Government of Japan loans to provide interconnection between the DoD and GWA water systems. Funding for needed upgrades to the off-base GWA island-wide water system is not identified in the FEIS beyond what has already been identified in the GWA's Capital Improvements Program (CIP), and in a recent EPA Region IX assessment of GWA's CIP and companion conceptual cost estimate for 5-year and 25-year capital and operational needs. The FEIS provides information on GWA and GovGuam's ability to fund upgrades, including information on GovGuam's debit rating and history of funding shortfalls. DoD acknowledges the existing sub-standard conditions of the GWA water system on Guam and the desire by many for DoD to fund improvements to these systems and services. DoD's ability to fund projects that are not within direct DoD ownership or control is limited by Federal law. However, DoD recognizes the need to identify and integrate solutions for both on-base and off-base utility infrastructure on Guam, and desires to minimize adverse impacts associated with the proposed military relocation program. To this end, DoD is serving as the lead federal agency on a multi-agency group charged with identify Federal programs and funding sources to make the necessary repairs and upgrades to Guam's utility infrastructure systems. Concurrently, DoD, EPA Region IX, GEPA, GWA and the CCU are working together to identify and integrate solutions for off-base water needs which meet environment requirements, provide reliable and uninterrupted service, and are affordable for all users. Even with an infusion of federal funds to fix the existing problems with the GWA water system, if there is no funding to keep the systems operated properly, maintained, and upgraded, the system will be unsustainable. This has even been acknowledged by EPA Region IX in its CIP assessment report. Both GWA and EPA state that the people of Guam should not have to carry the financial burden of supporting the military buildup. It is hard to argue with this position. However, what is not said is that the

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people of Guam should carry the burden of sustaining compliant water and wastewater systems required to ensure their health and well being. GWA's Water Resource Management Plan (WRMP) which was developed to achieve compliance with an EPA stipulated order, identifies projects required to correct \$200 Mil in infrastructure deficiencies that existed in the water and wastewater systems at the time the report was prepared. This estimate has increased after the preparation of the CIP. Very few of the deficiencies have been addressed to-date because GWA does not have the financial resources to address these issues. The Consolidated Commission on Utilities (CCU) and GWA continually push for a single water system on Guam. They feel that without the capital that would come from including DoD into a single island-wide water system and infusing the significant capital that would come with a large, paying customer, they are unlikely to ever have sufficient capital to sustain a compliant water system. The reality is that even with DoD as a customer they will not have sufficient capital to sustain their water system without raising the water rates. The ability to sustain the water and wastewater systems will be a topic of discussions with GWA, CCU and EPA in early March 2010. Without a continuous influx of federal funds to support daily operations, GWA cannot sustain their current systems. Hence the fundamental problem that will not be fixed by a huge infusion of federal funds to correct all of the ills of the GWA water and wastewater systems. GWA's rate base is not sufficient to sustain its system. If the user rates are not increased to a level that will allow GWA to sustain their systems, in a matter of just a few years the systems will be back to a state of total disrepair and require another large infusion of federal money. Guam is unwilling to require its users to pay what is required to sustain their water and wastewater systems at a level that will ensure their safety and well being. So either the rates have to be increased or EPA needs to find a continual source of funds to support routine operation and maintenance of the GWA water and wastewater systems.

I. WATER RESOURCES

A-009-008 A. DRINKING WATER - SUPPLY, INFRASTRUCTURE, AND QUALITY

1. Significant Impacts to Public Water Supply

The DEIS projects an unacceptable island-wide shortfall in water supply for 2010 through 2015 due to rapid population growth during the construction phase of the project. This population growth, which includes construction workers and induced growth, will peak in 2014 with an estimated 79,184 additional people, most located off-base and served by the Guam Waterworks Authority's (GWA) drinking water system. Since this impact falls outside the military "fence line", drinking water infrastructure improvements are not included as part of the proposed project, even though the construction workforce is necessary for implementing the project. Instead, the Department of Defense (DoD) places the burden of addressing this shortfall on GWA and the construction contractors. This project-related population increase will significantly affect the ability of GWA to provide sufficient quantity and adequate quality of drinking water for the general population of Guam. This significant impact to drinking water infrastructure has potentially serious and unacceptable public health implications¹, which would fall disproportionately on a low income medically underserved population (Vol. 6, p. 3-48, Vol. 2, p. 18-4).

The water supply shortfall predicted is substantial. The DEIS projects that the shortfall in water supply from GWA will begin in 2010 with the largest anticipated shortfall of at least 6.1 million gallons per day (mgd) occurring in 2014. This shortfall will occur even with GWA's planned expansion of 7 mgd through the installation of 16 new wells. If GWA's expansion does not occur, the shortfall could be as high as 13.1 mgd in 2014. This higher shortfall appears probable, since GWA does not have the financial resources to drill new wells in time to meet the rapidly increasing demand (Vol. 6, p. 3-49). As the project is currently envisioned, DoD does not have the authority to compel GWA to either install additional wells to address the shortfall or to accept water transferred from DoD for delivery to the construction contractors.

Despite this dire situation, the DEIS concludes that impacts to the GWA potable water system would be significant but mitigable to less than significant (Vol. 6 p. 3-54). For potential mitigation, the DEIS suggests there could possibly be 3 mgd of water from DoD's water system that, if requested, could be transferred to assist GWA with its water needs in northern Guam, assuming the necessary piping is installed by GWA or the developer (Vol. 6, p. 3-49, 3-

¹ The DEIS acknowledges: "If this shortfall occurs, it is possible that water outages or low pressure conditions would take place within the water system. Water outages or low water pressure can result in microbiological and other contaminants entering the distribution system, potentially resulting in illness. Water outages or low water pressure can also prevent effective fire fighting and degrade the basic sanitary needs of the population" (Vol 6., p. 3-46)

Indirect Population Water Demand: The FEIS provides a detailed analysis of water demands from the direct DoD population, and the indirect population (construction workers and induced population). Refer to Volume 6, Chapters 2 and 3. All water demands are accounted for, both on-base and off-base, during the construction phase of the military relocation and after all construction is completed in 2019. DoD and GWA sources of water are counted in the FEIS when assessing the off-base shortfall that potentially could occur in the peak construction year of 2014. As described in the FEIS, the total indirect off-base demand on the GWA water system (including demand associated with the construction workforce and induced civilian growth) is projected to reach 50.6 MGd in 2014. That same year, the GWA water system would have the capacity to supply 42.4 MGd of potable water. Based on discussions with GWA, they plan to install new wells to meet expected baseline growth, adding an additional supply of 1.3 MGd. This results in a shortfall of water of 6.9 MGd. DoD has agreed to transfer water up to 7.0 MGd to GWA to meet this shortfall. This would include the continued transfer of 4 MGd to GWA under the current memorandum of understanding, 1.7 MGd from existing DoD wells, and the remainder from new DoD wells that would be installed early (new well capacity in 2014 will be 4.7 MDd).

A-009-004

Thank you for your comment. NDWWTP: Repairs and upgrades to the NDWWTP that are needed to bring the plant into compliance absent the military relocation, and those needed to expand the plant as part of the military relocation were identified were detailed in a report conducted by DoD and included in the FEIS. This includes repairs and upgrades to the existing primary treatment facilities at the plant to meet both interim flows and maximum flows during the construction phase of the military relocation and long-term secondary treatment plant upgrades that may be needed in the event that the 301(h) secondary waiver denial stands. These upgrades considered the current civilian flows to the plant, DoD

51; Vol. 7 p. 2-42). However significant obstacles to this possibility are identified², such that it cannot be considered a reliable mitigation proposal. The other potential mitigation identified is to undertake adaptive management by adjusting the construction tempo. This mitigation proposal is not sufficiently developed to be considered a reliable mitigation measure (see comment below under adaptive management).

Recommendations: DoD should amend the project description to include all utility upgrades associated with construction of the project and resulting induced growth. If DoD arranges for a third party (such as a utility) to implement a part of the action, specific agreements should be made between DoD and the third party defining their respective responsibilities for financing the complete action. These agreements should be included or referenced in the FEIS.

DoD, in cooperation with GovGuam, must be directly responsible for ensuring sufficient water supply is available to Guam during the construction phase. Specific needs include, but are not limited to, a DoD commitment to provide financial resources and technical support to address the water shortage and the inadequate drinking water infrastructure for contractor and other civilian population growth due to the military expansion. Action on the DoD commitment should start immediately, as the increase in water demand will begin as soon as construction workers and other populations supporting the military expansion arrive. This support would include the identification, planning, design, and implementation of needed capital improvement projects (CIPs) to address the water shortfall and provision of financial and technical assistance for the siting, design, construction, and operation and maintenance of the water supply and distribution system. Infrastructure needs include new wells and other associated water system facilities such as water lines, booster pumps, storage tanks, and treatment facilities. DoD should provide clear, documented commitments (e.g., through a memorandum of agreement or other mechanism) to provide specific quantities of DoD owned water to address construction related shortfalls in supply. DoD should provide financial, engineering, and/or other technical assistance to GWA for implementing effective unaccounted for water³ (UFW) measures, such as leak detection, water line replacement, and development and implementation of an effective water efficiency and conservation program.

² Obstacles to this mitigation measure include: (1) The lack of interconnections points between the former Anderson Air Force Base (AAFB) water system and the Navy island-wide system may increase the effective distance between the GWA water system requiring additional water and the DoD water resource; (2) Poor condition of certain DoD water mains that may require line segment replacement to interconnect; (3) Repair and maintenance of wells would periodically reduce DoD water supplies, (4) Droughts would reduce the capacity of DoD water production capacity, and (5) Unforeseen increases in future DoD water demands that would reduce the excess water supply available to GWA (Vol 6, p. 3-51 to 3-52)

³ Unaccounted for Water (UFW) is generally defined as the difference between water produced (supply) and water used (demand) by the ultimate consumers. UFW represents water loss between production and billing (or final authorized end use when water use is not charged or billed, which may be the case on military systems).

and civilian flows to resulting from the military relocation, and future growth on Guam absent the military relocation. The FEIS provides information related to the funding of the NDWWTP upgrades. Funding for NDWWTP: While the Navy will continue to coordinate with GWA and USEPA Region 9 to ensure that GWA implements planned Capital Improvement Program (CIP) projects designed to refurbish the existing primary treatment capability of the NDWWTP and expand it to meet needs associated with the proposed Marine Corps realignment and associated civilian population growth, the ability of GWA to secure necessary funding for the required CIP projects remains a key concern and potential impediment to the Guam military realignment effort and the return of GWA to full compliance with the requirements of the CWA. In the underlying agreements with the Government of Japan covering the realignment of Marine Corps forces from Okinawa to Japan, the Government of Japan agreed to provide funding to develop facilities and infrastructure on Guam to support the realignment of Marine Corps forces. These agreements further recognize that necessary infrastructure improvements will cover not only improvements on military installations, but also improvements to the civilian infrastructure. Therefore, the U.S. Government, through the Department of Defense (DoD), is currently seeking approximately \$50M in Japanese Fiscal Year 2011 (JFY11) funding from the Government of Japan to cover required CIP projects necessary for refurbishment and expansion of primary treatment capabilities at the NDWWTP. Such funding would allow necessary improvements to be made by the 2013 date noted above. Should DoD fail to secure necessary funding from the Government of Japan, significant environmental impacts would occur as outlined in Volume 6. Further, consistent with Navy's commitment to apply adaptive management noted in Volume 7, failure to secure necessary funding would severely impact construction pace and the ability of Navy to completed required construction to support the Marine Corps realignment. As with refurbishment and expansion of primary treatment, the ability of GWA to secure necessary funding for CIP

A-009-008 For long-term water management on Guam, workgroups or other cooperative entities should be formed, in cooperation with GovGuam. This joint military/GovGuam water management authority should be initiated and supported by DoD⁴ to develop a long term drinking water management system, and Northern Guam Lens Aquifer (NGLA) management strategy, and provide the means to reassess conditions of the NGLA at regular timeframes. See also comments under NGLA below.

A-009-009 **2. Impacts of Increased Water Demand to the Navy Island-wide and GWA Systems**
As the Navy island-wide and GWA water systems are and would continue to be interconnected, the demand in one service area has direct and indirect impacts on the others by potentially reducing the amount of water available for transfer. Currently the GWA Central water system and the Navy island-wide system are connected; the GWA Central system is primarily supplied by the Navy island-wide system. The DEIS identifies plans to provide new connections between the Anderson Air Force Base (AFB) system and the GWA system to allow transfers, as needed, to respond to temporary increased demand, to supplement water shortages during drought, and to stave off impacts of saltwater intrusion in the NGLA. As a result of these transfers, contrary to statements made in the DEIS, demands resulting from the build-up (such as the CVN crew), have the potential to affect the NGLA, even if the crew is supplied primarily from the Navy surface water supply (Vol. 4, Chap. 2, p. 2-39).

Recommendation: The FEIS should include information to reflect the interconnectedness of the water systems since the additional water demand may have the potential to indirectly affect the NGLA and directly affect connected water distribution systems. The Environmental Protection Agency (EPA) encourages DoD to maximize interconnectedness of its water systems with GWA where feasible, and continue to work with GWA (and Guam EPA) in planning efforts to optimize the use and management of both the water distribution systems and the water sources (NGLA).

A-009-010 **3. Calculation of Project Water Demand/ Optimizing Water Conservation**
Using the current *United Facilities Criteria ("UFC") 3-230-19N, Design: Water Supply System* values to design the new water systems would result in DoD over designing the water supply. EPA comments on the early release DEIS suggested that utilizing this DoD guidance document to estimate demand would likely generate higher than expected estimates since project sustainability elements designed to conserve water would significantly reduce demand. The DEIS includes the higher UFC demand estimates, as required⁵, but also incorporates sustainability and water conservation into the water demand calculations which produces a reduced demand that is a more realistic estimate of the expected demand, to be used by Guam Waterworks Authority (GWA) for planning purposes. (Vol. 6, p. 2-32).

⁴ The DEIS does identify a potential mitigation, within DoD control, of setting up a joint advisory panel on the NGLA.

⁵ UFC-3-230-19N is being updated and will likely reflect the federal mandates that have been issued since the last release of this guidance

projects required to achieve secondary treatment at the NDWWTP remains a concern and potential impediment to the Guam military realignment effort and the return of GWA to full compliance with the requirements of the CWA. As with efforts to secure funding for required primary treatment refurbishment and expansion, DoD is working to secure necessary funding, including funding from the Government of Japan. Adverse impacts associated with the failure to secure funding for secondary treatment upgrades, including impacts on the proposed Marine Corps realignment, would be similar to those noted with failure to secure funding for primary treatment.

Other GWA Wastewater Plants: The FEIS has been modified to include a qualitative assessment of indirect impacts to GWA wastewater treatment plants and their associated collection systems other than the NDWWTP from wastewater generated by the construction workforce and induced populations that are anticipated as a result of the military relocation. Assumptions were made about where the construction workforce would most likely reside on Guam by reviewing zoning and building applications submitted to the Government of Guam planning department by prospective contractors. This showed the construction workforce is expected to be resident two-thirds in northern Guam and one-third in central Guam. A socioeconomic analysis was conducted for the EIS using data from GovGuam and found that the induced civilian population growth is likely to be 38% in northern, 43% in central and 19% in south Guam. This information, coupled with limited available information from GWA and EPA on the condition of the GWA wastewater collection and treatment systems, was used to qualitatively assess impacts. Impacts to ecological resources and to human health were assessed for both the construction phase and the operational phase of the proposed military relocation, and can be found in the various resource chapters of Volume 6.

Funding for Other GWA Wastewater Plants: Funding for needed upgrades to the GWA wastewater treatment plants and island-wide sewage collection system (other than that which is directly related to

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We agree with this approach; however, it is not clear if the calculation of water demand, even with a modified UFC calculation that accounts for water conservation efforts, includes all water uses and losses. For example, a footnote in Vol. 6 Table 2.2-1 indicates that the transient population at Apra Harbor was not included in the water demand because this population will be housed on ships (Vol. 6, p. 2-29). Since this population will generate wastewater to be discharged to the Apra Harbor Wastewater Treatment Plant (WWTP) (Vol. 6, p. 2-5), it would seem there would be a need for potable water for the ship. The 7,222 transients would represent a significant water demand.

In addition, the calculation of water loss or UFW is not clear, and this is one of the critical factors needed for calculating overall water quantity needs. UFW typically represents water loss due to leaks in water transmission and distribution lines, overflows at tanks, unmetered, or inaccurately metered connections, and other sources. Typical UFW's for water utilities range from 5-10 percent (low) to 10-20 percent (average) to 20-50 percent or more (high). The higher the UFW, the more water loss is occurring; hence, more water supply is required. GWA's water system has an estimated 50 percent UFW (Vol. 6, p. 3-10).

The DEIS states that the current Navy island-wide public water system (PWS) UFW is estimated at 15 percent, based on a 2005 utility technical study report⁶, which is not included in the DEIS. The UFW rate for the Anderson Air Force Base (AAFB) PWS is also assumed to be 15 percent, although no report is referenced. Based on EPA's knowledge, attained through site inspections and discussions with Guam Environmental Protection Agency (GEPA) and water system personnel, of the age, materials, and general condition of many of the existing Navy and AAFB PWS facilities, which include extensive old and deteriorating water transmission and distribution lines, EPA believes this may underestimate the true UFW. Higher UFWs for the existing PWSs would indicate a significant waste of water, and further stress the water supply. It would also mean the impact assessment underestimates the project water demand.

Finally, the calculation of water demand in the DEIS assumes that the existing bases at Anderson AFB and Navy Base Guam would reduce the overall water demand by 16 percent⁷ to comply with Executive Order (EO) 13423 (Vol. 6, p. 3-46, Table 3.2-6). The project description does not include water conservation measures for existing bases. Compliance with the EO cannot be assumed without a specific description of planned conservation measures and a commitment to implement the measures to realize the reductions in the project timeframe. Since those reductions are being relied upon in the DEIS, commitments to implement specific measures needed to achieve them on existing bases should be included in Record of Decision (ROD) for this project.

⁶ NAVFAC PAC Pacific 2005, referred to in the DEIS (Vol 6, Page 2-27)

⁷ Table 2.2-3 in Vol 6 p. 3-24 estimates overall potential reductions at Anderson AFB and Navy Base Guam to be 15% and 8% average daily demand for AAFB and Navy respectively, and 30% and 20% for max daily demand respectively.

upgrades and repairs the NDWWTP) is not identified in the FEIS beyond what has already been identified in the GWA's Capital Improvements Program (CIP) and a recent EPA Region IX assessment of GWA's CIP. The FEIS provides information on GWA and GovGuam's ability to fund upgrades, including information on GovGuam's debit rating and history of funding shortfalls. DoD acknowledges the existing sub-standard conditions of the GWA wastewater system on Guam and the desire by many for DoD to fund improvements to these systems and services. DoD's ability to fund projects that are not within direct DoD ownership or control is limited by Federal law. However, DoD recognizes the need to identify and integrate solutions for both on-base and off-base utility infrastructure on Guam, and desires to minimize adverse impacts associated with the proposed military relocation program. To this end, DoD is serving as the lead federal agency on a multi-agency group charged with identify Federal programs and funding sources to make the necessary repairs and upgrades to Guam's utility infrastructure systems. Concurrently, DoD, EPA Region IX, GEPA, GWA and the CCU are working together to identify and integrate solutions for both on-base and off-base wastewater needs which meet environment requirements, provide reliable and uninterrupted service, and are affordable for all users.

A-009-005

Thank you for your comment. Habitat assessment methodologies which evaluate the function of affected aquatic resources, such as coral reef ecosystems, are an evolving science and the adequacies of existing and new methodologies are heavily debated in the scientific community. Ideally, a standard assessment technique that accurately characterizes and quantifies losses and gains of coral reef ecosystem functions would be used. However, rulemaking for the Compensatory Mitigation Rule recognizes the wide variety of aquatic resources present in the United States and the evolving nature of science regarding aquatic ecosystem restoration make the establishment of standard assessment

A-009-010

Recommendations: Since "breakpoint years"⁸ are fast approaching (ranging from 2011-2019), it is vital that accurate numbers for water quantity demand be used for the purposes of designing new water system sources. The FEIS should address the points made above, including the potential 255,000 gallons per day required for the CVN⁹, and modify the water demand as appropriate. Accurately assessing UFW and developing programs to address UFW should be included in the project and documented in the FEIS. Some of the water loss may be addressed by proposing extensive replacement of the Navy Island-wide Water Transmission Lines.

DoD is uniquely positioned to help GWA reduce its 50 percent UFW issue. As well-documented in the DEIS, Guam's water supply will be challenged during the buildup. Repairing GWA's water system is a long-term project, but could definitely be expedited with assistance from DoD. Investment in repairing GWA's existing system would likely be much more cost effective over time than developing new sources of water as population grows and wells continue to exceed their sustainable production capacity. An upgrade of GWA's water system would be of benefit to all Guam residents, as the military systems would be interconnected with GWA (without risk of losing 50 percent of water produced) and provide long-term water availability.

A larger investment in water supply and water demand conservation for both DoD existing and new water systems is needed. The DEIS discusses the Federal mandates that require use of water conservation technologies and states that measures such as low-flow faucets, toilets, appliances, and wastewater recycling for industrial washing and landscape irrigation would be used "to the extent practical". EPA recommends that these efforts be incorporated to the maximum extent possible and that water systems be designed for the reduced demand. In addition, specific actions on existing bases to achieve the 16 percent reduction, per EO 13423, should be identified, included in the project description, and committed to in the ROD.

The following recommended actions would extend Guam's water supply and ensure the water conservation goals required under EOs 13514 and 13423 are met or exceeded¹⁰.

A-009-011

Water demand conservation:

To reduce short and long-term water demands of the military relocation, strict water ordinances should be developed and implemented for all military bases and be incorporated into contract language for construction worker housing. These ordinances should require:

⁸ Vol. 6, Chapter 2, p. 2-36

⁹ Vol. 4, Chap. 2, pp. 2-36 and 2-39 describe a daily demand of 20,000 gallons to support the nuclear carrier and 235,000 to support a CVN 78 with air wing troops aboard.

¹⁰ Water conservation also eliminates the energy needed to produce, treat, and distribute water, and reduces the associated greenhouse gas emissions to produce that energy.

methodologies impracticable. The assessment for this EIS used an historically approved methodology (percent coral cover), supplemented by other methods such as the use of Light Detection and Ranging (LIDAR) satellite photos, for quantifying impacts to affected coral reef ecosystems impacted by the proposed transient CVN wharf and associated dredging. DoD believes that use of the percent coral cover methodology, supplemented by use of LIDAR satellite photos, is the "best currently available science" to attempt to capture the thousands of elements that comprise the function of a coral reef ecosystem. DoD's assessment is currently under review by the US Army Corps of Engineers, the agency charged with implementing dredge and fill permits under CWA Section 404, and other Federal agencies. The FEIS has been updated to reflect the latest developments in this review.

A-009-006

Thank you for your comment. The GPA, Guam EPA, DoD and EPA are collaborating to achieve island-wide adoption of ULSD, with GEPA and GPA as lead. An agreement among the parties was made to begin data collection to help determine the fueling logistics and other economic factors associated with the cost differential between ULSD and current diesel fuels used on Guam. The current timeline calls for an economic analysis with data collection completed by end of year 2012. The DON is committed to mandating the use of ULSD in its operations and DoD construction activities upon execution of the island-wide implementation plan. DoD will work with stakeholders to determine what measures can be implemented for actions under DoD's control prior to the DoD switch.

A-009-007

Thank you for your comment. DoD has prepared the Guam Solid Waste Utility Study that looks at the existing and projected solid waste volumes generated from the future Marine Corp buildup. Estimates for this Utility Study were developed using Marine Corps Base (MCB) Hawaii, Kaneohe Bay (KB) solid waste characterization analysis.

- Retrofit and/or new installation of WaterSense certified toilets, flushing urinals, faucets, and showerheads¹¹ at all military facilities. Replacing older toilets and urinals can save between 4,000 and 4,600 gallons of water per unit per year;
- All new homes to be built under military jurisdiction (especially the new Marine Base) to be WaterSense certified (can save 10,000 gallons per home per year);
- High water efficiency, and Energy STAR certified clothes washers in all homes under military jurisdiction;
- Landscaping with native vegetation only, and avoiding lawns that require artificial irrigation except with recycled water and/or captured rain water (outdoor irrigation can account for up to 75 percent of home water use), site design to retain 95 percent of precipitation on site through swales, etc.;
- Water meters on all buildings, and tiered rates that discourage excessive water use. This will also help detect leaks inside buildings. A tiered water rate is critical for homeowners and military units to encourage water conservation. Flat water rates provide no motivation for water users to conserve water;
- Provide outreach that gives tips for water conservation in homes and provides free in-home water audits and leak detection.
- Grey water systems, where applicable, on all new facilities, and existing facilities that generate large volumes of grey water. Wastewater reuse should also be considered as an important water conservation method (see section below on wastewater reuse).

Water supply conservation:

- Verify the UFW for the Navy and Air Force PWS's. EPA recommends using the recognized drinking water industry water loss audit assessment method described in the American Water Works Association (AWWA) standard "*Water Audits and Loss Control Programs, M36*", 2009 revision, which includes a standard methodology (and publicly available software) for performing system-wide public water system water audits. The 2005 utility technical study report (NAVFAC Pacific 2005) referenced in Vol. 6. p. 2-27 should be included as an appendix in the FEIS.
- Based on the results of the water audits, commit to implementing a Water Loss Control (WLC) program for Navy and Air Force PWS's to address the most significant sources of UFW/ water loss, including but not limited to: improving the ability to measure and audit water losses (improved metering and other means); instituting an effective regular leak detection and repair program; pressure management programs; water efficiency, and other measures. See also AWWA publication "*Water Loss Control*", 2008.

¹¹ Showerheads to be WaterSense certified in early 2010

Solid waste generation activities for military installation on Guam and MCB Hawaii-KB are similar. Both military installations have similar facilities including maintenance shops, administrative offices, commissary and exchange facilities, fast-food establishments, club operations, family housing and unaccompanied personnel housing. The results of the solid waste characterization study will be incorporated into the FEIS.

The Navy is preparing a Recycling and Solid Waste Diversion Study for DoD Bases, Guam that has established a diversion goal of 50 percent, not including construction and demolition debris. The Study is considering the following alternatives: 1) DoD would construct two refuse transfer facilities, one in northern Guam and one in Southern Guam; 2) DoD would implement a source separation recycling program at all facilities; 3) DoD would construct recycling center(s); and 4) DoD would construct a materials resource recovery facility.

The DoD has also prepared a Construction and Demolition (C&D) Debris Reuse and Diversion Study which addresses the anticipated waste streams during the demolition of old buildings and construction of new facilities identified in the EIS. The study also addresses green waste that will be generated from clearing many acres of vegetation. The goal of the study is to divert 50% of the C&D debris by the end of fiscal year 2015.

The non-DoD project solid waste volumes will be handled in accordance with the existing Guam Integrated Solid Waste Management Plan (ISWMP). GBB is expediting the closure of Ordot and the opening of Layon in the most expeditious manner possible.

DoD is in the process of updating the military Integrated Solid Waste Management Plan (ISWMP) to reflect how waste will be managed now and in the future. The updated DoD ISWMP will include any new

A-009-011

- Install leak detection equipment, or conduct annual leak detection surveys, on all existing military water systems. This will help existing water systems meet or exceed the 15 percent unaccounted for water (UFW) described in the DEIS to get closer to the 5 percent UFW target at the new Marine Base, and to exceed the water conservation goal required in EOs 13514 and 13423.
- For the Main Cantonment, install leak detection equipment during new water system construction, dual plumbing for nonpotable water use, and rainwater catchments and gray water systems to reduce water demand and wastewater flow to treatment facilities.

A-009-012 B. Northern Guam Lens Aquifer (NGLA)

1. Hydrologic Impacts, (Recharge, Withdrawal) on Aquifer Not Sufficiently Assessed

The combined effect of the project impacts on the NGLA has not been assessed. For example, there will be impacts on groundwater recharge and stormwater drainage from the installation and pumping of new DoD and GWA wells, and from the significant loss of vegetation¹² and associated increases in impervious surfaces. How these combined effects will impact the NGLA is not predicted. A comprehensive hydrologic model at the sub-basin level is needed to assess the potential impacts from multiple influences on this dynamic system. No model was prepared for the DEIS; instead general statements regarding impacts are made, with conclusions that Best Management Practices (BMPs) will mitigate all impacts to less than significant.

The DEIS notes that DoD has initiated a study to determine the optimal well and well field configurations (the "optimal well study") needed to upgrade and integrate the water systems to meet future water demands, with results to be incorporated in the FEIS. However, this study is focused only on water supply and demand, and does not address the overall management of the aquifer with regard to such factors as increased pumping and chloride levels, large-scale vegetation removal, the effect of increased impervious areas on stormwater drainage patterns and contaminant movement (e.g. microbials), and sustainability of the aquifer.

DoD has also planned a modeling study to be conducted by the U.S. Geological Survey (USGS). We support this USGS study, however, once the study is initiated, it is estimated to take at least 3-5 years to complete, which means results will come too late to be used for effective short term planning¹³ or overall water resource management during early phases of the planned military expansion.

Recommendation: DoD should prepare a numerical model as part of the planning process to assess the potential combined impacts to the quality and quantity of groundwater on the NGLA. This model should be prepared as an interim step, and as

¹² The preferred Main Cantonment alternative 2 will result in removal of over 1,600 acres of vegetation, including over 1,300 acres of limestone forest (Vol. 2, p. 10-143). All preferred alternatives will result in over 2,000 acres of vegetation cleared on Guam (Vol. 7, p. 3-27), with almost all occurring over the NGLA.

¹³ Including what would be needed for an adaptive management approach to mitigation - see comment under Adaptive Management

information from studies and reports that have been conducted as part of the NEPA process.

A-009-008

Thank you for your comment. Funding for needed upgrades to the GWA island-wide water system is not identified in the FEIS beyond what has already been identified in the GWA's Capital Improvements Program (CIP), and in a recent EPA Region IX assessment of GWA's CIP and companion conceptual cost estimate for 5-year and 25-year capital and operational needs. The FEIS provides information on GWA and GovGuam's ability to fund upgrades, including information on GovGuam's debit rating and history of funding shortfalls. DoD acknowledges the existing sub-standard conditions of the GWA water system on Guam and the desire by many for DoD to fund improvements to these systems and services. DoD's ability to fund projects that are not within direct DoD ownership or control is limited by Federal law. However, DoD recognizes the need to identify and integrate solutions for both on-base and off-base utility infrastructure on Guam, and desires to minimize adverse impacts associated with the proposed military relocation program. To this end, DoD is serving as the lead federal agency on a multi-agency group charged with identify Federal programs and funding sources to make the necessary repairs and upgrades to Guam's utility infrastructure systems. Concurrently, DoD, EPA Region IX, GEPA, GWA and the CCU are working together to identify and integrate solutions for off-base water needs which meet environment requirements, provide reliable and uninterrupted service, and are affordable for all users.

Even with an infusion of federal funds to fix the existing problems with the GWA water system, if there is no funding to keep the systems operated properly, maintained, and upgraded, the system will be unsustainable. This has even been acknowledged by EPA Region IX in its CIP assessment report. Both GWA and EPA state that the people of

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soon as possible, to account for demands on the aquifer during the construction phase and for the overall project life-cycle water supply demands and conditions. At a minimum, the model should account for the impacts at the sub-basin level of increased impervious areas, changes in drainage patterns, the additional planned wells, potential effects from climate change, and the effects of pumping on the known contaminant plumes and other potential contaminants, such as at Andersen AFB. Assumptions used in developing the interim hydrologic model should be clearly outlined, as well as any model uncertainties. We note that should an adaptive management strategy for mitigation be pursued, evaluations related to slowing the construction tempo would be assisted by a comprehensive hydrologic model.

DoD should also fund and commence the USGS study. As noted above, DoD should commit to creating a joint military/GovGuam NGLA management authority with one of its primary missions being to develop a long term management strategy and to provide the means to reassess conditions of the NGLA at regular timeframes.

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2. Sustainable Yield Estimates

There is uncertainty regarding the sustainable yield of the NGLA, and DoD has not completed an updated assessment. Rather, DoD is relying on an administrative review of a 1992 study that estimated the sustainable yield of the NGLA at 80.5 mgd. The 1992 study itself stated that "the estimated sustainable yield of the systems should be revised continually in light of data obtained from ongoing well development and monitoring" and the recent administrative review performed by DoD concurred with this statement. The FEIS should include an updated estimate of the sustainable yield of the NGLA (at the sub-basin level) to include the 17 subsequent years of collected data until the USGS study commissioned by DoD is completed, in more than three years.

Recommendation: Protection of the NGLA, a federally designated sole source aquifer is imperative, thus the sustainable yield estimates for the NGLA should be updated to include data collected since the 1992 Mink Report was prepared, and this information should be incorporated into the FEIS and other planning documents.

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3. Protection of Water Quality of the Northern Guam Lens Aquifer

The proposed actions include many threats to the NGLA, and without sufficient detail regarding these threats, it is not possible to determine whether this valuable resource will be adequately protected from contamination during and after the build-up. The NGLA is a designated "Sole Source Aquifer" under the Federal Safe Drinking Water Act (SDWA) and is a sensitive and irreplaceable source of drinking water for the communities overlying it. The information identified in our recommendations below is vital to both assess impacts and ensure protection of the aquifer.

The DEIS acknowledges that the NGLA is vulnerable to contamination from bacteria, nutrients, chlorides, and toxic contaminants (Vol. 2, p. 4-27), but the assessment consists of a statement that new and potential contaminant sources will not exceed federal and local requirements, and

Guam should not have to carry the financial burden of supporting the military buildup. It is hard to argue with this position. However, what is not said is that the people of Guam should carry the burden of sustaining compliant water and wastewater systems required to ensure their health and well being. GWA's Water Resource Management Plan (WRMP) which was developed to achieve compliance with an EPA stipulated order, identifies projects required to correct \$200 Mil in infrastructure deficiencies that existed in the water and wastewater systems at the time the report was prepared. This estimate has increased after the preparation of the CIP. Very few of the deficiencies have been addressed to-date because GWA does not have the financial resources to address these issues.

The Consolidated Commission on Utilities (CCU) and GWA continually push for a single water system on Guam. They feel that without the capital that would come from including DoD into a single island-wide water system and infusing the significant capital that would come with a large, paying customer, they are unlikely to ever have sufficient capital to sustain a compliant water system. The reality is that even with DoD as a customer they will not have sufficient capital to sustain their water system without raising the water rates. The ability to sustain the water and wastewater systems will be a topic of discussions with GWA, CCU and EPA in early March 2010. Without a continuous influx of federal funds to support daily operations, GWA cannot sustain their current systems. Hence the fundamental problem that will not be fixed by a huge infusion of federal funds to correct all of the ills of the GWA water and wastewater systems. GWA's rate base is not sufficient to sustain its system. If the user rates are not increased to a level that will allow GWA to sustain their systems, in a matter of just a few years the systems will be back to a state of total disrepair and require another large infusion of federal money. Guam is unwilling to require its users to pay what is required to sustain their water and wastewater systems at a level that will ensure their safety and well being. So either the rates have to be

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relies on a range of generic BMPs and LID (Low Impact Development) concepts to address potential impacts. A site-specific LID study and a comprehensive drainage study for the Main Cantonment site at Finegayan are being prepared to determine stormwater runoff quantities and qualities under the action alternatives (Vol. 7, p. 2-19). The DEIS states these studies and EPA's BMP Performance Tool will be used to identify and implement an "LID plan" to provide the foundation for the design for permanent stormwater infrastructure. The DEIS does not explain why the comprehensive drainage study is limited to the Main Cantonment site at Finegayan, how the LID plan will be used to determine site-specific BMPs and LID measures, nor how these measures would prevent impacts to the NGLA under various build out scenarios. For example, the DEIS provides descriptions of generic BMPs (Vol. 7, Table 2.1-1), but there is no indication which BMPs are intended to address contaminants, such as microbials, that could infiltrate through the thin soil cover and impact the NGLA, nor is there discussion of the effectiveness of such BMPs, especially in karst environments. It is unclear whether the LID and other studies will be included in the FEIS.

The changes to the landscape that the project proposes could affect the underlying geology in the build out areas to render the NGLA more vulnerable to contamination. Paving of existing recharge areas, loss of vegetation, and possible rerouting of stormwater could induce changes to groundwater flow patterns that create or expand conduits (e.g., sinkholes) for contaminants to reach the NGLA. The DEIS states that a site-specific geotechnical investigation was not carried out for areas other than Naval Computer and Telecommunications Station (NCTS) Finegayan (Vol. 2, p. 3-29). Over 1,200 sinkholes exist on Guam, but only seven major sinkholes are identified on Figure 3.1-3 (Vol. 2, p. 3-6). It is not clear how these sinkholes may be affected by the build out.

While the DEIS provides a cursory review of well-siting constraints (Vol. 6, pp. 2-48 and 2-49) and potential contaminant impacts (Vol. 6, p. 2-50), the level of detail is inadequate to determine if current and potential wells will be adequately protected from potential contaminant sources. The DEIS also lacks, in any substantive form, a summary or discussion of available groundwater quality monitoring data for the NGLA, especially in regions with current or proposed well sites.

Recommendations: The following additional information should be included in the FEIS:

- More details (e.g., data on stormwater quality and demonstrated BMP performance) supporting the position that the combination of BMPs and/or LID concepts will adequately protect the NGLA during and after construction.
- Identification of the BMPs intended to protect the NGLA, and a technical description of their potential effectiveness at reducing the expected leachable contaminants that may be encountered because of the build out.
- Results of a drainage study, which should be completed for all the proposed project areas, not just for Finegayan.
- Results of the LID study and comprehensive drainage studies, if they are completed; if not, the FEIS should clearly state when those studies will be

increased or EPA needs to find a continual source of funds to support routine operation and maintenance of the GWA water and wastewater systems.

A-009-009

Thank you for your comment. DoD disagrees with the assertion that the interconnectedness of the two systems has the potential to indirectly affect the NGLA and directly affect the two water distribution systems. It is unclear from the comment why EPA believes this would be the case. The FEIS addresses the sustainability of the Northern Guam Lens Aquifer (NGLA). The planned DoD water supply wells are located in sub-basins which are almost entirely undeveloped, and separate from the sub-basins where the majority of GWA wells are located. Only 2 percent of GWA's water supply well capacity is located in the aquifer sub-basins where DoD wells are planned. As discussed in the FEIS, the average daily demand on these sub-basins is less than the most conservative estimates of sustainable yield. Based on a discussion with Dr. Jensen at University of Guam, as revised estimate of sustainable yield, incorporating available climate and groundwater information since the early 1990s is likely to result in higher estimates of sustainable yield. Therefore, no negative impacts are anticipated from installing the wells based on existing information. The FEIS also describes the interconnectedness of the GWA and DoD island-wide systems, and plans to provide even greater interconnectedness to provide DoD water to areas on the island close to where GWA cannot meet off-base needs during the peak construction years. Additionally, the FEIS addresses the transient CVN water demand, which, contrary to EPA's comment, can be met by the Fena Reservoir supply. In October 2009 DoD initiated an effort with GWA/CCU to co-manage the NGLA. This effort proposed that GWA and DoD, the two entities that rely on the NGLA as a major source of water would need to work as one to protect this critical resource. The proposal was to cooperatively assess the impacts of proposed developments, use the upcoming USGS study to guide efforts to

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completed. Explain how the LID plan will be used to determine site-specific BMPs and LID measures.

- If dry wells are planned as part of the build-up, their siting and design can provide a direct conduit to the NGLA. Discuss the relationship between any dry wells, new water supply wells, and potential contaminant sources.
- A map of all sinkholes and caves in the project areas to ensure that adequate measures will be taken to prevent infiltration of contaminated stormwater via a sinkhole or other conduit to the NGLA. Clearly state the intention to mimic and not alter existing drainage patterns, whether the build-up will affect any sinkholes, and whether there is any intent to use the sinkholes for stormwater management.
- Discussion and tabular summary of, and reference to, all available groundwater quality data. The Installation Restoration Program at Anderson AFB (in 36 CES/CEVN, Unit 14007) maintains an extensive groundwater monitoring program. Include a summary of these and other relevant groundwater quality data (e.g., at WERI and USGS) for areas with current or proposed wells.
- Comprehensive map(s) allowing the reader to see the location of current and proposed wells, proposed project footprints, groundwater flow patterns, Areas of Concern sites, Installation Restoration Program sites, known contaminant plumes (e.g., National Priorities List sites), pump/lift stations for wastewater transmission, and other potential contaminant sources, etc. Figure 2.2-2 (Vol. 6, p. 2-49) in the DEIS does provide some useful information, but it should be divided into a series of maps to allow greater detail and additional information.
- A commitment by DoD, given the vulnerability of the NGLA, to complete a Source Water Assessment¹⁴ (SWA) for each current and planned well. The SWAs should include a map depicting well locations with known and anticipated contaminant threats (e.g., chemical storage, petroleum storage, service stations, chemical plumes, pump stations/sewage conveyance systems, areas on septic systems, etc.) Each SWA should identify contaminant risks located within a two-, five-, and ten-year time-of-travel from each wellhead.

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C. Groundwater Under the Direct Influence of Surface Water (GWUDI)

The DEIS does not adequately describe and address the regulatory requirements, and resulting construction and operations impacts, from anticipated GEPA designations of existing and future drinking water wells as either groundwater, or groundwater under the direct influence of surface water (GWUDI).

Recommendations: To avoid the need for additional treatment, wells should be sited away from significant sources of fecal and other contamination sources. Source Water

¹⁴ The SDWA requires all states to complete Source Water Assessments (SWAs) for their Public Water Systems. Additional information regarding source water assessments can be found at: <http://cfpub.epa.gov/safewater/sourcewater/sourcewater.cfm?action=Assessments>

manage the NGLA, and leverage DoD and GWA resources to cooperatively address potential impacts and propose alternatives to mitigate adverse impacts to the NGLA. Although this initiative to work together cooperatively has been advanced at subsequent meetings that created consensus on the way ahead, both GWA and EPA raised concerns with the DEIS knowing that many of the issues they raised are already being addressed. Additionally, EPA was invited to these meeting, but declined to attend unless DoD funded their participation.

DoD, EPA Region IX, GWA, GEPA, USGS and University of Guam WERI have also agreed to work jointly on the DoD-funded USGS study and jointly guide the efforts to successfully manage the NGLA. It is expected that the stakeholders will agree on parallel efforts to leverage available information to address military buildup related impacts to the NGLA for the FEIS while defining the parameters that will shape the creation of the 3-dimensional model that will establish baseline conditions of the aquifer to support long term decisions related to groundwater quantity and quality management. This can be a forum for EPA to explain concerns over how the interconnectedness of the GWA and DoD island-wide systems may have an impact on the NGLA, and have these concerns addressed.

A-009-010

Thank you for your comment. EPA recommends that the water distribution system be downsized to address the reduced demand. For the new water system being developed for Finegayan, the demand on the base will be reduced (ave. daily demand of 6.2 MGD reduced to ave. daily demand of 4.5 MGD) but the system is still being designed in accordance with the National Defense Authorization Act (NDAA) 2010 which requires the system to be in accordance with the Unified Facilities Criteria (UFC). Based on the UFC, the water system must be able to provide a maximum daily demand of 10.7 MGD. A waiver to this requirement is not being pursued since it is our intent to use water excess to DoD needs to support off-base demands related to the

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Assessment data may be useful for this. In addition, we recommend the following information be included in the FEIS:

- An expanded discussion of GWUDI and the NGLA (Vol. 2, p. 4-10) to address the understood issues of fecal contamination from sewage spills and lift station failures.
- An expanded discussion of the treatment that may be necessary for those wells that are determined to be GWUDI. The DEIS lists only disinfection and fluoridation at well heads for water treatment (Vol. 6, p. 2-45, Table 2.2-10, *Basic Alternative 1 – Proposed Water System Components*).
- Identification of all the regulatory requirements that will apply should the groundwater be classified as GWUDI by GEPA, to be added to the discussion on federal drinking water regulations in Vol. 2, Chapter 4. These requirements include: Surface Water Treatment Rule (SWTR), Interim Enhanced SWTR, Long-term 1 Enhanced SWTR, Long-term 2 Enhanced SWTR and any other associated requirements.
- A table of treatment requirements and options for classifications of wells as groundwater, disinfected groundwater, GWUDI with filtration avoidance, and GWUDI requiring filtration, and the environmental impacts from these.

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D. Surface Water Protection - Fena Reservoir

Increased activities within the Naval Munitions Site (NMS) may increase loading of sediment and contaminants bound to sediments to the Fena Reservoir, resulting in water quality degradation. The DEIS describes sedimentation and phosphorus problems in the reservoir, the main surface water supply for the DoD Navy island-wide water system and GWA Central Guam water system. The entire Fena Reservoir watershed consists of moderately to steeply sloped lands, with a soil type that contributes to rapid runoff rates and significant erosion, particularly in areas where the native vegetation has been removed. Soil erosion transported to the reservoir by stormwater runoff contributes to reduced reservoir capacity and increased phosphorus loading (Vol. 2, p. 4-60). Sediment influx into the reservoir has reached levels that have prompted the Navy to contract with the Division of Forestry, Guam Department of Agriculture to reforest portions of the watershed that drain into the reservoir. In addition, the DEIS indicates the Fena Reservoir is experiencing periods of low dissolved oxygen and increasing eutrophication.

The Mariana Islands Range Complex (MIRC) DEIS indicated that some of the munitions contaminants, specifically manganese and zinc, were migrating from the Navy detonation site to Fena Reservoir. The concentrations were below EPA Region 9's Preliminary Remediation Goals (PRGs). However, with the Guam build-up and additional training taking place in the same Fena watershed as the MIRC actions, the cumulative impacts should be considered and described in the FEIS.

Proposed training activities on Guam would also include the use of explosives. As a result of such activities, the following potential surface water quality impacts may occur: contamination of surface drainage areas from runoff; contaminant accumulation in waters from leaks or spills of

buildup. Since we do not know the exact locations of the demands off-base, the intent is to not downsize the water system to allow maximum flexibility to address the potential to connect to the system to address off-base water needs. For actual water demand, the FEIS recalculates the demand using more recent information for including current well production and usage data for both DoD and GWA, and actual estimates for the percentage of leakage that make up the UFW for both DoD and GWA. The FEIS includes revised estimates and calculations for both current DoD and GWA systems based on production data obtained from the Andersen system and GWA. It also includes revised estimates for the leakage percent of the UFW for GWA based on comments received from GWA (this estimate is 10%). And it includes a revised estimate for UFW for the Andersen system based on new information provided in April 2010 as part of the turnover of this system to NAVFAC MAR Region, which is estimated at 50%. UFW estimates for the Navy system remain at 10% based on a study that was conducted of the system and cited in the FEIS. Water demand reflected in the FEIS accurately estimates the demand from visiting aircraft carriers even absent the use of on-board desalination systems, and accurately reflects the water demand from equipment and vehicle washing operations. It is anticipated that Fena Reservoir will serve as the main source of water for visiting ships. As for maximizing conservation measures, the FEIS describes in detail more detail than that provided in the DEIS a Sustainability Study that has been drafted that recommends specific measures that will be incorporated into new facility designs to reduce energy and water demand footprints. This is described in detail in Volume 8, and measures that are being recommended are detailed in Volume 6, Chapter 2. Additionally, these Volumes discuss the federal mandates that drive the implementation of conservation measures. DoD is pursuing efforts to incorporate sustainability into all of the projects related to the military buildup. Each project is targeted to meet LEED Silver and efforts are underway to evaluate infrastructure from the standpoint of good, better or best wherein good meets LEED Silver and

A-009-016 petroleum, oil, and lubricants (POLs) and hazardous materials; situation and formation of sediment plumes; and heavy metal and hazardous materials leaching from munitions and explosives of concern (MEC).

Recommendation: The FEIS should assess the cumulative water quality impacts of activities occurring in the Fena Reservoir watershed. A SWA should be completed for the Fena Reservoir, and a stormwater pollution prevention plan (SWPPP) or watershed protection plan should be developed and implemented with BMPs to prevent further soil erosion, sediment and pollutant contributions to the Reservoir.

A-009-017 **E. Water and Wastewater Utility Asset Management and Energy Efficiency**

Opportunities to save energy during water and wastewater treatment plant construction and operation should be considered. Preferred alternatives in the DEIS include expanding and upgrading the Northern District Waste Water Treatment Plant (NDWWTP) to primary and secondary treatment levels and/or building a new secondary plant near proposed development on DoD land. Implementation of energy-saving opportunities at these and other water and wastewater facilities will reduce operational costs and allow capital improvements to be made in accordance with asset management programs.

Recommendations: DoD should consider working with GWA to conduct energy and water audits of all water and wastewater system designs (especially for the NDWWTP and Hagatna renovations) and at existing facilities (including utility buildings, and collection and distribution systems). Use the audits to identify energy, water, and cost-saving opportunities (e.g. pipe replacement and efficiency improvements for pumps, motors, aeration systems, reducing friction, optimizing energy efficiency of existing processes, etc.). The benefits of these audits should be discussed in the FEIS and DoD should commit to implementing audit recommendations prior to design of new facilities.

Commit in the FEIS to develop and implement energy management programs at all military water and wastewater utilities. EPA's Energy Management Guidebook¹⁵ for Water and Wastewater Utilities provides a detailed approach for implementing energy management systems based on the Environmental Management System (EMS) approach. Implementation of energy management systems at water and wastewater utilities can reduce operating costs by up to one-third.

A-009-018 **F. Drinking Water Security**

As the project will significantly increase the military presence on Guam, water security issues should be addressed for facilities on base. DoD should include standard water industry security provisions for its drinking water systems, including designing new (or retrofitting existing) system components to enhance security; performing vulnerability assessments; and developing and maintaining drinking water emergency response plans. DoD should consider this process

¹⁵ The guidebook can be downloaded at:
http://www.epa.gov/waterinfrastructure/pdfs/guidebook_si_energymanagement.pdf

better and best exceed that standard and provide the opportunity to determine the affordability of exceeding the minimum. This effort is being accomplished using a trademark system "SSIM". With respect to water usage the SSIM process evaluates: low impact landscaping, Intelligent irrigation (with the exception of key limited areas no irrigation will be incorporated), high efficiency water fixtures, reuse of rainwater, and detain, retain and treat techniques for stormwater. It is DoD's intent to incorporate many of these requirements into its facilities and site infrastructure. By applying low impact development (LID) initiatives, DoD will focus on precluding and/or minimizing runoff and maximizing the infiltration of quality water to recharge the NGLA. So a conscious effort is being undertaken to reduce water demand, maximize infiltration of quality water and reuse water resources wherever possible to minimize demand for water from the NGLA. As recommended by EPA, DoD could address a Joint Region effort to conserve water by applying policies that would limit the use of water and initiate water saving improvements throughout installations on Guam. With the support of NAVFAC MAR this should be something that DoD could commit to in the FEIS. Energy star appliances will be incorporated into the new facilities being constructed and encouraged for use in existing facilities. The DoD acknowledges the existing sub-standard conditions of key public infrastructure systems including the potable water system on Guam and the interest to have DoD fund improvements to these systems. The DoD cannot take full responsibility to repair GWA's off base water distribution system to remedy these serious existing conditions because DoD's ability to fund infrastructure improvements is limited by Federal law. However, to minimize adverse impacts associated with the proposed military relocation program, the DoD is leading a federal inter-agency effort to identify other Federal programs and funding sources that could benefit the people of Guam. DoD has identified mitigation measures within DoD control and outside DoD control, including measures that GWA and GovGuam could implement to address the shortfalls provided funding sources could be found. Because it is doubtful that GWA could

A-009-018 essential to maintaining the security and reliability of its drinking water system and island-wide water supply.

Recommendations: DoD should consider using the Water Infrastructure Security Enhancements (WISE) program developed by the American Society of Civil Engineers (ASCE), the American Water Works Association (AWWA), and the Water Environment Federation (WEF). The WISE program contains the *Guidelines for the Physical Security of Water Utilities* which describe physical security approaches to protecting drinking water facilities, and would be most useful to DoD in the design and planning phase for the expansion of the existing water system.

DoD facilities should address the assessment areas established by the Public Health Security and Bioterrorism Preparedness and Response Act of 2002. The Safe Drinking Water Act (SDWA), Section 1433, requires all community water systems serving a population greater than 3,300 persons to conduct a Vulnerability Assessment (VA) and revise their Emergency Response Plans (ERP) to reflect the findings of the VA. An assessment should include the following components: (1) a review of pipes and constructed conveyances; (2) physical barriers; (3) water collection, pretreatment, treatment, storage and distribution facilities; (4) electronic, computer or other automated systems used by the public water system; (5) the use, storage, or handling of various chemicals; and (6) the operation and maintenance of the system.

DoD should develop or revise its drinking water ERP following all DoD requirements, including the guidance found in DoD Instruction 2000.18, *Department of Defense Installation Chemical, Biological, Radiological, Nuclear and High-Yield Explosive Emergency Response Guidelines* dated December 4, 2002 and other applicable requirements and guidance.

A-009-019 **G. Additional Requirements that apply to the NGLA and Public Water Systems**

The DEIS does not include a complete characterization, description and listing of all the federal and Guam Drinking Water / Public Water Supply (PWS) System Regulatory Requirements that apply to the existing and proposed PWSs. EPA is mandated to review certain federally funded projects for potential impacts to the NGLA in accordance with Section 1424(e) of the SDWA, and has a specific role in coordinating with other federal agencies to review federal financial assistance projects which may impact the NGLA. The FEIS should acknowledge this role and mandate.

Recommendations: The FEIS should include the following:

- EPA's role in reviewing the off-base roadway projects in coordination with the Federal Highways Administration (FHWA) for potential impacts to the NGLA in accordance with Section 1424(e) of the SDWA, and its role in coordinating with other federal agencies to review federal financial assistance projects that may impact the NGLA.

fund and implement required upgrades in time for the start of the proposed DoD relocation, it is anticipated that public health and safety impacts from increased demand on potable water would be significant until the necessary off-base infrastructure improvements could be completed. It is important to note that supply enough water to the GWA system is not enough to mitigate potential public health impacts. Impacts to public health exist today due to low water pressure, improperly sized pipes and pumps, and poor water quality due to malfunctioning equipment. Problems with the GWA distribution system go well beyond just leaks. This is reflected in the FEIS.

A-009-011

Thank you for your comment. EPA recommends that the water distribution system be downsized to address the reduced demand. For the new water system being developed for Finegayan, the demand on the base will be reduced (ave. daily demand of 6.2 MGD reduced to ave. daily demand of 4.5 MGD) but the system is still being designed in accordance with the National Defense Authorization Act (NDAA) 2010 which requires the system to be in accordance with the Unified Facilities Criteria (UFC). Based on the UFC, the water system must be able to provide a maximum daily demand of 10.7 MGD. A waiver to this requirement is not being pursued since it is our intent to use water excess to DoD needs to support off-base demands related to the buildup. Since we do not know the exact locations of the demands off-base, the intent is to not downsize the water system to allow maximum flexibility to address the potential to connect to the system to address off-base water needs. For actual water demand, the FEIS recalculates the demand using more recent information for including current well production and usage data for both DoD and GWA, and actual estimates for the percentage of leakage that make up the UFW for both DoD and GWA. The FEIS includes revised estimates and calculations for both current DoD and GWA systems based on production data obtained from the Andersen system and GWA. It also includes revised estimates for

A-009-019

- In addition to the Federal SDWA cited in Sect. 3.1.1, the National Primary Drinking Water Regulations found at 40 CFR 141 should be cited.
- In addition to the Guam SDWA cited in Sect. 3.1.1, the Guam Safe Drinking Water primary drinking water regulations should be included. These regulations are found at: 22 GAC – Guam EPA Division II – Water Control Drinking Water Chapter 6 PART 6141 – Guam Primary Drinking Water Regulations.
- The FEIS should include more discussion of the regulatory and cost impacts of GWUDI determinations on the PWS with respect to design, permitting, construction and GEPA regulatory oversight.

H. Tinian Water Resources

A-009-020

1. Impacts to Groundwater on Tinian

The DEIS does not provide adequate information on well locations and groundwater flow patterns to determine if the build out activities (i.e., firing ranges) on Tinian will impact underground sources of drinking water (USDWs). Munitions and explosives of concern (MECs) can have negative long-term impacts on groundwater quality, and the DEIS does not demonstrate that the MECs used at the firing ranges will not contaminate the aquifer and critical wellheads (i.e., those located in or near the Makpo wetland area) supplying drinking water on Tinian. The DEIS states that approximately 40 drinking water wells were drilled on Tinian, but most have been abandoned (Vol. 3, p 4-5). As abandoned wells can act as conduits by which pollutants could reach the aquifer, the FEIS should explain where they are located and whether MECs pose a potential threat to groundwater.

Recommendations: The FEIS should address the following: (1) clearly describe the groundwater resources at Tinian; (2) provide a map of the groundwater flow patterns; (3) describe and depict any subbasins and/or groundwater flow boundaries on Tinian; (4) describe how the firing range activities (e.g., MECs) will affect the underlying groundwater; (5) describe whether the groundwater underlying the firing ranges is a potential USDW; and (6) discuss whether abandoned wells have been properly destroyed and specify the locations of any that exist within the project area.

A-009-021

2. Tinian Wastewater Treatment - Pre-Existing Leachfield

The DEIS does not provide adequate information (e.g., data) to determine whether the septic tank and leachfield (septic system) can safely and legally provide for disposal of the proposed sewage collected in port-a-potties. For example, the DEIS does not indicate the anticipated amount or frequency of the loadings, whether the system was designed for the proposed use, and whether the system is currently operational and maintained.

Large capacity septic systems are subject to the Underground Injection Control (UIC) regulations. The Commonwealth of the Northern Mariana Islands (CNMI) Department of Environmental Quality (DEQ) locally implements the UIC regulations and its own onsite wastewater disposal regulations.

the leakage percent of the UFW for GWA based on comments received from GWA (this estimate is 10%). And it includes a revised estimate for UFW for the Andersen system based on new information provided in April 2010 as part of the turnover of this system to NAVFAC MAR Region, which is estimated at 50%. UFW estimates for the Navy system remain at 10% based on a study that was conducted of the system and cited in the FEIS. Water demand reflected in the FEIS accurately estimates the demand from visiting aircraft carriers even absent the use of on-board desalination systems, and accurately reflects the water demand from equipment and vehicle washing operations. It is anticipated that Fena Reservoir will serve as the main source of water for visiting ships. As for maximizing conservation measures, the FEIS describes in detail more detail than that provided in the DEIS a Sustainability Study that has been drafted that recommends specific measures that will be incorporated into new facility designs to reduce energy and water demand footprints. This is described in detail in Volume 8, and measures that are being recommended are detailed in Volume 6, Chapter 2. Additionally, these Volumes discuss the federal mandates that drive the implementation of conservation measures. DoD is pursuing efforts to incorporate sustainability into all of the projects related to the military buildup. Each project is targeted to meet LEED Silver and efforts are underway to evaluate infrastructure from the standpoint of good, better or best wherein good meets LEED Silver and better and best exceed that standard and provide the opportunity to determine the affordability of exceeding the minimum. This effort is being accomplished using a trademark system “SSIM”. With respect to water usage the SSIM process evaluates: low impact landscaping, Intelligent irrigation (with the exception of key limited areas no irrigation will be incorporated), high efficiency water fixtures, reuse of rainwater, and detain, retain and treat techniques for stormwater. It is DoD’s intent to incorporate many of these requirements into its facilities and site infrastructure. By applying low impact development (LID) initiatives, DoD will focus on precluding and/or minimizing runoff and maximizing the

A-009-021 The FEIS should assess how additives, such as paradichlorobenzene, that are typically used in commercial portable toilets to deodorize sewage and/or liquefy solids by destroying microbiological activity could impact water quality. If there is no microbiological activity in the sewage disposed to the system, there is a greater likelihood of leachfield failure, surfacing effluent and resultant public health risk by exposure to untreated sewage. While there may be no public water supply wells in the immediate area, there may be agricultural or other non-public supply wells in the area that could be affected. The DEIS does not provide a map showing the location of the leachfield in relationship to existing and/or abandoned wells.

Recommendations: CNMI DEQ should be consulted to determine applicable permit requirements. The FEIS should discuss permit requirements associated with the leachfield and its proposed use.

The leachfield should be evaluated for its construction and design flow capacity in the context of the proposed use, and if it is not already equipped with adequate primary treatment tanks, they should be added according to CNMI onsite wastewater regulatory specifications. The findings of the evaluation should be discussed in the FEIS.

If paradichlorobenzene or other chemical deodorizers are to be used in the toilets, the primary treatment tanks should be oversized to allow recovery of the organisms needed to treat sewage. Spill response plans should not include disposal to the Casino Wastewater Treatment Plant without careful consideration of the proportion of chemical additive to the Plant's primary treatment unit volume and detention time. DoD may wish to consider other forms of pretreatment such as composting toilets.

EPA recommends an operation and maintenance schedule for any remote onsite sewage system to ensure that it continues functioning as designed, and that backflows are reported and addressed promptly.

The FEIS should discuss well (e.g., public supply, agricultural, or monitoring) locations downgradient and in the vicinity of the leachfield, and the potential for impacts on the aquifer and wells.

A-009-022 I. WASTEWATER

I. Interim Wastewater Infrastructure Needs (Construction Workers and Induced Growth)

The surge in the population caused by the temporary construction workforce and supporting civilian population would stress the island's already overburdened wastewater infrastructure to unacceptable levels, yet the wastewater infrastructure improvements necessary to accommodate these populations, which are needed for the project's construction, are not included in the proposed project description. Instead, DoD expects GWA to absorb this treatment burden.

infiltration of quality water to recharge the NGLA. So a conscious effort is being undertaken to reduce water demand, maximize infiltration of quality water and reuse water resources wherever possible to minimize demand for water from the NGLA. As recommended by EPA, DoD could address a Joint Region effort to conserve water by applying policies that would limit the use of water and initiate water saving improvements throughout installations on Guam. With the support of NAVFAC MAR this should be something that DoD could commit to in the FEIS. Energy star appliances will be incorporated into the new facilities being constructed and encouraged for use in existing facilities. The DoD acknowledges the existing sub-standard conditions of key public infrastructure systems including the potable water system on Guam and the interest to have DoD fund improvements to these systems. The DoD cannot take full responsibility to repair GWA's off base water distribution system to remedy these serious existing conditions because DoD's ability to fund infrastructure improvements is limited by Federal law. However, to minimize adverse impacts associated with the proposed military relocation program, the DoD is leading a federal inter-agency effort to identify other Federal programs and funding sources that could benefit the people of Guam. DoD has identified mitigation measures within DoD control and outside DoD control, including measures that GWA and GovGuam could implement to address the shortfalls provided funding sources could be found. Because it is doubtful that GWA could fund and implement required upgrades in time for the start of the proposed DoD relocation, it is anticipated that public health and safety impacts from increased demand on potable water would be significant until the necessary off-base infrastructure improvements could be completed. It is important to note that supply enough water to the GWA system is not enough to mitigate potential public health impacts. Impacts to public health exist today due to low water pressure, improperly sized pipes and pumps, and poor water quality due to malfunctioning equipment. Problems with the GWA distribution system go well beyond just leaks. This is reflected in the FEIS.

A-009-022

Adding flows to any of GWA's existing wastewater treatment systems will exacerbate an already significant water quality problem caused by inadequate treatment of sewage, and increase the potential human health and environmental risk associated with those facilities operating in noncompliance. All Guam facilities are currently operating out of compliance with their Clean Water Act (CWA) permits, and GWA is operating under a court enforced stipulated order. Lack of GWA resources, due in particular to restrictions on fees that can be collected from the public for sewer services, have severely limited GWA's ability to adequately maintain and update its wastewater treatment system. As a result, GWA has experienced frequent violations of its NPDES permit requirements, including inability to adequately treat wastewater and exceedances of the allowed pollutant levels in plant discharges. The DEIS references EPA's assessment that both the Hagatna WWTP and Northern District WWTP (NDWWTP) had failed to meet minimum standards for primary treatment, including adequate removal of pollutants, compliance with pollutant discharge permit limits, and ability to demonstrate that plant discharges are not affecting water quality or the environment (Vol. 6, p. 3-15).

EPA considers it unacceptable that DoD places the burden of addressing project-related increases in wastewater on GWA and the construction contractors. The DEIS identifies measures GWA or GovGuam could implement, such as charging development impact fees, and assessing system development charges to contractors. However, increased water and wastewater user fees/charges are insufficient to support the upgrades and repairs needed for the existing water and wastewater infrastructure. Given the financial and resource constraints that exist for Guam, it is unrealistic to propose that GWA can accommodate the direct and indirect impacts of the increased contractor population to support the military expansion. (See comment below regarding GWA's financial capacity).

The wastewater flows from the peak construction period of 2014 would exceed the physical capacity of the NDWWTP (12.8 mgd, which is greater than the design capacity of 12 mgd) (Vol. 6, p. 3-56). The DEIS states that GWA could add chemical coagulants or increase the surface overflow rate (within the normal design range) of the clarifier to improve plant operations to treat the 0.8 mgd in excess of the plant's physical capacity, without adverse effects on the NDWWTP (Vol. 6, p. 3-56, 19-7). There is no technical discussion or reference to technical reports to support this assertion.

To mitigate impacts from increased flows to NDWWTP during the construction phase, DoD would arrange for wastewater to flow to plants other than NDWWTP, by working with GovGuam to divert induced civilian and construction worker housing to other areas, utilizing tanker trucks to ship excess wastewater from the NDWWTP to other treatment facilities on Guam, or requiring construction contractors to use a cruise ship or hotel barge docked at a commercial pier to be used as housing instead of areas that feed wastewater to NDWWTP (Vol. 7, p. 2-49). None of these measures are reasonable, since all of GWA's WWTPs and the Navy's existing Apra Harbor WWTP are in non-compliance with their current NPDES permits. Use of a different WWTP would reduce demand on the NDWWTP but would result in transferring impacts to another WWTP, whose impacts would need to be mitigated. Depending on where

A-009-012

Thank you for your comment. DoD agrees that protection of the sole source NGLA is imperative. However, DoD does not agree that a comprehensive model of the NGLA is necessary prior to making decisions about the sustainability of the aquifer or before making decisions about placement and withdrawal rates from new wells. Additionally, a comprehensive model that would provide a comprehensive tool to manage the NGLA would take several years to develop, would be quite complex, and is already being pursued by DoD as part of the military relocation effort. These efforts are described in the FEIS in Volume 6, Chapters 2 and 3. The FEIS discussed the two available estimates of the NGLA that have been published, one by the Northern Guam Lens Study (NGLS) (CDM 1982) and one by Barrett Consulting with John Mink (Barrett 1992). The CDM 1982 study estimated the sustainable yield of the NGLA as 57.5 MDd, and the Barrett 1992 study estimated the sustainable yield as 80.5 MGd. University of Guam (UoG) Water and Environmental Research Institute (WERI) provided an expert technical review for DoD of the two sustainable yield estimates for the NGLA in 2009. The study concluded that the approach and methodology used in Barrett 1992 to estimate the sustainable yield are still valid and are appropriate for initial planning; and the Barrett 1992 sustainable-yield estimates should be used instead of the earlier 1982 sustainable-yield estimates because the later values are based on an additional decade of field data. Additionally, this expert communicated that the additional data that had been gathered from the NGLA since the 1992 study would not likely change the sustainable yield estimate for purposes of the FEIS because the data collected was from sub-basins of the aquifer that are not located where DoD proposes to withdraw water. Therefore, the FEIS uses the Barrett 1992 sustainable yield estimate of approximately 80 million gallons per day. However, it is important to note that the peak demand year on the aquifer (for the average daily demand) from all sources (DoD and non-DoD) will be in 2015 at 50.44 MGd, which is below both sustainable yield estimates.

A-009-022 construction workforce housing is located, it may be necessary to ban any new connections, pending resolution of the compliance issues.

In addition, the impacts to GWA's wastewater collection and conveyance system from new workforce housing could be significant. The DEIS provides a list of potential areas where the construction workforce could be housed but states that siting work force housing is out of DoD's control. Timely completion of wastewater collection, conveyance, and disposal improvements is difficult under this scenario, and apart from the time needed to design and construct the needed infrastructure, permitting of construction workforce housing could take up to a year to be approved by GovGuam agencies.

Recommendation: DoD should commit to an appropriate cost share to upgrade and expand Guam's NDWWTP, which would receive the majority of the increased military and civilian sewage flows, and other wastewater treatment plants that would be affected (See comment below regarding Hagatna WWTP), prior to the facilities receiving increased sewage flows as a result of the military expansion. DoD should also commit to an appropriate cost share for the plant to upgrade to secondary treatment, if required¹⁶. All mitigation measures identified in the FEIS should be reasonable and not simply transfer impacts to other locations. See also our comments under "Adaptive Management" and regarding Hagatna WWTP.

The FEIS should cite technical references that support the conclusion that the primary clarifier would be able to treat the additional 0.8 mgd in excess of the plant's physical capacity, without adverse effects on the NDWWTP.

The construction workforce housing areas need to be more specifically identified in order to determine direct and indirect impacts to GWA's infrastructure so that proper mitigation measures can be identified in the FEIS and implemented as part of the project.

The FEIS should delete the reference in Vol. 6, p. 3-18 to an Administrative Order that would be issued by EPA outlining specific requirements to bring the NDWWTP to primary and secondary treatment standards.

A-009-023 **2. GWA Wastewater System - Financial Capacity**

The DEIS relies upon GWA to finance and execute major capital improvement projects to upgrade its wastewater infrastructure. The DEIS does not evaluate GWA's financial capacity and rate payer's ability to pay its other water and wastewater needs, which total approximately \$900M, plus costs for upgrading the NDWWTP to full secondary treatment (estimated at approximately \$200M).

The DEIS does identify resources to assist GWA in funding increases in wastewater flows, and puts the financial burden on GWA and GovGuam. GWA estimates the cost of expanding its

¹⁶ If required by the Environmental Appeals Board (EAB) in response to appeal of EPA's denial of a secondary treatment variance under CWA 301(h).

Volume 6, Chapter 2, Section 2.2.4.1 and Chapter 3, Section 3.2.3.1 discuss this in detail. In October 2009, fully comprehending the importance of protecting the sole source NGLA, DoD initiated an effort with GWA/CCU to co-manage the NGLA. In fact, co-management of the aquifer, and pursuit of a comprehensive 3-D model of the aquifer was a DoD recommendation, not one made by EPA, GWA or GEPA. This effort proposed that GWA and DoD, the two entities that rely on the NGLA as a major source of water would need to work as one to protect this critical resource. The proposal was to cooperatively assess the impacts of proposed developments, use the upcoming USGS study to guide efforts to manage the NGLA, and leverage DoD and GWA resources to cooperatively address potential impacts and propose alternatives to mitigate adverse impacts to the NGLA. Although this initiative to work together cooperatively has been advanced at subsequent meetings that created consensus on the way ahead, both GWA and EPA raised concerns with the DEIS knowing that many of the issues they raised are already being addressed. Additionally, EPA was invited to these meeting, but declined to attend unless DoD funded their participation. DoD has already committed funds to conduct the NGLA 3-D model. During meetings with GWA in November 2009, GWA, GEPA and DoD jointly met with UoG-WERI to discuss the proposed USGS study and it was agreed that a working group of stakeholders would be established to guide the efforts to successfully manage the NGLA. This working group which includes, EPA, GEPA, GWA, DoD, UoG-WERI, and USGS is meeting in Guam in early March 2010 to allow the stakeholders to collaboratively shape the USGS study that DoD is funding. This meeting will allow stakeholders to provide their input into the development of a 3-dimensional model that will be created as a management tool to guide and shape the long term development, protection and continued operation of the aquifer as a critical resource. It is expected that the stakeholders will agree on parallel efforts to leverage available information to address military buildup related impacts to the NGLA for the FEIS while defining the parameters that will shape the creation of the

A-009-023 system to accommodate the military buildup induced population to be \$200M (Vol. 6, p. 3-19). The DEIS states these improvements will be financed through GWA's surplus system revenues, grants, and loans, and that the Navy would coordinate with GWA to expedite the planned CIP so that the NDWWTP would have sufficient interim capacity until the final long-term wastewater solution. As GWA has indicated it does not possess the financial resources to drill new wells to meet short-term water demands (Vol. 6, p. 3-49), it will also need additional financial resources to make improvements to its northern treatment, collection, conveyance, and disposal system to address wastewater treatment demands from the military buildup.

Recommendation: As recommended above, DoD should commit to an appropriate cost share to upgrade and expand Guam's NDWWTP. DoD must ensure that all aspects of its project, especially the components that will prevent significant environmental impacts, are included in the project description and are funded. Thus, the FEIS needs to further discuss resources available and the steps needed to secure funding to assist GWA in addressing short-term direct and indirect impacts from the military buildup, to avoid an additional financial burden on GWA.

A-009-024 **3. Northern District WWTP**

a. Discrepancies Regarding Current Flows

The DEIS reports that the current wastewater flow rate to the NDWWTP is 5.73 mgd (Vol. 6, Table 2.3-4). Projecting this flow rate to the peak hourly flow (PHF) by multiplying by 2.25¹⁷ yields a peak hourly flow of 12.89 mgd. These values, however, fall substantially short of the average daily flow of 7.8 mgd and peak wet-weather flow of 18.0 mgd for the same tributary area presented in GWA's 2006 WRMP. The WRMP also indicates that the average daily dry-weather flow is 164 gallons per capita per day (gpcpd) rather than the 120 gpcpd used in the DEIS.

Independent in-system flow metering should be performed as soon as possible to determine current wastewater flows and infiltration/inflow (I/I) rates into the existing sanitary sewer system. Hydraulic constraints in the existing sanitary sewer system may also be constricting peak wet weather flow rates. Therefore, the inflow rates of rainfalls of varying intensities will need to be monitored to ensure inflow rates under peak rainfalls can be determined as accurately as possible. In addition, the proposed design flow rates for the NDWWTP (Vol. 6, Section 2.3.3) do not appear to include allowances for dry-weather infiltration and wet-weather inflow into the existing or new sanitary sewers.

Recommendation: The FEIS should resolve discrepancies in flow and per capita rates, assess in-stream flow metering to determine accurate wastewater and inflow/infiltration rates, and reassess need for a higher peaking factor.

¹⁷ Vol. 6, p. 2-69 Table 2.3-4 based on a ratio of 2.25 to 1 of peak flow to average flow from the original design calculations of the NDWWTP

3-dimensional model that will establish baseline conditions of the aquifer to support long term decisions related to groundwater quantity and quality management. GWA has placed significant weight on the timely development of the 3-D model and through its involvement in the upcoming stakeholder meeting and the near monthly meetings with DoD has the ability to influence the development of the model to address its specific concerns and interests raised in its comments in the DEIS. Data gathered during the DoD well siting study will be used to continue to guide and steer the co-management of the aquifer and development of a 3-D model, and It is also important to note that although GWA's comments stressed the need to involve UoG-WERI in the USGS study of the NGLA due to the body of information held at WERI; GWA, EPA and GEPA all questioned UoG-WERI's confirmation that the 1991 report "Groundwater in Northern Guam, Sustainable Yield and Groundwater Development" supports the adequacy of the NGLA to meet the water demand related to the military buildup. It is expected that the stakeholders will steer the USGS study to provide sufficient information to address the concerns about sustainable yield of the NGLA (at the sub-basin level) and provide that information to address the concerns raised in the review of the DEIS for inclusion in the FEIS.

A-009-013

Thank you for your comment. DoD acknowledges the 1991/2 sustainable yield study is almost 20 years old. For that reason, DoD had the Water and Environmental Research Institute (WERI) of the University of Guam review that report and render an opinion if the assumptions it used are still valid today. That review was performed and the conclusion drawn was that yes those assumptions are still valid. The DoD has committed to support the USGS modeling of the aquifer, which is estimated to take at least 3 years. This model will assist in aquifer management, however would be completed too late to support the early phases of expansion of the extraction well system. In the interim while the USGS model is being developed, DoD will fund an update to the 1992 model to allow for data

A-009-025

b. Assessment of Impacts to Marine Biological Resources, Human Health, and Recreation

The DEIS lacks sufficient information to describe potential impacts to marine biological resources, human health, and recreation from wastewater discharges associated with the proposed project. The following comments point out discrepancies and insufficiencies in the DEIS to be addressed in the FEIS to better understand and disclose the relationship between such discharges and marine biological resources.

The FEIS should present, for analysis, a conservative dilution credit based on conservative assumptions. The DEIS states that the initial dilution factor for the new NDWWTP outfall is 300, despite GWA's use of 200 as the basis of design. The 300 initial dilution factor is based on DoD's draft ocean outfall study (to be completed). Prior to the incorporation of a dilution factor in a future (reissued) NPDES permit based on secondary treatment, a mixing zone allowance would need to be approved by GEPA and US EPA. As the timeframe for approval of such an allowance is unclear, the FEIS should analyze whether the discharge could meet Guam water quality standards without a dilution credit. To this end, Table 13.2-4 in Vol. 6 should be amended to include an additional column providing calculations without an allowance for dilution.

Data presented in Vol. 6, Table 13.2-4, *Comparison of Guam Water Quality Standards to Modeled Primary and Secondary Treatment Effluent at NDWWTP*, should be supported by inclusion of a technical report/study as an attachment to the DEIS. It is unclear if the data in Table 13.2-4 are actual results from sampling or are based on the characteristics of similar wastewater effluent. Additionally, it is unclear how the Table 13.2-4 constituents were chosen; potentially important metals and organics, including bioaccumulative pollutants such as mercury, PCBs, and dioxin should be included in a revised table.

Water quality impacts may differ for wastewater treatment plants with different capacities. The DEIS states that a detailed assessment of water quality impacts that could occur with regard to the 18 wastewater treatment plant was not conducted because it would have the same treatment processes as the 12 plant, and would be required to meet the same pollutant removal efficiencies and water quality standards. The DEIS expects water quality impacts of the 18 plant to be the same as the 12 plant; however, while certain pollutant removal efficiencies and concentration based discharge limits would be similar, the mass loading (lbs/day) for such pollutants such as solids, nutrients, metals would increase with the increased flow volume and should be assessed for water quality impacts which the DEIS fails to consider.

In addition to the analysis of concentration exceedances for certain regulated constituents, an analysis of mass increases in pollutant loading should be presented. For example, although the Guam Water Quality Standards are expressed in concentrations, nutrient loading is typically important in determining impacts on water quality. Depending on ambient conditions, nutrient loads could cause algae blooms or even attract aquatic species to the outfall area. Increased fresh water discharge to the ocean should also be considered as it could change the water quality profiles, increase the zone of impact, and increase loading of pollutants. Impacts to ocean

that has been collected on subaquifers in the northern part of Guam to be added to the data assessed for aquifer sustainability DoD has proposed to GWA to jointly manage the aquifer with input from experts, including USGS and WERI. This coordination with Northern Guam Lens Aquifer experts will provide a way for the best science and scientist to make decisions that will protect the aquifer. DoD shares your concern over aquifer management.

A-009-014

Thank you for your comment. The FEIS includes a detailed discussion of many of the items recommended for inclusion by EPA, and is contained in the water resource chapters of Volumes 2, 3, 4, and 5, and under Chapters 3, 6 and 13 of Volume 6. Since the publication of the DEIS, several studies have been completed that provide more detailed information that related to protection of the NGLA from contamination and reduction of water demand that will minimize the amount of water needed for withdrawal from the aquifer, including a Low Impact Development (LID) Study, a Sustainability Study, and preparation of a Comprehensive (umbrella) Stormwater Pollution Prevention Plan. There are two areas to be addressed on this issue, one is actions and efforts during construction and the other is addressing controls that will be build-in to sustain good practices after construction is complete. A SWPPP has been prepared for all construction sites that are part of the proposed military relocation. This umbrella plan outlines specific stormwater management requirements during construction and requires each contractor for individual projects to comply with the overall requirements of the umbrella SWPPP, and prepare a site specific SWPPP for their site. Additionally, a construction stormwater general permit will also be required as part of construction activities; this permit will require the SWPPP be implemented as a permit condition. It is expected that a team of experienced personnel will be engaged to oversee the execution and oversight of the SWPPPs, ensuring that Best Management Practices (BMPs) are provided as outlined in the site specific plans. Once

A-009-025 habitats and aquatic species, such as coral, should also be considered due to increases in flows of fresh water from a larger treatment plant.

The DEIS proposes continued discharge of primary effluent in the short-term, but lacks sufficient information on the potential impacts that could result. For example, while the DEIS mentions impacts associated with violating the Guam Water Quality Standards for ammonia and bacteria, a more detailed discussion, including the size of the plume under various flow scenarios, as well as the types of marine species that might be affected, should be presented. The impacts on recreational uses should also be discussed¹⁸.

Recommendation: Data presented in Table 13.2-4 should be supported by inclusion of a technical report as an attachment to the FEIS. A detailed assessment of water quality impacts of the 18 mgd wastewater treatment plant, including impacts to ocean habitats such as coral reef, is needed. The FEIS should provide the technical basis for the use of the higher initial dilution of 300.

The impacts to the marine biological resources, human health, and recreation should be discussed for any continued discharge of primary effluent from the NDWWTP.

A-009-026 **4. Other Wastewater Treatment Plants - Hagatna and Apra Harbor**

a. Impacts to GWA's Hagatna WWTP

There is no discussion of the direct and indirect impacts the military buildup will have on the Hagatna WWTP and its collection and conveyance system, nor from the increased wastewater flow to the ocean. The DEIS simply states that the Hagatna WWTP has been shown to have adequate capacity to handle the estimated increased demand, thus only the NDWWTP is analyzed for environmental consequences (Vol. 6, p. 3-55). However, the Hagatna WWTP has CWA compliance problems, as documented in Vol. 6, pp. 3-15 - 3-19. In 2008, GWA issued a sewer connection moratorium, which was lifted in early 2009 based on planned improvements to the collection system to address sewer line capacity issues. GWA is seeking bond funds to pay for the moratorium improvements, but it is unclear whether they will be successful in securing the needed funding. It is also unclear whether GWA's moratorium planning has taken into consideration the increased wastewater flows anticipated by the military buildup.

EPA has concerns with GWA's planned moratorium improvements. Evaluation of the proposed improvements to ensure they represent the lowest life-cycle-cost and the most environmentally beneficial solution would allow DoD and GWA to determine whether GWA can complete all improvements in a timely manner (2013-2014). Any increased loading to the Hagatna sewer conveyance system prior to the upgrades would further exacerbate the sanitary sewer overflows that currently occur in the system in continued violation of Clean Water Act requirements.

¹⁸ Vol. 6 p. 19-7 states this may adversely affect recreational activities, however Chapter 11 - Recreational resources, does not mention this impact nor convey specifically how it could affect recreation and other CWA protected uses.

construction is complete, a SWPPP will be developed to control stormwater runoff and infiltration from base operations. This is being done on a regional DoD Guam-wide scale, and has the involvement of Guam EPA. Although significant vegetation will be removed at Finegayan, DoD is pursuing Low Impact Development (LID) technology that will focus on ensuring that the runoff from the site does not increase and that the quality of the water that is infiltrated does not degrade. The LID study proposes various projected storm events to address the detention, retention and infiltration of surface runoff from the developed land, and makes recommendations for which LID designs and measures are best suited for the specific area of the project. Specific measures will be incorporated into the design of the facilities and site infrastructure to address stormwater quantity and quality issues. Porous pavement and detention ponds will help to ensure that stormwater is controlled and directed back into the aquifer. Natural vegetation will be used to help filter stormwater that is being directed back to the aquifer. Contractors will be directed to not compact materials in open areas around new facilities to maximize the porosity of those materials and the ability of them to absorb rainwater to recharge the aquifer. The FEIS has a detailed discussion of GEPA requirements related to avoidance of areas that could threaten the NGLA during well siting. It includes a detailed discussion and map of existing Installation Restoration (IR) sites where past contamination of soils and/or groundwater have occurred, locations of existing wells, locations of know sinkholes and groundwater flow patterns. However, much of the information requested by EPA for inclusion on the FEIS is part of the GEPA well siting and permitting process, and will be considered in more detail at that time. With respect to saltwater intrusion into wells, this has been a topic of discussion with GWA and EPA Region IX. Of particular concern is saltwater intrusion in GWA wells, and the potential for further intrusion as more wells are added by DoD. This is an issue that will be addressed as part of DoD, GWA and GEPA's efforts to co-manage the NGLA, jointly making decisions about well placement, pumping rates and other parameters

A-009-026

Recommendation: Given the history with existing capacity issues, the FEIS should discuss how the increased loading from the military buildup will affect the Hagatna WWTP, collection system, and ocean water quality. The discussion of impacts should include consideration of wet weather peak flows. The FEIS should also clarify whether the 2.25:1 ratio of average daily flow to peak flow reported in the DEIS is representative of the Hagatna collection system.

A-009-027

b. Impacts to Navy's Apra Harbor WWTP

Additional information is needed to describe the extent of impacts to capacity at the Apra Harbor WWTP and impacts associated with discharges from the increased population. The DEIS indicates that the Navy's Apra Harbor WWTP currently has adequate capacity, both physically and in its permit, to handle the estimated future wastewater demand (Vol. 6, p. 2-67, 3-55). However, with the proposed project, the Apra Harbor WWTP will approach the daily maximum volume which could impact its treatment effectiveness and compliance with its NDPEs permit and Guam Water Quality Standards. Peak wet weather discharges should be determined and overflow scenarios described. Effects of any increase in discharge, including additional pollutant loading and other impacts, should be discussed.

Based on the Apra Harbor WWTP NPDES discharge monitoring reports and an inspection conducted by EPA in July 2008, the facility is in non-compliance with its current NPDES permit effluent limits for some metals, total residual chlorine, biological oxygen demand (BOD), and total suspended solids (TSS), and has extensive inflow and infiltration (I/I) problems. In part, violations are attributable to the 'non-routine, highly inorganic non-domestic wastewater from increased ship and carrier/strike group visits and long-term drydocking'¹⁹. EPA will be reissuing the permit, which will contain more stringent controls and require additional monitoring to assess whether the discharge meets water quality standards (WQSs). Although the DEIS states that proposed improvements to the Apra Harbor WWTP are being executed under other military construction projects (MCON P-262 and P-534) (Vol. 4, p. 2-38), it is not clear whether the scope and purpose of those projects are to address current permit noncompliance and anticipated non-domestic waste stream loads, or whether other improvements will be necessary to achieve compliance with permit requirements. The DEIS also notes that the existing wastewater treatment collection system at Apra Harbor Naval Complex is inadequate to handle the volume of wastewater from berthing a CVN (Vol. 4, p. 2-38).

In addition, the Apra Harbor Naval facility is out of compliance with its Multi-Sector General Permit (MSGP) for stormwater associated with industrial activities.

Recommendation: The FEIS should evaluate adequacy of the Apra Harbor WWTP to treat anticipated domestic and non-domestic wastewater, including peak wet weather flows. While MCON improvements may address capacity issues, they may not necessarily address permit effluent non-compliance issues, and the FEIS should discuss this issue further and recommend measures needed to bring the WWTP into compliance.

¹⁹ EPA Apra Harbor NPDES inspection report dated July 17, 2008 which references the Navy's December 2005 Effluent Metals Concentration Investigation report.

that will protect the aquifer from saltwater intrusion and contamination. Additionally, as part of DoD's effort to "wring out" excess water from existing DoD water systems (wells and Fena Reservoir), the demands on the NGLA will be reduced in the areas where water is currently withdrawn by GWA and saltwater intrusion is occurring. Regarding commitment by DoD to conduct a detailed source water assessment, DoD does not agree that this is necessary since the proposed wells are new and the things that would be considered in the source water assessment are being addressed in the well permitting process.

A-009-015

Thank you for your comment. Guam's GWUDI program is currently being developed by GEPA and EPA Region IX. During the first week of March 2010, EPA and GEPA conducted a session that address the way ahead with respect to GWUDI on Guam. Based on that session, it appears that the GWUDI program on Guam will no include a requirement to treat all water from the NGLA, but will rather require treatment only for specific wells on a well-by-well basis. DoD's test well effort will assist in determining the best locations for the proposed 22 wells based on the best hydrogeology and the ability to avoid surface and contamination influences. Therefore, GWUDI should not be an issue for the new proposed DoD wells since there is an opportunity to locate them away from surface and contamination influences during the well siting stage. The FEIS includes an expanded discussion of the GWUDI program, including the GEPA and EPA Region IX session that constitutes the latest available information on this program in Guam. In the event that individual DoD wells are found to be subject to to GWUDI requirements, DoD will provide the appropriate treatment for those wells once that determination is made by GEPA and EPA Region IX; this would be during the new well siting and permitting process.

A-009-016

Thank you for your comment. As stated in the EIS, the proposed action

A-009-027 See also "Pretreatment and Sludge Management" comment below. In addition, the FEIS should evaluate and address the military buildup impact on the Apra Harbor Naval facility's compliance with its MSGP for stormwater associated with non-domestic activities, and impacts to the receiving waters.

A-009-028 **5. Regulatory Compliance for New and Increased Discharges in Impaired Waters**
The status of any final or draft Total Maximum Daily Loads (TMDLs) should be discussed, along with any applicable TMDL waste load allocations (WLAs). Guam EPA issued a 30-day public notice on December 28, 2009 for draft bacteria Total Maximum Daily Load (TMDL) for 17 beaches in the central and northern areas of Guam (see TMDL discussion in "Cumulative Impacts to Water" comment). Once GEPA finalizes a TMDL and it is approved by EPA, the TMDL load allocations will be incorporated by EPA into NPDES permits (wastewater, stormwater); including any new point source discharges to impaired waters (40 CFR 122.4(i))²⁰. The EIS should identify the project components with new or increased point source discharges to impaired waters. Guam also has an approved sediment TMDL in the Uguam Watershed.

Recommendation: The FEIS should clarify how proposed new and increased discharges to impaired waters will not exceed TMDL waste load allocations.

A-009-029 **6. Navy's Fena Water Treatment Plant**
The DEIS lacks an assessment of whether the Fena Water Treatment Plant (WTP) will be able to comply with its NPDES permit, given the anticipated increase in demand. The Navy's Apra Harbor WWTP NPDES permit previously included an emergency discharge point (002) for the Navy-operated Fena Water Treatment Plant. During the application for renewal of this NPDES permit, EPA notified the Navy in 2008/2009 that the Fena WTP emergency discharge point (002) would be subject to a separate NPDES permit because of the numerous emergency discharges (more than 154) that have occurred, the latest being 1.0 MG in December 2009. The increased demand for drinking water due to the military buildup will result in further discharges of this nature.

Recommendation: The FEIS should assess the impacts of the military buildup on the Fena WTP, and the adequacy of the WTP to prevent discharges. The Navy should seek NPDES permit coverage for any discharges from the WTP, and the FEIS should identify appropriate mitigation measures. Mitigation measures should include necessary improvements to the Fena WTP to ensure that any discharges will comply with the CWA and GEPA water quality standards.

A-009-030 **7. Pretreatment and Sludge Management**
Pretreatment of influent and sludge management for both existing GWA WWTPs and the Navy's Apra Harbor WWTP is of particular concern. At the Apra Harbor WWTP, recent sludge monitoring has shown elevated metals content; in 2008, EPA found violations of effluent limits for a number of constituents including metals. For the Northern District WWTP, EPA determined, as part of the final CWA 301(h) Decision Document, that while toxic pollutants

²⁰ see also, *Friends of Pinto Creek v. EPA*, (504 F.3d 1007, 9th Cir., 2007)

"...would be implemented in accordance with all applicable orders, laws, and regulations, including the preparation and implementation of a SWPPP, SWMP, and SPCC Plans that would control runoff and minimize potential leaks and spills." In addition, the Navy plans to conduct a Watershed Assessment of Fena Reservoir, which would include a follow-on watershed management plan.

Explosives will not be used during training in the NMS and the EIS has been updated. Pyrotechnics (i.e., flares, smoke) will be used in the NMS training area. Beyond the proposed access road no additional roads will be established in the training area. The training will consist of up to company level maneuver training on foot. The training area will be utilized approximately 12 weeks per year. The proposed training at the NMS will have minimal effect on sediment runoff into Fena Reservoir.

A-009-017

Thank you for your comment. DoD is doing its part with regard to implementing water conservation measures and sustainable design measures that will reduce water and power demands, and reduce wastewater generation. A detailed Sustainability Study was conducted as part of the military buildup to identify opportunities to reduce the DoD energy footprint for DoD-owned facilities. This study, along with other DoD initiatives, are described in the FEIS in Volumes 6 and 8. DoD supports the concept of conducting energy audits at GWA facilities, but cannot commit DoD funds to conduct these audits. While DoD believes it is EPA's job to assist GWA in energy conservation, DoD would be willing to serve in a mentoring role to GWA for any energy audits that might be pursued by GWA.

A-009-018

Thank you for your comment. DoD policy requires a Water System Vulnerability Assessment when a water system serves over 25 consumers (Sect. 10-3.35, OPNAVINST 5090.1C). A Vulnerability

A-009-030 have been identified in the effluent, GWA does not have an EPA-approved pretreatment program and has failed to provide a certification that there are no known or suspected sources of toxic pollutants. Any EPA reissued NPDES permit for the Northern District WWTP will contain pretreatment requirements.

Recommendation: Given the potentially high levels of contaminants in the sludge, the FEIS should provide a discussion that demonstrates that DoD is taking sufficient action to ensure pretreatment of influent and appropriate handling of sludge/biosolids for reuse and disposal.

A-009-031 **8. Andersen South**
Wastewater services do not appear to be available at Andersen South for the 40 to 750 personnel who will use the facility for military operations urban terrain (MOUT) training on a daily basis, and who may bivouac (camp) in the vicinity (Vol 2, p. 2-45). The DEIS states that the facilities and infrastructure at Andersen South have been abandoned and are not being maintained²¹ (Vol. 6, p. 3-20).

Recommendation: The FEIS should include additional information regarding the handling of waste at Anderson South.

A-009-032 **9. Collection Systems**
A system-wide analysis should be conducted to determine the impacts of the proposed increase in wastewater flow. The weaknesses and bottlenecks in the collection system should be identified, as well as the potential for an increase in sanitary sewer overflow events. Options for additions and upgrades to the system should be proposed, as necessary, to prevent impacts to human health and sewage spills to waterways.

Recommendation: The FEIS should include a discussion and analysis of collection system repairs and upgrade needs.

A-009-033 **10. Anaerobic Digestion - Energy Generation**
Upgrades to the two anaerobic digesters to accommodate anticipated interim flow (Vol. 6, p. 2-83) at the NDWWTP should include enabling cogeneration instead of flaring the methane produced. Maximizing anaerobic digestion and cogeneration has the potential to produce a large majority of the energy required to operate the NDWWTP. Redirecting food waste and fats, oil, and grease from landfills to anaerobic digesters would increase energy production, extend landfill life, and reduce greenhouse gas emissions (from methane capture, offset energy production at the power plant, and hauling sludge to landfills).

Recommendations: As part of the upgrade needed for the project, DoD should assist GWA in establishing a cogeneration unit instead of flaring the methane produced in the

²¹ The original sewers in the area flowed to a sewer pumping station and discharged to a GWA collection system and were conveyed to the NDWWTP. Neither the sewer lines nor the sewer pumping station are in operating condition and Andersen South contributes no wastewater flows to the NDWWTP.

Assessment was completed in December 2003. The Vulnerability Assessment and the Emergency Response Plans will be adjusted as part of the proposed action to account for the new water systems and increased populations. In addition, wellhead protection measures will be implemented under the well permitting program for the new proposed wells.

A-009-019

Thank you for your comment. Since EPA is well aware of its regulatory oversight responsibilities as they relate to Guam, we do not see the added benefit of listing these programs that involve EPA regulatory oversight in that it does not influence the impact analysis or conclusions of the FEIS.

A-009-020

Thank you for your comment.

The DoD and regulatory agencies are equally concerned about preventing contamination of surface waters and groundwater (particularly drinking water aquifers). The EIS describes numerous programs and actions that will be taken to protect surface waters and groundwater from potential contaminants. Refer to Volume 9, Appendix D, Project Description Technical Appendix, Munitions, for a discussion of the munitions and constituents of concern associated with the proposed ranges.

The proposed ranges would be designed and maintained in accordance with all applicable federal and local regulations. Specifically, Military Handbook 1027/3B contains procedures for reducing potential impacts from ranges through the implementation of BMPs. These include introducing soil amendments, vegetation management, engineering controls, instituting contaminant monitoring, reclaiming, and recycling. With ranges, lead is the primary leaching contaminant of concern and best management practices can minimize or prevent leaching of this

A-009-033

anaerobic digesters. Specifically, we recommend the following be considered in the FEIS:

- Including anaerobic digesters at any and all wastewater treatment facilities that are constructed or renovated as part of the buildup, and maximizing the methane capture and cogeneration capacity of those anaerobic digesters;
- Identifying sources of fats, oil, and grease (and possibly food waste) that can be placed in anaerobic digesters in addition to solids from the normal wastewater treatment processes, and establishing a fats, oil, and grease collection program (throughout Guam) to maximize redirection of these waste products from collection systems and landfills directly to anaerobic digesters at NDWWTP. Maui County in Hawaii has successfully established such a program;
- Determining the most appropriate use of methane gas produced in anaerobic digesters to maximize renewable energy generation associated with wastewater treatment. This would likely be in the form of a feasibility study to evaluate combined heat and power options (combustion engines, microturbines, fuel cells, etc.). This study would advise the optimal design process for anaerobic digester renovation and possible expansion.

A-009-034

J. STORMWATER IMPACTS

1. Stormwater Authorities and Regulations

The DEIS provides a limited discussion of the roles of EPA and GovGuam to implement federal and Guam regulations related to stormwater (Vol. 2, Sect. 4.1.1.2) as they apply to DoD actions proposed on Guam. Several activities discussed in the DEIS will need to comply with these regulations to avoid impacts to receiving waters (including groundwater) during construction and post-construction stormwater events. We provide a regulatory overview as a starting point for DoD to expand upon in the FEIS. As stated in Volume 2 of the DEIS, EPA issues CWA National Pollution Discharge Elimination System (NPDES) permits and GovGuam reviews and certifies them under CWA Section 401²². The NPDES program regulates stormwater discharges from municipal separate storm sewer systems (MS4s), construction sites, and industrial sources. Currently, Guam is not designated an urbanized area by the Census Bureau; therefore, MS4 permit coverage is not necessary at this time. In the event the 2010 census results in a new urbanized designation for Guam, EPA will issue an MS4 permit which would regulate DoD and other discharges. Detailed information on the NPDES program can be found at: http://cfpub.epa.gov/npdes/home.cfm?program_id=6.

For construction sites that disturb one or more acres, including smaller sites that are part of a larger common plan disturbing one or more acres, operators are required to prepare a stormwater pollution prevention plan (SWPPP) and obtain permit coverage under the 2008 EPA Construction General Permit (CGP). A new CGP is anticipated in July 2011 that will

²² This is contrary to Table 3.1-1 in Volume 8 of the DEIS that erroneously indicates that NPDES stormwater permit authority has been delegated to Guam EPA from EPA. EPA Region 9 is the NPDES permit authority for Guam.

constituent. Impact rounds from pistol rounds generally stay intact and impact rounds from rifle rounds often fragment. Intact rounds and rounds fragmented into relatively large pieces are not easily transported by natural transport mechanisms (such as groundwater) and are largely contained within the berm or physical barrier where they can be recovered and disposed. Through the proper design of ranges, application of BMPs, and monitoring, the potential for groundwater contamination would be minimized. BMPs can reduce or eliminate the leaching of lead to the environment. These procedures include controlling soil pH to between 6 to 8 to prevent dissolution of lead, mining of lead from back stop berms, implementing a soil leaching monitoring program, and adding phosphate containing soil amendments to bind dissolved lead to the soil. Prior to building the ranges, an engineering study would determine the minimum depth of soil cover to ensure sufficient soil cover of the limestone, and to assess the suitability and optimum technique to add soil amendments such as phosphate to prevent lead leaching. In addition, when percolating water reaches the porous limestone the pH will increase, encouraging the precipitation of lead out of solution. The DoD will monitor for selected contaminants of concern. If monitoring identifies significant impacts, such as indications that chemicals of concern may exceed regulatory standards, reduce beneficial uses, result in adverse human or environmental health effects, or conflict with federal or local regulations, then additional action would be taken to address these impacts. The Final EIS contains an updated analysis of potential impacts to groundwater from proposed range operations.

A-009-021

Thank you for your comment. DoD would avoid use of chemicals in Port-a-potties. Contractors would be required to use no chemicals or "green chemicals" which could be used effectively in conjunction with the septic tank and leaching field. It has been confirmed that the existing septic tank and leaching field has adequate capacity to handle the

A-009-034

incorporate new effluent limitations guidelines (74 FR 62996, December 1, 2009) for the construction industry that will set numeric limits for turbidity in runoff and include monitoring requirements²³. EPA anticipates that most, if not all construction activities associated with the project, including roads, will require CGP coverage. In addition to federal controls, the CGP requires compliance with local Guam sediment and erosion control best management practices (BMPs), and requires compliance with local requirements for post-construction stormwater management on Guam.

Specific military industrial activities are required to obtain stormwater permit coverage under EPA's 2008 Multi-Sector General Permit (MSGP) prior to discharge. In addition to the notices of intent (NOIs) filed with EPA for existing covered industrial facilities, DoD would be required to file NOIs for all new industrial facilities needing coverage under the MSGP.

In addition to EPA's CWA NPDES stormwater authority and GovGuam's CWA Section 401 Certification authority, the Government of Guam's Environmental Protection Agency, Water Pollution Control Program, requires Erosion Control Permits and Environmental Protection Plans (EPP) for development projects that meet specified criteria to comply with its Soil Erosion and Sediment Control Regulations. Guam's Coastal Management Program includes federal consistency requirements that apply when any federal activity, regardless of location affects any land or water use or natural resources of the coastal zone²⁴.

Recommendations: The FEIS should include a centralized and expanded discussion of EPA and GovGuam stormwater requirements, including what activities will need to comply with these various requirements. It would be very useful to include a table listing DoD activities subject to stormwater permits and the specific federal and Guam authorities under which each activity needs coverage.

All statements in the FEIS stating that the CWA NPDES program is to be delegated from EPA to GovGuam should be corrected to indicate EPA is the CWA permitting and enforcement authority.

A-009-035

2. Stormwater Discharges from Construction Sites

The DEIS acknowledges that stormwater runoff from construction sites is considered one of Guam's most serious water pollution problems (Vol. 2, p. 4-14, citing a GEPA assessment). To mitigate the potential impacts from the proposed construction activities, the DEIS notes that various BMPs would be implemented, as required by local sediment and erosion control regulations and EPA's NPDES permit for construction site runoff (Vol. 2, pp. 4-17, 4-18). With the BMPs, the DEIS concludes that the impacts to surface water would be less than significant (Vol. 2, p. 4-75 in the case of NCTS Finegayan), and this same conclusion is reached throughout the DEIS where construction stormwater discharges are considered. However, even with

²³ More information on these effluent limitations guidelines can be found at: <http://www.epa.gov/guide/construction>

²⁴ Coastal Zone Act Reauthorization Act of 1990 (CZARA) Public Law No. 101-508.

additional loading. The septic tank and leaching field would be inspected regularly to ensure the system is operating properly. The DoD consulted with CNMI DEQ to obtain IWDS permit for construction and installation of the septic tank and leaching field in 1999. DoD would continue to work with the CNMI DEQ office to comply with local regulations. The Final EIS has been updated with a figure depicting the existing wells.

A-009-022

Thank you for your comment. Funding for NDWWTP: While the Navy will continue to coordinate with GWA and USEPA Region 9 to ensure that GWA implements planned Capital Improvement Program (CIP) projects designed to refurbish the existing primary treatment capability of the NDWWTP and expand it to meet needs associated with the proposed Marine Corps realignment and associated civilian population growth, the ability of GWA to secure necessary funding for the required CIP projects remains a key concern and potential impediment to the Guam military realignment effort and the return of GWA to full compliance with the requirements of the CWA. In the underlying agreements with the Government of Japan covering the realignment of Marine Corps forces from Okinawa to Japan, the Government of Japan agreed to provide funding to develop facilities and infrastructure on Guam to support the realignment of Marine Corps forces. These agreements further recognize that necessary infrastructure improvements will cover not only improvements on military installations, but also improvements to the civilian infrastructure. Therefore, the U.S. Government, through the Department of Defense (DoD), is currently seeking approximately \$50M in Japanese Fiscal Year 2011 (JFY11) funding from the Government of Japan to cover required CIP projects necessary for refurbishment and expansion of primary treatment capabilities at the NDWWTP. Such funding would allow necessary improvements to be made by the 2013 date noted above. Funding for Other GWA Wastewater Plants. Funding for needed upgrades to the GWA wastewater treatment plants and island-wide sewage collection

stormwater requirements in place, previous construction projects on Guam have contributed to serious water pollution problems, according to the GEPA assessment.

The DEIS (Vol. 2, Table 4.2-1) lists a number of stormwater BMPs intended to minimize pollutant discharges from construction activities, many of which were derived from the 2006 CNMI and Guam Stormwater Management Manual. However, Table 4.2-1 omits certain BMPs recommended in chapter 2 of the Manual that could prove effective in reducing pollutant discharges from the Navy project. These practices are described in the Erosion and Sediment Control (ES&C) Standards 1, 3 and 10 and entail scheduling the clearing and grading activities during the dry season as much as possible, and phasing the overall project to minimize the amount of land disturbed at any one time.

Recommendations: The FEIS should reconcile the apparent inconsistency in the claim that impacts to surface waters would be less than significant even though previous construction projects have caused serious water pollution problems. In doing so, the FEIS should consider the scale of the land disturbance anticipated for the Navy projects and compare the potential stormwater impacts to those of previous projects on Guam. The various types of proposed construction projects should be considered including construction at the main cantonment area, Andersen Air Force Base (AFB), Apra Harbor and road construction throughout Guam. The potential effects of extreme weather events (such as typhoons) should be considered.

The FEIS should include a discussion of the applicability of EPA's recently promulgated effluent limitations guidelines for construction sites (74 FR 62996, December 1, 2009). These regulations include a turbidity limit of 280 nephelometric turbidity units (NTU) applicable to runoff from construction projects disturbing 20 or more acres at any one time (effective in August 2011) and from projects disturbing ten or more acres at any one time, effective in August 2014. These regulations will be included in the next EPA NPDES permit for construction site runoff applicable to Guam to be issued in June 2011. Construction stormwater discharges on Guam could be significantly mitigated if DoD projects meet the new effluent limitations.

The FEIS should acknowledge and explain the implications of Guam Executive Order 2009-13 signed on September 13, 2009 by the Governor. This EO stays for two years the applicability of CNMI and Guam Stormwater Management Criteria to Government of Guam projects such as roads. The DEIS currently assumes that the criteria would be applicable to roads (Vol. 2, p. 4-75 and elsewhere in the DEIS).

We recommend that construction stormwater BMPs in the FEIS include the practices described in Chapter 2 of the Guam and CNMI Stormwater Management Manual that schedule clearing and grading during the dry season and phase the project to reduce the amount of cleared land at any one time. The FEIS should discuss the degree to which these practices would be implemented for the project.

system (other than that which is directly related to upgrades and repairs the NDWWTP) is not identified in the FEIS beyond what has already been identified in the GWA's Capital Improvements Program (CIP), and in a recent EPA Region IX assessment of GWA's CIP and companion conceptual cost estimate for 5-year and 25-year capital and operational needs. The FEIS provides information on GWA and GovGuam's ability to fund upgrades, including information on GovGuam's debit rating and history of funding shortfalls. DoD acknowledges the existing sub-standard conditions of the GWA wastewater system on Guam and the desire by many for DoD to fund improvements to these systems and services. DoD's ability to fund projects that are not within direct DoD ownership or control is limited by Federal law. However, DoD recognizes the need to identify and integrate solutions for both on-base and off-base utility infrastructure on Guam, and desires to minimize adverse impacts associated with the proposed military relocation program. To this end, DoD is serving as the lead federal agency on a multi-agency group charged with identify Federal programs and funding sources to make the necessary repairs and upgrades to Guam's utility infrastructure systems; EPA Headquarters and EPA Region IX is a part of this multi-agency group. Concurrently, DoD, EPA Region IX, GEPA, GWA and the CCU are working together to identify and integrate solutions for both on-base and off-base wastewater needs which meet environment requirements, provide reliable and uninterrupted service, and are affordable for all users. Adaptive Program Management: Volume 7 of the FEIS describes measures that could be taken to mitigate impacts to GWA wastewater treatment facilities should such measures be deemed necessary by DoD, GovGuam, EPA Region IX and GEPA. Reductions in force flow (i.e.: the number and timing of new DoD personnel and their dependents on Guam) could be used as a means to reduce demands on wastewater treatment facilities. Additionally, a change in the temp of construction could be implemented, which may include limiting and/or delaying the award or start of construction efforts that bring off-island workers and the associated induced population to Guam. Other adaptive program

3. Post-Construction Stormwater Discharges

EPA believes the analysis in the DEIS does not support conclusions that impacts to groundwater and surface waters will be mitigated to less than significant. The DEIS indicates that runoff from developed areas impacts both surface water and groundwater, but it does not clearly describe the degree of the impacts (Vol. 2, p. 4-14). In several sections, the DEIS concludes that post-construction stormwater discharges associated with DoD projects will have a less than significant impact to surface water and groundwater (Vol. 2, pp 4-74 to 4-75 in the case of Anderson AFB and NCTS Finegayan). The DEIS bases its conclusion on compliance with applicable local and federal requirements pertaining to stormwater management. However, in the case of impacts to groundwater at Andersen AFB, the DEIS (Vol. 2, p. 4-20) is only able to conclude that implementation of the stormwater pollution prevention plan (SWPPP) has “prevented extensive groundwater contamination.” This suggests the SWPPP has not been entirely successful in protecting the important groundwater resources in northern Guam. With regard to impacts to surface water, the DEIS (Vol. 2, p. 4-14) describes urban runoff as a “problem” which raises questions about the assertion in the DEIS that additional runoff from the Navy projects would have a less than significant impact.

The DEIS contains inconsistent information regarding stormwater treatment at Apra Harbor. The DEIS (Vol. 4, p. 2-40) notes that a cyclonic separator would be used to capture and treat stormwater runoff from the staging area in the harbor, presumably due to the potential for contamination of the runoff given the nature of the operations in the area, such as bilge and oily wastewater treatment, temporary hazardous waste storage and cargo handling. The DEIS indicates that the separator would treat the first 0.5 inch of rainfall and bypass the rest (Vol. 4, p. 2-53), but states elsewhere that 100 percent of the runoff might be treated (Vol. 4, p. 4.7). No information is provided regarding pollutants and pollutant concentrations in the runoff, nor the effectiveness of the separator in controlling pollutant discharges.

Recommendations: For groundwater at Andersen AFB (and elsewhere on Guam), the FEIS should elaborate on the nature of any groundwater contamination that has occurred as a result of current stormwater management practices despite existing requirements. The FEIS should then support its conclusion that implementation of existing requirements will be sufficient to ensure a less than significant impact to groundwater resources.

The FEIS should further describe the degree to which runoff from developed areas affects surface waters on Guam, including runoff from the principal land uses such as commercial and residential areas, military areas, port areas, industrial areas and roads. Impacts to the different categories of receiving waters, including rivers and streams, wetlands, marine waters, and resources such as coral, should be discussed. This would provide a clearer picture of the potential effects of the additional runoff from military projects. In evaluating such effects, the FEIS should also consider the mitigation provided by DoD’s intent to use low impact development (LID) techniques for the projects (Vol. 2, p. 4-69). In addition, the requirements of section 438 of the Energy Independence and Security Act (EISA) should be considered, as well as EPA’s December

management efforts could include measures that divert wastewater flows from GWA plants that are experiencing compliance problems and/or have not been repaired or upgraded, to the NDWWTP. NDWWTP Clarifier Capacity: DoD conducted a study that identifies the repairs and upgrades needed at the NDWWTP. This study is included in the FEIS as an appendix, and is entitled, "Final Evaluation of Northern District Wastewater Treatment Plant Capacity" dated December 2009. The study evaluated what treatment steps are needed to adequately treat the wastewater expected at the NDWWTP during the construction phase of the military relocation when flows are expected to peak at the plant, and in the long term once construction is complete. This study concluded that the existing primary clarifier could be operated in a way that allows increased flows through the addition of chemical flocculants to remove solids quicker, and by modifying the overflow at the clarifier weir to allow longer retention times in the clarifier. A follow-on evaluation is underway to further define what operational parameters and/or physical changes to the plant would be needed to meet existing effluent limits in the interim until the primary treatment plant upgrades can be completed. This may include on-site trials of chemical treatment and/or jar tests, and working with GWA and their treatment plant operator to determine the best course of action.

Construction Workforce Housing: Currently there are no plans to allow contractors to locate workforce housing on DoD controlled land. Workforce housing would be provided by the contractors as described in Volume 2, Chapter 16, “Socioeconomics and General Services.” Therefore, it is anticipated that should workforce housing needs require the construction of new housing, such workforce housing would be located on either private or Government of Guam lands. In either instance Guam officials would control the underlying land use and permit decisions associated with the siting of such housing. DoD would not provide workforce housing, but design-build contracts would require the contractor to accommodate the workforce in accordance with specified health and safety standards. Various proposals are being developed by potential contractors in anticipation of winning a contract.

A-009-036

2009 technical guidance for implementing section 438²⁵. Section 438 of EISA requires federal development and redevelopment projects with a footprint exceeding 5,000 square feet (which would be applicable to the proposed DoD projects) to maintain or restore pre-development hydrology to the maximum extent technically feasible. Compliance with EPA's new technical guidance would reduce hydrologic impacts of the stormwater discharges, as well as pollutant discharges.

DoD should consider all possible resources during the development of stormwater BMPs. For example, the Chesapeake Stormwater Network recently published stormwater design guidelines for karst environments²⁶. These guidelines were developed and reviewed by karst and stormwater experts and could inform DoD and its contractors of additional tools (e.g., detailed site investigation, preventing increased runoff to sinkholes, BMPs) to protect groundwater where project activities overlie karst geology and the NGLA.

Regarding Apra Harbor, the FEIS should clarify DoD's intentions regarding treatment of stormwater runoff from the staging area. Information should also be provided concerning the potential pollutants in the runoff, the effectiveness of the separator in controlling the pollutants, and the potential impacts to water quality in Apra Harbor.

A-009-037

4. Endangered Species Act (ESA) Requirements for Construction Stormwater Discharges

Construction site stormwater discharges from DoD projects on Guam will require NPDES permit coverage under EPA's general NPDES permit for construction site runoff (73 FR 40338, July 14, 2008). Coverage under the general permit requires a demonstration of compliance with certain eligibility requirements related to the ESA prior to discharge authorization being granted.

The DEIS describes various mitigation measures that would reduce the impacts to less than significant; however, the DEIS also notes (Vol. 2, p. 10-80) that a biological assessment (BA) is being prepared for an upcoming consultation with the U.S. Fish and Wildlife Service under section 7 of the ESA. Additional mitigation measures necessary for protection of listed species may be identified in the BA or during the consultation; therefore, it is premature, at this time, to draw any conclusions regarding the compliance status of the projects with the ESA-related eligibility requirements of the general permit.

Recommendation: The FEIS should include a full accounting of the Section 7 consultation as it relates to the construction stormwater permit and the mitigation measures ultimately selected to comply with the ESA.

A-009-038

5. Guam Stormwater Policy Task Force

Outcomes from the Guam Stormwater Policy Task Force (Task Force) should be described in the FEIS, including long-term stormwater BMPs selected for the haul road network (HRN) and maps

²⁵ The EISA Section 438 technical guidance is available at: <http://www.epa.gov/owow/nps/tid/section438>.

²⁶ Chesapeake Stormwater Network Technical Bulletin No. 1, Stormwater Design Guidelines for Karst Terrain in the Chesapeake Bay Watershed, June 2009. Available at: <http://www.chesapeakestormwater.net/all-things-stormwater/stormwater-guidance-for-karst-terrain-in-the-chesapeake-bay.html>

The ultimate timing and location are unknown for all of the potential construction and/or renovation of housing to accommodate the construction workforce, but it is likely that some of the workforce housing projects would begin independently of the record of decision. Nonetheless, the FEIS includes information on the workforce housing proposals that have been submitted to the Government of Guam, Department of Land Management, Division of Land Planning as of April 2010, along with an assessment of which GWA wastewater treatment plant these housing areas would be serviced by. This information is in Volume 1 and Volume 6, Chapter 3 of the FEIS. It is important to note that the applications received reflect the prospective contractors, and not necessarily those who will ultimately be awarded a DoD contract. DoD will work with Government of Guam land use and natural resource officials to assist in identifying any contractor plans or efforts to construct workforce housing and DoD shall ensure that contractors are informed of their responsibilities to comply with Government of Guam land use restrictions. In particular, the Guam Land Use Commission recently issued GLUC 2009-1 which specifically addresses the issue of zoning for workforce housing. Additionally, DoD will work with GWA to identify where increased wastewater demands are likely to occur, and assist with decision-making to address these increased flows. EPA Administrative Order: As a future major user of the NDWWTP and the entity that is being held responsible for securing funding for plant upgrades and expansions, for determining what treatment processes and costs are needed, and determining potential impacts at the plant and plant discharge related to the military relocation, DoD is a major stakeholder in any future decisions with regard to the NDWWTP. Therefore, the proposed Administrative or Enforcement Order that will enforce secondary treatment standards for the NDWWTP is a vital instrument in directing these future requirements, and a critical part of the impact assessment that is in the FEIS.

A-009-038 illustrating where various stormwater control measures will be located. The Task Force was formed to provide a forum for local and federal agencies to collaborate on measures to reduce stormwater impacts from Guam's transportation network as it is modified to meet the military expansion needs. EPA recognizes the efforts of the Task Force, chaired by FHWA, and is currently participating with GovGuam and other local agencies to develop a HRN Implementation Plan that will identify where specific stormwater BMPs will be most appropriate to prevent stormwater impacts to surface and groundwater from road runoff. EPA anticipates the results of this effort will be incorporated into the HRN SWPPPs.

Recommendation: The FEIS should describe outcomes of the Guam Stormwater Policy Task Force related to the HRN, including where and how selected BMPs will be installed to prevent stormwater impacts from road runoff. The FEIS should also identify whether stormwater BMPs for on-base roads will be consistent with the HRN Implementation Plan and Stormwater Management Plan.

K. CORAL REEF AND WETLANDS IMPACTS

A-009-039 1. Coral Reef Impacts and Clean Water Act Section 404 Compliance for CVN Berth

a. Significant Impacts to Coral Reefs from the CVN Berthing project

One of EPA's foremost concerns is the high level of impact to coral reefs from the proposed CVN berthing project. Coral reefs have many important functions and services in Apra Harbor including essential fish habitat, invertebrate habitat, endangered sea turtle feeding and resting habitat, shoreline protection, biodiversity, commercial, subsistence, and recreational fisheries, commercial and recreational diving, cultural value, aesthetics, buffering of ocean waters, biogeochemical cycling, larval sources, etc. Given their significant ecological, social and economic values, coral reefs are afforded protections by federal laws and policies including the CWA and Executive Order (EO) 13089 on Coral Protection. The Clean Water Act Section 404(b)(1) designates coral reefs as one of only six examples of special aquatic sites, thus establishing a higher level of review and protection for activities affecting them. EO 13089 was signed by the President in 1998 to ensure federal agencies are implementing their authorities to protect these valuable resources.

This section of the comments assesses CWA Section 404 compliance because DoD has stated their intention to integrate CWA 404 requirements into the EIS in order to streamline the Army Corp's CWA 404 permitting process. The analysis of alternatives and mitigation under NEPA is less specific than required for CWA 404. Deferring to the 404 permit may be appropriate for many projects, however the magnitude of impacts in this project and the substantial disagreement on how these impacts will be assessed, minimized and mitigated warrant close consistency with CEQ regulations and guidance²⁷.

²⁷ Per 40 CFR 1505.2(c), the ROD must state "whether all practicable means to avoid or minimize the environmental harm from the alternative selected have been adopted, and if not, why they were not", and CEQ Guidance²⁷ states that the ROD must identify "the mitigation measures and monitoring and enforcement programs that have been selected and plainly indicate that they are adopted as part of the agency's decision."

A-009-023

Thank you for your comment. Funding for needed upgrades to the GWA wastewater treatment plants and island-wide sewage collection system (other than that which is directly related to upgrades and repairs the NDWWTP) is not identified in the FEIS beyond what has already been identified in the GWA's Capital Improvements Program (CIP), and in a recent EPA Region IX assessment of GWA's CIP and companion conceptual cost estimate for 5-year and 25-year capital and operational needs. The FEIS provides information on GWA and GovGuam's ability to fund upgrades, including information on GovGuam's debit rating and history of funding shortfalls. DoD acknowledges the existing sub-standard conditions of the GWA wastewater system on Guam and the desire by many for DoD to fund improvements to these systems and services. DoD's ability to fund projects that are not within direct DoD ownership or control is limited by Federal law. However, DoD recognizes the need to identify and integrate solutions for both on-base and off-base utility infrastructure on Guam, and desires to minimize adverse impacts associated with the proposed military relocation program. To this end, DoD is serving as the lead federal agency on a multi-agency group charged with identify Federal programs and funding sources to make the necessary repairs and upgrades to Guam's utility infrastructure systems. Concurrently, DoD, EPA Region IX, GEPA, GWA and the CCU are working together to identify and integrate solutions for both on-base and off-base wastewater needs which meet environment requirements, provide reliable and uninterrupted service, and are affordable for all users.

Even with an infusion of federal funds to fix the existing problems with the GWA wastewater system, if there is no funding to keep the systems operated properly, maintained, and upgraded, the system will be unsustainable. This has even been acknowledged by EPA in its CIP assessment report. Both GWA and EPA state that the people of Guam should not have to carry the financial burden of supporting the military

A-009-039 Impacts to coral reefs on the scale proposed in the DEIS are unprecedented in recent CWA 404 permit history. To move this project component forward in a timely manner from a CWA Section 404 permitting perspective, maximum practicable avoidance and minimization, followed by appropriate compensatory mitigation are essential. Based on DoD's assessment method, Preferred Alternative 1 (Polaris Point) would result in approximately 25 acres of direct impacts and 46 acres of indirect impacts to coral reef habitat.

As the proposed project would result in significant impacts to coral reefs, EPA considers the potentially affected corals to be a candidate aquatic resource of national importance (ARNI). Without further efforts by DoD to adequately assess impacts, impact avoidance, and appropriate mitigation, EPA would pursue the CWA permitting elevation process pursuant to the 1992 Memorandum of Agreement between the EPA and the Department of the Army, Part IV, paragraph 3(a) regarding Section 404(q) of the Clean Water Act. We also consider the inadequate assessment of impacts and mitigation to corals and other waters of the United States to be significant enough to warrant elevation to CEQ if these issues are not resolved in the FEIS. The following comments elaborate EPA's concerns regarding coral reef assessment and CWA compliance.

A-009-040 *b. Inadequacy of the Coral Reef Impact Assessment*

The Navy's impact assessment methodology is inadequate for the purposes of CWA permitting and underestimates the loss of coral reef habitat functions and the level of adequate compensatory mitigation. The photographic assessment method uses planar percent coral cover as the only metric for describing impacts to coral reefs for the CVN project. EPA, the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) (herein "resource agencies") have determined that percent coral cover alone is not adequate to satisfy the requirements of the 2008 Corps-EPA Compensatory Mitigation Rule. The U.S. Army Corps of Engineers (Corps), the CWA Section 404 permitting authority, has informed the Navy that additional functional assessment data is needed commensurate with the scale of potential impacts.

In interagency discussions since 2008, the resource agencies recommended the use of in-situ field data collection methods, before the Navy's contractor conducted the photographic surveys. Both the FWS-NMFS in-situ method and the Navy's photographic methods are scientifically defensible and widely used. At issue is the type of data needed to adequately satisfy the requirements of the 2008 Corps-EPA Compensatory Mitigation Rule. This rule emphasizes the assessment and mitigation for aquatic resource "functions" rather than "area" alone and states a preference for the use of functional assessment methods where available and practicable (40 CFR Part 232.3). The resource agencies find the in-situ method is far better than the photographic method because it collects coral abundance, size, morphology, and biodiversity in an ecosystem context, which directly relates to coral reef functions (e.g. reproduction, fish habitat, tissue surface area for photosynthesis). This method has been made available by NMFS and FWS, is practicable, and can be completed in accordance with DoD's desired permitting and construction schedule.

buildup. It is hard to argue with this position. However, what is not said is that the people of Guam should carry the burden of sustaining compliant water and wastewater systems required to ensure their health and well being. GWA's Water Resource Management Plan (WRMP) which was developed to achieve compliance with an EPA stipulated order, identifies projects required to correct \$200 Mil in infrastructure deficiencies that existed in the water and wastewater systems at the time the report was prepared. This estimate has been increased since the time the CIP was prepared. Very few of the deficiencies have been addressed to-date because GWA does not have the financial resources to address these issues. In the case of wastewater, GWA has the DoD demand in the north and the wastewater system is still deficient. The ability to sustain the water and wastewater systems will be a topic of discussions with GWA, CCU and EPA in early March 2010. Without a continuous influx of federal funds to support daily operations, GWA cannot sustain their current systems. Hence the fundamental problem that will not be fixed by a huge infusion of federal funds to correct all of the ills of the GWA water and wastewater systems. GWA's rate base is not sufficient to sustain its system. If the user rates are not increased to a level that will allow GWA to sustain their systems, in a matter of just a few years the systems will be back to a state of total disrepair and require another large infusion of federal money. Guam is unwilling to require its users to pay what is required to sustain their water and wastewater systems at a level that will ensure their safety and well being. So either the rates have to be increased or EPA needs to find a continual source of funds to support routine operation and maintenance of the GWA water and wastewater systems.

A-009-024

Thank you for your comment. The GWA flow estimate at the NDWWTP is based on the GWA Water Resources Management Plan (WRMP) data (October 2006); however, GWA recently reported that this flow was based on faulty flow metering at the head of plant. The FEIS corrects

A-009-040 The additional assessment data should be collected to optimize avoidance, minimization, and the development of appropriate compensatory mitigation for NEPA disclosure and in the CWA Section 404 permitting process. Based on Vol. 9, Appendix J-1 (*Draft Comparison of a Photographic and an In Situ Method to Assess the Coral Reef Benthic community in Apra Harbor, Guam*), the Navy assessment appears to underestimate impacts to coral reefs. The presentation of coral size-frequency distribution in Vol. 4 Figure 11.1-15 does not present an accurate distribution of sizes because of a bias toward small colony size in the photographic assessment method. Appendix J-1 provides a review of these data and the FEIS should acknowledge the limitations of the size data presented to better inform the CWA Section 404 permitting process.

On December 11, 2009, EPA, NMFS, FWS and the Corps met with DoD to continue discussion of concerns with the Navy's assessment. Based on that meeting, it does not appear that DoD intends to modify the Navy's assessment, as recommended.

Recommendation: Adequate data on coral abundance, size, morphology, and biodiversity in Apra Harbor must be collected. To assist in this data collection, FWS-NMFS provided a scope of work for Marine Resource Surveys, Impact Assessment, and Habitat Equivalency Analysis (HEA) dated October 15, 2009. DoD could either fund the FWS-NMFS proposed scope of work or collect the additional assessment data itself. It is critical that an adequate coral reef assessment method be described in the FEIS and that DoD commit in the ROD to collecting the additional data as part of the CWA Section 404 permitting process. Absent this information, EPA is prepared to elevate in accordance with the CWA 404(q) and CEQ processes.

A-009-041 *c. Compliance with 404(b)(1) Guidelines*

EPA has determined that the DEIS does not contain sufficient information to demonstrate compliance with the CWA 404(b)(1) Guidelines (Guidelines). The Corps also informed DoD they had made the same determination, i.e. the level of detail and complexity of the alternative analysis in the DEIS is insufficient to demonstrate compliance with the Guidelines. The assessment of alternatives under NEPA is not in itself sufficient for analyzing alternatives for purposes of demonstrating 404(b)(1) compliance under the CWA. Pursuant to the Guidelines, the applicant bears the burden of clearly demonstrating that the preferred alternative is the least environmentally damaging practicable alternative (LEDPA) that achieves the overall project purpose, minimizes impacts to the aquatic environment to the maximum extent practicable, and does not cause or contribute to significant degradation of waters of the U.S (WUS). The Guidelines contain four main requirements (40 CFR 230.10(a) through (d)) and each must be satisfied to comply with Section 404. Our comments on each of these sections follow:

LEDPA Determination - CWA Section 230.10(a)

To comply with the Guidelines, a project must include a comprehensive evaluation of a range of alternatives to ensure the permitted alternative is the LEDPA. Identification of the LEDPA is achieved by performing an alternatives analysis that estimates the direct, indirect, and cumulative impacts to jurisdictional waters resulting from a set of on- and off-site project alternatives.

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the flows based on new information from GWA. The corrected flow without I/I: $5.73 \times 1,000,000 / (47283 + 15982) = 90.6$ gallon per capita. DoD and GWA recognize that flow meters at the NDWWTP need to be repaired or replaced as part of the plant repairs in order to provide reliable flow data for both design of the upgrades and for permit compliance reporting.

A-009-025

Thank you for your comment. The FEIS provides a revised assessment of impacts from the NDWWTP discharge to marine resources in Volume 6, Chapter 13, Marine Resources. This revised assessment is based on two studies that were finalized after the publication of the DEIS: 1) "Final Report, Northern District Wastewater Treatment Plant Outfall Assessment Tanguisson Point, Guam" dated December 2009 (also referred to as the "Phase I Report"); and 2) "Final Report Northern District Wastewater Treatment Plant Ocean Outfall Assessment - Phase II, Proposed DoD Outfall at Tanguisson Point, Guam" dated January 2010. These reports are appendices to the FEIS. Recreational resource impacts are described in Volume 6, Chapter 11.

A-009-026

Thank you for your comment. The FEIS has been modified to include a qualitative assessment of indirect impacts to GWA wastewater treatment plants and their associated collection systems other than the NDWWTP from wastewater generated by the construction workforce and induced populations that are anticipated as a result of the military relocation. Assumptions were made about where the construction workforce would most likely reside on Guam by reviewing zoning and building applications submitted to the Government of Guam planning department by prospective contractors. This showed the construction workforce is expected to be resident two-thirds in northern Guam and one-third in central Guam. A socioeconomic analysis was conducted for the EIS using data from GovGuam and found that the induced civilian population

A-009-041

Project alternatives that are not practicable and do not meet the project purpose are eliminated. The LEDPA is the remaining alternative with the fewest impacts to aquatic resources, as long as it does not have other significant adverse environmental consequences. Only when this analysis has been performed can the applicant or the permitting authority be assured that no discharge other than the practicable alternative with the least impact on the aquatic ecosystem will be authorized. As the DEIS does not provide a full alternatives analysis, we cannot determine compliance with the Guidelines.

EPA questions the rationale described in the DEIS for selecting Polaris Point over alternative 2 (Former SRF) as the LEDPA. Polaris Point would result in approximately 1.5 acres of additional direct impacts to coral reef and a dredging footprint that is 9 acres larger than Former SRF. The DEIS states that even though Former SRF has fewer direct impacts to coral reef and a smaller dredging footprint it would have greater construction and operational impacts because of closer proximity to aquatic resources such as Big Blue Reef, and increased potential impacts from sedimentation from upland sources. As described in the Guidelines, coral reefs are special aquatic sites that are recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region. Potential impacts of sedimentation from construction and operations at Former SRF should be addressed through proper implementation of best management practices as described in Vol. 9, Appendix D of the DEIS. Based on avoidance of aquatic resources, EPA believes Former SRF may be the LEDPA due to avoidance of 1.5 acres of coral reef, and a dredging footprint that is 9 acres smaller than Polaris Point.

An alternative not reviewed in the DEIS has been developed by NMFS, using Navy criteria, and proposed for DoD's consideration. This alternative falls within the Polaris Point footprint and would reduce the size of the turning basin, and thereby reduce impacts to coral reef and soft bottom habitats in Apra Harbor. EPA believes this alternative warrants evaluation in the FEIS.

Determining the LEDPA requires a clear description of direct, indirect, and cumulative impacts. The description of the size of dredge and fill footprints in Volume 4 is extremely confusing as it applies to direct impacts. For example, Table 4.3-1 presents two sets of numbers (2 Dimensional and 3 Dimensional) for acres of direct coral reef impact from dredging. Page 4-39 states yet a different number of acres of direct coral reef impact. Chapter 11 states that direct impacts are overestimated in that section because the study assumed a 60 ft dredge depth rather than 51.5 feet, the actual dredge depth. These discrepancies are misleading and make comparisons of the alternatives unnecessarily difficult. In addition, the amount of fill for the Former SRF alternative is never accurately described. For example, Table 4.3-1 states the fill for Former SRF as "3.6 ac (1.5 ha) plus additional for finger piers". The DEIS fails to adequately describe fill for the finger piers, the size of the resulting impact, and the construction design (fill or pilings).

The DEIS does not adequately address indirect and cumulative impacts of the proposed alternatives to marine waters in Apra Harbor, including coral reefs. Volume 4, Sect. 4.2.2 describes indirect sediment impacts from dredging as minimal, short term (an hour or two after

growth is likely to be 38% in northern, 43% in central and 19% in south Guam. Likewise, estimates were made for increased flows to GWA plants expected from the induced population based on a socioeconomic study that is included in the FEIS an appendix, and predicts where civilian population growth will occur based on housing availability and information provided by GovGuam. This information, coupled with limited available information from GWA and EPA on the condition of the GWA wastewater collection and treatment systems (including the troublesome Hagatna collection system), and was used to qualitatively assess impacts. Impacts to ecological resources and to human health were assessed for both the construction phase and the operational phase of the proposed military relocation, and can be found in the various resource chapters of Volume 6.

A-009-027

Thank you for your comment. The FEIS includes more detailed information on the Navy's Apra Harbor WWTP, including permit compliance issues and non-compliance, and on-going efforts to address this non-compliance. Included in the FEIS is an assessment of potential impacts to the ability the Apra Harbor WWTP to handle increased flows, and the impact of those increased flows on ecological resources. The information on the plant compliance history, on-going studies to address non-compliance, sources of pollutants, and ability of the plant to adequately treat the new flows from visiting ships, treatment of wastewater from the Fena Reservoir, sludge management, and pretreatment programs can be found in Volume 6, Chapters 2 and 3. Impacts from the plant discharge on the various environmental resources can be found in the individual resource chapters of Volume 6.

A-009-028

Thank you for your comment. The FEIS includes an assessment of how new and increased discharges from construction activities (primarily stormwater) and new wastewater discharges at GWA and DoD-owned

A-009-041

dredging ceases), yet table 4.3-1 describes indirect impacts as a 200 meter buffer around the dredged area or 46-47 acres of impact to coral reefs. Section 11.2.2.2 states there is no basis for the 200 meter buffer zone in relation to the indirect impact area, and that based on sediment modeling, the actual indirect impact zone is 40 feet, but does not present the acreages of actual indirect impacts. The FEIS should include a consistent description of the most realistic impacts from sedimentation. A discussion of the observed impacts of sedimentation from the ongoing dredging at Kilo Wharf in Apra Harbor would be useful to include.

The cumulative impacts discussion does not assess cumulative impacts to coral reefs from recent and future planned projects in Apra Harbor. For compliance with both NEPA and the Guidelines, the DEIS should include an analysis of cumulative impacts (acreages and cover) to coral from Inner Apra Harbor dredging, Kilo Wharf construction, planned commercial port improvements, increased stormwater runoff from construction and operations, amphibious vehicle landing practice, and other projects.

Recommendations: DoD should consult with the Corps and EPA to ensure sufficient information is provided in the FEIS to comply with the Guidelines and correctly identify the LEDPA. Providing the appropriate level of information in the FEIS could help prevent regulatory delays and advance the CWA Section 404 permitting process.

DoD should review the proposed NMFS alternative in the FEIS and include it in the 404(b)(1) alternatives analysis LEDPA determination.

The FEIS should accurately identify the direct and indirect impacts from dredge and fill activities and from sedimentation and use consistent acreages of impact throughout the document.

The FEIS should include an expanded discussion of cumulative impacts to coral reefs in Apra Harbor and generally on Guam, including impacts from other dredge and fill projects, increased stormwater runoff, and other potential impacts (See comment Cumulative Impacts to Coral Reefs below).

A-009-042

Water Quality - CWA Section 230.10(b)

This section of the CWA, which requires that a determination be made as to whether the project will cause a violation of water quality standards, during and after construction of the CVN berth, turning basin, and channel. This determination is not included in the DEIS. There will be discharges that will cause degradation of water quality in Apra Harbor from pier construction, dewatering of dredged materials, and sediment plumes from dredging activity. EPA is concerned as to how these discharges will comply with Guam's water quality standards²⁸.

The DEIS (Vol. 9, Appendix D, Sect. 1.2) discusses a number of potential operational and engineering controls that could be considered as dredging and disposal BMPs. However no particular recommendations are made regarding which BMPs the Navy would propose to use under various circumstances for this project. EPA is particularly concerned about minimizing

²⁸ Guam's water quality standards are available at: <http://node.guamepa.net/programs/water/WQS.pdf>

plants may have an affect on Clean Water Act 303(d) listed waters and TMDLs promulgated by GEPA. This assessment can be found in Volume 6, Chapter 6 (Water Resources) and Chapter 11 (Marine Biological Resources).

A-009-029

Thank you for your comment. The increased demand for drinking water from the Navy water treatment plant is limited by plant capacity as well as reservoir capacity. Current production as reflected in the FEIS is approximately 85% of the capacity of the plant. Fena Rservoir levels are constantly modeled to keep within the treatment plant capacities. Additional water demand would be met through the installation of new wells, refurbishment of existing wells, and "wringing out" of excess water in the existing DoD water system. NAVFAC MAR applied for a permit for the plant overflow on March 30,2010. The letter attached to the pending permit acknowledged this and stated we would be required to adhere to the specifications in the current wastewater treatment plant permit at Apra Harbor until a new permit for this discharge point is received.

A-009-030

Thank you for your comment.

Apra Harbor: The FEIS includes more detailed information on the Navy's Apra Harbor WWTP, including information on the Navy's internal program to control industrial wastewater sources to the plant. Navy Owned Treatment Works (NOTWs) are not required by regulation to have pretreatment programs. COMNAVMARIANAS Instruction 5090.3A "COMNAVMARIANAS Wastewater Pollutant Minimization and Pretreatment Program" issued on 14 Jan 03 covers basic pretreatment requirements and allows for certificates of discharge to non-domestic users, and is currently being updated. Military Specifications for many industrial facilities require pretreatment systems as part of the design and construction of specific facilities. Examples include grease traps for

A-009-042 | impacts to high value corals adjacent to and outside the immediate dredging footprint in outer Apra Harbor.

Recommendation: The FEIS should discuss in more detail how dredging in the immediate vicinity of higher value coral reef communities would likely occur, and what control measures could be employed in those specific locations. Redundancy of physical barriers (silt curtains, silt screens, and bubble curtains) should be considered for these sites (e.g., some at the resource of concern, as well as others at or around the dredging operation). Similarly, this section should commit to operational controls, such as conducting work in and immediately adjacent to high value coral communities only when wind and tidal conditions would transport suspended solids into deeper water and away from corals. Finally, the FEIS should describe how BMPs will prevent discharge of water and pollutants from wharf and staging area construction activities for moderate size rain events, exceeding the 2-year event.

A-009-043 | Significant Degradation - CWA Section 230.10(c)
The Guidelines prohibit a project that causes or contributes to significant degradation of aquatic resources. Effects contributing to significant degradation include: (1) adverse affects on plankton, fish, shellfish, wildlife, and special aquatic sites (40 CFR 230.10(c)(1)), (2) adverse affects on life stages of aquatic life (40 CFR 230.10(c)(2)), (3) aquatic ecosystem diversity, productivity, and stability including loss of fish and wildlife habitat (40 CFR 230.10(c)(3)), and (4) impairment or destruction of endangered species habitat (40 CFR 230.30(2)). Table 11.2-13 correctly concludes that there would be significant and long term direct impacts to the coral reef ecosystem. We disagree that these impacts will be mitigated to "less than significant" by the DEIS mitigation proposals because (1) some of the proposed mitigation options are unlikely to replace lost aquatic resource functions, and (2) the DEIS underestimates the amount of mitigation required. See comments below.

A-009-044 | Mitigation - CWA Section 230.10(d)
Compensatory mitigation is intended only for unavoidable impacts after the LEDPA has been determined. Failure to adequately offset significant project impacts is grounds for denial of the CWA 404 permit application. Based on our review of the mitigation discussion in the DEIS, we do not agree that the DEIS mitigation proposals adequately compensate for proposed project impacts.

In addition, EPA, FWS, and NMFS have determined that the DEIS underestimates the amount of mitigation required to compensate for the impacts to corals. We support the application of Habitat Equivalency Analysis (HEA) for scaling mitigation, but the HEA presented in Vol. 4, Chapter 11 and Vol. 9, Appendix E is based on insufficient data or flawed analyses. Several aspects of the HEA analysis bias the scaling of mitigation to underestimate the mitigation required to replace lost aquatic system functions and services. These include: inadequate analysis of coral reef ecosystem structure and function, failure to consider impacts to non-coral habitats in the mitigation calculations, use of inappropriate and inaccurate data ("100% coral

food service areas, oil/water separators in areas where oily wastes may be generated, silver recovery units for photo shops, and Navy-designed bilge and oily water separators for shipboard oily wastes.

Apra Harbor WWTP sewage sludge is tested for metals prior to disposal at the Navy landfill, although there are no requirements in the treatment plant permit or the landfill permit that require this testing or restrict the disposal of the sludge at the landfill. Although sludge tests have shown the presence of metals, the concentrations are compared against criteria for land application for agricultural use and they have historically been well below these levels. Therefore, it is not anticipated that new wastewater flows from visiting ships would cause significantly higher metals concentrations in the sludge.

GWA: GWA does not have a pretreatment program in place. In fact, establishment of a pretreatment program is a requirement of the 2003 Stipulated Order, and the failure of GWA to implement an adequate program is one of several reasons cited by EPA Region IX as a basis of denying the secondary treatment variance for the NDWWTP and the Hagatna WWTP. At such time as GWA establishes a pretreatment program and issues permits, DoD will comply with the requirements of the program. In the meantime, DoD will install pretreatment equipment in accordance with military specifications for specific facilities.

A-009-031

Thank you for your comment. Wastewater collection lines will be constructed in the Andersen South area to service the MOU and other training that would occur there. DoD is currently preparing a Routing Study that includes evaluating sewer routing options for this area along with areas around the Andersen AFB North Ramp and Naval Base Apra Harbor wharf area. Conceptually, the sewer routing at Andersen South will be along newly constructed roads and will tie into the GWA sewer. Because this study is on-going, this sewer line was not included in the

equivalents/3-dimensional area/Coral Habitat Index”), and lack of data on recovery potential at mitigation sites. Our comments on the various mitigation proposals in the DEIS follow:

- **Artificial reefs** - EPA concurs with NMFS, FWS and the Corps that creation of artificial reef is not an environmentally preferable mitigation of impacts at the CVN. This position was provided to DoD in a December 18, 2008 joint EPA/FWS/NMFS letter and in several discussions that have followed. Concerns with this method include insufficient research demonstrating replacement of coral reef habitat functions, and vulnerability of artificial substrate to movement during storm events resulting in impacts to adjacent coral reef. These potential impacts of artificial reefs on adjacent corals and non-coral marine habitats could be significant and were not discussed in the DEIS.
- **Coral Transplantation** - Coral transplantation should be attempted as a component of the avoidance and minimization measures of dredging and not solely as a compensatory mitigation measure as implied in the DEIS. EPA appreciates DoD considering this as one possible option for coral reef enhancement but we remain concerned due to scientific evidence that coral transplantation often has a poor long-term survival rate.
- **NDWWTP** - This mitigation option involves infrastructure upgrades to GWA’s Northern District Wastewater Treatment Plant (NDWWTP) to secondary treatment to compensate for loss of coral reef habitat. While EPA recognizes the benefits of such an upgrade for water quality in Guam, impacts to coral reefs from wastewater discharges in Apra Harbor or in the vicinity of the NDWWTP outfall have not been documented. It is unlikely that wastewater upgrades could provide the coral recovery potential on the scale of the dredging impacts and estimates of recovery potential are lacking.
- **In-Lieu Fee (ILF) Program** - Volume 4, Chapter 4, p. 4-42 of the DEIS states that while the ILF program approach is supported by DoD for Guam, and supported as a mitigation approach by the Corps-EPA Compensatory Mitigation Rule, such a program has yet to be established for Guam. However, both EPA and DoD are supportive of the development of the Guam ILF Program, prepared by the Micronesia Conservation Trust in collaboration with the Guam Natural Resource Subcommittee. The primary objective of this ILF program is to offset unavoidable impacts to coral reef habitat by emphasizing a watershed approach in the planning, implementation, management and long-term protection of mitigation projects. Even though this ILF program is still under development, the FEIS should include a discussion of the status, objectives, and potential for this program to offset CVN impacts to unavoidable coral reef functions.
- **Watershed Restoration** - The DEIS discussion of watershed restoration focuses on reforestation/aforestation and isolated projects on DoD land. The resource agencies recommended DoD pursue watershed aforestation and related projects to restore coral reef habitat through near shore water quality improvements in the Watershed Aforestation Coral Reef Restoration Outline submitted to DoD dated October 13, 2009. We recommend broadening the description of the watershed mitigation effort to include a range of actions that are known to effectively reduce erosion and sediment transport. These may include aforestation, riparian restoration and streambank stabilization, stormwater BMPs for highway runoff, reinforcement of steep badland slopes with erosion

FEIS. A follow-on NEPA analysis will be prepared for these sewer lines once the study is completed, which is scheduled after the FEIS and ROD.

A-009-032

The FEIS has been modified to include a qualitative assessment of indirect impacts to the GWA wastewater treatment collection system from wastewater generated by the construction workforce and induced populations that are anticipated as a result of the military relocation. This impact assessment is based on the limited available information from GWA and EPA on the condition of the GWA wastewater collection. Impacts to ecological resources and to human health were assessed for both the construction phase and the operational phase of the proposed military relocation, and can be found in the various resource chapters of Volume 6.

DoD agrees that the an detailed analysis of the GWA collection system is needed to identify needed repair and upgrade projects. However, this is the responsibility of GWA as the system owner and operator. Indeed, it is recognized as a need two reports prepared for GWA by their operations and preventative maintenance contractor, Veolia Guam, LLC - "Final Capital Improvements Projects and Performance Improvement Projects (CIP/PIP)" dated June 2007 and "Final Capital Improvements Projects and Performance Improvements Projects (CIP/PIP) Review 2008 Status Update" dated November 2008. Veolia has communicated to DoD that a comprehensive model is needed for the wastewater collection system in order to accurately assess which areas of the system require repairs and upgrades. As part of its on-going cooperation with GWA, DoD could provide technical assistance to a GWA effort to model the sewer collection system.

Funding for needed upgrades to the GWA sewage collection system (other than that which is directly related to upgrades and repairs the

A-009-044

control geotextiles, sediment retention structures, wetland enhancements, etc. Such measures to control erosion may reduce the land area required for management, accelerate the reduction in sediment loads, and improve the sustainability of erosion control over time as compared with afforestation alone. We emphasize that any erosion control effort must significantly reduce sediment loads from the watershed to result in benefits to coral reefs, and caution that isolated actions restricted to Navy land (e.g. Ordnance Annex Afforestation) may be of insufficient scale to significantly reduce loads from large watersheds. We recommend screening watershed proposals for suitability using desktop watershed models to estimate load reductions resulting from specific erosion control measures.

Recommendations: DoD should continue to work with EPA, NMFS, FWS and the Corps to identify and assess suitable coral reef mitigation alternatives in the FEIS. To meet the projected construction start schedule of October 2012, EPA anticipates a Corps permit application, including a complete mitigation plan, will be submitted no later than summer 2011.

- The FEIS should scale the selected mitigation projects using an updated HEA based on coral abundance, size, and morphology data. The FEIS should also propose compensatory mitigation for impacts to non-coral marine habitats.
- Creation of artificial reef should be dismissed as an acceptable mitigation alternative. If DoD continues to consider this alternative, potential impacts of implementation (i.e. impacts of artificial reefs on adjacent corals and non-coral marine habitats), should be assessed in the FEIS.
- DoD should commit to implement coral transplantation as an avoidance and minimization measure and not as compensatory mitigation in the FEIS.
- Upgrading the NDWWTP to secondary treatment should be dismissed as a coral reef mitigation option absent a clear connection between the wastewater improvements and coral reef enhancement.
- The FEIS should discuss the status, objectives, and potential coral reef enhancement opportunities that could be achieved by the developing Micronesia Conservation Trust/Guam Natural Resource Subcommittee ILF program.
- We recommend the FEIS discussion of watershed enhancements include a broader suite of erosion and sediment control measures, beyond afforestation, aimed at water quality improvements that would directly benefit coral reef habitat.

A-009-045

d. Disclosure of Selected Mitigation in NEPA document

The DEIS considers a suite of mitigation alternatives but states that a final mitigation determination may not be made until after the ROD is adopted and during the CWA 404 permitting process (Vol. 4, p. 4-39). We believe it is most consistent with NEPA's public involvement principles (40 CFR 1500.1 (b)) to identify in the FEIS and the ROD the specific project mitigation, monitoring and enforcement that will be pursued for implementation.

NDWWTP) is not identified in the FEIS beyond what has already been identified in the GWA's Capital Improvements Program (CIP), and in a recent EPA Region IX assessment of GWA's CIP and companion conceptual cost estimate for 5-year and 25-year capital and operational needs. DoD acknowledges the existing sub-standard conditions of the GWA wastewater system on Guam and the desire by many for DoD to fund improvements to these systems and services. DoD's ability to fund projects that are not within direct DoD ownership or control is limited by Federal law. However, DoD recognizes the need to identify and integrate solutions for both on-base and off-base utility infrastructure on Guam, and desires to minimize adverse impacts associated with the proposed military relocation program. To this end, DoD is serving as the lead federal agency on a multi-agency group charged with identify Federal programs and funding sources to make the necessary repairs and upgrades to Guam's utility infrastructure systems. Concurrently, DoD, EPA Region IX, GEPA, GWA and the CCU are working together to identify and integrate solutions for both on-base and off-base wastewater needs which meet environment requirements, provide reliable and uninterrupted service, and are affordable for all users.

A-009-033

Thank you for your comment. Implementing energy projects from oils and methane at the NDWWTP is under the control of GWA as the plant owner and operator. While these projects may be a benefit, the focus of plant repairs and upgrades needs to be on bringing the NDWWTP into compliance after decades of violations and neglect. DoD would support efforts by GWA to reclaim and burn for energy recovered oils and methane from the plant, DoD would not want these systems installed if they result in a significant increase in operational and maintenance costs, or are difficult to operate and maintain.

A-009-034

Thank you for your comment. Section 4.1.1.2 has been expanded to

A-009-045 Deferring to the 404 permit may be appropriate for many projects, however, the magnitude of impacts in this project and the substantial disagreement on how these impacts will be mitigated warrant close consistency with CEQ regulations and guidance²⁹. We recognize that the details of the mitigation and monitoring plan will be further developed as part of CWA 404 permitting.

Recommendation: To better serve public disclosure and be most consistent with CEQ guidance, DoD should identify in the FEIS and the ROD specific mitigation, monitoring and enforcement measures that have been selected as part of the final decision.

A-009-046 e. *Additional Comments - Coral Reefs and CWA 404 for CVN*

- Volume 4, Sect. 230.20 considers removal of soft bottom habitat to be a potential benefit as it would provide substrate for additional coral establishment and other benthic organisms. EPA considers this to be a false assumption without further evidence that these areas would not be buried in sediment before coral could establish in these areas. In addition, dredged areas will be subject to maintenance activities which could limit the establishment of corals in these areas. The FEIS should remove this statement or provide sufficient proof that there would be benefit to coral.
- Volume 4, page 4-39 states that areas with the lowest coral cover (<10 percent) would have the greatest dredging impacts while areas with highest cover (70 to 90 percent) would have the lowest dredging impacts. Avoiding high coral cover areas may be preferable but the assessment fails to describe other critical attributes such as size, morphology and biodiversity of the coral habitat. The FEIS should implement the assessment method recommendations provided above and describe impacts of dredging based on the broader suite of coral habitat attributes.

A-009-047 2. **Haputo Coral Reef Ecosystem**

The DEIS does not demonstrate that significant impacts to this resource can be mitigated to less than significant. The preferred Main Cantonment Alternative 2 would be located at Finegayan. Just offshore of this area is the Haputo Ecological Reserve Area (ERA) (Vol. 2., p. 3-15). The Haputo ERA was compensatory mitigation measure for impacts to corals that occurred from the original construction of the Navy's Kilo Wharf (Vol. 2, p. 11-33) and is described as a vibrant thriving coral reef community with a diverse biota of algae, invertebrates and fish, containing well-developed coral reefs containing some of the highest coral cover on Guam (Vol. 2, p. 11-20). It is also a Specific Habitat Areas of Particular Concern that is essential to the life cycle of important coral reef species (Vol. 2, p. 11-20).

The DEIS acknowledges that because the Haputo shore area is relatively accessible, many of the marine biological resources may be adversely affected by long-term recreational activities due to

²⁹ Per 40 CFR 1505.2(c), the ROD must state "whether all practicable means to avoid or minimize the environmental harm from the alternative selected have been adopted, and if not, why they were not", and CEQ Guidance²⁹ states that the ROD must identify "the mitigation measures and monitoring and enforcement programs that have been selected and plainly indicate that they are adopted as part of the agency's decision."

further describe the federal and local requirements involving stormwater, sediment, and erosion control, including the Construction General Permit (CGP), Multi-Sector General Permit (MSGP), requirements for erosion control permits, BMPs, and environmental protection plans. A discussion of the potential issuance of an MS4 permit, pending results of the 2010 census, has been added to the text. The text has been updated to reflect that a new CGP is anticipated for July 2011. The recommended table identifying the specific federal and Guam authorities for proposed activities requiring stormwater permits has been added to Section 4.1.1.2. All statements that CWA NDPEs program is delegated from EPA to GovGuam have been corrected to indicate EPA is the CWA permitting and enforcement authority.

A-009-035

Thank you for your comment. A new table is added to the Final EIS that shows the types of proposed construction activities at main cantonment area-Finegayan, AAFB, Apra Harbor and road construction and the policies that would be applicable to these actions. To address the large-scale land disturbance anticipated for the projects and impacts to stormwater, enforcement of adequate erosion and sediment control measures, site specific best management practices (BMPs) would be aggressively maintained throughout construction. Storm events would be closely monitored and additional BMPs provided along vulnerable areas in anticipation for a storm event. For construction projects at Apra Harbor or near water bodies, extra BMP measures would be provided along the site perimeter near the water (i.e. two lines of defense for sediment & erosion control instead of one sediment control BMP).

The Construction Contractors would be required to comply with the updated 2011 USEPA Construction General Permit (CGP) which would include provisions of the Effluent Limitation Guideline (ELG) & Standards for Construction and Development Point Source Category, dated Dec. 1, 2009 (40 CFR, Part 450), including the turbidity limit of 280 NTU. The

A-009-047

the substantial increase of people³⁰ potentially using Haputo ERA and coastal waters as a result of the proposed action (Vol. 2, p. 11-28). Recreational activities such as snorkeling, scuba diving, boating (anchoring, fishing, diving, snorkeling), and fishing practices (pole, gill/throw net, and spear fishing) may result in indirect loss of Haputo ERA habitat and biota, and the DEIS concludes that this is a significant impact. However, it claims that it can be mitigated to less than significant by providing educational materials and requiring visitors to view a short video before entering. It states that designating multiple mooring areas offshore and increased efforts toward ERA enforcement would also mitigate impacts (Vol. 2, p. 11-58). The DEIS does not identify who would implement this latter mitigation, and the statement that these mitigation measures would reduce impacts to less than significant is not supported.

The Haputo ERA mitigation site has never been effectively managed or protected, nor is there a management plan. As protection of this resource was compensatory mitigation from a previous DoD project, and was never fully implemented, it is vital that additional impacts from this project receive effective mitigation. Education should be a component of any mitigation strategy, but education alone is not sufficient to protect the resource from the impacts of increased use. Unless there are specific commitments to effective mitigation, this impact remains significant.

Recommendation: EPA recommends that a Haputo Management Plan be developed with the intent of maintaining the present good condition of the marine resources while allowing sustainable uses. The management plan should include measures to protect the marine biological resources and monitoring and regular assessments of the resource to track its condition. It should also establish a long term educational, management and enforcement program. The FEIS should identify the commitment to develop this management plan, as well as identify who would carry out and fund its implementation.

A-009-048

3. Impacts to Wetlands and other Waters of the U.S.

a. Compliance with 404(b)(1) Guidelines

For wetlands and waters of the U.S. (WUS) not associated with the CVN Berthing Project, the DEIS provides only a cursory discussion and no in-depth analysis of compliance of the various project alternatives with the Guidelines. For example, Volume 6, Related Actions-Utilities and Roadway Projects (p. 6-31) erroneously concludes that there is no need to conduct a 404(b) (1) alternatives analysis because there are no potential impacts from any alternative to wetlands.

The analysis of practicable alternatives under Section 404 is not limited only to wetlands impacts, but includes all other WUS. The DEIS identifies potential impacts to WUS, including wetlands, from the replacement of pipelines and bridges, even though a 404-level jurisdictional analysis has not yet been completed and verified by the Corps. Figure 6.2-1 shows potential direct impacts to wetlands along the water line replacement corridor and Table 6.2-5 quantifies

³⁰ The DEIS identifies 17,600 persons living on main cantonment and South Finegayan under the proposed action that would directly impact Haputo ERA (Haputo Beach included) and Guam National Wildlife Refuge (Vol 2, p. 9-17)

requirements of this standard are included in the Navy's draft Comprehensive Construction Stormwater Pollution Prevention Plan (SWPPP) for the Guam military buildup.

The criteria and standards in the CNMI/Guam Stormwater Management Manual, October 2006, may not apply to the FHWA/Guam DPW related projects as Guam DPW/FHWA is currently reviewing the applicability of the CNMI/Guam Stormwater Management Manual and developing their own Stormwater Manual to address road way projects on non-military roads. To address these issues and develop criteria and standards for FHWA/FHWA roadway projects, a Stormwater Policy Task Force has been established consisting of FHWA, FHWA's consultants, Guam DPW, GEPA, and USEPA.

Construction stormwater BMPs include the practices described in Chapter 2 of the 2006 Guam and CNMI Stormwater Management Manual, however, schedule clearing and grading during the dry season would be unlikely as construction would occur year-round. However, erosion and sediment control practices would be aggressively maintained across all aspects of construction, as indicated in the Navy's draft Comprehensive Construction SWPPP. Additionally, internal phasing and BMPs would be provided by the Navy's contractor to reduce the amount of cleared land at any one time.

With respect to off-base roadways: In the Draft Guam Transportation Stormwater Drainage Manual, Section 7.1.1, there is a discussion regarding the Scheduling BMP. It is noted that construction sequencing should be scheduled to minimize land disturbance for all projects during the rainy season and that appropriate BMPs should be implemented during both the rainy and non-rainy seasons. It emphasizes that schedules should show how the rainy season relates to soil-disturbing activities and that work should be scheduled to minimize soil-disturbing activities during the rainy season. Moreover, the BMP states that:

A-009-048 bridge replacement-related impacts to WUS. These potential impacts must be analyzed for compliance with the 404(b)(1) Guidelines.

Recommendation: EPA offers the following recommendations to help facilitate compliance of the project with the Guidelines:

- The FEIS should include an evaluation of the project alternatives in order to demonstrate compliance with the 404(b)(1) Guidelines and authorization of the LEDPA. The alternatives analysis should include a reasonable range of alternatives that meet the project purpose while avoiding and minimizing damage to WUS, including wetlands. If, under the proposed project, dredged or fill material would be discharged into WUS, the FEIS should discuss alternatives to avoid those discharges.
- The FEIS should describe the status of consultations with the Corps regarding CWA Section 404 permitting, and how the Proposed Project meets 404(b)(1) Guidelines which require that projects first avoid, then minimize, and finally mitigate any impacts to WUS, including wetlands and other special aquatic sites.
- The applicant should provide a table and clear narrative on the direct, indirect/secondary and temporary impacts to WUS, including wetlands, in the FEIS.

A-009-049 *b. Geographic Extent of Jurisdictional Waters of the United States*

The DEIS does not contain a delineation of wetlands and other WUS to be affected by the proposed project, sufficient for permitting under Section 404 of the CWA. The DEIS relies mostly on a review of the U.S. Fish and Wildlife's National Wetland Inventory (NWI) maps to determine the geographic location and extent of wetlands and other waters, and states that various areas will be ground-truthed to determine presence/absence of wetlands as part of an additional remote sensing investigation. NWI maps and remote sensing data are not adequate to assess the geographic extent of jurisdiction under the CWA in the absence of additional field data collection and verification³¹. A 404 appropriate delineation of the extent of WUS, including wetlands, for the project has not yet been completed and verified by the Corps.

In the absence of other data, NWI data can indicate the potential for wetland areas and be used for macro-level impact analysis, with the qualification that the analysis is not based on a jurisdictional determination. However, a clear presentation of wetland and WUS impacts is not presented even at the macro-level for the NEPA analysis. The DEIS acknowledges that permanent, temporary and secondary/indirect impacts to WUS would occur from construction of the proposed project but the DEIS does not clearly disclose the extent of impacts to waters. For the northern area, the DEIS states there would be Corps permitting for potential impacts to the

³¹Wetlands under the CWA are delineated using the Corps of Engineers 1987 Wetlands Delineation Manual (Environmental Laboratory 1987) and any applicable supplements. The manual utilizes a three-parameter test, which examines field indicators of wetland conditions. Wetland conditions include the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. In addition, non-wetland waters/streams that fall between the Ordinary High Water Marks (OHWM), as described at 33 CFR Sections 328.3 and 329, are jurisdictional under the CWA. Determination of the geographic extent of these "other waters" requires field verification utilizing appropriate Corps and EPA guidance.

- Major grading operations should be scheduled during the non-rainy season, when practical;
- Non-active areas should be stabilized within 4 days from the cessation of soil-disturbing activities or one day prior to the onset of precipitation;
- Forecast weather for storm events; and
- When rainfall is predicted, adjust the construction schedule to allow the implementation of soil stabilization and sediment controls and sediment treatment controls on all disturbed areas prior to the onset of rain.

A-009-036

Thank you for your comment. The DoD intends to incorporate state-of-the-art measures to control stormwater and erosion impacts consistent with the most current and future permit requirements and guidance developed by regulatory authorities. The DoD has been coordinating these measures with regulatory stormwater experts and would continue to coordinate details of the site-specific measures with regulatory experts throughout the permitting processes.

To reduce stormwater discharges in the new development areas, DoD would implement the low impact development (LID) practices to reduce runoff volume and mimic the pre-development site hydrology for the projects using a suite of measures, such as bioretention, vegetative swales, pervious pavement with infiltration bed, infiltration basin and trench. Requirements of Section 438 of the Energy Independence and Security Act (EISA) and EPA's December 2009 Technical Guidance for Implementing Section 43825 will be considered as site-specific measures are developed in coordination with permitting agencies. DoD

A-009-049 cave/pool system (Vol. 6, p. 6-15) but no additional information is provided including how these impacts could be mitigated.

Recommendation: The FEIS should include results of a 404-level jurisdictional delineation to determine the extent of impacts to waters and identification of the LEDPA for the alternatives presented in the DEIS. If DoD does not provide this information in the FEIS, then the FEIS should at a minimum acknowledge that jurisdictional delineations consistent with the Corps protocol will be conducted prior to 404 permitting.

A-009-050 *c. Comments on Specific Wetlands*

Apra Harbor Wetlands: There are significant wetlands in this area, totaling approximately 158 acres of mostly estuarine, intertidal wetlands, as identified on NWI maps, and some unverified wetlands per the Corps 1987 Wetlands Delineation Manual. An additional 124 acres of wetlands have been identified on Naval Base Guam. The DEIS states that a 404 permit is needed for construction in this area and that the screening process in the DEIS has identified the LEDPA consistent with the Section 404(b)(1) guidelines (Vol. 2, p. 4-127). Since a jurisdictional delineation has not been completed and verified by the Corps for this area, a LEDPA determination cannot be made. In addition, the DEIS states that the loss of wetlands or mangrove forest in this area would be considered "potentially significant" to DoD (Vol. 2, p. 10-79). EPA considers the loss of these resources to be significant.

Recommendations: The FEIS should clarify whether the ongoing investigation will map wetlands per the Corps 1987 Wetlands Delineation Manual for inclusion in the FEIS, as well as other waters (i.e. mudflats, vegetated shallows, and streams with an ordinary high water mark) (Vol. 2, p. 4-52). Once the delineation has been verified by the Corps, a LEDPA determination can be made. We recommend identifying any loss of these wetlands or mangrove forest as a significant impact in the FEIS.

In addition, the following discrepancies should be corrected: The wetland acreage for Apra Harbor-Naval Base Guam vegetation communities listed in Vol. 2, Table 10.1-19 (p. 10-60) does not correspond to wetland acreage totals presented on p. 4-52. Also, the potential vegetation impacts in Vol. 2, Figure 10.2-14, are not consistent with Figure 4.2-2 in terms of mapping wetlands in Apra Harbor and the Naval Base Guam.

A-009-051 Navy Munitions Site (NMS) Wetlands: According to the DEIS, this area has a total of 1,469 acres of wetlands (Vol. 2, p. 4-61) and 250 acres are located near the magazine storage areas. The DEIS states that direct impacts to wetlands from the munitions magazines will be avoided by shifting the footprint, and this will be confirmed once additional information is obtained through the planned remote sensing wetlands delineation (Vol. 2, p. 4-97). It also states that there may be opportunities for using older magazines with appropriate upgrades or replacing existing magazines, instead of developing ammunition storage facilities in currently undeveloped areas (Vol. 1 p. 3-8).

Policy on Implementing Section 438 of the EISA requires federal development and redevelopment projects with a footprint exceeding 5,000 square feet to maintain or restore pre-development hydrology to the maximum extent technically feasible, consistent with USEPA's Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of EISA, dated December 2009 (<http://www.epa.gov/owow/nps/lid/section438/>) DoD's compliance with EPA's Technical Guidance would reduce hydrologic impacts of the stormwater discharges, as well as pollutant discharges.

The LID/Drainage Study draws upon several Karst- and Northern Guam-specific references, including the Chesapeake Stormwater Network Technical Bulletin No.1: Stormwater Design Guidelines for Karst Terrain in the Chesapeake Bay Watershed. This study provides the project with additional tools to protect groundwater where project activities overlie Karst geology and the NGLA. Additional measures to minimize impacts to water resources from stormwater discharges include preparation and implementation of an effective Stormwater Pollution Prevention Plan (SWPPP) for the new facilities under the NPDES Multi-Section General Permit. The SWPPP would include all facilities listed under 40 CFR 122.26, subject to the MSGP, including training facilities. The housing areas would be covered under the SPE Housing Entity's Stormwater Management Plan, which would be required by DoD's Real Estate Ground Lease. These stormwater management plans address roles and responsibilities, stormwater training, prohibited non-stormwater and stormwater discharges, pollution prevention measures, water quality monitoring and inspection requirements, acceptable BMPs, non-compliance responses and reporting.

Around Apra Harbor, areas would have drainage that goes directly to the oil-water separator and sediment separator system. The wash water for this facility is intended to be recycled to limit the amount of fresh water that is consumed during the wash down process. The water within this

A-009-051

Recommendation: A full jurisdictional delineation should be performed for NMS and avoidance of impacts should occur through changes to the project description. DoD should maximize avoidance of wetlands and commit to upgrading or replacing existing magazines wherever possible to reduce the project footprint. Modifications to training activities should also occur to reduce foot, and wheeled and tracked vehicle traffic near and through numerous surface water drainage feature crossings (Vol. 2, p. 4-99). The conclusion that there would be no long-term impairments to these waters is not supported.

The DEIS does not list wetlands as a vegetation type for NMS (Vol. 2, p. 10-67, Table 10.1-23), while Fig 10.1-26 page 10-68 depicts extensive wetlands. Also, riverine forest vegetation communities likely support jurisdictional wetlands. The FEIS should address this inconsistency.

A-009-052

Wetlands Associated with Road Project Locations: It does not appear that all wetlands associated with road projects are identified in the DEIS. For example, in Volume 2, Section 4.1.3.4, several swales, drainage-ways, sinks, and streams are listed in the Central Region, but there is no mention of wetlands associated with these surface waters even though several photographs depict the presence of likely wetlands. The Volume 2 discussion of Central Region road improvements lacks information regarding impacts from the improved Route 1 crossing at Agana River and other streams. Impacts to vegetation types, wetlands and other WUS are not discussed and there is no mention of these WUS being delineated (Vol. 2, p. 10-55). Volume 6 also has very limited route-specific information on wetlands, with the exception of table listings in Terrestrial and Marine Resources sections which are not delineated and further analyzed for the specific routes (e.g. Vol.6, pp. 12-18 to 12-24 for Terrestrial Resources; similar tables are found in Marine Resources chapter). It also seems unlikely that estimated impacts to WUS from proposed bridge replacements (Vol. 6, Table 6.2-5 p. 6-23) are fully captured in these tables. Ravine communities associated with rivers may support jurisdictional WUS. In addition, strand communities that lie below the mean high tide are jurisdictional WUS. This is not acknowledged in the DEIS. Some of these vegetation communities are found in Anderson North, Anderson South, non-DoD lands, and South Finegayan, and Naval Base Guam. (Vol. 2, p.10-6).

Recommendation: The FEIS should provide additional information on Route 1 impacts at Agana River and other streams, including a delineation of these WUS, and ensure that wetlands associated with other road projects are included in estimated impacts to WUS. The FEIS should include a discussion of waters associated with ravine and strand communities, identify their locations, and discuss any proposed impacts consistent with the Guidelines

A-009-053

Tinian Wetlands: The DEIS states that the preferred alternative on Tinian may impact wetlands and that additional studies are planned to verify locations (Vol. 7,p. 3-80). The results of these studies should be included in the FEIS and the preferred alternative modified to avoid wetlands to the maximum extent possible.

wash down system would eventually be drained into the sanitary sewer system. The solids from the sediment separator are currently anticipated to be handled as solid waste, which would be properly handled and disposed of by the base BOS Contractor. The current layout is such that any rainwater falling within the wash down area would also be directed into the oil-water and sediment separators.

A-009-037

Thank you for your comment. The FEIS has been revised to reflect the discussions and the outcome of the ongoing USFWS section 7 consultation. There are no ESA-listed in-water freshwater species on Guam. To protect the large water source, there are no current or proposed major stormwater discharges into Fena reservoir that would impact a listed species such as the endangered Mariana common moorhen.

A-009-038

Thank you for your comment. The Haul Road Network (HRN) Storm Water Implementation Plan provides typical source control and treatment control BMPs to be used for the various HRN projects. The plan includes a suite of treatment BMPs that can be used throughout the network. Site-specific BMP selection would take into consideration pollutants of concern, right of way constraints, maintainability, existing drainage infrastructure, proximity to wellheads, existing treatment devices, etc.

A summary of the outcomes of the Task Force has been described in the Final EIS. Currently, a Draft Stormwater Implementation Plan for the Guam Roadway Network (GRN) is being developed to describe and illustrate the various stormwater control measures to be incorporated in the overall network. In Section 6 of the Draft Storm Water Implementation Plan for the GRN, the post-construction source control and treatment control strategies discusses long-term stormwater BMPs

A-009-054 L. CUMULATIVE IMPACTS TO WATER RESOURCES

There are significant cumulative impacts to water resources that the DEIS does not acknowledge nor propose mitigation. A cumulative impact assessment for water resources was not performed (see comment under "cumulative impact assessment"). EPA recommends an assessment of the cumulative impacts to water quality (coastal, surface, and groundwater), and on coral reef habitat, at a minimum.

CEQ guidance³² on cumulative impact assessment focuses heavily on the use of scoping to identify resources of concern for analysis. In our scoping comments, EPA identified coral reefs, as well as water quality in relation to the aquifer, and emphasized the importance of assessing cumulative impacts, in general, due to the size of the project. The DEIS acknowledges that these resources were identified by stakeholders during scoping (Vol. 2, p. 4-72 and 11-56).

The following information should be considered in preparing an assessment of cumulative impacts for water quality and coral reefs for the FEIS.

1. Cumulative Impacts to Water Quality

Guam Water Quality Standards (WQS) and Total Maximum Daily Loads (TMDLs)

As the project will impact water quality, an assessment of cumulative impacts to water quality should be included in the DEIS. When assessing cumulative impacts, it is necessary to understand the existing condition of the resource to the extent that it represents effects from past actions. The condition of Guam's surface, ground and near shore water resources, as discussed in Volume 2, Chapter 4, does not identify the existing water quality problems identified in Guam's 2008 Integrated Water Quality and Assessment Report. This report identifies 54 water quality limited/impaired segments and the impacts this impairment could have on the military buildup activities. Impaired water segments do not meet Guam Water Quality Standards (WQS), which establish both the water quality goals for specific waters and the regulatory basis for treatment controls and strategies.

The Clean Water Act, Section 303(d) requires States and Territories to develop Total Maximum Daily Loads (TMDL) for listed water quality segments ("303(d) list") included in their Integrated Water Quality and Assessment Report. Guam EPA issued a public notice for draft bacteria Total Maximum Daily Loads (TMDL) for beaches in the central and northern areas of Guam. In addition to existing water quality impairment, the FEIS cumulative impact assessment should consider the implications of the TMDL process from a regulatory standpoint. Once EPA-approved, the TMDLs must be incorporated into a continuing planning process and loads allocated into EPA-issued permits. Key Guam and EPA programs that address water quality issues include:

- NPDES Permits and Section 401 Water Quality Certification

³² *Considering Cumulative Effects Under the National Environmental Policy Act, 1997* (CEQ Handbook), and *Guidance on the Consideration of Past Actions in Cumulative Effects Analysis, 2005*

such as biofiltration strips/swales, infiltration basins, and detention basins.

A-009-039

Thank you for your comment. Habitat assessment methodologies which evaluate the function of affected aquatic resources, such as coral reef ecosystems, are an evolving science and the adequacies of existing and new methodologies are heavily debated in the scientific community. Ideally, a standard assessment technique that accurately characterizes and quantifies losses and gains of coral reef ecosystem functions would be used. However, rulemaking for the Compensatory Mitigation Rule recognizes the wide variety of aquatic resources present in the United States and the evolving nature of science regarding aquatic ecosystem restoration make the establishment of standard assessment methodologies impracticable. The assessment for this EIS used an historically approved methodology (percent coral cover), supplemented by other methods such as the use of Light Detection and Ranging (LIDAR) satellite photos, for quantifying impacts to affected coral reef ecosystems impacted by the proposed transient CVN wharf and associated dredging. DoD believes that use of the percent coral cover methodology, supplemented by use of LIDAR satellite photos, is the "best currently available science" to attempt to capture the thousands of elements that comprise the function of a coral reef ecosystem. DoD's assessment is currently under review by the US Army Corps of Engineers, the agency charged with implementing dredge and fill permits under CWA Section 404, and other Federal agencies. The FEIS has been updated to reflect the latest developments in this review.

A-009-040

Thank you for your comment. Habitat assessment methodologies which evaluate the function of affected aquatic resources, such as coral reef ecosystems, are an evolving science and the adequacies of existing and new methodologies are heavily debated in the scientific community.

- Individual Wastewater System Permits
- Stormwater Management, including permits
- Underground Injection Control (UIC)
- Coastal Nonpoint Source Programs and watershed implementation

The DEIS does provide some indications of existing water quality impairment in different chapters of the document, but they are not evaluated together in a cumulative impact assessment with a determination made of the magnitude and significance of cumulative effects on the resource (CEQ Handbook, Step 9). For example, the DEIS identifies contamination to nearshore waters from the Orote Landfill (Vol. 2, p. 4-54); states that domestic wastewater associated with population increase is the largest potential source of pollution to all waters of Guam³³ (Vol. 2, p. 11-11); cites urban runoff as one of Guam's most critical nonpoint source problems which impacts both groundwater and coastal waters (Vol. 2, p. 11-11), and documents continual erosion along the shoreline from the upstream side of nine bridges, with sediments containing heavy metals, such as copper and zinc, found in Agana (Hagatna) Bay (Vol. 2, p. 11-40).

Water quality impacts from munitions associated with the Mariana Islands Range Complex training around Guam should also be considered in the assessment of cumulative impacts to water quality. The MIRC DEIS identified the potential for contamination from munitions components including various explosives compounds such as ammonium perchlorate, picric acid, etc. and organic chemicals from underwater detonations, some of which are proposed to occur in nearshore locations. The MIRC DEIS stated that designated activity zones for underwater detonations would concentrate contamination.

Finally, climate change effects on water quality should be considered, including groundwater. Cumulative impacts from climate change on the freshwater lenses that are supplying drinking water in Guam may exacerbate conditions related to saltwater intrusion/freshwater transition zone, impact on groundwater recharge from changes in rainfall intensity, and the impacts on stormwater quality and infrastructure.

Recommendation: EPA recommends that an assessment of cumulative impacts to groundwater and surface water quality be performed. The assessment should reference the impaired existing waters of Guam identified in Guam's 2008 Integrated Water Quality and Assessment Report, TMDLs (existing or proposed) and how regulatory requirements associated with them may impact proposed military buildup alternatives. Cumulative impacts from climate change on water quality should be discussed. Potential mitigation measures for cumulative impacts should be identified as appropriate, to protect the waters of Guam and to ensure WQSs are met.

³³ Our significant concerns regarding wastewater contamination related to the project are identified in comments under "Wastewater"

Ideally, a standard assessment technique that accurately characterizes and quantifies losses and gains of coral reef ecosystem functions would be used. However, rulemaking for the Compensatory Mitigation Rule recognizes the wide variety of aquatic resources present in the United States and the evolving nature of science regarding aquatic ecosystem restoration make the establishment of standard assessment methodologies impracticable. The assessment for this EIS used an historically approved methodology (percent coral cover), supplemented by other methods such as the use of Light Detection and Ranging (LIDAR) satellite photos, for quantifying impacts to affected coral reef ecosystems impacted by the proposed transient CVN wharf and associated dredging. DoD believes that use of the percent coral cover methodology, supplemented by use of LIDAR satellite photos, is the "best currently available science" to attempt to capture the thousands of elements that comprise the function of a coral reef ecosystem. DoD's assessment is currently under review by the US Army Corps of Engineers, the agency charged with implementing dredge and fill permits under CWA Section 404, and other Federal agencies. The FEIS will be updated to reflect the latest developments in this review. The Navy agrees that percent coral cover does not represent the sum total of all ecosystem parameters, but it is considered internationally the single most significant parameter in capturing ecosystem structure and function. In light of the continued dispute on what parameters need to be collected to fully capture the impact to coral reefs, the Navy's assessment is currently under review by USACE ERDC. Upon completion of that in-depth review, if USACE feels additional information is warranted the Navy will comply and re-run its analysis based on the additional data parameters.

It is purposely misleading to refer to the method the Navy used as not an in-situ method. In biology, in situ means to examine the phenomenon exactly in place where it occurs (i.e. without moving it to some special

A-009-055

2. Cumulative Impacts to Coral Reefs

We expressed serious concerns regarding the unprecedented loss of coral reef and related indirect impacts that would result from the CVN berth, as well as impacts to corals in the Haputo ERA (see coral reef impacts comment). Given these significant project impacts, it is especially important that cumulative impacts to coral reefs be assessed to provide information on the resource.

The assessment should identify cumulative impacts to corals within Apra Harbor, and for Guam. For Apra Harbor, the assessment should discuss historic loss of corals from past dredging, breakwall and wharf construction, runoff from increasing impervious surface area, and other historic modifications, as well as future dredging and fill for the commercial port and Navy operations. For Guam, discuss the historic loss of corals, including the significant decline of coral cover and recruitment since the 1960s as a result of natural and anthropogenic (human-induced) disturbances (Vol. 2, p. 11-13)³⁴ and identify whether these effects have been historically significant for this resource.

Additional stressors on corals should be identified, including: increases in domestic wastewater discharges, which can have significant anthropogenic impact on corals; sedimentation and stormwater discharge, which affects both coral cover and diversity (Vol. 2, p. 11-11); increased fishing pressure and recreational impacts on all coral reefs from increased population; and training-related impacts from MIRC, project-related, and other existing military training. Include a discussion on whether the resource is especially vulnerable to incremental effects, and whether it has the ability to withstand these stresses. Global climate change impacts should also be considered, since project impacts will increase stressors that further exacerbate climate change impacts on coral reef ecosystems³⁵.

Recommendation: EPA recommends that the FEIS contain an assessment of the cumulative impacts to coral reefs, as identified above.

A-009-056

M. DREDGING ACTIVITIES AND SEDIMENT DISPOSAL

The discussions regarding dredging and dredged material management provide a reasonable, but general overview of existing sediment quality information and the potential impacts of dredging and disposal or reuse options. As the DEIS acknowledges, more specific sediment testing will be needed to support Marine Protection, Research and Sanctuaries Act (MPRSA) and CWA permitting. The permits will include more specific BMPs tailored directly to the details of the dredging projects that emerge from the NEPA process. We will work closely with the Navy, Guam EPA, and other federal and Guam regulatory and resource agencies to develop adequate sediment Sampling and Analysis Plans (SAPs) for Sierra Wharf and the CVN project, should these projects proceed as proposed.

³⁴ The DEIS states that coral cover on Guam's forereef slopes has decreased from over 50% to less than 25%.

³⁵ See the NOAA website on Corals and the Threat of Global Climate Change at: <http://www.ndbc.noaa.gov/halep/outreach/coral/coralchange.html> and the EPA report "Climate Change and Interacting Stressors: Implications for Coral Reef Management in American Samoa." 2007. EPA/600/R-07/069

medium). The Navy coral surveys were at the site of the proposed project area and the observations were made in the water. The analysis of the data was performed in a lab, which provided the qualitative and repeatable data set used in the impact analysis. It is appropriate to mention that the "Navy Contractor" are in fact two Nationally recognized Universities, one of which (National Coral Reef Institute) is recognized and funded by NOAA. The Navy has reviewed the cases where the resource agencies have used their survey data parameter in the past, and disputes that it has been widely used. To be specific, the data parameters the resource agencies have identified as "important inputs" have not been widely applied to impact assessments and are suspect with regard to the practicable nature of those data inputs when applying to Habitat Equivalency Assessments (HEA).

A-009-041

Thank you for your comment. The Navy has made a good faith effort in describing how the Polaris Point alternative is the LEDPA. While it is accurate to say the amount of dredge material is greater for the Polaris Point alternative, this factor alone does not eliminate it from being the LEDPA. In our evaluation of the alternatives considered in the DEIS (Polaris Point, SRF), Polaris Point was determined to be the LEDPA when considering all aspects to include: amount of dredging required, amount of coral anticipated to be removed, proximity of completed wharf to identified high value resources (West of Big Blue reef is known resting and foraging areas for ESA listed sea turtles), potential long-term impacts associated with berthing a CVN (re-suspension of sediments by tug thrusters), proximity to other nuclear vessels, force protection concerns, active duty quality of life, available utilities infrastructure, etc. Considering all of these factors as well as many more, the Polaris Point alternative was identified as the LEDPA. It is acknowledged that final determination of the Navy's LEDPA shall fall to USACE determination during the CWA 404 permit process.

1. Potential for Contaminated Sediments

The DEIS states that it is likely that all of the dredged material would meet the testing requirements for ocean disposal (Vol. 2, p. 4-48). However, EPA believes that a portion of the sediment to be dredged (especially from inner Apra Harbor in association with Sierra Wharf dredging) is likely to be contaminated enough to be unsuitable for ocean disposal³⁶.

Review of the sediment data in the DEIS was difficult, however, because the existing sediment quality data was not presented in a manner that makes it comparable and relevant to the specific dredging being contemplated at this time. For example, the sediment data tables for the 2006 sampling do not include all the sampling stations or composite areas relevant to the proposed Sierra Wharf dredging footprint (specifically, no data are presented for inner Apra Harbor Composite 7 in Table 4.1-3 in Volume 2). In addition, the "Tier III" results from the 2007 sampling (discussed in Volume 2, pages 4-48 through 4-52) cover a much broader area of inner Apra Harbor than the dredging area proposed for Sierra Wharf. However, the contemplated Sierra Wharf dredging footprint is not shown on the figures depicting the sediment sampling locations. (In fact the figures needed to consider Figure 2.5-3 and Figure 4.1-28 are separated by nearly 150 pages in Volume 2). Similarly, the EIS contains no figure showing the individual sampling locations or boundaries for 2007 sediment Composites C, D, and E, relative to the proposed dredging footprint. This is a particularly important omission, as the testing of these composites revealed much higher levels of contamination (and in one case some toxicity) than any other potentially dredged sediments discussed in the DEIS. EPA does not agree with the statement in the DEIS that all of the material from Composites C, D, and E would be considered suitable for unconfined ocean disposal (Vol. 2, p. 4-51).

Additionally, the data presented are only a snapshot of the sediment quality that may be expected, and only in certain areas of Apra Harbor. The Navy is likely to encounter a broader range of contaminants and contamination levels when future dredging projects and long-term maintenance dredging (discussed below) are considered. Based on the sediment testing data provided in Volume 2, section 4.1.4 of the DEIS, EPA's experience with past Apra Harbor dredging, and similar projects elsewhere in the Pacific, we believe that up to 20 percent of material to be dredged may be found to be unsuitable for ocean disposal when evaluated in accordance with the national sediment testing manual (*Evaluation of Dredged Material Proposed for Ocean Disposal - Testing Manual* [USEPA and USACE 1991]) and therefore require separate containment. Thus, we disagree with the statement that special handling of dredged material would not be required (Vol. 2, p. 4-48), and believe it is prudent for the DEIS to plan for special controls (for example, with respect to surface water runoff, or leachate to groundwater) which may be needed for particular upland placement sites.

Recommendation: EPA strongly recommends that the FEIS include a more detailed upland/contained dredged material management strategy that seeks to maximize beneficial reuse of dredged material in light of all available placement options (including

³⁶ Such material, while perhaps not being so contaminated as to require active remediation or treatment, would nevertheless need to be managed at upland or contained sites that isolate the contaminants from aquatic organisms, surface and groundwater.

The reduced turning basin alternative provided by NMFS is being evaluated for operational risk associated with CVN vessel movements.

To clarify dredge depth required for the CVN is 51.5 feet. Evaluation of impacts to coral reef resources were conducted using planar coral cover combined with bathymetry to capture the 3 Dimensional impact associated with the proposed action alternatives. The 60 foot isobath was selected for the following two reasons: (1) 60 feet is the limitation of the imagery used to capture the full breadth of the action area (2) Given the complexity of the marine ecosystem and the relative lack in scientific agreement on which ecological parameters should be measured, an over estimate of direct and indirect impacts for an additional 8.5 feet was deemed appropriate. The MILCON is a design build construction and therefore will not be 100% designed until prior to submission of CWA Section 404 permit. The description of the pier structure is stated as pile supported with an estimate of 400 piles needed.

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The 200 meter indirect zone, was selected to provide a conservative (error to benefit to coral) estimate of indirect impacts to coral. The Navy

A-009-057

ocean disposal). Contaminated material should be managed to avoid mixing with less-contaminated sediments that may be suitable for a broader array of beneficial reuse options. This strategy should include identification of specific upland containment site(s) whose capacity would be set aside specifically for dredged material determined by the Corps and EPA to be unsuitable for unconfined ocean disposal. In addition, EPA recommends the FEIS should take a conservative approach with respect to the capacity and quality of dredged material that the upland containment site(s) may have to accommodate from the proposed dredging events as well additional dredging (e.g., periodic channel maintenance) expected to occur within the foreseeable future (e.g., 10-15 years). For the specific location(s) identified, the FEIS should describe any appropriate engineering controls, (such as impermeable liners, etc.) needed to properly manage the relevant site-specific contaminant exposure pathways (including any sensitive surface or groundwater resources, etc.), and anticipate the need for a closure plan and environmental monitoring.

EPA also recommends the Navy consider identifying different disposal sites based upon the physical qualities of dredged material. For example, fine versus coarse material presents different challenges in terms of water management (ponding, drying time) as well as suitability for the range of reuse options. Additional capacity may be needed at upland containment site(s) to manage uncontaminated, finer material during the drying process. Alternatively, if the options for reuse of finer material turn out to be particularly limited on Guam, this finer material may be some of the higher priority material to consider for confined ocean disposal.

Based on the above, the FEIS should re-evaluate the capacities of the various potential upland placement sites to manage multiple "streams" of dredged material over the long-term. Specifically, the capacity remaining at other upland sites (after subtracting capacity dedicated to contaminated sediments or for fine-grained sediments) should be re-calculated as this will provide a better basis for estimating quantities of dredged material that may be suitable for ocean disposal over time (see "Dredged Material Management Scenarios" comment below).

A-009-058

2. Identifying Radioactive Contamination in Apra Harbor Sediments

DoD should summarize past radioactive survey data for Apra Harbor sediments and describe project-specific sediment characterization protocols for potential radioactive contaminants in areas of Apra Harbor utilized by nuclear powered vessels. EPA is aware that the Navy conducts surveys to detect radioactive contamination in Apra Harbor due to the presence of military nuclear facilities. Although radioactive materials have been released from military facilities into Apra Harbor, the DEIS lacks a discussion of how past military activities may have contaminated sediments in Apra Harbor proposed for dredging as part of the project. Dredging materials should be evaluated before they are stockpiled or used for construction activities to ensure nearby receptors are not exposed to excessive levels of water and airborne radionuclides. Accordingly, EPA sets National Emission Standards for Hazardous Pollutants (NEHAPS)³⁷ for

³⁷ More information on NEHAPS can be found at: http://www.epa.gov/epwiro/html/rad/rad_subpart_i.html

understands that this generalized zone of indirect impact is not refined enough to satisfy USACE permit requirements and have solicited the assistance of USACE Environmental Research and Design Center (ERDC) to refine the level of indirect impacts associated with the dredging activities.

A-009-042

Thank you for your comment. The EIS acknowledges that dredging would result in short-term, localized impacts to water quality as discussed in Section 4.2.2.2, Volume 4. As noted in this Section, there would be short-term increases in turbidity, short-term decreases in dissolved oxygen, and resuspension of sediments possibly containing metals. Wharf construction and dredging activities in Apra Harbor have shown that there has only been short term, localized impacts to water quality with the use of BMPs. There have been no violations of water quality standards reported. It is anticipated that construction and dredging activities associated with the proposed transient CVN wharf would be consistent with previous actions regarding impacts to water quality.

Impacts related to the Clean Water Act (CWA) Section 230.10(b) are being addressed for the CVN dredging via the USACE Environmental Research and Design Center (ERDC) sediment plume modeling that is being conducted. ERDC sediment plume models are used as standard practice for all US Army Corps of Engineers (USACE) dredging projects nation-wide.

Under the guidance of USACE, the Navy will comply with all required Best Management Practices (BMPs) called out within the CWA Section 404 permit. The Navy has identified within the EIS those BMPs that

A-009-058 certain federal facilities to protect the public from radionuclide exposure of greater than or equal to (?) 10 millirem per year (Clean Air Act, 40 CFR Chapter 61 Subpart I). Sediment characterization sampling and analysis should include radionuclides where appropriate.

Recommendation : A summary of past radioactive survey data should be included in the FEIS. Relevant CAA requirements and DoD measures to meet NEHAPS should be described for activities in Apra Harbor. Project-specific sediment characterization and handling protocols should be provided to avoid radionuclides exposure.

A-009-059 **3. Sufficient Planning for Beneficial Reuse of Dredged Sediments Not Demonstrated**
The DEIS states that beneficial reuse projects are the preferred alternative for dredged material disposal (Vol. 2, p. 8-42); however, to date there has been limited discussion of specific beneficial reuse options and little evidence that specific planning is occurring to maximize these opportunities. The DEIS identifies three potential projects for beneficial reuse: (1) support stabilization below the CVN wharf; (2) berms at proposed military firing ranges; and (3) Guam's commercial port expansion (Vol. 2, p. 2-92). (The Guam commercial port expansion will require separate NEPA review and is unlikely to occur in the project time frame.) Reuse as landfill daily cover, an ongoing daily need for six inches of earthen material (Vol. 6, p. 5-3), is mentioned but not discussed although Appendix D identifies this as a viable reuse option (p. D-12). Similarly, construction material for roads or other project sites is not explored, despite the need for fill on a number of sites³⁸, including munitions storage construction and fill which Appendix D also identifies as viable.

A wider range of potential reuse options should be considered³⁹. These should include using coarser dredged material as an aggregate source for concrete, and storage (stockpiling) for future reuse. Stockpiling eases planning or permitting complications when dredging and re-use projects (such as fill needs elsewhere) don't coincide. Of course, stockpiled material should not completely fill all available upland capacity at any time, particularly when additional dredged material placement (from ongoing dredging projects) is expected to occur. However, the upland/contained dredged material disposal strategy EPA recommends above should assist planning by identifying how much space overall could reasonably be set aside for stockpiling. We recognize that double handling from stockpile areas greatly increases overall costs; however, reusing stockpiled material would require less importation of base material, may be less damaging when other sources would cause significant environmental impact (for example at a new excavation site, or from hauling large volumes of material by truck through sensitive areas), and where cost-sharing arrangements can be made, may be considered practicable. As the DEIS acknowledges, on a project-by-project basis, EPA and USACE will not approve ocean disposal if less environmentally damaging practicable alternatives to ocean disposal are available.

³⁸ For example, relocating Route 15 will require between 65,000 cubic yards (cy) and 1.7 million cy of fill (depending on the alternative)(Vol. 2, p. 4-83) and the USCG Building Relocation 9,809 cy of fill (Vol. 2, p. 2-100).

³⁹ Additional options for the planning and financing of beneficial use of dredge materials can be found at "Identifying, Planning, and Financing Beneficial Use Projects Using Dredged Material - Beneficial Use Planning Manual" (EPA842-B-07-001).

have been required by USACE for other dredging projects in Apra Harbor. If USACE requires additional BMP's, the Navy will comply with their regulatory authority. Because this process has yet to occur, the Navy cannot commit to any specific BMPs in the FEIS. BMPs to reduce the potential for erosion, runoff, sedimentation, and associated water quality impacts from construction of the wharf and staging area are included in Volume 7.

A-009-043

Thank you for your comment. Mitigation options have been discussed with our regulatory partners throughout the development of this EIS and will continue to be discussed until an USACE approved option(s) is selected. This is the expressed purpose of developing a compensatory mitigation plan prior to submission of the required CWA Section 404 permit application. The Compensatory Mitigation Plan is under the purview of the USACE and is intended to capture the provisions stated within the CWA compensatory mitigation rule.

A-009-044

Thank you for your comment. The HEA referred to (Volume 4, Chapter 11 and Volume 9, Appendix E) provides an example of how mitigation could look. It is not intended to be considered as a final compensatory mitigation plan. Through coordination with our regulatory partners the Navy will develop a compensatory mitigation package that will include a revised HEA and conform to the regulatory guidance provided by USACE. All mitigation options will be evaluated to the satisfaction of the USACE prior to issuance of the CWA Section 404 permit application. The Navy continues identify new alternatives in addition to those called out in this DEIS to further increase the chances of successful mitigation.

A-009-045

Thank you for your comment. Per discussions with USACE the Navy

A-009-059

Recommendation: The FEIS should discuss additional beneficial reuse options in more detail. We suggest preparing a list of foreseeable projects requiring fill and the estimated volume and timeframe, so that dredging and reuse projects can be coordinated. Landfill daily cover should be included in this list. We recommend upland storage (stockpiling) of suitable material for future reuse projects, as well as determining whether some or any of the coarser dredged material (including that already present in existing upland placement sites) can be reprocessed to make aggregate for concrete production for Navy or civilian construction projects on Guam. Reuse of dredged material for berms at new firing ranges (160,000 cy) should also be included.

A-009-060

4. Dredged Material Management Scenarios Unrealistic

The four dredged material management scenarios presented in the DEIS (100 percent upland placement; 100 percent beneficial reuse; 100 percent ocean disposal; and approximately 25 percent beneficial reuse plus approximately 75 percent ocean disposal) are not well supported and may be misleading for planning purposes (Vol. 2, p. 4-88). We recommended the Navy develop a more detailed upland/contained dredged material disposal strategy that combines these various disposal methods (as well as interim stockpiling) that reflects the projected needs for reuse of suitable material and estimated percentage of material expected to be unsuitable for beneficial re-use. This strategy should be based on more specific estimates of the capacity for direct reuse or upland stockpiling for future reuse, and the remaining proportion of material that may require ocean disposal. When these factors are considered, it is likely the fourth management scenario will need to be revised to reflect that a higher percentage can be reused/stockpiled, and a lower percentage would require ocean disposal.

Recommendation: For planning and disclosure purposes, the FEIS should include a new intermediate overall dredged material management scenario, or revise the existing intermediate scenario. If a single, revised scenario is presented, EPA recommends that it reflect no less than 50 percent going to beneficial reuse (including stockpiling for future reuse (including 20 percent estimated for upland containment disposal), and no more than 50 percent being proposed for ocean disposal.

A-009-061

5. Future Maintenance Dredging Needs Not Evaluated

The DEIS does not estimate future maintenance dredging needs, either in terms of potential future dredging volumes, or potential sediment quality.

Recommendation: The FEIS should present an estimate of future maintenance dredging frequency, volume, and sediment quality, at a minimum for the newly deepened channel and berth areas proposed for the CVN and Sierra Wharf projects. Based on the sediment testing data provided in Volume 2, section 4.1.4 of the DEIS, EPA's experience with past Apra Harbor dredging, and similar projects elsewhere in the Pacific, EPA recommends using the same proportion discussed above; namely, to assume (for planning purposes) that up to 20 percent of the volume dredged may not be suitable for ocean disposal and would therefore require upland disposal or contained re-use.

cannot select the compensatory mitigation plan that will be implemented until the permit application has been reviewed by USACE. A permit application cannot be submitted until the Navy has completed the required NEPA environmental review. The Navy has, within this EIS, disclosed those compensatory mitigation options that have been evaluated to be likely candidates for selection through the CWA Section 404 permit application process (and memorialized within the USACE requisite Compensatory Mitigation Plan). Selection of any option would be pre-decisional at this time.

A-009-046

Thank you for your comment. Impact assessment methods were selected based upon examples taken nation-wide as well as internationally. The biological parameters used in evaluating the impact to coral resources have been used for over 30 years as the industry standard and were validated as appropriate by 9 internationally renowned coral reef ecologists. The Navy acknowledges that in light of the newly revised CWA Compensatory Mitigation Rule, that additional data may be needed to further capture coral reef structure and function. Per the Navy's request for review of the method used to assess impact to coral, USACE has requested the assistance of ERDC to evaluate the adequacy of the Navy impact assessment as it relates to the required CWA Section 404 permit application. If at the conclusion of ERDC review, and USACE approval, that additional data parameters will be required, the Navy will collect the required data prior to submitting a completed permit application.

A-009-047

Thank you for your comment. Impacts to the Haputo Ecological Reserve Area are not anticipated. Recreational use of the nearshore DoD lands may see an increased level of activity during portions of the year, but are not anticipated to place an undue burden upon the resources.

A-009-062

6. Minimizing Direct Impacts of Dredging Operations.

For comments on engineering and operational dredging BMPs specifically intended to protect aquatic resources, please refer to our previous CVN comments under “Water Quality – Section 230.10(b)”.

A-009-063

II. AIR QUALITY IMPACTS

A. General Conformity Applicability Analysis

EPA has reviewed the General Conformity applicability analysis and has attempted to identify the assumptions and methodology used, however the analysis consists largely of a series of tables with no accompanying explanation, therefore it is difficult to definitively confirm that the analysis has considered all emissions. For example, it appears that the list of construction equipment to be used on the Main Cantonment site assumes one piece of each type of construction equipment, and no explanation is provided as to how this was determined. While only a portion of the main cantonment site is in the nonattainment area, an explanation of how only one chainsaw, for example, would be expected to be used, would be helpful.

Another uncertainty is the incorporation of the high sulfur fuel in the calculations. We understand that the inputs to the NONROAD and MOBILE 6 models were modified to use the highest sulfur content fuel input available in the model (Vol. 2, p. 5-15), however the maximum value in these models is 0.5% sulfur, and the DEIS states that the current fuel content on the island is 0.6% (Vol. 6, p. 7-18). Some clarification is needed to explain how this does not underestimate emissions. Elsewhere, emissions calculations for the NONROAD model are described as using national default model inputs (Vol. 6, p. 7-9).

Another uncertainty is the dredging equipment included in the analysis and the hours estimated for dredging, since these figures do not match the equipment list and hours estimated in the CVN Berth Volume 4 Sect. 2.5.3. For example, Vol. 4 p. 2-41 and 2-43 identify additional equipment to be used for dredging, and indicate that dredging will occur 24 hours a day for 6-9 months or could go 8-18 months. The general conformity table identifies a smaller equipment list and lists 19 weeks for dredging.

Finally, the general conformity analysis does not include emissions from the increased maritime traffic to the commercial port transporting project-related construction and operation materials into Apra Harbor. During a teleconference, DoD informed us that this was outside of their control⁴⁰, and therefore exempted from the analysis, however, EPA believes that all environmental impacts resulting from the project should be analyzed.

Recommendation: Provide a clear list of all the activities that were determined to take place in the Piti and Tanguisson nonattainment areas and were thus the basis for calculating emissions for comparison to de minimis levels for these areas. Provide an explanation for Tables I.3-227 through I.3-254 that shows emissions calculations.

⁴⁰ We note that DoD claims that they can control the construction tempo and resulting population growth; indeed this is the very basis for the adaptive management strategy identified in the DEIS.

A-009-048

Thank you for your comment. DoD concurs that 404(b)(1) guidelines apply to all Waters of the US (WUS) and not just wetlands. DoD will comply with 404(b)(1) guidelines as part of the Clean Water Act permitting process.

The DEIS included planning-level WUS information from a number of existing sources. In response to USACE and USEPA input during development of the DEIS, DoD initiated a contract to use remote sensing combined with field verification to supplement existing WUS data in the EIS. Additional WUS information and impacts discussion has been included in the FEIS.

DoD acknowledges that additional site-specific WUS information may be needed for all follow-on permitting actions.

A-009-049

Thank you for your comment. The DEIS used existing planning-level Waters of the US (WUS) information from a number of existing sources including NWI mapping, existing (but old) jurisdictional determinations, aerial photographs, and site visits by wetland scientists.

In response to input from USACE and USEPA during development of the DEIS, DoD initiated a contract to use remote sensing, combined with field verification, to supplement existing WUS information and impact analysis in the FEIS. Additional information has been added to the FEIS.

DoD is confident that remote sensing, combined with field verification, can be used effectively to supplement WUS data and impact analysis in the EIS. The FEIS contains sufficient information for the decision-maker to make an informed decision on the proposed action. However, DoD recognizes that additional site-specific information (and jurisdictional

A-009-063

Explain how the equipment list, number of units, and usage factors were determined. Explain how the calculations, including the emission factors, incorporate the high sulfur fuel for each category and are sufficiently conservative to capture the current fuel content. Identify the assumptions made regarding age of construction equipment and if this would bear on emissions, how this is captured in the analysis. Explain how estimates for dredging were calculated and what the assumptions were, especially the equipment list and how this relates to the equipment listed in Volume 4 for dredging (Sect. 2.5.3), and the hours and duration of dredging. Estimate the increased maritime traffic to the commercial port directly related to transporting project-related construction and operation materials into Apra Harbor for distribution and include emissions estimates in the applicability analysis.

B. Interim Power Generation

A-009-064

1. Permitting Requirements

The DEIS states that no permitting actions will be required for the refurbishment of combustion turbines at four Guam Power Authority (GPA) facilities for the preferred alternative because the limit on hours of operation in the title V permits for these facilities will not be exceeded, even with increased utilization of the turbines⁴¹. However we believe that given the age of these turbines, the refurbishments may constitute “modifications” that will require an evaluation of the potential emission increases. An operating increase of as little as 350-500 hours/year could be significant enough to require a Prevention of Significant Deterioration (“PSD”) permit action, which would present significant timing challenges that DoD has not considered in the DEIS. If permitting is triggered, GPA may be in non-compliance if they modify the combustion turbines without the necessary permits. Therefore DoD may have to find other sources of power that have not been discussed in the DEIS depending upon permitting timelines.

The key question is whether the refurbishment qualifies as routine maintenance, repair, and replacement, which by rule are excluded from triggering a PSD modification. These refurbishment projects must be analyzed on a case-by-case basis to determine whether they qualify as routine maintenance. In accordance with current Agency policy, this analysis would be based on considerations of the nature, extent, purpose, frequency, and cost of the projects.

We note that title V and PSD are two different permitting programs with different permit modification criteria. The fact that GPA may not need to seek title V permit revisions to increase allowable hours of operation under Interim Alternative 1 has no bearing on whether any of the projects would trigger the “major modification” requirements under the PSD regulations. If EPA determines that any of the turbine refurbishment projects does not constitute routine maintenance, and if any such modification would result in a significant net emissions increase as determined in 40 CFR 52.21, the project would require a PSD permit prior to the commencement

⁴¹ The DEIS states that the turbine at a fifth GPA plant, Dededo No. 2, has already been refurbished. However Guam EPA informed EPA Region 9 by telephone on December 10, 2009 that this work has not been done yet. At this stage, it is our understanding that GPA is still in the process of selecting a vendor to assess the turbine and make the necessary modifications. Thus our comments about possible PSD applicability also apply to the Dededo turbine.

determination) may be required as part of the CWA permitting process.

A-009-050

Thank you for your comment. The DEIS included planning-level information from a number of existing sources including NWI mapping, old jurisdictional determinations, aerial photography and site visits by wetland scientists. The FEIS contains additional planning-level Waters of the US (including wetlands) information as a result of a remote sensing/field verification effort.

DoD acknowledges that additional site-specific WUS information may be required as part of the CWA permitting process and that any LEDPA discussion in the FEIS may need to be augmented to satisfy 404(b)(1) guidelines. DoD is confident that the WUS/wetlands information contained in the FEIS is sufficient for the decision-maker to make an informed decision in the ROD.

The FEIS has been modified to correct discrepancies.

A-009-051

Thank you for your comment. As a result of input from USACE and USEPA during development of the DEIS, DoD initiated a contract to collect additional planning-level Waters of the US (WUS) information through remote sensing with field verification. The FEIS has been updated to reflect this new information.

DoD is confident that impacts to wetlands and other WUS can be avoided in the NMS.

A-009-052

Thank you for your comment. The DEIS included planning-level Waters

A-009-064

of any refurbishing activities. The PSD permit issue explained above may also exist for Interim Alternatives 2 and 3 which the DEIS states would require permit modifications. Regardless of the necessity of any title V permit revisions, these projects could require a PSD permit and must be evaluated on a case by case basis in order to make this determination.

In addition, it should be noted that EPA has recently proposed a PSD/Title V Greenhouse Gas Tailoring Rule, which may affect this project. Under this proposed rule, if adopted, new facilities emitting over 25,000 tons of greenhouse gases a year would be considered subject to the PSD requirements and therefore required to demonstrate that the best available control technology is used to minimize greenhouse gas emissions. Also, as proposed, existing major sources that are modified such that greenhouse gases increase significantly would also have to meet the PSD requirements.

A-009-065

2. Inadequate Impact Assessment

In addition to the potential permit requirement, the impact assessment for air quality impacts from increased operation of the CTs is insufficient. The DEIS dismisses increases in emissions of both criteria pollutants and hazardous air pollutants⁴² (HAPS) from the CTs because these facilities, while currently out of service (Vol. 6, p. 2-9), are already permitted to operate for the hours that will be required, and that compliance with air quality standards has already been demonstrated during the permitting process for these facilities. This is an invalid measure for air quality impacts. These facilities are permitted under the title V operating permit program, which is not a pre-construction review program, thus the air quality impacts were not evaluated during the permitting process. As written, the impact assessment methodology that does not disclose emissions that will occur as a result of the project.

A more appropriate impact assessment methodology should be utilized, specifically one that considers human health. For example, since the CTs are not currently used, the assessment should predict the emissions that would be expected from the operation of the CTs. The emission estimates could be modeled to predict pollutant concentrations and exposures for nearby residents. The pollutant concentrations could be compared to a health-based standard, such as the NAAQS or an occupational health standard. Because of the potential for PSD permitting, DoD may also want to compare the modeled pollutant concentrations to PSD increments.

The impact assessment should also evaluate increased emissions exposures from HAPS as a result of CT operations. The DEIS does not disclose actual HAPS emissions that would occur for preferred Interim Alternative 1. Only Interim Alternatives 2 and 3 are disclosed and only the fraction of emissions associated with hours above the permitted hours, and none are evaluated for health impacts.

⁴² Toxic air pollutants, also known as hazardous air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects (<http://www.epa.gov/ttn/atw/allabout.html#what>).

of the US (WUS) information from a number of existing sources. In response to USACE and USEPA input during development of the DEIS, DoD initiated a contract to use remote sensing, combined with field verification, to supplement existing WUS impacts discussion in the EIS. The FEIS has been updated to correct inconsistencies and include this supplemental WUS/wetlands information.

Detailed wetland delineations and jurisdictional determinations are not required for planning-level NEPA analysis. However, DoD recognizes that additional WUS/wetlands information may be required as part of the CWA permitting process and to comply with 404(b)(1) guidelines.

A-009-053

Thank you for your comment. The FEIS has been modified to reflect that ranges on Tinian would be designed to avoid impacts on Waters of the US (including wetlands). No impacts are anticipated.

A-009-054

Thank you for your comment. Due to the complexity of the project, there are two parts of the cumulative impact analysis: the summary of impacts for all components of the proposed action (Volume 7 Chapter 3) and an assessment of the additive impacts of the proposed action in combination with other past, present and reasonably foreseeable projects (Volume 7, Chapter 4). A systematic methodology was applied in both analyses.

Volume 7, Chapter 3 summarizes the combined potential impacts of all of the preferred alternatives on Guam and Tinian. The impacts of Volumes 2 through 6 are discussed by resource. At the end of Volume 7, Chapter 3.3 there is a table summarizing the combined impacts of all long-term (operational) components of the preferred alternatives. Significant impacts are identified. Trends in the resource health on Guam and Tinian since World War II are described. This

A-009-065 The EIS should also discuss increases in emissions in locations where sensitive receptors may be exposed to multiple project sources, such as significant traffic congestion, major construction sites, and CTs. For example, residential receptors proximate to the Dededo and Macheche CTs will also experience impacts from significant traffic congestion along the Guam Road Network in the construction phase (Vol. 6, Figure 4.2-4), and potentially beyond. The combined pollutant exposures from these sources could be significant.

Recommendation: The FEIS should disclose the actual emissions increases that would occur as a result of the military build-up. An analysis of the increase in actual emissions and resulting air quality impacts to human health should be included in the FEIS. A discussion of health impacts from multiple sources should occur at least qualitatively.

For significant impacts from criteria pollutants, mitigation measures should be identified. The DEIS identifies possible mitigation for CT emissions, which include the addition of pollution control equipment to reduce emissions at the CTs, and the burning of low sulfur diesel fuel in the CTs (Vol. 7, p. 2-53). We recommend that DoD discuss the necessary resources needed to ensure that GPA can implement measures to mitigate air quality impacts from CT emissions, especially for those CTs near residential populations. DoD should consider how it could assist GPA to implement these measures, including building the capacity of GPA to implement energy efficiency programs which could negate the need for new power sources.

The FEIS should identify the potential PSD permitting requirement discussed above and state that EPA needs more information from GPA before EPA can determine whether refurbishment would qualify as routine maintenance. Additional information regarding turbine refurbishment should be included in the FEIS if known. Should PSD permits be required, the FEIS should discuss the process and timing for securing permits and how this may affect the construction time line and availability and reliability of power for the Guam population.

We also recommend a quantitative stationary source air toxics analysis be performed for the 4 or 5 CT locations. If impacts are significant, a full quantitative dispersion analysis of air toxics impacts from the CT facilities should be conducted. This information should be used to determine which interim alternative most avoids impacts to residential receptors. For example, the Dededo and Macheche CTs are in closer proximity to residential receptors than Orote and Yigo. This impact avoidance evaluation should be described in the FEIS.

A-009-066 *C. Lack of commitment to energy efficiency, renewable energy, and cleaner fuels*

1. Long-term Power Supply

EPA reviewed the early release DEIS as part of our cooperating agency review and provided a number of suggestions regarding renewable energy and energy efficiency. We pointed out the unique opportunity this project offers for DoD to achieve the goals pursuant to the government's

section includes limited quantitative data for proposed action impacts. For example, special-status species habitat loss due to the proposed action and current amount of habitat available island wide is presented in Volume 7, Section 3.3. There is no quantitative island-wide data readily available for most of the resource areas assessed and the impact analysis is often qualitative.

Volume 7, Chapter 4, Cumulative Impacts, assesses the potential additive impact of the EIS proposed actions when combined with potential impacts of other past, present and reasonably foreseeable future actions. The period of consideration for the cumulative impact analysis is 2004 to 2019. The project list is based on best available information from DoD and the Guam Land Use Commission database. There is no National Environmental Policy Act (or similar) document disclosing project impacts for most of the cumulative projects listed; therefore, there is insufficient data on most cumulative projects listed to conduct a quantitative impact analysis. In Chapter 4 a table summarizes the potential cumulative impacts on Guam and another table summarizes the potential cumulative impacts on Tinian. Potential additive cumulative impacts are identified for a number of resources. Mitigation measures are proposed earlier in the EIS. The cumulative impacts analysis has been expanded in the FEIS, including the addition of climate change analysis and analysis of cumulative impacts to coral.

A-009-055

Thank you for your comment. As recommended, the cumulative impacts section has been expanded in the FEIS to add discussion of impacts of past, present, and reasonably foreseeable actions, in combination with the proposed action, on coral at Guam. Added discussion identifies past dredging, breakwall and wharf construction, storm water runoff, wastewater discharge, fishing and anchoring, and other historical anthropogenic and natural disturbances as significantly reducing coral cover and recruitment at Apra Harbor and Guam. Additional analysis of

renewable energy policies, including the Energy Policy Act and Executive Order (EO) 13423⁴³. The long-term energy alternatives proposed in the DEIS; however, indicate that these opportunities are not being pursued. The Draft EIS does not address energy efficiency opportunities on the island that could reduce demand and potentially provide the needed capacity for the project, and dismisses a number of renewable energy options largely because they cannot provide 100% base load power. Instead, the long-term power alternatives include constructing a new power plant either at Cabras/Piti or at a new location at Potts Junction, which would likely utilize either No. 6 for baseline power and No. 2 oil for peaking, or liquefied natural gas (LNG). The DEIS does not evaluate impacts from these long-term alternatives, stating they are treated programmatically in the DEIS, and future NEPA documentation will occur if necessary.

However, the long-term power alternative, which is referenced in the DEIS as providing the power source for the project, is currently being pursued by Guam Power Authority (GPA), per their Integrated Resource Plan (IRP)⁴⁴. GPA confirmed that the military build-up will necessitate that this new power capacity be implemented approximately 5 years earlier than would have otherwise been necessary, and that they expect the new power plant unit to be brought on-line in 2017⁴⁵, not 2015 as the DEIS states. Since this expedited project is in response to the military build-up, environmental impacts from this power project should be disclosed in the FEIS.

More significantly, it does not appear that DoD's plans for short and medium-term power for the project are consistent with the goals in Guam Power Authority's (GPA) Integrated Resource Plan (IRP). GPA's IRP recommends switching from diesel fuel oil to liquefied natural gas (LNG) by 2012⁴⁶. GPA also has a strong desire to convert the CTs to natural gas, and the proposed project provides the opportunity for converting the CTs to run on either natural gas or lower sulfur fuel.

Recommendation: While we recognize that there are potentially significant obstacles to implementing LNG, GPA appears open to the utilization of cleaner fuels. DoD should work with EPA and GPA to pursue cleaner fuels for both the long-term power plant and short-term operation of the CTs. For NEPA disclosure, the FEIS should also be updated to reflect the longer duration of CT operation and emissions (until 2017 instead of 2015), and include impacts from this 80MW power unit, since it is occurring during the project implementation phase.

⁴³ The EO 13423 Implementation Instructions identify strategies and tools each agency shall use to meet the goals of the order. Funding is one such tool, and the Implementation Instructions state that appropriated funds may be combined with Utility Energy Service Contracts (UESCs) to leverage government funding and optimize project scope and reductions in energy use and cost of facility operations. (See

<http://www.fedcenter.gov/kd/Items/actions.cfm?action=ShowItem&id=6825&destination=ShowItem>)

⁴⁴ GPA's Integrated Resource Plan is available at:

http://www.guampowerauthority.com/gpa_authority/strategicplanning/gpa_strategicplanning_FY08IRPDraft.php

⁴⁵ Based on a telephone conversation with GPA on 12/14/2009.

⁴⁶ GPA's IRP outlines the need for a new power plant due to the military buildup. A primary recommendation indicated in GPA's IRP is to "Plan and permit for an additional gas-fired plant or non-petroleum-fired plant as a hedge for the uncertainty in the scope of the DoD buildup and related economic activity — Guam Power Authority (GPA) should construct this plant based upon high load growth triggers and work with the DoD to mitigate rate impacts to other customers"(Executive Summary, p. 1).

future and planned actions has been provided, along with a discussion of the potential of impacts from the proposed action to act as stressors that could exacerbate potential impacts from climate change.

A-009-056

Thank you for your comment. We look forward to working with the EPA in developing the project specific sediment Sampling and Analysis Plans (SAPs) for Sierra Wharf and the CVN project as these projects proceed.

A-009-057

Thank you for your comments. We look forward to working with the EPA in developing the project specific sediment Sampling and Analysis Plans (SAPs) for Sierra Wharf and the CVN project as these projects proceed.

Response to Section 1. Potential for Contaminated Sediments, Paragraph 1

Chapter 2, Volume 4 text states that preliminary sediment characterization data suggest most of the material from Outer Apra Harbor and Inner Apra Harbor would meet the testing criteria and be suitable for disposal/dewatering on land or ODMS disposal (NAVFAC Pacific 2006). Test results for samples taken in the vicinity of Sierra and Romeo Wharves in Inner Apra Harbor indicate that dredged material from portions of these areas may not be suitable for ocean disposal (NAVFAC Pacific 2007). However, the indication for the Sierra Wharf dredge sediments not being likely suitable for ocean disposal was based upon only one amphipod test where the toxicity levels were only slightly elevated. Based upon the high survival rate of all the test organisms in the Suspended Particulate Phase tests, *Neanthes arenaceodentata* high survival rates in the Solid Phase (SP) tests, the relatively low contaminant concentrations, tissue concentrations below published effects levels, and low total PCB tissue concentrations (<20 micrograms/kilogram), the proposed dredged material from the P-436C

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EPA continues to believe that implementing energy efficiency measures and utilizing renewable energy could potentially negate the need for an additional power plant (see below). In addition, if cleaner fuels are utilized at the existing power plants, there is a lower likelihood of PSD permitting requirements, and the number of pollutants that could potentially trigger PSD review will likely be reduced.

A-009-067

2. Comprehensive Energy Plan

As a potential mitigation measure, the DEIS states that DoD would assist Guam to develop a comprehensive energy management plan (Vol. 7, p. 2-26) in close coordination with GPA, that will focus on reducing the energy footprint of DoD infrastructure (Vol. 6, p. 3-39). The DEIS cites interest for this plan by several federal agencies. We strongly support DoD's efforts for on-base energy efficiency as outlined in the DEIS, however, since GPA provides all power to the island, efforts to increase energy efficiency need not be limited to DoD facilities since off base efficiencies may provide the extra capacity needed for DoD's power needs. Therefore, a comprehensive island-wide energy plan, which includes energy efficiency, renewables, and cleaner fuels, is appropriate. GPA's IRP would be a valuable starting point and contribution to a joint comprehensive strategy.

Recommendation: EPA supports a comprehensive energy plan and we have interest in continuing to work with other federal and local agencies and utilities to create a clean, efficient, and sustainable energy program for Guam. We recommend a formal relationship be established for ongoing coordination, such as a Memorandum of Agreement (MOA) between DoD, GovGuam, GPA, Department of Energy, Department of Interior, U.S. Department of Agriculture Rural Development, and EPA. This MOA could identify concrete goals and create a mechanism to ensure coordination and economy of effort. For example, there may be opportunities for DoD, GovGuam, and DOE to partner together to ensure that monies are spent on energy efficiency practices that would reduce demand the most. We recommend that DoD establish this agreement to demonstrate its commitment to this particular mitigation measure (Vol. 7, p. 2-26), and the government's renewable energy policies in general, including the Energy Policy Act and Executive Order (EO) 13423. This commitment should be documented in the FEIS and ROD.

The following are suggested elements of a comprehensive energy management plan:

Energy Efficiency: Island-wide energy efficiency opportunities should be explored first. Substantial energy savings can occur while simultaneously improving the quality of life and health of the people of Guam. Energy efficiency programs can generate significant reductions in energy demand⁴⁷, and in combination with renewables, may negate the

⁴⁷ Examples of energy efficiency improvements that could be implemented on the island include a Cool Roofs program and Refrigerator switch-out programs. Cool roofs consist of materials that reflect the sun's energy from the roof surface, thereby reducing the need for air conditioning. Energy savings using cool roofs are significant; a 3,000

area (Sierra Wharf) should be considered for ocean disposal despite the slightly reduced survivorship observed in the amphipod SP test for Sierra Wharf (NAVFAC Pacific 2007). Additional analysis of the sediments in the vicinity of Romeo Wharf would be required to determine ocean disposal suitability of those materials. The results of the 2007 dredge sediments study are available in Volume 9, Appendix K. The results of the site specific SAP for Sierra Wharf dredging will determine the final handling of materials dredged from this area.

Response to Paragraph 2

Figure 4.1-30 has been added to Volume 2 Chapter 4 that shows the locations of the 2007 sampling and the proposed project study limits for the two projects being evaluated during the 2007 study. For Inner Apra Harbor, these were projects P-436 and P-518. P-436 involved the areas around Sierra, Tango, and Romeo Wharves as well as the wharves north of these wharfs along western Inner Apra Harbor. P-518 is in the area adjacent to X-ray Wharf.

Figures 4.1-29 and 4.1-30 in Chapter 2, Volume 4 have been revised and added to reflect the individual locations for the sampling points in the 2006, 2007, and in the 2010 sediment testing for Outer Apra Harbor. The 2007 study included sediment sample locations in Inner Apra Harbor. Text has been added to refer to the additional figure that shows the sampling location for the 2007 study, Figure 4.1-30, and the test results. Text has been added that discusses the results of the March 2010 testing as well as an additional figure, Figure 4.1-29, that shows the locations of the 2010 sampling stations (see response to paragraph 1). The text in Chapter 4, Volume 2 states that while most of the dredged materials from Inner Apra Harbor should be suitable for ocean disposal, if necessary, additional testing of the sediments in the vicinity of Romeo Wharf may be necessary to confirm the suitability of ocean disposal for these sediments. Text has also been added to make it clear that the

need for a new power plant. An island-wide energy audit can identify the most accessible and cost-effective opportunities to reduce island-wide energy. Energy efficiency practices will be implemented on Guam through the American Recovery and Reauthorization Act's (ARRA) grants programs. Under ARRA, Guam received approximately \$30 million for projects that reduce total energy use and fossil fuel emissions, and improve energy efficiency (through three grant programs: State Energy Program Formula, Weatherization, and Energy Efficiency and Conservation Block Grant Program). The energy audit could predict the reductions in demand that would occur from these grant programs.

Should DoD provide resources for such an effort, EPA could potentially assist with the energy audit, along with the US Department of Energy's (DOE) National Renewable Energy Laboratory (NREL). NREL is the nation's primary laboratory for renewable energy and energy efficiency research and development. NREL could not only assist with the energy audit, but could also provide expertise regarding which emerging technologies appear most feasible for Guam. For example, there are new developments in solar technology that are most amenable to Guam's weather patterns (i.e., high winds).

Solar Energy Potential: A thorough review of solar energy potential should occur, including an assessment of the land and rooftop area on proposed and existing military structures, and island-wide potential for solar energy utilizing a roof leasing arrangements⁴⁸. The DEIS acknowledges that solar energy could be used to supplement baseload power (Vol. 6, p. 2-15) but dismisses large scale photovoltaics, stating that large land or large rooftop areas are required for panel installation. Existing DoD solar projects in Hawaii have proven feasible and cost effective.⁴⁹ With an integrated energy strategy, it is not necessary to have 100% energy generated from solar sources; thus the potential for solar energy can be explored.

Wind Energy Potential: DoD, in conjunction with GPA, should conduct a thorough review of wind energy potential on the island. The DEIS eliminates consideration of wind energy in the DEIS for various reasons (Vol. 6, p. 2-10), however, GPA's IRP identifies wind energy as a "renewable resource of choice in the near term". The IRP discusses the need to conduct further wind studies at specific locations, and cites conversations with DoD indicating that "it is conducting wind studies at specific

sq ft roof could save around 6,600 kWh per year on average. Refrigerator switch-out programs for aging and inefficient refrigerators could also significantly reduce energy usage.

⁴⁸ This is proving successful in California. The California utility, Pacific Gas and Electric, has successfully implemented a leasing program for solar installation consisting of up to 250 MW of utility-owned PV generation and an additional 250 MW to be built and owned by independent developers under a streamlined regulatory process. Projects developed by independent parties would be offered a standard contract and pricing derived from the utility's own costs to streamline review of their applications. For more information, see:

http://www.pge.com/about/news/mediarelations/newsreleases/q1_2009/090224.shtml

⁴⁹ See "Solar America Showcase" in Forest City, Hawaii:
http://www1.eere.energy.gov/solar/pdfs/forestcity_factsheet_20081113.pdf

reports for all three of the sediment testing episodes for 2006, 2007, and 2010 are included in Volume 9 Appendix K.

Also in Volume 4, Section 2.3.5, the following text has been added: "Additional sediment sampling and analyses were conducted in March 2010 to delineate the distribution and magnitude of chemicals of potential concern within the dredge footprints of the two potential CVN berthing sites; Polaris Point and the former SRF wharf. Material from the proposed CVN turning basin was also evaluated. (NAVFAC Pacific 2010). The full report of this study is contained in Volume 9 Appendix K. Figure 2.3-7 provides the location of the of the sediment samples for the March 2010 testing.

Consistent with previous sediment sampling efforts conducted in these locations, sediment samples were analyzed for physical and chemical parameters, including general chemistry, metals, semi-volatile organic compounds (polynuclear aromatic hydrocarbons [PAHs], phenols, and phthalates), organochlorine pesticides, polychlorinated biphenyls (PCBs), and organotins and the results compared to effects range-low (ER-L) and effects range-median (ER-M) sediment quality guidelines, as established. ER-M values were also used to calculate a mean ER-M quotient (ER-Mq). The concentration of each constituent was divided by its ER-M value to produce a quotient, or proportion of the ER-M equivalent to the magnitude by which the ER-M value is exceeded or not. ER-Mq values were calculated for the 2006 Tier II sampling event and compared to the 2010 ER-Mq values as a predictive analysis of sediment suitability for open water disposal. The 2010 analysis concluded that low chemical concentrations found in the most recently collected sediment samples from Polaris Point, the former SRF Wharf, and the Turning Basin were consistent with other previous Tier III dredged material evaluations conducted in the same areas of Apra Harbor in the NAVFAC Pacific 2006 study where the material was deemed suitable for ocean disposal. Details of this additional testing and

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locations on its properties, and wishes to work collaboratively with the Authority.⁵⁰ The Navy recently applied for a \$16 million grant under the Energy Conservation Investment Program to install four turbines on Naval Munitions Site, which, if awarded, could provide valuable wind data. With an integrated energy strategy, it is not necessary to have baseload power generated from wind sources; thus the potential for wind energy can be explored. This exploration should include an assessment of feasibility and potential output, and would assess the potential impact of wind turbines on endangered species and their habitat.

A-009-068

3. Transportation and construction fuels

The DEIS dismisses the use of lower sulfur fuels for transportation and construction, and cites the 2006 EPA-issued partial waiver to Guam that conditionally exempts Guam from the requirements to use low sulfur fuels in its power plants and in gasoline that is used island-wide in vehicles (Vol. 6, p. 7-3)⁵¹. We note that this decision by EPA was made based on existing environmental conditions on Guam and included economic considerations; it did not foresee the substantial changes to population and emissions activity that the project proposes. In addition, the DEIS is not correct in stating that EPA could cancel the waiver (Vol. 7, p. 2-53). GovGuam must request cancellation of the waiver for EPA to take action.

The DEIS recognizes that the use of cleaner fuel types would likely be required to prevent the occurrence of significant air quality impacts (Vol. 6, p.19-5). We understand DoD is currently exploring options to bring ultra low sulfur diesel to the island due to the fact that newer highway diesel engines (US-manufactured 2007 model year or newer) will be inoperable without it⁵². However, the DEIS assumes that ultra low sulfur diesel will not be utilized for the military buildup. Our concern about the current lack of ultra low sulfur diesel lies in the potential health impacts from increases in project-related transportation, the significant traffic congestion predicted to occur at 24 to 30 intersections at peak hours (Vol. 6, p. 4-168), and the collective impacts from mobile sources, construction equipment, and operation of the CTs, many of which are near sensitive receptors. EPA believes that these collective air quality impacts are potentially significant, that they should be analyzed, and that a substantial mitigation effort is warranted, especially since these impacts will fall disproportionately on environmental justice populations.

In addition, since Guam has two areas that are in nonattainment for the sulfur dioxide National Ambient Air Quality Standard (NAAQS), these increases in fuel use could contribute to or expand the areas in Guam where these health-based air-quality standards are not met. EPA is currently reviewing the existing sulfur dioxide standard and expects to soon take final actions that could lead to a lower, more protective standard. Should DoD not pursue clean transportation and construction fuels, they will likely contribute to expanded areas of degraded air quality that does not meet health-based air quality standards. (See more in monitoring comment below)

⁵⁰ Guam Power Authority, FY 2008 Integrated Resource Plan, p. 13-2.

⁵¹ We note that this waiver also applies to diesel fuel.

⁵² Based off of a phone conversation with the Defense Logistics Agency's Defense Energy Support Center on January 5, 2010.

results are presented in Chapter 4 of this Volume 4.”

Response to Paragraph 3

As future dredging projects and long-term maintenance projects are developed, project specific sediment Sampling and Analysis Plans (SAPs) will be developed with EPA in determining range of contaminants and contamination levels. The Navy is in the process of developing a new dredged material management plan (DMMP) which will deal with the specific areas to be dredged, specific management and controls for the individual areas to be dredged, and the necessary monitoring for the placement of these materials including beneficial reuse. Acknowledgement of the preparation of this management plan has been included in the text in Volumes 2, 4, and 9. The Navy does not agree that data presented is a “snapshot” of the sediment quality likely to be encountered during the dredge events. The compilation of the data represents a comprehensive and historical presentation of physical and chemical analyses representative of the areas where dredging is likely to occur as part of the proposed action. Recent and historical sampling results indicate that the sediments in Outer Apra Harbor and the majority of Inner Apra Harbor are suitable for both upland and ocean placement. There is a limited area in the vicinity of the Sierra and Romeo wharves where testing indicated that all of this material may not be suitable for ocean disposal (NAVFAC Pacific 2007). However, the indication for the Sierra Wharf dredge sediments not being likely suitable for ocean disposal was based upon only one amphipod test where the toxicity levels were only slightly elevated. The overall low contaminant concentrations and tissue concentrations below published effects levels may allow for ocean disposal of these materials for Sierra Wharf (NAVFAC Pacific 2007). Additional analysis of the sediments in the vicinity of Romeo Wharf would be required to determine ocean disposal suitability of those materials. The results of the 2007 dredge sediments study are available in Volume 9, Appendix K. The above text regarding

A-009-068

Recommendation: EPA has significant concerns regarding impacts to air quality and human health and we agree with the assessment in the DEIS that states that cleaner fuel types would likely be required to prevent the occurrence of significant air quality impacts (Vol. 6, p.19-5). Because of the magnitude of this project and the vulnerabilities of the local Guam population which is disproportionately underserved and socio-economically impacted, it is strongly advised that DoD develop a program to introduce ultra-low sulfur fuel to the island, which would significantly reduce the public health impact of the build-up. We recommend that this program be discussed in the FEIS and that DoD commit to use ultra low sulfur fuel. Diesel fuel with a sulfur level of 10 ppm is currently available from Japan⁵³.

It is possible that DoD's use of ultra low sulfur fuel could affect demand on the island in such a way that the local fuel suppliers would begin providing the entire island with this fuel. In this way, DoD's actions could provide the impetus for a significant environmental and public health improvement on Guam.

A-009-069 **D. No Alternative Fuels Strategy Identified**

The DEIS references pollutant reductions that would be achieved as a result of the Energy Independence and Security Act (EISA) of 2007 (Vol. 2, p. 5-6), because this act includes sections to reducing petroleum use and increase alternative fuel use, including:

- Only acquiring any light-duty motor vehicle or medium-duty passenger vehicle that are "low greenhouse gas emitting vehicles" or demonstrating that cost-effective policies have been adopted to reduce petroleum consumption sufficiently to achieve a comparable reduction in greenhouse gas emissions.
- At least a 20% reduction in annual petroleum consumption and a 10% increase in annual alternative fuel consumption by 2015 from a 2005 baseline. Interim milestones will be established.
- Installation of at least one renewable fuel pump at each Federal fleet fueling center by 2010.

There are no elements of the proposed actions that would advance these goals, so it is unclear why pollutant reductions in relation to the EISA are referenced.

In the DEIS, alternative fuels are excluded as a power generation option because "There is no source of bioenergy (crops) on Guam, fuel cost is higher than diesel fuel or heavy fuel oil currently used, and conversion technology is similar to current generation (no technology

⁵³ EPA's current diesel fuel standard is 15 ppm for highway vehicles, and 500 ppm for nonroad, locomotive, and marine (NRLM). The 500 ppm standard applies to the fuel being used by the project's construction equipment. US refiners will be required to start producing 15 ppm ULSD for NRLM beginning on June 1, 2010, and the switch to sulfur sensitive technologies for non-road engines and equipment will occur in 2011. Given the timing of the military buildup, we are calling for a commitment to use ULSD in diesel non-road and highway vehicles.

Sierra and Romeo Wharves has been added to Chapter 2 in Volume 2 and Chapters 2 and 4 in Volume 4.

Regarding special handling, the upland placement sites identified can be designed to contain surface water runoff and no upland placement site is over a groundwater aquifer providing potable water supplies. Also, while not considered special handling from an environmental sense, specific management measures will be taken to place the dredged materials in a fashion that maximizes their ability to dewater as rapidly as possible and keep materials considered unsuitable for reuse separate from materials that have beneficial reuse qualities. The updated DMMP noted above is being developed to address upland placement, dewatering, and beneficial reuse to the maximum extent possible. As noted above, test results indicate that portions of the areas in Inner Apra Harbor near Romeo Wharf may not be suitable for ocean disposal. If additional testing indicates that these materials need to be segregated from other dredge materials due to their chemical constituency, the dredge material management plan will specify where these materials will be placed and what environmental protection measures will be needed, if any. The DMMP will present in detail how the material will be placed to maximize the efficiency and management of the material with the intention of optimal implementation of beneficial reuse options.

Response to Paragraph 4 Recommendation

A detailed upland/contained dredged material management plan that seeks to maximize beneficial reuse of dredged material in light of all available placement options (including ocean disposal) is being developed by the Navy at this time. A Dredged Material Management Plan (DMMP) Phase 1 was developed in 2005. This plan was subsequently updated again in 2008 based upon additional information regarding mission requirements and sediment quality and characteristics. Information from these plans were included in the DEIS

A-009-069 advantage).” (Vol. 6, p. 2-10). The DEIS does not evaluate bioenergy for transportation fuels, despite EPA’s recommendations to do so⁵⁴.

Recommendation: Consistent with the alternative fuel vehicle goals set forth in the Energy Policy Act of 2005 and with the Navy’s existing B-20 standard, we continue to recommend further analysis of biodiesel as an alternative fuel. Used cooking oil is a source of biodiesel that has been overlooked, with approximately 1 million tourists visiting the island annually, and some 140 restaurants operating in Guam, with this number likely to increase. As we previously commented in our scoping comments and on the early release DEIS, Hawaii has been very successful in implementing a biodiesel program. Based on our research on a similar facility in Maui, Hawaii, a small 250,000 gal/year biodiesel facility is feasible for Guam. A facility of this size could be constructed on less than 1 acre of land for approximately \$1 million. In addition there is currently a small biodiesel facility operating on Guam. It should also be noted that Guam EPA is interested in conducting a biofuel project and has stated that due to the abundance of palm trees on the island, there is potential to conduct a pilot utilizing this resource⁵⁵. This may present an excellent partnership opportunity for DoD and one that would allow DoD to adopt one or several alternative fuels initiatives for their fleet.

A-009-070 *E. Mobile Source Air Toxics - Air Quality and Health Impacts*

The construction phase of the project will result in a significant increase in population and construction-related vehicles, and the evaluation of traffic impacts in the DEIS shows substantial traffic congestion during the construction phase, as well as the build-out phase (Vol. 6, Table 4.2-34). This will result in an increase in emissions of mobile source air toxics (MSAT), compounds that are emitted from vehicles and heavy equipment which are known or suspected to cause cancer or other serious health and environmental effects. These impacts are especially of concern on Guam due to the island’s exemption from current low-sulfur fuel requirements. Because high-sulfur fuels are used on Guam, the emissions and public health benefits of low-sulfur fuels (reduced particulate matter and other air toxics emissions) are not realized.

During our cooperating agency review of the early release DEIS, EPA recommended performing a quantitative analysis of MSATs from construction and operational emissions, for the purpose of estimating human health impacts, given the project’s potential for emissions in close proximity to residential communities. The air quality analyses in the DEIS continues to state that a quantitative assessment of the effects of air toxic emission impacts on human health cannot be made at the project level⁵⁶ (Vol. 6, p. 7-4 to 7-5; 7-30 – 7/33), and EPA continues to disagree given the fact that there are a suite of tools available, as well as examples of real-world applications of these tools, that can be utilized to conduct the assessment (see recommendation below). Therefore, the evaluation of MSATs in the DEIS remains deficient.

⁵⁴ EPA’s scoping comments May 21, 2007; EPA’s comments on the draft Description of Proposed Action and Alternatives (DOPAA), May 15, 2008; EPA’s comments on the early release DEIS, August 25, 2009.

⁵⁵ It is important to note that a palm tree pilot would need to be conducted in a sustainable way to reduce impacts to environmental resources.

⁵⁶ The DEIS refers to the February 2006 FHWA Interim Guidance on Air Toxics Analysis in NEPA Documents which describes when and how to assess MSAT impacts for transportation projects during the NEPA process.

and additional test results from 2010 added as well.

Beneficial reuse options, both specific and general, have been noted in the DEIS. Additional general measures as suggested by EPA’s comments such as road base and aggregate mixture for cement operations have been included in the text. The text has noted specific engineering measures, such as adequate capacity of the confined upland dewatering sites, and dike management in Volume 9, Appendix D that would avoid the discharge of water from the dredged material into receiving water bodies. Recent sampling results indicate that the sediments in Outer Apra Harbor and the majority of Inner Apra Harbor are suitable for both upland and ocean placement. There is a limited area where testing occurred in the vicinity of the Romeo Wharf that indicated that this material may not be suitable for ocean disposal (NAVFAC Pacific 2007). As noted above, this text has been added to Chapter 2 in Volume 2 and Chapters 2 and 4 in Volume 4. If during the permitting phase, and if justified as a result of additional testing, appropriate permit conditions will specify what additional measures must be taken to be compliant with the permit decision.

Response to Paragraph 5 Recommendation

The dredged material management plan will identify different disposal sites based upon the physical qualities of dredged material and the strategy to maximize the efficiency of the overall management of these materials. As is typical of such a plan, the plan will consider the types of materials being managed; the most beneficial applications to cost effectively reuse those materials and timing of the deposition in the different upland sites to expedite the dewatering of the materials while supporting any additional dredge placement projects.

Response to Paragraph 6 Recommendation

A-009-070

However, the DEIS states that additional MSAT analysis will be performed given the unusual scale of the proposed relocation as compared to other Navy actions, per our recommendation, and will be presented in the FEIS (Vol. 6, p. 7-4). We appreciate DoD's willingness to perform a quantitative MSAT analysis in response to our recommendation. An analysis of potential MSAT impacts would provide information useful for informing the design of the Guam Road Network (GRN) or other project components at the microscale. The analysis would identify where MSAT "hot spots" are likely to occur and could be used to evaluate the effectiveness of potential design changes of the GRN in avoiding human health impacts by reducing emissions or exposure to emissions from project construction and operations. For example, if a road widening project would produce a hotspot near a school, playground, or other sensitive receptors, efforts to either modify the project (such as creating a buffer or shifting the alignment away from the children) or otherwise mitigate exposures to children could be explored. In this way, a quantitative MSAT analysis can inform design decisions and mitigation opportunities. EPA's May 29, 2009 NEPA/Clean Air Act Section 309 Diesel Emissions Guidance provides some examples of ways to avoid or minimize human exposure to emissions from federal actions. While the document is tailored to diesel emissions, the mitigation measures discussed are applicable and appropriate to MSATs in general.

Recommendation: For the purpose of identifying public health impacts, EPA recommends performing a quantitative analysis of construction and operational emissions for the six MSATs most likely to be significant: diesel particulate matter, acrolein, acetaldehyde, formaldehyde, benzene, and 1,3-butadiene for the base year, peak construction year, and the final build year for those roadway projects and impacted areas neighboring sensitive receptors and residential communities. Regarding methodology, EPA identified several examples of quantitative MSAT analyses in the context of NEPA in our previous comments⁵⁷. We also recommended consulting the methodology described in the research report "*Analyzing, Documenting, and Communicating the Impacts of Mobile Source Air Toxic Emissions in the NEPA Process*" prepared for the American Association of State Highway and Transportation Officials (ASHTO). Per our conversation on January 19, 2010 with FHWA and their contractor, we understand that DoD is proposing a substantial MSAT analysis. EPA appreciates DoD's willingness to involve us in the identification of the methodology and thanks DoD for giving us an opportunity to provide feedback on a proposed scope of work. As the MSAT analysis methodology is finalized, DoD should continue to consult with EPA on the applicability of these examples to analyses developed for the FEIS.

The results of the MSAT analysis should be reviewed in conjunction with the air toxics impacts from operation of the 4 or 5 combustion turbines. For areas identified as having greater emissions exposure, we recommend a review of the GRN and interim power alternatives to identify whether design changes are possible to reduce human exposures to

⁵⁷ Examples include the October 2006 China Basin Shipping DEIS, (http://www.northlosangeles.org/environment_pn_deir_cs.htm) and the May 2009 Schuyler Heim Bridge Replacement and SR-47 Expressway Project EISs (<http://www.dot.ca.gov/dist07/resources/envdocs/>)

See response to paragraph 5 above. The plan will re-evaluate the capacities of the various potential upland placement sites to manage multiple "streams" of dredged material over the long-term.

A-009-058

Thank you for your comment.

Radioactivity associated with U.S. Navy nuclear-powered ships and the environmental monitoring program for such radioactivity were discussed in the Draft EIS in Volume 4, sections 18.1.1.1 and 18.2.2.6. These sections discuss the long history of safe operations and lack of adverse environmental impact. U.S. nuclear powered warships have safely operated for more than 50 years without any release of radioactivity that affected human health or had an adverse effect on the environment or marine life. The Navy's annual report covering environmental monitoring at locations throughout the U.S. was discussed, including the fact that radioactivity associated with nuclear-powered ships, chiefly cobalt-60, is not detectable in the environment in most harbors. The latest issue of this annual report is Report NT'09-1 dated March 2009. No cobalt-60 was detected in Apra Harbor, Guam in the samples documented in this report, which covers calendar year 2008. In addition to this summary report for all U.S. harbors, the Navy issues a detailed report for Apra Harbor each year. The latest report includes the results for each individual water, sediment, and marine life sample taken in Apra Harbor during 2008. No cobalt-60 was detected in any of these samples. The Navy has been conducting radiological environmental monitoring in Apra Harbor since the early 1960s, when nuclear-powered ship operations in Guam started. A complete history of all of this environmental monitoring data is provided in Volume I of the Historical Radiological Assessment for Apra Harbor. This report documents that only trace amounts of cobalt-60, far below any level of health or environmental significance, have ever been detected in Apra Harbor.

The FEIS has been revised to include a detailed discussion on the nearly

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these pollutants. For example, the Dededo and Macheche CTs are in closer proximity to residential receptors than Orote and Yigo, and receptors proximate to the Dededo and Macheche CTs will also experience impacts from significant traffic congestion along the Guam Road Network in the construction phase (Vol. 6, Figure 4.2-4), whereas other CT locations will not have these additive impacts. This impact avoidance opportunity should be documented in the FEIS. When avoidance of impacts is not possible, mitigation measures should be identified that could reduce health impacts, with commitments to implement these in the FEIS and ROD.

For the accuracy of the FEIS, we recommend all references to limitations of MSAT analysis, including why emissions, dispersion, and exposure tools are not available for a quantitative MSAT analysis⁵⁸, be removed (Vol. 6, pages 7-30 – 7-33). EPA also recommends that DoD remove the reference to the guidance as “Joint Interim Guidance” from FHWA and EPA (Vol.6, p. 7-10), as this is not EPA guidance.

A-009-071

F. Air Quality Mitigation and Adaptive Management

The air quality impact assessment concludes that mitigation measures to reduce air quality impacts are not warranted for the new Main Cantonment (Vol. 2, p. 5-36) and that air quality impacts are less than significant for all preferred project elements (Vol. 7, p.3-9, 3-10). As previously stated, we disagree with the impact assessment methodology that led to some of these conclusions (see Interim Power Generation comment), and we also disagree with the statement that the need for mitigation measures ultimately depends on combined air emissions (Vol. 2, p. 5-29). The location of receptors and their potential for exposure should determine the need for air quality mitigation, since protecting human health is the purpose of all clean air programs and regulation.

Despite its impact assessment conclusions, the DEIS does acknowledge that air quality will decline as a result of implementing the proposed actions due to increased population, increased power usage (increased burning of high sulfur fuels), construction activities, and related traffic congestion (Vol.7, p 2-49, 2-52). The DEIS identifies some potential mitigation measures under its adaptive management mitigation proposal. We have two concerns with this approach to air quality mitigation: (1) the monitoring and establishment of action and tipping points for air quality⁵⁹ are not appropriate as they do not relate to public health, and (2) the proposed mitigation measures should occur *up front* to achieve immediate impact reductions, and not depend on a monitoring trigger. (See also comment under Adaptive Management).

Air mitigation measures identified in the DEIS include (Vol. 7, p. 2-5, 2-54)):

⁵⁸ This discussion is from prototype language included in the February 2006 FHWA Interim Guidance on Air Toxics Analysis in NEPA Documents which EPA believes mischaracterizes the adequacy of existing air toxics methodology and tools for quantitative analysis. While there are positive elements to this guidance, especially the willingness to acknowledge potential MSAT concerns, EPA continues to disagree, nationally, with major elements of this approach (which are carried forward in FHWA's update to this guidance issued September 2009).

⁵⁹ The air quality "action point" or "tipping point" would relate to power consumption and include testing for fuel sulfur content, weekly monitoring for opacity, and a continuous monitoring system to monitor fuel consumption and the ratio of water-to-fuel being fired in the CTs.

50 year history of environmental monitoring for radioactivity by the U.S. Navy. No radioactivity associated with nuclear-powered ships (cobalt-60) has been detected in Apra Harbor since 1990. Core samples taken in the inner harbor in 2004 and in 2009 in areas of the outer harbor considered for dredging have not had detectable cobalt-60 at any depth. Trace concentrations of radionuclides associated with fallout from past nuclear weapons testing (cesium-137, americium-241, and plutonium 239/240) have been detected. These fallout nuclides are detectable worldwide. This trace amount of radioactivity in the sediment is far below the concentration established by the International Atomic Energy Agency for determining whether dredged sediments can be regarded as non-radioactive or de minimis under the Convention on Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention, 1972)⁴. Since there is no indication of elevated radioactivity in Apra Harbor sediments, dredged sediment from Apra Harbor may be disposed of without any need for special considerations regarding radioactivity.

The Final EIS has been revised in several sections to include the information discussed in the response to the comments from Senator Cruz and EPA. Revised sections include Volume 4, sections 2.3.5.1, 4.2.2.2, and 18.2.2.6, and Volume 2, section 4.1.4.1.

References:

1. U.S. Navy Report NT-09-1, “Environmental Monitoring and Disposal of Radioactive Wastes from U.S. Naval Nuclear-Powered Ships and Their Support Facilities”, March 2009
2. U.S. Navy Report, “Radiological Environmental Monitoring Report, Calendar year 2008, Apra Harbor, Guam”

- In cooperation with GEPA, short-term air monitoring sampling for pollutants such as particulate matter and volatile organic compounds (VOCs) could be considered to monitor construction air quality impact around major construction sites in sensitive neighborhoods with lengthy construction duration.
- The Navy potentially could include measures in construction contracts for anti-idling requirements for construction vehicles; operational agreements that reduce or redirect work or shift times to avoid community exposures when sites are in proximity to vulnerable populations (e.g., schools); and pursuing technological improvements to equipment, such as off-road dump trucks and bulldozers, particulate matter traps, oxidation catalysts, and other exhaust after-treatment devices.
- A Traffic Management Center could be developed and implemented by GovGuam to monitor traffic flow and congestion. *(EPA notes that while this is identified for GovGuam to implement, DoD should include a project-related construction traffic and parking management plan that minimizes traffic interference and maintains traffic flow.)*
- Buffer zones could be created between new or expanded road alignments and areas of vulnerable populations. *(The DEIS identifies this mitigation measure for GovGuam to implement, but the project is creating the Guam Road Network and this measure is within DoD's control.)*
- An option could be provided for using low sulfur diesel fuel for construction and highway vehicles. *(The DEIS identifies this mitigation measure for GovGuam to implement, however DoD can and should pursue this option -see comment under transportation fuels).*
- The pending MSAT analysis results would also be used as a consideration for avoiding potential significant health risks from on-road vehicle operations during construction periods (Vol. 7, p. 2-53) *(See comment under MSAT air and health impacts. EPA is available to assist DoD in determining the best mitigation strategy to reduce MSAT emissions and exposure should the pending MSAT analysis identify hotspots in proximity to residences or sensitive receptors.)*

An additional mitigation measure not identified in the DEIS could include identifying sensitive receptors in the project area, such as children, elderly, and infirm, and specifying the means by which impacts will be minimized to these populations. For example, locating construction equipment and staging zones away from sensitive receptors and fresh air intakes to buildings and air conditioners. DoD should also consider fugitive dust source controls, such as: 1) installing wind fencing and phasing grading operations where appropriate, and operating water trucks for stabilization of surfaces under windy conditions, and 2) preventing spillage and limiting speeds to 15 miles per hour (mph) when hauling material and operating non-earthmoving equipment, and limiting speed of earth-moving equipment to 10 mph.

Recommendation: EPA recommends that DoD commit to implementing the mitigation measures it identifies in the FEIS, as well as the additional measures identified above, at the beginning of project planning and construction, and not only in response to an

3. U.S. Navy Report, "Historical Radiological Assessment, Apra Harbor Naval Complex Territory of Guam, Volume I, Naval Nuclear Propulsion Program, 1961-2004", February 2006

4. IAEA-TECDOC-1375, "Determining the Suitability of Materials for Disposal at Sea under the London Convention 1972: A Radiological Assessment Procedure," IAEA, October 2003

A-009-059

Thank you for your comment. Beneficial reuse options, both specific and general, have been noted in the EIS. Additional general measures as suggested by EPA's comments such as road base and aggregate mixture for cement operations have been included in the text. Additional text has been added to Volume 9, Appendix D to reflect the statements in Volume 6 regarding landfill cover.

The upland/contained dredged material management strategy plan will include stockpiling areas of dredged material for use as an aggregate source for concrete as well as road base and these uses have been added to Chapter 2, Volume 4. Stockpiling is just one of a number of management tools that will be included in the dredged material management plan.

Additional text has been added to include additional beneficial uses as suggested by EPA. Other than those presented in the DEIS, other specific projects are not currently known, either due to funding or permitting, such as the Commercial Port expansion. The dredged material management plan should provide sufficient planning and will present any updates to possible specific beneficial use options and their schedule of implementation if known.

A-009-071

adaptive management monitoring trigger. EPA recommends that these measures be incorporated into a Construction Emissions Mitigation Plan in order to reduce impacts associated with fugitive dust, diesel exhaust, and mobile source air toxics from construction-related activities. Priority should be given to providing an option for using low sulfur diesel fuel for construction and highway vehicles. All appropriate measures should be included in all construction contracts and DoD should oversee and ensure implementation. DoD should include the Construction Emissions Mitigation Plan in the FEIS and identify its commitments to these measures in the ROD.

Regarding the adaptive management strategy, the NAAQS should be used as the "tipping point" for criteria pollutant monitoring results to trigger construction tempo reductions. See our comments under Adaptive Management.

A-009-072 **G. Monitoring**

As mentioned above, EPA is currently reviewing the existing sulfur dioxide standard and expects to soon take final actions that could lead to a lower, more protective, standard. As part of this action, EPA would require GovGuam to install at least one air monitor by 2013. It would be of great value to commence SO₂ monitoring on the island in advance of the 2013 deadline to ensure tracking of air quality impacts and protection of public health before and during the buildup. Since 2013 is projected to be one of the peak construction years, the military buildup could be considered among the sources that would need to be controlled if SO₂ monitoring demonstrates that Guam is not attaining the SO₂ standard. DoD should consider the benefits of operating an air monitor to establish baseline ambient air quality.

Recommendation: EPA recommends that DoD obtain baseline SO₂ monitoring data before construction commences to identify DoD's contributions to the SO₂ levels measured with the new 2013 monitor.

A-009-073 **H. Greenhouse Gas Emissions and Climate Change**

I. Baseline discussion

The DEIS does not present a useful baseline discussion on the problem of climate change, nor is it substantially addressed in the cumulative impact assessment. EPA recommends that the FEIS include a general discussion of global climate change based on EPA's Technical Support Document developed for the December 2009 endangerment finding, which was vetted through all federal agencies. Alternatively, for U.S. impacts, the Executive Summary and key findings of the most recent U.S. Global Climate Research Program report, "Global Climate Change Impacts in the U.S." (<http://downloads.globalchange.gov/usimpacts/pdfs/executive-summary.pdf>) could be consulted and summarized. For a discussion of regional effects, the Islands regional chapter from this report (<http://downloads.globalchange.gov/usimpacts/pdfs/islands.pdf>) is recommended. Providing this baseline discussion will help ensure disclosure of the incremental impacts of the proposed GHG emissions and highlight the importance of the existing condition with regard to climate change for providing the context for a discussion of cumulative impacts

A-009-060

Thank you for your comment. The upland/contained dredged material management strategy plan will include a new intermediate overall dredged material management scenario reflecting known beneficial reuse, stockpiling, contaminated sediments, and ocean disposal. Text has been added to reflect the scenario of 50% beneficial reuse and 50% ocean disposal as an additional management scenario to the four presented in the DEIS.

A-009-061

Thank you for your comments. The latest dredged material management plan in progress will include future maintenance dredging frequency, volume, and sediment quality for the newly deepened channel and berth areas proposed for the CVN and Sierra Wharf projects. Outer Apra Harbor has historically shown minimal maintenance dredging requirements since it was first dredged approximately fifty years ago. It is likely that this trend will continue due to the typical materials and shoaling conditions encountered in Outer Apra Harbor. Inner Apra Harbor wharves have infrequently required maintenance dredging due to the finer materials that are deposited from surrounding areas. The periods of dredging for Inner Apra Harbor were 1964 when the entire inner harbor was the project area with the removed quantity unknown. In 1987, the entire inner harbor was also the "project area" but only 10,000 cubic yards of material were removed. In the 2002-2003 timeframe, 13,516 cubic yards were removed from the areas in the vicinity of Uniform, Victor, and X-ray wharves in Inner Apra Harbor. The Entrance Channel, Romeo, Sierra, and Tango wharves were dredged in the 2004-2005 timeframe with approximately 101,000 cubic yards of dredged material removed (Navy 2006).

A-009-062

Thank you for your comment. The comment states that a determination as to whether Guam water quality standards will be violated is not in the

(See also Cumulative Impacts comment). This section should also discuss Executive Order 13514's GHG reduction targets.

2. Methodology

The DEIS estimates carbon dioxide (CO₂) annual emissions for the preferred alternatives in its assessment of greenhouse gases (GHGs) (Vol. 7, p. 3-11). The DEIS states that because CO₂ emissions comprise approximately 85% of GHGs, and CO₂ emission factors are readily available for many stationary and mobile sources, CO₂ was selected for this DEIS to represent GHG emissions (Vol. 2, p. 5-8). This methodology does not take into account GHGs other than CO₂ some of which have a greater global warming potential (GWP) than CO₂. It is now common for EISs to estimate non-CO₂ GHGs in terms of CO₂ equivalency, which is a quantity that describes, for a given mixture and amount of greenhouse gas, the amount of CO₂ that would have the same global warming potential (GWP)⁶⁰, when measured over a specified timescale. For example, methane has a global warming potential most recently estimated at 23 times that of carbon dioxide (CO₂). The DEIS identifies only the CO₂ emissions associated with the use of the Navy landfill (Vol. 6, p. 7-27) for example, and not the methane in CO₂ equivalence. Because the DEIS does not account for GWP in its calculations, it underestimates project impacts⁶¹.

3. Alternatives Analysis and Mitigation

CO₂ emissions were calculated for construction, some interim power generation alternatives, and roadway projects; however, the DEIS did not discuss these emissions, nor does it present them in comparative form, "providing a clear basis for choice among options by the decision-maker and the public" (40 CFR 1502.14). The DEIS does not include CO₂ emissions for the preferred interim power alternative, so no comparison of these alternatives can be made. We understand that many of the emissions for the new Main Cantonment and Marine Corps operations would not be new but transferred from base operations in Okinawa, Japan; however, there are elements of the project where an alternatives analysis of impacts related to greenhouse gas emissions and climate change would be useful, such as in reference to power supply, increases in mobile sources from transportation, and landscape alteration. The alternatives within these project components have the potential to vary in GHG emissions to a significant degree, and providing this information as a summary could be useful for the decision-maker.

The predicted construction CO₂ emissions range from about 16,490 to 31,464 tons per year (tpy) from 2011 to 2014 and the predicted operational CO₂ emissions range from about 180,216 to 186,134 tpy from 2015 forward (Vol. 7, p. 3-13). The DEIS states that GHGs effects would be considered less than significant (Vol. 7, p. 3-14). However, to provide further relevant context,

⁶⁰ Global Warming Potential (GWP) is defined as the cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas. The GWP-weighted emissions of direct greenhouse gases in the U.S. Inventory are presented in terms of equivalent emissions of carbon dioxide (CO₂), using units of teragrams of carbon dioxide equivalents (Tg CO₂ Eq.).

⁶¹ We note that EPA's GHG reporting rule, promulgated on September 22, 2009, requires reporting of greenhouse gas (GHG) emissions in CO₂ equivalents for carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulfur hexafluoride (SF₆), and other fluorinated gases including nitrogen trifluoride (NF₃) and hydrofluorinated ethers (HFE).

DEIS. Statements included in Chapters 2 and 4 of Volume 4 state that Guam water quality standards are not expected to be violated including turbidity with the application of BMPs such as silt curtains.

Dispersion modeling of suspended sediment from dredging activities in Apra Harbor was conducted in March 2009 as part of the Habitat Equivalency Analysis and Supporting Studies with a detailed summary included in Appendix K of Volume 9 (Ericksen 2009). Input parameters utilized for the model included: dredging production rate, percent bucket loss (TSS load), current patterns, sediment grain size distribution, water depth, and dredge location. Due to the similarities in site conditions and subsequent anticipation of similar silt curtain effectiveness, the effects of silt curtains on TSS was also considered based on data collected during the previous dredging of Alpha-Bravo wharves. For that dredging project, TSS and turbidity was monitored both inside and outside of the silt curtain for 145 days. The results of the monitoring determined that the average TSS levels outside of the silt curtain were only 10% of the level inside the curtain (i.e., silt curtains retained 90% of the material inside). Possible maximum adverse environmental conditions were simulated by approximating the highest 10% TSS levels recorded outside of the silt curtain during the Alpha-Bravo dredging project, during strong trade wind conditions. As dredging for the proposed project would be conducted continuously, the maximum daily rate of 24 hours was used in the model. Under the maximum potential adverse effect scenario model run, the dredge plume had a maximum length of 328 ft (100 m). The turbidity plumes rapidly dissipated following dredging.

Regarding the potential for impacts to water quality standards associated with the dredging, sediment quality investigations in Outer Apra Harbor were conducted in 2006. Sediment core samples were taken to the proposed dredged depth needed to accommodate visiting aircraft carriers. The proposed dredge footprint was geographically covered by the sediment sampling regime that included a total of fourteen discrete

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DoD should consider discussing GHG emissions in terms of the quantities required under the GHG reporting rule⁶² as well as those identified in the proposed PSD tailoring rule, and indicate whether any project components would be potentially regulated under these rules. We also recommend discussing how the different alternatives would compare for purposes of DoD achieving 2020 GHG reduction targets under EO 13514. We note that section 2(f)(iv) of the EO mandates identification and analysis of impacts from energy usage and alternative energy sources in NEPA documents on new or expanded facilities.

No mitigation measures are identified for GHG emissions. At a minimum, DoD should consider the use of energy efficiency and renewable energy projects, as outlined in the comment titles "Comprehensive Energy Plan" as a means for reducing GHG emissions. DoD should also consider the adoption of anti-idling measures for construction vehicles in construction contracts, as outlined in the "Mitigation and Adaptive Management" comment, and the utilization of cogeneration instead of flaring methane produced in the anaerobic digesters at WWTPs that are upgraded for the project (see comment under "Anaerobic Digestion - Energy Generation"). Other options could include implementation of green vehicle procurement, bus replacement programs for the island, etc.

4. Adaptation

The potential impacts of climate change on the proposed project alternatives were not discussed. The NEPA process provides an opportunity to evaluate the alternatives from this perspective, and this is very useful information for long-term planning. The FEIS should identify if there are specific adaptation measures needed to protect the project from the effects of climate change. For example, sea level rise may be as great as a meter by the end of this century. The FEIS should discuss how all waterfront projects consider sea level rise in their design and maintenance.

Recommendation: EPA recommends the FEIS be updated per the above. A baseline of climate change effects should be discussed in the FEIS. We recommend emissions be discussed in terms of requirements under the GHG reporting rule, indicating whether any project components will be required to report. Emissions from the preferred interim power alternative should be disclosed, and a greater distinction between project alternatives in relation to GHG emissions should be presented. Mitigation measures should be identified, and adaptation for anticipated climate change effects on the project should be discussed.

A-009-074

I. Additional Air Quality Comments

- The DEIS indicates that radon mitigation measures will be incorporated into new construction in high radon zones. EPA recommends using local Radon experts for radon mitigation during new construction. This will support the emerging radon industry and

⁶² Facilities that emit 25,000 metric tons or more per year of GHG emissions are required to submit annual reports to EPA. The GHG reporting rule is intended to collect accurate and timely emissions data to inform future policy decisions.

sampling sites. The areas included the proposed turning basin in the Outer Harbor and the berthing areas of Alternative 1 and Alternative 2 (NAVFAC Pacific 2006). In general, sediment contamination was low throughout all the areas sampled in Outer Apra Harbor. Special handling of dredged material would not be required and it is likely that the dredged material would meet the testing requirements for ocean disposal. None of the composite samples exceeded any of the ER-M values. Composites 1 and 2 did not exceed any of the ER-L values. There were minor exceedences of the ER-L value for one metal (nickel) for Composite 3. Nickel occurs naturally in the environment and this exceedance is not expected to classify the dredged material as unsuitable for ocean disposal.

Additional sediment sampling and analyses were conducted in March 2010 to delineate the distribution and magnitude of chemicals of potential concern within the dredge footprint of the two potential CVN berthing sites; Polaris Point and the former SRF wharf. Material from the proposed CVN turning basin was also evaluated (NAVFAC Pacific 2010a). The full report of this study is contained in Volume 9 Appendix K. The 2010 analysis concluded that low chemical concentrations found in the most recently collected sediment samples from Polaris Point, the former SRF Wharf, and the Turning Basin were consistent with other previous Tier III dredged material evaluations conducted in the same areas of Apra Harbor in the NAVFAC Pacific 2007) study where the material was deemed suitable for ocean disposal and water quality standards are expected to be met.

Generally speaking, contaminant concentrations obtained under the most recent sediment testing program conducted within the areas proposed for dredging for the Marine Corps relocation to Guam were similar to or less than those obtained during the Tier III study. Nickel was the only sediment contaminant concentration that was substantially higher in the most recent sediment testing program. Since the material

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help protect Guam residents, in general, from Radon exposure by building the capability to address the radon problem in the civilian population's homes throughout Guam.

- In the DEIS, DoD states that asbestos may be present at the wharves, and work would comply with applicable regulations for the survey/inspection and management of these materials (p. Vol. 2, p. 2-89). We note that any asbestos removal and every building demolition would require notification to EPA Region 9 under the Asbestos National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulation even if it has been previously determined that no asbestos containing materials (ACMs) are present at the building proposed for demolition. An asbestos survey must be conducted and a 10 working day waiting period after notification to EPA is required. A qualified Asbestos Hazard Emergency Response Act (AHERA) inspector must be used, and if material is present it must be removed by qualified AHERA workers/supervisors. Demolition contractors normally complete the notification, but the regulation allows either the owner or operator to submit the notification to EPA. Guam EPA has regulatory requirements for asbestos removal that mirror EPA NESHAP and AHERA requirements. Guam EPA should also be notified of any demolition or renovation activities.

III. SOLID WASTE

A-009-075

A. Insufficient solid waste characterization and management planning

Existing and planned landfill facilities on Guam do not provide viable options for managing all of the solid waste stream components that are expected to be generated during and after the proposed action. Consequently, the Preferred Alternative for land disposal does not appear to be adequate. The DEIS does not present a comprehensive strategy for managing the large volumes of solid waste associated with the project.

Recommendation: DoD should develop and perform a waste characterization study using the existing DoD waste stream, and prepare a report on waste stream composition, by percent, on a weight basis. DoD should also perform waste management planning and prepare an integrated solid waste management plan addressing the DoD solid waste planning hierarchy of: 1) source reduction, 2) reuse, 3) recycling (including composting), and 4) disposal, and Executive Order 13514. DoD should develop waste stream projections based on available waste stream data and population projections, and the waste characterization study, and compile the information into a projected waste stream composition. (Note: the basis for the 7.4 generation rate should be explained, including waste stream composition) This information would be used to develop an integrated waste management plan that includes a summary of available disposal and diversion options for each waste stream component, as well as collection and transportation, and conformance with the DoD solid waste planning hierarchy⁶³ and Executive Order 13514.

The integrated waste management plan should include the "Non-DoD Proposed Action Related" projections, as this source of increased solid waste is expected to comprise a

⁶³ Per Navy Instruction OPNAV INST 5090.IC 5-4.1(d)

from the Tier III testing program was either deemed suitable for ocean disposal or recommended to be considered for ocean disposal, with the exception of a limited area in the vicinity of Sierra and Romeo wharves, it is likely that, based on the most recent bulk chemistry testing results, the majority of material proposed for dredging under the Marine Corps relocation project would also be suitable for ocean disposal and would not require any special handling. Test results for samples taken in the vicinity of Sierra and Romeo Wharves in Inner Apra Harbor indicate that dredged material from these areas may not be suitable for ocean disposal (NAVFAC Pacific 2007). However, the indication for the Sierra Wharf dredge sediments not being likely suitable for ocean disposal was based upon only one amphipod test where the toxicity levels were only slightly elevated. The overall low contaminant concentrations and tissue concentrations below published effects levels may allow for ocean disposal of these materials for Sierra Wharf (NAVFAC Pacific 2007). Additional analysis of the sediments in the vicinity of Romeo Wharf would be required to determine ocean disposal suitability of those materials. The results of the 2007 dredge sediments study are available in Volume 9, Appendix K.

Regarding specific measures to protect corals as related to water quality impacts, coral-related impacts and EPA's comments are addressed in Section K of the EPA letter and response to it.

A-009-063

Thank you for your comment. Assumptions and methodology: Explanations of the assumptions and methodology used to estimate the emissions provided in the tables are mostly provided prior to the general conformity section. Per EPA comments, the FEIS was updated to assist the reader in following the analysis by referencing previous sections and integrating some of the analysis into the General Conformity Rule section in Volume 9, Appendix I. The number of construction equipment pieces can vary from one to many depending on what the contractor

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significant portion of the total volume. The DEIS does not mention how this source of solid waste will be managed during or after the proposed action. The Government of Guam's current landfill facility, Ordor, is an unlined dump, a designated Superfund site, has been cited for numerous environmental and permitting infractions, and is under a federal consent decree. Layon is not expected to be in operation until the summer of 2011. Airspace at Ordor is extremely limited and the landfill may not be able to accommodate any increased volumes of solid waste from the proposed action or the estimated "direct, indirect, and induced" population.

The waste characterization and the integrated waste management plan should be completed before the issuance of the FEIS and provided to EPA for review (April 2010). Via this plan, DoD needs to demonstrate how they, their contractors, and subcontractors will manage solid waste during construction and through long-term operations on Guam. In addition, substantial investment in new recycling and reuse infrastructure may be necessary to meet goals of Executive Order 13514⁶⁴.

The comments below expand on solid waste management concerns and provide additional recommendations, as appropriate.

A-009-076

B. Projected Solid Waste Estimates and Estimated Population Increase on Guam

It is unclear how Table ES-2 "Estimated Total Population Increase on Guam from Off-Island" and Table 2.4-1 "Projected Solid Waste Estimates" comport. In Table ES-2, it appears that "Off-Island Construction Workers (DoD Projects)" and "Dependents of Off-Island Construction Workers (DoD Projects)" are part of the "Direct DoD Subtotal." It is unclear under which category in Table 2.4-1 these populations are included (e.g., "DoD Proposed Action Related" or "Non-DoD Proposed Action Related" in Table 2.4-1).

A-009-077

C. Preferred Alternative inconsistent with operation of Layon and Navy Landfills

The DEIS indicates that the Preferred Alternative for solid waste disposal is to use the Navy Sanitary Landfill at Apra Harbor until Layon opens, after which DoD would use Layon for disposal of all DoD solid waste.

Pursuant to the Layon Municipal Solid Waste Landfill Facility Permit No. 09-015 recently issued by GEPA, Layon cannot accept "all DoD solid waste." Waste excluded and/or prohibited from acceptance at Layon includes, but is not limited to, construction and demolition debris (C&D debris), green wastes, industrial wastes, explosives, asbestos, and PCBs. Given the apparent restrictions placed on Layon, it is unclear what types and volumes of DoD solid waste may need a different management option, what those options are, and what impact the options may pose to the environment. There is no indication that the sufficient level of planning is occurring to ensure proper management of waste.

⁶⁴ The following link to EPA guidance on environmentally beneficial landscaping for Federal facilities and lands may be helpful: http://www.fedcenter.gov/Documents/index.cfm?id=5961&page_id=10005&page_id=1863.

chooses to use. For example, the same amount of construction activities can be accomplished by using one piece of equipment for one week, or can be shortened to half a week by using two pieces simultaneously.

The key input in the emissions calculations is the total number of equipment hours required to complete the work. Therefore, the input of one piece of equipment used in the calculations is only for the purposes of completing them and does not reflect the actual number of pieces of equipment that would be used on site during construction. An explanation of how to divide the portion of main cantonment within the nonattainment area has also been added in the FEIS.

Uncertainty of high sulfur fuel in calculations: For non-road engines and vehicles, a maximum sulfur content of 0.5% was used based on EPA's Heavy-Duty Standards/Diesel Fuel Regulatory Impact Analysis (RIA) (December 2000, EPA420-R-00-026). The RIA indicates that the actual data observed in 1992 showed that No. 2 diesel fuel imports had sulfur content ranging from 0.39% to 0.5%. Therefore, using the actual highest sulfur content observed in 1992 (i.e., 0.5 %, which is coincident with the model limit) for vehicles in this EIS is considered appropriate and conservative. For other pollutants for which Guam does not have a waiver, the national default parameters were used in predicting non-road construction equipment and on-road vehicle emissions. Clarification on sulfur content percentages was added in the FEIS.

Dredging emission estimates: Dredging related emissions estimates were developed based on early information that specified a 758,000 cubic yard (CY) of dredging capacity and methodologies that could involve a combination of mechanical dredging and hydraulic dredging. However, more recent information shows a more specific dredging plan including an elimination of the hydraulic dredging option. This updated information was included in Volume 4 of the DEIS, but was not reflected in the Volume 6 emissions. The dredging related emission estimates has been revised in the FEIS to reflect the most recent information on

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The DEIS states that recent correspondence with GBB (Gershman, et al) indicates that C&D waste would be accepted at the Layon Landfill for recycling and reuse⁶⁵ (Vol. 6, p. 2-103). EPA is not aware of any near-term plans of the Receiver to accept C&D waste for recycling and reuse. Moreover, the current Layon permit prohibits the acceptance of C&D waste and the facility operation plan does not include recycling or reuse activities. Green waste is also prohibited at Layon.

Until Layon opens, DoD states that DoD will continue to use the Navy Sanitary Landfill at Apra Harbor. The Navy Sanitary Landfill is unlined, and statistically significant concentrations of chlordane and five volatile organic compounds have been detected in the down-gradient groundwater wells in recent years. In addition, the Navy Sanitary Landfill permit may be subject to revisions by Guam EPA that could impact and/or restrict current operations and waste acceptance practices.

Recommendation: As part of an integrated waste management plan, the Navy should establish a mandatory recycling program as soon as practicable to apply to the existing Navy base, and to the new Marine Corps base given the apparent waste acceptance limitations at Layon. The DEIS does not identify sufficient reuse and recycling infrastructure to accomplish the probable needed waste diversion. It is also not clear whether enforcement of any recycling mandates would occur. (See additional comments below under "Source Reduction, Recycling and Composting")

Based on the DEIS solid waste projections, the additional solid waste associated with the proposed action would accelerate Layon's staged development plan which could have permit and environmental implications.

The FEIS needs to address the collection and transportation of DoD solid waste to Layon and the potential impacts of such collection and transportation. Truck traffic, pollution, and disruption are of critical concern to the residents near the Layon landfill.

A-009-078

D. Continued Use of Anderson AFB landfill

Anderson AFB landfill is not included in the Preferred Alternative for solid waste disposal, however the proposed project would involve numerous activities and increased personnel at Anderson for construction of the Marine's Air Combat Element (ACE) project actions⁶⁶, facilities to support air embarkation⁶⁷, and construction of the new North Gate and access road (Vol. 2, Section 2.4). The DEIS states that because the Anderson AFB can only accommodate its disposal needs through 2009 and the new landfill it intends to use would not be available until July 2011, the Air Force would need to further expand the existing landfill or pursue diversion

⁶⁵ It is EPA's understanding that neither the Layon permit nor the Operations Plan allow for the recycling and reuse of C&D waste. Currently, C&D debris is a prohibited waste in the Layon permit.

⁶⁶ ACE related projects at Anderson AFB include construction of 36 structures, including MALS Hangar, Corrosion Hangar, Air Ops Center, AAFB North Ramp Parking, Squadron Aircraft Hangars, armories, fire station, control tower, and maintenance shops

⁶⁷ The DEIS identifies 13 structures needed for air embarkation support

planned dredging activities. From an emissions standpoint, it is not anticipated that any substantial difference in total emissions would result from this change in dredging except that these emissions would spread over longer duration as indicated in EPA's comment. This longer dredging duration is the result of a slower dredging productivity rate of 1,800 CY/day (75 CY/hr) when a combination of mechanical and hydraulic dredging is used, as compared to a faster dredging productivity rate if only hydraulic dredging were used.

Commercial port transporting service: Commercial port transporting service air emissions were excluded from the general conformity analysis because they do not meet the indirect emissions criteria. These emissions are not reasonably foreseeable and cannot be practicably controlled by DoD. The FEIS added an explanation indicating why commercial port transporting service air emissions were excluded.

A-009-064

Thank you for your comment.

Permitting Requirements: The purpose of a Title V permit is to incorporate, in a single document, all the federal requirements of the Clean Air Act (CAA) applicable to a source, including the PSD permitting program. EPA granted full approval for Guam's operating permit program and associated State Implementation Plan revision on February 27, 2006. The Administrator for Guam is the Guam Environmental Protection Agency (GEPA). GEPA issued (with no objection from EPA) Title V permits to Guam Power Authority (GPA) for the four combustion turbine facilities on March 2, 2009. Therefore, it is appropriate to consult with GEPA for determination of Title V (including PSD) permitting modifications. Initial DoD meetings with GPA, which included GEPA (EPA did not attend), indicated that there would be no permit modifications required as a result of the buildup as long as the units operate within the Title V permitted parameters. Therefore, modifications to the air permits

A-009-078 and/or operational measures to maximize landfill life (Vol. 6, p. 3-26). There is insufficient information to address landfill expansion or diversion and/or operational measures, impact from a potential Andersen landfill expansion, or contingency plans in the event DoD fails to obtain timely permit approval for its proposed expansion.

A-009-079 *E. Construction and Demolition (C&D) Waste*

Overall, the DEIS inadequately addresses C&D as there is no waste characterization or integrated waste management plan in the DEIS. Although a C&D study is underway to address recycling and reuse opportunities associated with the construction phase (Vol. 6, p. 2-104), the lack of an integrated waste management plan makes it difficult to determine whether there are sufficient facilities, capabilities, and required approvals and permits in place for disposal or diversion of C&D waste.

There is very little C&D hardfill capacity available on-island to deal with the large volume of C&D debris that would be generated (Vol. 6, p. 2-103), and the DEIS states that “it is recommended” that the military develop new hardfill capacity and upgrade and greatly expand its recycling programs (Vol. 6, p. 2-103). No plans for developing these capacities are identified.

In addition, deconstruction plans should be developed, and reuse of building shells as well as materials should be considered to reduce waste. Deconstruction (dismantling a building for reuse) allows building materials to be reused and recycled while saving money and supporting LEED credits. DoD has extensive deconstruction experience and EPA recommends the following resources:

- A Deconstruction Guide for Military Installations <https://frptoolbox.erde.usacc.army.mil/frptoolbox/library/docs/16.pdf>
- Deconstruction Institute: <http://www.deconstructioninstitute.com/>
- Building Materials Reuse Association: <http://bmra.org/>

In general, the DEIS emphasizes landfill disposal over waste reduction, reuse, recycling and composting and does not appear to meet Federal/DoD/Navy⁶⁸ Solid Waste Planning Priorities. As mentioned, the Navy requires installations to use the following hierarchy for waste management: (1) Source reduction, (2) Reuse, (3) Recycling (including composting per definitions in the Instruction), and (4) Disposal via landfill or incineration. The DEIS indicates that a study is underway related to municipal solid waste recycling for long term DoD waste generation on Guam, including waste generated as part of the military buildup. (Vol. 6, p. 2-104 and p. 3-61). The study should help guide specific actions; however, a comprehensive integrated waste management plan should be developed prior to the issuance of the FEIS and provided to EPA for review.

⁶⁸ The Navy/Marine Corps planning process is required at the earliest possible time to ensure actions: “Enhancing the quality of renewable resources and working toward the maximum attainable recycling of depletable resources.” OPNAV INST 5090.1C 5-4.1(d)

were not anticipated and the DEIS stated that no permitting actions will be required for the Preferred Interim Alternative 1 (reconditioning of combustion turbines at four GPA facilities).

The DEIS did not differentiate between changes to the GPA system to provide additional baseload power, from changes needed to provide reserve power (backup facilities to meet reliability requirements). In the DEIS, all of the alternatives except the preferred alternative required GPA to install additional baseload power (from power plants) and improve reserve power (from Combustion Turbines (CTs) and diesel generators). Under the preferred alternative, only improved reserve power was needed in the form of reconditioning existing CTs. Since the DEIS was issued, there have been changes to the power need assumptions by both DoD and GPA. First, DoD has revised its power demand to more accurately reflect baseload power needs, and has eliminated the need for installed baseload power for the visiting aircraft carrier. Second, GPA and DoD have together reassessed whether existing GPA facilities provide adequate baseload and reserve power. This reassessment concluded that there is sufficient baseload power capacity at existing GPA power plants to meet the baseload needs from the buildup, but reserve capacity must be improved at the CTs. This change is now reflected and explained in the FEIS. The change includes the elimination of all of the interim and long-term alternatives that describe new power generation facilities, and retention of only the preferred alternative (to recondition up to 5 CTs).

EPA’s comment indicates that the reconditioning of the combustion turbines may trigger “major modification” under the PSD regulations, resulting in the need for PSD permits prior to commencing reconditioning activities. EPA indicated that they would need to be consulted to determine whether any of the CT reconditioning constitute routine maintenance or major modifications, and if any such modifications would result in a significant net emissions increase as determined in 40

The DEIS does not discuss any composting options. DoD guidance states that installations shall compost organic waste as an alternative to landfilling whenever possible, and that if municipal composting facilities are not available, composting facilities should be established at the installation (OPNAV INST 5090.1C 16-5.6)⁶⁹. The DEIS mentions composting only in relation to an incomplete GovGuam planning document.

Developing major reuse, recycling, and compost facilities during construction and operations is critical to achieve Navy, DoD, and Federal requirements, and in light of land disposal limitations at Layon. Although DoD mentions that they are required to achieve the diversion goals of EO 13423, there is no substantive discussion or plans for implementation.

Recommendation: As part of its integrated waste management plan, DoD should develop and implement, as appropriate, an expanded source reduction and diversion program to minimize the amount of solid waste being landfilled, particularly given the apparent waste prohibitions at Layon.

Specific facility needs for reuse, recycling, and composting should be identified and accommodated in site plans for the construction and operation of the new Marine Corps Main Cantonment, other project sites, and at existing bases at Anderson AFB and Navy Base Guam. Given limited landfill capacity and contamination concerns, efforts to maximize resource recovery through reuse, recycling, composting, and anaerobic digestion⁷⁰ must be assessed. Significant planning will be required to support:

- Defense Reutilization and Marketing Office or other non-building materials reuse facilities,
- Plans to include space in all buildings (inside and outside) for recycling and composting storage - a LEED-NC prerequisite,
- Recycling facilities to divert waste generated in both the construction and operations phases,
- Composting facilities to divert green waste, clean wood waste, food waste, and other organic materials,
- Fuel-efficient vehicles and collection systems to support all ashore and afloat collection of recyclable materials,
- Truck scales to weigh materials to calculate diversion and recycling rates and support the sale of recyclable materials.

⁶⁹ Navy installations shall compost landscaping cuttings, yard and green waste, limbs, branches, and other organic materials suitable for composting at an installation, municipal, or private facility. Installations shall consider the following composting alternatives when determining the most feasible composting method: requiring landscaping contractors to deposit green waste at an installation, municipal or private composting facility; using municipal or regional composting facilities; or establishing composting facilities at the installation if municipal composting facilities are not available or feasible (OPNAV INST 5090.1C 16-5.6)

⁷⁰ See anaerobic digestion comment under Wastewater

CFR 52.21. Note that not all of GPA's combustion turbine facilities are PSD sources, therefore, it is appropriate to consult and include GEPA in the determination of Title V permitting modifications (including PSD modifications for PSD sources) of any affected combustion turbine facility. The intent of reconditioning the combustion turbines is to repair the units and to keep the emissions within GPA's permitted emissions. There should be no significant emissions increase above the regulated emissions. Therefore, major modifications are not anticipated. However, DoD is currently conducting a study to determine the extent to which each individual CT needs reconditioning. This study can be used by GPA, EPA Region IX, GEPA and DoD as the basis for determining whether PSD requirements are triggered as a result of the planned reconditioning for each CT. It is understood that securing modifications to the air permits would take two to three years. The reconditioning activities of the CTs are not required immediately, and would be phased over time; this would allow for sufficient time to modify permits if necessary, and would not affect the construction timeline of the proposed action. A statement was added to the FEIS indicating that if the combustion turbines are modified so that "modifications" to the air permits are required, the appropriate air permits would be obtained prior to the commencement of any reconditioning activities. Therefore, the FEIS concludes a less than significant impact for the preferred alternative.

PSD/Title V GHG Tailoring Rule: The Rule is proposed and currently being revised and applies to new or modified major sources. Therefore, an analysis for GHG is premature. If an existing major source is modified and the Rule is promulgated at the time of the modification, then the modification would include an applicable analysis for GHG. The FEIS includes a statement indicating that if the combustion turbines are modified so that modifications to the air permits are required, the appropriate air permits would be obtained prior to the commencement of

A-009-080 *F. Green Waste*

As mentioned above, the Layon permit prohibits the acceptance of green waste, and composting is not addressed in the DEIS. Very large volumes of green waste will be generated from clearing of vegetation for the project sites. Over 2,000 acres of vegetation will be cleared on Guam (Vol. 7, p. 3-27), and this includes an estimated 1,577 acres of limestone forest. The DEIS does not identify how this waste will be managed.

Recommendation: As part of an integrated waste management plan, the DEIS should identify the management options for the large volumes of green waste from vegetation clearing, as well as other sources of green waste. Plans to manage these wastes should be in place before project green waste is generated.

A-009-081 *G. CVN Carrier Waste*

Carrier operations involving 5,600 personnel would generate a significant amount of waste. The DEIS states that typically, solid waste storage bins would be provided in the aircraft carrier compound and near the "Morale, Welfare, and Recreation" activity area, as needed. This solid waste would be handled and managed in accordance with Navy standard operating procedures and would be disposed of at the Navy landfill as long as it meets all criteria for disposal (Vol. 4, p. 2-40).

Recommendations: As part of an integrated waste management plan, a more detailed and robust source reduction, reuse, recycling, and composting plan should be included in the CVN berthing project description. In addition, Navy Region Southwest and other carrier facilities with extensive afloat recycling experience should be consulted regarding design alternatives to maximize easy recovery and recycling of major materials streams: scrap pallets (for repair and reuse), metals, wood, cardboard, plastics, and food waste. Reuse and recycling of materials should be prioritized over landfill disposal, and facility plans should include design criteria to provide adequate space for recycling storage. In addition, a commitment to participate in the Waste Reduction Afloat Protects the Sea (WRAPS)⁷¹ program to reduce the impacts of waste at sea should be included in the FEIS.

IV. HAZARDOUS WASTE

A-009-082 *A. Hazardous Waste Minimization/ Pollution Prevention*

The proposed action will increase the amount of hazardous materials and waste generated on Guam. The DEIS estimates that approximately 16,000 lbs of hazardous waste, or half of what is generated on Okinawa, would be generated, and that increases in hazardous materials may require the DRMO (Defense Reutilization and Marketing Office) on Guam to expand its hazardous materials handling, storage, and disposal capacity (Vol. 2 p. 17-39). Navy guidance on pollution prevention states that "all Navy activities shall identify means and methods for the elimination or minimization of pollutants and, where possible, incorporate them at the earliest stages of planning, design, and procurement of facilities, ships, aircraft, weapon systems,

⁷¹ WRAPS info available at: <http://www.navy.mil/oceans/WRAPSES.pdf>

any reconditioning activities. Therefore, the FEIS concludes that there would be a less than significant impact.

A-009-065

Thank you for your comment.

Potential increases in emissions: The DEIS does not dismiss the potential increases in emissions for criteria pollutants and CO₂. Tables 7.2-5, 7.2-7, and 7.2-11 show these emissions for the three interim alternatives for power. The tables also indicate the net potential increases, if any, above the permitted emissions. For HAPs, we do not anticipate any public health impacts given that the potential emissions are considered insignificant [0.5 or less tons/year of each HAP, which is based on the Guam Air Pollution Standards and Regulations (GAPSR), Section 1104.1(f)(1) and 40 CFR 71.5(c)(11)]. As a side note, a DoD and GPA reevaluation of the power demand projections and existing capacity determined that the current GPA IWPS is sufficient to meet both the current power needs and the projected additional demands associated with the relocation. According to the reevaluation, the required increase in load conditions above current levels at those affected combustion turbines (CTs) would be substantially lower than what was discussed in the DEIS because these CTs would not be used for baseload power but only when reserve capacity was needed in the IWPS. The FEIS contains updated tables accordingly and a column for total HAPs was added.

Title V permits and air quality impacts: EPA indicates that being in compliance with the Title V permits is an invalid measure for air quality impacts, so our impact assessment methodology should be compared to a health-based standard. We do not understand this comment since it implies that EPA's Title V permitting program does not protect human health. The basis of the CAA is to protect human health and the environment. EPA has promulgated many air standards, such as

A-009-082

equipment, and material” (5090.1C). The DEIS includes a BMP to implement aggressive hazardous waste minimization plans that substitute non-hazardous or less toxic materials, but the DEIS does not address any actual planning being conducted to eliminate or minimize pollutants or to mitigate the impacts of hazardous pollutants. In addition, the discussion of required regulatory involvement does not support conclusions regarding lack of significant impacts. There are already significant capacity limitations and the added burdens cannot be accurately estimated from this discussion.

Recommendation: As part of the planning process, a detailed assessment of the total quantities and types of hazardous materials used on Guam and Okinawa, as well for the proposed construction activities, should be conducted. Information regarding additional hazardous materials handling facilities, storage, and disposal capacity should be included.

A pollution prevention plan and assessment should be developed with specific pollution prevention activities, equipment, and process changes to eliminate, where possible, and reduce hazardous materials. Green purchasing practices should be developed and implemented to meet DoD, human health, and environmental objectives. We recommend a mitigation measure be included to require testing alternatives to toxic substances for the construction and operation phase. We also recommend that Leadership in Energy and Environmental Design (LEED) certification credits to reduce the use of hazardous materials in building construction be pursued (See comment below regarding LEED).

A-009-083

B. Polychlorinated Biphenyls (PCBs) in Concrete/ Construction Materials from Demolitions

EPA had informed DoD during project-related meetings of the potential presence of PCBs in concrete and other construction materials in existing buildings on Guam. The DEIS does not identify or address this potential problem.

Prior to 1978, PCBs were used in some building materials, including caulk and paint. As a result, PCB-containing caulking, paint and other materials have been found to be present in some buildings constructed or maintained during that period. The Toxic Substances Control Act (TSCA) and its implementing regulations in 40 CFR 761 prohibit the continued use of most materials containing PCBs at greater than 50 ppm. The management, reuse, disposal and other disposition of materials containing PCBs and PCB residues are also extensively and strictly regulated.

The project will involve demolition of a number of buildings and reuse of building materials. If PCBs are present in some or all of these materials, the management of any demolition activities and the disposition of demolition debris could substantially affect the environmental impacts and logistics of those activities.

Recommendation: Describe whether and how building materials will be tested for PCBs and how they will be managed if they are found to contain PCBs. If materials do contain PCBs, describe where and how the material will be stored and disposed, who will conduct testing, and how DoD will track this process to ensure its proper disposal. For

NAAQS, National Environmental Standards for HAP (NESHAP), etc., which protect human health. The air permitting program is the mechanism for stationary air sources to comply with the CAA. Although a Title V permit may not be a pre-construction permit, the Title V permit incorporates all the federal regulations/requirements applicable to the source into one document, including the pre-construction review program. For power facilities, a health-based impact analysis is normally done in order to obtain an air permit during the construction of a facility modification. Therefore, operating within the Title V permit is a valid measure for air quality impacts, is sufficient for demonstrating the compliance with the CAA-defined requirements to protect human health, and demonstrates a less than significant impact.

EPA indicates that air quality impacts were not evaluated during the permitting process. However, record searches were conducted which indicate that GPA conducted a health-based NAAQS compliance analysis for the Dededo, Macheche, and Yigo power facilities listed below:

- PSD Air Quality Impact Analysis for Dededo Facility (R. W. Beck and Associates, June 11, 1992).
- Environmental Impact Assessment for Proposed Macheche Generating Facility (R.W. Beck and Associates, August 1992).
- Environmental Impact Assessment for Proposed Yigo Generating Facility (R.W. Beck and Associates, January 1993).

The CTs that would be potentially affected by the proposed action in those facilities, operating under the permitted conditions, were modeled in the above studies. It is believed that these health-based compliance studies are part of obtaining air permits from GEPA/EPA during pre-construction or pre-modification permitting process.

A-009-083

additional information, see: <http://www.epa.gov/pcbsineaulk/caulkremoval.htm> and <http://www.epa.gov/epawaste/hazard/tsd/pcbs/index.htm>.

A-009-084

C. Hazardous Materials and Waste Discussion

We offer the following observations and comments on the hazardous materials and waste chapter in Volume 2, which may also apply to this chapter in other volumes. We recommend the FEIS provide clarification regarding these issues:

- **Military Munitions Rule:** The description of the Military Munitions Rule requires clarification because the cited language primarily applies to active ranges. Munitions and explosives of concern (MEC), including unexploded ordnance (UXO) and discarded military munitions (DMM) generally meets the definition of a CERCLA hazardous substance and/or a RCRA hazardous waste. Therefore any planned activities that encounter MEC outside of active or inactive ranges are subject to regulatory oversight. The discussions in Chapter 18 regarding public health and safety do not reference the required regulatory oversight when MEC/UXO/DMM is encountered. No discussion is included of available permitted Open Burn /Open Detonation (OB/OD) facilities nor any discussion of the potential public safety threats which may arise if items are encountered which cannot be relocated. The assertion that there will be no adverse impacts because UXO technicians will screen areas prior to intrusive activity is based on the questionable assumption that the areas with MEC contamination have been identified. In addition, while the OB/OD facility is identified in Vol. 2, p. 17-49, it does not indicate if the facility can accept waste from off-base locations, for example, munitions encountered during road construction.
- The description/definition of "hazardous substance" in Sections 17.1.2 and 17.1.2.1 do not accurately reflect the statutory definition and foster confusion regarding the proper use of the terms "hazardous substance", "hazardous material" and "hazardous waste" throughout Chapter 17 and 18.
- RCRA also regulates generators of hazardous waste, and Guam has been authorized by EPA to manage hazardous waste under its regulations in lieu of federal RCRA (Vol. 2, p. 17-3). The FEIS should clarify Guam EPA's role under its authorized RCRA program. (Vol. 2, p. 17-17, 7-9, 7-29)
- The DRMO discussion on p. 17-7 of Volume 2 should clarify the distinction between hazardous materials and hazardous wastes. Additionally, several sections refer to the "increased use of hazardous waste". We assume this indicates waste generation, therefore this language should be corrected (Vol. 2, p. 17-11, 43, 44, 45, 47, 51).
- The map on page 17-30 identifies Anderson AFB as an National Priorities List (Superfund) site. The FEIS should identify the role that EPA and Guam EPA will play if construction does disturb these Installation Restoration Program (IRP) sites.
- Apra Harbor is a RCRA regulated facility. The FEIS should identify how GEPA be involved in the management of contaminated soils at that facility (Vol. 2, p. 17-34).

Although a health-based NAAQS compliance analysis was not available from GPA for the Marbo CT facility, it does not mean that an analysis was not conducted. However, to address EPA's comment, DoD, in coordination with GPA, conducted an ambient concentration dispersion modeling analysis for the Marbo CT facility under its permitted capacity. The results indicate that the facility is in compliance with the NAAQS. The FEIS added a discussion on the evaluation of air quality impacts for the four CT facilities, references the GPA air impact studies, and includes the results of the modeling conducted for Marbo.

Impact analysis for HAPs: Given the insignificant HAPs potential to emit at each CT under its permitted condition, we do not anticipate any public health impacts. Therefore, no quantitative air toxics analysis is required or warranted. Also, note that the FEIS dropped all interim alternatives that involved the addition of power generation facilities for baseload power (interim alternatives 2 and 3) from the proposed action.

Combined pollutant exposures: Site specific construction activity impacts are temporary in nature and the associated short-term impact would be expected to occur primarily to those areas immediately adjacent to the site since construction emissions would not travel far due to the elevation of these sources. For the same reason, vehicular traffic-related mobile source emissions would be quickly dispersed, with localized concerns occurring essentially at receptors immediately adjacent to congested intersections (e.g., when sidewalks are present). This dispersion characteristic can be demonstrated based on the results of Mobile Source Air Toxic (MSAT) impact modeling analysis predicted at the worst-case congested intersections as per EPA's request (see FEIS Volume 6). In the MSAT analysis, the concentration levels at actual neighborhood receptors would be substantially below the levels predicted at sidewalks. Therefore, cumulative localized effects from traffic-related mobile sources and power plants are typically negligible

V. SUSTAINABILITY

DoD has a tremendous opportunity for this project to be a show case model of sustainable design and efficiency, helping to maintain the limited and fragile natural resources on the island and ensure the long term resource security needed for DoD's critical mission. Embracing sustainable development could provide specific benefits to DoD: direct cost savings; improvements in productivity, morale, and retention; and improving military readiness. The Unified Facilities Criteria (UFC) 4-030-01 states that developing sustainable facilities can enhance national security by increasing DoD's energy reliability, and improve the image and reputation of DoD as a steward of environmental resources (UFC, p. 32).

Integrated approaches to smart growth, transit, green building and sustainable infrastructure (renewable energy, wastewater, recycling and composting) that benefit the entire community are crucial to protecting public health and mitigating impacts from the buildup. The magnitude of the project and its potential impacts necessitate that sustainability be incorporated at all levels of planning, construction, and operations. Sustainability should be viewed as a holistic goal for both the on-base activities and the impacts of base activities to off base resources.

The DEIS does not provide an "integrated strategy towards sustainability", as required by Executive Order (EO) 13514⁷², nor does it adequately address many of the Executive Order and DoD requirements. EO 13514 states that:

"In order to create a clean energy economy that will increase our Nation's prosperity, promote energy security, protect the interests of taxpayers, and safeguard the health of our environment, the Federal Government must lead by example. It is therefore the policy of the United States that Federal agencies shall increase energy efficiency; measure, report, and reduce their greenhouse gas emissions from direct and indirect activities; conserve and protect water resources through efficiency, reuse, and stormwater management; eliminate waste, recycle, and prevent pollution; leverage agency acquisitions to foster markets for sustainable technologies and environmentally preferable materials, products, and services; design, construct, maintain, and operate high performance sustainable buildings in sustainable locations; strengthen the vitality and livability of the communities in which Federal facilities are located; and inform Federal employees about and involve them in the achievement of these goals."

The project as proposed does not conform with many of these requirements, and as such, cannot be considered a project that emphasizes sustainability. Specifically, the project does not:

- **Contribute to a clean energy economy per EO 13514, or maximize energy efficiency:** As identified in our comments under Air Quality, the DEIS does not commit to incorporating renewable energy elements into the project and instead will use diesel or fuel oil-fired combustion turbines for short and medium-term power needs, and is working with GPA to developing a new diesel-fired power plant to serve long-term project needs. Energy efficiency opportunities on DoD land or island-wide are not being pursued.

⁷² E.O. is available at: <http://edocket.access.gpo.gov/2009/pdf/E9-24518.pdf>

since stationary power plants are not usually located immediately adjacent to congested intersections where mobile source impact could be of concern. Therefore, the worst-case condition analyzed in the DEIS for respective source categories is both source- and site-specific. The areas with potential exposure to multiple project sources would be unlikely to have impacts exceeding the worst-case levels already predicted around individual source categories (i.e., a power plant or a heavily congested traffic intersection).

More information from GPA: EPA indicates that more information from GPA is needed before EPA can determine if the reconditioning of the CTs qualify as routine maintenance. As discussed in DoD's response to EPA's comment concerning the need for a PSD permit review prior to reconditioning the CTs, it is appropriate to include GEPA in any PSD permit determinations, since GEPA administers the air permits program, and not all of the CTs are PSD sources. Also, record searches indicate that GPA provides EPA and GEPA applicable periodic reports for fuel usage and stack testing for their power facilities.

There is an ongoing DoD CT study to determine the specific repairs needed to recondition the CTs. Based on this study, if it is determined that Title V modifications (including PSD modifications for PSD sources) are required for one or more of the combustion turbine facilities, then "modifications" to the respective Title V permits would be obtained prior to the commencement of any reconditioning activities. The study was not finalized in time for the FEIS, therefore, the information was not included in the FEIS.

A-009-066

Thank you for your comment. The Navy is committed to working with EPA and GPA to pursue cleaner fuels for both the long term power plant and short term operations of the CTs. The need to meet the dates set in international agreements remains unchanged, however, and the Navy

A-009-085

- **Conserve and protect water resources through efficiency, reuse, and stormwater management:** See our comment under water resources. The project does not maximize water loss, either from DoD's or GWA's water system, nor does it propose any reuse options.
- **Eliminate waste, recycle, and prevent pollution:** See our comments under Waste Minimization and Management. Sufficient reuse and recycling infrastructure needs are not identified in the DEIS, nor included in site plans.
- **Promoting environmentally preferable materials, products, and services:** Green procurement is not mentioned in the DEIS. DoD has a Green Procurement Program⁷³ (GPP) which sets a goal of 100% compliance with Federal GPP programs in all acquisition transactions. The project should address plans to comply with DoD's Green Procurement Program and include objectives/targets for GPP performance (purchases of green products and services) that are consistent with the nature and quantity of purchasing activities.
- **Strengthen the vitality and livability of the communities in which Federal facilities are located:** Many of our comments address the significant impacts to local services and utilities and to local communities. See also comments regarding Environmental Justice, and Reducing Vehicle Miles Traveled (Offbase) below.

Additionally, DoD's Unified Facilities Criteria (UFC) requires that DoD establish project sustainable development goals, defining the process to achieve them, and developing a clear understanding of the expected results (UFC, p. 12). The DEIS identifies some general goals for sustainability for DoD *as an agency*, and references Executive Orders, the Energy Policy Act of 2005, and the Memorandum of Understanding on Federal Leadership in High Performance and Sustainable Buildings, however specific sustainability goals *for the project* are not clearly delineated (Vol. 1, Sect 1.10). The following comments provide more detail and include specific recommendations towards meeting these goals.

A-009-086

A. Leadership in Energy and Environmental Design (LEED) certification

Federal laws, regulations, and Navy policies, including the requirement that all new buildings be certified Silver, at a minimum, under the Leadership in Energy and Environmental Design (LEED) certification program, provide a good *starting point* for making this project sustainable. LEED is one of the many tools that could help address certain aspects of sustainable development; however, LEED-New Construction (NC) Silver certification alone may not be enough to deem a project sustainable. The LEED credits or points needed to achieve the silver certification might not lead to the most sustainable approach. Maximizing certain types of credits or points could achieve a more sustainable project while the inverse could also be true. DoD should incorporate long term sustainability while accruing LEED credits or points during the certification process. In addition, DoD could consider using the LEED Guide for Multiple

⁷³ Green procurement is the purchase of environmentally preferable products and services in accordance with one or more of the established Federal "green" procurement preference programs. The GPP applies to all acquisitions from major systems programs to individual unit supply and service requisitions. The purpose of the GPP is to enhance and sustain mission readiness through cost effective acquisition that achieves compliance and reduces resource consumption and solid and hazardous waste generation. See http://www.wbdg.org/pdfs/DoD_gpp_082704.pdf

cannot acknowledge a longer duration of CT operation and emissions as a reasonable alternative because it would not meet the stated purpose and need.

A-009-067

Thank you for your comment. Comprehensive Energy Plan: It is out of DoD's authority to serve as the lead agency for a comprehensive island-wide energy plan. Rather, the DEIS and FEIS describe efforts that DoD will take to reduce its overall energy footprint on existing and new DoD facilities on Guam. DoD is willing, however, to participate on a workgroup to share lessons-learned and technologies with GPA, Guam EPA, and others to further energy conservation goals on Guam. Energy Efficiency: DOD agrees that energy efficiency measures pursued by GPA and DOD would reduce the power demand on the power infrastructure. DOD has already commissioned comprehensive energy efficiency studies for DoD infrastructure, and, pending the results of those studies, would identify efficiency measures that would offer the greatest return on investment. Specifically, the following efficiency studies have been or would be conducted: · Sustainable Systems Integration Modeling (SSIM) Pilot Study, which includes integrated analysis of energy, water, transportation, ecological resources, green building, socio/cultural, and economic factors. · Sustainability Program Phase II, which identifies Unified Facilities Criteria (UFC) that adversely impacts sustainability efforts and propose alternative criteria to mitigate impacts, incorporates SSIM, integrates Leadership in Energy and Environmental Design (LEED) New Construction and LEED Neighborhood Development as well as Low Impact Development into master plan and creates Implementation and Monitoring Program. Additionally, DOE FEMP has funded a National Renewable Energy Laboratory (NREL) program to conduct energy efficiency assessment training for DON staff on the ground in Guam. The NREL training is planned for the in the April/May 2010 timeframe. DOD would continue to conduct, in partnership with other US government agencies, audit

Buildings and On-Campus Building Projects⁷⁴, which certifies multiple buildings and could save on certification costs.

Recommendations:

1. Focus on obtaining LEED key credits that are of most importance to human health and Guam's environment and that are not covered under various federal mandates. We recommend the following specific LEED credits be prioritized for each category as follows:

Sustainable Sites

- Credit 1 – Sustainable Sites
- Credit 2 – Development Density & Community Connectivity
- Credit 5.1 – Protect or Restore Habitat
- Credit 5.2 – Protect Open Space

Water Efficiency

- Credit 1 - Water Efficient Landscaping
- Credit 2 - Innovative Wastewater Technologies
- Credit 3 - Water Use Reduction

Energy & Atmosphere

- Credit 1 – Optimize Energy Performance
- Credit 2 – On Site Renewable Energy
- Credit 5 – Measurement & Verification

Materials & Resources

- Credit 2 – Construction Waste Management
- Credit 3 – Materials Reuse

Indoor Environmental Quality

- Credit 1 - Outdoor Air Delivery Monitoring
- Credit 2 - Increased Ventilation
- Credit 3.1 - Construction IAQ Management Plan, During Construction
- Credit 3.2 - Construction IAQ Management Plan, Before Occupancy
- Credit 4.1 - Low-Emitting Materials, Adhesives & Sealants
- Credit 4.2 - Low-Emitting Materials, Paints & Coatings
- Credit 4.3 - Low-Emitting Materials, Carpet Systems
- Credit 4.4- Low-Emitting Materials, Composite Wood & Agrifiber Products
- Credit 5 - Indoor Chemical & Pollutant Source Control
- Credit 8.1 - Daylight & Views

Innovation Credits

- Design for Adaptability (see below)

2. Attempt to achieve gold or platinum LEED certification, instead of the minimum goal of Silver certification⁷⁵.

⁷⁴ <http://www.usgbc.org/ShowFile.aspx?DocumentID=1097>

⁷⁵ UFC 4-030-01, states that for the FY09 and beyond projects for new buildings, LEED Silver-level rating is the minimum goal for applicable projects (p. 8). Also the Memorandum from B.J. Penn, the Assistant Secretary of the Navy for Installation and Environment on August 4, 2006 directing Navy and Marine Corps Commanders to

programs to optimize efficiency measures. Solar power: DOD is pursuing solar resources as a means of increasing the island's renewable portfolio. However, at this point, utility-scale solar arrays are not feasible for the island. Because of climatological differences in Guam and Hawaii, EPA's argument regarding existing DOD solar projects in Hawaii does not support its contention that solar is a viable resource for utility-scale energy, in Guam. Further, DOD notes that, while there are successful DoD solar projects in Hawaii, there are no utility-scale photovoltaics on Hawaii. In order to optimize use of solar power on the island, DOD has undertaken the following projects:

- Construction of a Building Integrated Photovoltaic Roof (BIPV) using integrated PVC membrane and flexible thin film amorphous silicon PV laminates was completed on DRMO building in summer 2009. Guam's NAVFAC MARIANAS energy team is collecting power output data as well as focusing on how well the roof holds up under Guam weather conditions.
- NAVFAC ESC awarded a contract to USD three million to test PV adhesion to concrete roofs. Phase I is to characterize Guam roofs and test adhesives in the laboratory that simulate Guam weather conditions, including 200 mph wind uplift tests.
- Johnson Controls is, under an energy savings performance contract (ESPC), currently building a 250 kW solar array at NAVBASE Guam.
- Construction of a 100 kW roof top mounted fixed crystalline PV array on Buildings 1 and 2.
- A wide range micro solar applications including sidewalk lighting, wharf parking lot lighting, and guard shack lighting. DOD anticipates that these efforts will result in 16 MW of solar power by 2011.

Wind power: DoD is presently collaborating with GPA on wind power initiatives in the island. DoD is in the process of collecting wind data and will be shared with GPA when completed. Also, DOD has not eliminated consideration of wind energy and in order to optimize use of wind power on the island, DOD has the following projects:

- Energy Conservation Investment Program (ECIP) funded project to install 4 wind turbines (each 1 MW).
- An offshore jetty wind study, with support from NREL and financing from \$115,000 from DOE FEMP. In addition,

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3. Pursue project certification under LEED for Neighborhood Development (LEED-ND) to ensure a broad sustainability approach. LEED-ND incorporates smart growth principles in a way that LEED-NC, which focuses on individual buildings, does not. LEED-ND provides a comprehensive pathway for creating sustainable communities that reduces emissions from transportation and buildings, the two largest causes of greenhouse gas emissions. Projects built to this standard cultivate a higher quality of life by creating safer and more walkable communities.

A Note on Housing Density: The DEIS states that the housing density in the Guam Joint Military Master Plan is based on 4-6 units per acre (Vol. 2, p. 2-13). EPA has commented to DoD on several occasions that this density does not provide the environmental benefits that higher density offers. DoD has responded verbally that they cannot increase density on the new Marine Corps Main Cantonment because they need to house the Marines in facilities similar to those on the Air Force base for equity reasons. EPA emphasizes that density does not preclude high-quality housing. Several military installations have high-quality, dense housing, including Fort Belvoir in Virginia and the Naval Training Center in San Diego. These bases offer a range of housing options, including single-family homes.

The Lincoln Land Institute's Visualizing Density web site⁷⁶ is an excellent resource that shows how a given density looks in a real neighborhood. For example, you can see that a density of 8 units per acre is achievable with single-family homes in an attractive layout.

A-009-087

B. Designing for Adaptability

To reduce long-term generation of C&D debris and provide operational flexibility, buildings should be designed for adaptability. Resource are available the EPA and partners' Lifecycle Building Challenge site <http://www.lifecyclebuilding.org/resources.php>.

Recommendations:

Consider the following design principles:

- Document materials and methods for deconstruction. Select materials using the precautionary principle. Design connections that are accessible; use visually, physically, and ergonomically accessible connections.
- Minimize or eliminate chemical connections, binders, sealers and glues on or in materials; use bolted, screwed and nailed connections.
- Separate mechanical, electrical and plumbing (MEP) systems.
- Design to the worker and labor of separation.

immediately take action to plan, program and budget to achieve *at least* LEED Silver-level rating performance in new and replacement buildings.

⁷⁶ Available at: <http://www.lincolnst.edu/subcenters/visualizing-density>

DOD is also exploring the potential of other renewable energy sources such as geothermal, Ocean Thermal Energy Conversion, hydro-generation, and rain water harvesting and has or will be undertaking following projects: GEOTHERMAL AND GEOEXCHANGE: Construction of a hybrid geo-exchange system for the new MILCON BEQ at NAVBASE Guam as part of a synergy effort with a NFESC Port Hueneme, CA geo-exchange feasibility study. The Navy Geothermal Program Officer and the (NREL) are jointly conducting a Guam geothermal feasibility study currently at Phase II (Local Assessment) with a site visit scheduled for April 2010. A recently completed Ocean Thermal Energy Conversion (OTEC) feasibility study concluded that Guam is an excellent candidate for this technology. A 10 MW pilot plant is scheduled for construction in Hawaii in order to test new OTEC technologies. HYDRO GENERATION AND RAIN WATER HARVESTING. An ECIP request to fund a micro hydro turbine feasibility study for the Navy Fena Reservoir was submitted by NFESC Port Hueneme, CA. Rain water harvesting is included wherever possible in all new region MILCON to mitigate requirements for potable water. Examples include planning on using rain catchment systems at the proposed NAVBASE Guam Military Working Dog Facility for washing dog runs and Finegayan Fire Station for minor irrigation. The FEIS was updated to include the discussions on these developments and that the renewable efforts on the existing bases would lessen the demand on the IWPS and result in reduction in consumption of fossil fuel based energy.

A-009-068

Thank you for your comment.

Although Volume 6, page 19-5 indicates that the use of cleaner fuel types would likely be required to address existing air quality impacts, the air quality analysis for transportation and construction activities in the DEIS and FEIS, which relates to air quality changes as a direct result of the relocation, included modeling that assumed the use of high sulfur

- Use simplicity of structure and form; incorporate interchangeability.
- Allow for safe deconstruction.

A-009-088 *C. Facility Metering Plans do not meet Federal Requirements*

The DIES states as a goal for metering, to install remote readable electricity meters annually on 25% (all by 2012) of facilities consuming more than \$35,000 per year electricity, and meter additional facilities and utilities as practical based on business case analysis (Vol. 8, p. 6-4). Federal law requires all federal buildings to implement advanced metering "...for the purposes of efficient energy use and reduction in the cost of electricity used in such buildings..." by October 1, 2012. Advanced meters or metering devices must provide data at least daily and measure the consumption of electricity at least hourly. These devices must be used to the maximum extent practicable (Energy Policy Act of 2005, Section 103). Installation of meters on new construction is highly cost effective.

Recommendation: Update the sustainability goal for metering to include the requirements mentioned above. EPA recommends that advanced energy and water meters that can be centrally managed be installed in all buildings.

A-009-089 *D. Federal Sustainability Policies and Guidance*

Volume 8, Table 6.1-1 lists federal policies and guidance for sustainability. The followings should be added to this table:

- The Federal Leadership in High Performance and Sustainable Buildings MOU (Building MOU) has an energy efficiency target for new construction to reduce the energy cost budget by 30% compared to the baseline building performance rating per the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) and the Illuminating Engineering Society of North America (IESNA) Standard 90.1 2004 for building except low-rise residential.
- The Building MOU also provides targets for day lighting under the Indoor Environmental Quality: Achieve a minimum of daylight factor of 2 percent (excluding all direct sunlight penetration) in 75 percent of all space occupied for critical visual tasks. [Note: this will also impact the energy efficiency.]
- The Building MOU also provides language to: Reduce environmental impact of materials; for EPA-designated products use products meeting or exceeding EPA's recycled content recommendations. For other products, use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% (based on cost) of the total value of the materials in the project.

A-009-090 *E. Off-Base Sustainability*

As mentioned above, sustainability should be viewed as a holistic goal for both the on-base activities and any adverse impact of these activities to off-base resources. EO 13514 also

fuels. This modeling showed a less than significant impact on air quality from the relocation. The FEIS was revised to indicate that the buildup is less than significant for air quality and deleted the use of cleaner fuel types would likely be required.

Pursuant to rulemaking as early as 1993, the EPA administrator has granted various exemptions to Guam allowing the use of high sulfur fuel. The rulemaking processes specifically noted that Guam had pristine air quality, and the winds normally blew outwards from the island to sea and that the use of high sulfur fuel was not a public health hazard. Additionally, these rulemakings noted the use of low sulfur fuel would result in significant economic impact to the people of Guam. EPA has the ability to address any public health and environmental concerns associated with the use of high sulfur fuels within its own authority. Pursuant to 42 USC 7607(d)(1)(V), the EPA administrator has the authority to pursue rulemaking changes to existing EPA regulations, including those which granted exemptions to Guam from requirements, allowing the use of high sulfur fuel. Further, pursuant to 42 USC 7603, if the EPA administrator believes that the use of high sulfur fuel by GPA or other users of high sulfur fuel on Guam results in eminent and substantial endangerment to the health of the people of Guam, he/she can pursue appropriate enforcement actions, which could possibly prohibit the use of high sulfur fuel.

The DEIS and FEIS do not commit to the use of lower sulfur fuels by DoD. However, DoD agrees that lower sulfur fuels would provide cleaner air emissions. Although this was a comment by EPA in their official comment letter to DoD on the DEIS, subsequent meetings between DoD, EPA, GEPA, GPA and GovGuam officials have resulted in agreement that there should be an island-wide effort to move from higher sulfur fuels to ultra-low sulfur fuel. Therefore, DOD is currently working with relevant stakeholders, including EPA and those on Guam including GEPA and GPA and suppliers to determine an appropriate

A-009-090 includes the requirement to "strengthen the vitality and livability of the communities in which Federal facilities are located". As stated, and as the DEIS identifies for some resources, there will be many significant impacts to communities⁷⁷.

A-009-091 *F. Reducing Vehicle Miles Traveled (Off-base)*

The DEIS identifies an area of focus and approach for sustainability related to transportation to include: 1) bicycle and pedestrian oriented site planning, 2) an internal shuttle, and 3) integrating on-site transportation with off-site transportation (e.g. designing on site transportation to conveniently connect with offsite high-capacity systems such as an off-site shuttle) (Vol. 8, p. 6-5). Because the project includes off base roadway construction projects, including pavement strengthening, road widening, and construction of a new road, the transportation approach to sustainability identified for the new base should also apply to these off-base road projects.

Currently, Guam has limited accommodations for pedestrian and bicycle travel, with sidewalks and roadway shoulders comprising the existing pedestrian and bicycle system. Guam currently does not have designated or marked bicycle lanes or paths (Vol. 6, p. 4-4). The December 2008 2030 Guam Transportation Plan⁷⁸ states that the policy of the GDPW is to integrate bicycling options and sidewalks into the transportation system as a means to improve mobility and safety of non-motorized traffic. Further, bicycle and pedestrian facilities will be included in any roadway reconstruction or construction of new roadway facilities. Figures S-14 and S-15 of the Guam Transportation Plan show the types of pedestrian/bicycle elements that will be considered on future roadway reconstruction and widening projects. Specific improvements include providing a 4-foot-wide shoulder or marked bike lane, widening the outside lane to 14 feet, completing a partially existing sidewalk, or constructing a new sidewalk or shared-use path. Bike lanes are also recommended for areas of high tourist activity to make a "Complete Street" (See Guam Transportation Plan, p. S-21 – S-24).

Many of the proposed pedestrian and bicycle facility improvements from the Guam Transportation Plan are on the same routes included in the Guam Road Network (GRN) that is part of the project. To promote sustainability, DoD should strategically integrate sidewalks, bicycle lanes/paths (or sufficient shoulders to accommodate safe bicycle travel), or shared-use paths into the GRN. DoD should also facilitate non-motorized travel (i.e., walking and biking) from the proposed military base to popular off base destinations, such as recreational, shopping or tourist areas, to further reduce single occupancy vehicle travel and vehicle miles traveled (VMT) from the base. The DEIS indicates that the proposed military build-up alternatives will result in significant increases to regional VMT ranging from 18% to 20% by 2030 (Vol. 6, p. 7-30 and 7-49). Improvements to pedestrian and bicycle facilities could also help reduce significant impacts to local Guam communities from increased traffic congestion, as alternative transportation modes become safer, more available, and attractive to use.

Recommendation: Integrate strategic off-base pedestrian and bicycle facility improvements with proposed off-base transportation projects in the Guam Road Network

⁷⁷ See comments regarding Environmental Justice, Drinking Water and Wastewater, Noise, Air Quality

⁷⁸ Available at <http://guamtransportationprogram.com/gtpexecutivesummary.html>.

strategy for implementing an island wide switch to low sulfur fuel. There are several on-going logistics, economics, contracts, and regulatory issues, which must be resolved before an island wide switch to ULSF can be realized. DON is committed to mandating the use of ULSF in its operations and DOD construction activities upon implementation of the island-wide implementation plan. DOD would work with stakeholders to determine what measures can be implemented for actions under DOD's control prior to DOD switch.

A-009-069

Thank you for your comment. The DEIS includes the reference to the Energy Independence and Security Act (EISA) to acknowledge the expected pollutant reductions related to the EISA. The DoD's pursuit of alternative fuels is not part of or dependent on the proposed military relocation and is of separate utility. DoD will conduct separate environmental review under NEPA for any actions it is considering relative to alternative fuels.

A-009-070

Thank you for your comment.

DoD still has concerns regarding the unprecedented MSAT analysis to be conducted by a federal agency for a NEPA document based on EPA's request because of the lack of: 1) regulatory guidance; 2) impact thresholds; and 3) peer review of the methodologies. Therefore, the validity of analysis results to be available in the FEIS would still be debatable. However, the text was revised in the FEIS to remove the reference to the Joint Interim Guidance and other references. Given the long-term trend towards reductions of overall MSAT emissions from vehicles in the future, the qualitative analysis conclusions provided in the DEIS are still considered to be valid.

Although there would be an increase in MSAT emissions during

A-009-091

to reduce impacts related to increased traffic congestion and/or to facilitate non-motorized travel to and from the base and popular off-base destinations. Consider projects where pedestrian and bicycle improvements would make non-motorized travel more accessible and practical.

A-009-092

G. Clarification on VMT Values

The Air Impact Study (Appendix I) and the Air Quality chapter in Volume 6 use the same Vehicle Miles Traveled (VMT) values for Alternatives 1 and 2, however we believe VMT would be different for these alternatives based on modeling we've seen for other developments. The rationale for using the same VMT value is not explained in the DEIS. Further, the DEIS indicates that an on-base traffic study is currently being conducted and the results will be reported in the FEIS (Vol. 6, p. 4-39). Because of the outstanding base traffic study, it's unclear if the identified VMT values only account for off-base VMT since DoD hasn't completed the on-base traffic study.

Recommendation: EPA recommends that DoD explain the similar VMT values in the FEIS and discuss how the VMT values were determined for the Alternatives. EPA further recommends that DoD update the VMT values once the on base traffic studies are concluded and reflect these changes in appropriate analyses (e.g., air quality).

VI. ENVIRONMENTAL JUSTICE

A-009-093

The Environmental Justice (EJ) analysis is incomplete,⁷⁹ and proposed mitigation is insufficient to address the collective environmental justice impacts⁸⁰ of the proposed project. The island-wide project impacts are of such magnitude that they have the potential to significantly disrupt many aspects of life for Guamanians and indigenous Chomorrans, including potentially significant health and safety impacts. The EJ analysis in the DEIS acknowledges some impacts to EJ populations, but neglects discussion of a number of potentially significant impacts. Other impacts that were discussed were dismissed as not being significant, and mitigable to less than significant without any basis to demonstrate this. Impacts from the project components were not considered collectively, nor viewed from the perspective of effects on the day-to-day life and health of Guamanians. A substantially more developed mitigation strategy is necessary to avoid significant adverse impacts to EJ populations. Without a robust mitigation strategy, the proposed project does not fulfill the mandate of the Presidential Executive Order on Environmental

⁷⁹ EPA was directed by President Clinton to "ensure that the involved agency has fully analyzed environmental effects on minority communities and low-income communities, including environmental, social and economic effects" when reviewing the environmental effects of a proposed action under Section 309 of the Clean Air Act. (Memorandum from President Clinton on Executive Order 12898 - Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations (February 11, 1994)).

⁸⁰ The DEIS acknowledges the unique situation on Guam because racial or ethnic minority groups (as defined by the U.S.) comprise a majority of the Guam population, and the proportions of people living in poverty or who are under 18 years of age are also substantially higher than in the general U.S. population. The DEIS states, "The analysis is further complicated by the fact that Guam is a relatively small and isolated island, and certain types of impacts would be experienced island-wide. Accordingly, the analysis of environmental justice described... acknowledges the unique demographic characteristics of the island population and assumes that the project effects could disproportionately affect disadvantaged groups and children because they comprise relatively high proportions of the population". (Vol 2, p. 19-1)

construction and operational years, there would be continuing improvements to vehicle exhaust emissions in the future. DOD is currently working with relevant stakeholders, including EPA and those on Guam including GEPA and GPA and suppliers to determine an appropriate strategy for implementing an island wide switch to low sulfur fuel. Therefore, MSAT emission levels in neighborhoods would be anticipated to improve as compared to the existing condition, resulting in less than significant impacts from the proposed action. The MSAT study conducted for the project shows that the health impacts are below the thresholds set by EPA. The MSAT predicted levels from the proposed actions are well below the applicable thresholds recommend by EPA. The FEIS discloses the results of this MSAT analysis and the study is included in Volume 6, Chapter 7 and Volume 9, Appendix I.

The air analysis for construction activities, mobile sources, and the CTs indicate a less than significant impact. Also, the MSAT study shows that the health impacts are below the thresholds set by EPA. Therefore, the HAP impacts to neighborhoods, including the areas around traffic, is a less than significant impact and it would be unnecessary to conduct HAPs impact analyses for these CTs to determine the additive levels from both mobile sources and affected power facilities.

A-009-071

Thank you for your comment. The FEIS dropped air quality adaptive management for the following reasons: 1.) As indicated in previous responses, Title V permits are a valid measure for air quality impacts and operating within the permit is a less than significant impact; 2.) The air quality impacts analyses conducted and indicate compliance with the NAAQS; 3.) Nonroad and mobile emissions air analysis indicate less than significant impacts; 4.) Mobile equipment, such as construction equipment, non road engines, and on-road/highway vehicles, are manufactured to meet EPA air emission standards and these standards are protective of human health; 5.) The MSAT study conducted for the

Justice, which states that Federal agencies shall achieve environmental justice as part of its mission, and address, as appropriate, disproportionately high and adverse human health or environmental effects of its activities on minority populations and low-income populations in the United States and territories.⁸¹

The DEIS acknowledges significant impacts to EJ populations in north and central Guam in relation to access to public health and social services, traffic congestion, socioeconomic impacts related to the "boom then bust" effect, and access to recreational and cultural resources. The EJ analysis does *not* sufficiently assess the potentially significant impacts to the people of Guam as a result of stresses on the potable water systems and wastewater systems⁸², health impacts from degraded air, water, and marine resources; or on communities from impacts to traditional fishing, Chamorro issues, and threats to community cohesion.

Should significant impacts to utility infrastructure be left unmitigated, water outages or low pressure conditions could occur which could lead to illness and effect firefighting (Vol. 6, p. 3-46), and wastewater discharged from a treatment plant can enter the environment where human exposure may occur through the potable (drinking) water supply, recreation (swimming, snorkeling, etc.), or eating shellfish (Vol. 6, p. 19-7). Significant impacts to fish species from ammonia toxicity from wastewater discharges could also occur (Vol. 6, p. 13-18), and the DEIS does not assess the effect this could have on traditional fishing, which is prevalent on the west coast (Vol. 2, p. 2-62).

While the EJ analysis identifies "traffic" as a significant impact⁸³, it does not disclose the air quality and health impacts from significant traffic congestion during the construction phase. The EJ analysis concludes that traffic impacts would be mitigated to less than significant, however the analysis does not demonstrate this - the roadway section concludes that traffic impacts in the north will not be mitigated to a better than Level of Service (LOS) F (Vol. 6 p. 4-60). Therefore, the public health impacts from vehicle exhaust, especially with the use of high-sulfur fuel, should be disclosed for populations proximate to these congested roadways and intersections. There is evidence that environmental justice communities are more vulnerable to pollution impacts than other communities. Disadvantaged, underserved, and overburdened communities are likely to have pre-existing deficits of both a physical and social nature that make the effects of environmental pollution more, and in some cases, unacceptably, burdensome⁸⁴. Also, because

⁸¹ Executive Order 12898 (Feb. 11, 1994) Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.

⁸² The DEIS does acknowledge in the water utility impact assessment that potential water shortfalls would probably fall disproportionately on the low income and poor (Vol 6, p. 3-48), but the EJ analysis in Chapter 20 of Vol 6 does not include this impact, nor any other stresses to utilities.

⁸³ The DEIS states that the racial minorities and low-income populations in the northern Dededo and northern Yigo that live near Routes 3 and 9 would be disproportionately impacted by increased traffic (Vol. 2, p. 19-13), and that those living near Route 3, Route 10 north of Route 32 to Route 8, Route 15 at its intersection with Route 10, Route 16, Route 25, Route 26, and Route 28 would experience significant traffic impacts (Vol. 2, p. 19-15).

⁸⁴ EPA's *Framework for Cumulative Risk* (www.epa.gov/OSA/raf/publications/pdfs/frmwrk_cum_risk_assmnt.pdf) and the *National Environmental Justice Advisory Council's (NEJAC) Ensuring Risk Reduction in Communities with Multiple Stressors: Environmental Justice and Cumulative Risks/Impacts* (www.epa.gov/compliance/resources/publications/ej/nejac/nejac-cum-risk-rpt-122104.pdf)

project shows that the health impacts are below the thresholds set by EPA; 6.) DOD is currently working with relevant stakeholders, including EPA and those on Guam including GEPA and GPA and suppliers to determine an appropriate strategy for implementing an island-wide switch to low sulfur fuel; 7.) DoD has determined that adjusting the construction program based on short-term air quality monitoring data is not warranted or practical.

However, a mitigation measure is proposed in the FEIS to install one air ambient monitor for particulate matter and SO₂ near the Northern Guam construction site. The air monitor would be installed before construction activities to obtain baseline data, operate during construction activities, and would be removed after construction activities.

A-009-072

Thank you for your comment.

Ambient air monitoring (e.g., for non-attainment or attainment designation) is primarily the responsibility of regulatory agencies. However, since there is a lack of ambient air monitoring baseline data, DoD proposes to install one ambient air monitoring station for SO₂ and PM for EPA and GEPA to operate and maintain. DoD should not be alone in filling the gap for ambient air data that exists on Guam. EPA could currently require GovGuam/GEPA to install ambient air monitoring through the air permitting program instead of until 2013 to require GovGuam to install at least one air monitor. Regulators (GEPA and EPA Region IX) could also pass this responsibility to the responsible officials of significant stationary sources. In the case of power the responsible officials would include GPA. Note that ambient air monitoring may soon be installed for the Tanguisson nonattainment area as a requirement of the Tanguisson power plant air permit.

A-009-093

Guam has a higher percentage of children (34 – 38%) than the U.S. average (21%), it is important to consider the increased impacts these air pollutants can have on children. Children are believed to be especially vulnerable due to higher relative doses of air pollution, smaller diameter airways, and more active time spent outdoors and closer to ground-level sources of vehicle exhaust⁸⁵. There is no mention of these health impacts to EJ populations or children in the EJ analysis or the larger DEIS, save for some generic statements in the public health chapter.

The noise impact assessment did not appear to consider the cumulative increases in noise from the Mariana Islands Range Complex (MIRC) training increases which will occur in some of the same locations on Guam. Noise impacts are dismissed as less than significant, while acknowledging a probable increase in the number of complaints and people annoyed (Vol. 2, p. 6-25). However, there are well known health impacts from noise which are not acknowledged⁸⁶.

Increases in stress as a result of traffic congestion and the additional noise during both construction and operation phases can cause health impacts in some populations⁸⁷. Guam is currently designated a Medically Underserved Area (Vol. 2, p. 18-4). The induced growth from the project will result in an even greater disparity between people and health services, with more people accessing already limited services. While these impacts on the health care system are acknowledged, how these impacts will translate to public health are not. Indeed, all potential public health impacts identified in Volume 2, Chapter 18 should be acknowledged as affecting a medically underserved EJ population (explosives safety, notifiable diseases, mental illness, and traffic accidents, etc.). Finally, the sociocultural issues, which "have attracted much public attention and comment" (Vol. 2, p. 16-40) including Chamorro issues and threats to community cohesion, are a serious concern to the public.

The DEIS identifies most of these impacts as less than significant or mitigable to less than significant without basis. Collectively, however, and considering the vulnerability of the population, these impacts must be considered significant. For mitigation, the DEIS states only that DoD is committed to working with Guam and the full array of federal executive agencies to identify potential sources of funding. Given the historic low-level of federal funding in Guam, and the recognition that Guam's unique circumstances and world economic conditions may make it difficult for Guam to address mitigation on non-DoD lands using normal revenue sources (Vol. 7, p. 2-30), a substantially more developed mitigation strategy is necessary to avoid significant adverse impacts to EJ populations.

⁸⁵ See: <http://hydra.usc.edu/scelisc/coep/atlaschap.asp>. In addition, several researchers have identified impacts of traffic to children. See: (1) Delfino, RJ et al. 2009. "Repeated hospital encounters for asthma in children and exposure to traffic-related air pollution near the home *Annals of Allergy, Asthma & Immunology*, 102(2):138-44; (2) McConnell, R. et al. 2006. "Traffic, susceptibility, and childhood asthma". *Environ. Health Perspectives* 114(5): 766-72.

⁸⁶ See Goines, Lisa RN and Hagler, Louis MD. "Noise Pollution: A Modern Plague", *Southern Medical Journal*: March 2007 - Volume 100 - Issue 3 - pp 287-294. According to the authors, the potential health effects of noise pollution are numerous, pervasive, persistent, and medically and socially significant.

⁸⁷ See Gee GC, and Takeuchi DT. "Traffic stress, vehicular burden and well-being: a multilevel analysis." *Soc Sci Med*. 2004 Jul;59(2):405-14. Also Peters A, von Klot S, Murray A, et al. "Exposure to Traffic and the Onset of Myocardial Infarction". *New England Journal of Medicine*, Vol. 351, No. 17. 21 October 2004.

A-009-073

Thank you for your comment. The change in climate conditions caused by greenhouse gas emissions resulting from the burning of fossil fuels from both stationary and mobile sources is a global effect, and requires that the emissions be assessed on a global scale. The proposed action mostly involves the relocation of the military operations already occurring in the West Pacific region; therefore, fossil fuel burning activities in the West Pacific region are unlikely to change significantly. Consequently, overall global greenhouse gas emissions are likely to remain near the current levels on a regional or global scale under the proposed condition, resulting in an insignificant impact to global climate change.

The FEIS contains an updated discussion of greenhouse gases and climate change.

A-009-074

Thank you for your comment.

RADON: DoD (Navy) has been very active in the management of radon at our Guam installations and housing neighborhoods, and has a history of using local contractors who are knowledgeable of the radon requirements in Guam. The Navy has been using local electricians for radon mitigation projects at all Navy housing units on Guam, where radon mitigation systems were installed and are currently being tested and serviced by local radon companies. Navy is requiring that radon resistant new construction (RRNC) be incorporated into all new military construction on Guam. These specifications are bid out and the winning Architect/Engineering firm is already encouraged to use local contractors with proper radon qualifications and experience to design and install the RRNC features. However, Navy does not advocate any radon contractors, local or otherwise, "learning" on the DoD projects as this is counterproductive to ensuring that the occupants (DoD and Guam

A-009-093

Recommendation: We recommend substantially improving the EJ analysis and developing a mitigation strategy. The improved analysis should identify the impacts identified above and to discuss impacts from multiple stressors cumulatively and in terms of human health and well-being. Include results of any additional analysis being conducted, such as the additional MSAT analysis (Vol. 6, p. 7-4), which could potentially identify hotspots near EJ communities. Mitigation to reduce pollutant exposure to EJ communities should be identified in the FEIS with a commitment strategy to implement the measures in the ROD.

For significant impacts to public health infrastructure and social services, EPA recommends that DoD lead efforts to develop a specific multi-party (DoD, Gov Guam, other federal agencies) cost-sharing agreement to fund necessary civilian infrastructure improvements in time to influence the Fiscal Year 2012 federal budget. The cost estimate should be based on the best available estimates at the time for both capital investments and operation and maintenance. The agreement should be included in the FEIS and include a priority list of projects, timeline for funding, and specific agency commitment levels. This recommendation is consistent with the potential mitigation measures identified in Volume 7, Table 2.2-1.

To determine federal funding commitment levels DoD should take the lead to determine 1) what civilian infrastructure funding needs can be met through existing federal funding programs, 2) what leveraging opportunities exist to maximize available funding, 3) the funding gap between the Gov Guam's needs and funding availability, and 4) options for meeting the funding gap; this should include alternative funding mechanisms to improve Gov Guam's ability to leverage private capital and float bonds. EPA and DOI have completed several analyses of financing mechanisms that could support infrastructure improvements throughout all insular territories, including Guam. EPA can also continue to support DoD with technical studies that will help refine overall needs and costs.

VII. NOISE IMPACTS

A-009-094

The DEIS appears to underestimate the significance of noise impacts. The noise impacts from the Anderson AFB ISR Strike DEIS alone were substantial, with that analysis showing that 2,310 people off-base will be exposed to sound 65 dBA (A-weighted sound level measured in decibels) and above, with 552 potentially highly annoyed by the change, representing roughly ten times more people experiencing these impacts than at present). The Guam and CNMI Military Relocation DEIS assumes these ISR Strike impacts in the baseline, however these impacts have yet to occur⁸⁸. It is also unclear whether the analysis includes the activities of the Mariana Islands Range Complex (MIRC) training increases in this noise baseline⁸⁹. This action is still in

⁸⁸ The DEIS states that the ISR Strike Capability would be completed prior to implementation of the proposed action in this EIS (Vol 2, p. 6-7).

⁸⁹ Vol 1, p. 1-4 states that the Guam and CNMI Military Relocation EIS/OEIS is based upon the assumption that the

residents) are not exposed to elevated levels of radon.

ASBESTOS: Wharf projects would comply with applicable asbestos regulations for survey, inspection, notification, and management of asbestos materials.

A-009-075

Thank you for your comment. DoD has prepared the Guam Solid Waste Utility Study that looks at the existing and projected solid waste volumes generated from the future Marine Corp buildup. Estimates for this Utility Study were developed using Marine Corps Base (MCB) Hawaii, Kaneohe Bay (KB) solid waste characterization analysis. Solid waste generation activities for military installation on Guam and MCB Hawaii-KB are similar. Both military installations have similar facilities including maintenance shops, administrative offices, commissary and exchange facilities, fast-food establishments, club operations, family housing and unaccompanied personnel housing. The results of the solid waste characterization study will be incorporated into the FEIS.

The DoD has also prepared a Construction and Demolition (C&D) Debris Reuse and Diversion Study which addresses the anticipated waste streams during the demolition of old buildings and construction of new facilities identified in the EIS. The study also addresses green waste that will be generated from clearing many acres of vegetation. The goal of the study is to divert 50% of the C&D debris by the end of fiscal year 2015.

The non-DoD project solid waste volumes will be handled in accordance with the existing Guam Integrated Solid Waste Management Plan (ISWMP). GBB is expediting the closure of Ordot and the opening of Layon in the most expeditious manner possible.

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the NEPA analysis phase and the increases in training have not yet occurred. It should be clear that the increases from the proposed action are not representing the only increases over the current noise conditions, especially since these impacts were not discussed in the noise cumulative impact assessment⁹⁰. The DEIS also uses this baseline comparison as the basis for determining less than significant impacts.

The analysis calculates the number of acres that will experience increases in noise impacts for ongoing operations, but does not translate this into an estimate of the number of individuals that will be affected (as the Anderson AFB ISR Strike DEIS did effectively), so the extent of noise impacted individuals is not known. The acreage affected by airfield activities at Anderson AFB and vicinity shows for land *outside* of Anderson AFB, 7 acres of additional land will experience 80-85 dBA noise, 107 acres will experience between 75-80 dBA, 265 additional acres will experience from 70-75 dBA, and 727 off-base acres from 65-70 dBA. The significance determination for airfield operations (Vol. 2, p. 6-22) was supposed to assess the increase in incompatible sensitive noise receptors under noise contours to capture areas where there would be "high annoyance" effects. The DEIS identifies that noise exposure greater than 65 dBA DNL is considered generally unacceptable over public services or residential, cultural, recreational, and entertainment areas⁹¹. There are no conclusions as to how many additional off-base receptors would experience significant impacts (levels greater than 65 dBA DNL) or what mitigation measures could reduce these impacts.

There is no noise assessment for the operation of the combustion turbines. The DEIS states that since the project will only be reconditioning existing turbines, the expected sound levels would be the same, therefore there would be no new noise impacts (Vol. 6, p. 8-7). However the turbines are not currently operational so the project would result in additional noise over the existing condition. These noise impacts should be identified and assessed.

For the construction phase, noise impacts of the new base construction could result in residences receiving higher than 75 dBA Equivalent Sound Level (L_{eq}) EPA acceptable levels for construction (Vol. 2, p. 6-30), but the document concludes impacts are less than significant because sound barriers and sequencing of equipment would reduce these impacts, without any discussion as to the expected sound reductions that are reasonably expected to occur with these measures.

MIRC EIS preferred alternative represents existing or baseline conditions of training in the MIRC through 2015, but it is not clear whether the noise analysis specifically included it. The MIRC preferred alternative involves increases in training over existing conditions.

⁹⁰ The DEIS cumulative impact assessment concludes that additive impacts are low because noise impacts are by nature localized, but they are localized in some of the same areas amongst different projects. The conclusion that the degree of additive noise from the project is low, is not substantiated (Vol 7, p. 4-24), especially since the project will result in significant noise impacts (Vol 7, p. 3-76).

⁹¹ We note that EPA identifies a day-night average sound level (DNL) of 55 dBA as protective for sensitive areas including residences, schools and hospitals - See "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety," EPA/ONAC 550/9-74-004, March, 1974. <http://nonoise.org/library/levels/levels.htm>

DoD is in the process of updating the military Integrated Solid Waste Management Plan (ISWMP) to reflect how waste will be managed now and in the future. The updated DoD ISWMP will include any new information from studies and reports that have been conducted as part of the NEPA process.

A-009-076

Thank you for your comment. The categories for "Off-Island Construction Workers" (DoD projects) and "Dependants of Off-Island Construction Workers" (DoD projects) from table ES-2 are included in table 2.4.1 under the "Non-DoD Proposed Action" related category. The table has been revised to include additional information on population categories.

A-009-077

Thank you for your comment. DoD has prepared the Guam Solid Waste Utility Study that looks at the existing and projected solid waste volumes generated from the future Marine Corp buildup. Estimates for this Utility Study were developed using Marine Corps Base (MCB) Hawaii, Kaneohe Bay (KB) solid waste characterization analysis. Solid waste generation activities for military installation on Guam and MCB Hawaii-KB are similar. Both military installations have similar facilities including maintenance shops, administrative offices, commissary and exchange facilities, fast-food establishments, club operations, family housing and unaccompanied personnel housing. The results of the solid waste characterization study will be incorporated into the FEIS.

The Navy is preparing a Recycling and Solid Waste Diversion Study for DoD Bases, Guam that has established a diversion goal of 50 percent, not including construction and demolition debris. The Study is considering the following alternatives: 1) DoD would construct two refuse transfer facilities, one in northern Guam and one in Southern Guam; 2)

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Recommendation: We recommend the noise analysis be amended so it is clear what baseline noise is included and whether this noise is part of the current condition for the people of Guam. We recommend translating the impacted acreage to numbers of individuals affected, as was done for the Anderson AFB Strike DEIS, and for conclusions to be drawn based on significance levels. Assess the noise impacts from operation of the combustion turbines in the FEIS and identify residences and sensitive receptors that could be impacted by these new noise sources. All discussions that conclude that measures or best practices will reduce impacts should document the expected amount of noise reduction from these measures and identify the number of individuals that will still be significantly affected. Mitigation measures should be proposed for significant impacts. The following should be considered:

- Adding insulation, adding a second window pane or replacing windows with better sound attenuation, sealing gaps or leaks in windows and doors, installing baffles in vents and improving the exterior roofing, consistent with radon safety.
- Retrofitting impacted on- and off-based schools with appropriate measures to achieve the classroom acoustics standard of the American National Standards Institute (ANSI)⁹².
- Provide a funding mechanism for off-base residences within 65+ dBA noise contours and other significantly impacted areas, such as the Zone II residential zones near the Route 15 small arms ranges, to be used for noise reduction mitigation measures identified above.

We are also concerned about the potential hearing loss for residents on Anderson AFB that will be exposed to 80 dBA in 2 dormitory buildings. The DEIS concludes this is not significant, but it appears that this is because Anderson AFB Strike impacts and MIRC impacts were part of the baseline "no action" scenario. We recommend noise reduction retrofits for these buildings.

VIII. MITIGATION MEASURES

A-009-095

A. *BMPs that avoid or reduce impacts lack commitments as mitigation measures*

The DEIS frequently identifies mitigation measures in the impact assessments, but also states in the "potential mitigation" sections and summary tables that no mitigation measures are proposed or warranted. This is a significant cause for confusion since it is unclear if the impact conclusions are considering these mitigation measures or not.

There are also many examples where the use of Best Management Practices (BMPs) is the basis for concluding impacts would not be significant, only to state "no potential mitigation measures"

⁹² ANSI/ASA S12.60-2002 (R2009) American National Standard Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools

DoD would implement a source separation recycling program at all facilities; 3) DoD would construct recycling center(s); and 4) DoD would construct a materials resource recovery facility.

The DoD has also prepared a Construction and Demolition (C&D) Debris Reuse and Diversion Study which addresses the anticipated waste streams during the demolition of old buildings and construction of new facilities identified in the EIS. The study also addresses green waste that will be generated from clearing many acres of vegetation. The goal of the study is to divert 50% of the C&D debris by the end of fiscal year 2015.

The non-DoD project solid waste volumes will be handled in accordance with the existing Guam Integrated Solid Waste Management Plan (ISWMP). GBB is expediting the closure of Ordot and the opening of Layon in the most expeditious manner possible.

DoD is in the process of updating the military Integrated Solid Waste Management Plan (ISWMP) to reflect how waste will be managed now and in the future. The updated DoD ISWMP will include any new information from studies and reports that have been conducted as part of the NEPA process.

A-009-078

Thank you for your comment. The DoD has currently funded a project (FY10) to design and expand the AF landfill to accommodate receiving of waste for an additional 18 months. This expansion will be able to handle AF municipal and industrial waste streams. The AF landfill will only receive waste generated from daily operations of Andersen AFB and no C&D waste. Should the Andersen AFB landfill expansion be delayed due to permitting issues, solid waste will be disposed at the Navy Sanitary

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are warranted because impacts are less than significant⁹³. CEQ's definition of mitigation in 40 CFR 1508.20 goes beyond compensatory mitigation and includes measures that avoid, minimize, or rectify impacts, such as the identified BMPs in the DEIS.

The project ROD must have a clear identification of mitigation adopted as part of the project. The ROD must state "whether all practicable means to avoid or minimize the environmental harm from the alternative selected have been adopted, and if not, why they were not" (40 CFR 1505.2 (c)). The CEQ Regulations also state that mitigation established in the EIS and committed to as part of the decision shall be implemented (40 CFR 1505.3). The approach used in the DEIS claims reduced impacts from utilizing BMPs (mitigation), but because BMPs are not referred to as mitigation measures, it is likely that the ROD will not include commitments for their implementation. We are concerned that this practice both invalidates the assessment conclusions, and could result in impacts not receiving mitigation.

A-009-096

B. Conclusions that mitigation measures reduce impacts to less than significant not justified

The DEIS frequently concludes that mitigation measures, including BMPs, would reduce impacts, therefore impacts to a particular resource are less than significant. However, the DEIS rarely provides justification for these conclusions. We provide some specific examples (see comments under Stormwater Discharges, Haputo ERA, Environmental Justice), however all cases of this lack of justification would be too numerous to list.

Recommendations: To comply with CEQ Regulations regarding mitigation and the ROD, the document should use a consistent definition of mitigation to include all practices that avoid or minimize impacts⁹⁴. Thus BMPs and SOPs that accomplish this should be referred to as mitigation. All mitigation/BMPs should be clear identified, and included in the resource summary tables. Provide commitments to implement all mitigation measures, including BMPs, in the ROD and include them in the post-ROD monitoring plan (Vol 7, p. 2-32).

If the EIS makes a finding that a mitigation measure reduces an impact to a level of insignificance, the document should provide a detailed justification of that conclusion. This should include a clear explanation of the assumptions underlying the analysis of mitigation measure effectiveness. The analysis should specifically describe the mitigation measure, identify the source(s) of pollutants that are expected to be affected by the measure, clearly explain how and to what extent the measure will affect the source(s), and identify the basis for the estimate (empirical observations, computer modeling, case studies, etc.). Critical assumptions should be linked to the post-ROD monitoring plan.

⁹³ For example, in Volume 6, the DEIS states that to reduce significant impacts to soils during construction, the following measures are suggested (1) revegetate as soon as possible after ground disturbance, and (2) minimize construction during times of inclement weather. The DEIS then states that no potential mitigation measures are proposed, and implementation of SOPs and BMPs would minimize impacts to soil resources (Vol 6, p. 5-14). Another example is impacts from increases in hazardous materials and waste. Vol 2, Table 17.2-1 states no potential mitigation measures identified, however, Table 17.2-3 lists several BMPs and Standard Operating Procedures (SOPs) that the DEIS claims would result in no significant impacts (Vol 2, p. 17-40).

⁹⁴ We recommend using the definition in 40 CFR 1508.20.

Landfill at Apra Harbor. The EIS has been updated to reflect this information.

A-009-079

Thank you for your comment. DoD has prepared the Guam Solid Waste Utility Study that looks at the existing and projected solid waste volumes generated from the future Marine Corp buildup. Estimates for this Utility Study were developed using Marine Corps Base (MCB) Hawaii, Kaneohe Bay (KB) solid waste characterization analysis. Solid waste generation activities for military installation on Guam and MCB Hawaii-KB are similar. Both military installations have similar facilities including maintenance shops, administrative offices, commissary and exchange facilities, fast-food establishments, club operations, family housing and unaccompanied personnel housing. The results of the solid waste characterization study will be incorporated into the FEIS.

The Navy is preparing a Recycling and Solid Waste Diversion Study for DoD Bases, Guam that has established a diversion goal of 50 percent, not including construction and demolition debris. The Study is considering the following alternatives: 1) DoD would construct two refuse transfer facilities, one in northern Guam and one in Southern Guam; 2) DoD would implement a source separation recycling program at all facilities; 3) DoD would construct recycling center(s); and 4) DoD would construct a materials resource recovery facility.

The DoD has also prepared a Construction and Demolition (C&D) Debris Reuse and Diversion Study which addresses the anticipated waste streams during the demolition of old buildings and construction of new facilities identified in the EIS. The study also addresses green waste that will be generated from clearing many acres of vegetation. The goal of the study is to divert 50% of the C&D debris by the end of fiscal year 2015.

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For mitigation measures/BMPs that are asserted to reduce impacts to less than significant, the FEIS should include:

- A description of each mitigation measure adopted by the lead agency.
- The party responsible for implementing each mitigation measure.
- A schedule for the implementation of each mitigation measure.
- The agency or entity responsible for monitoring mitigation measure implementation.
- Criteria for assessing whether each measure has been implemented.
- Enforcement mechanism(s).

IX. ADAPTIVE MANAGEMENT

A-009-097

Because of the potential for significant impacts to various utility resources, the DEIS presents an adaptive management technique that could be "applied as mitigation in all resource areas and used as an environmental planning-based approach that allows for adjusting program management/implementation strategies in response to actual monitoring of significantly impacted resource areas. By applying the adaptive management methodology, the Navy would monitor the impacts of its actions and evaluate the need to adjust its plan to implement the selected alternative plans to avoid and/or minimize environmental impacts" (Vol. 7, p. 2-31).

The presentation of this mitigation strategy is very conceptual and not well developed. While this approach is a different application of adaptive management than is customary, the components of an effective adaptive management program remain the same. As stated in the report to the Council on Environmental Quality (CEQ), *Modernizing NEPA Implementation*⁹⁵, the effectiveness of adaptive management monitoring depends on a variety of factors including:

- a) The ability to establish clear monitoring objectives;
- b) Agreement on the impact thresholds being monitored;
- c) The existence of a baseline or the ability to develop a baseline for the resources being monitored.
- d) The ability to see the effects within an appropriate time frame after the action is taken;
- e) The technical capabilities of the procedures and equipment used to identify and measure changes in the affected resources and the ability to analyze the changes;
- f) The resources needed to perform the monitoring and respond to the results.

For adaptive management to be considered a valid strategy for mitigating significant impacts, the above points would need to be included and evaluated. The adaptive management strategy in the DEIS simply states that in the event that adaptive management is selected as mitigation it will be included in the post-ROD monitoring plan and would be developed in cooperation with USEPA, GovGuam, GEPA, GWA, and GPA and other agencies as necessary, to identify roles and responsibilities and determine what monitoring criteria and data points will act as indicators of system stress (Vol. 7, p. 2-32). We appreciate being included in the development of this

⁹⁵The NEPA Task Force Report to the Council on Environmental Quality, *Modernizing NEPA Implementation*, September 2003. <http://ceq.hss.doe.gov/nrf/report/pdf/oc.html>

The non-DoD project solid waste volumes will be handled in accordance with the existing Guam Integrated Solid Waste Management Plan (ISWMP). GBB is expediting the closure of Ordot and the opening of Layon in the most expeditious manner possible.

DoD is in the process of updating the military Integrated Solid Waste Management Plan (ISWMP) to reflect how waste will be managed now and in the future. The updated DoD ISWMP will include any new information from studies and reports that have been conducted as part of the NEPA process.

A-009-080

Thank you for your comment. The new Layon Landfill is designed to accommodate municipal solid waste from all current and future DoD sources as well as civilian and commercial sources. Based on conservative waste generation rates, the new landfill will reach capacity in approximately 33 years. The DoD will be implementing diversion and recycling programs that will significantly reduce solid waste generation and will help to extend the life of the landfill. Details of these programs have been added to Volume 6, Chapter 2.

The Navy is preparing a Recycling and Solid Waste Diversion Study for DoD Bases, Guam that has established a diversion goal of 50 percent, not including construction and demolition debris. The Study is considering the following alternatives: 1) DoD would construct two refuse transfer facilities, one in northern Guam and one in Southern Guam; 2) DoD would implement a source separation recycling program at all facilities; 3) DoD would construct recycling center(s); and 4) DoD would construct a materials resource recovery facility.

Additionally, the Navy is preparing a Construction and Demolition (C&D) Debris Reuse and Diversion Study for DOD Bases, Guam that

A-009-097

strategy, but it does not appear that DoD has considered the magnitude of developing such an effort and whether there is sufficient time to convene the necessary parties, determine and obtain the needed monitoring capabilities, and develop and administer the program. Additionally, the needed participation of the local agencies would most certainly require resource assistance since these agencies are already overburdened. A legal agreement could be necessary to formalize roles and responsibilities. Technical working groups would need to be formed to address monitoring needs and agree on appropriate "tipping points" and "action points". A central computerized data tracking system would likely be needed, and formal communication mechanisms would need to be established for the dissemination of monitoring results. Authorities would need to be identified regarding decision-making, especially when there are uncertainties, and, should all parties not be in agreement regarding decision-making, a dispute resolution procedure established.

We agree with the *Modernizing NEPA* report that funding to implement the adaptive management approach and the commitment to specific responses is critical. The NEPA process should identify the additional expenses associated with the adaptive management approach to ensure that funding needs for monitoring as well as for any adaptive measures are considered and reflected in the decision documents⁹⁶.

Also at issue is the ability to monitor specific effects, and the ability to see changes within an appropriate time frame after the action is taken (item "d" above). There is a dynamic element to such a complex system as population growth, development and resource use that may not be predictable. Once the detailed adaptive management program is fully developed and includes the information listed above, then an evaluation would need to occur to assess the effectiveness and ability of the program to mitigate significant impacts in relation to the project timeframe. The DEIS already identifies limitations to altering the construction tempo, stating that certain levels of impact to the construction tempo "would likely not be acceptable" (Vol. 7, p. 2-45).

Recommendation: The conceptual adaptive management plan included in the DEIS is not sufficiently developed to constitute a valid mitigation proposal. Therefore, EPA recommends against proceeding with this mitigation proposal unless it is fully developed and evaluated for potential effectiveness by all parties. Since it does not appear there is sufficient time to develop and evaluate this proposal before construction, we recommend that only those project components vital to the Marine relocation occur in the interim timeframe (i.e. postpone the CVN berth project components and other project components that are not time-critical) to reduce the number of construction workers needed on the island in the same time frame. Additionally, the potential mitigation identified in Volume 7 that would limit the number of workers and dependents should be implemented at startup. These include: (1) prohibiting dependents from accompanying Marines until construction is complete; and (2) incentivizing construction to reduce on-island construction workforce requirements by using off-island prefabrication techniques, and (3) sequencing labor intensive construction activities in such a way to reduce the peak construction workforce needs (Vol. 7, p. 2-28, 2-26). To protect public health, the

⁹⁶ See Sect 4.2.2. Adaptive Management Concerns of *Modernizing NEPA Implementation*

addresses waste characterization, processing, recycling and disposal of construction debris. Information from this study will be used to update the FEIS.

The study is considering the following alternatives: 1) Contractors would continue to process all C&D debris, and DoD would construct a composting facility to process green waste and 2) DoD would construct a C&D debris central processing facility and a composting facility to process green waste.

Through project specific contractual requirements, DoD contractors would be required to process and divert 50% of C&D debris that is generated on each project. Another alternative would be for the DoD to construct a central processing facility that would be used to recover and reuse or recycle scrap metal, concrete (without lead-based paint), asphalt concrete, and untreated wood. Contractors would be required to haul C&D to this facility. Based on the C&D debris composition assumed in the study, the Navy will be able to achieve a C&D debris waste diversion goal of greater than 50% by the end of fiscal year 2015. A site for the central processing facility is currently being evaluated but will most likely be located in northern Guam. Disposal of C&D debris that is not divertible or recyclable will be disposed at the Navy Hardfill at Apra Harbor. The study also evaluates the construction of a composting facility to handle green waste generated by land clearing activities required for new development.

A-009-081

Thank you for your comment. The existing Naval Base Guam Landfill Diversion program does include receiving recycled materials from visiting and homeported ships. The CVN visits will be able to deliver all recycled materials to the Naval Base for recycling.

DoD is in the process of updating the military Solid Waste Management Plan (SWMP) to reflect how waste will be managed now and in the

A-009-097

drinking water supply, and water resources from wastewater contamination, DoD must ensure that there is a robust and effective mitigation strategy in place before proceeding with project construction at the scale identified in the DEIS.

That said, we offer the following input on specific resources sections of the adaptive management discussion of the DEIS.

A-009-098

Potable Water Supply and Aquifer Management: Accurate data and a reliable hydrologic model are needed for comprehensive and adaptive management of these resources. The primary strategy for assessing the potential for saltwater intrusion due to the increased pumping of the NGLA is monitoring for chloride content, and then adjusting pumping rates. The presence of chloride content may be a point of irreversible damage to the aquifer due to saltwater intrusion. Guam is already experiencing the effects of salt water intrusion, and once the aquifer is tapped to meet the increased demand, particularly in the short term due to the construction efforts, the protection of the aquifer cannot be assured, especially without a comprehensive aquifer management strategy in place. If adaptive management strategies will be used to address peak water demand during the construction phase, actions should be identified that, if implemented early enough, will ensure protection of the aquifer.

A-009-099

Air Quality: The proposed air quality "action point" or "tipping point" would relate to power consumption and include testing for fuel sulfur content, weekly monitoring for opacity, and a continuous monitoring system to monitor fuel consumption and the ratio of water-to-fuel being fired in the combustion turbines. These monitoring points for air quality are not sensible as they do not relate to public health. The adaptive management monitoring points should directly relate to human health impacts. For example, monitoring for PM2.5 by congested traffic roadways and intersections and PM10 and PM2.5 at construction sites is recommended as an appropriate measure. The NAAQS should be used as the "tipping point" for criteria pollutant monitoring results to trigger construction tempo reductions.

A-009-100

X. CUMULATIVE IMPACTS

Cumulative impact assessment is important for understanding the context for the project's direct and indirect impacts. It offers the analysis from the perspective of the affected resource and the ability of that resource to withstand the impacts from the proposed project when combined with the effects of other present and reasonably foreseeable future actions as well as past actions that have impacted the resource and have resulted in the existing condition.

We understand that devising a cumulative impact assessment methodology is not an easy task. EPA emphasized the importance of this analysis and offered a suggestion for methodology in our scoping comments (May 21, 2007), as well as in our cooperating agency comments on the Description of Proposed Action and Alternatives (DOPAA)(May 15, 2008). In both cases, we suggested consulting a methodology jointly developed by the California Department of

future. A more detailed description of landfill diversion efforts for CVN visits will be addressed in the FEIS.

A-009-082

Thank you for your comment. The planning level information presented in the Draft EIS was based on the best available information and is sufficient for the planning in accordance with the National Environmental Policy Act (NEPA). As indicated in the Best Management Practices (BMP) summary table of volume 7, the DoD would implement a Hazardous Waste Management Program as a best management practice to encourage and promote the efficient use of hazardous substances, substitute products that are less toxic whenever feasible, minimization of their use, and promote recycling and reuse of hazardous substances. Please also refer to the BMP summary table of volume 7 for discussion of the DoD's intent to implement Leadership in Energy and Environmental Design (LEED) and Hazardous Materials Management Plans (HMMP) as best management practices.

A-009-083

Thank you for your comment. A new best management practice for testing and managing PCBs has been added to the summary table in Volume 7.

A-009-084

Thank you for your comments. The discussion of Hazardous Materials and Waste has been updated in Chapters 17 and 18 of Volume 2 of the EIS.

A-009-085

Thank you for your comment. The EIS has been updated to include a discussion of Executive Order 13514 and how DoD intends to meet its requirements based on recommendations from the sustainability

A-009-100

Transportation. EPA, and FHWA⁹⁷. While this was prepared for transportation projects in California, its principles and 8-step process can be applied to other types of projects, and we believe it is a useful resource to consult when analyzing cumulative impacts for a project.

The cumulative impact assessment in the DEIS consists of a lengthy list of past, present and reasonably foreseeable future actions, and one paragraph each that discusses the five resources that the DEIS identifies as receiving adverse cumulative impacts: noise, land use/ownership, terrestrial biology, utilities and roadways, and socio-economics (Vol. 7, p. 4-20). The project list in Table 4.3-3 is more useful in that it indicates which resources are affected by the most relevant cumulative actions, with the number of projects affecting each resource totaled, suggesting that this may be an indicator of the magnitude of the cumulative project impact on that resource. No further discussion of magnitude of cumulative impacts is included. The list also includes a determination for each resource as to whether the "preferred alternative's impacts may be additive to cumulative project impacts", and then if the answer was yes, determined whether the additive impact was low, moderate or strong. No criteria were provided to identify how these determinations were made.

This methodology does not consider the resource and its ability to withstand impacts from multiple sources, which is the goal of a cumulative impact assessment. Because it only discusses resources it deems significantly impacted from the proposed project, it excludes assessments of resources that could be cumulatively impacted from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7). While in some cases it may be reasonable to limit a detailed cumulative impact analysis to only those resources that will be significantly impacted by the project, we believe the DEIS does not fully identify all potentially significant impacts in the main analysis⁹⁸, so this deficiency is transferred to the cumulative impact assessment. Even within the confines of this methodology, there is insufficient discussion to constitute a complete cumulative impact assessment.

The DEIS states that the cumulative impact assessment is consistent with the CEQ guidance *Considering Cumulative Effects Under the National Environmental Policy Act* (herein CEQ Handbook) (Vol. 7, p. 4-1) and identifies where each CEQ step is represented in the DEIS volumes. However, these referenced discussions are not consistent with the CEQ Handbook, specifically:

A-009-101

- **The DEIS/cumulative impact assessment does not identify the significant cumulative effects issues associated with the proposed action and define the assessment goals (CEQ Step 1).** The DEIS states that the number of cumulative projects that are identified as affecting each resource may be an indicator of the magnitude of the cumulative project impact on that resource. "Water / Wetlands" were affected by the largest number of projects yet these resources were not identified and evaluated for cumulative effects. The DEIS acknowledges that coral reef ecosystems have declined significantly since the

⁹⁷ See http://www.dot.ca.gov/ser/cumulative_guidance/purpose.htm

⁹⁸ See comments on air impacts from combustion turbines, coral reef ecosystem impacts, environmental justice, among others.

program and recommendations for achieving LEED silver for the new construction. A summary of sustainability actions is presented in Volume 8 of the EIS.

A-009-086

Thank you for your comment. Leadership in Energy and Environmental Design (LEED) credits will be pursued during facility design. Although LEED silver certification is a minimum goal, DoD would encourage pursuing higher certification where shown to be cost effective and where LEED implementation does not impact mission, base functions, Quality of Life, and military readiness.

A-009-087

Thank you for your comment. The recommended design principles will be considered during design of the individual facilities as a best management practice and has been added to the list of best management practices in Volume 7.

A-009-088

Thank you for your comment. Chapter 6 of Volume 8 has been updated based on the Sustainability Summary Report, including a discussion of energy metering.

A-009-089

Thank you for your comment. The Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding has been added to the sustainability discussion in Volume 8.

A-009-090

Thank you for your comment.

A-009-101 1960's, decreasing from over 50% to less than 25% (Vol. 2, p. 11-13). EPA has identified concern for this resource in our scoping comments and in comments and in our cooperating agency review of the early release DEIS, but coral reef ecosystems were not assessed for cumulative impacts. (See comment on Cumulative Impacts to Coral Reefs)

A-009-102 • **The DEIS/cumulative impact assessment does not evaluate resources within an expanded geographic scope and the time frame as appropriate for a cumulative impact analysis (CEQ Steps 2&3).** The DEIS states that the geographic boundaries for the cumulative impact assessment are expanded to island-wide (Guam and Tinian), and timeframe is expanded to three years before the proposed action (2004) through five years after the completion of construction (2019). (Vol. 7, p. 4-1). However there is no substantive discussion of any particular resource in a larger geographic boundary or time period. For terrestrial and marine biological resources, a geographic boundary corresponding to specific resource ranges and habitats would be appropriate.

A-009-103 • **The DEIS/cumulative impact assessment does not characterize resources in terms of their responses to change and capacity to withstand stresses (CEQ Step 5).** This was not discussed for any resources from a cumulative impact perspective.

A-009-104 • **The DEIS/cumulative impact assessment does not determine the magnitude and significance of cumulative effects on the resources (CEQ Step 9).** The cumulative impact assessment states that no attempt was made to distinguish between less than significant and significant adverse impacts (Vol. 7, p. 4-20). The CEQ Handbook states that the analyst's primary goal is to determine the magnitude and significance of the environmental consequences of the proposed action in the context of the cumulative effects of other past, present, and future actions (CEQ Handbook p. 41).

A-009-105 Finally, there is no substantial discussion of the cumulative impacts to resources from climate change (See also comment under "GHG emissions and Climate Change"). Small islands like Guam and Tinian are considered among the most vulnerable to climate change because extreme events have major impacts on them. Changes in weather patterns and the frequency and intensity of extreme events, sea-level rise, coastal erosion, coral reef bleaching, ocean acidification, and contamination of freshwater resources by salt water are among the impacts small islands face.⁹⁹

A-009-106 *Recommendation:* EPA recommends improving the cumulative impact assessment by expanding the discussion of those five resources it deems significant for cumulative impacts, and by adding a new component to the methodology that will expand the analysis to include additional resources that will be impacted by the project and that are cumulatively impacted. We recommend these resource discussions include, but not be limited to: Coral reef ecosystems; Coastal Water Quality; Groundwater Quality and Quantity¹⁰⁰; Air quality; Marine Biological Resources; Terrestrial Biological Resources; Noise; Recreation Resources; Socioeconomics/EJ. We continue to recommend the California Department of Transportation methodology identified above to improve the methodology for assessing cumulative impacts.

⁹⁹ <http://downloads.globalchange.gov/usimpacts/pdfs/islands.pdf>

¹⁰⁰ See comment under Cumulative Impacts to Water Resources

A-009-091

Thank you for your comment. An on-base transportation study as well as discussions between the Federal Highway Administration (FHWA) are currently underway to reduce Vehicle Miles Travelled (VMT), coordinate on-base/off-base transportation, satisfy transportation mandates, and meet LEED requirements for silver certification. Reduction in VMT can be an outcome of sustainable designs, provisions for alternative transportation and walkability. However, VMT reductions and/or VMT goals are not specifically codified or required under current laws and Executive Order's (E.Os). However, reduction in VMT will be reviewed as they pertain to Levels of Service (LOS), road capacity, air quality and Environmental Justice. The transportation studies, compliance with existing Guam approved land use/transportation plans, LEED and recommendations from the sustainability study are discussed and included in the FEIS.

A-009-092

Thank you for your comment. The characteristics of Alternatives 1 and 2 were substantially similar and for traffic impact analysis purposes assumed to be the same. The key characteristics included, same Main Cantonment location, same residential housing location, and an internal roadway system connecting the Main Cantonment with the residential housing. The Vehicle Miles Traveled (VMT) estimates obtained from the macro-scale model included trips between the S Finegayan housing area and the Main Cantonment area.

A-009-093

Thank you for your comment. Traffic in the north region adjacent to Andersen AFB would be significantly impacted at two intersections in 2030; all other intersections would have an improvement in delay time with the proposed roadway improvement projects. The air quality analysis (Volume 6 Chapter 7) demonstrates that impacts from air emissions associated with traffic (construction and operational

A-009-106 The improved analysis should characterize the resources, ecosystems, and human communities in terms of their responses to change and capacity to withstand stresses, including those from climate change, and include regulatory thresholds when applicable. For resources that are cumulatively impacted and project impacts are not deemed less than significant (taking into consideration public and expert agency comment), mitigation measures should be identified, consistent with CEQ Guidance Step 10.

XI. BIOLOGICAL RESOURCES

A-009-107 **A. Invasive Species**
In our scoping comments, EPA identified concerns with invasive species introduction as a result of the build-up and the need for control and inspection of the invasive Brown Tree Snake (BTS) to prevent its spread to other islands including Tinian. Part of this control involves the eradication of the BTS population, consistent with public law 110-417, [div. A], title III, Sec. 316, Oct. 14, 2008, 122 Stat. 4410¹⁰¹. A final Biosecurity Plan will not be available until after the ROD is signed and no interim measures are identified that will be in place at the start of construction, nor specific commitments regarding what efforts DoD will take to ensure the BTS will not spread to other locations, and that aquatic invasive species are prevented from entering Guam and Tinian.

Recommendation: In lieu of a final biosecurity plan, interim biosecurity measures should be in place at the start of construction and the FEIS should identify these measures and provide an update on the final biosecurity plan and DoD commitments to its implementation. We would also recommend a contingency plan be established for compensation for environmental impacts should the BTS become established on Tinian. The extent of travel between Guam and Tinian necessitates this kind of contingency planning, including a legally-binding agreement for restoration.

A-009-108 **B. Disclosing Vegetation Impacts**
The DEIS states that temporary rather than permanent loss of vegetation would occur for the Main Cantonment alternatives and that these alternatives would result in little change to the landscape of the affected area (Vol. 2, p. 3-33). This statement is repeated for loss of vegetation for the FAA parcel and Harmon Annex (Vol. 2, p. 3-37). This is obviously an error since the DEIS identifies the loss of over 1,000 acres of limestone forest, and almost 500 acres of other vegetation for the development of the Main Cantonment (Vol. 2, p. 10-98).

¹⁰¹ This law states that "The Secretary of Defense shall establish a comprehensive program to control and, to the extent practicable, eradicate the brown tree snake population from military facilities in Guam and to ensure that military activities, including the transport of civilian and military personnel and equipment to and from Guam, do not contribute to the spread of brown tree snakes."

phases) and roadway construction would be less than significant. The mobile source air toxics (MSAT) analysis (Volume 6 Chapter 7) also concluded that the proposed action would have less than significant MSAT impacts. Therefore, it was concluded that there would not be disproportionately high and adverse direct impacts due to air emissions.

A-009-094

Thank you for your comment. The analyses does include the ISR/Strike action as the baseline because it is expected that the ISR/Strike action would be implemented prior to the Guam Relocation action. By not including the ISR/Strike into the baseline, the noise impacts would be even more understated as that action would dominate the noise environs around Andersen AFB. The MIRC action is also covered under the baseline conditions and both the ISR/Strike and the MIRC are discussed in the cumulative impacts section.

A-009-095

Thank you for your comment. Following publication of the DEIS and comments, and during preparation of the FEIS, the DoD has conducted a thorough review of the language addressing best management practices (BMPs) and mitigation measures throughout the EIS. Inconsistency errors have been corrected. Additionally, the definitions of BMPs and mitigation measures have been revised.

BMPs referred to throughout the EIS are treated as examples of existing policies, practices, and measures required by law, regulation, or DoD policy that are designed to reduce the environmental impacts of certain designated activities, functions, or processes. Mitigation measures are additional, separate measures designed to avoid or reduce impacts from the proposed action outlined in the EIS. Selection and implementation of mitigation measures will be outlined in the ROD. References to the laws/policies requiring each BMP are provided in the EIS where the BMP is considered in the analysis. Examples of BMPs specifically

XII. OFF BASE ROADWAY PROJECTS

A-009-109

Description of Proposed Off base Road Projects (Haul Road Network) and Construction

The DEIS identifies 58 transportation projects (43 off base and 15 intersection improvements at military access points) in its analysis, although only general descriptions of the projects and “typical construction activities” are given. EPA believes the following additional information is necessary to adequately assess potentially significant environmental impacts of these proposed roadway projects:

- **Construction Activities:** Describe specific construction activities (e.g., equipment and trucks needed, dewatering, grading, fill, etc.) for proposed transportation projects, including construction and equipment staging areas and related impacts associated with these sites. To adequately assess impacts to affected community or biological resources, the document should describe how construction will occur and identify specific construction and equipment staging areas when they are likely to occur outside of the footprint of the proposed transportation projects.
- **Transportation Alternatives:** Identify whether any of the 58 proposed road projects within the four composite alternatives may warrant additional avoidance or minimization measures to a specific resource, such as neighboring high quality wetlands. Include additional alternatives or considerations for these specific road projects in the FEIS. The description of transportation alternatives describes four composite alternatives associated with the Guam military buildup and identifies a list of road projects associated with each composite alternative. There is no discussion of whether these specific projects will require additional, project-level alternatives to reduce resource impacts.
- **Site-specific Analysis:** Include site and project specific resource information for proposed transportation projects, particularly projects that will occur in or adjacent to areas of sensitive biological resources, including wetlands and significant habitat areas, and sensitive receptors, such as hospitals or schools. Expand the analysis to include an assessment beyond simply identifying impact acreages by further describing the functions and values that would be lost or degraded for each affected resource, including indirect impacts (e.g. impacts downstream of construction activities). Several of the analyses for resources include broad, programmatic statements of possible resource impacts from the proposed transportation projects. See also comments under Impacts to Wetlands.

considered/“called out” in EIS analysis are consolidated in the Volume 7 BMP list. When mitigation is referred to in the text, particularly to support a “no significant impact” or “less than significant impact” determination, the mitigation measure is listed in the section’s corresponding mitigation summary table.

A-009-096

Thank you for your comment. During preparation of the FEIS, the DoD has conducted a thorough review of the language addressing best management practices (BMPs) and mitigation measures throughout the EIS. Inconsistency errors have been corrected. Additionally, the definitions of BMPs and mitigation measures have been revised.

BMPs referred to throughout the EIS are treated as examples of existing policies, practices, and measures required by law, regulation, or DoD policy that are designed to reduce the environmental impacts of certain designated activities, functions, or processes. Mitigation measures are additional, separate measures designed to avoid or reduce impacts outlined in the EIS from the proposed action. Selection and implementation of mitigation measures will be outlined in the ROD. References to the laws/policies requiring each BMP are provided in the EIS where the BMP is considered in the analysis. Examples of BMPs specifically considered/“called out” in EIS analysis are consolidated in the Volume 7 BMP list. When mitigation is referred to in the text, particularly to support a “no significant impact” or “less than significant impact” determination, the mitigation measure is listed in the section’s corresponding mitigation summary table.

BMPs identified in the EIS and developed in coordination with regulating and permitting agencies, including GEPA and EPA, are expected to be effective. The mechanisms by which mitigation measures would reduce or avoid impacts are described in the applicable analyses sections in the FEIS. Table 2.1-2 of Volume 7 lists all of the mitigation measures

proposed for the preferred alternative and has been expanded to identify the section in the FEIS in which the measure is proposed for reference, the party responsible for implementing the mitigation, and the party responsible for monitoring the mitigation implementation.

A-009-097

Thank you for your comment. Section 2.3 of Volume 7 has been updated with new information and revised in response to comments.

As a result of ongoing coordination with GovGuam, GEPA, USEPA, GWA, and GPA, updates have been made to the power, water, and wastewater discussions provided in volumes 6 and 7 of this EIS and the air quality discussion in Volume 2 of this EIS. In particular, DoD has determined that there is sufficient existing power supply to support the proposed action (see Volume 6, Chapter 3). Further, DoD has determined that adjusting the construction program based on short-term air quality monitoring data is not feasible; DoD instead proposes the establishment of an air quality monitoring station in northern Guam (see Volume 2, Chapter 5).

The description of the proposed adaptive program management mitigation measure has been clarified. Adaptive management of the proposed construction is a mitigation measure that would potentially reduce and avoid environmental impacts sensitive to construction tempo and sequencing. This proposed mitigation measure would involve the creation of a council consisting of, but not limited to, representatives from DoD, GovGuam, GEPA, USEPA, GWA, and GPA, to monitor impacts and advise DoD on the tempo and sequencing of proposed construction in order to avoid and reduce environmental impacts. The specifics of an adaptive management plan would be developed in coordination with the agencies identified above upon decision to implement the adaptive management of construction mitigation measure in the record of decision (ROD). However, one approach that DoD is prepared to

implement through an adaptive management plan would be to slow its construction tempo and adjust sequencing of construction activities to directly influence work force population levels, and thus impacts on population sensitive resources, before unacceptable conditions arise.

A-009-098

Thank you for your comment. Volume 6 of the EIS has been updated to identify the approach DoD intends to take to avoid over pumping of wells and saltwater intrusion. In particular, DoD plans to establish new wells on DoD lands to avoid over pumping of existing wells most susceptible to chloride intrusion. DoD has determined that an adequate water supply is available on Guam to accommodate the proposed action along with current and future demand. Through a series of meetings, DoD and GovGuam have developed two draft MOUs to provide the framework to address impacts to the GWA water and wastewater systems, co-manage the Northern Guam Lens Aquifer, and address impacts to the Island Wide Power System (see Volume 6, Chapter 3).

A-009-099

Thank you for your comment. DoD has determined that adjusting the construction program based on short-term air quality monitoring data is not feasible; DoD instead proposes the establishment of an air quality monitoring station in northern Guam (see Volume 2, Chapter 5).

A-009-100

Thank you for your comment. Due to the complexity of the project, there are two parts of the cumulative impact analysis: the summary of impacts for all components of the proposed action (Volume 7 Chapter 3) and an assessment of the additive impacts of the proposed action in combination with other past, present and reasonably foreseeable projects (Volume 7, Chapter 4). A systematic methodology was applied in both analyses.

Volume 7, Chapter 3 summarizes the combined potential impacts of all of the preferred alternatives on Guam and Tinian. The impacts of Volumes 2 through 6 are discussed by resource. At the end of Volume 7, Chapter 3.3 there is a table summarizing the combined impacts of all long-term (operational) components of the preferred alternatives. Significant impacts are identified. Trends in the resource health on Guam and Tinian since World War II are described. This section includes limited quantitative data for proposed action impacts. For example, special-status species habitat loss due to the proposed action and current amount of habitat available island wide is presented in Volume 7, Section 3.3. There is no quantitative island-wide data readily available for most of the resource areas assessed and the impact analysis is often qualitative.

Volume 7, Chapter 4, Cumulative Impacts, assesses the potential additive impact of the EIS proposed actions when combined with potential impacts of other past, present and reasonably foreseeable future actions. The period of consideration for the cumulative impact analysis is 2004 to 2019. The project list is based on best available information from DoD and the Guam Land Use Commission database. There is no National Environmental Policy Act (or similar) document disclosing project impacts for most of the cumulative projects listed; therefore, there is insufficient data on most cumulative projects listed to conduct a quantitative impact analysis. In Chapter 4 a table summarizes the potential cumulative impacts on Guam and another table summarizes the potential cumulative impacts on Tinian. Potential additive cumulative impacts are identified for a number of resources. Mitigation measures are proposed earlier in the EIS. The cumulative impacts analysis has been expanded in the FEIS, including the addition of climate change analysis and analysis of cumulative impacts to coral.

A-009-101

Thank you for your comment. Due to the complexity of the project, there are two parts of the cumulative impact analysis: the summary of impacts for all components of the proposed action (Volume 7 Chapter 3) and an assessment of the additive impacts of the proposed action in combination with other past, present and reasonably foreseeable projects (Volume 7, Chapter 4). A systematic methodology was applied in both analyses.

Volume 7, Chapter 3 summarizes the combined potential impacts of all of the preferred alternatives on Guam and Tinian. The impacts of Volumes 2 through 6 are discussed by resource. At the end of Volume 7, Chapter 3.3 there is a table summarizing the combined impacts of all long-term (operational) components of the preferred alternatives. Significant impacts are identified. Trends in the resource health on Guam and Tinian since World War II are described. This section includes limited quantitative data for proposed action impacts. For example, special-status species habitat loss due to the proposed action and current amount of habitat available island wide is presented in Volume 7, Section 3.3. There is no quantitative island-wide data readily available for most of the resource areas assessed and the impact analysis is often qualitative.

Volume 7, Chapter 4, Cumulative Impacts, assesses the potential additive impact of the EIS proposed actions when combined with potential impacts of other past, present and reasonably foreseeable future actions. The period of consideration for the cumulative impact analysis is 2004 to 2019. The project list is based on best available information from DoD and the Guam Land Use Commission database. There is no National Environmental Policy Act (or similar) document disclosing project impacts for most of the cumulative projects listed; therefore, there is insufficient data on most cumulative projects listed to conduct a quantitative impact analysis. In Chapter 4 a table summarizes

the potential cumulative impacts on Guam and another table summarizes the potential cumulative impacts on Tinian. Potential additive cumulative impacts are identified for a number of resources. Mitigation measures are proposed earlier in the EIS. The cumulative impacts analysis has been expanded in the FEIS, including the addition of climate change analysis and analysis of cumulative impacts to coral.

A-009-102

Thank you for your comment. Due to the complexity of the project, there are two parts of the cumulative impact analysis: the summary of impacts for all components of the proposed action (Volume 7 Chapter 3) and an assessment of the additive impacts of the proposed action in combination with other past, present and reasonably foreseeable projects (Volume 7, Chapter 4). A systematic methodology was applied in both analyses.

Volume 7, Chapter 3 summarizes the combined potential impacts of all of the preferred alternatives on Guam and Tinian. The impacts of Volumes 2 through 6 are discussed by resource. At the end of Volume 7, Chapter 3.3 there is a table summarizing the combined impacts of all long-term (operational) components of the preferred alternatives. Significant impacts are identified. Trends in the resource health on Guam and Tinian since World War II are described. This section includes limited quantitative data for proposed action impacts. For example, special-status species habitat loss due to the proposed action and current amount of habitat available island wide is presented in Volume 7, Section 3.3. There is no quantitative island-wide data readily available for most of the resource areas assessed and the impact analysis is often qualitative.

Volume 7, Chapter 4, Cumulative Impacts, assesses the potential additive impact of the EIS proposed actions when combined with potential impacts of other past, present and reasonably foreseeable

future actions. The period of consideration for the cumulative impact analysis is 2004 to 2019. The project list is based on best available information from DoD and the Guam Land Use Commission database. There is no National Environmental Policy Act (or similar) document disclosing project impacts for most of the cumulative projects listed; therefore, there is insufficient data on most cumulative projects listed to conduct a quantitative impact analysis. In Chapter 4 a table summarizes the potential cumulative impacts on Guam and another table summarizes the potential cumulative impacts on Tinian. Potential additive cumulative impacts are identified for a number of resources. Mitigation measures are proposed earlier in the EIS. The cumulative impacts analysis has been expanded in the FEIS, including the addition of climate change analysis and analysis of cumulative impacts to coral.

A-009-103

Thank you for your comment. Due to the complexity of the project, there are two parts of the cumulative impact analysis: the summary of impacts for all components of the proposed action (Volume 7 Chapter 3) and an assessment of the additive impacts of the proposed action in combination with other past, present and reasonably foreseeable projects (Volume 7, Chapter 4). A systematic methodology was applied in both analyses.

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A-009-104

Thank you for your comment. Due to the complexity of the project, there are two parts of the cumulative impact analysis: the summary of impacts for all components of the proposed action (Volume 7 Chapter 3) and an assessment of the additive impacts of the proposed action in combination with other past, present and reasonably foreseeable projects (Volume 7, Chapter 4). A systematic methodology was applied in both analyses.

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A-009-105

Thank you for your comment. Due to the complexity of the project, there are two parts of the cumulative impact analysis: the summary of impacts for all components of the proposed action (Volume 7 Chapter 3) and an assessment of the additive impacts of the proposed action in combination with other past, present and reasonably foreseeable projects (Volume 7, Chapter 4). A systematic methodology was applied in both analyses.

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A-009-106

Thank you for your comment. Due to the complexity of the project, there are two parts of the cumulative impact analysis: the summary of impacts for all components of the proposed action (Volume 7 Chapter 3) and an assessment of the additive impacts of the proposed action in combination with other past, present and reasonably foreseeable projects (Volume 7, Chapter 4). A systematic methodology was applied in both analyses.

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A-009-107

Thank you for your comment. In addition to continuing to implement existing standard operating procedures and DoD requirements covering the inspection and transport of material and personnel from Guam to other locations, the Navy is also funding and coordinating the preparation of a Micronesia Biosecurity Plan (MBP). Until the plan completed the DoD is initiating interim biosecurity measures and these measures are included within the FEIS. Information pertaining to the MBP and biosecurity issues are discussed in Volume 2, Chapter 10, Section 10.2.2.6 for terrestrial species, and in Volume 2, Chapter 11, Section 11.2.2.6 for marine species. Volume 2 Chapter 14 (marine transportation) has been updated to include projected cargo traffic through the Port of Guam associated with both organic growth and the military buildup.

A-009-108

Thank you for your comment. This section has been revised for the final EIS.

A-009-109

Thank you for your comment. Individual roadway projects are described in Table 2.5-3 of Chapter 2, Volume 6. Roadway construction activities are defined based on the type of roadway project and construction equipment associated with typical roadway construction activities as described in Table 2.5-5 of Chapter 2, Volume 6 are listed in roadway construction emission tables in Appendix I, Volume 9. Laydown areas will be located within existing ROWs or as close to the roadways as possible. Specific construction activities by project will be defined as design progresses. However, impacts to affected resources were evaluated based on preliminary design and best available information.

Table 12.2-16, Volume 6, identifies projects that have potential direct impacts to special status species habitats. The only project-level alternatives would have been to align the road sections for the taking of private property on the east side of Route 3 and south side of Route 9 instead of federal property at NCTS Finegayan and Andersen AFB, respectively, that are within the Guam National Wildlife Refuge Overlay. It was decided to use federal lands for roadway widening at Route 3 and Route 9 to avoid impacts to private property owners.

Only certain types of projects have the potential to directly impact wetlands. These include bridge replacements and road widening. No road widening projects are located adjacent to wetland areas such as Agana Swamp and the Sasa mangroves (Sasa Bay Marine Preserve). The only project type that affect potential waters of the US are bridge replacements. Work for pavement strengthening projects will be confined to the existing upland road footprint, and therefore will not directly impact wetlands. Therefore, project-level alternatives were not developed. Indirect impacts are addressed in Tables 12.2-11 through 12.2-14.

Where appropriate, site-specific resource information for affected resources are presented in Chapters 4 to 21 of Volume 6. Additional

information has been provided in the FEIS. As an example, in Table 12.2-12, for GRN #33, the project is a pavement strengthening and will not require road widening (no direct impact to biological resources).

However, GRN #33 will indirectly impact aquatic habitats within Agana River and Tumon Bay/Tumon Bay Marine Preserve via stormwater drainages.



February 16, 2010



BROADCASTING BOARD OF GOVERNORS
U.S. INTERNATIONAL BROADCASTING

Walter Borys Jr., P.E.

Assistant Deputy Director for
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Office of Engineering and Technical Services

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Joint Guam Program Office
c/o Naval Facilities Engineering Command Pacific
Attn: Guam Program Management Office
258 Makalapa Drive, Suite 100
Pearl Harbor, Hawaii 96860-3134

Dear Sirs:

This correspondence contains comments on the Draft Environmental Impact Statement for the Guam and CNMI Military Relocation that was released on November 20, 2009.

We have the following comments on the Draft EIS:

- A-011-001** 1. The International Broadcasting Bureau (IBB) has operated a large high frequency broadcasting facility on Tinian since 1999. We appreciated the opportunity to hold preliminary discussions with your office in 2008. It appears that this early coordination has helped this project effort to avoid any significant impact to IBB operations on Tinian. It is specifically noted in Volume Three, paragraph 2.2.1. that the "RTA would....Complement, but not conflict with.....the International Broadcasting Bureau (IBB) property."
- A-011-002** 2. Volume Three, paragraphs 2.2.2 and 12.1.2.1 (and possibly others) contain obsolete and incorrect reference to the U.S. Information Agency. The International Broadcasting Bureau is a part of the Broadcasting Board of Governors, an independent federal agency supervising all U.S. government-supported, civilian international broadcasting.
- A-011-003** 3. The IBB is concerned about the potential for restricted access on 8th Avenue and the complete closing of Broadway during training exercises. Details are noted at several places in Volume Three (e.g. paragraphs 2.3.4.4; 9.2.2.1 and 19.2.2.1). Our station operates 24 hours a day and access is required at all times. Operations personnel frequently need to travel expeditiously between residences or other areas on Tinian and the broadcast station. It is imperative that a simple system be arranged whereby IBB personnel can use 8th Avenue to access the station with an absolute minimum of delay.
- A-011-004** 4. There is some concern about the noise levels at the IBB facility as a result of range operations. Noise effects are described in Volume Three, Chapter 6. The IBB transmitter building is located relatively close to 8th Avenue, is staffed at all times and contains administrative areas requiring a moderately quiet environment. It is not entirely clear whether the expected noise from the range will have a negative effect on IBB administrative operations.

A-011-001

Thank you for your comment.

A-011-002

Thank you for your comment. This change has been made in the EIS.

A-011-003

Thank you for your comment. The Department of Defense understands the requirement to maintain access to the IBB and has no plans to restrict that access. Access will be assured through either direct access up 8th Avenue or from Broadway to 86th St to 8th Avenue. During live firing Traffic Control Points will be established to control unauthorized access and prevent inadvertent entry into live fire areas. IBB personnel will check-in and out with appropriate Traffic Control Points when transiting 8th Ave. These procedures should not impose any significant delays on IBB personnel. At the same time, the procedures will allow Range Control Personnel to ensure that live fire areas remain clear of non-participating personnel. Live fire events that will impose these safety controls on 8th Ave will be advertised via local print and broadcast media in advance.

A-011-004

Thank you for your comment. Noise contours are presented in Figure 6.2.1 through 6.2.3 and indicate the IBB location is at the edge of the 87 dB peak contour. The transmitter facility is located just outside the contour line. As a result, noise from the range would be heard, but at a level considered less than significant.

- A-011-005** 5. Volume Three, paragraph 15.2.2.1 and Volume Seven, paragraph 3.3.14.1 propose that a contract portable toilet service could potentially dispose of waste by "(3) taking the wastewater to the IBB facility and adding it to their septic/leach field system". As a Federal agency, it is highly unlikely that we would permit a private contractor to dispose of toilet wastewater on our site. It is requested that this potential disposal method be dropped from further consideration.

Should you have any questions, please contact me in Washington, DC at (202) 382-7356

Sincerely yours,



Walter Borys, Jr.
Assistant Deputy Director for
Engineering Operations

A-011-005

Thank you for your comment. DoD concurs with your comment and suggestion. Near the production date of the DEIS, DoD verified that they had installed and permitted a septic leach field system just south of IBB and would plan to utilize this system. These references to utilizing the IBB system must have escaped our final editing and will be removed. But, as clarification, the original thought was that since this would be wastewater from DoD, another federal agency, that IBB might be willing to accept it if other alternatives were not available. Of course IBB concurrence was always felt a requirement.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
PROGRAM PLANNING AND INTEGRATION
Silver Spring, Maryland 20910

FEB 17 2010

Ralph F. Luca P. E.
Deputy Director
Guam Program Management Office
Naval Facilities Engineering Command, Pacific
258 Makalapa Dr., STE 100
Pearl Harbor, Hi. 96860-3134

Re: Comments on the Draft Environmental Impact Statement/Overseas Environmental Impact Statement for the Guam and Commonwealth of the Northern Mariana Islands Military Relocation.

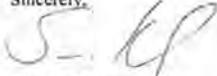
The National Oceanic and Atmospheric Administration (NOAA) received the November 16, 2009 request for review of the Draft Environmental Impact Statement/Overseas Environmental Impact Statement (DEIS/OEIS) for the Guam and Commonwealth of the Northern Mariana Islands (CNMI) Military Relocation.

The NOAA National Marine Fisheries Service (NMFS) Pacific Islands Regional Office in Honolulu conducted the review of the DEIS and has provided comments. Please find enclosed, comments from review of the DEIS submitted on behalf of NMFS. The comment responses contains two parts: 1) a ten-page document describing the issues of significant concern to NOAA NMFS; and 2) a spreadsheet containing the detailed comments on the content of the DEIS. Please also find enclosed a letter from NMFS Office of Protected Resources regarding Endangered Species Act concerns.

NOAA appreciates the opportunity to comment and looks forward to working through the complex array of issues presented in this action and is especially concerned in ensuring that this effort results in a good outcome for the people, the marine resources, and the islands of Guam and the CNMI.

If you have further questions or wish to discuss the comments and recommendations, please contact Gerry Davis, Assistant Regional Administrator for Habitat from the NMFS Pacific Islands Regional Office for technical questions (email: Gerry.Davis@noaa.gov; phone: 808-944-2283 phone) or Pat Montanio, Director of the NMFS Office of Habitat Conservation for policy questions (email: Pat.Montanio@noaa.gov; phone: 301-713-2325).

Sincerely,


for Paul N. Doremus, Ph.D.
NOAA NEPA Coordinator

Enclosures



Cc:

U.S. Fish & Wildlife Service

U.S. Fish & Wildlife Service - Honolulu

U.S. Environmental Protection Agency

U.S. Environmental Protection Agency - Region 9, Honolulu

U.S. Army Corps of Engineers

U.S. Army Corps of Engineers - Honolulu, Guam

Guam Coastal Zone Management Program

Guam DAWR

Guam Environmental Protection Agency

CNMI Department of Fish & Wildlife

CNMI Council on Environmental Quality

CNMI Coastal Zone Management Program

February 17, 2010

Enclosure – NOAA’s National Marine Fisheries Service

**Key Issues of Concern with Draft Environmental Impact Statement/Overseas
Environmental Impact Statement for the Guam and Commonwealth of the Northern
Mariana Islands Military Relocation**

The National Oceanic and Atmospheric Administration’s National Marine Fisheries Service (NMFS) received the November 16, 2009, request for review of the Draft Environmental Impact Statement/Overseas Environmental Impact Statement (DEIS/OEIS) for the Guam and Commonwealth of the Northern Mariana Islands (CNMI) Military Relocation. We have reviewed the documents and provide the following comments.

This proposed action includes construction of facilities for training and operations occurring on Guam and the Commonwealth of the Northern Mariana Islands (CNMI) to support relocating approximately 8,600 Marines and their 9,000 dependents from Okinawa to Guam. The resultant attributed population increase for Guam is expected to be 40,000 additional people by 2014 consisting of Department of Defense (DOD) active and civilian personnel as well as their dependents, private sector affiliated individuals and contractors. The present population is approximately 175,000 with the proposed action resulting in a 20+% increase in population.

In addition to the population growth, the proposed action includes an extensive array of facilities and operational components. The following is a partial list of major actions proposed for the relocation that encompass the NMFS environmental review considerations:

- Impervious surfaces, clearing and grading
- Live fire training ranges
- Non-live fire training ranges
- Commercial port vessel traffic and distribution of cargo.
- 50-acre coral reef dredging for carrier vessel nuclear (CVN) turning basin and berthing
- Wharf pilings
- Utility expansion
 - Water use and infrastructure
 - Power plant expansion and distribution
 - Sewage plant expansion, treatment and discharge
 - Road hardening and expansion
- Solid waste disposal
- Recreational and social impacts

This action is unprecedented in the Pacific as it is the largest troop movement since World War II, includes the largest dredging action in US history and touches every aspect of the environment, community, culture and economics on Guam, and to a lesser degree in the CNMI. Given Guam and CNMI’s relatively small size, the land mass areas are considered to be 100% in the coastal zone as an extension of the federal determination under the Coastal Zone Management Act. This means all activities on land affect the coastal resources.

The NMFS review submittal is in two parts: This letter describes the issues of significant concern to NMFS, which could jeopardize significant natural resources or pose risk in completing the EIS or permitting process. The attachment to this letter contains the detailed comments on the content of the DEIS.

Key Issues

NMFS acknowledges that the scope of the proposed action described in the DEIS represents a massive undertaking and poses many challenges associated with describing and evaluating the troop relocation impacts across the Mariana Islands, cultures, diverse ethnic population and rich natural resources.

During two years of working with the Department of the Navy (DON) on this Action, NMFS' focus has been on the large in-water actions. Throughout the DEIS, a consistent trend is lack of data to justify conclusions. This ranges from no data being presented to data existing but not being used. This is a serious concern from a number of perspectives. NMFS has a number of cross cutting concerns which must be addressed adequately in the Final Environmental Impact Statement (FEIS). NMFS would like further opportunity to review how our comments will be addressed. The following is a summary of our ongoing concerns with the large in-water actions as well as concerns identified regarding the land-based actions that are likely to impact coastal natural marine resources.

Coral Reef Assessment

The coral reef impacts associated with CVN berthing project are larger than any other planned activity affecting coral reef development in the last 50 years. Dredging 50 acres of coral reef is an unprecedented impact for such a small island and small resource area.

NMFS has met extensively with the DON to work through the assessment and analysis of marine impacts. The 2008 Corps-EPA Compensatory Mitigation Rule requires that lost ecosystem functions be replaced. Early in the project, US Fish & Wildlife Service (USFWS) and NMFS were working with DON to conduct in-water surveys to complete the necessary impact analysis and gather the metrics to complete a Habitat Equivalency Analysis (HEA) which is critical to assessing lost ecosystem functions and developing appropriate mitigation. These are the same methods that DOD funded USFWS and NMFS to complete in Tinian in 2008. NMFS has the following concerns presented in the Minton et al. (2009) *Comparison of a Photographic and an In Situ Method to Assess the Coral Reef Benthic Community in Apra Harbor, Guam* which justifies why the additional survey work is needed:

1. As a standalone method, the photo quadrat method applied did not accurately assess the size, abundance, morphology, or biodiversity of coral.
2. The photo method does not capture rugosity in the traditional sense and it is well documented that this is a key issue for fish biomass – critical to determining habitat value and function. Using Light Detection and Ranging (LIDAR) readings to add a landscape context to the data layer is a step in the right direction, but the scale is too

A-012-001

Thank you for your comment. As related to the US Fish and Wildlife Service (USFWS) during the many partnering meetings, DoD had added a number of survey documents, such as the natural resources survey report, to the FEIS that was not completed at the time of the publication of the DEIS. Much of this data was available and used in the analysis and conclusion of impacts in the DEIS; however, more surveys and survey results have been completed since the DEIS and this information may be found in the appendix of this FEIS.

A-012-002

Thank you for your comment. DoD will continue to partner with the USFWS and other Federal and Guam resources agencies throughout the EIS process.

A-012-003

Thank you for your comments. As stated by the Department of the Army (17 Feb 2010 response to DEIS): “the employed survey methodology to assess coral reef resources within the proposed CVN wharf and dredge project area has been an extremely contentious subject. Functional assessment methodologies are an evolving science and the adequacies of existing methodologies are heavily debated in the scientific community. A standard functional assessment technique that accurately characterized and quantifies losses and gains of coral reef aquatic resource functions, as would ideally be utilized for the proposed action for Section 10/404 compensatory mitigation purposes, is not currently available. Considering that our office will ultimately be responsible for determining compliance with federal regulations requiring an appropriate and practicable functional assessment, we have engaged our Engineer Research and Development center (ERDC) to provide an independent technical review of the adequacy of the employed methodology to date and recommendations for improvements, if necessary. Preliminarily, ERDC has determined that while the methodology is scientifically valid

big to provide the true rugosity necessary to properly scale the impacts and equity using HEA.

3. The requirement under the new 2008 joint Corps-EPA mitigation rule, applicable to permits involving projects with unavoidable adverse impacts to wetlands and aquatic resources under Section 404 of the Clean Water Act (CWA), is to "replace lost ecosystem function". This rule emphasizes the assessment and mitigation for aquatic resource "functions" rather than "area" alone and states a preference for the use of functional assessment methods where available and practicable (40 CFR Part 232.3). To completely define function would take many years of study and is not practical. The rule promotes the best available science and the appropriate methodology to assess key species and measure the spatial and temporal distribution as our best predictor of function. In coral dominated systems, it makes sense to use coral as a means to define function, however all associated coral reef habitats are valuable and need to be included in any determination of function for an area. In habitats where coral is not the dominant species, other key species need to be targeted. To use this approach, a mechanism is needed to define within and across species how function will be measured. Corals are slow growing and it is well known that their size and morphology add value to function. This requires measures of abundance, size, morphology and biodiversity. The photo quadrat method does not capture size accurately as it only counts the size of coral inside the quadrat on a planar scale. This means any coral that is on the edge of the quadrat will only be counted for the longest edge in the quadrat. If a quadrat were placed in such a way that only one third of a meter-wide coral were within its boundaries, the size would be recorded as one third meter. This also means the largest coral the photo method can count is the diagonal distance across the quadrat. In this particular instance, there are corals that are many times larger than the quadrat that are likely to be dredged; this is a significant impact and restoration issue. In addition this method can double count coral since quadrats were aligned adjacent to one another and any coral that is on both sides of the adjoining boundary will be counted twice.

The in situ method uses a center point approach and actually measures the full size of any coral encountered in the quadrat, even those on the perimeter. This gives an accurate estimate of size provided a large enough sample size is taken. The use of percent cover can be valuable and is certainly scientifically defensible and something the regulatory agencies collect routinely. However, percent cover is never used as a standalone method to characterize the resource if you are trying to define function and outline measures necessary for recovery. The data set presented inaccurately measures the coral reef community and underestimates the coral habitat impacted. For NEPA purposes, this method leaves the characterization of the coral community and ecosystem, the corresponding impacts analysis and identification of mitigation lacking. In addition, the method's deficiency prevents an accurate application of HEA in determining equivalency for the development of appropriate compensatory mitigation.

4. DON conducted an independent peer review which generated some sound feedback. Unfortunately an effective peer review is built on a couple key requirements: a) What are the questions that need to be answered and b) what skills do the reviewers need to possess to effectively complete the task? NMFS feels neither of these criteria was

and statistically defensible, a more intensive level of data collection may be necessary to adequately measure habitat function for compensatory mitigation purposes. We expect a more specific and detailed accounting of their review in the coming weeks."

The Navy will continue to work with the USACE and EPA/GEPA to satisfy the requirements of Section 10/404 and Section 401 permit documentation.

A-012-003

met as the question that needed to be answered is: Can the photo quadrat method applied to obtain percent cover be used to define ecosystem function? The skills reviewers needed to answer this question were: a strong background in coral assessment and knowledge and awareness in gathering data to assess function with the intent of defining replacement at another site. The reviewers selected are all recognized coral assessment experts but lack experience in conducting assessments to define function and restoration potential.

One of the reviewers is a NMFS employee in the NMFS Pacific Islands Science Center's Coral Reef Ecosystem Division. In obtaining feedback from the reviewer, he explained that the intent of the peer review and issues were not made clear and that while he thought the DON's method was acceptable for basic assessment, a more targeted method would be needed to gather the information necessary to ascertain rugosity and restore/mitigate for lost function.

A-012-004

5. To use the HEA model effectively, coral abundance, size or age, morphology biodiversity and structure data from the impact site and proposed mitigation site are needed. Insufficient data were collected to adequately characterize the impact site. This failing is a major obstacle to achieving the desired results.
6. There is a significant amount of associated habitat other than coral that is not being included in the restoration objective. NMFS expects the spatial and temporal components of the resources to be captured in the process. NMFS recognizes that functions overlap between all the species and physical parameters. Of special mention in this area is the value of sand. There is significant fauna living in the sand and while recovery may be much faster, it still needs to be assessed and included in the analysis.
7. The dredge footprint needs to use the best available data to evaluate how to avoid high quality, fragile, slow growing, ecologically important habitat. There is also a risk of significant impact from sedimentation to resources deeper than 20 meters. These impacts need to be assessed to completely understand impacts. The indirect impact 200 meter boundary was defined arbitrarily and needs to be established based on the best water movement and habitat resource information.

A-012-005

NMFS's review of the Dollar et al. (2009) assessment of benthic community structure in the vicinity of the proposed turning basin and berthing area for the carrier vessel nuclear (CVN) Apra Harbor was found to be inadequate to complete Essential Fish Habitat (EFH) consultation and inadequate to provide data to determine replacement of lost ecosystem function.

NMFS advises DON to conduct the in situ surveys utilizing recommended methodology to meet these requirements as the best science approach available.

NMFS, USFWS and US Environmental Protection Agency (USEPA) have provided extensive feedback and documentation on this issue and recommend that a commitment to perform additional assessments be included in the FEIS and effort to complete this work be initiated immediately.

A-012-004

Thank you for your comments.

5. As stated by the Department of the Army (17 Feb 2010 response to DEIS): "the employed survey methodology to assess coral reef resources within the proposed CVN wharf and dredge project area has been an extremely contentious subject. Functional assessment methodologies are an evolving science and the adequacies of existing methodologies are heavily debated in the scientific community. A standard functional assessment technique that accurately characterized and quantifies losses and gains of coral reef aquatic resource functions, as would ideally be utilized for the proposed action for Section 10/404 compensatory mitigation purposes, is not currently available. Considering that our office will ultimately be responsible for determining compliance with federal regulations requiring an appropriate and practicable functional assessment, we have engaged our Engineer Research and Development center (ERDC) to provide an independent technical review of the adequacy of the employed methodology to date and recommendations for improvements, if necessary. Preliminarily, ERDC has determined that while the methodology is scientifically valid and statistically defensible, a more intensive level of data collection may be necessary to adequately measure habitat function for compensatory mitigation purposes. We expect a more specific and detailed accounting of their review in the coming weeks."

The Navy will continue to work with the USACE and EPA/GEPA to satisfy the requirements of Section 10/404 and Section 401 permit documentation.

6. The Navy has entered into Section 7 and EFH consultation, and will continue to work with the USACE and EPA/GEPA to satisfy the requirements of Section 10/404 and Section 401 permit documentation.

Avoidance, Minimization and Mitigation

As a practice, for all federal actions with aquatic environmental impacts the CWA Section 404 permitting clearance process dictates that practicable measures are taken to avoid, then minimize and then provide compensatory mitigation for unavoidable adverse impacts. This approach is based on a similar approach required for identifying mitigation for adverse impacts to the human environment under the National Environmental Policy Act. Moreover, federal agencies have an obligation to identify the Least Environmentally Damaging Practicable Alternative (LEDPA) as part of the permit application process. In the case of the CVN berthing project, a variety of alternatives were presented to meet these requirements. In reviewing the two alternatives deemed acceptable, Polaris Point and Old SRF, there appears to be additional opportunities to avoid or minimize impacts for the proposed dredging area.

The turning basin, as designed, uses two ship lengths to define the diameter of the turning basin. Below is the scaled diagram provided by DON, depicting the Polaris Point navigation route. In the two figures provided, shaded areas have been overlaid to consider additional options. In the first figure, the burgundy shaded area could be avoided and still retain adequate area within the turning basin. The logic of this option is that the vessel will never have to exit or maneuver toward the Sasa Bay side of the turning basin therefore that space is not necessary. In the second figure, by moving the turning basin within the dredge footprint, additional area could be eliminated from dredging. In addition to the renditions provided, if significant resources were to be defined these paths could be altered slightly to avoid resources.

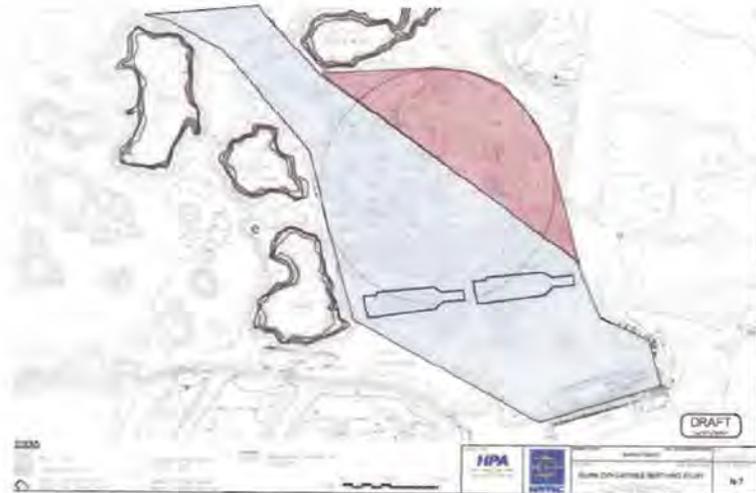


Figure 1

7. In general, the Navy has overestimated the direct and indirect impact area, not underestimated it, and utilized best available data to perform impact analysis. The assessment of benthic communities report assumes a 60 ft (18 m) dredge depth, which is an overestimate of the actual proposed dredge depth of -49.5 ft (-15.1 m) MLLW plus 2 ft (0.6 m) overdredge, representing an approximately 10-15% increase in assessed benthic habitat in the dredged area. For this reason, the total dredged area differs from the dredged area provided in Volume 4, Chapter 4.

Additionally, although the models for indirect impacts indicated that sedimentation exceeding 40 mg/cm² or 0.008 inch (0.2 mm) extended an average distance of 144 ft (44m) from the dredging, the assessment of benthic communities (and the Habitat Equivalency Analysis) assumes an indirect impact distance of 656 ft (200 m) distance from the direct impact area boundary. As noted in Section 11.1.2.2, this is an overestimate because the SEI (2009) plume modeling summary identifies only 39 ft (12 m) beyond the direct dredge impact area as anticipated to receive cumulative sedimentation totaling at least 0.2 inches (in) (6 millimeters [mm]), which was established as the cumulative sedimentation threshold for corals.

A-012-005

Thank you for your comment. The EFH Assessment (EFHA) is provided within the DEIS, not in Dollar et. al. 2009. This format for the EFHA, although not as ideal for preparation or review as a standalone document, was agreed early on in the process between the Navy and resource agencies. Based on NMFS PDEIS comments, a summary table was provided at the end of each section to assist NMFS with the effects determination.

The Navy has worked with and coordinated meetings with the resource agencies over the last three years discussing Habitat Equivalency



Figure 2

A-012-007

In addition to the pathway, consideration should be given to minimizing and avoiding adverse impacts. The numbers presented in calculating the acreage is not consistent throughout the document and raises concerns for defining the Least Environmentally Damaging Practicable Alternative. The acreage determination, after looking at deepwater indirect impact and avoidance alternatives, should be recalculated. Some suggested recalculations are presented in the detailed responses.

Mitigation

A-012-008

The extensive loss of coral reef resources associated with the CVN berthing dredging requires a significant mitigation package. The DEIS put three alternatives forward: 1) Artificial Reef, 2) Afforestation, and 3) Upgrade of the Southern District Water Treatment Facility.

NMFS recommends that a much broader list of alternatives be developed to include a whole host of watershed management tools for the proposed afforestation site such as ponding basins, infiltration galleries, energy dissipater, stream bank stabilization and vegetative filter to name a few. These concepts should also be investigated for other areas outside the proposed project as they too could serve as compensatory mitigation.

A-012-009

In terms of the specific alternatives proposed, NMFS supports the watershed approach (broadened afforestation) as the best alternative. NMFS continues to believe that the science

Analysis (HEA) approach and methodologies. The Navy has invited them to perform surveys, and attended a USFWS hosted HEA workshop in 2008 (Guam agencies were unable to attend due to scheduling difficulties). The Navy has addressed PDEIS comments and concerns, incorporating additional quantitative coral and finfish studies into the DEIS in attempts to alleviate some of these concerns.

As stated by the Department of the Army (17 Feb 2010 response to DEIS), “the employed survey methodology to assess coral reef resources within the proposed CVN wharf and dredge project area has been an extremely contentious subject. Functional assessment methodologies are an evolving science and the adequacies of existing methodologies are heavily debated in the scientific community. A standard functional assessment technique that accurately characterized and quantifies losses and gains of coral reef aquatic resource functions, as would ideally be utilized for the proposed action for Section 10/404 compensatory mitigation purposes, is not currently available. Considering that our office will ultimately be responsible for determining compliance with federal regulations requiring an appropriate and practicable functional assessment, we have engaged our Engineer Research and Development center (ERDC) to provided an independent technical review of the adequacy of the employed methodology to date and recommendations for improvements, if necessary. Preliminarily, ERDC has determined that while the methodology is scientifically valid and statistically defensible, a more intensive level of data collection may be necessary to adequately measure habitat function for compensatory mitigation purposes. We expect a more specific and detailed accounting of their review in the coming weeks.”

The Navy will continue to work with the USACE and EPA/GEPA to satisfy the requirements of Section 10/404 and Section 401 permit documentation.

A-012-010

supports this alternative better than any other option. The concept was applied for KIL0 wharf and, with the appropriate refinements, is still seen as the right approach. NMFS also supports the in lieu fee approach but fears this option may not be available in time and therefore encourages that efforts proceed toward a mitigation that does not require in lieu fee, but that could be converted if the option becomes available. NMFS is partnering with Army Corps of Engineers (ACOE), USEPA and USFWS to support development of an in lieu fee program and endorses this approach if it becomes available in the FEIS.

A-012-011

The artificial reef proposal presents problems in that artificial reefs have been largely used to support fisheries. Artificial reefs do a good job of aggregating fish but there are scientific concerns with the merits of replacing ecosystem functions above and beyond fish aggregation. They may provide some limited function but this would require a vast amount of research and time to quantify. NMFS does not believe that the artificial reef proposal is scientifically defensible in meeting mitigation requirements to replace lost ecosystem functions associated with this proposed action.

A-012-012

The Southern Sewage Treatment Facility upgrade would benefit Guam for health reasons but does not replace lost ecosystem function needed. There may be places where this would be appropriate, but research on Guam does not show a loss of habitat associated with sewage outfall. There are likely some fauna shifts and certainly some potential human health risks. NMFS does not expect that sealing would yield much credit for this approach, especially given the high cost.

Protected Resources

A-012-013

NMFS has communicated with DON on the Endangered Species Act (ESA) considerations for the proposed action. On December 2, 2009, NMFS notified DON it did not concur with their determination of "not likely to adversely affect marine species." NMFS recommended DON initiate formal consultation (see attached letter). In addition NMFS advises DON that a petition to list 83 species of coral under ESA is being reviewed as well as a petition to list the bumphead parrotfish (*Bolbometopan muricatum*). Quite a number of the coral species in the listing petition exist on Guam as well as the bumphead parrotfish. The DON should track this proposal and recognize the impact this could have on this effort if any of these species are proposed to be listed.

A-012-014

Essential Fish Habitat

DON has failed to provide a comprehensive essential fish habitat assessment necessary for completing the required EFH consultation under the Magnuson-Stevens Act. While the EFH assessment is not statutorily required to be included in the DEIS, this is often an efficient way to articulate the potential impacts and provide detailed analysis of the EFH for each managed species and life stage that may be affected by the proposed actions. Throughout the DEIS, the existing data set is inadequate to meet EFH assessment requirements and fails to provide the information needed to define appropriate compensatory mitigation. The DEIS also made several determinations of minimal or no adverse impact to EFH without adequate substantiation for those findings.

A-012-006

Thank you for your comment. The alternative proposed by NMFS was based on preliminary dredge areas. In the DEIS, further modifications to the turning basin were made to minimize impacts, including decreasing the size and moving it south (see Section 2.3.3, Volume 4). Based upon a review of operational and safety factors, it has been determined that the alternative proposed by NMFS is not a reasonable alternative under NEPA, nor a practicable alternative under the CWA 404(b) permitting process.

A-012-007

Thank you for your comment. The dredged channel alternative carried forward in the EIS is the least favorable for navigation, but is the least environmentally damaging because it minimizes direct impact to existing high quality coral shoals and requires less dredging than the other channel options considered. To further minimize impacts to coral, the clearance needed for carrier berthing along the proposed wharf was reduced to avoid excavating a nearby outcrop of land with coral cover.

Additionally, the proposed aircraft carrier turning basin at Apra Harbor meets the minimum radius needed to safely maneuver the carrier while minimizing dredging impacts. The proposed basin has the smallest circumference of any other active Naval Harbor. The acreage differences the commenter may be referring to is regarding 3-D vs. 2-D calculations (see Section 11.2.2.5), however in either case, impact acreage has been overestimated. In general, the Navy has overestimated the direct and indirect impact area, not underestimated it. The assessment of benthic communities report assumes a 60 ft (18 m) dredge depth, which is an overestimate of the actual proposed dredge depth of -49.5 ft (-15.1 m) MLLW plus 2 ft (0.6 m) overdredge, representing an approximately 10-15% increase in assessed benthic habitat in the dredged area. For this reason, the total dredged area differs from the dredged area provided in Volume 4, Chapter 4.

Storm Water

A-012-015

Of particular concern is the extensive impact that the proposed action will have on impervious surfaces. While in general, storm water management is a local and Federal environmental protection issue, because of the small size of Guam, storm water systems tend to discharge into coastal areas quickly after rainfall. Scientists are now beginning to understand how storm water affects coastal areas in the islands. It is now clearer how drainage delivery systems have increased the amounts of sediment, nutrients and toxics getting into the nearshore marine environment and impacting natural resources. It is often overlooked that increased volumes of clean freshwater act as a pollutant as many organisms, like coral larvae, have a low tolerance for moderate salinity changes. Coral reefs are solar powered and unlike temperate climates, rely on very clear water to power the system. We also are aware now that once sediment is deposited in coastal areas, it can stay there for years and re-suspend every time there are disturbances like waves, storm surges and even localized activity like prop wash from a propeller. Research on Guam (Wolanski et al. (2003)) discovered that when fine clay soil moves from freshwater to the ocean, it becomes sticky due to a chemical reaction with saltwater. As the clay particulate falls, cyanobacteria adhere to it, thus "snowballing" to the bottom. This creates an organic layer that coats the bottom and prevents critical oxygen exchange. This organic layer eventually decays and the particles are freed to be re-suspended again and repeat the process. Contrary to previous belief, sedimentation impacts are not limited to the mud from a rain event but the repeated suspension of sediment over and over. It is reasonable to expect similar conditions for Guam. For this reason, there is great concern in minimizing and preventing sediment and toxics from getting into the ocean.

In the discussion in Volume 6-Related Action-Utilities and Roads concerning off-base roads, a determination is made that because these roads are not near the coast, they neither have direct or indirect impacts on the nearshore ecosystem. In fact, cumulative impacts (all hardening, excavation, clearing, etc.) associated with this federal action are extensive and have significant impact on storm water. This activity will cause a significant change in coastal discharge resulting in high potential risk to coastal resources. The alteration in water movement, volume and water quality must be defined and the coastal resource impacts quantified. This will likely require additional assessment of coastal areas to determine area and resource impacts. The U.S. Coral Reef Task Force has recognized Land Based Sources of Pollution as one of three top threats to Coral Reefs nationally; and in the local action strategies that each of the U.S. coastal coral jurisdictions has developed, storm water management is a priority issue. NMFS expects cumulative coastal impacts from the creation of impervious surfaces will be significant. NMFS continues to be willing to assist in assessing the impacts, provided adequate time, funding, and clarity in scope are provided.

Cumulative Impacts

The second large general issue is the portrayal of cumulative impacts. The impacts to Guam go well beyond the scope of the information presented in the DEIS. The population of Guam is relatively small and the land area actively used is a small percentage of the 212 square mile, island area. One of the major qualities of life in the Mariana Islands is the remoteness and the ability to access and enjoy an isolated area. At the resource use level, increasing the

Additionally, although the models for indirect impacts indicated that sedimentation exceeding 40 mg/cm² or 0.008 inch (0.2 mm) extended an average distance of 144 ft (44m) from the dredging, the assessment of benthic communities (and the Habitat Equivalency Analysis) assumes an indirect impact distance of 656 ft (200 m) distance from the direct impact area boundary. As noted in Section 11.1.2.2, this is an overestimate because the SEI (2009) plume modeling summary identifies only 39 ft (12 m) beyond the direct dredge impact area as anticipated to receive cumulative sedimentation totaling at least 0.2 inches (in) (6 millimeters [mm]), which was established as the cumulative sedimentation threshold for corals.

A-012-008

Thank you for your comment.

The Navy is considering a suite of potential options for compensatory mitigation for the loss of coral in Outer Apra Harbor as identified in Volume 4, Section 11.2.2.7. The final conceptual determination would not be made until the Record of Decision on this EIS. More detailed identification of potential mitigation would be done during the USACE permit process. Both artificial reefs and watershed management projects would be considered as potential compensatory mitigation, and it is possible that a combination of those potential mitigation efforts, or others would be appropriate. The Navy has not advanced a proposal at this time and specific mitigation measures would be subject to the permitting action/mitigation decision of the USACE.

Under the *2008 US Army Corps of Engineers (USACE) Final Compensatory Mitigation Rule* (See USACE November 2009, Comment 147 – Justification for Out-of-Kind and Off-site Mitigation) compensatory mitigation should occur within the same watershed of impact whenever possible. If compensatory mitigation is recommended to occur outside

A-012-016

population by 20% or more means that there will be a minimum of 20% more people using the resources. It is likely however that the actual percentage of people using the resource will be higher than 20% because the demographics of the increase will be skewed toward young adult males who generally recreate more. This has many impacts that were not articulated and will contribute greatly to significant social change on Guam. This social concern is linked to part of the reason that Okinawa wants the base closed. The scope of this determination is a major challenge and one of the most critical components of the DEIS as it directly affects the resultant quality of life for the residents of the Mariana Islands. This is clearly a coastal resource issue with respect to use, impacts and health. A few examples follow.

Fishing is a popular local and visitor activity that includes small scale commercial and a cross section of recreational and subsistence effort. In evaluating the impacts of the proposed action on fish and fishing, it may not be immediately obvious that the impacts across the islands could be quite extensive. First, there will likely be a significant increase in the number of people fishing and this will change both the harvest level and social components of fishing. There also will be an additional demand for fish to eat, impacting both the status of the stocks of the fishery as well as the economics of fish sales. Additionally, restriction to fishing areas like the proposed live fire range on the east coast of Guam will require boaters to surrender access to traditional fishing areas and motor out three miles to avoid the range. This greatly narrows Guam's fishing grounds and increases safety risks because most of the vessels are small (less than 20 ft.) and this is the rougher windward side of the island. More boats, more fuel spills, more user damage and more direct risk to the resources will likely occur. The DEIS does not effectively evaluate these types of impacts and needs to also consider how to properly mitigate for such impacts.

A-012-017

The cumulative effects analysis needs to account for past, present and future impacts. While a list of projects was created to address cumulative impacts, the information presented is a small subset of what is available. Understanding the risks to the community and the resource cannot be evaluated adequately with the limited information that was presented. A good example of this concern is the limited capacity in the islands to address the expected utility expansion needs. Past history suggests there will be delays in achieving this capability with the projected timeline. This being the case, what will the impact be to the community and the resources?

NMFS needs a much more thorough assessment of cumulative impacts to understand how to effectively avoid, minimize and mitigate impacts associated with each component of the proposed action.

Timeline

A-012-018

This action has been on an ambitious timeline given its immense scope. The information needed to fill the gaps in the DEIS are quite extensive and in NMFS' opinion will represent a significant change to the overall document. Adequate time is requested for NMFS and the other natural resources agencies to review the new information gathered to provide general characterization and justifications for decisions. NMFS suggests the DON provide a revised timeline based on the feedback taking into consideration the additional tasks and coordination necessary to properly review the proposed action.

the watershed of impact and/or out-of-kind, a sound ecological rationale must be presented as to why it is the most practicable and environmentally preferred choice.

A-012-009

Thank you for your comment. A detailed compensatory mitigation plan would be submitted as part of the Clean Water Act 404 permit application for construction affecting the navigable waters of the United States (including the CVN transient wharf). Due to the ongoing review of DoD's habitat assessment methodology for coral reef ecosystems and associated uncertainties regarding the scope of mitigation required, a detailed mitigation plan has not been developed nor will one be available for incorporation into the FEIS. However, a number of mitigation options, including watershed restoration and the use of artificial reefs, are discussed in programmatic nature in Volume 4, Section 11.2 of the FEIS. DoD recognizes that, as part of the CWA Sec. 404 permitting process, additional NEPA documentation may be required to address specific permitting requirements and implementation of required compensatory mitigations.

A-012-010

Thank you for your comment. A detailed compensatory mitigation plan would be submitted as part of the Clean Water Act 404 permit application for construction affecting the navigable waters of the United States (including the CVN transient wharf). Due to the ongoing review of DoD's habitat assessment methodology for coral reef ecosystems and associated uncertainties regarding the scope of mitigation required, a detailed mitigation plan has not been developed nor will one be available for incorporation into the FEIS. However, a number of mitigation options, including watershed restoration and the use of artificial reefs, are discussed in programmatic nature in Volume 4, Section 11.2 of the FEIS. DoD recognizes that, as part of the CWA Sec. 404 permitting process, additional NEPA documentation may be required to address

NMFS Detailed Comments

Attached are NMFS' detailed comments on the DEIS. In addition to those summarized in this document, there are many other issues identified in these comments. NMFS appreciates the opportunity to comment and looks forward to working through the complex array of issues presented in this action and is especially concerned in ensuring that this effort results in a good outcome for the people, the marine resources, and the islands of Guam and the CNMI.

specific permitting requirements and implementation of required compensatory mitigations.

A-012-011

Thank you for your comment. The agencies have not been able to provide data to support alternative mitigation projects. The artificial reefs were supported by Army Corps in a Hawaii project. As an example, success criteria for artificial reefs would be based on a replacement of benthic structure and on percent coral cover, as a proxy to ecosystem function. Long-term monitoring would be implemented to measure success. Potential Guam INRMP projects associated with the artificial reef could include assessment of functions these structures provide. Artificial reefs, though quantitatively easier to scale for a ratio between replacement and function lost than watersheds, have (as identified) been criticized as being primarily fish aggregating devices that do not increase coral community productivity. In other words, the replacement of structure does not necessarily equate to a restoration of coral community function.

The effectiveness of either artificial reefs or upland watershed management schemes to replace coral loss have been studied and conclusions concerning success differ. Section A of the *HEA and Supporting Studies* report (Volume 9, Appendix E, Section A) summarizes key points of discussion that were raised during review of the draft HEA, including relative merits (pros and counterpoints/cons) of artificial reefs and watershed management projects (HEA Section A, 3.3.4, Table 2 and 3, respectively). This will continue to be a point of contention that will be addressed in negotiations during the USACE permitting process.

A-012-012

Thank you for your comment. The Navy concurs.

NMFS Detailed Comments on Draft Environmental Impact Statement/Overseas Environmental Impact Statement for the Guam and Commonwealth of the Northern Mariana Islands Relocation

V o l u m e	C h a p t e r	P a g e	S e c t i o n	Comment	Action	
A-012-019	Vol 1	1	11	1.2.5	Justify how the MIRC action can be treated in a separate EIS as an independent action. While it is stated that MIRC in relation to the relocation action/EIS is assumed to represent baseline conditions, it is stated that 1) "marine corps training within MIRC would increase in frequency and intensity upon relocation", and that 2) the MIRC EIS/OEIS proposed to on top of "maintain current types of operations", "increase the frequency of operational training", "expand warfare missions", "accommodate force structure changes", and "implement enhancements to enable each range to meet foreseeable needs". Separation compromises the integrity of impact analyses [to EFH/marine habitats]	Address issues and modify delivery and content of DEIS.
	Vol 1	1	29		Change "could" to "will" to read: "Additional NEPA documentation and resource surveys will be completed in the future when project specifics and funding become available for these long-term projects."	Edit text
A-012-020	Vol 1	1	15	1.3.1	Clarify that the overarching purpose for action is the necessity to relocate US military from Okinawa, Japan, the need for this action is to maintain Military presence in the region, and the objectives/requirements of the action those listed in the paragraph on page 1-16. Identify that the decision to relocate to specifically Guam has not involved alternatives analyses and impact analyses [to EFH/marine habitats] on this overarching level.	Address issues and modify delivery and content of DEIS.
	Vol 1	1	15	1.3.1	Identify the requirements for relocation of military from Japan in terms of minimum needs and compare. Example, if air response time to Okinawa from Hawaii of 9 hours (Table 1.4-1) meets a hypothetical defined minimum of 10 hours, the response time from Guam of 2.5 hours may be faster but not crucial.	Address issues and modify delivery and content of DEIS.

A-012-013

Thank you for your comment. The Navy is in formal consultation with NMFS. If available, results of the consultation will be included in the FEIS.

The Navy will also track ESA petitions regarding possible future ESA-listings that may potentially affect the proposed action.

A-012-014

Thank you for your comment.

Although not required to be included, the EFH Assessment (EFHA) is provided within the DEIS. This format for the EFHA, although not as ideal for preparation or review as a standalone document, was agreed early on in the process between the Navy and resource agencies. Based on NMFS PDEIS comments, a summary table was provided at the end of each section to assist NMFS with the effects determination.

The Navy has worked with and coordinated meetings with the resource agencies over the last three years discussing Habitat Equivalency Analysis (HEA) approach and methodologies. The Navy has invited them to perform surveys, and attended a USFWS hosted HEA workshop in 2008 (Guam agencies were unable to attend due to scheduling difficulties). The Navy has addressed PDEIS comments and concerns, incorporating additional quantitative coral and finfish studies into the DEIS in attempts to alleviate some of these concerns. As stated by the Department of the Army (17 Feb 2010 response to DEIS): "the employed survey methodology to assess coral reef resources within the proposed CVN wharf and dredge project area has been an extremely contentious subject. Functional assessment methodologies are an evolving science and the adequacies of existing methodologies are heavily debated in the scientific community. A standard functional assessment technique that accurately characterized and quantifies losses and gains of coral reef aquatic resource functions, as would

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A-012-021	Vol 1	1	31	1.7	Justify that it is appropriate that this section identifies sub-action options as "alternatives", and that this does not result in inadequate impact analyses [to EFH/marine habitats].	Address issue.
A-012-022		1	33		Change "2" to "1" to read: "The power and communications costs are higher than for Alternative 1."	Edit text
A-012-023	Vol 1	1	7	1.2	State that the extensive and widespread existing military presence, facilities etc in the Islands represent the existing Baseline, which is essential for description and evaluation of the no-action alternative, and the cumulative impacts analyses [to EFH/marine habitats]	Modify text

ideally be utilized for the proposed action for Section 10/404 compensatory mitigation purposes, is not currently available. Considering that our office will ultimately be responsible for determining compliance with federal regulations requiring an appropriate and practicable functional assessment, we have engaged our Engineer Research and Development center (ERDC) to provided an independent technical review of the adequacy of the employed methodology to date and recommendations for improvements, if necessary. Preliminarily, ERDC has determined that while the methodology is scientifically valid and statistically defensible, a more intensive level of data collection may be necessary to adequately measure habitat function for compensatory mitigation purposes. We expect a more specific and detailed accounting of their review in the coming weeks."

The Navy will continue to work with the USACE and EPA/GEPA to satisfy the requirements of Section 10/404 and Section 401 permit documentation. The Navy has entered into Section 7 and EFH consultation with NMFS, and USACE regarding significant impacts associated with Section 10/404 permits, under the CWA.

A-012-015

Thank you for your comment. DoD and regulatory agencies are equally concerned about preventing contamination of surface waters and groundwater (particularly drinking water aquifers). The EIS describes numerous programs and actions that will be taken to protect surface waters and groundwater from stormwater runoff. Construction of new facilities will use Low Impact Development (LID) principles to the extent practical. LID is a design philosophy that seeks to reduce the impact to the environment from new construction projects through the reduction of impervious surfaces. LIDs principles incorporate the design of facilities with the use of native vegetation, pervious (porous) surfaces to reduce storm water runoff and encourage recharge of groundwater, and water

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A-012-024				Clarify how NEPA analysis has been approached and is applied in this dEIS in a methodology/approach section. Alternatives addressing the overarching purpose and need of relocation of military to Guam/CNMI appears to have been chosen without much objective evaluation at this overarching level, which instead occurs at the level of each of the sub-actions. This may cause the scope of the NEPA analysis to be too narrow and consequently impact analyses [to EFH/marine habitats] to be inadequate.	
A-012-025				Justify how by addressing cumulative impacts in a separate section and not within each specific sub-action in volumes 2-5, will allow for appropriate characterization and evaluation of impacts [to EFH/marine habitats].	
A-012-026	Vol 1	Intro		Describe what routine vessel and aircraft transit activities between Guam and Tinian entail and how it has been determined that these activities do not have a significant environmental impacts [to EFH/marine habitats].	
A-012-027	Vol 1	Continued	Intro	Explain why sub-actions are not addressed in three volumes, opposed to four, as it is stated that there are three main components of the proposed action (Marine Corps, Navy and Army). Separating the Marine Corp facilities/infrastructure from training because these occur on two different islands may compromise the quality of the impact analyses of these highly connected activities [to EFH/marine habitats].	Address issues and modify delivery and content of DEIS.
A-012-028	Vol 2	11	34	Change to read: "Although there are no reported sea turtle nesting beaches or foraging areas in this vicinity based on NOAA (2005a) mapping, green sea turtles, and to a lesser degree hawksbill sea turtles, likely migrate through and forage in the coastal waters. The nearest reported nesting beach from Pagat Point is located south of Pago Bay, approximately 5 mi (8 km) away. The cited reference (NOAA 2005a, Environmental Sensitivity Index Map, Guam and the Commonwealth of the Northern Marianas Islands) is not accurate enough to confidently discount the area for foraging turtles as is currently stated in the DEIS.	Edit text
A-012-029	Vol 2	11	4 & 25	ESA listing is done by NMFS (vice USFWS) for most marine species.	Edit text

conservation. DoD is currently conducting a LID study that will identify specific types of alternative designs that can be incorporated into the construction of facilities associated with the buildup. DoD is also preparing a stormwater pollution prevention plan (SWPPP) and will apply for permits that regulate stormwater discharges during construction. The permit and plan is focused on reducing the amount of earth and soil that is exposed to stormwater during earth-disturbing activities (such as land clearing and grading), providing stabilization of soils during construction through the use of ground covers, and sediment ponds and traps/screens to reduce pollutants getting into storm runoff and from percolating into the ground. These plans also have specific requirements for containment of potential pollutants at construction sites (such as storage areas for equipment fuel). Lastly, DoD is developing a construction and demolition (C&D) waste management plan in consort with the stormwater construction plan that calls for the use of mulch on exposed soils, mulch that will be generated during the clearing of trees and low growth during land clearing activities. Once construction is complete, a SWPPP will be developed to control stormwater runoff and infiltration from base operations. This is being done on a regional DoD Guam-wide scale, and has the involvement of Guam EPA.

A-012-016

Thank you for your comment. Volume 2, Chapter 9 addresses the potential impacts to recreational resources.

A-012-017

Thank you for your comment. Volume 7, Chapter 3 summarizes the combined potential impacts of the preferred alternatives for the entire proposed action on Guam and Tinian. The findings of Volumes 2 through 6 are discussed by resource. At the end of Volume 7, Chapter 3.3 there is a table summarizing the combined impacts of all components of the preferred alternatives. Significant impacts are identified. Volume 7, Chapter 4, Cumulative Impacts, assesses the potential

NMFS Detailed Comments on Draft Environmental Impact Statement/Overseas Environmental Impact Statement for the Guam and Commonwealth of the Northern Mariana Islands Relocation

A-012-030	Vol 1	2	2	Identify that evaluation of direct, indirect and cumulative environmental impacts [to EFH/marine habitats] of each of the 3 main relocation sub-actions (Marine Corp, Navy and Military) is compromised by separating the actions further and also by the separating actions as DoD and non-DoD related.	Address issues and modify delivery and content of DEIS.
A-012-031	Vol 1	2	21	2.4 State the nature and extent of the analysis which was conducted in deciding that a new wharf needs to be constructed (opposed to adding to existing). State where in dEIS the potential impact [to EFH/marine habitats] of re-using, and/or dumping dredge material will be addressed.	Edit text.
A-012-032	Vol 1	2	23	2.5 Clarify how dependent this sub-action is to the other two sub-actions (Marine Corp and Navy), i.e. whether the Army AMDTF would be able to be established on Guam if the other two were not, and how this relates to the impacts analysis [to EFH/marine habitats].	Clarify
A-012-033	Vol 1	2	24	The statement: "Regular crew training...up to and through a launch would be required..." seems contradictory with the statement: "No live-fire missile launch training exercises would occur on Guam or in the CNMI." Will	Edit text
A-012-034	Vol 1	2	26	2.6 Discuss whether all increased demands (utilities, roads, materials and food supplies, recreation, natural resources, transportation) from the added military population are addressed in a separate volume (6), and whether the environmental consequences [to EFH/marine habitats] will be fully analyzed in the context of the major sub-actions.	Edit text.
A-012-035	Vol 1	2	28	2.7 Update the timeline for the marine relocation project as this draft EIS is still in review in 2010.	Modify text
A-012-037	Vol 1	2	29	2.7.1.3 Assess whether alternatives for construction locations for the Marine Corp, Navy, Army and related utilities are adequately dissimilar in nature and how this might impact the environment [EFH/marine habitats differently]. Tables 2.7-2 to 2.7-6 highlight that the facilities/locations for the different constructions are encompassed often by the same set of alternatives.	Address issue and edit text is necessary.
	Vol 1	2	36	2.7.2 Clarify if impacts from increased availability and thus potential increase in use of imported equipment and related pollution (fuel spills, carbon dioxide) [to EFH/marine habitats] have been evaluated in this dEIS.	Address issues and modify delivery and content of DEIS.

additive impact of the FEIS proposed actions when compared to potential impacts of past, present and reasonably foreseeable projects. The list is based on best available information from DoD and the Guam Land Use Commission database. There is insufficient data on most non-DoD cumulative projects to conduct a quantitative impact analysis. There is a table at the end of Chapter 4 that summarizes the potential cumulative impacts. Potential significant cumulative impacts are identified.

Both analyses identify risks to the community for particular resources based on best available information.

The interim and long-term alternatives presented in Volume 6 for power, potable water, wastewater and solid waste have been developed specifically to address the proposed action requirements. The DoD and GovGuam utility systems share physical elements, including resource supply. Local agencies have been consulted and participated in the development of the alternatives to ensure the proposed actions would be consistent with agency projections for demand and planned GovGuam utility improvements. Exiting utility infrastructure shortfalls are included in the analysis. In summary, the cumulative impacts on utilities have been addressed in the development of the alternatives. Adaptive management during construction is proposed in Volume 7, Chapter 2 to mitigate the construction impacts associated with the project schedule.

A-012-018

Thank you for your comment. DoD will continue to coordinate with NMFS and the other resource agencies throughout the EIS process.

A-012-019

Thank you for your comments. Volume 1, Section 1.2.5.1 describes the coverage of the MIRC EIS which is significantly broader in its studies of proposed training activities and geography. The MIRC covers actions by all military services and is not limited to just Marine Corps actions. As

A-012-038	Vol 1	2	4	2.1.3	Clearly state what Guam's baseline population is and express short-, mid- and long term populations increases due to Relocation not only as numbers but as proportions in relation to the baseline population. This will immediately provide a context of the extent of impacts, especially cumulative, that may occur [to EFH/marine habitats]	Modify text.
	Vol 1	2	7	2.2	Justify why this sub-action has been separately analyzed as two components (Guam and Tinian) and identify how this may compromise the impact analysis [for EFH/marine habitats]. Address whether the overall impact might be less if the two Marine Corp components were not spread across two islands, and if so whether relocation to one Pacific location that could accommodate both facilities and training, e.g. Hawaii Island or Alaska, would have less environmental impact.	Address issues and modify delivery and content of DEIS.
A-012-040	Vol 1	3	10	3.3	As with Guam component, provide a clear and concise summary highlighting and comparing differences between the three alternatives (#1-3) in terms of the full extent of environmental impacts [to EFH/marine habitats].	Address issues and modify delivery and content of DEIS.
	Vol 1	3	13	3.4	Again, provide a clear and concise summary highlighting and comparing differences in environmental impacts [to EFH/marine habitats] between the two alternatives. Objectively evaluate and justify whether Alternative 1, Polaris Point, is actually the <i>least environmentally damaging practicable alternative</i> (LEDPA) and thus in compliance with CWA 404(b)(1) guidelines as the scope of the alternatives analysis is very narrow.	Address issues and modify delivery and content of DEIS.
	Vol 1	3	17	3.5	Provide a clear and concise summary of the environmental impacts [to EFH/marine habitats] of the two alternatives.	Modify text.

shown in Figure 1.1-2, the MIRC covers over 500,000 square miles of land and sea for the military and allies to train. In contrast, The Guam Relocation EIS addresses basing, infrastructure, operations, and training on Guam and Tinian. The proposed training is only those actions associated with the relocation.

Section 1.2.5.1 and -.2 describe the coordination of the coverage of the two documents to ensure that the environmental effects of the separate proposed actions are adequately analyzed. The MIRC establishes the baseline of training activities throughout the complex. The Guam Relocation EIS builds upon the MIRC preferred alternative to consider the effects of increasing the discrete training activities above the MIRC baseline caused by proposed actions of the relocation. Therefore, the activities of the Guam Relocation EIS flow from but are independent from the original proposed actions of the MIRC. Therefore, the proposals can be analyzed separately but in effect consecutively as the relocation is based upon the preferred alternative of the MIRC.

Commenter requested a need to change a word in a sentence from "could" to "will". The original text does not use the word "could." It says: "Additional NEPA documentation and resource surveys would be completed, as required," No change is needed to indicate that additional studies will occur conditioned upon when details become available.

A-012-020

Thank you for your comment. The overarching purpose and need will not be re-defined as suggested. Others may interpret global security relationships differently than the action proponent.

Although suggestions for other/additonal objective criteria for alternative

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A-012-041				Provide a clear and concise summary highlighting and comparing differences between the four alternatives (#1-3, and #8) in terms of what the full extent of environmental impacts [to EFH/marine habitats] might/will be. Figure 3.2-1 and Figure 3.2-1a indicate that alternatives are very similar, thus impacts will be too. These figures, and also Figure 3.2-1, also indicate that the size of land areas proposed to be put to use are large (around 1000 hectares) and often, since Guam is a small island, adjacent to the near shore marine environment. Clarify why, as illustrated per schematic Figure 3.2-2 no alternatives are proposed for airfield functions or waterfront functions.	Address issues and modify delivery and content of DEIS.	
A-012-042	Vol 1	3	2	3.2		
A-012-043	Vol 1	3	21	3.6	Provide a larger/clearer map (Figure 3.6-1) of the project locations, and a clear and concise summary of the environmental impacts [to EFH/marine habitats] of the many different alternatives. Many of the alternatives are very similar, in fact almost the same (except for Long-term Portable water). Modify written language used to describe these alternatives so similarities are highlighted, not obscured. Justify why no alternatives have been proposed for solid waste. List all other related actions that are not addressed in this section that may add to indirect and cumulative environmental impacts (e.g. food demand, recreational use, on land and between island transportation), and justify why these are not evaluated.	Address issues and modify delivery and content of DEIS.
A-012-044	Vol 2	1	1	1.1	Highlight that the proposed Volume 2 sub-action is one of four sub-actions under the overarching action to relocate military to Guam, and clarify that the scale of the action is expansive with direct and indirect connected actions spread across not only the entire island, but also to CNMI. Clarify that these actions have potentially substantial cumulative environmental impacts [to EFH/marine habitats].	Modify and edit text.
	Vol 2	11	1	11.1	Focus chapter 11 on the impact analysis [to EFH/marine habitats] rather than providing extensive information on the affected Environment [to EFH/marine habitats] (51 pages of 90 total). Would make evaluation more clear and concise.	Address issues and modify delivery and content of DEIS.

global locations may be desired by the commenter, Volume 1 discusses how the action proponent analyzed alternative locations and how the objective criteria were applied to select Guam and Tinian for the proposed actions. Discussions regarding resource areas in the section describing global site selection is not legally required. Impacts regarding essential fish habitat and other marine resources, however, are discussed in each volume as this is the best location within the document to analyze and consider specific impacts of alternatives within the region.

A-012-021

Thank you for your comment. Volume 1 is only a brief summary of the information contained in Volumes 2 through 6. For example, Volume 4 discusses in great detail the selection criteria, reasonable alternatives development, and analysis of environmental effects for the siting of the proposed berth for the transient nuclear aircraft carrier. Actions identified as "alternatives" were developed to ensure that there are true alternatives for consideration. All actions that are "alternatives" were fully analyzed for environmental effects as required under NEPA.

A-012-022

Thank you for your comment. Vol 1, Chapter 1, page 33 was searched for the noted phrase and it was not found. The same was done for Vol 1, Chapters 2 and 3, page 33, and the noted phrase could not be found. In addition, a WORD search of Volume 1 was conducted and could not find this phrase or parts of this phrase. Thus, this comment cannot be addressed.

A-012-023

Thank you for your comment. DoD agrees that the existing military presence together with related and unrelated civilian activities on Guam

A-012-046

Vol 2	11	1	11.1.1	Clarify and justify what "the established marine region of influence (ROI)" is. Definitions seem arbitrary, and since EFH designations and distribution may not correspond to the ROI, any impact analysis [to EFH/marine habitats] only addressing ROI is inadequate in scope. Clarify and justify why marine biological resources have been divided in to the four major categories when it would be adequate to determine impacts to the marine environment in terms of EFH, protected/special status species (mammals, turtles) and other marine biological resources (marine flora and fauna, and other sensitive habitats). Analysis of EFH specifically is difficult when separated in to sections. EFH needs to be defined and described in terms of what the different Management Unit Species (MUS) are in Guam, what their EFH designations are (water column and/or bottom) and whether there are Habitat's of Particular Concern (HAPC's) within the EFH designations around Guam.	Address issue and modify text.
Vol 2	11	10	natural disturbances	Support with studies/data the statement that corals on windward coasts would recover quickly if damaged because they are conditioned to withstand heavy wave energy needs.	Provide support and justification or position presented.
Vol 2	11	11	Human Induced Disturbances	Integrate in rest of chapter the implications of statement that Guam's most critical non-point source pollution impacts both groundwater and coastal waters (referenced GEPA 2006).	This is a significant issue that needs to be integrated throughout the document that is not characterized or analyzed. Needs data, analysis and extensive review of impacts to coastal areas.

and CNMI represent the existing conditions. The No Action Alternative would reflect a continuation of these existing conditions.

A-012-024

Thank you for your comments. Volume 1 contains a description of the three main components of the proposed actions. The overarching purpose and need is discussed in Section 1.3. Chapter 1 of Volumes 2 through 6 then highlights the pertinent portions of the overarching purpose and need and provide greater specifics for the purpose and need as it relates to the detailed, specific proposed actions in each of those Volumes.

The NEPA approach here is very similar to tiering, an acceptable approach to analyze proposed actions. First, regional location is considered under the criteria described in Volume 1. Within the preferred region, specific locations within the Mariana Islands are considered for activities. Finally, a range of activities are considered with alternative locations on Tinian and Guam. This top down approach ensures the development of a reasonable range of alternatives for both locations and actions for analysis.

A-012-025

Thank you for your comment. Because the proposed actions and impact analysis are split among volumes, it was logical to assess cumulative impacts after all potential impacts had been identified in Volumes 2 through 6. Also the cumulative impact analysis for all resource areas relies on the same cumulative project list, which is extensive. If we were to include this cumulative project list in each resource area discussion in each volume, then the readability of the document would suffer.

A-012-047					
Vol 2	11	13	11.1.4.1	<p>Provide higher resolution benthic data. NOAA Habitat maps provide relatively low resolution information and do not substitute need to get more detailed assessment of resources where impacts may occur to quantify these. Sparse coral cover is not 10-<50% coral cover, the average % in the Pacific is 20%.</p> <p>Integrate in rest of chapter the implications of the statement that reefs in southern Guam may have had higher coral diversity compared to Northern prior to being disturbed by LBP, not northeastern higher. Also state that many foreereef slope coral negatively affected from 50-<25% cover since 1960's, but that among other places Apra Harbor, and Haputo ERA coral cover is high. Important information as this indicates that LBP can in fact affect these higher coral cover areas significantly by this proposed action.</p>	Address issues and modify delivery and content of DEIS.
Vol 2	11	14	EFH	Address in detail impacts to MUS, EFH and HAPC as defined in document and table 11.1-3. ROI should not factor in as EFH laws override this arbitrary zone. Furthermore, CREMUS, CMUS, BMUS and PMUS described in detail from pages 11-16 to 11-25.	Address issues and modify delivery and content of DEIS.
Vol 2	11	2	Fig. 11.1.1	Change coral cover categorization in legend in figures 11.1-1 and 11.1-2 as this is misleading. The category with coral cover of 10%-<50% vs. coral of 50%-<100% implies that 10%-<50% cover is low. This is not the case, the average coral cover for Pacific reefs is not much higher than 20%.	Address issues and modify delivery and content of DEIS.
Vol 2	11	28	Invasive species	No detailed description of findings regarding nonindigenous species in the Outer Apra Harbor section, nor anywhere else that I can find in the EIS. The Navy contracted work by Paulay in Apra Harbor to evaluate such introduction and this information plus current data is necessary.	Address issues and modify delivery and content of DEIS.
Vol 2	11	30	11.1.5	Define baseline EFH/marine habitats information as it has clearly been stated that LBP has been shown to have plaid an important role in Guam's coral decline from road construction etc. The land-based construction that would be considered to potentially affect the marine environment should also be characterized.	Address issues and modify delivery and content of DEIS.

A-012-026

Thank you for your comment. The routine vessel and transit activities would be negligible above current conditions (i.e. no action alternative); therefore, potential increased impacts would be negligible. Text has been revised in the FEIS Volume 1 to show the increase in these activities from the proposed action are negligible over the no action alternative.

A-012-027

Thank you for your comment. DoD acknowledges your views on the presentation of the proposed actions on the Guam and CNMI military relocation; however, disclosing the Marine Corps proposal on Guam in Volume 2 and on Tinian in Volume 3 does not dilute the discussions of alternatives and environmental impacts as both are included within the same EIS.

A-012-028

Thank you for your comment.

Text edited for FEIS.

A-012-029

Thank you for your comment. FEIS text has been edited.

A-012-030

Thank you for your comment. EFH analysis is properly annotated in each Volume where EFH resources are potentially impacted. Volume 7 contains a cumulative impact analysis of EFH impacts throughout the proposed actions.

A-012-048

Vol 2	11	30	11.1.5.2	Provide better EFH/marine habitats resource characterization. A rough description provided for entire coastline, yet detailed for Haputo ERA. No distribution, abundance, diversity and composition provided for algae, seagrass, soft sediment, other invertebrates which is also EFH. Coral data provided, but based on one study by Amesbury et al 2001, where methods unknown and is almost 10 years old not reflecting baseline conditions today. Never the less indicate the Double Reef (46%) and Haputo ERA (60%) have high coral cover, something to definitely focus and LBP impacts to.	Address issues and modify delivery and content of DEIS.
Vol 2	ii	34	11.1.5.3	Define how land-based construction may affect EFH/marine habitats. Not acceptable to not define baseline marine biology information when this insight has not been provided, and it has been stated that LBP has been shown to have played an important role in Guam's EFH/marine habitats decline from various activities.	Address issues and modify delivery and content of DEIS.
Vol 2	11	34	11.1.5.4	Do not separate evaluation of DoD and FHWA roadway construction activities as connected actions with connected cumulative impacts. Environmental consequences same regardless, impact analysis [EFH/marine habitats] thus inadequate. Again, Cannot simply state that north region road improvements will not affect marine environment without analysis and justification as to why. Roadway improvement will create storm water runoff, which eventually gets to ocean if not via streams then through ground water. Should address, at least recap surface water flow regime not simply refer to volume 4 chapter 4.	Address issues and modify delivery and content of DEIS.
Vol 2	11	35	Anderson South	Again define how land-based construction may affect EFH/marine habitats. Inappropriate to not define baseline marine biology information when this insight has not been provided, and it has been stated that LBP has been shown to have played an important role in Guam's coral and EFH decline from various just construction activities.	Address issues and modify delivery and content of DEIS.
Vol 2	11	35	Central Non-DoD land	Provide more quantitative information on EFH/marine habitats rather than rough description of resources for entire coastline. Some data on coral, but no distribution, abundance, diversity and composition provided and little mention of algae, seagrass, soft sediment, other invertebrates which is also EFH.	Address issue and modify text.

A-012-031

Thank you for your comment. The analysis showing the reasonable range of alternatives considered, dismissed, and retained for analysis in the EIS is presented in Section 2.3 of Volume 4.

The DoD is considering several options for disposal of dredged material, including upland placement, ocean disposal, and beneficial uses such as shoreline stabilization, fill for berms, and fill for the Port Authority of Guam, as discussed in the EIS (Chapter 2, Volume 4). Using dredged material for beneficial reuse projects would depend upon the suitability of the material for these projects as well as whether the proposed action timeline coincides with the need for material for a reuse project. Detailed analysis cannot be done at this time because specific projects have not yet been identified with certainty. While beneficial reuse is a priority for the DoD, the final decision on dredged material management will be made during the final design and permitting process. Detailed analysis of the potential impacts from using dredged material for reuse projects will be conducted during the permitting phase.

As stated in Section 2.3.5 of Volume 4, an ODMDS EIS was prepared concurrent with this EIS to address impacts of reusing and/or dumping dredge material.

A-012-032

Thank you for your comment. The proposed actions are complex, inter-related, multi-service proposals. Although they may have independent utility, they are not discrete individual actions of the different military services. As stated in Chapter 11, the proposed Army AMDTF action would occur on land only. Therefore, there would be no EFH/marine habitats impacts.

A-012-033

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A-012-049					
Vol 2	11	36	Central Piti/Nimitz Hill	Present baseline biological information for Piti/Nimitz Hill study area. EFH/marine habitats within Piti, Asan and Agana Bay should be clearly characterized.	Address issues and modify delivery and content of DEIS.
Vol 2	11	38	Central Off-base roadways	characterization of coral, EFH and other sensitive habitat that may be impacted by extensive and widespread construction including pavement strengthening, road widening, bridge replacements, intersection improvements.	Address issue and modify text.
Vol 2	11	4		Clarify whether and how the EFH consultation process which has been described has been applied.	Edit text.
Vol 2	11	40	Central Apra Harbor	Provide detailed and comprehensive information of outer and inner Apra harbor EFH/marine habitats resources. While descriptions and some quantitative numbers of outer and inner Apra harbor biological resources have been provided, there is little quantitative data (the two % categories of coral are too broad, 10-<50% provides little information), few specific surveys/studies provided/referred to (could provide Dollar et al 2009 and Smith 2007 data), few maps (could provide Dollar et al 2009 and Smith 2007 maps) and no information of soft sediment environment, or water quality.	Address issues and modify delivery and content of DEIS.
Vol 2	11	45		<i>Dictyosphaeria vershuyii</i> and <i>Acanthophora spicifera</i> misspelled	Edit text
Vol 2	11	45	non-native species	Like item 1, there is no detailed presentation of results for nonindigenous species for Apra Harbor.	Address issues and modify delivery and content of DEIS.
Vol 2	11	47	EFH	More than three fish families are known to be common to the inner harbor area.	Either insufficient effort was given to gathering this information or inappropriate methods were used to gather information. Address issues and modify delivery and content of DEIS.

Thank you for your comment. Inserted "simulated" before "launch" to clarify the statement.

A-012-034

Thank you for your comment. Volume 1 summarizes briefly the details of the proposed actions that are analyzed in the subsequent Volumes. It was impossible to provide a fair, understandable summary of the analysis of the potential impacts of the proposed actions. Readers must go to the specific volumes to review the analysis, methodology, and environmental impacts.

The specific resource areas of concern to the commenter are thoroughly discussed in Volumes 2 through 6.

A-012-035

Thank you for your comment. Within the various applicable Volumes and Chapters (e.g., Volume 2 and 4, Chapter 11) the potential impacts and mitigation measures of all the proposed DoD actions have been evaluated.

A-012-036

Thank you for your comment. There is no need to update the timeline as depicted in the EIS.

A-012-037

Thank you for you comment. Applicable tables and text have been reviewed and modified as appropriate to ensure the potential impacts and the potential mitigation measures have been thoroughly addressed. Imported products/equipment and potential impacts related to invasive species and the marine environment are being addressed collaboratively with our sister federal agencies through the development of a Marianas

A-012-050					
Vol 2	11	49	hawksbill turtles	Hawksbill have been observed feeding in the Sasa Bay area. This needs to be recognized and sufficient data provided to address potential impacts. There is also an incomplete statement that needs editing: "however are not of preferred species" missing word(s).	Address issues and modify delivery and content of DEIS.
Vol 2	11	49		Duplicated exactly in Vol 4 Chap 11 p 11.38. Delete there and summarize referring to here.	Edit text
Vol 2	11	50	11.1.7.2	Characterize EFH/marine habitats resources that may be affected indirectly and cumulatively from vessel (movement in and out through the Harbor) and land-based support activities. There is a lack of quantitative and detailed information for specific area (maps should be provided) where amphibious operations and ramp will be located.	Address issues and modify delivery and content of DEIS.
Vol 2	11	50	11.1.7.3	Provide more baseline information on EFH/marine habitats. Again, limited characterization of EFH/marine habitats provided specifically for this activity despite potential impacts to EFH/marine habitats from LBP and statements that some improvements will occur adjacent to marine environment and acknowledgement that some projects may have adverse impacts to marine environment.	Address issues and modify delivery and content of DEIS.
Vol 2	11	51	11.1.8.1	Define what land-based construction would be considered to affect the EFH/marine habitats. Not acceptable to not define baseline marine biological resource information when this insight has not been provided, and it has been stated that LBP has been shown to have played an important role in Guam's EFH/marine habitats decline from various activities such as development.	Address issues and modify delivery and content of DEIS.
Vol 2	11	52	11.2	Limit extensive background information on methodology; instead simply apply thorough approach in conducting the impact analysis.	Limit, define and modify text.
Vol 2	11	53	11.2.1.1	Define "cumulative" impacts in this section, and address this throughout impact analysis rather than only in Volume 7.	
Vol 2	11	53	11.2.1.1	List BMP's and protective measures in this volume, addressed for each activity, and their ability to mitigate impact.	Modify text
Vol 2	11	55	11.2.1.1	Provide examples to clarify what "temporary" and "minimal" impacts might be beyond simply defining these terms. Also provide definition of "coral reef" per USACE.	Clarify issues

Biosecurity Plan.

A-012-038

Thank you for your comment. The population baseline is provided in Table 3.2-2 and Figure 4.2-1 of the Socioeconomic Impact Assessment Study (Appendix F, Volume 9 of the DEIS). To more prominently provide this information, it will be included in the socioeconomic chapter of Volume 2 of the DEIS.

A-012-039

Thank you for your comment. Volume 1, Section 1.4.2 describes the site selection process for the proposed actions. Various locations were considered throughout the Western Pacific based upon 1) response times, 2) freedom of action (the ability of the U.S. to use bases and training facilities freely and without restriction at a particular locale), and 3) international treaties and agreements with Japan and other Western Pacific allies. Guam was the only location for the relocation that met all the criteria. Selection of Tinian as the sole location would not meet the purpose and need.

A-012-040

Thank you for your comment. Evaluation of all EFH related impacts is found within Volumes 2, 4, and 7 of the FEIS. Impacts to coral reefs associated with the CVN construction were considered to be an adverse affect and therefore mitigatable via the USACE CWA 404 permit process. Those non coral resources impacted were determined to be short termed and localized and therefore not adversely affected.

A-012-041

Thank you for your comment. The FEIS has been updated to reflect the

A-012-051					
Vol 2	11	57	11.2.2	Redo impact analysis to EFH/marine habitats so adequate: conclusions of no adverse impact to EFH and no significant or less than significant impacts to the marine environment are drawn without quantifying/modeling the suite of potential impacts, such as land based pollution from construction, and increased impervious surfaces, increased fishing, increased recreation, increased road, sewage, water, electricity use etc and quantifying their potential impact on the environment. While this may be addressed in Volume 6, and/or any other volumes this, and also the cumulative impacts, should be clear in this section.	Insufficient data provided to draw conclusion. Collect additional data and analysis of impacts. Modify document to define data collection and analysis to be completed prior to permitting.
Vol 2	11	60	Table 11.2-1	Modify Table 11.2-1 so that quantified impacts to biological resources/EFH are expressed. Effects mentioned, but only referred to as potential and not quantified.	Modify table.
Vol 2	11	60	11.2	Account for and define land based construction impacts which are likely (cumulative also).	Address issue and modify text.
Vol 2	11	62	11.2.2.2 Central Alt. 1	Redo impact analysis to EFH/marine habitats so adequate. Cannot for example state "considering the distance and elevation from shore, the minimal run-off" without presenting the numbers i.e. distance and elevation and describing the expected run-off characteristics. Also need to quantify how the green bullets will reduce impact and also how often clean-ups will occur. Back up with studies. Table 11.2-3 (p.11-65) for example only states output, i.e. 296,184,375 annual number of rounds, but not impact, i.e. what this means for environment.	Insufficient data provided to draw conclusion. Collect additional data and analysis of impacts. Modify document to define data collection and analysis to be completed prior to permitting.
Vol 2	11	66	Alt 1 Central-Barrigada, Piti/Nimitz Hill	Redo impact analysis to EFH/marine habitats so adequate. Need to characterize indirect, cumulative impacts that will occur.	Insufficient data provided to draw conclusion. Collect additional data and analysis of impacts. Modify document to define data collection and analysis to be completed prior to permitting.

latest EFH/marine resources information. Alternatives do, in fact, has similar EFH/marine resource impacts. DoD has initiated consultation with the National Marine Fisheries Service (NMFS) over potential adverse impacts to EFH.

A-012-042

Thank you for your comment. The Figure references in your comment do not seem to align with the Draft EIS. Draft EIS Figure 2.1-1 does show a schematic of the alternatives carried forward in the impact analysis. The rationale for carrying forward only one locational alternative for airfield and waterfront functions is described in the text. Volume 2, Section 2.4-2 summarizes the four alternatives for airfield operations and demonstrates why only Andersen AFB meets the feasibility and suitability criteria. Volume 2, Section 2.5.2.1 describes why Apra Harbor is the only reasonable alternative for waterfront operations.

A-012-043

Thank you for your comment. Several of the topics addressed in your comment, including information on solid waste in Volume 6 and cumulative impacts in Volume 7, have additional discussions included in this Final EIS.

A-012-044

Thank you for your comment. The Draft and Final EIS clearly define the proposed actions, alternatives and impacts. Additional clarification has been incorporated into the Final EIS as well as more detail on the estimated indirect impacts that would potentially result from implementation of the proposed actions.

A-012-045

Thank you for your comment.

A-012-052

Vol 2	11	66	Alt 1 Central- Inner and out Apra Harbor	Redo impact analysis to EFH/marine habitats so adequate. Need to justify statements that impacts to the marine biological resources and EFH will only be short term, periodic and minor. Many assumptions (infaunal community is dynamic and will recover fish are highly mobile so will return), need to conduct thorough analysis, back up with unbiased and varied studies. Need to address direct, and indirect, but also cumulative impacts that involve current activities, future activities, and the Volume 4 action of developing CVN berthing capacity just at mouth of outer Inner Apra Harbor. Table 11.2-7 again is illustrated output, not actual quantified impact of action.	Insufficient data provided to draw conclusion. Collect additional data and analysis of impacts. Modify document to define data collection and analysis to be completed prior to permitting.
Vol 2	11	67	5 & 6	It is difficult to detect that the dredging referred to here is for the inner harbor only and does not include the more extensive dredging to be done in the outer harbor. Nor is the area to be dredged and its location stated here or in the Proposed Action and Alternatives section. This important piece of information should be clearly stated in this section, similar to the dredging action and potential impacts that is done (repeatedly) in Vol 4, Chap 11.	Address issue and modify delivery and text.
Vol 2	11	69	11.2-3	It is very easy to miss the location of the area to be dredged in the inner harbor. This should be highlighted in red or yellow. Also the pattern for the ERA in the harbor is incorrect and should be a blue hatch mark as on the map.	Modify Table
Vol 2	11	7	11.1.3	Provide impact assessment for components of the proposed action since these will have impacts, albeit minimal to the marine environment. Not possible to evaluate if there is no impact assessment conducted. Provide more quantitative data. Few marine surveys conducted thus limited updated quantitative information provided. Table lists a variety of studies from a range of areas around Guam and CNMI, many conducted before 2005 which is already 5 years ago and thus outdated information. Many surveys are not relevant to impacted areas by this action; the most recent surveys are all from Apra Harbor indicating that the Volume 4 proposed action had driven the reason for those surveys. Without a description of the methodology of surveys it cannot be discerned how rigorous the data is and how relevant it is.	Provide up to date data to allow adequate analysis of impacts.
Vol 2	11	71	4	There is no convincing argument that non-native species will not be increased in either the inner or outer harbor by the proposed action	Address issue an modify text

The Environmental Consequences section addressing impacts to the resources identified starting on 11-52 for Volume 2. Page 11-57 has the first identification of construction impacts to EFH for the proposed action.

A-012-046

Thank you for your comment. ROI is further clarified in 11.1.2. “the marine ROI encompasses all of Apra Harbor, including Sasa Bay and the submerged lands offshore out to the 164-ft (50-m) isobath that may be directly or indirectly impacted by any component of the proposed action. Construction or training activities may impact biological resources due to ground-disturbing activities, in-water construction and/or benthic (bottom) substrate-disturbing activities (dredging), but they may also be impacted through noise, decreased water quality, excess lighting, and other factors.” The proposed action will only affect the near-shore environment; therefore, the EFH designations outside the ROI, unless they migrate into the ROI, will not be impacted. The suggested format in hindsight may have been clearer, considering the EFH overlap into other marine biological resources. However, the information requested, regarding EFH MUS definitions, including HAPCs, are including in detail in Section 11.1.4.2 Guam Regional Environment, EFH and for each following site-specific section.

The statement is part of a general Guam Regional Affected Environment and source references have been provided. The proposed action has very little impact on the eastern coast of Guam, except for SDZ firing ranges and potential compensatory mitigation measures for ecological services lost from direct impacts to coral. These are addressed in those specific Environmental Consequences sections.

Non-point source impacts to coastal waters has been integrated as appropriate in following sections, and addressed in detail in Section 4, Water Resources, in this Volume.

A-012-052				
Vol 2	11	78	Construction Redo impact analysis to EFH/marine habitats so adequate. Several assumptions made, e.g. marine biological resources well adapted to turbid water so will not be impacted, ramp will not disturb soft bottom communities, mitigation measures/BMP's will be successful in reducing impacts. This assumption are not adequately justified. Despite high levels of turbidity in this area, higher levels will be created both short term and long term and these impacts need to be analyzed.	Address issue and modify delivery and text.
Vol 2	11	79	Redo impact analysis to EFH/marine habitats so adequate as in essence simply referring back to the evaluations conducted for Alternative 1. Highlight the problem that there is little that is different between the two alternatives and that the scope of alternatives analysis for action is too narrow.	Demonstrate difference and provide modified delivery and text.
Vol 2	11	8	11.1.4 Include soft sediment communities as an important habitat with the reef ecosystem. By not, ignoring an important habitat and impacts to it.	Address issues and modify delivery and content of DEIS.
Vol 2	11	83	11.2.6 Redo impact analysis to EFH/marine habitats so adequate for this alternative too. Describe current impacts, and whether these may possible be reduced by implementing any of the other alternatives.	Address issue and modify delivery and text.
Vol 2	11	88	11.2-13 Illustrating as flow chart, and or use only few words in bullets in tables. Tables 11.2-8 to 11.2-14 are not concise and very lengthy defeating point of summarizing impact analyses [to EFH/marine habitats]. Per Item 46, the area to be dredged should be stated and clearly indicated to be in the inner harbor area in this table	Address issue an modify text
Vol 2	11	9	coral communities Integrate into rest of chapter the implications of the statement that land based sources of pollution (specifically storm water run-off and sediments) may negatively impact EFH/marine habitats due to increased land clearing, road construction.	Address issues and modify delivery and content of DEIS.

A-012-047

Thank you for your comments.

1. The intent of the Figures in Volume 2 is to show relative location of special status species, EFH MUS species, and benthic habitat (including coral densities) with respect to the proposed action. Volume 4, which addresses dredge coral areas, has higher resolution figures developed specifically for the EIS from recent studies. The coral percentage classifications were based on NOAA (2005 a, b) references and provide the best available data and classification system in print at the time for the island of Guam. The text has been modified as appropriate to integrate last paragraph into the rest of the FEIS chapter.

2. Impacts to MUS, EFH, and HAPC are addressed in the Environmental Consequences section appropriately, not Affected Environment Section. ROI is further clarified in 11.1.2. "the marine ROI encompasses all of Apra Harbor, including Sasa Bay and the submerged lands offshore out to the 164-ft (50-m) isobath that may be directly or indirectly impacted by any component of the proposed action. Construction or training activities may impact biological resources due to ground-disturbing activities, in-water construction and/or benthic (bottom) substrate-disturbing activities (dredging), but they may also be impacted through noise, decreased water quality, excess lighting, and other factors." The proposed action will only affect the near-shore environment; therefore, the EFH designations outside the ROI, unless those MUS migrate into the ROI, will not be impacted. The text/figures (printed in color) has been modified as appropriate to clarify impacts of the proposed action.

3. The intent of the Figures in Volume 2 is to show relative location of special status species, EFH MUS species, and benthic habitat (including coral densities) with respect to the proposed action. Volume 4, which addresses dredge coral areas, has higher resolution figures developed specifically for the EIS from recent studies. The coral percentage

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A-012-054	Vol 2	1	2	1.2	instead highlight the need and purpose/objectives for specifically the Volume 2 sub-action. Identify the requirements of the proposed sub-action, and determine whether the objectives put forth are broad enough in scale. Discuss whether the NEPA analysis, i.e. issues, alternative analysis and, impact analysis [to EFH/marine habitats] is appropriate and adequate in scale and detail.	Modify and edit text.
A-012-056	Vol 2	2			Volume 4, Chapter 2: The document does not make clear why existing dedicated home port nuclear powered aircraft carrier pier in Japan does not have the capability to meet the needs of a transient nuclear powered aircraft carrier as specified by the QDR. What "additional" needs are necessary above and beyond that provided via a homeport facility?	Clarify
A-012-057	Vol 2	2	1	2.1	Identify that the scope of analysis for Volume 2 sub-action is potentially so narrow that it is not possible to separate relocation of Marine Corp dwelling and activities from other components of overarching action thus compromising impact analysis [to EFH/marine habitats].	Address issues and modify delivery and content of DEIS.
	Vol 2	2	10	2.1.2	Evaluate environmental issues [to EFH/marine habitats] as criteria/steps in alternatives analysis methodology. Clarify whether this is considered a part of the NEPA analysis or not, as this is also called an alternatives analysis.	Address issues and modify delivery and content of DEIS.
A-012-058	Vol 2	2	17		Define "overwhelming" environmental impacts/concerns that were taken in to account in selecting alternatives to carry forward to analysis. Actually conduct analysis that has been stated, not simply provide a general description of the analysis.	Address issue and modify text.
A-012-059	Vol 2	2	6	Alternatives	List alternatives proposed for waterfront functions in schematic, table 2,1-2, as this involves a substantial activity in terms of dredging and construction of new berths in Apra Harbor.	Modify text.
A-012-060	Vol 2	2	7	Table 2.1.1	Redefine and clarify the alternatives for the functional components which will likely have disproportionate impacts to environment [to EFH/marine habitats]. The alternatives listed for aspects of the three functional components (waterfront not addressed) are very similar, thus environmental impacts [to EFH/marine habitats] would be very similar eroding credibility of alternatives analysis.	Address issues and modify delivery and content of DEIS.
A-012-061	Vol 3	10	22	10.2.2.1	Educational and enforcement program are likely to be necessary as mitigation to prevent significant impacts to green sea turtles.	Address issue and modify text.

classifications were based on NOAA (2005 a, b) references and provide the best available data and classification system in print at the time for the island of Guam. Comment regarding average coral coverage for the pacific noted, however without source reference, this statement can be incorporated into the FEIS.

4. Throughout Volume 2 and 4 there is great discussion regarding non-native (invasive) species – there is a specific section associated with this. A Marianas Biosecurity Plan (BSP) will be developed by DoD to help manage non-native species introduction to Guam from the proposed action.

5. If the commenter is referring to Lead-based Paint (LBP) than Volume 2, Chapter 17 is discussed in detail. If the commenter is referring to Land-based Pollution, which is not used as an acronym in this Chapter, than Volume 2, Chapter 4 addresses this and nearshore water quality and potential impacts with respect to the proposed DoD actions on Guam. As a note, the Navy has considered sediment runoff and resuspension as potential impacts to coral reef and ecosystem in Chapter 11 also. Land-based activities will have permits requiring best management practices (BMPs) that contain and reduce sediment and pollutant discharges into nearby waters. Additionally, the Navy will implement low impact development (LID) or stormwater management strategies during construction activities. The goal is to maintain or restore the natural hydrologic functions of a site to achieve natural resource protection objectives and fulfill environmental regulatory requirements.

The Navy will also implement mitigation measures and BMPs during in-water activities (dredging, wharf construction) that include Army Corps permits requiring silt curtains, biological monitors, halting of dredging activities during potential coral spawning months, and compensatory mitigation projects to help improve nearshore water quality through

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Vol	Page	Section	Comment	Action	
A-012-062	10	23	10.2.2.3	Neither the proposed educational program to prevent impacts to sea turtles, nor an enforcement program, are described in this section.	Address issue and modify text.
Vol 3	10	29	10.2.2.3	Same information presented in sec. 10.2.2.1 about green sea turtles is applicable to Alternative 2 and Alternative 3.	Modify text.
Vol 3	10	39	10.2.7	Should include educational and enforcement programs as mitigation to prevent significant impacts to green sea turtles	Address issue.
Vol 3	10	39	10.1.1.3	What about trochus shell and sea cucumber? Do they have special status under CNMI	Address issue.
Vol 3	10	39	10.1.1.3	Misspelled "novaeangliae"	Edit text.
Vol 3	10	6	10.1.2.4	Should say, "No nesting of turtles other than green is known to have occurred on Tinian."	Edit text
Vol 3	10	7	10.1-2	I think it is "palatat," not palattat	Edit text
Vol 3	11	11	Species of concern	Paragraph speaks of two species of fishes (2 SOC), but last sentence says "...no documented observations of this SOC on Tinian..."; s/b "these" or does documentation cover only one of the species?	confirming the findings with CNMI DEQ and DFW.
Vol 3	11	15	5th paragraph	"Asreopora" should be "Astreopora"	Edit text.
Vol 3	11	25	11.2.4.1	Would Alternative 3 have a SDZ that extends over the water as does Alternative 2, or does it not extend over the water like Alternative 1? This is confusing in this paragraph.	Clarify text.
Vol 3	11	4	11.1.4.1	General Section Comment: Poorly written descriptions of the marine environment and this will prevent appropriate review by stakeholders.	Improve descriptions.
Vol 3	11	4	11.1.4.1	The statement that "Tinian has no permanent rivers and extensive reef formations" requires definition of extensive and supporting information to support such.	Provide definition and supporting data and analysis to support statement.
Vol 3	11	6	11.1.4.1	The writer appears to be confused about the definition of "reef", implying that an absence or low cover by corals has something to do with it. A reef is a shoal and the biological composition is immaterial. Most well-developed "coral" reefs are in fact dominated by coralline algae, particularly on the reef crest.	Clarify text with consistent defined terminology.

upland watershed reforestation and/or artificial reef construction, to name a few.

A-012-048

Thank you for your comments.

1. The DEIS was based upon best available data for these areas and commensurate with the anticipated impact from the proposed action and alternatives. The EFH-designated habitat areas for Finegayan would be the same as those described in Volume 2, Section 11.1.4. This section provides a description of general marine biological resources (i.e. marine flora, invertebrates, and associated EFH; Special-status Species; and Non-native Species) potentially affected by the proposed action. Volume 4, Chapter 11, evaluates the same resources, however with greater emphasis on providing background on the coral reef ecosystems as part of the EFH (see 11.1.2). The impact analysis, Volume 4, Environmental Consequences, included all marine biological resources within the total dredge impact area (i.e. direct footprint and indirect sediment resuspension footprint). Text modified in the FEIS to expand on reasoning for no indirect impacts (i.e. northern/central district hydrology and BMPs) and will emphasize the importance of the high percentage of coral cover at Double Reef and Haputo ERA.

2. The Navy has considered sediment runoff and resuspension as potential impacts to the coral reef ecosystem. Land-based construction activities require permits, which include best management practices (BMPs) that help contain and reduce sediment and pollutant discharges into nearby waters. The Navy, along with local agencies have a role ensuring proper management of these permits and BMP methodologies. Additionally, the Navy will implement low impact development (LID) or stormwater management strategies during construction activities. The goal is to maintain or restore the natural

A-012-063					
Vol 3	11	6	11.1.4.1	"...overall coral cover around Tinian ranged from 10 to 50%." says nothing. Maybe "typical" is what is intended instead of "overall."	
Vol 3	11	6	11.1.4.1	Word "respectively" in next sentence is not in keeping with "ranges" in same sentence. Should be <i>Porites rus</i> , not <i>P. rus</i> . What is a "coral predator-resistant species"?	Address issue and modify text.
Vol 3	11	6	11.1.4.1	Reference to Fig. 11.1-1 is not at all helpful since the figure shows no depths, and the distribution of corals (pink) does not support the sentence, which the 2 nd sentence then attempts (unsuccessfully) to discredit. Maybe word "however" is inappropriate, since later sentences imply coral is dense everywhere.	
Vol 3	11	6	11.1.4.1	"Benthos" refers to the organisms living on the bottom of the sea, not the bottom itself ("carbonate pavement" is not benthos).	Clarify and modify text.
Vol 3	11	7	8th paragraph	Should say, "eight to nine," not "eight-nine"; "six phyla", not "sic phyla"	Edit text.
Vol 3	11	7	6th paragraph	last sentence: "algae" is plural: "were entirely lacking..."	Edit text.
Vol 3	11	8	3rd paragraph	Should say "cone snail," not "con snail"	Edit text.
Vol 3	11	8	1st paragraph	foraminiferan is misspelled and should not be italicized	Edit text.
Vol 3	11	8	5th paragraph	The fringing reef does not "border" the beach; "it" (beach? reef?) is not "fronted" by a large reef flat. Reef flat is part of the fringing reef.	Modify text.
Vol 3	11	9	2nd paragraph	"... showed a relatively even distribution ... with seven of the nine phyla contributing at least 6% to the overall density." That doesn't sound relatively even because that means that two phyla would contribute 94% of the overall density. If Echinoderms contribute to 48% of the density, then corals could contribute to 46% of the density and the other 9 phyla could make up the remaining 6%.	Clarify and modify text.
Vol 3	11	9	4th paragraph	Define "fleshy" coralline algae as this a new category that is atypical to the assessment.	Define and clarify text.

hydrologic functions of a site to achieve natural resource protection objectives and fulfill environmental regulatory requirements.

Page 11-35 provides land-based runoff examples. No changes were made to the FEIS. Text in the FEIS sufficiently indicates that there would be no in-water construction, dredging, or land-based construction projects that would affect streams and/or marine biological resources.

3. For the purpose of organization, the Navy has decided to retain the separation of DoD and FHWA roadway construction activities. A recap regarding the surface water flow regime for Guam has been provided to assist the reader.

4. Text regarding how land-based construction runoff may affect the nearshore environment if a conduit exists has been recapped for these sections in the FEIS. The DEIS sufficiently indicates that there would be no in-water construction, dredging, or land-based construction projects that would affect streams, and/or marine biological resources. The FEIS will take a closer look at the potential for sheet flow and groundwater impacts to the nearshore environment from LBPs.

5. The DEIS and EFH Assessment was based upon the best available survey data and commensurate with the anticipated impact (direct, indirect and cumulative) from the proposed action and alternatives. No quantitative data is available for most of the coastlines.

A-012-049

Thank you for your comments.

1. The current level of detail is commensurate with anticipated impacts from non-widening pavement strengthening projects in the central areas associated with Piti, Asan and Agana Bay. Further clarification is

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A-012-064	Vol 3	11	9		Fringing, barrier, and a broad shelf that is neither a fringing nor a barrier reef? Then "fringing" and "fore" reefs next to the shore. Imprecise use or lack of knowledge about terminology.	Clarify text
A-012-065	Vol 3	1	4	1.2.2	Use of amphibious ships to access Tinian is not discussed (either as a considered action or as non action)	
A-012-066					Where will sanitary waste be dumped? Should state here that leach field will be used. Examine an alternative including the use of composting toilets.	
A-012-067	Vol 3	2	11	2.3.1, 2.3.2, 1	Need to examine impact of additional wastewater on existing facilities on Tinian.	Address issue and modify text
A-012-068	Vol 3	2	16	2.3.4	What is capacity of leach field? What are existing impacts? What are impacts of additional use?	Address issue and modify text
A-012-069	Vol 3	2	24	2.5-1	What does the symbol "□" mean?	Describe symbol
	Vol 3	2	5	map	Add "Sea Turtle Nesting" beaches (i.e., at least Unai Dankulo) to map	Amend Map
	Vol 3	2	9		Misspelled "Unai Masalok."	
	Vol 3	1 & 4	8		Definition of nearshore waters on page 4-1 is different from that given on page 4-8	Provide consistent description.
A-012-070	Vol 3	8	10	8.1.2.6	Misspelled Unai Dankulo	Edit text
	Vol 3	8	13	Map	Misspelled Kammer Beach	Edit text
	Vol 3	8	13	8.2.1.1	Should say, "CNMI," not "Guam."	Edit text
	Vol 3	8	4	8.1.2.3	Table 8.1-1. The table would be more useful if the "other" category, consisting of 46.6% of the land, were defined.	Define "other" in the table.

provided in the FEIS for this area as applicable.

2. Land-based activities will have permits requiring best management practices (BMPs) that contain and reduce sediment and pollutant discharges into nearby waters. Additionally, low impact development strategies (LID) will be implemented by the Navy during construction activities. The goal is to maintain or restore the natural hydrologic functions of a site to achieve natural resource protection objectives and fulfill environmental regulatory requirements.

3. EFH consultation with NMFS Habitat Division is currently ongoing. The Navy has and will continue to dialog with NMFS to ensure process identified within the Magnuson Stevens Fisheries Conservation and Management Act are completed.

4. Thank you for your comment. As stated on Page 11-41, "the following specific study area information is provided in addition to that described in Section 11.1.4, Guam Regional Environment." CREMUS is addressed in more detail for Apra Harbor in Volume 4, and a comprehensive HEA was done to address the corals reef ecosystem. Text modified, recapping soft sediment environment and water quality for the FEIS, as appropriate.

5. Text modified to reflect correct spelling of species names.

6. Text includes reference to and detailed information from a study conducted in Apra Harbor documenting nonindigenous species. Text modified to add Section 11.1.4.4 also for background on non-native species for Apra Harbor.

7. Text modified in the FEIS to read: "Finfishes, although present, are not abundant or diverse, and are represented primarily by three families: Pomacentridae (damselfishes), Chaetodontidae (butterflyfishes), and Carangidae (jacks)."

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A-012-071	Vol 3	8	4	8.1.2.4	The ownership issue does not provide a clear understanding of what is included in the CZM review. CNMI has also petitioned for ownership of the 0-3 mile coast. The status of this effort and impacts need to be included in this section.	Clarify and address federal ownership.	
	Vol 3	8	7	8.1.2.6	Should say, "These consist of shoreline; wetlands; and port and industrial APCs." And Fig. 8.1-3 should show the shoreline APC	Edit text and figure.	
A-012-072	Vol 3	10	7	Figure	Should also show Unai Babui	Edit figure	
A-012-073	Vol 4			general	Many of the references are old (in particular to coral reef resilience and stress tolerance)	Reference need to be updates as information is outdated.	
				127 G	Cumulative impacts to coral reef habitat and EFH will be significant, so not clear how the proposed action is not expected to have significant cumulative adverse impacts. This is inconsistent with discussions on the following page regarding the cumulative impacts to EFH and permanent loss of coral reef habitat.	Insufficient data to support finding. Provide data or revise finding.	
				129	230.2	"Removal of soft bottom substrate overlying hard substrate would provide additional potential habitat for coral and non-coral benthic organisms". Unlikely, considering that this newly exposed hard substrate will be in harbor area and consistently exposed to increased turbidity, possible contaminants, etc. Support this statement with evidence in the literature.	Insufficient data to support finding. Provide data or revise finding.
				129	230.2	Sasa Bay Marine Preserve not mentioned	Incorporate issue.

A-012-050

Thank you for your comments.

1. Volume 4, Chapter 11 identifies Sasa Bay as an area of high concentration for sea turtles in general. Hawksbill sea turtles were not sighted in this area during surveys by Smith (2007), although green sea turtles were. Text modified in FEIS to include the following statement, also included in Volume 4, Chapter 11: Sasa Bay is a year round, high concentration area for sea turtles as identified by NOAA (2005b).

Text has been modified in the FEIS, changing the statement "however are not of preferred species" to "however, the prey items available are not of the preferred species for hawksbill sea turtles."

2. Rationalization is not followed. Considering the sea turtle population may be more impacted from Volume 4 proposed action (i.e. in-water activities), it is more deserving of the extensive sea turtle hearing capability discussion, with a summary in Volume 2.

3. The benthic community was described in detail for the Inner Apra Harbor area (Section 11.7.1, Inner Apra Harbor), and is referred to for the description of Polaris Point since the areas are similar. This description should be sufficient to identify potential impacts to marine resources where the amphibious operations and ramp will be located. The description identifies the area as one of relatively low diversity, primarily composed of burrowing benthic invertebrates covered by fine sand and silty sediments.

Modified text in the FEIS. Replaced "(i.e.....)" with "In summary, the inner harbor floor....."

A-012-074	Vol 4	1		NEPA requires the subsection of volume 4 be clearly states and it is not. The volume 4 action is to develop a transient berthing capacity which provides the ship and carrier airwing operational support requirements (p.1-1). The need for volume 4 action is to maintain and supplement existing ship deployment and the aircraft carrier base in the Pacific (p.1-3). These two statements are easily confused and makes it difficult to identify what the actual requirements of the Volume 4 action are, whether the objectives are broad enough in scale, what decisions need to be made and importantly what the overall scope of the NEPA analysis should be in this volume. Due to confusion, it is questionable whether the several key steps in the NEPA analysis (issues identification, alternative analysis and impact analysis) are appropriate and adequate in scale and detail. As an important example, the potential alternative of expanding berthing capacity of aircraft carriers at Kilo Wharf has been dismissed as a viable alternative before the scope of analysis is clear (p. 1-9).	It is critical that the objective be made clear to ensure the efforts are reviewed relevant to their intent. The document should be edited to clarify this issue.
A-012-075	Vol 4	10	7	Organization comment: Sea turtles heading should be a new section	Edit Text
A-012-076	Vol 4	11	1	Volume 4, Chapter 11, Section 11.1, Affected Environment, Page 11-1, line 5: The suggestion that one will understand the "complete status" of the existing marine environment in both Inner and Outer Apra Harbor by reading Volumes 2 and 4 is not at all supported by level of characterization found within this DEIS.	Statement should be edited to reflect an accurate achievable level of understanding that can be provided.
	Volume 4	11	1	Describe clearly and comprehensively the potential impact/s from action to the environment rather than providing lengthy text describing the affected environment (29 pages in chapter). This approach characterizes the relevant resources potentially impacted and eliminates redundant information.	Modify target, clarify text
	Vol 4	11	104	Define terms "disturbed", "modestly healthy" and "unique" and support with evidence the argument that the ecological function of the impacted area/s are low. Similarly, support with studies the statements that steep slopes will promote removal of sediment rather than accumulation, that there is unlikely a permanent impact to mobile species such as turtles and fish, and that there will be no significant impacts to infaunal and epifaunal organisms.	Define terms and provide justification for the sedimentation.

4. Text has been modified in the FEIS to briefly describe potential EFH occurring near the roadway projects.

5. The reference to the "roadway projects described below" (Section 11.1.8.3) sufficiently indicates that there would be no in-water construction, dredging, or land-based construction projects that would affect streams and/or marine biological resources. Text from Volume 6, Chapter 13 will be recapped, including Table 13.2-7, which identifies GRN project types and potential impacts to marine biological resources

6. The Navy feels it is useful and necessary to include a thorough explanation of the impact analysis methodology; text was not modified in the FEIS. Cumulative impacts are described in detail in Volume 7, and to avoid repeating information, are not included elsewhere.

7. Chapter 4, Tables 4.2-1 and 4.2-7, Water Resources, of this volume contains a list of all land-based construction BMPs and mitigation measures, as does Volume 7.

8. Defining temporary and minimal impacts should provide adequate information to determine which types of impacts would fall under these categories. Text has been modified to provide an example.

Text modified to define coral reefs, including the following: U.S. coral reef ecosystems are defined as "... those species, habitats and other natural resources associated with coral reefs in all maritime areas and zones subject to the jurisdiction and control of the United States."

A-012-051

Thank you for your comment. 1. Land-based activities will have permits requiring best management practices (BMPs) that contain and reduce sediment and pollutant discharges into nearby waters. Additionally, the

<p>A-012-077</p> <p>Volume 4</p>	<p>11</p> <p>10</p>	<p>Support statement that 200m potential sediment impact distance is a gross overestimate not only with plume modeling data, but also with information from other case studies, particularly Kilo Wharf dredging. Further support statement with information on how effective the BMP's, such as silt curtains, actually in containing sediment.</p> <p>Determine the impact of dredging on potentially dense coral communities on slope beyond the 49.5-60ft depth direct dredge impact depth (p.11-11). The 60 ft versus 49.5 ft overestimate of the dredge depth footprint leads to a 10-15% increase in assessed benthic habitat which indicates steep slopes covered with coral (if two dimensional the benthic footprint would be the same). As mentioned in Dollar et al 2009 study, these slopes have dense coral cover of >50%.</p> <p>Survey the distribution and quantitatively assess the coral growing on soft sediment areas in the direct and indirect impact zones. Dollar et al 2009 study states that coral are growing on or out of the soft sediment surface.</p> <p>Remove Figure 11.1-10 which is not clear and repeated from Figure 11.1-2 (p.11-14).</p>
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Navy will implement LID strategies during construction activities. Text modified to explain hydrology aspects of this area and the remote chance of construction related discharge into the nearshore environment. The Navy has entered into EFH consultation with NMFS, and looks forward to receiving conservation measures for those adverse impacts to EFH identified associated with the proposed action.

Cumulative impacts are detailed in Volume 7, and not repeated throughout the document.2. DEIS analysis is based on the best available data. It is unknown to what extent this area may be indirectly impacts, so the DEIS assumes the worst case scenario and recommends BMPs and mitigation measures to lessen these potential adverse impacts. Further studies would be necessary to quantitatively measure actual impacts, if any. 3. text modified on Page 11-7 to define Land-based impacts. 4. text modified for FEIS.5. text modified for FEIS to further consider indirect impacts for these areas.

A-012-052

Thank you for your comment.

1. The EFH Assessment (EFHA) is provided within various chapters of the FEIS, and although not ideal for review as a standalone document, was agreed to early on in the process between the Navy and resource agencies. Based on NMFS comments, a summary table was provided at the end of each section to assist NMFS with the effects determination. Navy personnel met with NMFS staff in early June 2010 to review the EFH assessment. At this meeting, Navy agreed to provide NMFS with additional information to assist them with their EFH analysis. The Navy will continue to work with NMFS through the EFH consultation process and looks forward to NMFS conservation recommendations for the project.

2. Text modified in FEIS to clearly indicate Volume 2 proposed action within Apra Harbor.

A-012-078	Volume 4 Continued			Do not use the six classifications of coral cover system applied as it is not a standard way of presenting coral abundance data, and from a scientific perspective is neither useful nor appropriate. The class 2 and 3 >0%-10% and 10-30%, comes across as being of low value when in fact this represents a relatively high abundance of coral in comparison to the Pacific. To get at the distribution of dense versus sparse areas, densities of coral colonies across survey area should be quantified (number per unit area). This approach would also enable quantification of colony sizes, and finer resolution information on the coral community composition which is necessary for a study where major impact to coral are probably and where compensatory mitigation is likely. It is inappropriate to express impact to coral using this classification system as in Table 11.1-1.		
	Volume 4 Continued			There is no sense of what species, how many colonies, or what the size distributions of these are. If using the low resolution method of measuring coral cover, simply quantify and state the total coral % that will be impacted (p.11-15).	Modify delivery and content of text	
	Volume 4	11	11	11.1.2.2	Coral and coral reef community data, Page 11-11: At least two of the reviewers of the Dollar et al. (2009) report indicated serious concerns regarding the boundaries of the 200 m indirect impact area. K. Fabricious and J. McManus (Appendix J, Section 3) point out that dredge effects may be as serious in deep areas as well as shallow, and suggest sediment impacts may occur well below 60 ft (the limits of habitat characterization in the Dollar et al. (2009) study and the DEIS) and outside the 200 m proposed buffer area. We concur, and have serious concerns regarding underestimation/miscalculation of proposed sediment impacts in this DEIS. This issue could significantly increase the impact to coral as much as 50% and must be addressed.	Bathymetry data exists to get a best estimate of this impact and this should be done at a minimum to address these impacts.
	Volume 4	11	11	11.1.2.2	Coral and coral reef community data, Page 11-11: We recommend the inconsistencies in the dredge area be rectified throughout the DEIS. The marine surveys incorporate areas down to 60 ft depth, while the remainder of the DEIS works with values extending to 51 ft depths. We understand the inherent difficulties, but recommend the 60 ft approach be followed throughout the document to avoid confusion.	Make document consistent throughout.

3. Figure modified in the FEIS to clearly indicate the dredging location, and ERA pattern changed to a blue hatch mark.

4. Impact assessments were excluded for components of the proposed action that are not expected to have impacts, or to have very minimal impacts, to the marine environment. All components of the proposed action that are expected to have measurable impacts are included in the FEIS.

The data sources listed in Table 11.1-2 include more than ten that are less than five years old and are based on the best available data. Methodologies for data collected for this project are included in the Habitat Equivalency Analysis (HEA; Volume 9, Appendix E), and thus, can be reviewed for relevancy.

5. Reference to Volume 7, which includes a detailed description of measures to assess risk and avoid introduction of non-native species, is made to provide evidence for the less than significant determination. A Micronesian Biosecurity Plan will be funded and prepared by DoD to address this issue.

A-012-053

Thank you for your comments.

1. The EFH Assessment (EFHA) is provided within the FEIS, and although not as ideal for preparation or review as a standalone document, was agreed early on in the process between the Navy and resource agencies. Based on NMFS PDEIS comments, a summary table was provided at the end of each section to assist NMFS with the effects determination.

Land-based activities will have permits requiring best management

A-012-079	Vol 4	11	11	11.1.2.2	Coral and coral reef community data, Page 11- 11: What is referred to as the "unmanned reef" in the text is labeled "Middle Reef" in Figure 11.1-9. We recommend consistent naming and geographic reference be used throughout the document.	Make document consistent throughout.
	Vol 4	11	11	11.1.2.2	Coral and coral reef community data, Page 11- 11: Conclusions need to remain specific to those areas surveyed. Specifically, wording on bullet # 4 should be changed to, "It is also evident that, of the areas surveyed within the dredge boundaries, relatively few contained relatively small areas of the densest classifications of very high cover..." Remove the mixed use of percentage categories they lack clarity.	Insert edited language
	Vol 4	11	11	11.1.2.2	Coral and coral reef community data, Page 11- 11: It is unclear how coral coverage classes have been assigned to Figure 11.1-9 and for coral coverage acreage estimates. It appears that the map values are corrected using a probabilistic mathematical model based on known misclassification errors of individual pixels across the map. It is also assumed that the errors are uniform and random across the entire map. It appears impossible to identify which specific pixels are incorrect (only the percentage of incorrect pixels can be estimated). Since some of the coral coverage classes have a higher probability of being misclassified, and coral cover is randomly distributed across the project, clarification on the validity of assigning specific coral cover values to specific pixels in relation to the specific alternatives is needed. It is not clear the approach used is valid.	Limitation of data needs to be articulated and appropriately reflected.
	Vol 4	11	13	11.1.2.2	Coral and coral reef community data, Page 11-13, Table 11.1-1. The table appears incomplete and adds to confusion generated within the text of this chapter. We recommend that the total acres of estimated coral cover proposed to be impacted be generated using the percent coral cover values and total dredge areas. These values should be added to each acres column to project absolute losses of coral cover. This should help to clarify proposed impacts to the public, and form a basis for correcting mischaracterizations in comparing alternatives presented within the text (see comments below).	Change presentation of information

practices (BMPs) that contain and reduce sediment and pollutant discharges into nearby waters. Additionally, low impact development strategies will be implemented by the Navy during construction activities. These preventative measures are expected to reduce impacts to EFH. Text expanded to describe ramp impacts.

2. The impact analysis refers to Alternative 1, appropriately, as the two alternatives are similar in relation to this resource.

3. Text modified to add a discussion on soft bottom communities within Inner Apra Harbor, if references are available and as practicable. If a soft bottom community discussion was identified in the references shown in Table 11.1-2, they would have been included in the DEIS. The Navy still disagrees that the minimal area of soft bottom community removal constitutes a significant impact, as supported by the references identified on pp. 11-46. Impacts to soft bottom community would be short-term and localized.

4. Comparisons between alternatives are not made, as information for each alternative is presented separately. Individual assessments of impacts by alternative should be sufficient. That being said, text has been added to expand alternative impact analysis, as practicable.

5. Tables 11.2-8 and 11.2-14 function to summarize all potential impacts for all areas. No change in FEIS. Dredge area clarified to be inner harbor.

6. Potential impacts from runoff are briefly described for EFH/marine habitats throughout the chapter. Impacts are repeatedly described as being minimal with the implementation of BMPs for land-based activities - changes as appropriate, were made to the FEIS.

Comment ID	Page	Section	Comment	Response
A-012-080	11	13 11.1.2.2	Coral and coral reef community data, Page 11-13, Table 11.1-1. The total dredge area category appears to be mislabeled. It is presently listed as "Total dredge area with coral". Recommend this be corrected or clarified.	Correct or clarify presentation of information
			State the methodology used for surveying in one or two statements (e.g. length/width of the transects and number/size of independent sampling units along these). Inadequate to simply refer to the detailed Dollar et al 2009 study supplied in the Appendix of Volume 9. For example, 50 transects sampled with 10-15 random 1x 1 m sample units is very different to 10m transects with 1x0.66 m non-independent contiguous sample units. It is also necessary to provide basic results and refer to any statistical differences.	
Vol 4	11	15	Delete repeat information: statements seemingly cut and paste from one page to another. "Cora cover was..." statements found on p.11-11 and also on p. 11-18, and repeated again on p. 11-29.	Modify and edit text

A-012-054

Thank you for your comment. Additional text has been added in the Final EIS to address the issues you have commented on.

A-012-055

Thank you for your comment.

Additional information has been added to the Final EIS that further expands and clarifies impacts on habitats and Management Unit Species. The Essential Fish Habitat assessment was officially forwarded to the National Marine Fisheries Service (NMFS) in April 2010 for review and concurrence.

A-012-056

Thank you for your comment. When ships deploy away from their homeport, they visit other harbors. There are two kinds of visits, depending on the length of stay and reasons for stay based on military mission requirements. CVN port visits are brief and require minimal or no shore side support. They do not necessarily require a berth. When berthing (anchorage) are unavailable, there is limited time and capability for ship maintenance and crew rest. Because the port visit is brief and independent of shore side utility support, the CVN can get underway with minimal delay. This ability to mobilize quickly is important for force protection considerations, allowing CVN port visits to take place in foreign locations in response to international political concerns. In contrast, transient visits will allow longer stays to meet operational support requirements, including unscheduled repairs, maintenance and crew quality of life. There would be no dependants for quality of life support or full depot maintenance as this support is provided at the ship's homeport. To accommodate a transient visit, a berth is required with full "hotel services" for the ship and crew for a duration of stay that is longer than normal for a port visit. Studies have shown that morale and quality of life of individual sailors are important to maintain a combat ready

A-012-081				
Vol 4	11	13	11.1.2.2	<p>Transect Sites Unique to Each Alternative, Page 11-15, line 5: The statement suggesting, "Polaris Point [as] having approximately 4 % less coral to be removed" is a very simple and clear mischaracterization that is not supported by appropriate analysis of the information provided. We recommend this be corrected. The percentage values, while confusing throughout this document, need to be considered in relation to the area proposed to be impacted. Based on the estimates provided within Table 11.1-1, Alternative 1 will directly impact 1.2127 acres more coral than Alternative 2 which adds up to approximately 5% more (not 4 % less) coral to be removed.</p> <p>Calculations: Acres of Total Coral Loss: Alt #1, 71.18 acres × 35 % = 24.913 acres; Alt #2, 60.77 acres × 39 % = 23.7003 acres. Difference in Acres of Total Coral Loss: Alt#1 – Alt#2 = 24.913 – 23.7003 = 1.2117 acres Percent Increase in Total Coral Loss Relevant to Alt #2: (1.2117/23.7003) × 100 % = 5.1 %.</p> <p>This is critical to defining a Least Environmentally Damaging Practicable Alternative .</p>
				Edit text and associated reporting and interpretations based on changes.
Vol 4	11	15		<p>Sentence: "It is also evident that the area within the project boundaries, as well as within the dredging boundaries, does not contain any of the continuous areas of very high cover (70%)..." is not consistent with Fig. 11.1-9, which clearly displays areas of high coral cover within the project boundaries (areas of indirect impact).</p>
				Modify text to reflect data.

unit. These longer stays with a ship relying on shore side utilities increases force protection concerns, however, the advantage of a transient capable-port is that a ship can be re-supplied or maintained without returning to its homeport.

Development of a transient-capable port close to the area of responsibility (AOR) increases aircraft carrier presence, as required by the Quadrennial Defense Review (QDR), by reducing the non-availability that occurs when a carrier must perform a long transit to its homeport. The creation of a transient-capable port comes without the expensive, political or environmental concerns raised by creation of a forward homeport. Guam's Apra Harbor location provides shorter travel and response time to a potential crisis within the region when compared with Japan. Because Guam is a U.S. sovereign territory, the combination of freedom of action and force protection can be met while meeting operational requirements. The transient-capable port would allow a carrier to remain deployed for longer periods of time by utilizing the berthing for unscheduled repairs, crew changes, logistic support and crew recreation. Transient visits would provide the required operational flexibility to enable multiple carrier strike groups (CSGs) to maximize time and increase carrier presence within the AOR.

A-012-057

Thank you for your comment.

1. The FEIS has been modified (Volume 1) to clearly demonstrate that the three main components of the proposed action are functionally independent from one another.

2. Both operational and environmental constraints were considered when developing alternatives.

A-012-082				The direct impacts need to be coupled with the indirect impacts. The distance selected to determine secondary impacts lacks justification. While in some cases this may be precautionary in others it may be inadequate. This distance should be determined using the best available data on current and require knowledge of the resource to be impacted some avoidance and minimization can be maximized. Additionally the concern for resource beyond 60 ft. need to be incorporated into the impact analysis and contribute to defining the best footprint to minimize loss.	
Vol 4 Com inued					
Vol 4	11	15	11.1.2.2	Transect Sites Unique to Each Alternative, Page 11-15: This section indicates that 67 sites were surveyed in the direct impact area. However, there were 67 sites total surveyed in both direct and indirect impact areas.	Edit text and incorporate considerations.
Vol 4	11	15	transects unique	1 st and 2 nd sentence repeat of previously discussed information	Edit text
Vol 4	11	15	11.1.2.2	Transect Sites Unique to Each Alternative, Page 11-15: Separation of the "14 sites" appears to lack clarity and meaning. We recommend analysis of all sites occurring within an alternative (including the no action alternative)	Edit text and report format.
Vol 4	11	16	11.11.1 11.11.2	Boundary of Coral Study Area = Indirect impact area? Label should say so and be consistent with figure heading description as well as previous figures.	Edit text
Vol 4	11	18	11.1.2.2	Additional survey data in the study area, Page 11-18: We recommend that Smith (2007) be provided within Appendix J as stated for review. Clarity should be provided as to why, given the statement that Smith (2007) indicated coral development varied dramatically at different depths, Dollar et al. (2009) did not incorporate depth as a stratification element for sampling. Community characterization of the DEIS is based primarily on Dollar et al. (2009). It appears that the methods applied by Dollar et al. (2009) were extremely limited in terms of detection of species composition as only 18 species were recorded compared to 17 families by Smith (2007) in the survey area (and 58 species on 30 of the same 67 Dollar et al. 2009 transects measured by Minton et al. 2009). The Minton et al. 2009 data needs to be included in this data set, and should be used to articulate the photo-quadrat limitations in collecting information appropriate for habitat and resource characterization related to proposed CVN impacts.	Edit text and incorporate data into findings.

A-012-058

Thank you for your comment. The Final EIS for the proposed military relocation includes analyses of various alternatives pursuant to the National Environmental Policy Act (NEPA) and the President's Council of Environmental Quality guidelines. This analyses would adequately inform DoD decision-makers of the impacts of the alternatives (including a no-action alternative) due to the proposed action.

A-012-059

Thank you for your comment. Your comment is somewhat unclear as there are no new berths proposed for the waterfront actions addressed in Volume 2. The waterfront actions proposed in Volume 2 associated with the proposed military relocation would be needed upgrades to existing wharfs in inner Apra Harbor. There is a proposed new CVN wharf addressed in Volume 4 which includes an evaluation of alternative sites for the proposed action in the outer Apra Harbor.

A-012-060

Thank you for your comment. The discussion of essential fish habitat (EFH) has been revised in the Final EIS to clarify the existing setting and impacts associated with implementation of the proposed actions.

A-012-061

Thank you for your comment. Educational and enforcement programs are in place in the form of the in the COMNAV Marianas Training Handbook (June 2000). Procedures and requirements in the handbook would be updated for the proposed action.

A-012-062

Thank you for your comment.

1. A reference to update of the Marianans Training Handbook to include

A-012-083			
Vol 4	11	18	<p>State the methodology used for surveying in one or two statements (e.g. length/width of the transects and number/size of independent sampling units along these). Inadequate to simply refer to the detailed Dollar et al 2009 study supplied in the Appendix of Volume 9. For example, 50 transects sampled with 10-15 random 1x 1 m sample units is very different to 10m transects with 1x0.66 m non-independent contiguous sample units. It is also necessary to provide basic results and refer to any statistical differences.</p> <p>Delete repeat information; statements seemingly cut and paste from one page to another. "Coral cover was..." statements found on p.11-11 and also on p. 11-18, and repeated again on p. 11-29.</p>
			Modify text
Vol 4	11	18	<p>Clearly present quantitative Smith 2007 findings and provide study in dEIS. Smith 2007 results are very roughly summarized, yet snippets of data indicate availability of more in depth high resolution data compared to Dollar et al 2009 study, such as quantification of mean coral size, size frequency distribution, and condition of coral.</p> <p>Remove of justify the statement that coral habitat is "of marginal to modest ecological value". As it is, it is not only inappropriate without also providing objective definitions of marginal to modest and ecological value terminology and listing criteria, but based on information (images, descriptions and data) provided from Dollar et al 2009, Smith 2007 and other studies, is inaccurate. Coral cover in parts of proposed dredge areas is high in comparison to not only coral cover in Guam as pointed out specifically in Volume 2 of the DEIS, but also in comparison to Pacific and Global average estimates of coral cover (p.11-19).</p>

an educational program to avoid impacts to sea turtles has been added to the FEIS. The handbook (COMNAV MARIANAS Instruction 3500.4) already includes procedures prohibiting take or harrassment of sea turtles.

2. Potential sea turtle impacts as discussed for alternative 1 have been added for alternatives 2 and 3.
3. See number 1 above.
4. spelling corrected
5. spelling corrected.
6. The suggested change has been made.
7. The suggested change has been made.
8. No documented observations for both species
9. spelling corrected
10. Alt. 3 is similar to 1 as the SDZs do not extend over the water. This will be clarified.
11. the description of the marine environment is comensurate with potetnial impacts.
12. this is a qualitative assessemnt with no impact analysis based on this. No text change.
13. text will be clarified as appropriate

A-012-063

Thank you for your comment.1. Modified text in FEIS to replace "overall" with "typical". Modified text in FEIS, removing the word "respectively".Modified text in FEIS to change "P. rus" to "Porites rus".This is a quote specifically from Quinn and Kojis (2003), and is self-explanatory. 2. Modified text to remove the word "however", which then makes reference to the Figure valid.Modified text in FEIS to replace "benthos" with "benthic substrate", changing sentence to read: "...to a depth of 33 ft (10 m); seaward, the benthic substrate is composed of carbonate pavement."3. Modified text in FEIS to read "eight to nine"

A-012-064	Vol 4				Delete repeat information: section of bullet point "when reef survey..." from p.11-19 is cut and pasted incorrectly to p. 11-20.	Modify text and provide data.
	Cont					
	in					
	ue					
	d					
Vol 4	11	19	11.1.2.2	Additional survey data in the study area, Page 11-19: We recommend a measure of variation be provided with the mean coral sizes. Such is standard scientific protocol relevant to any statistical characterization of a community. The limited size data appears to contrast with the previous DEIS presentation suggesting some commonality of "supracolony" representation.	Edit Text.	
Vol 4	11	19	11.1.2.2	Additional survey data in the study area, Page 11-19 and 11-20: No information is provided indicating how ranks were assigned to the areas surveyed by Smith (2007). No determination on the validity and interpretation of such rankings is possible given the limited information provided within the DEIS	It is not possible to reach the conclusions presented given the information presented. Need to provide data or revise conclusions to provide data supported conclusion.	
Vol 4	11	19	11.1.2.2	Additional survey data in the study area, Page 11-19: We recommend clarity be provided on the specific manner in which HAPC criteria are used to define/indicate significant ecological function.	Clarify	
Vol 4	11	19	11.1.2.2	Additional survey data in the study area, Page 11-19: The statement is made that, "The coral habitat expected to be impacted by the proposed aircraft carrier project currently is, in general, "of marginal to modest ecological value". This statement needs clarification both in definition and how this functional value was reached. Similar statements made on Page 11-21 should be similarly addressed. Reference to signs of stress should be clarified as to what was observed that indicated "stress". NMFS has difficulty accepting given the diversity and size of the area that a label of marginal or modest ecological value is valid. This is a unique area for Guam and likely serves many valuable functions for coral reefs and the associated fauna in Apra Harbor.	Clarify and where needed correct.	

instead of "eight-nine" and changed "sic phyla" to "six phyla".4. Modified text in FEIS by changing "was" to "were" for consistency.5. Modified text in FEIS to read "cone snail" instead of "con snail".6. Modified text in FEIS to correctly spell foraminiferan and remove italics.7. Modified text in FEIS to properly describe the reef structure, changing text to the following: "A fringing reef borders waters directly off the white carbonate beach. The fringing reef is a large reef flat that extends approximately 1,300 ft (400 m) off shore and varies in depth from zero to 7 ft (2 m). "8. Modified text in FEIS to better describe distribution of phyla. Text changed to the following: "seven of the nine phyla contributing at least 60% to the overall density. " 9. Modified text in FEIS to remove the word "fleshy" from the coralline algae description.

A-012-064

Thank you for your comment.

References and associated text will be clarified and revised accordingly in the FEIS.

A-012-065

Thank you for your comment. The only vessel that would access Tinian to support the proposed training would be a barge to carry the equipment necessary for the estimated 200 to 400 Marines participating in the training evolution.

A-012-066

Thank you for your comment. This noted section covers the basic alternative for the training on Tinian. What happens with the generated wastewater is covered in the utilities chapter 15, section 15.1.2.4. The final EIS has been revised to clearly state that DoD generated wastewater would be taken to the existing DoD septic tank/leach field

Vol	11	20			
A-012-085					
Vol 4	11	20	11.1.2.2	Paragraph repeats Additional survey data in the study area, Page 11-20: Need to provide a clear image of Figure 11.1-13 for evaluation.	Edit text Provide clear image.
Vol 4	11	21		Summarize excessive background information provided on sediment effects in a few sentences, and instead incorporate relevant info in impact analysis. Provide and state evidence of sediment impacts objectively. Much focus given to coral sediment rejection mechanisms, coral sediment tolerance, small colony sediment resistance (30 year old study cited), lack of severe and long-lasting effect (cite 30 year old case studies) giving a strong impression that biased evidence is being provided to support a coming argument for lack of effect on coral from sedimentation resulting from dredging.	Include citation and appropriately incorporate information
Vol 4	11	21	11.1.2.2	Additional survey data in the study area, Page 11-21: It appears, in contrast to Dollar et al. (2009), <i>Pavona cactus</i> was not a main species encountered by Smith (2007). Such highlights the need for a more rigorous determination of appropriate sample numbers for characterizing such a large proposed impact area.	This concern should be presented in the data analysis
Vol 4	11	21	11.1.2.2	Additional survey data in the study area, Page 11-21: The statement is made that, "It is arguable whether or not the Polaris Point/Bay community should be considered a coral reef." Such a statement is not supported by imagery provided in Appendix J which clearly displays corals growing on benthic substrate.	It needs to be accepted consistently throughout the document that the submerged area associated with the Polaris Point alternative is all coral reef.
Vol 4	11	23		Great discussion of other studies and stress tolerance/sedimentation recovery rates for corals in other areas, but it does not make any connections/relevance with the project. It would be great if the results from those studies could provide some insight on the expected coral recovery/reaction for the project at hand.	Provide connection to project.

system. The alternative of composting toilets could be considered by DoD in the future, but the currently proposed approach appears adequate and a permitted facility with adequate capacity already exists.

A-012-067

Thank you for your comment. This section should be revised to state that "portable" sanitary facilities would be provided. The handling of wastewater is covered in the utilities chapter 15, section 15.1.2.3. An existing DoD owned septic tank/leach field would be utilized to treat the wastewater, thus there would be no impact to the Tinian wastewater systems.

A-012-068

Thank you for your comment. Utilities are covered in Chapter 15. Section 15.1.2.3 states that the existing DoD septic tank/leach field was originally installed for use by an operation entitled "Tandem Thrust," involving approximately 2,000 people. Thus the system should have adequate capacity for a maximum of 400 trainers. This septic tank/leach field system is not in current use, thus the entire capacity is available. The EIS section 15.1.2.3 will be revised to state that there are no current users of this septic tank/leach field.

A-012-069

Thank you for your comment. Corrected spelling of "Unai."

A-012-070

Thank you for your comment. Unai Dankulo and Kammer Beach spelling errors are corrected in the Final EIS. "Guam" is changed to "CNMI", as you suggest. The description of "other" in the table was not provided in the source document (CNMI Department of Commerce 2002) and the Final EIS does not describe "other". The description of "other"

A-012-086				
Vol 4	11	24	Summarize excessive background information and instead apply relevant information to impact analysis. Provide report by Weston solutions on sediment core analysis. Clearly stated that range of effects to coral are species specific (paragraph 3, p.11-25) indicating that coral species level information needs to be input to impact analysis.	Provide species level analysis of impacts.
Vol 4	11	25	11.1.2.2 Sediment characterization and loading on coral stress, Page 11-25: We recommend inclusion of the Weston Solutions (NavFac Pacific 2006) sediment core analysis report in the appendices for review.	Include report.
Vol 4	11	25	11.1.2.2 Sediment characterization and loading on coral stress, Page 11-25: Dismissal of the terrigenous (i.e., non-carbonate) muds as "not a major component of the sediment in the proposed dredge area" based on a 4 – 21 % relative percent weight estimate within core samples alone is difficult to fathom, and constitutes a conclusion without sufficient analysis. Clarification needs to be provided as to how these estimated percentages relate to the actual tonnage of sediment proposed to be disturbed. Given corals appear to respond differently to terrigenous sediment disturbance, evaluation related to proposed tonnage impacts of terrigenous sediments to corals within the impact zone should be provided. In reviewing Dollar et al. (2009), T. Hughes (a Navy paid reviewer, Appendix J, Section 3), noted, "The [Dollar et al (2009)] analysis of sediments is very superficial, limited to ascertaining the carbonate composition. The rationale for this part of the study is that suspended terrigenous and carbonate-rich sediments each affect corals in different ways. However, the difference is largely due to particle size and organic composition rather than the carbonate fraction per se. Sediment grain size and organic content were not examined.	These factors need reevaluated and considered in describing the potential sediment impacts.
Vol 4	11	25	11.1.2.2 Sediment characterization and loading on coral stress, Page 11-25: We could not locate the summary of existing literature referred to as being in Volume 9, Appendix J, Section D. It is unclear what Section D, Appendix J refers to.	This should be clarified in the document.
Vol 4	11	26	Remove inclusion of measurement of coral colony size from photoquadrats as large colonies (photoquadrat size is only 1x0.66m) will not be represented and this is not an accepted method in the scientific community.	Remove existing measurement data and gather additional data to address this data deficiency.

would be useful background information, but is not important to the impact analysis of proposed actions on the Military Lease Area.

A-012-071

Thank you for your comment. The description of land and submerged land is based on existing conditions. Petitions for changes in land ownership are not included in the proposed actions and are not within the scope of the EIS.

Edits to text and figures are made in the Final EIS as suggested.

A-012-072

Thank you for your comment. Unai Babui is shown as a sea turtle nesting beach on Figure 10.1-2. This may be the figure referenced (comment says page 7 which has a table).

A-012-073

Thank you for your comment.

The information provided in the DEIS on coral resilience and stress tolerance were based in part on the HEA report, which was reviewed and commented on by resource agencies with Navy response. Additionally information was provided during the "spring survey" second report. Most of the older references (1970 -1990s) are backed up by more recent references (2005 and earlier). And just because the commenter thinks they are "old" doesn't make them invalid. If there are other key references the commenter has become aware of, please forward those to the Navy POC for review and potential incorporation into the FEIS.

I cannot locate your comment reference identified "Volume 4, Page 127 G", however since the commenter is referring to cumulative impacts, I reviewed Volume 7. Table 3.3-25 identifies significant impacts to EFH,

A-012-087

Vol 4	11	26	11.1.2.2	Recommend adding, "as estimated using this methodology." to the last sentence in the paragraph. It should be noted, as pointed out by T. Hughes (a paid Navy reviewer, Appendix J, Section 3, Page 5) that, "... stress is inferred rather than measured directly" by this method. We concur with T. Hughes that the section heading should be changed to "Assessment of spectral reflectance". We also concur that the purpose of these measures is unclear, and recommend clarification be provided. Indications of "stress" may not be limited to differences in chlorophyll content. K. Fabricius (a paid Navy reviewer, Appendix J, Section 3) noted, "... I believe the connotation of dark = healthy is considered somehow simplistic, given the increase in pigmentation in corals exposed to high levels of nutrients". T. Cooper (a paid Navy reviewer, Appendix J, Section 3).	
Vol 4 Cont inuc d				"There are many studies to show that increases in pigment concentrations and zooxanthellae density are in fact a negative response to exposure to nutrients (nitrogen and phosphorus; e.g. see studies by Hoegh-Guldberg and Smith 1989; Stambler et al 1991, 1994) in addition to the well known physiological responses to changes in irradiance. Clearly, the NDVI needs to be interpreted cautiously until further studies are completed and presented in the literature." Application of pertinent methods examining other parameters (enzyme activity, growth, regeneration abilities, reproductive characteristics, etc.) may (or may not) indicate spatial difference in "stress".	This should be clarified in the document.

which coral reef ecosystem are included. As identified, the impact is SI-M (Significant Impact – Mitigable), to less than significant through required Clean Water Act compensatory mitigation measures, with the goal of restoring the ecological services of this aquatic habitat.

The proposed dredging action will remove coral regrowth and sediment accumulation from the previous dredging activity 60 years ago. Yes, the newly exposed hard-bottom will experience turbid conditions and possible pollutants, but would be no different from conditions experience post-dredging 60-years ago. The current conditions in Apra Harbor are sufficient to show the potential for this statement "removal of soft bottom substrate overlying hard substrate would provide additional potential habitat for coral and non-coral benthic organisms."

A-012-074

Thank you for your comment. The noted sections in the EIS have been clarified.

A-012-075

Thank you for your comment. This formatting change has been made in the EIS.

A-012-076

Thank you for your comment.

1. Text has been modified to indicate that Volumes 2 and 4 will provide an understanding of the existing marine environment with respect to the proposed action

1. Volume 2 and 4 have described the potential impacts of the proposed DoD actions on Guam in the Environmental Consequences Sections.

A-012-088				<p>Coral Size-Frequency Analysis, Page 11-26: It is unclear how the coral size frequency metrics collected and presented are meant to “represent resource agency concerns”. The coral size data collected by Dollar et al. (2009) using the photographic method and presented in this report are, unfortunately, meaningless, as indicated in the Minton et al. (2009) comparison report located in Appendix J. In short, observers using the photographic method did not measure the actual size of a coral colony, only the longest horizontal dimension visible within the photo of their quadrat (1 m × 0.6 m). Coral lengths extending beyond the quadrat perimeters were not measured, so a 90 cm coral with 2 cm inside the quadrat is represented as a colony 2 cm in size, biasing towards inaccurate estimates of smaller sized colonies. In addition, given the planar photographic limitations, overlapping colonies could not be accurately measured. Individual colonies crossing multiple adjacent quadrats were counted and measured as separate, smaller individuals within each quadrat. Standard colony inclusion rules (colony centers needed to be within the quadrats for colonies to be measured to avoid bias in abundance/frequency estimates) were not followed. Differentiation of colony boundaries using planar photographs is difficult at best absent in-situ evaluation. A paid Navy reviewer (K. Fabricious, Appendix J, Section 3) also noted that, “The photo method used does not allow to assess neither frequency nor size of large colonies (they don’t fit into the photo frames)”.</p>
Vol 4	11	25	11.1.2.2	

The affect environment section is required by NEPA to describe the affected environment as it is prior to any proposed actions.

104. Text is supportive of statements (with reference sources) made in the text. Text has been modied to provide additional definitions as appropriate.

A-012-077

Thank you for your comment. A sediment plume is an inevitable effect of in-water construction activities that the Navy proposes to minimize by using best management practices (BMPs) such as silt curtains and operational controls of dredging equipment. Mitigation measures will be determined and agreed upon during the US Army Corps of Engineers (USACE) permit phase of the projects.

The Navy is monitoring dredging activity at Kilo Wharf and is aware of issues involving the subcontractor managing the silt curtain mitigation measures. Changes to the height of the silt curtains and some operational changes have been made to correct these issues. The Kilo wharf project and the proposed action occur in very different areas of Apra Harbor. The setting of Kilo wharf is much more exposed to wind and wave action that impact the BMPs and mitigation measures. The proposed action area is anticipated to be less challenging with regard to the Navy’s ability to minimize environmental impacts from sediment plumes. The dredging plume models that were run for the Draft EIS, were based on high silt curtain sediment retention of 90% that were observed at another locations in Apra Harbor having similar conditions to the proposed action area.

In general, the Navy has overestimated the direct and indirect impact area, not underestimated it. The assessment of benthic communities report assumes a 60 ft (18 m) dredge depth, which is an overestimate of the actual proposed dredge depth of -49.5 ft (-15.1 m) MLLW plus 2 ft

<p>A-012-089</p> <p>Vol 4 Cont inued</p>			<p>Standard colony inclusion rules (colony centers needed to be within the quadrats for colonies to be measured to avoid bias in abundance/frequency estimates) were not followed (the report suggestion that colony sizes exceeded the 10 m² sample unit is not at all supported by the in situ size-frequency data). Differentiation of colony boundaries using planar photographs is difficult at best absent in-situ evaluation. A paid Navy reviewer (K. Fabricious, Appendix J, Section 3) also noted that, "The photo method used does not allow to assess neither frequency nor size of large colonies (they don't fit into the photo frames)". The sizes of coral colonies were thus not measured.</p> <p>Size-frequency and morphology data have been requested since initiation of resource agency consultations on this project (approximately 2 years ago) as means to better characterize coral impacts from a population, community and functions-services perspective (using numbers, sizes and three dimensional morphologies of individual colonies as opposed to an amalgamated planar cover estimate).</p>
<p>Vol 4 Cont inued</p>			<p>Such measures are useful for modeling interim colony loss through creation of size and species specific recovery trajectories, and are fundamental to ensuring equitable functional replacement (through evaluation of colony numbers, sizes and three dimensional morphologies as opposed to compensation/replacement based on flat, amalgamated spatial representations). We recommend the size-frequency data and analysis presented in this section be removed, and that appropriate in-situ measurements of coral size-frequencies and morphologies be collected, analyzed and presented as a necessary component in characterizing coral colony resources at risk, evaluating recovery potential, and as a fundamental basis for assuring equity in compensating unavoidable loss through mitigation.</p> <p>This should be clarified in the document and recognized as a deficiency in the available data. This is a significant issue in properly characterizing the impacts and in resolving the mitigation alternatives. USFWS, USEPA and NMFS continue to endorse the need for this data to be collected to meet mandates and complete the permit process.</p>

(0.6 m) overdredge, representing an approximately 10-15% increase in assessed benthic habitat in the dredged area. For this reason, the total dredged area differs from the dredged area provided in Volume 4, Chapter 4.

Additionally, although the models for indirect impacts indicated that sedimentation exceeding 40 mg/cm² or 0.008 inch (0.2 mm) extended an average distance of 144 ft (44m) from the dredging, the assessment of benthic communities (and the Habitat Equivalency Analysis) assumes an indirect impact distance of 656 ft (200 m) distance from the direct impact area boundary. As noted in Section 11.1.2.2, this is an overestimate because the SEI (2009) plume modeling summary identifies only 39 ft (12 m) beyond the direct dredge impact area as anticipated to receive cumulative sedimentation totaling at least 0.2 inches (in) (6 millimeters [mm]), which was established as the cumulative sedimentation threshold for corals.

The "soft sediment areas" associated with the proposed action have already been assessed during the 67 transect points. No further evaluation of these corals is anticipated. This was an intentional repeat to aid the reader; improvements in regards to the reproduction of this figure will be seen in the FEIS.

A-012-078

Thank you for your comment.

1. The Navy collected a robust data set to include coral distribution, benthic cover, fish biomass, and fish and invertebrate species abundance. Functional assessment methodologies are an evolving science and the adequacies of existing methodologies are heavily debated in the scientific community. A standard functional assessment technique that accurately characterized and quantifies losses and gains of coral aquatic resource functions would ideally be used. Further, the

A-012-090	Vol 4	11	28	<p>Merge information with information provided in section titled "Coral and coral reef community data" (p.11-10) and with information in section "Transect sites unique to each alternative" (p. 11-15) as based on same Dollar et al 2009 study. This is for sake of clarity and conciseness in reading document and understanding the findings.</p> <p>Provide averages and variances so that the scientific rigor of quantitative % coverage estimates can be evaluated.</p> <p>Remove statement that "cumulative means illustration of data indicates a "pattern of decreasing algae and sediment with increasing coral cover". Using photoquod methodology, there can only be a max cover is 100% so invariable algal cover will increase as coral cover decreases.</p>	
	Vol 4 Continued			<p>Similarly, statements in the final paragraph on page 11-31 such as "when sediment cover exceeds approx 75% there is no coral cover", "no coral occurs without the presence of algae" and there is a "weak trend of increasing rugosity with coral cover" should be removed" as these are not valid, stating the obvious, and are not useful for impact analysis. Remove illustrations (Figures 11.1-16 and 11.1-17) of cumulative percent cover as these are misleading and are unconventional.</p> <p>Exclude Multivariate statistics as this does not apply to the univariate data collected. Table 11.1-3 indicate what a count of coral is.</p>	Edit text and remove figures
	Vol 4	11	29	11.1.2.2	<p>Evaluation of the benthic community structure, Page 11-29 and Figure 11.1-17, Page 11-30: Clarification should be provided as to why a breakdown is given by impact zone and slope strata as Dollar et al. (2009) were unable to distinguish any significant differences between such. Typically, given the lack of identified differences, summary information concerning the entire area would be provided.</p>

Compensatory Mitigation Rule recognizes the evolving nature of science on this issue and does not mandate any particular assessment methodology. The Navy assessment method used a historically approved methodology used by the USACE and NMFS for quantifying impacts to coral reef ecosystems. For well over 30 years coral reef ecosystem monitoring and impact assessments have been based on percent coral cover. Due to the complexity of this ecosystem percent coral cover has been identified as "the best current available science" standard (or proxy) to attempt capturing the thousands of elements that comprise a coral reef ecosystem.

In light of the continued dispute on what parameters need to be collected to fully capture the impact to coral reefs, the Navy's assessment is currently under review by USACE. Upon completion of that in-depth review, if USACE feels additional information is warranted the Navy will comply and re-run its analysis based on the additional data parameters.

2. Text modified in FEIS to reflect method of data collection as percent coral coverage.
3. The 200 meter indirect zone was selected to provide a conservative (error benefit to coral) estimate of indirect impacts to coral. A sediment plume is an inevitable effect of in-water construction activities that the Navy proposes to minimize by using best management practices (BMPs) such as silt curtains and operational controls of dredging equipment. Mitigation measures will be determined and agreed upon during the US Army Corps of Engineers (USACE) permit phase of the projects.

In general, the Navy has overestimated the direct and indirect impact area, not underestimated it. The assessment of benthic communities report assumes a 60 ft (18 m) dredge depth, which is an overestimate of the actual proposed dredge depth of -49.5 ft (-15.1 m) MLLW plus 2 ft (0.6 m) overdredge, representing an approximately 10-15% increase in assessed benthic habitat in the dredged area. For this reason, the total

A-012-091

Vol 4	11	29	11.1.2.2	The Porites rus category actually represents two distinct but common species within the area- Porites rus and Porites horizontalata. These species have similar morphologies and general appearance, and it is fairly easy to see why they were not distinguished given the limitations of the photographic method applied. We recommend the category and associated analyses (within Dollar et al. 2009) be modified to Porites rus/horizontalata; (b) Acrehelia horrescens is typically referred to as Galaxea horrescens. Recommend making this change; (c) Fungia echinata is not a species, perhaps Ctenactis echinata was intended as it is present at the site. Recommend changing here and within Dollar et al. (2009); (d) Only 18 species of corals are reported using the photo-quadrat transect data. However, a comparison study on a subsample of the sampled transects (30 of them) identified over 3 times as many species (58 species). Appropriate characterization requires using the best and most complete information available.	
Vol 4 Cont inued				However, this does not appear to be accomplished within this document, and was specifically stated to not be the intent of the underlying study (Dollar et al. 2009, p. 6). We recommend that a broader scope of existing information (i.e., going well beyond the limitations of that collected using the photographic method in Dollar et al. 2009) be presented as a step towards a more thorough characterization of the communities at risk by this project.	Given the characterization, accuracy and comparison limitations inherent in using the photographic methods, an assessment is needed that can accurately capture colony size-frequency and biodiversity.
Vol 4	11	29	11.1.2.2	Evaluation of the benthic community structure, Page 13-31: We refer the applicant to Navy paid reviewer comments, particularly those of Hughes, Fabricious, Sheppard and McClanahan (Appendix J, Section 3), regarding shortcomings and concerns related to appropriate application of PCA and other statistical approaches.	Incorporate reviewer comments into the evaluation of approach applied.

dredged area differs from the dredged area provided in Volume 4, Chapter 4.

Additionally, although the models for indirect impacts indicated that sedimentation exceeding 40 mg/cm² or 0.008 inch (0.2 mm) extended an average distance of 144 ft (44m) from the dredging, the assessment of benthic communities (and the Habitat Equivalency Analysis) assumes an indirect impact distance of 656 ft (200 m) distance from the direct impact area boundary. As noted in Section 11.1.2.2, this is an overestimate because the SEI (2009) plume modeling summary identifies only 39 ft (12 m) beyond the direct dredge impact area as anticipated to receive cumulative sedimentation totaling at least 0.2 inches (in) (6 millimeters [mm]), which was established as the cumulative sedimentation threshold for corals.

4. Text modified in FEIS so that the 60 ft depth is the consistent and conservative depth of potential coral impacts.

A-012-079

Thank you for your comments.

1. Inconsistencies between the text and Figure 11.1-9 has been corrected as appropriate.
2. Text has been modified as appropriate.
3. Please refer to Volume 9, Appendix J for a discussion of standard deviations and confidence limits regarding the HEA.
4. The table is complete and based on the HEA, Volume 9, Appendix J that is final. Consideration has been given to modifying Table 11.1-1 and associated text to clarify potential coral impacts from the proposed

A-012-092	Vol me 4	11	3	Summarize findings of all the marine biological assessment surveys/studies that were prepared for characterizing the potentially impacted resources by this proposed action. For example, combine data/information on benthic community (coral, algae, soft sediment, and other invertebrates), fish community, protected species and EFH. Provide all and each of these surveys/studies for easy reference, including Smith 2007 and Minton et al 2009. Provide maps of survey locations for all studies referred to, and provide a clearer illustration of Figure 11.1-2 of Outer Apra Harbor 67 data points as the dredge zone cannot be made out in relation to the transect locations.	Clarify Text and refine figure
	Vol 4	11	32	Include Smith 2007 report as summary still somewhat qualitative, and the information presented in this section combined with other benthic information provided.	Include Smith Report
	Vol 4	11	33	Modify Figure 11.1-4 to incorporate not only 5 MUS species associated with EFH for Apra Harbor. Coral Reef Ecosystem is a MUS, and thus all organisms within Coral Reef Ecosystem associated with Harbor. Characterize water quality and bottom habitat for entire Harbor as well potentially affected adjacent areas if this "Affected Environment" is to be adequately described.	Modify text and provide analysis
	Vol 4	11	35	Provide map of surveys. Express this information as relevant to Coral reef ecosystem management unit species.	Provide map and add context.
	Vol 4	11	35	Provide practical examples for the definition "temporary" impacts to EFH, i.e. "limited in duration...allow the particular environment to revive without measurable impact", and also for definition "minimal", i.e. result in relatively small changes...and insignificant changes in ecological function".	Provide examples.
	Vol 4	11	36 3rd paragraph	Why is the greater variability in fish assemblages among sites within the depth range of 40-60 ft likely explained by previous dredging of many of those sites? Clarification of statement is needed.	Provide justification and explanation.

action.

A-012-080

Thank you for your comment.

1. Text in Table 11.1-1 has been modified as appropriate.

2. Text has been clarified, modified, and/or deleted as appropriate.

A-012-081

Thank you for your comment.

1. As identified in a previous comment, relative percentages have been removed from the FEIS.

2. Figure 11.1-9 has been correctly labeled for the FEIS. This hashed line is in fact not the Indirect area impacted (see Figure 11.1-11 and 11.2-3), but the project study area for coral.

A-012-082

Thank you for your comment. The 200 meter indirect zone, was selected to provide a conservative (error to benefit to coral) estimate of indirect impacts to coral. The FEIS has been revised to more accurately reflect the indirect impact area.

Text has been revised to reflect number of transect sites in the direct and indirect impact areas.

Text has been revised to eliminate repeated sentence.

Text has been clarified as appropriate regarding the transect sites.

A-012-093				
Vol 4	11	3	The Viehmen et al. paper is mischaracterized in stating "A nearly complete understanding of coral reef ecological services is required to objectively determine whether selected compensatory restoration projects adequately restore lost services for a given injury (Viehmen 2009)". Viehmen et al. (2009) actually states that a "more complete understanding ..." is needed. The selective word change substantially changes the meaning.	Correct wording
Vol 4	11	3	Navy coral assessment methodology, Page 11-3 to 11-5: The document indicates the description of baseline conditions of the coral and coral reef habitat within Apra Harbor relies on five recent studies, included in Volume 9. It appears one of the studies, Smith (2007), is not provided in Volume 9, reducing the potential for thorough document review. The Minton et al. (2009) comparison study along 30 of the 67 Dollar et al (2009) transects need to be added the data set. concerns raised by the resource agencies regarding Navy methods. The findings of the comparative survey also need to be incorporated into the text.	We recommend inclusion of the Smith (2007) report, Minton et al. (2009) data, and that concerns raised by the comparison study be addressed
Vol 4	11	43	For the Alternative 1 Polaris Point (Preferred alternative), provide support the overall as well as individual findings of no/less than significant impact to marine resources and no adverse effect to EFH with quantitative data and justify with appropriately conducted impact analysis involving evaluation of direct, indirect and also cumulative (not addressed) impacts of all activities related to whole action.	Provide supporting information to justify position.
Vol 4	11	43	Evaluate full extent of potential impacts from land-based activities connected to action. While basic description of onshore activities provided, and a few of the BMP's that will be applied to reduce impacts listed, there is not comprehensive evaluation of potential indirect and cumulative impacts.	Evaluate and present cumulative impacts.

Boundary of coral study area does not equate to indirect impact area. Text has been clarified.

Appendix J has been updated. The EIS was revised to describe the differences between the data collection efforts supported by various individuals.

A-012-083

Thank you for your comments.

1. Reference is made to the Dollar et al. 2009 study for in-depth methodology; Volume 9, Appendix E includes the Habitat Equivalency Analysis (HEA), which describes methods and results of the coral study in detail.

Text modified in FEIS to remove repetitive sentences on pages 11-18 and 11-29.

2. Smith 2007 findings are summarized over approximately two pages of text, which should be sufficient to describe one very important study.

Text modified in FEIS to remove statement "The coral habitat expected to be impacted by the proposed aircraft carrier project currently is, in general, "of marginal to modest ecological value"."

A-012-084

Thank you for your comments

First set of comments:

Text deletions and additions have been performed as appropriate to clarify the Chapter. Regarding BMPs, the Navy will implement mitigation

A-012-094	Vol 4	11	45	<p>Remove the unsupported statements and re-evaluate conclusion that "negative impacts to marine flora and invertebrates would be short term and localized" and "there will be no adverse effects on EFH" and conduct a thorough impact analysis involving evaluation of direct, indirect and cumulative impacts not only from dredging, but also from other activities, such as increased ship traffic.</p> <p>Remove any language that states "potential" impact from offshore activities since there will certainly be direct impact to coral from dredging (p.11-45).</p> <p>Balance one-sided points that are provided with the many studies that also show impact of dredging. It is inappropriate to list snippets of statement/sound bites from various studies as has been done (11-45).</p> <p>Support with evidence/citations the statement that there are benefits of dredging from exposure of hard substrate for settlement and recruitment with evidence from studies (11-47).</p> <p>Align and combine sediment deposition model findings that indicate that Apra Harbor is not a highly dynamic site exposed to high currents, tides, winds or waves.</p>	
				<p>Alt 1 would significantly and adversely affect marine biological resources (not may). Permanent removal of benthic habitat (including corals) is an adverse impact.</p>	Modify text

measures and BMPs during in-water activities (dredging, wharf construction) that include Army Corps permits requiring the use of silt curtains, biological monitoring to protect sea turtles and dolphins, restricting dredging activities during potential coral spawning months, and developing compensatory mitigation projects to help improve nearshore water quality through upland watershed reforestation and/or artificial reef construction, to name a few. These measures will be designed to improve coastal water quality to the benefit of the sea life and people of Guam.

Second Comment

The Tables have been modified as deemed appropriate per your comments. Note that Table 11.2-5 was added after the PDEIS per resource agency comment, and are both very similar. Table 11.2-6, includes the quantitative summary the commeter is looking for. Note also, Volume 7 provides information regarding BMPs. The EFH Assessment (EFHA) is provided within the DEIS, although not as ideal for preparation or review as a standalone document, was agreed early on in the process between the Navy and resource agencies. Based on NMFS PDEIS comments, a summary table was provided at the end of each section to assist NMFS with the effects determination. The Navy has worked with and coordinated meetings with the resource agencies over the last three years discussing Habitat Equivalency Analysis (HEA) approach and methodologies. The Navy has invited them to perform surveys, and attended a USFWS hosted HEA workshop in 2008 (Guam agencies were unable to attend due to scheduling difficulties). The Navy has addressed PDEIS comments and concerns, incorporating additional quantitative coral and finfish studies into the DEIS in attempts to alleviate some of these concerns. As stated by the Department of the Army (17 Feb 2010 response to DEIS), and I quote: "the employed survey methodology to assess coral reef resources within the proposed CVN wharf and dredge project area has been an extremely contentious

<p>A-012-095</p> <p>Vol 4 Cont inuc d</p>	<p>11</p>	<p>45</p>	<p>Tides, winds or waves (11-51), and statement that this is a low-energy environment (p. 11-57) with to statements that soft sediment communities will recover quickly because they are dynamic (p.).</p> <p>Add updated evidence/citations to 40 year old Hubbard and Pocok 1972 study to evaluate sediment deposition rate impacts to coral (p.11-56).</p> <p>Support with evidence/citations notion that coral fragments tumbling down slope may be a positive effect of dredging impact, and remove irrelevant background information on fragmentation (p.11-57).</p> <p>Support with evidence/citations statement that primary limiting factor for coral recruitment and development in Pearl Harbor is substrate rather than suspended sediment (p.11-58).</p>
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subject. Functional assessment methodologies are an evolving science and the adequacies of existing methodologies are heavily debated in the scientific community. A standard functional assessment technique that accurately characterized and quantifies losses and gains of coral reef aquatic resource functions, as would ideally be utilized for the proposed action for Section 10/404 compensatory mitigation purposes, is not currently available. Considering that our office will ultimately be responsible for determining compliance with federal regulations requiring an appropriate and practicable functional assessment, we have engaged our Engineer Research and Development center (ERDC) to provided an independent technical review of the adequacy of the employed methodology to date and recommendations for improvements, if necessary. Preliminarily, ERDC has determined that while the methodology is scientifically valid and statistically defensible, a more intensive level of data collection may be necessary to adequately measure habitat function for compensatory mitigation purposes. We expect a more specific and detailed accounting of their review in the coming weeks.”

Third Comment

After a careful review, it is our contention that these quotes have been used within the appropriate context and those that are misleading have been removed as appropriate. The benthic organisms addressed in the study have been added to the FEIS.

A-012-085

Thank you for your comments.

1. Repeated text has been deleted.

2. Second Comment

A-012-096	Vol 4 Cont inued	11	45	Remove the statement that areas that lack hard stable surfaces lack substantial coral growth since a survey of soft sediment has not actually been conducted (p.11-58).	
				Remove incorrect statement that area of potential effect in regards to coral is small in fraction in comparison to total live reef area mapped since did not in fact survey entire area (P.11-58).	
				Remove argument that coral community not in good condition due to not having unique species and having less than 30% cover. 30% coral cover is above Pacific and Global average, and Volume 2 (Chapter 11, p.11-13) states that Apra Harbor has some of nicest coral reef area on the Island of Guam (p.11-58).	
				Support with evidence/citations statement that it is anticipated that most displaced finfish species would recolonize other adjacent areas (p.11-59).	
				Explain BMP's that are proposed to be applied as potential mitigation measured for impacts to EFH, and quantify how this will reduce adverse effects and to what aspects of EFH (p.11-59).	
Vol 4 Cont inued	11	45	Modify Table 11.2-2 (p.11-61) and very similar Table 11.2-5 (p.11-70) to show results not output, i.e. indicate quantified impacts rather than simply listing potential impact.		
			Support with data statement that current indirect impacts of ship traffic are minor and short term and will continue to be so despite action (p.11-68)	Provide data and citation support to justify conclusion or amend conclusion to represent available science.	
Vol 4	11	45	Define and explain what periodic and localized impacts to EFH are and justify how these while long-term are concluded to mount to no adverse impact to EFH (11-69).		
Vol 4	11	45	quotes	All of these quotes are out of context of their respective studies and do not provide a thorough argument. Which benthic organisms?	Correct context and modify text

A more readable Figure has been provided.

Third Comment

A detailed compensatory mitigation plan would be submitted as part of the Clean Water Act 404 permit application for construction affecting the navigable waters of the United States (including the CVN transient wharf). Due to the ongoing review of DoD's habitat assessment methodology for coral reef ecosystems and associated uncertainties regarding the scope of mitigation required, a detailed mitigation plan has not been developed nor will one be available for incorporation into the FEIS. However, a number of mitigation options, including watershed restoration and the use of artificial reefs, are discussed in programmatic nature in Volume 4, Section 11.2 of the FEIS. DoD recognizes that, as part of the CWA Sec. 404 permitting process, additional NEPA documentation may be required to address specific permitting requirements and implementation of required compensatory mitigations.

Fourth Comment

A detailed compensatory mitigation plan would be submitted as part of the Clean Water Act 404 permit application for construction affecting the navigable waters of the United States (including the CVN transient wharf). Due to the ongoing review of DoD's habitat assessment methodology for coral reef ecosystems and associated uncertainties regarding the scope of mitigation required, a detailed mitigation plan has not been developed nor will one be available for incorporation into the FEIS. However, a number of mitigation options, including watershed restoration and the use of artificial reefs, are discussed in programmatic nature in Volume 4, Section 11.2 of the FEIS. DoD recognizes that, as part of the CWA Sec. 404 permitting process, additional NEPA documentation may be required to address specific permitting requirements and implementation of required compensatory mitigations.

Fifth Comment

Text revisions will be made as appropriate to ensure consistency of the

NMFS Detailed Comments on Draft Environmental Impact Statement/Overseas Environmental Impact Statement for the Guam and Commonwealth of the Northern Mariana Islands Relocation

A-012-097	Vol 4	11	47	2nd to last para	Need justification for those selected species expected to colonize new "habitat"; If the species are poorly represented now, that does not mean that with potentially more physical space available they will flourish.	Modify text
	Vol 4	11	49	Bullets	Reality vs. impact analysis... not a discussion point. The information and impacts to be assessed is what is contained in the impact analysis.	Edit text
	Vol 4	11	5		Modify presentation of Biotope description which is lengthy, irrelevant and arguably inaccurate. Rather than describing affected environment as three different major biotopes, indicate that there are three different types of benthic areas that may be impacted. Use of "Biotopes" indicates that not only conditions but also biological assemblages are uniform, which is unknown without supporting quantitative data of both conditions and biology. Further categorization into "Rubble; mud, sand", "algal beds", "mixed coral-algae", " <i>P. lutea</i> " and " <i>A. aspera</i> " reef patch margins. "Mixed coral communities", " <i>P. rus</i> supra-colonies" and "Coral on sediment" is inappropriate. For example, rubble versus mud versus sand can constitute very different types of habitats/communities posing the question whether these should be lumped as one "biotope". Splitting of habitat types is also inappropriate as done for "mixed coral communities", "mixed coral-algae" and "algal beds" as these community changes across an area are usually gradual.	Modify organization and delivery
	Vol 4	11	58	2nd paragraph	What previous fieldwork and studies? References should be cited	Provide citations.
	Vol 4	11	6	Sand and mud plains	Mention is made of visible burrows/holes in sand-mud plains. These are not associated with any particular burrowing species	Identify fauna associated with burrows.
	Vol 4	11	66	Last paragraph	Repeat of paragraph from pg. 11-65	Edit text
	Vol 4	11	67	non-native species	Cannot make the argument that non-native species will enhance the community assemblage and diversity. They are usually a problem, not a benefit to community diversity.	Modify text

evaluation.

Sixth Comment

Text has been revised to show the relevancy of other studies to the proposed DoD actions.

A-012-086

Thank you for your comment.

1.All relevant information has been included in the EIS.

2.The noted report was used to describe the affected environment and is not included in the Appendices, however, all references are available through NAVFAC Pacific.

3.The analysis used is the best available scientific information on the sediment composition within the impact area in Apra Harbor.

4. The Appendix has been revised.

5. The FEIS has been revised as noted.

A-012-087

Thank you for your comment. A detailed compensatory mitigation plan would be submitted as part of the Clean Water Act 404 permit application for construction affecting the navigable waters of the United States (including the CVN transient wharf). Due to the ongoing review of DoD's habitat assessment methodology for coral reef ecosystems and associated uncertainties regarding the scope of mitigation required, a

A-012-098				
Vol 4	11	6		Marine Flora, Invertebrates, and associated EFH. It is stated that, "The photos are not necessarily representative of conditions throughout each secondary biotope". We recommend representative photos be used or those presented that, "are not necessarily representative of conditions throughout each secondary biotope" be removed.
Vol 4	11	6		Eight secondary biotopes of the survey area: T. Hughes (a paid Navy reviewer, Appendix J, Section 3), correctly pointed out that "Figure 22 [graphic representation of the Bray-Curtis similarity indices said to reveal 7 distinct community groupings] doesn't support 7 clusters very well – it looks more like three (corals, macroalgae and mud). Later the PCA finds no support for clear assemblages." Division of habitats into eight secondary biotopes is not supported by the data collected, and later analysis does not make use of this information. . The discussion of community sub-types either need to be supported by meaningful data from the field or removed from the DEIS
Vol 4	11	6		Rubble, mud and sand: It is unclear how 46 ac equals 35 % of the total area. The discussion of community sub-types either need to be supported by meaningful data from the field or removed from the DEIS
Vol 4	11	7	Sand and mud plains	Not clear: is this sentence saying that the harbor floor or the transects associated with Polaris Pt and Former SRF are composed almost entirely of rubble and sand? Also, "almost entirely" – provide a more accurate description based on the transect data if available (i.e. a % cover) Clarify text
Vol 4	11	7	Mixed coral and algae	"pure" community not clear, nor scientifically accurate. Community can mean two or more populations of different species occupying the same geographical area. Clarify text

detailed mitigation plan has not been developed nor will one be available for incorporation into the FEIS. However, a number of mitigation options, including watershed restoration and the use of artificial reefs, are discussed in programmatic nature in Volume 4, Section 11.2 of the FEIS. DoD recognizes that, as part of the CWA Sec. 404 permitting process, additional NEPA documentation may be required to address specific permitting requirements and implementation of required compensatory mitigations.

A-012-088

Thank you for your comment. Habitat assessment methodologies which evaluate the function of affected aquatic resources, such as coral reef ecosystems, are an evolving science and the adequacies of existing and new methodologies are heavily debated in the scientific community. Ideally, a standard assessment technique that accurately characterizes and quantifies losses and gains of coral reef ecosystem functions would be used. However, rulemaking for the Compensatory Mitigation Rule recognizes the wide variety of aquatic resources present in the United States and the evolving nature of science regarding aquatic ecosystem restoration make the establishment of standard assessment methodologies impracticable. The assessment for this EIS used an historically approved methodology (percent coral cover), supplemented by other methods such as the use of Light Detection and Ranging (LIDAR) satellite photos, for quantifying impacts to affected coral reef ecosystems impacted by the proposed transient CVN wharf and associated dredging. DoD believes that use of the percent coral cover methodology, supplemented by use of LIDAR satellite photos, is the "best currently available science" to attempt to capture the thousands of elements that comprise the function of a coral reef ecosystem. DoD's assessment is currently under review by the US Army Corps of Engineers, the agency charged with implementing dredge and fill permits under CWA Section 404, and other Federal agencies. The FEIS will be updated to reflect the latest developments in this review.

A-012-099				
Vol 4	11	71	List specifically the avoidance measures, not only on scale of the two options/alternatives proposed for sub-action, but on larger scale for overarching action and sub-action level. Mostly minimization measures listed. Some are not BMP's per se (e.g. monitoring), many BMP's are basic conditions of permits.	Edit text
Vol 4	11	75	Use a different metric than coral cover plus rugosity input to HEA as this does not capture functionality of impacted coral reef community and/or EFH. Incorporate the size structure and the community composition of coral at the very least. Also justify why only coral, and not for example soft sediment, and algal communities are incorporated. Coral acreage loss estimates arrived at are not meaningful in terms of translating this to functions that need to be mitigated. Support many assumptions made in calculation service loss and duration of injury. Remove Table 11.2-8 and 11.2-9 which provide little useful information.	Address functional assessment deficiencies and modify delivery and content of information.
Vol 4	11	8 11.1.2.1	Patch reef margins – A. aspera mat, Page 11-8 to 11-9: The species designation of this branching coral as Acropora aspera is questioned and should be reviewed/addressed. Discussions with local resource agency personnel suggest that Acropora mortality observed was more likely a result of bleaching and/or coral disease, not sponge induced mortality as suggested.	Either correct or support the supposition of sponge induced mortality of coral branches, particularly on sections where sponges were not observed.
Vol 4	11	81	Justify the choice of artificial reefs option as preferred mitigation project by providing quantitative ecologically relevant information linking how the artificial structure would compensate for impacted/lost ecological functions and services. Ensure that the USACE Mitigation criteria in 2008 Mitigation Rule are met.	Insufficient information was provided to support the preferred artificial reef mitigation proposal. Need to provide supporting data and research to defend the artificial reef alternative.
Vol 4	11	9 11.1.2.1	Mixed coral communities, Page 11-9: The majority of coral species at the site display in-determinant growth, which simply means their size is not genetically predetermined/constrained. Porites lutea, number 4 in the 3 of 4 mentioned most common corals, also displays in-determinant growth. There is thus an error in suggesting only 3 of the 4 most common species show in-determinant growth.	Correct the material and provide appropriate descriptions and associated definitions be used.

A detailed compensatory mitigation plan would be submitted as part of the Clean Water Act 404 permit application for construction affecting the navigable waters of the United States (including the CVN transient wharf). Due to the ongoing review of DoD's habitat assessment methodology for coral reef ecosystems and associated uncertainties regarding the scope of mitigation required, a detailed mitigation plan has not been developed nor will one be available for incorporation into the FEIS. However, a number of mitigation options, including watershed restoration and the use of artificial reefs, are discussed in programmatic nature in Volume 4, Section 11.2 of the FEIS. DoD recognizes that, as part of the CWA Sec. 404 permitting process, additional NEPA documentation may be required to address specific permitting requirements and implementation of required compensatory mitigations.

A-012-089

Thank you for your comment. The Navy has worked with and coordinated meetings with the resource agencies over the last three years discussing Habitat Equivalency Analysis (HEA) approach and methodologies. The Navy has invited them to perform surveys, and attended a USFWS hosted HEA workshop in 2008 (Guam agencies were unable to attend due to scheduling difficulties). The Navy has addressed PDEIS comments and concerns, incorporating additional quantitative coral and finfish studies into the DEIS in attempts to alleviate some of these concerns.

As stated by the Department of the Army (17 Feb 2010 response to DEIS), "the employed survey methodology to assess coral reef resources within the proposed CVN wharf and dredge project area has been an extremely contentious subject. Functional assessment methodologies are an evolving science and the adequacies of existing methodologies are heavily debated in the scientific community. A standard functional assessment technique that accurately characterized

A-012-100	4	11	9	Description of actual sizes for any of the "supracolonies" encountered would be useful.	Clarify text
	Vol 4	11	91	Highlight differences between impacts from this option compared to Polaris Point option, e.g. that 10 acres less will be dredged for this option, and 33 acres less in total from both direct and indirect impacts. 33 acres is a substantial difference when impact to coral found at 60ft + depth, and soft sediment communities and EFH are also taken in to account. Conduct and add cumulative impact analysis to the evaluation.	Incorporate requested information and present new assessment.
	Vol 4	11	94	1st paragraph Direct removal of other benthic habitat could result in indirect adverse effects to EFH due to sedimentation and individual displacement, as presented in table 11.2-11.	Address issue and modify text.
	Vol 4	11	97	How is the conclusion of no adverse effects reached, when previous list of bullets are adverse impacts, as well as those listed in Table 11.2-12?	Conclusion is inconsistent with data presented. Modify conclusion.
	Vol 4	11	99	Clarify in summarized technical terms the direct, indirect and cumulative impacts to Marine biological resources and EFH. The list provided is very general and gives no insight in to any technical assessments/evaluation that has been conducted. Define terms such as "pristine" and "modest ecological value" if these terms are used to describe and further justify dredging impacts. Clarify this argument in light of information provided in Volume 2 that Apra Harbor has some of the highest coral cover reef on Guam. Clarify and justify why eight criteria referred to as determining lack of ecological value of reef were not quantitatively presented, and incorporated in to impact analysis or HEA. Justify and quantify how adverse impacts to EFH can become less than significant by mitigation through BMP's and compensatory mitigation.	Modify evaluation and presentation.

and quantifies losses and gains of coral reef aquatic resource functions, as would ideally be utilized for the proposed action for Section 10/404 compensatory mitigation purposes, is not currently available. Considering that our office will ultimately be responsible for determining compliance with federal regulations requiring an appropriate and practicable functional assessment, we have engaged our Engineer Research and Development center (ERDC) to provided an independent technical review of the adequacy of the employed methodology to date and recommendations for improvements, if necessary. Preliminarily, ERDC has determined that while the methodology is scientifically valid and statistically defensible, a more intensive level of data collection may be necessary to adequately measure habitat function for compensatory mitigation purposes. We expect a more specific and detailed accounting of their review in the coming weeks." The Navy will continue to work with the USACE and EPA/GEPA to satisfy the requirements of Section 10/404 and Section 401 permit documentation.

A-012-090

Thank you for your comment. The Navy collected a robust data set to include coral distribution, benthic cover, fish biomass, and fish and invertebrate species abundance. A standard functional assessment technique that accurately characterized and quantifies losses and gains of coral aquatic resource functions, would ideally be used. However, functional assessment methodologies are an evolving science and the adequacies of existing methodologies are heavily debated in the scientific community. Further, the Compensatory Mitigation Rule recognizes the evolving nature of science on this issue and does not mandate any particular assessment methodology. The Navy assessment used a historically approved methodology followed by the USACE and NMFS for quantifying impacts to coral reef ecosystems. For well over 30 years coral reef ecosystem monitoring and impact assessments have been based on percent coral cover. Due to the complexity of this ecosystem percent coral cover has been identified as

A-012-101	Vol 4	11	10	11.1.2.1	Porites rus "Supracolonies", Page 11-9: It should be clarified that the tissue of the separate colonies does not fuse, and that multiple colonies in such tight aggregations maintain their individual characteristics and compete for space. Tissue loss of one colony may lead to encrustation over abandoned skeleton of another, but not tissue fusion. Such formations provide interesting topographic features that result from high coral density; however, the language presented should not allow for any misrepresentation that individual colonies in these high density formations lose their individual attributes, and should be changed accordingly. It should also be noted that colonies in such high density formations within the impact zone are not necessarily limited to one species. Misidentification of species composition in high density "Porites rus" areas was made evident by a comparison study of data from 30 transects used in this report (Minton et al. 2009).	
	Vol 4 Cont inued				Reference to Porites rus should actually be changed to Porites rus/horizontalata (throughout the document), as both Porites rus and Porites horizontalata occur on site in high aggregation areas. Dollar et al. (2009) do not appear to have been able to distinguish Porites horizontalata from their photographs. We recommend such changes be made throughout Chapter 11 and the entire DEIS. Also, we recommend clarity be provided, as recommended by T. Hughes (a paid Navy reviewer, Appendix J, Section 3) regarding what exactly "a whole ecological identity" means.	Insert corrected information

"the best current available science" standard (or proxy) to attempt capturing the thousands of elements that comprise a coral reef ecosystem. In light of the continued dispute on what parameters need to be collected to fully capture the impact to coral reefs, the Navy's assessment is currently under review by USACE. Upon completion of that in-depth review, if USACE feels additional information is warranted the Navy will seek additional data and revise its analysis appropriately.

A-012-091

Thank you for your comment. Habitat assessment methodologies which evaluate the function of affected aquatic resources, such as coral reef ecosystems, are an evolving science and the adequacies of existing and new methodologies are heavily debated in the scientific community. Ideally, a standard assessment technique that accurately characterizes and quantifies losses and gains of coral reef ecosystem functions would be used. However, rulemaking for the Compensatory Mitigation Rule recognizes the wide variety of aquatic resources present in the United States and the evolving nature of science regarding aquatic ecosystem restoration make the establishment of standard assessment methodologies impracticable. The assessment for this EIS used an historically approved methodology (percent coral cover), supplemented by other methods such as the use of Light Detection and Ranging (LIDAR) satellite photos, for quantifying impacts to affected coral reef ecosystems impacted by the proposed transient CVN wharf and associated dredging. DoD believes that use of the percent coral cover methodology, supplemented by use of LIDAR satellite photos, is the "best currently available science" to attempt to capture the thousands of elements that comprise the function of a coral reef ecosystem. DoD's assessment is currently under review by the US Army Corps of Engineers, the agency charged with implementing dredge and fill permits

A-012-102	Vol me 4	2	1	Clarify how the 2009 MIRC dEIS and 2006 Establishment and Operation of Intelligence, Surveillance, Reconnaissance and Strike capability EIS address environmental compliance of actions connected to this action so that appropriate impact analysis can be conducted in this dEIS.		
				Clarify the scope of the analysis for the proposed action, and justify whether the Polaris Point and Former SRF location options are in fact adequately different to qualify as alternatives under the sub-action. It is stated that there are two locations considered for development of the new wharf in specifically Outer Apra Harbor in Guam under the proposed action. These options are subsequently referred to as action alternatives, and are compared with no action alternative in the chapter when the two appear to be embedded within the same alternative.		Clarify Text
A-012-103	Vol 4	10	2	4.2.2.2	Physical impact to nearshore waters from dredging, Page 4-10: It is suggested that re-suspension of sediments and increased turbidity could adversely affect marine corals and filter-feeding invertebrates. While true, the statement is very limited in describing the types of organisms and processes that sediment suspension and turbidity will effect. Recommend use of a more general statement, "... that could adversely affect marine life and geologic processes of reef development."	Consider recommendation
					Physical impact to nearshore waters from dredging, Page 4-10, 4-11: The document describing sediment sampling protocols and findings (NAVFAC Pacific, 2006) is not, but should be, provided within the Appendices.	Include reference to Volume 9 Appendix E be made, as it provides information relevant to this section.
					Physical impact to nearshore waters from dredging, Page 4-11: Volume 4, Chapter 4, Section 4.2.2.2, Physical impact to nearshore waters from dredging, Page 4-10, 4-11: The characterization of rapid sediment settling rates are not well supported by the limited data and reports provided. Although the relative majority of the weight in the various sediment samples may have been associated with grain sizes exceeding fines, the volume of fine materials appears large and will play a substantial role in defining levels and duration of turbidity in the impact area.	Clearly defined and describe impact of fine sediment...

under CWA Section 404, and other Federal agencies. The FEIS will be updated to reflect the latest developments in this review.

A-012-092

Thank you for your comment.

All relevant data identifying impacts associated with the proposed action is included in the DEIS. Figure 11.1-2 in the DEIS shows the noted data points.

The Smith 2007 report has been included in the Appendices.

Comment noted. Noted figure is Table 11.1-4 in the EIS. Pursuant to regulations covering managed fisheries and EFH assessments, the appropriate MUS have been identified. As noted in Volume 4, Chapter 4, all of Apra Harbor is characterized as M-2, or "good quality," for water quality. The relevant affected benthic communities have been appropriately characterized, as described in Volume 4, Chapter 11.

Appropriate surveys have been conducted and noted in Volume 4, Chapter 4.

The FEIS has been revised to provide a clearer definition of temporary impacts.

The statement is taken from a report prepared by the University of Guam and notes their observations of the affected area. No further clarification is required.

A-012-093

Thank you for your comment.

1. Text has been corrected.

NMFS Detailed Comments on Draft Environmental Impact Statement/Overseas Environmental Impact Statement for the Guam and Commonwealth of the Northern Mariana Islands Relocation

A-012-104	Vol 4	2	13	Does the reduced clearance option for the parallel alignment eliminate the excavation of the outcrop of land with coral cover entirely, or just reduce the amount of land excavated? Please clarify whether this reduced clearance option reduces impacts to corals or eliminates impacts entirely.	Clarify information.	
	Vol 4	2	18	fig 2.3.3 and 4	Provide current standing on the legitimacy of the designation of the Sasa Bay Marine Preserve	
	Vol 4	2	19	2.3.4.1	Discussion of concrete vs. steel piling does not sufficiently address environmental concerns or impacts related to each.	Provide clarity.
	Vol 4	2	23	2.3.4.1	Mechanical dredging is assessed as an environmental maximum potential adverse affect method, but is the preferred method (over hydraulic). Explain.	
A-012-105	Vol 4	4	18	4.2.3.1	Surface water/storm water, Page 4-18: Clarification should be provided regarding the characterization of Alternative 2 dredging impacts to surface waters as being only "slightly less" compared to Alternative 1 as "the volume of dredged material would be less under Alternative 2". Approximately 27 % more material by volume (129,000 cy) is proposed to be dredged under Alternative 1.	Edit text
A-012-106	Vol 4	2	1		It is implied that the 2009 MIRC dEIS and 2006 Establishment and Operation of an Intelligence, surveillance, reconnaissance and strike capability EIS addresses the environmental compliance of actions connected to this action. Their is insufficient information provided to conduct appropriate impact analysis on this issue.	Provide additional information to complete this analysis
	Vol 4	2	1		At the bottom of the first page (2-1) of the chapter it is stated that there are two locations considered for siting of the new wharf under the proposed action. These are referred to as action alternatives, and are said to be described together with no action alternative in the chapter. This implies that these are two appropriate alternatives under NEPA, yet there is no clear understanding of the scope of analysis. The two locations/options are in fact embedded within the same alternative, with probably very similar impacts and cannot be considered to be two different alternatives. Thus any further referral to these options as separate "alternatives" is inappropriate and confusing.	Edit document to support the two alternatives

2-4. Habitat assessment methodologies which evaluate the function of affected aquatic resources, such as coral reef ecosystems, are an evolving science and the adequacies of existing and new methodologies are heavily debated in the scientific community. Ideally, a standard assessment technique that accurately characterizes and quantifies losses and gains of coral reef ecosystem functions would be used. However, rulemaking for the Compensatory Mitigation Rule recognizes the wide variety of aquatic resources present in the United States and the evolving nature of science regarding aquatic ecosystem restoration make the establishment of standard assessment methodologies impracticable. The assessment for this EIS used an historically approved methodology (percent coral cover), supplemented by other methods such as the use of Light Detection and Ranging (LIDAR) satellite photos, for quantifying impacts to affected coral reef ecosystems impacted by the proposed transient CVN wharf and associated dredging. DoD believes that use of the percent coral cover methodology, supplemented by use of LIDAR satellite photos, is the "best currently available science" to attempt to capture the thousands of elements that comprise the function of a coral reef ecosystem. DoD's assessment is currently under review by the US Army Corps of Engineers, the agency charged with implementing dredge and fill permits under CWA Section 404, and other Federal agencies. The FEIS will be updated to reflect the latest developments in this review.

A-012-094

Thank you for your comment.

Habitat assessment methodologies which evaluate the function of affected aquatic resources, such as coral reef ecosystems, are an evolving science and the adequacies of existing and new methodologies are heavily debated in the scientific community. Ideally, a standard assessment technique that accurately characterizes and quantifies losses and gains of coral reef ecosystem functions would be used.

A-012-107	Vol 4	4	20	4.2.3.4	Nearshore waters, Page 4-20 and 4-21 : The additional details in Chapter 11 do little to clarify the contention that Alternative 2 would have greater effects on the "high quality coral reef habitat and its associated Endangered Species Act (ESA)-listed species" at Big Blue reef. The characterization of enhanced risk should be supported with appropriate data and analysis, which presently appears inconsistent and, in many aspects lacking.	provide clarity by presenting adequate data
A-012-108	Vol 4	2	28		The two alternatives carried forward, are in fact two separate components under the proposed action as stated in the overview (p.2-1), and not two separate alternatives. An appropriate impact analysis cannot be conducted on only these two alternatives which are too similar in nature. Since dredging is involved, the CWA section 404 (b)(1) guidelines need to be applied further supporting the need to widen scope of alternatives analysis. It could be argued that KILO Wharf for example is the LEDPA.	Widen the scope of alternatives presented.
	Volume 4	2	28		Justify the appropriateness to carry forward the two separate components under the proposed action as stated in the overview (p.2-1) as two separate alternatives. An appropriate impact analysis cannot be conducted if these two alternatives are too similar in nature. Since dredging is involved, the CWA section 404 (b)(1) guidelines and LEDPA analysis needs to be applied potentially driving the need to widen scope of alternatives analysis (e.g. the LEDPA may be Kilo Wharf, elsewhere in Guam, elsewhere in Pacific).	Modify Text
A-012-109	Vol 4	3	55		Explain how much of the dredged area w/in the channel bend is coral habitat (from Fig.2.6-5, appears a substantial SE corner of middle shoals will be impacted)	Address issue in description of dredge impact.

However, rulemaking for the Compensatory Mitigation Rule recognizes the wide variety of aquatic resources present in the United States and the evolving nature of science regarding aquatic ecosystem restoration make the establishment of standard assessment methodologies impracticable. The assessment for this EIS used an historically approved methodology (percent coral cover), supplemented by other methods such as the use of Light Detection and Ranging (LIDAR) satellite photos, for quantifying impacts to affected coral reef ecosystems impacted by the proposed transient CVN wharf and associated dredging. DoD believes that use of the percent coral cover methodology, supplemented by use of LIDAR satellite photos, is the "best currently available science" to attempt to capture the thousands of elements that comprise the function of a coral reef ecosystem. DoD's assessment is currently under review by the US Army Corps of Engineers, the agency charged with implementing dredge and fill permits under CWA Section 404, and other Federal agencies. The FEIS will be updated to reflect the latest developments in this review.

A detailed compensatory mitigation plan would be submitted as part of the Clean Water Act 404 permit application for construction affecting the navigable waters of the United States (including the CVN transient wharf). Due to the ongoing review of DoD's habitat assessment methodology for coral reef ecosystems and associated uncertainties regarding the scope of mitigation required, a detailed mitigation plan has not been developed nor will one be available for incorporation into the FEIS. However, a number of mitigation options, including watershed restoration and the use of artificial reefs, are discussed in programmatic nature in Volume 4, Section 11.2 of the FEIS. DoD recognizes that, as part of the CWA Sec. 404 permitting process, additional NEPA documentation may be required to address specific permitting requirements and implementation of required compensatory mitigations.

A-012-110			<p>Modify structure and clarify content of this section. The alternatives, the one proposed (including two separate locations), no action and other alternatives should be listed up front. The ability of these to meet stated operational and support facility requirements should then be fully explored one by one. The components explored for the action, i.e. wharf location, wharf alignment, turning basin and channel, should be evaluated within the context of each alternative, instead of locations being evaluated in context of these components. The alternatives analysis summary table (p.2-9) for example is confusing, it seems unlikely that the turning basin and/or channel components can be dismissed based on impact analysis if not placed in context of all components making up the alternative. This is another situation where the actions/activities are broken down and out of context of alternative as a whole with consequent loss of clear scope.</p> <p>Justify why Kilo Wharf cannot be expanded or current usage by smaller munitions vessels moved elsewhere (p.2-12).</p>	
Vol me 4	2	6	<p>This section is confusing in its structure and thus content. The alternatives, the one proposed (including two separate locations), no action and handful of other alternatives should be listed up front. The ability of these to meet stated operational and support facility requirements should then be fully explored one by one. The components explored for the action, i.e. wharf location, wharf alignment, turning basin and channel, should be evaluated within the context of each alternative, instead of locations being evaluated in context of these components. The alternatives analysis summary table (p.2-9) for example is confusing, it seems unlikely that the turning basin and/or channel components can be dismissed based on impact analysis if not placed in context of all components making up the alternative. This is another situation where the actions/activities are broken down and out of context of alternative as a whole with consequent loss of clear scope.</p>	<p>Clarify Text</p> <p>Reformat section and populate information for each alternative.</p>

A-012-095

Thank you for your comment. References have been updated in the FEIS as appropriate.

References to Navy diver observations have been added to the FEIS.

The proposed action would not occur in Pearl Harbor.

A-012-096

Thank you for your comments.

First set of comments:

Text deletions and additions have been performed as appropriate to clarify the Chapter. There is no requirement under Magnuson Stevens Fisheries Conservation and Management Act to mitigate for loss of EFH. While it is true that NMFS may recommend actions to compensate for impacts to EFH, through Conservation Recommendations, mitigation is not required. Regarding BMPs, the Navy will implement mitigation measures and BMPs during in-water activities (dredging, wharf construction) as specified in Army Corps permits. Examples of some potential BMP's are silt curtains, biological monitoring to protect sea turtles, and restricting dredging activities during potential coral spawning months. Mitigation may be required after USACE review of the Navy CWA 404 permit application.

Second Comment.

The Tables have been modified as deemed appropriate per your comments. Note that Table 11.2-5 was added after the PDEIS per resource agency comment, and are both very similar. Table 11.2-6, includes the quantitative summary the commenter is looking for. Note also, Volume 7 provides information regarding BMPs.

A-012-111				Not fully explained why Kilo Wharf cannot be expanded, or current usage by smaller munitions vessels moved elsewhere (p.2-12). Impression that proposed action alternative was decided on before alternatives analysis was conducted and that alternatives are evaluated with this preferred choice in mind.	Provide explanation for why KILO Wharf cannot be expanded.
Vol 4	2	6			
A-012-112				“Geology” in the document, and thus relevant consideration of the proposed project impacts to “Geological Resources”. Geology is the study of the Earth, the materials of which it is made, the structure of those materials, and the processes acting upon them. Offshore resources proposed to be impacted under alternatives 1 and 2 are coral reef ecosystems, with substantial areas of previously accreted structure as well as continuing accretion and topographic formation (process) by coral reef organisms. Page 3-6 states, “Direct impacts to benthic habitats and their organisms would result from the proposed dredging activities. The underwater topography would change somewhat in that dredging of coral within the turning basin area would remove underwater structural relief. Areas that are dredged would change from coral cover to sand ...”. Corals and other organisms within the area are a major part of the process defined as geology. The suggestion in Tables 3.2-2 (p. 3-6) and 3.2-3 that minimal impacts to geological resources from both dredging (construction) and operations within the approximately 50 acre area of coral reef proposed to be dredged is not supported and lacks merit. The suggestion	
Vol 3	3			Page 3-8, Section 3.2.4 line 3-4: The suggestion that the no action alternative would have impacts to geology or soils is not followed up with a description of such impacts and is inconsistent with information presented in Table 3.2-4 p 3-9 Summary of impacts.	
Vol 3	3	8			Clarify and correct text

As described in the EIS, Impacts are long-term, periodic and localized = 4 extra trips/year above no-action (long-term) periodic (not continuous) and localized (limited to a certain area). Qualitatively evaluating the impacts of 4 extra trips through Apra Harbor and nearshore environment is commensurate to the anticipated impact and appropriate for this NEPA analysis.

Third Comment

After a careful review, it is our contention that these quotes have been used within the appropriate context and those that are misleading have been removed as appropriate. Benthic organisms in general - the reference does not differentiate.

A-012-097

Thank you for your comment.

First Comment

Text modifications have been made as appropriate to justify this premise.

Second Comment

Recommendation noted. The bulleted points are made to add information to the impact analysis. No text modified.

Third Comment

<p>A-012-113</p> <p>Vol 3 Cont inued</p>			<p>Corals and other organisms within the area are a major part of the process defined as geology. The suggestion in Tables 3.2-2 (p. 3-6) and 3.2-3 that minimal impacts to geological resources from both dredging (construction) and operations within the approximately 50 acre area of coral reef proposed to be dredged is not supported and lacks merit. The suggestion in Table 3.2-4 that "No impact" will occur to geological resources under alternatives 1 and 2 contradicts statements made on P. 3-6, within Tables 3.2-2 and 3.2.3 and lacks merit. The suggestion in Table 3.2-4 that less than a significant impact/minimal impact will occur to topography in Apra Harbor lacks appropriate explanation and merit. All structure above what is considered a minimum dredge depth of -49.5 ft is proposed to be flattened, and geological processes of recovery are proposed to be inhibited by a stated transition from coral cover to sand. The geological resources and topographic structure are not adequately characterized, nor is the basis for determination of no or no significance impact.</p>	<p>No analysis is presented in support of the conclusions made. The presentation of information pertaining to the geology and associated impacts needs to be amended to accurately reflect the issues based on proposed actions.</p>
<p>A-012-114</p> <p>Vol 4</p>	4		<p>General Comment: Citations found throughout this chapter are not listed within the reference section. In addition, there are numerous areas within the text where reference to particular supporting appendices appears warranted.</p>	<p>Cite reference and look to incorporate reference where warranted.</p>
<p>A-012-115</p> <p>Vol 4</p>	4	10	<p>4th line: not necessary to say "marine corals". Remove "marine" from sentence. Also, same sentence: increased turbidity could adversely affect corals, invertebrates, as well as fish and other marine organisms (turtles, etc.). Suggested amending sentence to include other marine biota that can be impacted from increased turbidity. Also, this section does not adequately describe the actual impacts to the marine environment – just states that they could be "adversely affected". More information needed.</p>	<p>Modify delivery and text to address issues.</p>
<p>A-012-116</p> <p>Vol 4</p>	4	11	<p>Provide the estimated length of time the silt curtains would be in place "to provide residence time to allow soil particles to settle out of suspension and reduce flow to other areas"</p>	<p>Clarify information.</p>
<p>Vol 4</p>	4	11	<p>3rd paragraph Silty sediments along berthing areas, of resuspended sediment would not settle out rapidly, as stated. This conclusion may be misleading.</p>	<p>Insufficient data to support finding. Provide data or revise finding.</p>

Habitat assessment methodologies which evaluate the function of affected aquatic resources, such as coral reef ecosystems, are an evolving science and the adequacies of existing and new methodologies are heavily debated in the scientific community. Ideally, a standard assessment technique that accurately characterizes and quantifies losses and gains of coral reef ecosystem functions would be used. However, rulemaking for the Compensatory Mitigation Rule recognizes the wide variety of aquatic resources present in the United States and the evolving nature of science regarding aquatic ecosystem restoration make the establishment of standard assessment methodologies impracticable. The assessment for this EIS used an historically approved methodology (percent coral cover), supplemented by other methods such as the use of Light Detection and Ranging (LIDAR) satellite photos, for quantifying impacts to affected coral reef ecosystems impacted by the proposed transient CVN wharf and associated dredging. DoD believes that use of the percent coral cover methodology, supplemented by use of LIDAR satellite photos, is the "best currently available science" to attempt to capture the thousands of elements that comprise the function of a coral reef ecosystem. DoD's assessment is currently under review by the US Army Corps of Engineers, the agency charged with implementing dredge and fill permits under CWA Section 404, and other Federal agencies. The FEIS will be updated to reflect the latest developments in this review.

Fourth Comment

Reference has been added to the FEIS.

Fifth Comment

Text changes have been made in the FEIS as appropriate.

Sixth Comment

NMFS Detailed Comments on Draft Environmental Impact Statement/Overseas Environmental Impact Statement for the Guam and Commonwealth of the Northern Mariana Islands Relocation

A-012-117	Vol 4	4	13	4.2.2	States: "ambient water conditions would return shortly after ship movement ceases in the harbor". "Shortly" is subjective, and does not sufficiently describe the duration of the suspended sediments and/or turbid conditions.	Clarify issue.
	Vol 4	4	15		How was the dilution time of 4 hours estimated? Justify.	Insufficient data to support finding. Provide data or revise finding.
A-012-118					Alternative 1: Again, in general: Re-evaluate conclusions that there will be less than significant impacts to nearshore waters. Sources of impacts and mechanisms by which impact might occur have been identified, yet the overall impacts have not been quantified. It is thus not possible to evaluate impacts to Apra Harbor water quality [and thus EFH/Marine Habitats]. Evaluate impacts to water quality not only from construction but also operational actions so get at full range of impacts to water quality [and thus EFH/Marine Habitats].	The information submitted is insufficient to draw the conclusions made. Provide analysis and present data to justify conclusion. Incorporate issues and modify text.
A-012-119					Quantify how sediment plumes generated from increased vessel movement will affect entire channel area.	
A-012-120	Vol 4	4	16		Clarify how wastewater will be sufficiently handled so it does not contribute to impacts.	Incorporate issues and modify text.
A-012-121	Vol 4	4	16	nearshore waters	States that the dredging will reduce the sediment resuspension by ship propellers, but this does not factor in the increase ship traffic including the carrier berthing impacts.	Assessment needs to define resultant impacts on resuspension associated with increased ship traffic and compare the to existing conditions.
	Vol 4	4	16	nearshore waters	Not clear how the increase in proposed aircraft carrier visits to Apra Harbor would not increase the amount of hull coating leachate. With increased carrier visits and longer durations in the harbor, there will be an increase in hull coating leachate, increasing environmental risks to the waters.	Modify text

Text has been deleted in the FEIS as appropriate.

Seventh Comment

Text corrected to reflect non-native species will not enhance benthic ecosystem post dredging.

A-012-098

Thank you for your comment.

Text has been revised to note that photos are representative visual examples.

The Navy collected a robust data set to include coral distribution, benthic cover, fish biomass, and fish and invertebrate species abundance. For clarification see Volume 4, Chapter 11, Section 11.1.2.3.

Text has been revised appropriately.

Text has been revised.

Text has been revised.

A-012-099

Thank you for your comment.

1. The specific BMPs that will be implemented will be generated in discussions with the USACE during the CWA permitting process. Because this process has yet to occur, the Navy cannot commit to any specific BMPs in the FEIS.

2. Habitat assessment methodologies which evaluate the function of affected aquatic resources, such as coral reef ecosystems, are an

A-012-122	Vol 4	4	16	Operations associated with Alt. 1 resulting in less than significant impacts to nearshore waters is not a justified, nor scientifically accurate statement, particularly when on the following page there is a table which describes the impacts associated with Alt 1. There will be direct, significant impacts to coral reef habitat as well as non-coral benthic organisms. (This is clearly stated in several sections within Vol 4, which makes this statement inconsistent and not justified.	Insufficient data to support finding. Provide data or revise finding.
	Vol 4	4	17	Alternative 1: Modify table 4.2-3 (which provides little useful information for evaluation) to show total quantified impacts to each water type (surface, ground, wetland and neashore) rather than the output, i.e. list, of type of impacts. List how BMP's will be implemented, how they will in fact mitigate effects, and estimate using evidence how efficient they will likely be. All these BMP's are implemented currently, yet land based pollution is a huge threat to water quality of nearshore waters (and thus EFH/Marine Habitats) in Guam (stated throughout this dEIS) and also across the Globe.	Incorporate issues and modify text
	Vol 4	4	18	Alternative 2: Re-evaluate conclusions that there will be less than significant impacts to surface, groundwater, wetlands and nearshore waters (and thus EFH/Marine Habitats). As this "alternative" is very similar to the Polaris Point option, this impact analysis is similarly limited: sources of impacts and mechanisms by which impact might occur have been identified, yet the overall impacts have not been quantified. It is thus not possible to evaluate impacts to Apra Harbor	The information submitted is insufficient to draw the conclusions made. Provide analysis and present data to justify conclusion. Incorporate issues and modify text.
	Vol 4	4	19	No action alternative: Provide added evidence to support conclusions that existing conditions will remain the same.	The information submitted is insufficient to draw the conclusions made. Provide analysis and present data to justify conclusion. Incorporate issues and modify text.

evolving science and the adequacies of existing and new methodologies are heavily debated in the scientific community. Ideally, a standard assessment technique that accurately characterizes and quantifies losses and gains of coral reef ecosystem functions would be used. However, rulemaking for the Compensatory Mitigation Rule recognizes the wide variety of aquatic resources present in the United States and the evolving nature of science regarding aquatic ecosystem restoration make the establishment of standard assessment methodologies impracticable. The assessment for this EIS used an historically approved methodology (percent coral cover), supplemented by other methods such as the use of Light Detection and Ranging (LIDAR) satellite photos, for quantifying impacts to affected coral reef ecosystems impacted by the proposed transient CVN wharf and associated dredging. DoD believes that use of the percent coral cover methodology, supplemented by use of LIDAR satellite photos, is the "best currently available science" to attempt to capture the thousands of elements that comprise the function of a coral reef ecosystem. DoD's assessment is currently under review by the US Army Corps of Engineers, the agency charged with implementing dredge and fill permits under CWA Section 404, and other Federal agencies. The FEIS will be updated to reflect the latest developments in this review.

3. Text revised in the FEIS as appropriate.

4. A detailed compensatory mitigation plan would be submitted as part of the Clean Water Act 404 permit application for construction affecting the navigable waters of the United States (including the CVN transient wharf). Due to the ongoing review of DoD's habitat assessment methodology for coral reef ecosystems and associated uncertainties regarding the scope of mitigation required, a detailed mitigation plan has not been developed nor will one be available for incorporation into the FEIS. However, a number of mitigation options, including watershed restoration and the use of artificial reefs, are discussed in programmatic

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A-012-123	Vol 4	4	1	Define "Region of Influence" ROI, what process has been involved in delineating the region, the justification for delineation and how this overlaps with EFH delineations.	Justify and modify text.
	Vol 4	4	1	Combine impact analyses resulting from construction and operation for surface waters, groundwater, nearshore waters and wetlands, instead of separating these activities. Correct statement that "direct" impacts are those that occur during construction as they may also occur post-construction during operation (e.g. from re-suspension from vessel movement).	Incorporate issues and modify text
	Vol 4	4	21	Considering the discussion of this alternative having greater nearshore impacts due to the proximity to Big Blue Reef (and high quality coral reef habitat), not clear how less than significant impacts reached. There could be direct, significant and long term impacts to coral reefs.	Insufficient data to support finding. Provide data or revise finding.
	Vol 4	4	22	Near shore waters: Provide further evidence to support conclusion that nearshore water quality is likely to improve.	Justify findings by providing supporting data or research.
	A-012-124			Address cumulative impacts to all water resources, which have not been mentioned. At the very least refer to Volume 7 cumulative impacts analysis if information is provided there. Justify how monitoring programs will mitigate impacts as monitoring tend to simply record changes rather than prevent changes. Clarify which and how the BMP's and LID measures will realistically mitigate impacts. Support with evidence, e.g. case studies, literature.	
Vol 4		4	23	Modify table 4.2-5 to show numbers/results, not simply lists/outputs. In order to evaluate impacts, the magnitude and extent of impacts need to be quantified, not simply identified.	Address issued raised and modify text.

nature in Volume 4, Section 11.2 of the FEIS. DoD recognizes that, as part of the CWA Sec. 404 permitting process, additional NEPA documentation may be required to address specific permitting requirements and implementation of required compensatory mitigations.

5. Text has been modified in the FEIS as appropriate to describe coral.

A-012-100

Thank you for your comment.

First Comment

Text has been revised as appropriate to clarify statement.

Second Comment

Text and Table has been revised as appropriate.

Third Comment

Text and Table has been revised as appropriate.

Fourth Comment

Clarification regarding impacts has been provided as appropriate.

A-012-101

Thank you for your comment. Habitat assessment methodologies which evaluate the function of affected aquatic resources, such as coral reef ecosystems, are an evolving science and the adequacies of existing and new methodologies are heavily debated in the scientific community. Ideally, a standard assessment technique that accurately characterizes and quantifies losses and gains of coral reef ecosystem functions would

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A-012-125	Vol 4	4	25	4.3	This section repeats much of the information presented in the first sections of Vol. 4, but also prematurely introduces information/impact analyses that occur later in Vol. 4. Very confusing and difficult to read.	Revise document to order delivery and sequence of information properly
A-012-126	Vol 4	4	25		Summary of potential mitigation measures; Modify table 4.2-6 to show how much of the expected impact the measures will realistically mitigate. As it stands, the table provides little useful information for evaluating effectiveness of BMP's to reduce impacts to nearshore water quality and thus EFH/Marine Habitats.	Modify table with relevant information.
A-012-128	Vol 4	4	25		LEDPA: Modify structure and content of this section so information is more concise and clear. Refer to this section in Chapter 11 on Marine Biological Resources as Coral reefs are considered special aquatic sites under the 404(b)(1) guidelines. Providing this information here and not there creates disjointedness. Discuss the fact that the scope of the NEPA analysis in this dEIS is very narrow, consequently compromising the integrity of the LEDPA analysis which focuses really only on choosing between the two options of developing new wharfs at Polaris and Former SRF.	Address issue and modify text
	Vol 4	4	26		404 (b)(1) guidelines: Define what "environmental impacts" are, and how much weight was placed on these in considered the many different alternatives for CVN berthing.	Modify text.
	Vol 4	4	29	230.1	Description of discharge, Page 4-29: Fill areas are reported as 3.6 acres for alternatives 1 and 2, yet a suggestion is made that alternative 2 will require an additional amount of fill be incorporated between the slips of the finger piers. Clarity should be provided regarding whether this suggestion of "additional" fill relates to additional volume, area or both, and corrected totals should be provided. The document does not provide clarity as to the extent to which area of fill will overlap with area of dredging.	Clarify fill quantify and area

be used. However, rulemaking for the Compensatory Mitigation Rule recognizes the wide variety of aquatic resources present in the United States and the evolving nature of science regarding aquatic ecosystem restoration make the establishment of standard assessment methodologies impracticable. The assessment for this EIS used an historically approved methodology (percent coral cover), supplemented by other methods such as the use of Light Detection and Ranging (LIDAR) satellite photos, for quantifying impacts to affected coral reef ecosystems impacted by the proposed transient CVN wharf and associated dredging. DoD believes that use of the percent coral cover methodology, supplemented by use of LIDAR satellite photos, is the "best currently available science" to attempt to capture the thousands of elements that comprise the function of a coral reef ecosystem. DoD's assessment is currently under review by the US Army Corps of Engineers, the agency charged with implementing dredge and fill permits under CWA Section 404, and other Federal agencies. The FEIS will be updated to reflect the latest developments in this review.

A-012-102

Thank you for your comment. Within the context of the noted paragraph in Section 2.1, this paragraph notes that there would be training activities associated with the airwing onboard the carrier. These training activities have already been addressed and documented for their compliance with NEPA and regulatory coordination through the NEPA process conducted for the Intelligence, Surveillance, Reconnaissance (ISR) EIS and Mariana Islands Range Complex (MIRC) EIS. Re-evaluation of the impacts of training activities in both the ISR and MIRC EIS is not necessary in this EIS although they are given appropriate consideration in terms of their cumulative impacts along with the proposed action. Comment noted. We do not concur that there is actually only one alternative considered with "embedded" options of the same alternative and then only the No Action Alternative. To provide clarification, text has been added to the last paragraph on page 2-1 noting the array of

A-012-129	Vol 4	4	30	230.11	Factual determinations, Page 11-30: The conclusion that impacts to non-coral substrate would be localized and not significant is not supported by appropriate data and analysis. Impacts to communities and habitats below 60 ft within the direct impact zone should be, but are not considered. Impacts in these areas should be expected to result from excessive sedimentation and domino type collision effects of material falling down slope. The area of impact and communities at risk have not been characterized, but may be substantial. Full characterization of these habitats, communities and impact risk should be presented. The conclusion that permanent impacts to non-coral benthic organisms (not including corals) would be less than significant appears to have been reached in the absence of appropriate data and analysis. Appropriate data collection and analysis will be required to assess proposed impacts.	Insufficient data presented to draw conclusions made. Present additional data.
A-012-130	Vol 4	4	30	230.11	Factual determinations, Page 11-30: Information is lacking to support the conclusion that "pre-construction conditions would return relatively quickly except where changed by the presence of pilings and riprap beneath the wharf." The HEA associated with this DEIS assumes permanent loss in direct impact areas. The DEIS lacks consistency in defining and describing potential recovery. A reevaluation, based on appropriate data and analysis, appears warranted.	Insufficient data presented to draw conclusions made. Present additional data.
A-012-131	Vol 4	4	30	230.11	Factual Determinations, Suspended Particulate/Turbidity Determinations, Page 4-30: Characterization of the sediment component as simply "course" is not supported by the limited data presented within the document. The proportion of silts and clays is noted to be almost half, 45%, by weight (Appendix E, Section E, Page 48, Table 5-2). On a particle comparison basis, silts and clays greatly outnumber courser materials. Modifications should be made throughout the document to be consistent with the limited data presented	Insufficient data presented to draw conclusions made. Present additional data to support and edit text to make information consistent throughout document.

alternatives considered. Additionally, reference to Section 2.3 where these alternative locations, alignments, and related options are presented in detail has been added. Selection criteria, as described in Section 2.3 were used to narrow down the scope of analysis and to identify alternatives that were logical while still minimizing impacts to the environment to the extent practicable.

A-012-103

Thank you for comments and text recommendations. The "more general statement' regarding filter-feeding invertebrates has been added in the FEIS. Based on the size of the report on sampling protocol and findings, this source document will not be provided in the appendices of the Final EIS. The impacts of fine sediment has been more clearly defined and described in the final EIS.

A-012-104

Thank you for your comment. As stated in the text in Section 2.3.2 of Volume 4, the reduced clearance option for the parallel alignment would minimize but not completely eliminate potential impacts to corals. As shown in Chapter 11, Volume 4 on Figure 11.1-10, transects 57, 58, and 59 are representative of the coral habitat found near the Polaris Point berth area. As stated in Chapter 11, "in the Polaris Point/Bay area, a substantial percentage of the coral at all depth contours was growing on metallic and/or concrete debris. It is arguable whether or not the Polaris Point/Bay community should be considered a coral reef. What is clear, however, is that more of the corals within the Polaris Point/Bay segment had copious mucous secretions and more algal overgrowth than at any other location in Apra Harbor evaluated during the current study or other recent Navy studies."

As indicated on the Figures and what is assumed for this EIS, "Sasa Bay Marine Preserve is a GovGuam designation over U.S. submerged lands. Legitimacy of the designation is in dispute." This is still an ongoing issue

A-012-132					
Vol 4	4	31	230.11	Aquatic ecosystem and organism determination, Page 4-31: The conclusion that, "impacts to non-coral benthic organisms (not including corals) would be less than significant" appears to have been reached in the absence of appropriate data and analysis. Appropriate data collection and analysis will be required to assess proposed impacts.	Insufficient data presented to draw conclusions made. Present additional data.
Vol 4	4	31		Less than significant? Not clear how this conclusion was reached, as previous discussion lists the impacts to both coral and non-coral organisms.	Insufficient data to support finding. Provide data or revise finding.
Vol 4	4	31	230.11	Aquatic ecosystem and organism determination, Page 4-31: The DEIS suggests "Removal of soft bottom substrate overlying hard substrate would provide additional habitat for coral and non-coral benthic organisms." However, the extent to which presently buried hard substrate will be exposed remains completely without characterization. There is nothing to suggest newly exposed hard substrate will not be reburied by dredge related movement of sediments.	Clarify end condition of substrata in the dredge footprint
Vol 4	4	31		Scientific evidence of mobile organism capable of "sustaining" impacts was not provided.	Insufficient data to support finding. Provide data or revise finding.
Vol 4	4	32	230.11	Determination of cumulative effects on the aquatic ecosystem, Page 4-32: Adequate support for the statement, "Implementation of the proposed action, when considered cumulatively with the past, present and future projects, would have no significant long-term effects or changes to species abundance or diversity, or result in significant loss or degradation of sensitive habitats" is not provided. A full cumulative impacts analysis should be conducted and presented in support of this statement, or the statement should be removed.	Insufficient data presented to draw conclusions made. Present additional data.

that would be resolved outside of the EIS.

Section 2.3.4 discusses advantages and disadvantages of each potential wharf structural design option. The design on which type to be used would be made during the final design and permitting phase, where additional analysis would be conducted as needed.

With regard to use of a hydraulic dredge, Chapter 4 of Volume 4 notes that mechanical dredges have historically been used in Guam. There are a number of trade-offs between the use of hydraulic or mechanical dredging equipment that range from the type of marine sediment to be excavated and the choice of upland or ocean disposal method. In either case, the use of best management practices including the deployment of silt curtains, would minimize adverse impacts from the suspended sediments caused by the dredging action. The choice of dredging equipment and any restrictions on use would be determined during the permit phase of the proposed project. Since mechanical dredging is considered the maximum environmental adverse impact, the EIS focuses on these impacts in case this method of dredging is permitted and utilized for the proposed action; thus there would be sufficient NEPA coverage for this action. Additional text has been added to Section 2.3.5, Volume 4 for clarification.

A-012-105

Thank you for your comment. Clarification on the percent and volume differences between the two Alternatives added to the EIS.

A-012-106

Thank you for your comment. Within the context of the noted paragraph in Section 2.1, this paragraph notes that there would be training activities associated with the airwing onboard the carrier. These training activities have already been addressed and documented for their compliance with NEPA and regulatory coordination through the NEPA

A-012-133	Vol 4	4	33	230.2	Physical substrate, Page 4-33: The conclusion that, "impacts to non-coral benthic organisms (not including corals) would be less than significant" appears to have been reached in the absence of appropriate data and analysis. In addition, the extent to which presently buried hard substrate will be exposed remains completely without characterization. There is nothing to suggest newly exposed hard substrate will not be reburied by dredge related movement of sediments.	Insufficient data presented to draw conclusions made. Present additional data.
A-012-134	Vol 4	4	33	230.2	Water Page 4-33: Volume 2, Section 2.6 is Alternative 2: Former SRF, not "Least Environmentally Damaging Practicable Alternative for Waterfront Functions" as referenced. It is unclear what section is meant to be referenced.	Clarify text
A-012-135	Vol 4	4	35	230.31	Fish, crustaceans, mollusks, and other aquatic organisms in the food web, Pages 4-35 to 4-36: The statement that mobile invertebrates would likely vacate the area due to increased disturbance should be removed from the document. With few exceptions, such would be inconsistent with most mobile invertebrate behavior.	Edit text
	Vol 4	4	36		EFH: Remove incorrect conclusion that pre-construction conditions would return relatively quickly considering that both of the alternative areas have been previously dredged and the dynamic physical conditions dominate. Justify the statement that an increase in turbidity would be short term and localized. Much evidence from across the globe would not support this assumption.	The information submitted is insufficient to draw the conclusions made. Provide analysis and present data to justify conclusion. Incorporate issues and modify text.
	Vol 4	4	36	230.31	Fish, crustaceans, mollusks, and other aquatic organisms in the food web, Pages 4-36; Any adequate impact analysis for unique species requires implementing data collection methods that will actually detect them. Use of a photographic method to characterize the community, extremely limited level of nighttime sampling, and absence of sampling infauna all limit the possibilities of observing unique species. The limitations of the underlying studies relative to identifying unique species should be presented and additional data to properly characterize this resource is needed.	Insufficient data to characterize invertebrate populations. Present additional data.

process conducted for the ISR EIS and MIRC EIS. Re-evaluation of the impacts of training activities in both the ISR and MIRC EIS is not necessary in this EIS although they are given appropriate consideration in terms of their cumulative impacts along with the proposed action.

We do not concur that there is actually only one alternative considered with "embedded" options of the same alternative and then only the No Action Alternative. To provide clarification, text has been added to the last paragraph on page 2-1 noting the array of alternatives considered. Additionally, reference to Section 2.3 where these alternative locations, alignments, and related options are presented in detail has been added. Selection criteria, as described in Section 2.3 were used to narrow down the scope of analysis and to identify alternatives that were logical while still minimizing impacts to the environment to the extent practicable.

A-012-107

Thank you for your comments. Chapter 11 of the Final EIS has been revised to include additional data and analysis.

A-012-108

Thank you for your comment. Only practicable alternatives to the proposed project need be considered in determining the LEDPA. An alternative is practicable where "it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." As described in Chapter 2, Volume 4, several alternatives for wharf location, wharf alignment, channel alignment, and turning basin were considered based on selection criteria including security/force protection; operations; and logistics and minimizing impacts to the environment to the extent practicable. As Chapter 2 explains, the DoD undertook several measures to avoid environmental impacts, including choosing a channel alignment that avoided dredging of coral shoals, reducing the aircraft carrier turning

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A-012-135	Vol 4	4	36	230.31	Fish, crustaceans, mollusks, and other aquatic organisms in the food web, Pages 4-36: The conclusion that, "impacts to non-coral benthic organisms (not including corals) would be less than significant" appears to have been reached in the absence of appropriate data and analysis.	Insufficient data to characterize invertebrate populations. Present additional data.
A-012-136	Vol 4	4	36	230.31	Essential fish habitat, Page 4-36: Information is lacking to support the conclusion that "pre-construction conditions would return relatively quickly except where changed by the presence of pilings and riprap beneath the wharf." The HEA associated with this DEIS assumes permanent loss in direct impact areas. The DEIS lacks consistency in defining and describing potential recovery. A reevaluation, based on appropriate data and analysis, appears warranted.	
A-012-137	Vol 4	4	37		Coral reefs: Clarify that impacts would be significant. Summarize information in a few paragraphs and simply refer to chapter 11 and HEA section in Appendix for further information.	Modify text.
	Vol 4	4	38	230.44	Coral reefs, Pages 38 – 44: The use of relative statistics to describe impacts is confusing. Absolute values derived specifically from application of the data should be presented. Reference to the total area as the (three dimensional view) is undefined and may be misleading. "Three dimensional view" needs to be qualified through explanation of the relative scale of topography being considered. The scale issue throughout the document needs to be clear that it is a landscape context.	Edit text to clarify scale perception throughout document.
	Vol 4	4	38		Alternatives acreages representation of % coral habitat of Apra Harbor needs reference...coral habitat mapping or figure.	Clarify information.
	Vol 4	4	38	230.44	losses to habitat other than that specifically with live coral on it. Such omission directly contrasts with requirements of the Clean Water Act. A thorough characterization and analysis of impacts to habitat other than that specifically with live coral on it needs to be conducted and presented for review.	The loss of resource other than coral needs to be quantified and appropriate mitigation presented
	Vol 4	4	38		Sentence "when a 200 m buffer is applied, each alt. has approx. the same impact of app. 71 ac" is not clear.	Clarify information.

basin radius, and choosing a parallel to shore wharf alignment with a reduced clearance for the aircraft carrier.

After careful consideration of the alternatives based on the selection criteria, it was determined that Polaris Point and the the Former SRF were the only two locations that met the criteria. This is also explained in Chapter 2 of Volume 4. Chapter 4, Volume 4 highlights the differences between these two alternatives in the LEDPA discussion. These alternatives may appear similar but they are different, as explained in Chapter 4. The LEDPA discussion does not warrant a wider alternatives analysis because as the information presented in Chapter 1 and 2 indicate, many alternatives (including Kilo Wharf) could not be carried forward because they are not operationally practical, would result in security/force protection issues, or have logistics issues. Other locations in Guam and/or the Pacific were also ruled out as options for the reasons presented in Chapter 1 and 2, including not meeting the overall purpose and need.

A-012-109

Thank you for your comment. Volume 4, Chapter 11 contains two figures that depict the coral coverage percentages for the southeast corner of Middle Shoals. These figures show that the preferred alternative (Alternative 1) would remove far less coral than the Alternative 2 action in this dredged area of the channel. This is one of several reasons which supports Alternative 1 as the Least Environmentally Damaging Practicable Alternative.

A-012-110

Thank you for your comment. The beginning of Chapter 2, Volume 4, identifies the two alternatives that are carried forward for analysis in the EIS. Additional text has been added to clarify that a range of reasonable alternatives were evaluated and are presented later in the chapter. Considering that the alternatives considered and dismissed are located

A-012-138	Vol 4	4	38	230.44	Coral reefs, Pages 38: The proposed buffer zone appears inconsistent with the sediment modeling data provided. Although conservative boundaries are recommended, the approach used does not conform well to proposed risks of planned activities. This directly affects any ability to adequately evaluate the LEDPA. This is a serious document deficiency which needs to be rectified. Indirect impact boundaries and resources/habitats at risk need to be justifiably defined both within the direct impact area for depths exceeding 60 feet and outside the direct impact area.	Insufficient data presented and further interpretation of impacts is essential to affectively determining the LEDPA
A-012-139	Vol 4	4			Nearshore waters may also be impacted by point source pollutants (fuel leaks, bilge leaks, etc) from docked boats/ships in the area. Also, the potential for invasive species redistribution through ballast water or fouling organisms attached to ship hulls need to be included as potential impacts.	Need to address these issues as part of the impact analysis
A-012-140	Vol 4	4	40	option 1	Percent coral cover is not a proxy to ecosystem function. It contributes to, but more thorough criteria (species richness, species number, etc) would be needed to "assess" ecosystem function. This is also dependent upon indicator species as these can vary from corals to scagrass, to mangroves, to algae or other invertebrates.	Edit text
A-012-141	Vol 4	4	40	230.44	Option 1: Artificial reefs within Apra Harbor or other locations, Page 4-40: The National Marine Fisheries Service Pacific Island Regional Office views artificial reefs primarily as fishery management tools. Such structures will not replace all ecological functions of the natural reefs proposed to be impacted at the CVN site. NMFS's evaluation of this alternative finds that this option will not meet mitigation requirements	Modify delivery and content.
	Vol 4	4	40	230.44	Option 1: Artificial reefs within Apra Harbor or other locations, Page 4-40: Clarity needs to be provided on exactly how installation of artificial reefs at 80 + foot depth would adequately compensate for reef impacts at depths less than 60 ft. No information is presented to suggest that the coral communities at these deeper, lower light depths are similar in abundance, diversity and form to those above 60 ft. We suspect the communities differ dramatically, and request appropriate representative data and analysis be provided for evaluation.	Additional data is necessary to determine comparable resource. However even with comparable resources concerns remain for using artificial surfaces to restore lost ecosystem function.

only two pages further from Section 2.3 and summarized in Table 2.3-1 later in the chapter, it would be redundant to list them up front.

Do not concur that Table 2.3-1 is confusing. The intent of this table is to summarize all of the wharf locations, alignments, turning basin options, and channel alignments up front in a concise manner, focusing on the reasons why they were dismissed. However, it has been moved further back in the chapter to allow the reader to first learn about each of the components before viewing the summary table. Wharf location needs to be the first item examined, because without a potential wharf location the proposed berthing cannot occur. Thus, it makes sense to evaluate the other components once reasonable locations have been considered.

As Chapter 2 explains, the DoD undertook several measures to avoid environmental impacts, including choosing a channel alignment that avoided dredging of coral shoals, reducing the aircraft carrier turning basin radius, and choosing a parallel to shore wharf alignment with a reduced clearance for the aircraft carrier.

Chapter 1, Volume 4 describes the reasons why Kilo Wharf is not considered a practicable alternative. Kilo Wharf is already near capacity without considering the aircraft carrier visits. Kilo Wharf is the only wharf in Apra Harbor that has approval for large quantities of munitions and a waiver is required for ships carrying ammunition to berth in Inner Apra Harbor. The evaluation of the capacity of Kilo Wharf is based upon the wharf's use for loading and unloading ammunition carrying ships. The smaller load-outs of ammunition to combatant ships are already accomplished at the berths in the inner harbor. No additional capacity can be created at Kilo Wharf as the capacity is based upon use of Kilo Wharf by ships not capable of performing their mission in the inner harbor. These waivers are not readily granted because the large quantities of explosives berthed at a wharf that is unauthorized for large net explosive weights would represent an increased safety risk to nearby populations. There are also other challenges associated with an aircraft

A-012-141	Vol 4	4	40	230.44	Option 1: Artificial reefs within Apra Harbor or other locations, Page 4-40: NMFS/PIRO does not support the use of percent coral cover as the primary data for characterizing reefs at risk, assessing impacts, scaling mitigation, or establishing mitigation success. Percent coral cover simply does not adequately describe or represent main functional attributes of corals, thus provides little means for evaluating impacts and assurance adequate compensatory offset. Size-frequency and morphology data have been requested since initiation of resource agency consultations on this project (approximately 2 years ago) as means to better characterize coral impacts from a population, community and functions-services perspective (using numbers, sizes and three dimensional morphologies of individual colonies as opposed to an amalgamated planar cover estimate). Such measures are useful for modeling interim colony loss through creation of size and species specific recovery trajectories, and are fundamental to ensuring equitable functional replacement.	
A-012-142	Vol 4 Continued				(through evaluation of colony numbers, sizes and three dimensional morphologies as opposed to compensation/replacement based on flat, amalgamated spatial representations). Appropriate in-situ measurements of coral size-frequencies and morphologies need to be collected, analyzed and presented as a necessary component in characterizing coral colony resources at risk, evaluating recovery potential, and as a fundamental basis for assuring equity in compensating unavoidable loss through mitigation.	Inadequate data to characterize resource to determine appropriate compensatory mitigation and make an EFH determination. Conduct additional surveys to gather information.
A-012-143	Vol 4	4	41	230.44	Ordnance annex afforestation, Page 4-41: It is very premature to suggest the Kilo Wharf compensatory mitigation project has not been successful. There have been implementation obstacles but these have not been land ownership issues. If the project is implemented as agreed, it is still expected to be the best mitigation option. The project is less than half-way through its 10 year planting period and a number of decades will be needed to fully assess project effects on coral reefs. Recognition of challenges; however, should be listed for evaluation.	Provide clarification of KILO Wharf mitigation implementation.

carrier berthing at Kilo Wharf that are manageable for the short duration port visits, but would be untenable for longer transient berthing requirements that include logistics, maintenance, and Morale Welfare and Recreation (MWR) support. Dependents, vendors, commercial delivery vehicles and non-DoD personnel are prohibited from entering the explosive safety arcs around Kilo Wharf. There is limited space for MWR activities at Kilo Wharf. For these reasons, expanding Kilo Wharf or moving existing munitions operations to other wharves is not practical.

A-012-111

Thank you for your comment. Chapter 1, Volume 4 describes the reasons why Kilo Wharf is not considered a practicable alternative. Kilo Wharf is already near capacity without considering the aircraft carrier visits. Kilo Wharf is the only wharf in Apra Harbor that has approval for large quantities of munitions and a waiver is required for ships carrying ammunition to berth in Inner Apra Harbor. The evaluation of the capacity of Kilo Wharf is based upon the wharf's use for loading and unloading ammunition carrying ships. The smaller load-outs of ammunition to combatant ships are already accomplished at the berths in the inner harbor. No additional capacity can be created at Kilo Wharf as the capacity is based upon use of Kilo Wharf by ships not capable of performing their mission in the inner harbor. These waivers are not readily granted because the large quantities of explosives berthed at a wharf that is unauthorized for large net explosive weights would represent an increased safety risk to nearby populations. There are also other challenges associated with an aircraft carrier berthing at Kilo Wharf that are manageable for the short duration port visits, but would be untenable for longer transient berthing requirements that include logistics, maintenance, and Morale Welfare and Recreation (MWR) support. Dependents, vendors, commercial delivery vehicles and non-DoD personnel are prohibited from entering the explosive safety arcs around Kilo Wharf. There is limited space for MWR activities at Kilo

A-012-144	Vol 4	4	41	230.44	Ordinance annex afforestation, Page 4-41: The suggestion of watershed restoration on Navy owned land as compensatory mitigation for CVN related impacts to coral reefs requires further clarification regarding Navy watershed management responsibilities outside of the compensatory mitigation process. As noted in Volume 4, Chapter 11, Page 11-82, the Guidelines establish that a compensatory mitigation project may not be used to achieve an ongoing mandated responsibility.	Clarify and edit text.
	Vol 4	4	42	230.44	Shallow water reef enhancement, Page 4-42: The success of coral transplantation in the Pacific is highly variable, with poor performance often common. Braking up and moving corals to a place where they presently do not occur far from guarantees their preservation or replacement of their functionality. The National Marine Fisheries Service does not view coral transplantation as a viable compensatory mitigation alternative. To the extent practicable, transplantation of corals might occur as a BMP condition of the permit; however, would not be viewed to have compensatory value.	Transplant of suitable coral needs to be part of the BMPs for the dredging and other direct impact activities.
	Vol 4	4	42	230.44	Shallow water reef enhancement, Page 4-42: The "direct and predictable relationship" paragraph appears to be out of place.	Edit document to find proper place for text
A-012-145	Vol 4	4	45	230.44	Actions concerning the material to be dredged Page 4-45: Data in Appendix E, Section E, Page 48, Table 5-2 suggests a sediment characterization with a proportional weight of 45 % (almost half) silts and clays. This section (230.71) states that high concentrations of contaminants are more likely to be found in such fine materials, but grossly characterizes the materials to be dredged as predominantly coarse. Only limited contaminant analysis appears to have been conducted, so it remains unclear what the true contaminant risk is, whether further evaluation of contaminants will occur and whether special treatment will be required.	Insufficient data was presented to evaluate the contaminants risks. Provide additional data and analysis for this purpose.
A-012-146	Vol 4	4	46		Not clear how Alt. 1 would be expected to affect, but would not adversely affect, ESA listed turtles. Also, next sentence: "Alt. 1 may adversely affect EFH" is inconsistent with previous section discussions, which states that Alt. 1 will adversely affect EFH.	Inconsistent findings, correct consistency with supporting data.

Wharf. For these reasons, expanding Kilo Wharf or moving existing munitions operations to other wharves is not practical.

A-012-112

Thank you for your comment.

The discussion of benthic habitats as quoted on page 3-6 has been removed from the Geology and Soils section. Analysis of impacts to reefs is covered in Chapter 11, Marine Biological Resources.

A-012-113

Thank you for your comment.

For purposes of this EIS, analysis of impacts to coral reefs and other marine organisms is found in Chapter 11, Marine Biological Resources. The geology and soils chapter of the EIS has been edited to correct the contradiction and to remove the discussion of impacts to coral reef from the section.

A-012-114

Thank you for your comment. Citations will be reviewed and updated. In addition, references to supporting appendices will be provided where applicable.

A-012-115

Thank you for your comments. The Final EIS removes "marine" in this section. Impacts to coral and marine biota are discussed in detail in Chapter 11, Marine Biological Resources. Readers are referred to Chapter 11 for a detailed impact analysis discussion.

A-012-116

Thank you for your comment. A number of protective measures would

A-012-147	Vol 4	4	46	Alternative comparison summary: Clarify how Polaris Point alternative's greater distance from high quality habitat/resources (illustrated in bold in Table 4.3-1) is important in choosing this as the preferred option when most information provided in this dEIS states that indirect impacts from sedimentation will be temporary and localized and thus insignificant.	Clarify and modify text.	
A-012-148	Vol 4	4	46	230.44	Alternatives comparison summary, Pages 4-46 to 4-49: The LEDPA analysis is very poorly prepared and presented, and the suggested outcome in favor of the preferred alternative is simply not supported by the pertinent data provided. The data and analyses provided are insufficient for defining a true LEDPA. Factors that need to be addressed are many, and include: (1) a rigorous quantitative characterization of all habitats proposed to be impacted (including areas with and without coral); (2) adequate measurement and analysis of the resources at risk (infauna, algae, size frequencies and morphologies for corals); (3) determination of relevant boundary areas (depth and area) for indirect impact consideration; and, (4) better description of the direct impacts (such as defining the acreage of finger pier fill, and consistent consideration of dredging areas: 51 ft vs. 60 ft?).	
A-012-149	Vol 4 Continued				Operational issues, quality of life and aesthetics differences, traffic, utility costs, operation of the Guam shipyard and co-location of nuclear assets have no place in a LEDPA unless they have demonstrable environmental impacts to the aquatic resource.	Provide additional data and analysis for defining the LEDPA selection
A-012-150	Vol 4	4	47		Not clear how Alt. 2 would be expected to affect, but would not adversely affect, ESA listed turtles. Also, next sentence: "Alt. 2 may adversely affect EFH" is inconsistent with previous section discussions, which state that Alt. 1 will adversely affect EFH.	Inconsistent findings, correct consistency with supporting data.
	Vol 4	4	48		Define high quality coral & coral reef habitat	Edit text

be taken to minimize the distribution of the turbidity plume that would unavoidably be generated by the proposed dredging operations. These measures are noted in Chapters 2, 4, and 11 of Volume 4. Silt curtains are one example of these types of protective measures. Standard turbidity curtains are approximately 20-30 feet (6-9 meters) in length and have a weighted bottom to maintain the effectiveness of the curtain against the movement of currents within the water body. Since the dredge equipment is not stationary for the entire period of dredging, it is impractical to have a silt curtain extending to and being anchored to the bottom of the harbor. The length of time the silt curtains would be in place would be determined through agency coordination and permitting; however, in general terms the curtains would potentially be in place during and after dredging operations until monitoring indicates turbidity levels have returned to pre-dredging concentrations.

As the material is being excavated by the mechanical dredge, the heaviest materials fall rapidly to the bottom of the water body with the lighter and more buoyant fraction floating in the upper levels and surface of the water where the curtains are most effective. The majority of the sediment (e.g., >50%) is comprised of larger grained material and, therefore is generally referred to as being "coarse" and would settle quicker than silty materials.

A-012-117

Thank you for your comment. As described in the EIS, the analysis used time series plots of dredge plume concentrations developed for Master Plan for Deep-Draft Wharf and Fill Improvements At Apra Harbor EIS (July 2007). This analysis shows that during both average and worst case loading scenarios, the dredge plumes dissipate rapidly, usually 2-3 hours after dredging has stopped. The dilution time of four hours was determined by the USEPA's Green Book (USEPA and USACE 1991). The Green Book specifies two criteria related to dilution of dredged material: Criterion I – The maximum concentration of a constituent

A-012-151	Vol 4	5	4.2.1.3	The issues identified during the public scoping process are very important and if addressed, could help describe the impacts and possible mitigation measures of the alternatives. It's not clear if the bulleted list of items will be addressed in the document or not, or if merely stating that they were addressed at the public scoping meeting. Suggest including content on each of the bulleted list.	Address public concerns.
A-012-152				Alternative 1: Re-evaluate conclusions that there will be less than significant impacts to surface water, groundwater and wetlands. Sources of impacts and mechanisms by which impact might occur have been identified, yet the overall impacts have not been quantified. It is thus not possible to evaluate impacts to nearshore water quality [and thus EFH/Marine Habitats].	
A-012-153 A-012-154	Vol 4	4	5	Indicate how effective the BMP's are likely to be in reality. It is stated generally that BMP's will be implemented to reduce impacts from roadways, yet little information of what these are and how successful they have been. Define "direct" impacts versus "indirect" impacts. For example: the potential increase of sediment and/or other pollutants in storm water run-off in to stream (which only ~500 m away) can be considered a direct impact although it is stated to be an indirect impact.	The information submitted is insufficient to draw the conclusions made. Provide analysis and present data to justify conclusion. Incorporate issues and modify text.

outside the disposal site boundary at any time after discharge must satisfy applicable water quality standards. Criterion II – The maximum concentration of a constituent within the disposal site four hours after discharge must satisfy the water quality standards. The final concentration of a conservative constituent after mixing is expressed as the initial concentration divided by the dilution factor, assuming an ambient concentration of the constituent of zero.

A-012-118

Thank you for your comments. Potential impacts to water resources under the action alternatives will be reviewed in light of these comments and revised where applicable in the Final EIS.

A-012-119

Thank you for your comment. As indicated in the EIS, sediment plumes would occur as a result of propeller wash from tugboats and aircraft carriers while docking and getting underway. Under the proposed action, transient aircraft carriers would dock in Apra Harbor for a cumulative total of up to 63 visit days per year, with an anticipated length of 21 days or less per visit. Similar to dredging operations, the extent of the turbidity plume generated from propellers would be a function of bottom current velocities and sediment grain size as well as propeller jet flow velocities. Ambient water conditions would return shortly after ship movement ceases in the harbor. The proposed dredging would increase the distance between propellers and the sea floor, which is expected to reduce but not eliminate sediment resuspension by ship propellers. This reduction would have a beneficial impact on water quality as there would be fewer incidents of sediment resuspension from propeller wash with less sediment being resuspended.

A-012-120

Thank you for your comment. The handling of wastewater is covered

A-012-155	Vol 4	4	7	<p>Alternative 1: Re-evaluate conclusions that there will be less than significant impacts to surface water, groundwater and wetlands. Sources of impacts and mechanisms by which impact might occur have been identified, yet the overall impacts have not been quantified. It is thus not possible to evaluate impacts to nearshore water quality [and thus EPH/Marine Habitats].</p> <p>Indicate how effective the BMP's are likely to be in reality. It is stated generally that BMP's will be implemented to reduce impacts from roadways, yet little information of what these are and how successful they have been.</p> <p>Define "direct" impacts versus "indirect" impacts. For example: the potential increase of sediment and/or other pollutants in storm water run-off in to stream (which only ~500 m away) can be considered a direct impact although it is stated to be an indirect impact.</p>	<p>The information submitted is insufficient to draw the conclusions made. Provide analysis and present data to justify conclusion. Incorporate issues and modify text.</p>
A-012-156	4	4	9	Table 4.2	<p>This table does not very well represent a summary of effects. Explain what the bullets and ND represent exactly.</p> <p>Edit table</p>
A-012-157				<p>Provide evidence to support that silt curtains are effective, e.g. refer to Kilo Wharf dredging.</p> <p>Quantify how much suspended sediment would settle out rapidly instead of simply stating "majority".</p>	<p>The information submitted is insufficient to draw the conclusions made. Provide analysis and present data to justify conclusion. Incorporate issues and modify text.</p>
A-012-158	Vol 4	4	9	<p>Provide SAIC 2001 report. Update with newer information as this is almost 10 years old.</p> <p>Justify why storm water runoff is not expected from upland dredge placement site.</p>	<p>Incorporate issues and modify text.</p>

under utilities, Volume 6. For the CVN, wastewater would be discharged to a collection system for the Apra Harbor secondary wastewater treatment plant owned and operated by the Navy. The existing plant has adequate capacity to handle this additional load. The projected flow to this plant is 3.69 million gallons per day. The capacity of this plant is 4.3 million gallons per day. These facts are in Volume 6 Chapter 2 section 2.3.2.1.

A-012-121

Thank you for your comment. As described in the EIS, sediment plumes occur as a result of propeller wash from tugboats and aircraft carriers while docking and getting underway. Under the proposed action, transient aircraft carriers would dock in Apra Harbor for a cumulative total of up to 63 visit days per year, with an anticipated length of 21 days or less per visit. Similar to dredging operations, the extent of the turbidity plume generated from propellers would be a function of bottom current velocities and sediment grain size as well as propeller jet flow velocities. Ambient water conditions would return shortly after ship movement ceases in the harbor. The proposed dredging would increase the distance between propellers and the sea floor, which is expected to reduce but not eliminate sediment resuspension by ship propellers. This reduction would have a beneficial impact on water quality as there would be fewer incidents of sediment resuspension from propeller wash with less sediment being resuspended. The Final EIS contains an analysis of potential impacts from hull leachate.

A-012-122

Thank you for your comments. The Final EIS includes a quantitative analysis where practicable and reasonable. A discussion on the effectiveness of BMPs has been added to the Final EIS. As described in SWPPPs, BMP implementation includes performing frequent visual inspections and benchmark monitoring to determine BMP effectiveness. Monitoring results are then analyzed in relationship to the identified

<p>A-012-159</p> <p>Vol 4</p>	<p>4</p>	<p>9</p>	<p>In general: Re-evaluate conclusions that there will be less than significant impacts to nearshore waters. Sources of impacts and mechanisms by which impact might occur have been identified, yet the overall impacts have not been quantified. It is thus not possible to evaluate impacts to Apra Harbor water quality [and thus EFH/Marine Habitats].</p> <p>Quantify all impacts to water quality and evaluate total impacts not only from construction but also operational actions as these are connected in affecting water quality [and thus EFH/Marine Habitats].</p> <p>Define "localized and temporary" impacts. Turbidity generated from 8-18 months does not seem temporary as stated.</p> <p>Support statement that "upon completion of construction, water quality would be expected to return to pre-construction conditions" with evidence.</p>	
<p>A-012-160</p> <p>4</p>	<p>5</p>	<p>1</p>	<p>Extensive description of proposed project has already been done. This is repetitive.</p>	<p>Edit text</p>
<p>A-012-161</p> <p>A-012-162</p> <p>Vol 6</p>	<p>1</p>	<p>2</p>	<p>State the increase in population (population load) in relation to baseline population that will result from the proposed military build up to provide a clear picture of the magnitude of increase in demands that will occur and consequently impacts to EFH/marine habitats. Identify all aspects of increased demand on infrastructure, utilities and supplies for the Island. I.e. beyond utilities, solid waste disposal, and road improvements, also addresses increased demand on for example goods and supplies (food, household goods), facilities, transportation and natural resources (within, also to/from Guam).</p>	<p>Modify text.</p>
<p>A-012-163</p> <p>Vol 6</p>	<p>12</p>	<p>38</p>	<p>12.2.6.1</p> <p>Many hardening (roadways, parking lots etc.) projects are near or contribute to stormwater that discharges into coastal areas. These actions require the appropriate description and clarification of steps taken to first avoid and minimize and then mitigate. The mitigation for in-water resources must address replacement of lost ecosystem function.</p>	

water quality objectives and if the benchmarks were not being reached, the BMPs would be modified. In this manner, the effectiveness and applicability for selected BMPs (specific to unique situations on Guam) can be measured and then altered, as necessary, to minimize potential impacts to water resources on Guam. Potential mitigation measures are identified and will be implemented as applicable through agency coordination to ensure the right measures are implemented. The Final EIS includes a discussion of the expected effectiveness of potential mitigation measures, BMPs, and LID measures. Potential impacts to coral reefs are discussed in the Marine Biological Resource chapters. Anticipated potential impacts to water resources have been revised where applicable in the Final EIS. The No Action Alternative analysis has been reviewed and updated to support conclusions.

A-012-123

Thank you for your comments. A definition of ROI is provided in Volume 2, Chapter 4 and has been re-evaluated in terms of the EFH delineations.

The impact analysis is presented in a manner to maximize readability. Definition of direct impacts revised to reflect that they may occur post-construction during operation (e.g. from re-suspension from vessel movement).

Potential impacts to coral reefs are discussed in the Marine Biological Resource chapters. Both CVN berth alternatives would result in direct, significant, and long term impacts to coral reefs. However, these impacts would be mitigated to less than significant through the identified BMPs and through compensatory mitigation measures.

Anticipated potential improvements to nearshore water quality has been expanded on in the Final EIS.

A-012-164	Vol 6	13	1		Most of this section was simply copied from the comparable sections of Vol. 2. One addition, however, is a generic list of 10 criteria (from NEPA CRF) for evaluating intensity of an impact. These criteria are useful, but where not clearly articulated anywhere in the document.	
A-012-165	Vol 6	13	1	13.1	Define ROI, and explain how it has been delineated. If it does not overlap with EFH disregard the ROI delineation as indirect and cumulative impacts can affect the marine environment in complex ways (e.g. increased bleaching due to increased CO2, fuel, oil leaks from vessels, offshore fishing). Description of affected environment [EFH/marine habitats] in Volume 2 inadequate as [to EFH/marine habitats] not characterized in much detail around most of Island.	Clarify and modify delivery and text.
	Vol 6	13	10		Summary of impacts to marine resources from power upgrades in Guam (Table 13.2-2) are essentially all the same for each alternative and across criteria. How can a rational choice be made based on following NEPA guidelines?	
	Vol 6	13	10	bulleted list	List seems not to be discussing "long-term" impacts. Table 13.2.2 lists water quality degradation, which could be a long-term impact; increased maritime shipments (construction?) and construction run-off/pollution are not.	Clarify and modify text.
	Vol 6	13	10	13.2-1	Quantify, perhaps illustrated in an added column, what the listed potential impacts in table 13.2-2 sum up to and mean for EFH/marine habitats. Justify how it has been determined that there will be no significant impact to EFH/marine habitats when no evaluation has occurred.	Address issues and modify delivery and content of DEIS.
	Vol 6	13	11		• Pref. Alt-1; The construction of 22 new wells, linking with the Guam water system, rehabilitate existing wells, and upgrade distribution lines, would result in varying degrees and sites of terrestrial substrate disruption, and potential sedimentation of nearshore resources and habitats. This half page description of the preferred alternative simply concludes "this action would result in a LSI to marine biological resources with no supporting justification. Section on potential mitigation measures is inadequate at one short sentence.	

Cumulative impacts to water resources are addressed in Volume 7.

A-012-124

Thank you for your comment. The Final EIS will be updated to include a quantitative analysis where practicable and reasonable. A discussion on the effectiveness of BMPs will be added to the Final EIS. Potential mitigation measures will be identified and implemented as applicable through agency coordination to ensure the right measures are implemented; these may include monitoring programs that can stimulate further action. The Final EIS will include a discussion of the expected effectiveness of potential mitigation measures, BMPs, and LID measures.

A-012-125

Thank you for your comment. This section has been revised.

A-012-126

Thank you for your comment. Potential mitigation measures will be identified and implemented as applicable through agency coordination to ensure the right measures are implemented. The Final EIS will include a discussion of the expected effectiveness of potential mitigation measures.

A-012-127

Thank you for your comment. The Least Environmentally Damaging Practicable Alternative (LEDPA) section was written as concisely as possible given the large amount of data that is needed to support the analysis. References to other chapters have been included to minimize redundancy with other parts of the EIS.

Do not concur that the LEDPA analysis is compromised by focusing on

A-012-169	Vol 6	13	12	"The Navy is conducting a study to evaluate potential impacts on water quality and the marine environment...". The document needs to provide clarity in how the impact information gathered will be objectively applied to drive the proper alternative selection.	
	Vol 6	13	13	"With secondary treatment... levels are expected to be well below the water quality standard". This assumes a 300x dilution. What about the cumulative effects of this after multiple days of calm summer waters, negligible currents, and small tides?	
	Vol 6	13	15	"Computer modeling was conducted to predict how (ocean) water quality might be affected by the discharge...". It is not possible to evaluate the accuracy and validity of the model results without provide the assumptions and validation methods that have been used.	
A-012-170	Vol 6	13	16	13.2.4.1	This section needs to reflect the bioaccumulation issues address the health hazards associated. While coral reef biomass may not be impacted, the species composition is likely to change based on water quality impacts. These impacts were not addressed.
A-012-171	Vol 6	13	16	"Environmental and biological impact assessments were also performed". Where is the discussion of survey design, methods implemented, and full results/analysis?	
	Vol 6	13	16	"Section on "Effects to the Ecological Life and Environment of the Receiving Marine Waters" is based on a draft report that reviews existing studies. This section could be strengthened by addition of citations (e.g., why a potential increase in phytoplankton is not likely to be a concern).	
	Vol 6	13	16	"Enterococcus (coliform bacteria) in the discharge plume will eventually be diluted to near zero". This is an indicator that typically closes beaches after heavy rainfall or sewage spills. This speculative conclusion should be supported with more details of the analysis and citations.	
Vol 6	13	16	"... operational goal of expansion to secondary treatment by 2015...". But maximum population increase on Guam (80,000 more people) would be reached in 2014 (starting in 2010). Where is there any discussion/analysis of the aforementioned exceeding of standards by 800% for <i>Enterococcus</i> and by 300% for ammonia (i.e., significant impacts to marine life and EFH)?		

The EIS has been updated to provide clarification on the fill requirements.

A-012-128

Thank you for your comment. Impacts to coral and marine biota are discussed in detail in Chapter 11, Marine Biological Resources. Information added to the Final EIS to refer readers to Chapter 11 for a detailed impact analysis discussion.

A-012-129

Thank you for your comment.

This is the Water Resources Chapter, which identifies in text that further information can be found in Chapter 11 of this Volume and Volume 2. Please refer to these Chapters for additional data from which these conclusion were drawn.

A-012-130

Thank you for your comment. We are unable to find the text in question; therefore, no substantive response is provided.

A-012-131

Thank you for your comment. The majority of the sediment (e.g., >50%) is comprised of larger grained material and, therefore is generally referred to as being "coarse" in the EIS. Sediment grain size data is presented as a percentage and is discussed as such in the EIS.

A-012-132

Thank you for your comments. Impacts to coral and marine biota are discussed in detail in Chapter 11, Marine Biological Resources. Impact assessment provided in LEDPA discussion has been updated to reflect revised analysis (in response to comments) done in Chapter 11. In

A-012-172	Vol 6	13	17		"Fish and Associated EFH" – "Detectable changes in the ...plankton biomass are not anticipated. ... (Navy 2005, 2009)". Where is there sound objective evidence that such conclusions are not self-serving?
	Vol 6	13	17	13.2.4.1	The fact that the effluent rises to the surface quickly does not eliminate the bioaccumulation. Regular observations of increased numbers of planktivores have been made in the plume and this risk needs to be addressed. Additionally, the reference to Hawaii outfall would be appropriate as a default but work has been done on Guam and should be the source information for this assessment. Both the natural resource and public health risks need to be more completely addressed. Since the outfalls in Guam are known to affect fish population behavior and density as well as health, we do not agree with the EFH impacts described. The citations for the Oahu references need to be provided. The analysis for this section is insufficient for EFH review.
	Vol 6	13	18		The temporary and permanent loss of resources requires that mitigation alternatives be developed and implemented under the CWA and EFH evaluation.
	Vol 6	13	18		* An old citation is given to support the conclusion that "...discharge of sewage has little or no impact to coral reef ecosystems...". But other more recent studies (e.g., Kaczmarek et al. 2005, conclude the opposite! The findings of more recent studies need to be incorporated in the analysis.
	Vol 6	13	18		"It is anticipated that motile animals (fish) would exit the area during in water work, but return shortly after...". Where are the studies/citations to support this conclusion? What about those with limited home range? Habitat deterioration? Increased predation risk? Competitive exclusion?
	Vol 6	13	18		"The impacts associated with increased wastewater treatment flow, from this alternative, may adversely affect EFH, specifically finfish species". So, where is the required EFH Assessment by MUS, life-stage, etc.? Mitigation?
	Vol 6	13	19	13.2.4.1	A resident population of Spinner Dolphins is regularly observed congregating near the outfall plume of the Agana Treatment Plant. The increase effluent impacts are not addressed.

addition, information added to the Final EIS to refer readers to Chapter 11 for a detailed impact analysis discussion.

A-012-133

Thank you for your comments. Impacts to non-coral benthic organisms and hard substrate are discussed in detail in Chapter 11, Marine Biological Resources. Impact assessment provided in LEDPA discussion has been updated to reflect revised analysis (in response to comments) done in Chapter 11. In addition, information added to the Final EIS to refer readers to Chapter 11 for a detailed impact analysis discussion.

A-012-134

Thank you for your comment. The correct reference should be Volume 2 Section 2.4. This edit is made in the Final EIS.

A-012-135

Thank you for your comments. Impacts to fish, crustaceans, mollusks, and other aquatic organisms are discussed in detail in Chapter 11, Marine Biological Resources. Impact assessment provided in LEDPA discussion has been updated to reflect revised analysis (in response to comments) done in Chapter 11. In addition, information added to the Final EIS to refer readers to Chapter 11 for a detailed impact analysis discussion. Information regarding anticipated short-term and localized turbidity increases added to justify impact assessment.

A-012-136

Thank you for your comments. Impacts to essential fish habitat are discussed in detail in Chapter 11, Marine Biological Resources. Impact assessment provided in LEDPA discussion has been updated to reflect revised analysis (in response to comments) done in Chapter 11. In

A-012-173			
Vol 6	13	19	Section on "Potential Mitigation Measures" is insufficient considering the direct and indirect adverse impacts of these actions to upgrade Guam's power systems. Where is the discussion of compensatory mitigation for the EPHI adverse impact, at least until 2015? "Biosecurity plan is not adequate for mitigation.
Vol 6	13	19	Section on "Special-Status Species" concludes (again, without analysis, justification, or citations) that "no evidence exists that they would be significantly impacted...". The conclusion reached on the impacts to sea turtles does not address the impact to foraging in the impacted area. The Sasa Bay area is a known popular feeding area, especially for the Hawksbill Turtle and the direct and indirect impacts pose risk to feeding behavior and food sources. NMFS responded on November 2nd, 2009 in disagreement with the "No adverse affects" finding and notified DOD of the need to formally initiate a formal Section 7 consultation under the ESA with PIRO on this issue. The humphead wrasse and humphead parrotfish are listed as species of concern and the humphead parrotfish has been petitioned for nomination to the Endangered Species Act.
Vol 6 Continued			These species need to be appropriately addressed in this section as affected waters include important habitats (e.g., lagoon and coastal reefs) to several of their life stages. In addition some mention of coral reefs, seagrass beds and mangroves being recognized as special aquatic sites also merits discussion in this section.
Vol 6	13	20	This action is casually dismissed as having no impacts to marine biological resources, but it is close to Agat Bay and total volume of waste will increase. More discussion should be provided to merit reaching this conclusion.
Vol 6	13	21	The determination of no impact in the text contrasts with the stated indirect impacts in Table 13.2-6 (increased barge traffic, runoff decreasing water quality). The additional volume of solid waste and trips to dump should be quantified, as well as how nearshore waters (resources, habitat) may be negatively affected.

addition, information added to the Final EIS to refer readers to Chapter 11 for a detailed impact analysis discussion.

A-012-137

Thank you for your comments. Impacts to coral and marine biota are discussed in detail in Chapter 11, Marine Biological Resources. Impact assessment provided in LEDPA discussion has been updated to reflect revised analysis (in response to comments) done in Chapter 11. In addition, information added to the Final EIS to refer readers to Chapter 11 and HEA Appendix for a detailed impact analysis discussion. Reference added for acreages and sentences revised for clarity.

A-012-138

Thank you for your comments. Impacts to coral and marine biota are discussed in detail in Chapter 11, Marine Biological Resources. Impact assessment provided in LEDPA discussion has been updated to reflect revised analysis (in response to comments) done in Chapter 11. In addition, information added to the Final EIS to refer readers to Chapter 11 for a detailed impact analysis discussion. Furthermore, the buffer zone discussion has been revised.

A-012-139

Thank you for your comments. The CWA prohibits the discharge of oil and hazardous substances in such quantities as may be harmful into or upon the navigable waters of the United States, including the contiguous zone, exclusive economic zone and adjoining shorelines. Under the CWA, EPA published oil pollution prevention regulations in 1973 (amended in 1974, 1976, 2002 and 2004). These regulations include requirements for both oil spill prevention and response. The Navy has developed operations manuals and spill contingency plans, provides personnel training, and conducts testing of transfer equipment to comply with these regulations. OPVAVINST 5090.1C Environmental Readiness

A-012-174				
Vol 6	13	21	13.2.5	Evaluate impacts to EFH/marine habitats from increased use of existing landfill. While there is no new land fill proposed and thus new construction, the capacity of the old landfill will be reached sooner and leaching may occur to adjacent Agat bay with sensitive marine resources. Address issues and modify delivery and content of DEIS.
Vol 6	13	21		The determination of no impact in the text contrasts with the stated indirect impacts in Table 13.2-6 (increased barge traffic, runoff decreasing water quality). The additional volume of solid waste and trips to dump should be quantified, as well as how nearshore waters (resources, habitat) may be negatively affected.
Vol 6	13	21	13.2.6	Evaluate fully potential impacts to EFH/marine habitats from off-base roadways and conduct this together with evaluation of potential impacts from on-base roadways. Again, it is clearly stated in Volume 7 that land based pollution has significantly impacted coral reefs in Guam which have declined. The road project network all together is extensive, and will increase sediment pollution to ocean not only during construction but also post construction by increasing the % of impervious surfaces on the island. Better access to areas may increase land clearing and off-roading which are known to be problematic on the island. Lack of clear drainage connection from upland to ocean does not eliminate that the water does eventually get there. For tables 13.2-7 to 13.2-10, quantify impact [to EFH/marine habitats] rather than simply state potential impacts. Address issues and modify delivery and content of DEIS.
Vol 6	13	21		Direct and indirect potential impacts to marine biological resources are listed by project and four alternatives for North Region, Central Region (33 projects), Apra Harbor (5 projects), and South Region (4 projects). Collectively, impacts from these road widening/strengthening, bridge replacement, and new construction projects could include: uncontrolled runoff into storm drains, freshwater wetlands, rivers, bays, and coastal waters (including MPAs), and sedimentation and non-point pollution impacts to marine communities/habitats. "... no direct impact to marine environments is anticipated, ... therefore, no analysis is required". Support should be provided for this type of statement, validity of assumptions, citations, discussion, etc.

Manual Section 22-2.2.7.1 requires all hands to receive environmental training. This training includes oil and hazardous substance management, handling, minimization, and spill response. Chapter 22 also requires ships to strictly comply with fuel transfer and ballasting procedures to ensure ballast water does not become contaminated with oil or any other waste. Ships using self-compensating fuel tanks are required to ensure adequate margin is preserved to prevent inadvertent discharges of oil with the compensating water. OPNAVINST 5090.1C also directs the Navy to prevent the introduction of non-native organisms into natural ecosystems. Section 19-10, Ship Ballast Water and Anchor System Sediment Control provides measures to prevent such aquatic introductions, as mandated by the National Invasive Species Act of 1996 (P.L. 104-332). This law mandates the establishment of an Armed Forces Ballast Water Management Program to prevent such introductions.

As described in the EIS, the Proposed Action would be implemented in accordance with these aforementioned regulations. The Final EIS will be revised to state that nearshore waters may also be affected by point-source pollution.

A-012-140

Thank you for your comment. Coral impact methodology and impacts are discussed in detail in Chapter 11, Marine Biological Resources. Impact assessment provided in LEDPA discussion has been updated to reflect revised analysis (in response to this comment) done in Chapter 11. In addition, information added to the Final EIS to refer readers to Chapter 11 for a detailed impact analysis discussion.

A-012-141

Thank you for your comments. A discussion of artificial reefs is provided in Chapter 11, Marine Biological Resources. Impact assessment provided in LEDPA discussion has been updated to reflect revised

A-012-175	Vol 6	13	21	Alt-1 (short-term and long-term): This section introduces the road projects, by area, but fails to address/discuss/analyze the potential impacts listed above on marine biological resources, including that on EFH, but then simply concludes that there would be no substantial impacts. Each project-impact should be quantified, at least as a range of potential effects, to allow for proper comparison and mitigation.	
	Vol 6	13	21	Map Fig. 13.2-4 depicts "sensitive marine biological resources and habitats" (e.g., areas of coral and seagrass special significance, high concentrations of giant mantas, bigeye scad, seasonal rabbitfish juveniles, seasonal spawning of hammerhead shark, bumphead parrotfish, and mangrove/wetlands) near road projects in the Apra Harbor and Central regions. The figure also fails to identify Tumon Bay as a Marine Preserve. Unfortunately, the accompanying text fails to discuss any of these. Responses by these important resources to proposed road projects (most very close to the coastline, Agaña Bay to Piti Bay to Apra Harbor) should be analyzed and discussed to understand how they may be affected by the likely impacts.	
A-012-176	Vol 6	13	21	Potential Mitigation Measures: These would include actions to avoid or minimize effects of road construction/operation. "Each road project would have mitigation measures specific to the individual project and environmental context". OK, so where is the discussion for each of these projects (other than a generic list of examples that follows)?	
A-012-177	Vol 6	13	22	The tables 13.2-7 makes the assumption that if the project is inland that there are no direct impact to coastal area and then proceeds to infer that this translates to no indirect impacts. In the majority of projects identified an impervious surface will be created. This will result in a discharge into the storm drainage and result potentially in an indirect impact to coastal environments. This issue needs to be address at a cumulative level with all the other road systems and impervious surfaces. This logic must be applied to all projects and information provided to define the related impacts or actions taken to avoid or minimize these impacts.	

analysis (in response to these comments) done in Chapter 11. In addition, information added to the Final EIS to refer readers to Chapter 11 for a detailed impact analysis discussion.

A-012-142

Thank you for your comment. Impacts to coral are discussed in detail in Chapter 11, Marine Biological Resources. Impact assessment provided in LEDPA discussion has been updated to reflect revised analysis (in response to this comment) done in Chapter 11. In addition, information added to the Final EIS to refer readers to Chapter 11 for a detailed impact analysis discussion.

A-012-143

Thank you for your comment. The FEIS has been revised to recognize that it is too early to determine whether the Kilo Wharf afforestation has been successful.

A-012-144

Thank you for your comment.

First and second comments

A detailed compensatory mitigation plan would be submitted as part of the Clean Water Act 404 permit application for construction affecting the navigable waters of the United States (including the CVN transient wharf). Due to the ongoing review of DoD's habitat assessment methodology for coral reef ecosystems and associated uncertainties regarding the scope of mitigation required, a detailed mitigation plan has not been developed nor will one be available for incorporation into the FEIS. However, a number of mitigation options, including watershed restoration and the use of artificial reefs, are discussed in programmatic nature in Volume 4, Section 11.2 of the FEIS. DoD recognizes that, as

A-012-178	Vol 6	13	22	The tables 13.2-8 makes the assumption that if the project is inland that there are no direct impact and therefore no indirect impacts. In the majority of the projects identified an impervious surface will be created. This will result in a discharge into the storm drainage and result potentially in an indirect impact to coastal environments. This logic must be applied to all projects and information provided to define the related impacts or actions taken to avoid or minimize these impacts.	
A-012-179	Vol 6	13	24	Direct conclusion (without discussion)—“Because the Navy has determined that Alt-1... would not cause significant impacts to marine biological resources (incl. EFH), no specific mitigation measures are proposed.” NEPA requires a full and objective analysis be that quantifies impacts and mitigation needs and this is absent.	Provide analysis to support a conclusion or withdraw conclusion. Define mitigation alternatives.
A-012-180	Vol 6	13	28	The road alternatives will all contribute to stormwater. Avoidance and minimization is not mitigation, this is compliance. The impacts associated with these road project need to be quantified and appropriate mitigations alternatives presented. The coastal impacts will require replacement of lost ecosystems function. This will require characterization of impacted resources.	Define stormwater impacts and develop appropriate compensatory mitigation based on replacement of lost ecosystem function.
	Vol 6	13	28	The proposed alternative have little to no difference and the "no action" alternative is not presented. The intent is to provide alternatives for comparison.	Develop a range of alternative with different impacts. Include a no action alternative and required assessment.
A-012-181	Vol 6	13	2	This very short section simply cites Vol. 2 for a description of the affected resource environment. But this Vol. (6) considers related actions, with associated impacts, that may extend more broadly than those in Vol. 2 (USMC relocation), and which should be noted or described here. (Therefore, my comments from Vol. 2, section 11.1 are also applicable here.)	

part of the CWA Sec. 404 permitting process, additional NEPA documentation may be required to address specific permitting requirements and implementation of required compensatory mitigations. Third Comment

The text is correct as stated and refers to calculation of HEA modeling. Text will be clarified.

A-012-145

Thank you for your comment. The citation of the 45% composition of silts and clays within the sediments in Table 5-2, Appendix E, Section E Volume 9 refer to sediments within Inner Apra Harbor at Alpha and Bravo Wharves and are so stated in that section. The LEDPA presentation, Section 230.71, for Alternatives 1 and 2 in Chapter 4 in Volume 4 refer to sediments in Outer Apra Harbor which are distinctly different than those in Inner Apra Harbor. Inner Apra Harbor has reduced water quality resulting from a number of factors including sedimentation from stormwater runoff which contribute to the high silt and clay fractions. Water quality in Outer Apra Harbor is much better allowing for greater ecological diversity as evident, for example, by the coral communities that exist in Outer Apra Harbor and do not exist in Inner Apra Harbor.

A-012-146

Thank you for your comment. As identified at the end of this paragraph, Chapter 11, Marine Biological Resources Section in Volume 4, would clarify the impact analysis for sea turtles. Sea turtles will be affected, but not adversely affected, with the implementation and proper management of mitigation measures and BMPs during in-water construction activities.

The commenter refers to "would be expected to affect" and "will adversely affect" from previous sections which are not identified specifically. However, the statement "may adversely affect EFH" is correct terminology. The Magnuson-Stevens Fishery Conservation and

A-012-182	Vol 6	13	2	"Projects were excluded from further analysis if they were proposed in areas not adjacent to or away from coastlines...Distance from the coastline should not be the determining factor, the issue of decision needs to be impact. If distant sites are impacting stormwater discharge along coasts these impacts also are required to be captured and evaluated in describing the federal action.	
A-012-183	Vol 6	13	2	Impacts from increased vessel movement to transport construction materials into Apra Harbor for these infrastructure improvements are cross-referenced to Vol. 2 Chap 11. But actions proposed in Vol. 6 are in addition to those briefly described in Vol.2. What is the additional frequency of vessel disturbance of the harbor? How large are these vessels? What would the impacts be on EFH, eggs and larvae of MUS? Fish are expected to simply move away, but what studies document their survivorship of such impacts, including increased vulnerability to predation, increased sedimentation (quantify?) on habitat, etc.? More analysis is needed here before conclusion that "... these impacts would be negligible, therefore no adverse impacts to EFH are anticipated" can be validated.	
Vol 6	13	3	13.2.1.2	Provide practical examples of what is considered to be minimal and temporary impacts [to EFH/marine habitats] to clarify practical evaluation of impact level.	Address issue and modify text.
Vol 6	13	5		"These communities (Inner Apra Harbor) are not considered to be coral reef (per USACE defl.), and therefore are not subject to compensatory mitigation". NMFS contends that communities that contribute to the ecosystem function, which fouled communities do, need to be part of the mitigation process. There are several federal definitions of coral reefs that support this line of thinking. This also extends to habitats that are spatially part of the a coral reef function like sand.	
Vol 6	13	5		Remove HEA reference in statement on biological resources found within Inner Apra Harbor as irrelevant in this paragraph. Define USACE term "coral reef" and justify why Inner Apra Harbor corals do not qualify as reef. Correct statement: while there may be no "coral reef" subject to compensatory mitigation, the area is still EFH for CREMUS.	Define, clarify and modify text.

Management Act (MSFCMA) identifies effect determinations for EFH as either "no adverse effect on EFH" or "may adversely affect EFH."

A-012-147

Thank you for your comment. Although impacts from sedimentation are anticipated to be short term and localized, dredging operations would be closer to Big Blue Reef for the Former SRF alternative and may result in increased indirect impacts to this resource. Long term operational impacts from increased vessel movements could also result from the closer proximity to Big Blue Reef. This is only one of the reasons why Polaris Point is considered the least environmentally damaging practicable alternative (LEDPA). Other reasons include less high quality coral that would be removed by percentage and fewer potential impacts to threatened and endangered species as shown in Volume 4, Chapter 4, Table 4.3-1.

A-012-148

Thank you for your comment. As stated in Chapter 4 of Volume 4, the purpose of the LEDPA presentation as contained within this chapter is to show compliance with the process of determining the least environmentally damaging practicable alternative. The subparts of this section consistently refer the reader to the detailed sections of analysis contained within the EIS that do in fact present rigorous quantitative and qualitative characterization of the impacts resulting from the deposition of dredged or fill materials into waters of the United States which is the basis for the 404(b) process. This chapter and alternatives comparison summary section was not intended to be encyclopedic as the EIS is exhaustive in its evaluation of these impacts. This is true for both the direct and indirect impacts where these impacts have been consistently conservatively estimated whether in the selection of the type of dredge or the buffer distance given for potential impacts to surrounding aquatic environments. It should also be noted that the document consistently states that the actual dredging depth would be -51.5 feet. The 60 feet

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A-012-184	Vol 6	13	5	<p>“Projects were excluded from further analysis if they were proposed in areas not adjacent to or away from coastlines. Distance from the coastline should not be the determining factor, the issue of decision needs to be impact. If distant sites are impacting stormwater discharge along coasts these impacts also are required to be captured and evaluated in describing the federal action.</p>	
A-012-185	Vol 6	13	5	<p>“(per USACE definition of what constitutes a coral reef)” not supported by citation</p>	<p>Clarify and modify text.</p>
	Vol 6	13	Off-base roadways	<p>Include all road projects in impact analysis [to EFH/marine habitats] even those located away from shoreline and/or streams. Roads across entire island can lead to sediment run-off from construction and increased storm water run-off post construction from increased impervious surfaces can affect marine environment [and EFH/marine habitats]. It is in fact clearly stated in Volume 2 and Volume 7 of this dEIS that Guam’s coral reefs have suffered greatly from land based sedimentation. Evaluation of cumulative impacts [to EFH/marine habitats] especially should take in to account the impact from entire network of roads.</p>	<p>NMFS sees this as on the most significant data deficiencies of the DEIS. Addressing this issues requires extensive data collection and analysis to appropriately define impacts. Gather data, conduct analysis and incorporate finding into DEIS.</p>
A-012-186	Vol 6	13	5 13.2.1.3	<p>Scoping process “concerns” seems to be a general list, not necessarily focused on this volume; unnecessarily redundant</p>	<p>Define concerns specifically to this volume and modify text.</p>

cited/questioned in the comment was a conservative estimate of potential dredging impacts for modeling purposes and is stated as such in Chapters 4, 11, and Appendix E. DoD recognizes that additional analysis, under 404(b) of the CWA, may be required following the ROD to assist with obtaining the dredging permit.

A-012-149

Thank you for your comment. The items listed, including quality of life, traffic, and operations, are relevant to the discussion of least environmentally damaging practicable alternative, in that they characterize the practicable aspect of the phrase.

A-012-150

Thank you for your comment.

This is Volume 4, Chapter 4, Water Resources. And as identified in the text, further description is provided in Chapter 11, Marine Biological Resources.

A-012-151

Thank you for your comment. Public scoping comments were considered when developing the content of both the Draft and Final EISs.

A-012-152

Thank you for your comment. The Final EIS contains an qualitative assessment of potential impacts, bolstered by quantitative analysis where practicable and reasonable.

A-012-187	Vol 6	13	6	13.2.2	State the % increase in demand on power and conduct a more detailed impact analysis (to EFH/marine habitats) for each and all the alternatives as the evaluations provided have limited information and are narrow in scope. Sources of impact and the potential receptor resources (EFH/marine habitats) have not been adequately characterized, nor the type of impact (cannot simply refer to Vol 2 for affected environment description). Sources of potential direct, indirect and cumulative impact from the total increased power demand for both DoD and Non-DoD power projects include increased run off from watering/landscaping/impervious surfaces, sediment run off during constructions, changes to ground/surface water status, leaching of pollutants from landfills, ocean outfalls/discharges of treated or un-treated water, pollutants from treatment processes, greater output of greenhouse gases from turbines.	Address issues and modify delivery and content of DEIS.
A-012-188	Vol 6	13	6	13.2.2.1 and 13.2.2.2	Redo impact analysis to EFH/marine habitats: evaluate fully the impacts from the increased use of combustion turbines (increased CO2 output), the upgrades to T&D systems (construction run-off), from increased maritime trafficking (physical impacts, pollutant spills), construction for fuel storage facility and from road upgrades, sub grade construction, brush clearing and cut/fill activities. Remove table 13.2-1 which does not provide important information for evaluating impacts.	Address issues and modify delivery and content of DEIS.
A-012-189	Vol 6	13	6		•Pref. Alt-1: "T&D system upgrades would be on existing above ground and underground lines." Potential impacts from excavation and runoff/sedimentation should be addressed for each project site in this DEIS.	
	Vol 6	13	6		• Pref. Alt-1 section concludes (after only two short paragraphs) that it "would result in less than significant impacts to marine biological resources and minimize impacts to ... sensitive EFH species," again- with no analysis provided to lead to such a conclusion! Similarly, the section on "Potential Mitigation Measures" for this main preferred alternative is empty.	

A-012-153

Thank you for your comment. The Final EIS contains a general discussion on the effectiveness of BMPs. The Guam Stormwater Management Manual is an example source document for evaluating potential BMPs for roadway actions. As described in the Final EIS, BMPs will be identified and implemented on a site-specific and action-specific basis following agency coordination.

A-012-154

Thank you for your comment. The difference between indirect and direct impacts has been further described where applicable in the Final EIS to clarify potential impacts to identified water resources.

A-012-155

Thank you for your comment. The Final EIS contains a quantitative analysis where practicable and reasonable. A discussion on the effectiveness of BMPs has been added to the Final EIS. The demarkation between indirect and direct impacts has been re-evaluated and updated where applicable to clarify potential impacts to identified water resources.

A-012-156

Thank you for your comment. The table will be revised.

A-012-157

Thank you for your comments. The efficiency of turbidity curtains was demonstrated during the dredging of Alpha-Bravo wharves where turbidity levels outside of the curtain were recorded to be 10% of the level inside the curtain. This topic is discussed further in Appendix

A-012-190	Vol 6	13	7	For Alt-2, impacts for road upgrades are listed as "subgrade construction, cut/fill, and brush clearing that are not associated with the marine environment". But where is the discussion of potential indirect impacts, such as increased sedimentation risk to nearshore marine habitats? These impacts should be quantified. Again, after three short paragraphs, the DEIS simply jumps to the conclusion that Alt-2 "would be LSI to marine resources ... and minimize impacts to EFH," without any accompanying EFH analysis or justification. "Potential Mitigation Measures" for this alternative are also lacking, with no explanation.	
	Vol 6	13	7	Table 13.2-1 and Figure 13.2-1 references reversed	Edit figures
	Vol 6	13	9	Alt-3: Same shortcomings as other alternatives; e.g., "there would be no impacts to marine (life)... no adverse effects to fish EFH, no significant adverse impacts to special-status species..." – any logical discussion or analysis as to how this conclusion was reached is lacking. "A less than significant impact is assumed ... to nearshore marine waters from potential storm-water run off during construction ... and vessel movements". So, while acknowledging there will be environmental impacts, conclusions in this DEIS are based on "assumptions" rather than analysis or thoughtful, citation supported, discussion! Again, no potential mitigation measures provided, or rational why not needed for this alternative.	
	Vol 6	13	9	13.2.2.3 5th paragraph Not sure why compliance with CNMI regulations is mentioned. Guam is not in the CNMI	Edit text
A-012-191	Vol 6	1	5	1.3 Discuss how addressing actions from increased demand but not in DoD's control or on DoD land separately from the DoD controlled actions, affects the impact analysis (to EFH/marine habitats). For example, the Guam Road Network action is to accommodate build up, but not in DoD control, yet overall impervious surface due to roads will increase on the island and the impacts will result from all actions regardless of jurisdiction.	Address issues and modify delivery and content of DEIS.

E. Approximately 55% of the sediment proposed for dredging consists of coarse grained material. This is the fraction that would settle out rapidly.

A-012-158

Thank you for your comment. The information cited in the SAIC 2001 report refers to the general behavior of sediment plumes from bucket dredging and the factors that influence it. Although the reference is almost ten years old the factors that influence plume behavior during bucket dredging operations have not changed and thus the information cited to this reference is still valid.

Stormwater runoff is not anticipated from the upland placement sites due to the high infiltration rates of the underlying soils. In addition, trenching is proposed to capture runoff and allow if less soil infiltration.

A-012-159

Thank you for your comment. The majority of the impacts to nearshore waters (e.g., construction and dredging) would be temporary in nature and would have no lasting effect on nearshore water quality. The use of turbidity curtains for sediment control would further reduce potential impacts to adjacent nearshore waters. The temporary nature of these activities coupled with the use of engineered controls render these impacts less than significant. Operational impacts have been quantified (e.g., additional days of operation, leachate data) in Chapter 4 and demonstrate the potential for beneficial impacts to occur.

"Localized and temporary" are defined as impacts that would occur at a specific location for a relatively short period of time. Although the project would occur over a period of 8-18 months, dredging activity would be transient in nature and would not occur at any one location for the entire duration of the project. Therefore, impacts to any specific area would be temporary and limited to that specific location.

Construction activities would not introduce any new polluting substances into nearshore waters. Impacts from construction and dredging would be temporary in nature and would permanently remove contaminant-

A-012-192	Vol 6	1	5	1.2.1	Quantify the scale of proposed Port Expansion, and identify the potential impacts that will result [to EFH/marine habitats] and how they will relate to current impacts addressed in this dEIS. While the Guam Port expansion may be addressed specifically in another EIS under the same umbrella this is a connected action.	Address issues and modify delivery and content of DEIS.
A-012-193	Vol 6	15	26	15.2.6.1	While the roadway projects may not be increasing the footprint that was previously paved, the federal action still requires the coral reef impacts to be addressed (effective avoidance, minimization and mitigation). This is particularly true in looking at stormwater management.	
A-012-194	Vol 6	16	2	16.2.2	The quantification of the effects on shipping does adequately capture the increased shipping that will result from the economic impacts associated with the relocation activities. In addition the increase risk of spill, grounding etc., should be evaluated and the proper response capability defined.	
A-012-195	Vol 6	2	1	2.1	Clarify that "alternatives" as expressed here are options, not NEPA alternatives as they are mostly very similar and narrow in scope since they are dictated by the alternatives chosen on higher levels such as to meet the overarching action need but also the 4 main sub-action needs. Clarify that this compromises the impact analyses [to EFH/marine habitats].	Address issues and modify delivery and content of DEIS.
A-012-196	Vol 6	2	3	Long term alternative	Address cumulative impacts to resources [to EFH/marine habitats] of long-term alternatives/options despite programmatic approach. Also address cumulative impacts [to EFH/marine habitats] from potential induced civilian growth despite these affecting GovGuam utilities more than DoD as connected. Refer to other US military bases as case studies, e.g. address cumulative impacts from Okinawa base.	Address issues and modify delivery and content of DEIS.
	Vol 6	2	6	2.1.1	Evaluate all action components and impact analyses [to EFH/marine habitats] of both non-DoD and DoD together. Clearly state the total increase of demand of utilities and express not only numbers in tables, but in text and in relation to baseline. E.g. that future DoD power demand will be >2.5 greater the current DoD demand.	Clarify and modify text.
A-012-197	Vol 7	2	21	table 2.2.1	The use of the term "May" to describe application needs refinement. The action should better define intent to determine the term needs control or can be committed.	Define intent so application can be better defined.

containing sediments from the nearshore substrate. Proposed stormwater and wastewater improvements would improve the quality of water discharged into nearshore waters from upland sources.

A-012-160

Thank you for your comment. The text of Volume 4, Chapter 5 has been edited to remove redundant descriptions of the proposed project.

A-012-161

Thank you for your comment. The baseline population information is provided in Figure 4.2-1 of the Socioeconomic Impact Assessment Study (Appendix F, Volume 9 of the DEIS). To make this information more prominent, the baseline population will be included in the socioeconomic chapter of the DEIS.

A-012-162

Thank you for your comment. Volume 6 is limited to the analysis of related impacts to roads and utilities. The impact to these elements does include changes in demand from estimated civilian population changes as contained in the socio-economic study. The impact on roads/transportation is covered in Volume 6 Chapters 2 and 3.

The impact to marine transportation is covered in Volume 2 Chapter 14.

A-012-163

Thank you for your comment. Volume 6, Chapter 6 addresses impacts to water resources and water quality. Volume 6, Chapter 12 addresses potential impacts to terrestrial biological resources, including wetlands and aquatic habitats in an ecological context. The subsequent chapter (Chapter 13) addresses potential impacts to marine biological resources. Best management practices (BMPs) will be designed and implemented for individual projects, however, in many instances

A-012-198	Vol 7	2	21	table 2.2.1	For 'marine biological resources (w/in DOD control)' several compensatory mitigation projects are considered for impacts to coral reef communities (e.g., artificial reefs, watershed restoration, coastal water enhancement). What evaluation process was used to determine the most appropriate and sufficient project to fully compensate for the adverse impacts?	Describe evaluation method for proposed alternatives.
A-012-199	Vol 7	2	23	table 2.2.1	Include reduction in stormwater impacts for systems outside buildup activities. Expand scope under afforestation to include all sedimentation reduction tools like diversion, ponding basins, injection well, terracing, etc..	
A-012-200	Vol 7	2	23	table 2.2.1	Add: As a BMP, transplant coral colonies to a similar close in proximity location. This is a case by case process but needs to be an adopted practice. This is not mitigation.	
A-012-201	Vol 7	2	2	table 2.1.1	"Anchor lines from construction vessels would be deployed with appropriate tension to avoid entanglement with sea turtles", Measures to avoid placement on corals and BMPs to prevent anchor dragging need to be defined?	Define BMPs to avoid anchor damage to corals
	Vol 7	2	2	table 2.1.1	There are no BMPs for stormwater impacts to the ocean.	Measures need to define how ocean impacts will be avoided or mitigation alternatives will need to be developed.
	Vol 7	2	2	table 2.2.1	There are no BMPs for stormwater impacts to the ocean.	Measures need to define how ocean impacts will be avoided or mitigation alternatives will need to be developed.
	Vol 7	2	30	table 2.2.1	This section is an informative, short review of the concept of 'adaptive management' in natural resource management. However, it fails to discuss how this will be used in the present context for marine resources (i.e., in the mitigation of Navy impacts in Apra Harbor).	Describe how adaptive management will be applied.

specific BMP designs cannot be provided until the actual GRN project designs approach completion. The BMPs will be consistent with environmental protection plans (required for grading permits on Guam), other GovGuam guidance (updates to the CNMI and Guam stormwater manual), and recent EPA guidance for Section 401 implementation.

A-012-164

Thank you for your comment.

The upfront portions of the Environmental Consequences (i.e. Approach to Analysis) would be very similar for all Volumes. Text has been modified in the FEIS to expand on the use of this criteria as appropriate.

A-012-165

Thank you for your comment.

1. The ROI with respect to EFH has been clarified/modified as appropriate for all associated FEIS Volumes.
2. Various alternatives to the proposed action were created to lessen or eliminate the "unresolved conflicts concerning alternative uses of available resources" (102(2)(E)). For this Chapter and based on the various alternatives to the proposed, the marine biological resources would be relatively affected by each alternative and do not have unresolved conflicts that other resources may have. Twenty or so resources are being evaluated against the proposed action and its alternatives, including the no-action alternative.
3. Table 13.2-2 is a combination of short- and long-term potential impacts. Text will be revised to clarify short- and long-term impacts accordingly in the FEIS.
4. Quantified, as appropriate, in FEIS to justify no significant impacts.

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A-012-202	Vol 7	2	30	table 2.2.1	This section is an informative, short review of the concept of "adaptive management" in natural resource management. However, it fails to discuss how this will be used in the present context for marine resources (i.e., in the mitigation of Navy impacts in Apra Harbor).	Describe how adaptive management will be applied.
	Vol 7	2	48	2.3.5.3	Degradation of water quality would also impact the marine environment. This issue is recognize but not quantification of impacts is presented or incorporated into the overall assessment.	Provide data, analysis and appropriate ly modify text.
A-012-203	Vol 7	2	56	sec. 2.4.8	"Potential impacts to marine biological resources... would generally be the same regardless of construction tempo..." Disagree. Halting construction during periods of heavy rains could reduce impacts of runoff/sedimentation to nearby coastal coral communities. This also applies to size of areas cleared or operation under adverse conditions (ex. large waves).	Recognize the factor that affect impacts with respect to tempo and build appropriate logical management procedures to avoid or minimize impacts.
	Vol 7	3	18	table 3.3-17	There has been a long standing issue of sub-merged land ownership. The US claim to ownership of these associated submerged lands requires that the base installations have a current Integrated Natural Resource Management Plant (INRMP) under the SIKES Act. The present plans are outdated and do not address quantifying the natural resources within the respective areas or provide a management plan. An INRMP needs to be completed that quantifies the natural resources and present a management plan for the DOD submerged lands. This effort needs to include USFWS, NMFS, USEPA and the local government natural resource regulatory agencies and needs to provide appropriate access to these responsible partners.	Update INRMP of Mariana base installations.
	Vol 7	3	19	table 3.3-18	It is not correct to say there will be no impact on the use of non-DOD submerged lands. The leasing or purchase of private lands for the firing ranges near Route 15 would create new restrictions on access to and use of the waters and submerged lands within GovGuam jurisdictional waters adjacent to the site. This should require, at least, compensation.	Address issues and modify text.

5. Text added to FEIS to further clarify why nearshore resources are not anticipated to be impacted. Text regarding Potential Mitigation Measures revised to state: "No additional measures to those identified in Volume 7 are recommended at this time.

A-012-166

Thank you for your comments.

1. Baseline marine biological resources information (including EFH, special status species, and non-native species) for the specific alternatives of the proposed action was analyzed commensurate with the land-based and/or in-water activities that may affect the nearshore marine environment.

These interim alternatives are a reconditioning of the existing combustion turbines and as stated "would not require new construction or enlargement of the exiting footprint" Southern Guam surface hydrology is very different from central or northern Guam, which is where these projects would be potentially located. Text has been mentioned throughout the document describing how surface water discharge from central and northern Guam, due to its porous soil, is nonexistent. Text has been added to clarify and justify determinations, as deemed appropriate.

2. Increased vessel traffic was analyzed in Volume 2 as described Volume 6 text. See No. 1.

3. Impacts to nearshore environment from construction and operation activities, as described in the text, are not expected. Therefore, all marine biological resources' are described together as a whole for this Potable Water subsection. See No. 1.

4. Issues addressed appropriately with text revisions for FEIS.

A-012-204	Vol 7	3	1		The steps used to compare the preferred alternatives to 'no action' are listed. "The resource descriptions are often qualitative... based on best available information". More use (reference/citation) should have been made to report relevant quantitative details available in the numerous marine biological studies of Apra Harbor and Guam coastal waters, over the past several decades, by various Federal and Territorial agencies (e.g., NOAA, NPS, FWS, DAWR, UOG-ML), and contractors.	Incorporate references and quantitative detail into comparison.
	Vol 7	3	1		The comparison of alternatives to the no action alternative given the impression that the impacts associated with alternatives will not increase erosion when best management practices are successful. This perception is not consistent with the proposed alternatives and historical application of the best management practices proposed.	Better define and articulate impacts compared to no action.
A-012-205	Vol 7	3	25	3.3.8.3	recreational opportunities would also be lost for beaches and near shore activities in the Pagat area (firing range). This restricted access also increases safety risks by forcing boats to travel much further off-shore to access the northern reefs. Some form of mitigation needs to be provided.	Address issue and incorporate into text.
A-012-206	Vol 7	3	32	sec 3.3.10	All impacts of Navy's collective 'preferred alternatives' on marine resources are discussed in less than 2-pages, while impacts from 'no action' are addressed in over 5-pages (inherent bias?). DEIS seems to suggest that with the already deteriorated state of environmental conditions, the additional impacts by the Navy actions won't really matter much.	Appropriately define potential risk and impact of proposed activities.
	Vol 7	3	32	sec 3.3.10.1	Sections on 'Construction/Operations Impacts' to marine life and habitats, mostly with conclusions of LSI or NI, should be expanded to fully characterize the type, extent, and duration of these impacts to marine flora/inverts, fish/EFH, special-status species. More discussion is needed to justify conclusions.	Provide supporting information to justify conclusion.
A-012-207	Vol 7	3	32	sec 3.3.10.1	"With successful compensatory mitigation for direct dredging removal of corals... the significant adverse effects to fish and EFH would be mitigated to LSI". How will such compliance be determined? Where is there a long-term monitoring program with survey design for evaluation?	Provide supporting information to justify conclusion.
A-012-208	Vol 7	3	32	table 3.3.25	This table present finding of impacts associated with alternatives. The determination are not supported by data or analysis.	Provide supporting information to justify conclusion.

A-012-167

Thank you for your comment. DoD concurs with your comment that these two alternatives must be discussed together.

A-012-168

Thank you for your comment.

A-012-169

Thank you for your comment.

First Comment: Please refer to Volume 2, Chapter 11 and Volume 4, Chapter 11 for discussion regarding the potential impacts of the proposed action to the marine environment. Text describing how the Navy study data will be used to evaluate the potential impacts on water quality and the marine environment has been added as appropriate.

Second Comment: In general these conditions have been taken into account for the overall impacts assessment. The increased volume of effluent will be offset by secondary wastewater treatment of the effluent leading to markedly lower output of various constituents, regardless of physical conditions of the environment. Cumulative effects of calm conditions have occurred in the outfall area for the primary treatment; upgrading the system to secondary treatment will have positive impacts on the immediate outfall area.

Third Comment: Refer to Guam Northern District Outfall Assessment in Volume 9 for detailed information regarding the modeling assumptions and validation methods.

A-012-170

Thank you for your comment.

A-012-209	Vol 7	3	33	6	table 3.3.25&2	This table present finding of impacts associated with alternatives. The determination are not supported by data or analysis.	Provide supporting information to justify conclusion.
A-012-210	Vol 7	3	33			This section states "in-water and land-based construction related to proposed Marine Corps actions would result in less than significant adverse impacts on marine resources in Inner and Outer Apra Harbor. The impacts would be short-term and localized, assuming implementation of BMPs summarized in Chapter 2. There are two major problems with this statement. The impacts from this project are unprecedented compared to anything that has been done in the US Pacific since World War II. The information provided is insufficient to draw the conclusions associated with BMPs and the determination of impacts.	There needs to be a clear delivery of the extensive environmental impacts associated with this project and sufficient data needs to be presented to articulate the impacts even after BMPs are applied.
A-012-211	Vol 7	3	33			This table present finding of impacts associated with alternatives. The determination are not supported by data or analysis.	Provide supporting information to justify conclusion.
A-012-212	Vol 7	3	34		operational Impacts	The "direct dredging removal of coral and coral reef habitat associated with the aircraft carrier" needs to reflect the proper context. Compensatory mitigation for lost aquatic resource needs to be replacement of lost ecosystem function.	Modify text.
	Vol 7	3	34		operational Impacts	Increased nutrients may increase toxins found in algae harvested by residents and eaten by marine herbivores, including fish and sea turtles.	Address issue and modify text.
	Vol 7	3	35		operational Impacts	Negative impacts to sea turtles and EFH may occur from military personnel on shore-leave if they drive vehicles on beaches and spearfish and walk across reef flats. Mitigative measures should include enforcement.	Address issue and incorporate into text.

Revisions to the FEIS have been made to address these issues as appropriate .

A-012-171

Thank you for your comment.

Survey methodology information has been described in Volume 6, Chapter 13, Section 13.2.1.

The report references studies done in the actual study area, which are directly applicable to the analysis presented. The *Guam Northern District Outfall Assessment* report is included as an appendix in Volume 9.

Additional references were added to the FEIS as appropriate.

Based upon current modeling and past experiences with ocean outfalls across the U.S. employing similar treatment technology, the conclusion stated in the FEIS are properly validated.

Primary treatment upgrades will occur within the 2012-13 timeframe which will reduce the effluent levels to levels less than the No Action Alternative. The noted characterization is not accurate; the increase in *Enterococcus* to 800 mg/L is not an 800% increase.

A-012-172

Thank you for your comment.

Planned upgrades to primary treatment and secondary treatment will substantially improve water quality in the affected area to water quality standards; therefore, the conclusions stated are valid.

Hawaii was used as an example; however, information from Guam was also used. Citations for Oahu references are provided in the EIS. Conclusions on effects to EFH are provided in the EIS.

<p>A-012-213</p> <p>Vol 7</p>	<p>3</p>	<p>35</p>	<p>3.3.10.2</p>	<p>This section generally paints a rather negative picture of Guam's resource status due to previous and current human impacts, while component impacts attributable to decades of military presence/activity on the island and coastal habitats are not identified.</p>	<p>In terms of reference, articulating condition of resources on a historical basis should include the DOD impacts on these resources over the same period to address cumulative impacts under NEPA.</p>
<p>A-012-214</p> <p>Vol 7</p>	<p>3</p>	<p>35</p>	<p>3.3.10.2</p>	<p>Section notes the rarity of medium and large fish around Guam, compared to more northern islands of the archipelago. DEIS should also discuss the cumulative impacts of military develop around Apra Harbor, that have already reduced the availability and quality of wetlands and reef habitat (nursery habitat important to fish recruitment), affecting sustainable fisheries. In addition, the past practices of DOD community impacts on fisheries needs to be captured in this document. This include extractive and indirect impacts.</p>	<p>The existing status of resources needs to include specific consideration for past DOD impacts and expect impacts to coral reef and fisheries resources.</p>
<p>Vol 7</p>	<p>3</p>	<p>36</p>	<p>3.3.10.2</p>	<p>Past recreational diving activities by tourists and residents, under 'no action' with associated negative impacts on coral reef environments. In contrast, impacts of recreational diving are not even mentioned in the following section (comparing preferred alternatives) that include bringing nearly 80,000 additional residents (military, dependents, contractors) to the island, which will collectively add significantly to these impacts.</p>	<p>The expected impacts to natural resources from bringing nearly 80,000 additional people to live on Guam need to be presented in this document.</p>
<p>A-012-215</p> <p>Vol 7</p>	<p>3</p>	<p>36</p>	<p>3.3.10.2</p>	<p>An attempt is made to highlight the apparent negative effects of sewage outfall that contributes to the decline of reefs under 'no action'. But this is in contradiction to statements made earlier in the DEIS where sewage outfalls are purported to "enhance coral growth and benefit coral reef community" (Vol. 6, p 13-18).</p>	<p>driven and presented consistently. There are local references that have not been utilized in building the analysis of this issue.</p>

Mitigation measures in the nature of improvements to water treatment facilities result in overall improvement to water quality over existing conditions, as noted in Volume 6.

Updated references have been provided in the FEIS.

Text has been revised.

Planned upgrades to primary treatment and secondary treatment will substantially improve water quality in the affected area to water quality standards; therefore, there would be a net beneficial impact water quality which would result in either a no effect or benefit to EFH (finfish) over the No Action Alternative (baseline).

There is no definitive information available suggesting that existing conditions are harmful to Spinner Dolphins.

A-012-173

Thank you for your comment.

First Comment

Volumes 2 and 4, chapters 11 discuss the potential impacts of the proposed DoD action and potential mitigation measures, and are referred to in the section referenced by the commenter. Text was added to the FEIS to include mitigation for water quality. An analysis of potential impacts from upgrading Guam's power system was not included in this section, but previously in section 13.2.2. I believe the commenter is referring to upgrades to Guam's wastewater system, which text was added to the FEIS to include mitigation for this action, as described above.

<p>A-012-216</p> <p>Vol 7</p>				<p>“Nonpoint source pollutants in the north often infiltrates basal groundwater, which discharges into springs along the sea-shore and subtidally on the reefs” Why wasn’t this discussed earlier in the DEIS in addressing potential impacts associated with the realignment of Rt-15, which is above the shoreline of some of Guam’s nicest coral reefs?</p>	<p>In general the northern geology of Guam is Karst and all relocation related impacts that may affect the movement of water into the ground or the quality of this water needs to be described and characterized. Groundwater ultimately discharges into the ocean. Changes in volume and water quality are expected if ground pathways are impacted. The impact of these changes on coastal resources needs to be addressed.</p>
<p>A-012-217</p> <p>Vol 7</p>		3	36	3.3.10.2	<p>The reference to the Tumon algae bloom is not entirely correct. The algae that blooms in Tumon, Enteromorpha, has been prevalent in the Bay as far back as there are record (at least to the 1700s). This is because Tumon has significant freshwater ground seeps that have always been nutrient rich. The management of shoreline properties and the use of fertilizer caused serious problems in the late 80s and 90s. This situation was exacerbated by the lack of fish stocks in the bay that consume this plant. Since establishing the marine preserve the algae been present in much more manageable volumes. The nutrient levels are a significant concern but it should also understand that the natural conditions also favor the growth of this algae and it is both the herbivores and nutrient loading that require management.</p> <p>Correct the description.</p>

Second Comment

Volume 2 and Volume 4, chapters 11 discuss the potential impacts of the proposed DoD action and potential mitigation measures. Text to clarify this assessment as it relates to potential impacts to special-status species has been added as appropriate. Species of Concern and Candidate species are not afforded any special protection, although the two species mentioned are managed by a Fishery Ecosystem Plan, so in the FEIS, are included in the Essential Fish Habitat section. In addition, the habitats referred to by the commenter are Essential Fish Habitat, so are discussed in the Essential Fish Habitat section.

Third Comment

Added information about the prevention of leachate entering Agat Bay to the FEIS.

Fourth Comment

Text modified to reflect conclusions made in Table 13.2-6, which includes potential impacts to nearshore waters.

A-012-174

Thank you for your comment.

1. Volume 2 and Volume 4, Chapters 11 discuss the potential impacts of the proposed DoD action and potential mitigation measures. As stated in the DEIS, the proposed action would not have any additional impacts over the no-action alternative. The existing Navy landfill has sufficient capacity and monitoring wells are in place.

2. The Navy will comply with all appropriate BMPs associated with the actions described in this comment.

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A-012-218	Vol 7	3	38	3.3.10.2	Tinian! "The stressors described for Guam would be similar to Tinian, ... typically a function of an increase population... on the natural environment". There is no discussion of the impacts of up to 400 marines, training for total of 3 mo/yr, plus off-hours recreational activities (see Vol. 3), on marine resources in the subsequent (very short) section that is supposed to compare impacts of all preferred alternatives to 'no action' (where Tinian is not even mentioned)?	The activities impacting Tinian need to be quantified and incorporated into a function assessment of impacts for Tinian.
A-012-219	Vol 7	3	38	Tinian	Should include "erosion from unimproved roads" as a stressor.	Edit text
A-012-220	Vol 7	3	39	Special Status Species	The information pertaining to the Hawksbill Turtle is inaccurate. They are regularly observed on Guam. They are also not exposed to the same threats as Green turtles as they have not been subjected to the same human take issue for consumption. They are known to have very limited nesting habitat on Guam. (See DAWR Inshore Fisheries Review by R. Henesty 93.)	Incorporate information into text.
A-012-221	Vol 7	3	39	3.3.10.3	Conclusion that "There is no appreciable difference in the preferred alternatives and no action with respect to marine biological resources during operation" - is without support or justification.	Provide supporting information to justify conclusion.
A-012-222	Vol 7	3	39	3.3.10.3	Reference to HEA, where "artificial reefs will provide compensatory mitigation, replacing 85% of natural reef functions and services within 10 yr" is also unsupported, both here and in Appendix. E.	NMFS does not believe that science presently exists to support the use of an artificial reef to replace lost ecosystem functions. Artificial reefs have been used for fishery management issue and have practical applications for that purpose. The artificial reef proposed mitigation alternative does not comply with the 2008 ACOE mitigation rule.

3. The Navy will comply with all appropriate BMPs associated with the actions described in this comment.

4. The Navy will comply with all appropriate BMPs associated with the actions described in this comment.

A-012-175

Thank you for your comment.

1. Please refer to Volume 2, Chapter 11 for a discussion of the potential impacts of the proposed action and potential mitigation measures. Text regarding potential roadway impacts to EFH has been reviewed and modified as appropriate to quantify potential effects to allow for proper comparison and mitigation.

2. Figure 13.2-4 will be revised to identify Tumon Bay Marine Protected Area. Volume 2, Chapter 11 and Volume 4, Chapter 11 provide more detail regarding potential impacts to marine resources from the proposed DoD action and potential mitigation measures. The Navy believes, the baseline marine biological resources information for the specific alternatives of the proposed resurfacing of roads (i.e. would not require new construction or enlargement or excavation of the exiting footprint) was analyzed commensurate with the land-based effects it may have on the nearshore marine environment. Text has been added to clarify and justify determinations, as deemed appropriate.

A-012-176

Thank you for your comment. The final designs for the roadway projects have not been completed, nor do they need to be completed for a NEPA analysis. As the designs are completed, mitigation measures are incorporated into the design process. As stated in Volume 6, Chapter 6

A-012-223	Vol 7	3	39	3.3.13.1	"Ocean disposal of dredged material could include up to 2 barge trips per day for a year". This could be over 700 trips per year (vs. DEIS says 277); where is there any discussion of the potential impacts from loading spillage and leakage during transport on marine habitats and water quality? (Note: subsequent section- 3.3.13.3- concludes LSI in Apra Harbor from this activity.)	The information provided is insufficient to conclude the LSI in Apra Harbor. The threats need to be properly defined and then the impacts determined for both the operational and disposal aspects of this activity.
A-012-224	Vol 7	3	39	3.3.13.1	"...assumed that the increase in tourism and potential military operations would increase the marine traffic to/from Tinian... impact is assumed to be less than significant". DEIS should discuss impacts if CNMI/Tinian government fails to make the necessary harbor repairs in timely manner to accommodate the additional military activities. Competition between resort/private boats and military vessels for dock space? Impacts to harbor environment?	Capture the maritime risks to CNMI and consider the impacts from varies completion timelines in providing facilities.
	Vol 7	3	39	3.3.14.1	For all Related Actions, the summary of construction and operational impacts, considering all volumes and resource types, are either NA, NI, or LSI, and a few SI-M. Such conclusions were questionable (lacking support and justification), and no further conclusive support is provided here	Provide data to support conclusions.
A-012-225	Vol 7	3	sec 5	3.3.3.1	"During construction, the preferred alternatives could result in temporary increases in stormwater runoff... and indirect impacts to wetlands and nearshore waters due to sedimentation on Guam...that would be reduced to less than significant levels through use of BMPs". Impact determinations for construction and operational impacts (by DEIS volume and impact type) are mostly LSI or NI, with a few SI-M (Tables 3.3-4, -5). Attainment of LSI impacts, even with BMPs, has not been adequately or conclusively demonstrated in this DEIS	Define how LSI, NI and SI-M determination were made and what data sources were analyzed to make this determination.
	Vol 7	3	sec 5	3.3.3.1	This NEPA required section, discussing nearshore waters, is quite short and insufficient to justify conclusion of no appreciable impacts from action alternatives.	Provide supporting information to justify conclusion.

(Water Quality), these BMPs and other mitigation measures will follow the most current stormwater management guidelines. Further, through the CWA Section 401 Certification process, additional mitigation measures may be required and the BMPs will be updated accordingly.

A-012-177

Thank you for your comment. The comment refers to impact assessment for northern Guam projects that occur inland in relation to the type of projects listed in Table 13.2-7. Project types in northern Guam occur over highly porous limestone substrates that do not form drainages, therefore, waterflow from impervious road surfaces in northern Guam do not sheet flow or transmit through drainages into marine habitats in northern Guam. Project types in other regions are considered to have an indirect impact (unmitigated) to marine environments because of the substrate these projects overly and because of the proximity to drainages. Project types that occur in other regions have indirect impact descriptions listed in rows named "Indirect Impacts."

A-012-178

Thank you for your comment. The comment refers to impact assessment for specific northern Guam projects listed in Table 13.2-8 that occur inland. GRN projects in northern Guam occur over highly porous limestone substrates that do not form drainages, therefore, waterflow from impervious road surfaces in northern Guam do not sheet flow or transmit through drainages into marine habitats in northern Guam. Projects in other regions are considered to have an indirect impact (unmitigated) to marine environments because of the substrate these projects overly and because of the proximity to drainages. Potential indirect impacts for these specific projects are included under the column labeled "Indirect Impacts."

A-012-226	Vol 7	3	77	3.4	The characterization of secondary impacts is passed off on to a on-going study. The secondary impacts associated with this review exceed anything in the US Pacific over the last 60 years. Without the details of the on-going report, evaluating this issue can not be completed. Given the significance of this issue, it is critical prior to presenting findings in a final EIS, there is adequate time to review and analyze the information gathered. Some simple examples of this are the increased recreational use of resources. This includes diving, snorkeling swimming, fishing, sun bathing, boating to name few. The secondary impacts go well beyond the activities and need to address the social impacts on all the user groups.	Complete study and provide data for review prior to FEIS release.
A-012-227	Vol 7	3	77	3.4	"... discussion focuses on Guam, but may be applicable to Tinian as well". Size and scope of this DEIS warrant separate, independent discussion of secondary effects on Tinian as well (different islands, completely different activities/ impacts).	Provide a separate analysis for each island.
A-012-228	Vol 7	3	80	3.5	"On Tinian, the preferred alternative may impact wetlands and additional studies are planned to verify location of the wetlands". This seems straightforward enough and should have already been surveyed and included in this DEIS.	Include wetland studies in document.
A-012-229 A-012-230	Vol 7	3	80	3.5	Summary of potential impacts for all alternatives (Table 3.5-1) is useful. Where, specifically, in Vol. 2 is this table? Again, cells with ND or 'no impacts' reference mostly Navy conclusions (elsewhere in DEIS) that are unsubstantiated or lack appropriate and sufficient analysis or justification.	Finding are unsubstantiated and need data support to reach reported conclusions.
A-012-231	Vol 7	3	80	3.5	Table also notes direct impacts (of quantified area) to five rivers and adjoining bays, including marine preserves, from bridge construction. But where (here or in Vol. 6) are these aquatic/marine impacts adequately analyzed or discussed?	Add impacts to rivers and adjoining bay in Vol 6.
A-012-232	Vol 7	3	80	4	Establishment of the timeframe for analysis: "... intent of capturing the environmental baseline conditions as of 2009". There should also be a discussion of this as a seriously 'shifted-baseline' upon which additional impacts are considered.	Revise definition of baseline.

A-012-179

Thank you for your comment. Prior to the subject impact conclusion, there is a discussion regarding BMPs sourced from the update to the 2006 CNMI & Guam Stormwater Management Manual and the necessity of an Erosion and Sediment Control Plan to obtain a Guam DPW Clearing and Grading permit and a Guam EPA Stockpiling Permit. The subject sentence has been revised.

A-012-180

Thank you for your comment. The Federal Highway Administration is required to comply with all stormwater regulations under the Clean Water Act and will use Best Management Practices to ensure compliance with these regulations.

Stormwater impacts and associated mitigation measures for roadway projects are discussed in Volume 6, Chapter 6, Section 6.2.6. Roadway project alternatives, including the No Action Alternative, are presented in Volume 6, Chapter 2, Section 2.5 of the EIS. The roadway project alternatives are not independent alternatives, but were developed in conjunction with the Main Cantonment Alternatives for the overall buildup project as presented in Volume 2, Chapter 2, Section 2.6.1.2 of the EIS.

A-012-181

Thank you for your comment. Comments from Volume 2, Section 11.1 have been addressed as appropriate.

A-012-182

Thank you for your comment. Projects away from the coast will not directly impact marine biological resources, however the text includes potential for indirect impacts to marine resources for other projects.

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A-012-233	Vol 7	3	80		Steps identified to describe and determine environmental consequences (8-11) simply cross-reference back to chapters in earlier volumes. Many of the issues presented in the referenced volumes are lacking in analysis and sufficient discussion to properly meet the NEPA requirements.	Need to ensure that conclusions are supported by data.
A-012-234	Vol 7	3	80		Lists of cumulative projects on Guam (Table 4.3-1) and Tinian (Table 4.3-2) are good, but would be more useful with addition of columns for impacts on affected resources (direct/indirect, temporary/permanent, characterization, magnitude, etc.).	Need to ensure that conclusions are supported by data.
A-012-235	Vol 7	3	8	nearshore waters	Should include, "erosion from unimproved roads" as a source of contaminants to nearshore waters.	Quantify and modify text.
A-012-236	Vol 7	3	8	nearshore waters	Should say, "Guam/CNMI" agencies, not "Guam/Tinian" agencies.	Edit text.
A-012-236	Vol 7	4	18	Table	3 rd column of T-25 should be CNMI government, not Gov Guam	Edit Text
A-012-237	Vol 8	2	3	2.1.1	* "Status of Compliance" for many laws is listed simply as "The proposed actions analyzed in this EIS/OEIS would be implemented in accordance with this Act," with no additional detail provided. However, for a number of the laws listed it is not clear where (volume, chapter, section?) such an analysis is adequately discussed (e.g., marine sanctuaries, MPAs, sediment/siltation).	There is a need to provide summary information across the document to determine if in fact these mandates have been met.
	Vol 8	3	1		The table of required permits and approvals needs to add: ESA, FWCA and EFH. The text component need only to add the compliance components of Essential Fish Habitat under the MFCMA. Overall compliance with the identified requirements becomes a function of the efforts described in other volumes of this review. As has been pointed out in those comments, there are many examples where the conclusions made are not supported by data and/ or scientific merit.	Add key regulatory compliance for ESA, FWCA and EFH.

Indirect impacts defined here are reasonable or certain to occur in the future, such as runoff in rain events. Project types in northern Guam occur over highly porous limestone substrates that do not form drainages, therefore, waterflow from impervious road surfaces in northern Guam do not sheet flow or transmit through drainages into marine habitats in northern Guam. Projects in the North region will not directly or indirectly impact marine resources. Other projects in other regions may indirectly impact (unmitigated) marine environments because of the substrate these projects overly and because of the proximity to drainages. Project types and specific project types that occur in other regions have indirect impact descriptions listed in rows named "Indirect Impacts" in Table 13.2-7 and Table 13.2-8. All projects, as stated in the text, will adhere to the updated 2006 CNMI & Guam Stormwater Management Manual, and projects will have an Erosion and Sediment Control Plan. This plan is required for a Guam DPW grading permit and will include project specific BMPs. The final designs for the roadway projects have not been completed, nor do they need to be completed for a NEPA analysis. As the designs are completed, mitigation measures are incorporated into the design process. As stated in Volume 6, Chapter 6 (Water Quality), these BMPs and other mitigation measures will follow the most current stormwater management guidelines. Further, through the CWA Section 401 Certification process, additional mitigation measures may be required and the BMPs will be updated accordingly.

A-012-183

Thank you for your comments.

1. Volume 2 and Volume 4, Chapters 11 discuss the potential impacts of the proposed DoD action and potential mitigation measures; including the negligible increased vessel frequency (and size) above the no-action. This information is also described in Volume 2, Chapter 2, Proposed Action and Alternatives and Chapter 14, Marine Transportation. The

A-012-238	Vol 8	5	4 5.6.2	Compensatory financial mitigation is proposed to the land owners. The land owners do not own the submerged lands that will be impacted, those are under jurisdictional ownership of GovGuam - and significant compensation should be made for the public's loss of those public resources. The non-use of the Finegayan firing range complex, and the subsequent lifting of that facility's Surface Danger Zone over federally controlled submerged lands does not in any way mitigate for further taking of public lands	
A-012-239	Vol 8	5	6	At the public trust level, obtaining government submerged lands can not be mitigated by avoiding other purchases. The mitigation needs to be commensurate with the loss.	Develop mitigation that provides something back to the community of equivalent value.
A-012-240	Vol 8	5	7	With up to 80,000 additional residents on Guam, there will be a sharp increase in recreational activities, including at beaches, dive spots, and nearshore waters, which would accelerate deterioration of facilities and compromise long-term productivity of recreational resources.	The recreational impacts need to be defined.
A-012-241	Vol 8	5	9	short and long term impacts On the large scale the cumulative road development impacts are significant for both short term and long term impacts to coastal areas. This issue was not identified or discussed.	Need to define and the incorporate road impacts to coastal health.
A-012-242	Executive Summary		1	Reference the studies and the technical findings that were used to arrive at the conclusion that no significant impact and no compensatory mitigation are needed for Inner Apra Harbor impacted coral and soft sediment infaunal/epifaunal organisms.	Data presented does not support finding. Provide data and discussion to support conclusion.
	Vol 9		2	Summarize impacts to all biological resources and EFH, and reference the exact studies and the technical findings that were used to arrive at the conclusion that significant impact and compensatory mitigation is needed only for corals impacted by dredging and not EFH, fish communities, non-coral invertebrate and algal communities impacted by all activities not only dredging. Remove term "pristine" as irrelevant, since focus is on the function and services provided by baseline biological resources (also of potentially 60 year old post-dredging coral colonies).	Insufficient data was presented to justify conclusions. Provide supporting data or amend conclusions.

analysis is in the DEIS, just brought forward from previous Chapters. Text to clarify this assessment as it relates to potential infrastructure improvement impacts has been added as appropriate.

2. Examples of temporary and/or minimal impact to EFH/marine habitats has been added to the text as appropriate.

3. Comment acknowledged.

4. The fouling communities noted would not exist without the man-made structures that were constructed for purposes other than enhancing existing reef communities. The structures in Inner Apra Harbor were constructed to provide safe means for Navy and Coast Guard vessels to berth. If the Agencies comment is intended to suggest that all man-made structures that become fouled are enhancing the existing ecosystem, then it also implies that those structures represent an opportunity to capture credits that may be used to offset future marine impacts. USACE has relayed to the Navy that these structures are not eligible for mitigation credits, therefore impact to these fouling communities are equally not eligible for mitigation debits under the CWA Section 404.

A-012-184

Thank you for your comment. Projects away from the coast will not directly impact marine biological resources, however the text includes potential for indirect impacts to marine resources for other projects. Indirect impacts defined here are reasonable or certain to occur in the future, such as runoff in rain events. Project types in northern Guam occur over highly porous limestone substrates that do not form drainages, therefore, waterflow from impervious road surfaces in northern Guam do not sheet flow or transmit through drainages into marine habitats in northern Guam. Projects in the North region will not directly or indirectly impact marine resources. Other projects in other

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	Vol 9	Executive Summary	2	State the number of studies that were reviewed for identifying deleterious sedimentation rates to corals.	Identify studies.
	Vol 9	E, Executive Summary	4	Clarify the process of HEA application: why the particular coral habitat index metric was used for input to HEA, i.e. state what ecological functions the index reflects. State how and what loss was calculated, how and what service gain was calculated (not in discounted acre years which means little without seeing and following calculations), what assumptions were made, and the proposed compensatory mitigation.	Provide adequate source and background information to justify HEA application utilized.
A-012-243	Vol 9	E	A-1	Clarify the nature of interaction of the authors, Navy personnel and Federal and Guam agencies within the working groups summarizing the agreed and disagreed upon points.	Modify and edit text
A-012-244	Vol 9	E	A-10	List points of agreement vs. disagreement within working group so the issues where consensus was not achieved are transparent.	Modify content.
	Vol 9	E	A-10	State that specifically ecological functions and services of impacted resources are to be compensated for through mitigation measures. List briefly efforts made to avoid and minimize these impacts.	Modify content.
	Vol 9	E	A-11	Present that ultimately cost can not be calculated without adequate and approved resource impact characterization, without applying an adequate HEA model including determining the compensatory mitigation project. The emphasis needs to be placed on natural resource replacement of lost ecosystem function and not cost.	Incorporate language.
A-012-245	Vol 9	E	A-13	Modify Table 2 (p.14-16) and Table 3 (p.17-18): remove any lengthy wording and change format from listing pros and cons in two tables (many pros for artificial reefs are very similar), to in one table list concise bullet points stating how mitigation project alternatives meet the criteria (or not) required by USACE 2008 Mitigation Rule. Indicate on maps (p. 19-22) the near shore area that is estimated to be positively affected by the Mitigation area/watersheds	Modify and incorporate.

regions may indirectly impact (unmitigated) marine environments because of the substrate these projects overly and because of the proximity to drainages. Project types and specific project types that occur in other regions have indirect impact descriptions listed in rows named "Indirect Impacts" in Table 13.2-7 and Table 13.2-8. All projects, as stated in the text, will adhere to the updated 2006 CNMI & Guam Stormwater Management Manual, and projects will have an Erosion and Sediment Control Plan. This plan is required for a Guam DPW grading permit and will include project specific BMPs. The final designs for the roadway projects have not been completed, nor do they need to be completed for a NEPA analysis. As the designs are completed, mitigation measures are incorporated into the design process. As stated in Volume 6, Chapter 6 (Water Quality), these BMPs and other mitigation measures will follow the most current stormwater management guidelines. Further, through the CWA Section 401 Certification process, additional mitigation measures may be required and the BMPs will be updated accordingly.

A-012-185

Thank you for your comment. Citation has been added as appropriate.

Baseline marine biology information for the alternative study areas was analyzed commensurate with the anticipated impacts from land-based road construction projects (e.g., bridge replacement) along Route 1. As described in Volume 2, Section 11.1.6.4, other off-based road projects are not anticipated to affect the nearshore marine environment due to very different surface hydrology between north/central and southern Guam and thick vegetation corridors. Text to clarify this assessment as it relates to potential roadways and related runoff has been added as appropriate. To clarify, Volume 2 and 7 state that "southern Guam reefs have been impacted from land-based runoff." There are no road projects planned much further south than Inner Apra Harbor.

A-012-246	Vol 9	E	A-23	Clarify that despite landscape rugosity being added to coral metric, all resource agencies consider that the impacted resources are being inadequately characterized. Clarify that the eight peer reviews provided expressed a mixed bag of support and criticism and remove statement that concerns were eliminated as this is inaccurate. Further, clarify that unresolved issues remain, and that these do not concern only compensatory mitigation.	Modify and clarify content.
A-012-247	Vol 9	E	A-3	Clarify timeline when NEPA analysis for the overarching proposed action and Volume 4 sub-action were conducted in reference to when two inner Apra Harbor options for location were chosen, and in reference to when the evaluation of the CVN berthing engineering feasibility study occurred, and the decisions made regarding option to choose for Polaris Point.	Clarify information.
A-012-248	Vol 9	E	A-6	State how much weight was put on the desire to avoid and minimize new construction dredging in choosing new wharf locations. The adequate depth of outer Apra Harbor east-west aligned navigation channel resulting in no proposed new or maintenance dredging is an important aspect in terms of reducing environmental impacts.	Clarify and justify.
A-012-249	Vol 9	E	A-9	Define the term "partners", i.e. the involvement of federal and local agencies and other stakeholders.	Clarify
A-012-250	Vol 9	E	B-19	Present numerical criteria of Guam water quality standards in reference to study findings in a table or graph to allow for comparison.	Modify text.
	Vol 9	E	B-21	Justify why study was not appropriately sampled and measured on several occasions throughout the year (i.e. across seasons) as variation is clearly high, with stations showing as stated "anomalously high values in November then low in January and vice versa". In section A introduction (p.25) is stated that "it is likely that water quality will change as a result of changing seasonal conditions, particularly following episodic rainfall and run-off events".	Address small sample size and weak time span of sampling.

A-012-186

Thank you for your comment. A request was made to include this general scoping list with all Volumes, consequently there is some redundancy with the list.

A-012-187

Thank you for your comment. The FEIS has been modified to better address potential on and off-base impacts from the military relocation. More detail has been provided on BMPs proposed (see Volume 7 for a complete listing of BMPs). Additional information has been added to the Final EIS that further expands and clarifies impacts on habitats and Management Unit Species. Volume 7 of the FEIS has also been expanded to better address aggregate and cumulative impacts on marine biological resources, including EFH. The Essential Fish Habitat assessment was officially forwarded to the National Marine Fisheries Service (NMFS) in April 2010 for review and concurrence.

A-012-188

Thank you for your comment.

Text has been revised as appropriate in the FEIS to take into account some of the suggested potential impacts. Table 13.2-1 was retained in the FEIS, as seasonal information about sensitive species is relevant information for assessing potential impacts, and to aid in avoiding impacts by recognizing seasonal activities.

A-012-189

Thank you for your comment.

1. Volume 2 and Volume 4, chapters 11 discuss the potential impacts of the proposed DoD action and potential mitigation measures. Text to clarify this assessment as it relates to potential roadways has been

A-012-250	Vol 9	E	B-3	Explain the methodology. The overview while inadequate in giving complete insight in to the sampling protocol indicates that the sampling replication was too low and thus the study not scientifically rigorous. This questions the validity of the study's results and conclusions. It appears that only 30 (or 29 as indicated in Figure 1, P.4) stations were sampled at 3 depths (surface, mid and bottom) on two occasions (November 2007 and January 2008). Multiple samples should be taken at one time period (e.g. consecutive days in November 2007), and also multiple time periods across seasons so that study spans at least a year, ideally more years. Provide clearer figure so it is easier to make out sampling locations. Justify why only one sample location measured in Inner Apra Harbor.	Address data quality and sampling concerns and modify text.
	Vol 9	E	B-5	Clarify that the finding of "no distinct patterns" might very well be due to the fact that the sampling methodology was very weak compromising the ability to detect real patterns in the Harbor. Explain the variation and outliers seen in the data presented in Table 1 (p.7).	Evaluate Table data and incorporate findings into text.
A-012-251	Vol 9	E	C	Modify overall structure of this section C: provide all available studies/reports (including Smith 2007, Dollar et al 2009 and Minton et al 2009) in their original format and provide integrated summary of these in Volume 4 chapter 11. As it stands now this section simply reiterates much information, and is neither a comprehensive nor concise presentation of marine biological assessments. This redundancy of and presentation of selected information instills impression that there is a strategy to overwhelm and confuse reader and withhold information.	Edit text.
	Vol 9	E	C-12	Delete this section and provide instead full original report, and objectively summarize findings (expressing means, variation, statistics) and combine with findings of all other relevant studies and express in Volume 4 chapter 11. Note: Methodology of this study appears more scientifically rigorous and results thus more informative than Dollar et al 2009 study	Modify text.
	Vol 9	E	C-17	Again, delete this section and provide instead full original report, and objectively summarize findings (expressing means, variation, statistics) and combine with findings of all other relevant studies and express in Volume 4 chapter 11	Modify text.

added as appropriate. In addition, Tables 13.2-7 and 13.2-10 have been modified as appropriate.

2. Volume 2 and Volume 4, chapters 11 discuss the potential impacts of the proposed DoD action and potential mitigation measures. Text to clarify this analysis as it relates to potential marine resource impacts has been added as appropriate. Mitigation text revised accordingly.

A-012-190

Thank you for your comment.

First Comment

Text will be revised in the FEIS as appropriate to expand the discussion regarding potential impacts and mitigation related to roadway associated projects.

Second Comment

References have been revised in the FEIS as appropriate.

Third Comment

Text will be revised in the FEIS as appropriate to expand the discussion regarding potential impacts and mitigation related to roadway associated projects.

Fourth Comment

Text has been modified in the FEIS to remove reference to the CNMI.

A-012-191

A-012-251				
Vol 9	E	C-19	Yet again, delete this section and provide instead full original report, and objectively summarize findings (expressing means, variation, statistics) and combine with findings of all other relevant studies and express in Volume 4 chapter 11. Note: this section has been concisely and clearly written without seeming bias.	Modify text.
Vol 9	E	C-21	And again, delete this section and provide instead full original report, and objectively summarize findings (expressing means, variation, statistics) and combine with findings of all other relevant studies and express in Volume 4 chapter 11. Note: this section has been concisely and clearly written without seeming bias.	Modify text.
Vol 9	E	C-29	Remove this section which is redundant since studies should simply be provided as is with an integrated summary of all provided in Volume 4 Chapter 11. Statements made in summary are not supported with evidence, e.g. paragraph 3 "dive surveys indicate that overall coral community composition within the dredge area are of marginal to modest ecological value, based upon the eight criteria..."	Modify text and provide evidence to support findings.
Vol 9	E	C-5	Replace this entire section on Outer Apra Harbor marine environment with the Dollar et al study since this is simply a summary and reiteration. An objective summary of this study should be integrated with other assessments/surveys on marine resources in chapter 11. Some of the major problems with this study as summarized here. - Study in summary: Methodology very weak (p.5). Findings are ambiguous reflecting poor methodology, and cannot be used to determine and scale compensatory mitigation.	Edit format and incorporate language.

Thank you for your comment. Text discussing these potential impacts has been modified as appropriate.

A-012-192

Thank you for your comment. The planned Port of Guam improvements are identified as related actions that are not under DoD control, as described in Volume 6, Section 1.2. The modernization measures proposed would improve efficiency of commercial shipping and would be recommended with or without the DoD proposed expansion presented in this DEIS. As such, this DEIS does not cover the port expansion details in Volume 6 related actions of utilities and roadways. However, the cumulative effects of the DoD proposed expansion and the Guam Port expansion are covered in Volume 7, Chapter 4, Cumulative Impacts. The challenge of the cumulative impact analysis is the lack of available information on the potential impacts of the port improvements. For this reason, the cumulative impact analysis is qualitative.

A-012-193

Thank you for your comment.

Volume 4, Chapter 11 and 4 discusses potential marine biological impacts and water resources and potential mitigation measures, respectively. Stormwater potential impacts and mitigation measures are addressed in Volume 7 under best management practices (BMPs).

A-012-194

Thank you for your comment. The quantification of the vessels visiting the Port of Guam associated with the relocation of the Marines is presented in Volume 2, Chapter 14. As discussed in the text, during the period of the relocation, it is expected that there would be fewer vessels visiting the Port of Guam than there were in 1995. The addition of vessels to support the relocation of the Marines and the shipment of fuel

A-012-251

Vol 9	E	D-1	Expand this impact analysis to also address impacts to marine resources and EFH in Inner Apra Harbor and integrate all available science from the studies conducted and referred to/provided in above HEA and supporting studies: Section C. If this impact analysis only involves CVN impacts, move this to Volume 4 Chapter 11 as it is a key component of choosing the least environmentally damaging practicable alternative according to CWA section 404(1)(b) guidelines. The correct process is that impacts are addressed in the context of the alternatives analysis. Further, define what is meant by "impact" and clarify the scope of this impact analysis. It should not only address impacts from dredging, but all impacts as a result of sub-action.	Modify and edit text.
Vol 9	E	D-23	Clearly and concisely quantify impacts to coral based on best available information rather than the primary focus on the background information. Cite other studies on top of Brown's (1990) work in regards to current speeds needed to remove sediment. Clarify how and where sediment moves to verify that sediment does not simply settle close on other coral. Justify these patterns of movement with evidence. Evaluate how coral and soft sediment communities not dredged because they occupy areas deeper than 60ft in dredged area within and adjacent to the dredge footprint will be affected indirectly by sediment. Remove reference to Highsmith 1980 and Dollar and Tribble 1993 studies indicating that fragmentation might be beneficial. This is highly biased information, if present, also provide extensive evidence that indicates that coral fragmentation in this situation will not survive.	

for the power facilities will not result in increased usage of the Port of Guam that would result in an increase in oil spills or vessel grounding.

A-012-195

Thank you for your comment. The question of calling the utilities "alternatives" or "options" was discussed within the DoD EIS team. The decision was made to call these alternatives. However, your observations are correct in that they are not the same as NEPA "alternatives" in that they are bound to support the various principle action alternatives for the Marine relocation, the CVN, and the AMDTF. This may complicate, but would not compromise, the EFH/marine habitats analysis. This has been explained better in the final EIS.

A-012-196

Thank you for your comments. Chapter 2 is a summary of the proposed alternatives, and impact analysis of marine resources is not included in this section. Impacts to marine resources are included in Chapter 13. Text has been revised in the FEIS as appropriate to reference tables more thoroughly.

A-012-197

Thank you for your comment. The mitigation measures listed that are not within DoD control are "proposed" or "potential" and do not necessarily represent commitment on the part of GovGuam. Non-committal terms like "may" or "could" are appropriate for such measures. The Record of Decision would commit to mitigation measures for which DoD is responsible.

A-012-198

Thank you for your comment. The evaluation process to date is described in the HEA and Volume 4, Chapter 11. Generally, it has been based on collaboration with resource agencies, hence the suite of

A-012-251			<p>Quantify both direct and indirect impacts to elephant ear sponges found in area (also deeper than >60 ft, and adjacent to channel).</p> <p>Define "short term" and "localized" impacts and justify why these are not considered to adversely impact motile macro invertebrates, turtles or reef fish. Further define "high mobility" and "unique or unusual habitat". The argument that organisms will not be impacted due to mobility and lack of habitat in the dredge footprint is seriously flawed. Many of the organisms are mobile but do not have large home ranges, the coral in the footprint has important ecological functions, and further when removed will cease to provide these to the mobile organisms which will subsequently clearly be affected. The designation of certain areas as HAPC does not subtract from the value of others not designated. There is a mandate to protect EFH, in this case coral reef ecosystems and all the inhabitants including reef fishes.</p>	
Vol 9 contimed	E	D-23		
A-012-252			<p>Evaluate all potential impacts to water quality in the harbor not only directly from CVN dredging, but also from indirect impacts from land based facilities, vessel traffic, and cumulative impacts from entire relocation action.</p>	<p>Address issues raised and modify text.</p>
Vol 9 contimed	E	D-23		

options, including watershed management. The Navy will continue to work with the USACE (and resource agencies) and do whatever is necessary to satisfy the requirements of Section 10/404 permit documentation, including the compensatory mitigation plan. As a note, the Navy is contracting additional studies associated with compensatory mitigation measures for the Guam watersheds and Apra Harbor.

A-012-199

Thank you for your comment. Discussion of benefits of stormwater flow reduction resulting from afforestation have been added to the Final EIS.

A-012-200

Thank you for your comment. There is no Navy policy, guidance or instruction that would support your suggestion that coral transplanting would be a BMP. BMP's by definition are those actions that are implemented to either avoid or minimize impacts to the identified resource. The removal and relocation of any resource constitutes a physical change in that resources interaction with the surrounding community and ideally an enhancement of the community where the relocated resource is placed. This enhancement has been and continues to be considered mitigation for the express purpose of capturing mitigation credits to off set project impacts. Ultimately USACE will be responsible for determining the eligibility of this option as a compensatory mitigation credit through CWA Section 404 permitting.

A-012-201

Thank you for your comment. Please see response above.

A-012-202

Thank you for your comments.

A-012-253			
Vol 9	E	D-25	<p>State concisely and clearly the calculated quantitative impact to form direct, indirect and also cumulative impacts to CVN affected EFH and marine benthic resources. Direct impacts should encompass effects from dredging, anchoring, and other mechanical impacts such as corals tumbling. Indirect impacts should include effects from dredged sediment accumulation, pollution from land based activities, re-suspension of sediment from vessel traffic. Cumulative impacts should include direct and indirect impacts occurring currently, from all connected actions including increase use of Port of Guam, and Inner Apra Harbor, and activities that will occur due to future activities. All resources that are in entire area should be addressed:</p> <ul style="list-style-type: none"> - coral (expressed as impacted # of coral/ size class/ species) - non-coral invertebrates (impacted # of individuals/species) - algae (impacted cover/species) - fishes (impacted biomass/species) - entire soft sediment habitat (area)
			Address issues and incorporate into delivery.
Vol 9	E	D-3	<p>Remove repeated and redundant information, i.e. remove summaries of Smith 2006 and 2007, and Dollar et al 2009 studies (including Figure 1 and Table 1) as already summarized and provided in above sections (and elsewhere).</p>
			Edit text.
Vol 9	E	D-8	<p>Modify structure of document so equal emphasis is placed on actual quantitative evaluation of impacts of 1) direct, 2) indirect and 3) cumulative to entire CVN project area, i.e. all the different habitat types mentioned are part of the coral reef ecosystem, not just coral.</p>
			Modify delivery and content of text

1. The following paragraph indicates that monitoring would take place so that management of wastewater could be adapted to needs, and to avoid impacts. Text not modified.

2. Text modified to include examples of reasons why impacts may differ with different construction tempos, as requested.

A-012-203

Thank you for your comment.

-The proposed updates to the Navy INRMP are important but not specific to the proposed action. The EIS is based on best available information.

-The impact to use of non-DoD submerged lands is described as less than significant, because there is little reported traffic in the area due to accessibility and ocean conditions. No mitigation is proposed.

A-012-204

Thank you for your comment. Existing studies providing data on marine resources in Apra Harbor lack consistent methodology and present gaps in area coverage. The studies were also conducted at various points in time. Therefore, there is not a sufficient documented estimate of the amount of coral communities in Apra Harbor against which to measure cumulative impacts of the proposed action.

It is correct to say that a key EIS assumption is BMPs are effective in reducing impacts. The BMPs are consistent with recommendations and requirements of regulating resource agencies. BMPs include inspection requirements. Violations identified during inspection would typically result in cessation of work until the violation is adequately addressed.

A-012-253

Vol 9	E	D-8	<p>Define "direct" impact, before describing what this is for CVN project area. Clarify that direct impact involves impact beyond mechanical dredging, and also entails physical impact (e.g. from anchors, chains, falling broken coral), and chemical impact (e.g. to organisms).</p> <p>Determine impacts to entire coral reef ecosystem in project area, not only coral (e.g. macro invertebrates such as the elephant ear sponge, fishes). For Correct the statement that direct impact is "actual removal of the reef surface" and clarify that direct impact can involve impacts beyond dredging, and to non-reef surface habitats such as soft sediment and algal habitats, and further to non-coral organisms and water quality.</p>	
Vol 9 continued	E	D-8	<p>Quantify effects to coral not only in terms of % coral impacted, but in terms of X number of colonies of X species of X size and compile these effects so total effect to coral community is clear. Similarly, quantify effects to a) X biomass/cover of crustose coralline-, filamentous turf- and microalgae of X species, b) X number of non-coral invertebrates living both on hard and soft substrate, c) X number of in faunal organisms in soft sediment, and d) X biomass of fishes in system. Compile all information to quantify effects to entire reef system.</p>	Address issue, modify delivery and text.
Vol 9	E	D-9	<p>Remove extensive background information on sediment effects to coral (p.9-17), and instead make key points and list all unbiased and updated literature in Table 2 (p.13). Discuss information relevant to impacts analysis in evaluation section, not background section (e.g. presence of sediment layer on benthic surfaces, tolerance of <i>Porites</i> corals in entrance channel, cover of coral, coral condition)</p> <p>Define "indirect" impact. Address indirect impacts beyond those from dredging</p> <p>Justify measuring composition of only 12 sediment samples from CVN dredge footprint.</p>	

A-012-205

Thank you for your comment. It is the intent of DoD to maintain public access to the cultural and historic sites at Pagat and Marbo consistent with safety and operational requirements. Restricting access to certain DoD areas at certain times is required to maintain public safety. Final plans concerning access to sites potentially impacted by the proposed action have not been developed. DoD looks forward to working with stakeholders to develop plans for cultural stewardship and access that balances operational needs, public safety concerns, and the continuing public use and enjoyment of these sites.

A-012-206

Thank you for your comment. Table 3.3-25 and 3.3-26 contain several errors in the summary of impacts for the DEIS. The FEIS is corrected to identify a significant and mitigable impacts to marine resources, including EFH and Special-Status Species during construction and operation of the proposed action.

A-012-207

Thank you for your comment.

Text has been revised as appropriate.

A-012-208

Thank you for your comment. The impacts in Tables 3.3-25 and 3.3-26 are summarized from Volumes 2 through 6, which contain the impact analysis. The only new assessment in the tables is the summary at the bottom of each table. This new assessment is conservatively based on the highest level of potential significance identified in any of the volumes.

A-012-253	9 cont nued	E	D-9	Justify or remove statement that "expected effects from CVN project would not likely exceed the range of ongoing conditions". Activity within Apra Harbor from vessel movement will increase due to entire action of military relocation.	Provide justification and modify text.
	Vol 9	E	F-1	Explain ecological functions to be offset. While introduces need for compensatory mitigation to offset impacts from CVN dredging action, and HEA appropriately, focuses only in impacts to coral, not other type of habitat such as soft sediment, does not adequately justify use of metric, does not show calculations of HEA model used, also limited in scope in terms of addressing Mitigation Rule requirements for USACE permit . Also many assumptions made with inadequate justification	Address issues and incorporate into delivery.
	Vol 9	E	F-12	Provide quantitative data. Data presented is qualitative (e.g. Smith 2007 study "opinion") which is inadequate for HEA input. No methodology described, no results provided. Need quantitative information/data on coral diversity, coral mean size, coral condition. List where Spring 2009 data are provided- summary points in bullets not quantitative. Justify why 25 % service loss assumed for indirect impacts to coral.	Address issues and incorporate into text.

A-012-209

Thank you for your comment. Volume 7 has been revised.

A-012-210

Thank you for your comment. The in-water construction work is a heavily regulated aspect of the proposed action. The conditions that are placed on the water quality certification, Section 7 consultation and the Army Corps of Engineers permit would include monitoring requirements. Violations of the conditions would result in cessation of work until the situation is corrected. These controls serve to adaptively manage the potential impacts of construction on marine resources.

Compensatory mitigation is designed to compensate for the marine ecosystem impacts. If we use your assumption that the magnitude of the impact is greater than any project since World War, then it follows the compensatory mitigation would be the greatest since World War II. The loss would be restored. Monitoring plans are a requirement of compensatory mitigation. It is appropriate to implement and assume effectiveness of BMPs and compensatory mitigation.

The impacts in Tables 3.3-25 and 3.3-26 are summarized from volumes 2 through 6, which contain the impact analysis. This methodology is described in the beginning of Volume 7 Chapter 3. The only "new" assessment is the summary at the bottom of each table and this was based on the highest level of significance identified in any of the volumes.

A-012-211

Thank you for your comment. The in-water construction work is a heavily regulated aspect of the proposed action. The conditions that are placed on the water quality certification, Section 7 consultation and the Army Corps of Engineers permit would include monitoring requirements. Violations of the conditions would result in cessation of work until the situation is corrected. Compensatory mitigation is

A-012-253	Vol 9	J	12	<p>Discuss the usefulness (e.g. incorporated in to HEA?) and appropriateness (list pros and cons of method) of applying spectral reflectance to measure coral stress and provide examples of others studies where this applied. Seems this type of measurement is only appropriate to compare change in reference to something else, e.g. the same section of coral tissue before and after a bleaching incident.</p> <p>Provide less technical information on workings tool and more on sampling methodology used, i.e. # corals measures, random or haphazard sampling method, in which area, how one colony sampled.</p> <p>Discuss what variation in chlorophyll is expected and found within coral colonies, whether shaded sections are different and although potentially not "stressed" may have different reflectance to un-shaded tissue of similar condition, and how depth related to this.</p>	Address issues and incorporate into text.
	Vol 9	J	13	<p>State whether identification occurred at species level.</p> <p>Discuss how variation in search time in determining taxa richness within 5 m belt might affected data.</p> <p>State the date and time when night versus day surveys were conducted, justify why night surveys of only 3 of the day time surveyed transects was conducted.</p>	

designed to compensate for the marine ecosystem impacts. Monitoring plans are generally required by Army Corps of Engineers as part of the Compensatory Mitigation Plan. It is appropriate to implement and assume effectiveness of BMPs and compensatory mitigation. The comment in the last column appears unrelated to the previous comment on mitigation. INRMPs are updated on a regular basis. Mitigation measures for natural resource impacts that are required over the long-term would be incorporated into the next version of the INRMP as appropriate.

A-012-212

Thank you for your comment.

1. Comment acknowledged. DoD is committed to providing appropriate mitigation to offset impacts of dredging activities.
2. Comment acknowledged. The FEIS has been greatly expanded to discuss wastewater impacts. Improvements proposed for the NDWWTP (where a majority of the population increase would occur) would have a long-term positive impact on water quality. In Volume 7 of the Draft EIS there was an error in the summary of impacts. The FEIS is corrected to identify a significant and mitigable impact to marine resources, including reefs, during construction and operation of the proposed action. This includes mitigations related to stormwater runoff and infiltration during construction and operation of the base, measures related to upgrades to the Northern District Wastewater Treatment Plant, and mitigations related to dredging of the aircraft carrier turning basin. All of these mitigations in consort will work towards protecting marine resources, including coral reefs. These are further discussed in unison in Volume 7 of the FEIS.
3. DoD has no enforcement authority off DoD property. However, DoD will work to ensure all military personnel are educated on the sensitive ecological resources found on Guam.

A-012-253	Vol 9	J	14	Justify why only surface sediments were sampled, and state the depth range of samples taken. Deeper sediments may be important too. Explain methodology for sampling; why only at ten transect stations and why these were chosen. Provide a figure showing locations in relation to reef area, particularly previously dredged area. Concern that only areas where residual carbonate sediment from dredging 60 years ago settles sampled and not along entire channel where sediment re-suspension may occur. justify use of carbonate dissolution method and why sediment is not filtered, dried and weighed prior.	Incorporate issues into text.
	Vol 9	J	14	State names of collaborative investigators from UoG, and further explain purpose of Minton's invertebrate study with respect to presented results and discussion section of report (and rest of dEIS).	Address issues and incorporate into text.
	Vol 9	E	F-15	Justify assumption that it will take 5 years for recovery. Only one study (Brown et al 1990) referenced for impact, use information from more and varied studies and cite these.	Collect necessary additional data to develop a defensible calculation of recovery.
	Vol 9	J	15	Remove background information and all discussions from this section, and present only results. Remove specifically entire "description of survey area" section and present before results section.	Modify delivery and content of text
	Vol 9	J	15	Justify why stratification does not follow the three listed major regions (large flat topped patch reefs, dredged reefs, and soft sediment) in project area. Since stated that western slopes potentially affected different to eastern slopes these should be taken in to account in defining strata. Clarify why it is relevant that corals in previously dredged area are a max of 62 years in age. The average known growth rates of coral present in this needs to be extrapolate over the 62 year period to determine is sizes are representative.	Defining coral age or resource recovery at the site is a critical requirement of this process and analyzing the coral found in the dredge past dredge footprint should provide useful recovery important to defining the recovery potential.

A-012-213

Thank you for your comment. Your comment is referring to the marine environment. The stressors identified in Volume 7 Chapter 3 are common to both civilian and DoD operations: coral bleaching, storm events, and invasive species. These stressors are unrelated to property boundaries. Other stressors like recreational use and commercial/industrial are more heavily regulated within the federal lands due to extra levels of regulatory control. The sources of stressors are not distinguished. The intent is to describe the general health and trends in resource health over time.

Volume 7, Table 3.3-27 summarizes the impacts to coral since the construction of the breakwater in Outer Apra Harbor.

A-012-214

Thank you for your comment.

First and Second Comments

Additional information pertaining to anthropogenic disturbances on marine resources has been added to the FEIS.

A-012-215

Thank you for your comment.

Not so much inconsistencies, as just stating both sides of the story, as there always is. WWTP discharges (depending on stage [i.e. raw, primary, secondary]) also have differing affects in the marine environment. Text has been revised as appropriate.

A-012-216

A-012-253	Vol 9	J	16	<p>Discuss the usefulness of qualitatively describing the biotopes at length (e.g. incorporated in to HEA?) and the accuracy of the definition/categorization system used (conditions not actually measured). Biotope description seemingly best used, after combining a few similar groups, to define a few ecologically relevant strata for sampling distribution (rather than indirect/direct and slope/flat).</p> <p>Remove description of <i>Porites rus</i> colonies as supra-colonies. Pichon 1978 study is 32 years old and probably outdated in light of studies on genetics.</p> <p>Modify algal beds biotope as the biology and conditions of <i>Padina</i> spp attached to hard bottom is dissimilar to <i>Halimeda</i> and <i>Dictyota</i> growing in soft sediment.</p>	
	Vol 9 cont med	J	16	<p>Clarify source of dead coral fragments found on rubble bottom, specifically clarify if linked with anthropogenic disturbance.</p> <p>Discuss whether coral colonies found growing in soft sediment are remnant colonies from previous dredging action. Clarify whether soft sediment (from previous dredging) constitutes a thin layer overlying hard substrate which colonies are attached to.</p>	Discuss, remove, modify and clarify key identified issues in delivery of information.
	Vol 9	E	F-17	<p>Provided results. Expression of loss in discounted service years means little without illustration of in depth calculation.</p> <p>Show for Table 4 and 5 all calculations for HEA loss, table holds inadequate information.</p> <p>The stated 75% post-dredging service, 5 year recovery period, linear recovery, 100% post-dredging service level all need to be justified, cite studies.</p>	Justify and modify text.

Thank you for your comment. This Final EIS contains a consideration for the subtidal discharge of groundwater.

A-012-217

Thank you for your comment. Your comment has been taken under advisement and text revisions have been made as appropriate.

A-012-218

Thank you for your comment. Text revised in the FEIS. Marine Corps training on Tinian would consist of expeditionary training for up to one week per training evolution. Due to the expeditionary nature of this training and its short duration it is anticipated that there would be limited time for recreational activities, especially those that would impact marine resources.

A-012-219

Thank you for your comment. Potential sedimentation from various land-based construction efforts has been addressed.

A-012-220

Thank you for your comment. Your comment has been taken under advisement and text revisions have been made as appropriate.

A-012-221

Thank you for your comment. Text will be modified as appropriate to clarify/support this conclusion.

A-012-222

Thank you for your comment.

All mitigation options associated with the proposed CVN transient wharf,

A-012-253

Vol 9	J	19	<p>Calculate percent cover for all benthos for entire area for each of the benthic categories as the proportion of total points for each transect (= replicate), then as the mean for each stratum and for overall area.</p> <p>Remove tables 1-4 and present summarized data as bar graphs, indicating standard error (mean values within strata). Tables are not commonly used to summarize data in scientific reports as trends are poorly conveyed, and the graphs used, are unconventional and inappropriate.</p> <p>Conduct statistics and express clearly whether there are significant differences between mean cover for each of the benthic classes (coral to species level) between the strata. If this is not clearly expressed, it is unnecessary to stratify to start with as point is to compare if there are differences. If not, lump all data together and express as one number for area.</p>	
Vol 9 continued	J	19	<p>Remove Bray-Curtis Similarity Index, Principle Component Analysis and Discriminant Functional Analysis and all references to these analyses from this report (including tables and graphs) as these are multivariate statistical tools that cannot be applied to univariate data. The assumptions for conducting the multivariate statistics employed in this study are violated: there is only one non-independent variable (benthic cover, not also temperature, currents, fish biomass etc) which should be analyzed using a simple Analysis of Variance (ANOVA).</p>	Incorporate issues and modify text

including the use of watershed restoration and artificial reefs, are being considered by the Navy. When the Navy develops its proposed compensatory mitigation plan, mitigation options contained within the plan will be evaluated by the USACE to determine compliance with the Compensatory Mitigation Rule. After further evaluation, upgrades to the NDWWTP as a proposed mitigation option associated with the proposed CVN transient wharf have been dropped from further consideration. Further studies on watershed models are ongoing. Additionally, the Navy will look at the addition of special conservation areas associated with Navy submerged lands and the possibility of land swaps between GovGuam to keep these areas contiguous.

A-012-223

Thank you for your comment. Yes. As described in V4, Section 4.2.2.2/Construction/Physical Impacts to Nearshore Waters from Dredging of the EIS, even under ideal conditions, substantial losses of loose and fine sediments will usually occur. Sediment loss during a typical mechanical dredging operation occurs throughout the water column from the following specific sources: impact of the bucket on the seabed; material disturbance during bucket closing and removal from the bed; material spillage from the bucket during hoisting; material washed from the outer surfaces of the bucket during hoisting; leakage and dripping during bucket swinging; aerosol formation during bucket re-entry; and residual material washed during bucket lowering (SAIC 2001). Given the coarse nature of Outer Apra Harbor sediments, it is likely that the majority of the suspended sediment would settle out rapidly, resulting in a much shorter turbidity plume than otherwise would be the case. Maximum concentrations of suspended solids in the surface plume should be less than 0.5 parts per thousand (ppt) in the immediate vicinity of the operation and decrease rapidly with distance from the operation due to settling and dilution of the material. Average water-column concentrations should generally be less than 0.1 ppt. The near-bottom plume would probably have higher solids concentrations, indicating that

A-012-253			<p>Address and characterize ecological functions and services appropriately. While it is stated that mitigation project needs to provide compensatory ecological services this has not been characterized.</p> <p>Justify pursuit of Artificial Reef (AR) as compensatory mitigation project based on notion that there is a lack of information available on the positive effects of Watershed Management on coral and reefs. Less information is available to justify ecological services on artificial reefs than restoration of natural reefs.</p> <ul style="list-style-type: none"> - Lack of information from Guam does not preclude assessment of information from elsewhere, as was done for AR. - The delivery of information on AR was one-sided and needs to be representative of the information available. - The HASEKO reference in Hawaii should be considered outdated due to it being a pre-2000 project. - The Cited Florida AR Case study is not representative to the proposed action because it was for a beach nourishment project and not a dredging project. 	Address issue and incorporate into text.
Vol 9	E	F-21	List 40 peer-reviewed studies in this report and explain the scope and purpose of these, i.e. whether remote sensing methods was used for input of data in to HEA.	
Vol 9	f	23	Explain results expressed in Tables 6a-c and 7 in text rather than building discussion around the tables by referring to them to find information.	Incorporate issues and modify text
Vol 9	E	F-23	Use same inputs, i.e. site-specific data analysis, information from literature and professional judgment from AR for Watershed management option.	Incorporate issues into text.
Vol 9	E	F-23	Explain method where an algorithm is applied to assign injuries to Habitat Index Categories and utilizing a 1:1 ratio for category 1.	Address issues and incorporate into text.

re-suspension of bottom material near the bucket impact point is probably the primary source of turbidity in the lower water column.

Because of the proximity of coral reefs to the project area, no barge overflow would likely be a condition of the water quality certification. This likely permit certificate condition would help reduce the potential for impacts to nearshore waters by preventing the release of silt laden water during barge loading and transport.

A-012-224

Thank you for your comment. Volume 7, Chapter 3 is intended to identify the combined impacts of the preferred alternatives. For more detail on Tinian, refer to Volume 3. Marine transportation impacts are described in Chapter 14. No infrastructure improvements are required for the proposed action. The primary mode of transportation for the proposed training would be through the commercial airport.

Infrastructure impacts are primarily identified with utilities and off base roadways. The impacts in Tables 3.3-34 and 3.3-35 are summarized from Volume 6, which contains the complete impact analysis. Additional assessment is provided in the summary at the bottom of each table and this summary is based on the highest level of significance identified.

A-012-225

Thank you for your comment. DoD and regulatory agencies are equally concerned about preventing contamination of surface waters and groundwater (particularly drinking water aquifers). The EIS describes numerous programs and actions that will be taken to protect surface waters and groundwater from stormwater runoff. Construction of new facilities will use Low Impact Development (LID) principles to the extent practical. LID is a design philosophy that seeks to reduce the impact to the environment from new construction projects through the reduction of impervious surfaces. LIDs principles incorporate the design of facilities

A-012-254			
Vol 9	E	F-23	Justify assumptions that organisms will colonies structures that 10% service will be gained in 1 year, that recovery will occur in a decade that growth rates of <i>Porites rios</i> will apply in Guam, that coral transplantation will be viable. Inappropriate to reference only one case study, and also from the Philippines as circumstances of AR there could be very different (close to flourishing reef, different coral community, different prevailing conditions). Justify and modify text.
Vol 9	E	F-27	Expand literature search. Short list of references considering the extent of information stated in document. Use information from multiple and varying studies on coral reef ecological function, HEA analysis, Artificial Reefs as mitigation, watershed management. Supplement and modify text.
Vol 9	J	27	Cut out large parts of this section which discusses background and methodology from this results section and paste it into methods section. Clearly present results, state whether there are differences between colonies and Strata based on statistical analyses, and indicate how these results are useful for application in HEA. Incorporate issues and modify text
Vol 9	J	28	Remove this entire section as photoquads are simply inappropriate for determining the size-frequency of coral colonies Remove section.
Vol 9	E	F-29	Explain terms used and techniques applied. Define and explain Quickbird Imagery, how this was used to identify percent cover coral in each pixel, what Acoustic and Lidar Soundings are and how applied to determine bathymetric surface. Clarify further how rugosity measure incorporated into Index translates to actual ecological function of the habitat. Address issues and incorporate into text.
Vol 9	J	30	Present findings of this appropriately conducted survey by illustrating data using bar graphs not tables, refer to the findings clearly in text rather than referring to data in the tables, and present outcomes of statistical analyses. Incorporate issues and modify text
Vol 9	J	31	Indicate where transects are located in presenting results, and indicate if there are any differences between areas by applying statistics. Remove background information and discussion from this section. Incorporate issues and modify text

with the use of native vegetation, pervious (porous) surfaces to reduce storm water runoff and encourage recharge of groundwater, and water conservation. DoD is currently conducting a LID study that will identify specific types of alternative designs that can be incorporated into the construction of facilities associated with the buildup. DoD is also preparing a stormwater pollution prevention plan (SWPPP) and will apply for permits that regulate stormwater discharges during construction. The permit and plan is focused on reducing the amount of earth and soil that is exposed to stormwater during earth-disturbing activities (such as land clearing and grading), providing stabilization of soils during construction through the use of ground covers, and sediment ponds and traps/screens to reduce pollutants getting into storm runoff and from percolating into the ground. These plans also have specific requirements for containment of potential pollutants at construction sites (such as storage areas for equipment fuel). Lastly, DoD is developing a construction and demolition (C&D) waste management plan in consort with the stormwater construction plan that calls for the use of mulch on exposed soils, mulch that will be generated during the clearing of trees and low growth during land clearing activities. Once construction is complete, a SWPPP will be developed to control stormwater runoff and infiltration from base operations. This is being done on a regional DoD Guam-wide scale, and has the involvement of Guam EPA. Section 3.3.3.1 of the Final EIS has been updated with this information.

A-012-226

Thank you for your comment. The impacts to recreational resources that you use as an example are actually addressed in the EIS as direct impacts. The same is true for socioeconomic impacts. The other secondary impacts disclose additional management burden on the GovGuam agencies.

A-012-227

A-012-255

Vol 9	J	31	<p>Modify this section so it conforms to scientific report standards, i.e. discuss step by step all the findings in the results section in an unbiased form. This section does not discuss findings and comes across as a text with a defensive slant setting up arguments to support the notion that resources do not having important functions and services.</p> <p>Clarify how findings of this study will be applies to HEA and also used to develop monitoring programs.</p> <p>Compare benthic cover, especially coral, estimates with areas outside project area within Apra Harbor, in Guam, the Pacific and globally. This would indicate that the coral cover in the area is in fact relatively high.</p> <p>Clarify what resource agencies have recommended in terms of appropriate methodology and refer to Minton et al 2009 study for what has been feasibly done.</p>	
Vol 9 continued	J	31	<p>Remove statement that coral adapted to sedimentation (e.g. P. rus well adapted) as this has not been tested in this study, simply inferred with no data to back up. Both corals growing in sediment that may be remnants that have survived the previous dredging impact and coral on parch reefs, slopes may not tolerate continued and potentially increased sedimentation stress.</p>	Incorporate issues, clarify, remove statement and modify text
Vol 9	E	F-5	<p>Remove invalid argument that "it does not make sense to pay more than SX" value of impacted environment to replace lost functions. Purpose of mitigation according to 2008 Mitigation Rule is to offset environmental losses due to unavoidable impacts, thus focus is required to be on ecological functions and not cost.</p>	Correct target in delivery.
Vol 9	E	F-7	<p>Justify why only impact to coral, not soft sediment and other habitats addressed. Should not use coral acreage of coral and live coral, 3D surface and rugosity as input. Instead use one ecologically relevant metric which adequately summarizes impacted functions and services. Input should encompass quantity, density, diversity, function and service of species impacted.</p>	Modify delivery and content of text

Thank you for your comment. Secondary impacts for Tinian are included in the Final EIS.

A-012-228

Thank you for your comment. The Final EIS contains an updated analysis reflecting additional examination conducted after the publication of the Draft EIS.

A-012-229

Thank you for your comment. There is summary table of impacts for the preferred alternatives included in Volume 7. There are also summary tables of the impacts of alternatives at the end of each resource discussion in each volume including Volume 2 of the EIS.

A-012-230

Thank you for your comment. The Final EIS contains updated analysis in volumes/chapters that feed into this table. Reference to other sections and tables are added as applicable.

A-012-231

Thank you for your comment.

The FEIS, Volume 6, has been updated to clearly show impacts to Waters of the US from bridge construction.

A-012-232

Thank you for your comment. DoD has used the year 2009 as the timeline baseline. That year is reasonable. The intent of the comment is unclear.

A-012-255	Vol 9	E	F-7	Clarify how Coral Habitat Index relates to function of habitat and thus as metric reflects the impact to the habitat. Remove incorrect statement that coral species functions have not been defined. There is extensive information available in the literature that can be put together to develop ecologically relevant assumptions.	Incorporate issues into text.
	Vol 9	E	F-8	Explain accuracy of remote sensing map used to derive 24, versus 25 acres of impacted coral. Explain how 60 ft versus 51.5 ft dredge depth in effect results in a different impact area, as the reported dredge acreage is the same. Explain and describe plume modeling; numbers are stated without justification where they come from. Explain for Table 3 how coral habitat index categories are relevant to calculating impact.	Address issues and incorporate into text.
	Vol 9 continued	J	9	Define rugosity. Rugosity as used by scientists and in literature refers to small scale measurements of reef structure determined using chain as done in this study for each transect. The large scale three dimensional topography of reefs as determined thru LIDAR data approach does not reflect fine scale rugosity. Justify the purpose of categorizing coral cover in to 6 classes, and explain the approach applied. If want a distribution estimate this should be expresses as density in terms of # coral colonies/unit area. If categorizing: Class 1 of 0% coral is unnecessary, and Class 2-6 should logically extend from 0-20%, 21-40%, 41-60%, 61-80%, 80-100%.	Integrate needed discussion, clarification and definitions into text.

A-012-233

Thank you for your comment. DoD has provided data that supports conclusions and allows the public and decision makers to understand environmental impacts before proposed actions are implemented.

A-012-234

Thank you for your comment. Volume 7 Tables 4.3-1 and 4.3-2 are the master cumulative project lists that were scaled down to the list in Tables 3.3-1 and 4.3-4 based on information available. Your suggestion would apply best to these tables. There is insufficient information on many of these projects to provide detailed assessment on their impacts' magnitude and duration and whether or not impacts would be indirect or direct.

A-012-235

Thank you for your comment. The EIS has been updated to reflect these comments.

A-012-236

Thank you for your comment. Corrections are made to the Final EIS as suggested.

A-012-237

Thank you for your comment. Chapters 2 and 3 have been modified accordingly.

A-012-238

Thank you for your comment. Adverse impacts to submerged lands use within the surface danger zones were identified in Volume 2, Chapter 8. DoD recognizes the importance of reducing adverse effects on the people of Guam, its natural resources, and infrastructure. DoD will continue to work with the government of Guam to ensure that the short-

A-012-255	Vol 9 Appendix E	10	4.2	Section 4.2 Habitat type and affected acreage, Page 10: The CHI acreage estimates (incorporating broad landscape rugosity) are flawed. The assumptions underlying the use of the probabilistic model used to correct for map errors and generate the "three-dimensional coral area" are violated. The probability model used to correct for errors in the habitat map assumes all pixels have constant area. However, this assumption is violated when the three-dimensional surface area of the pixel is calculated. The analysis by FWS showed this contributes to an underestimation of the area and level of impact needed to be offset by compensatory mitigation. The Coral Habitat Index not appropriate to scale mitigation.	Data is inadequate to meet requirements (mitigation rule and EFH). Data that provides coral size-frequency and structure is essential to then properly utilize HEA to scale mitigation.
	Vol 9 Appendix E	12	4.3	Section 4.3 HEA impact inputs, Page 12: It is unclear what, "marginal to modest ecological value" means. Smith (2007) is not provided to help elucidate his stated "opinion".	Smith (2007) be provided within the appendices and that a definition of "marginal to modest ecological value" be provided.
	Vol 9 Appendix E	14	4.3	Section 4.3 HEA impact inputs, Page 14: Classes 2 and 3 do not encompass a "0" value as suggested (0% < coral ≤30%).	edit text
	Vol 9 Appendix E	14	4.3	Section 4.3 HEA impact inputs, Page 14: Edit the statement, "It is also evident that the area within the dredge boundaries contains relatively small areas of the densest classification of very high cover (>50% coral)" be changed to "It is also evident that the surveyed areas within the dredge boundaries contain relatively small areas of the densest classification of very high cover (>50% coral)." The former is a gross assumption; the later is known and thus accurate.	Edit Text

term impacts of construction are managed effectively and that the long-term effects of the military relocation reflect DoD policies to be good neighbors and responsible citizens on Guam.

A-012-239

Thank you for your comment. Acquisition of submerged land will not be required, although access restrictions would have to be put in place. Restricting access to certain DoD areas at certain times is required to maintain public safety. Access will be granted at approved times such as when the lands are not being used for military training. Final plans concerning access to sites potentially impacted by the proposed action have not been developed. DoD looks forward to working with stakeholders to develop plans for access that balances operational needs, public safety concerns, and the continuing public use and enjoyment of these sites.

A-012-240

Thank you for your comment. Impacts to recreational resources are evaluated in chapter 9 of volumes 2, 3, 4, 5 and 6.

A-012-241

Thank you for your comment. Chapter 5 of Volume 8 has been revised to address the road development impacts.

A-012-242

Thank you for your comment. DoD feels that conclusions presented are supported by a review of the potentially impacted communities. As NMFS is aware, EFH consultations do not result in mitigation but rather conservation recommendations. DoD is unaware, absent other adjacent habitat, where mitigation is required for the displacement of soft bottom habitats. In addition, based on discussions with the USACE, DoD has determined that impacts on coral on man-made structures in Apra

<p>A-012-255</p> <p>Vol 9 Appendix E</p>		14	4.3	<p>Section 4.3 HEA impact inputs, Page 14: The coral size data collected using the photographic method and presented in this report are meaningless, as indicated in the Minton et al. (2009) comparison report located in Appendix J. In short, observers using the photographic method did not measure the actual size of a coral colony, only the longest horizontal dimension visible within the photo of their quadrat (1 m x 0.6 m). Coral lengths extending beyond the quadrat perimeters were not measured, so a 90 cm coral with 2 cm inside the quadrat is represented as a colony 2 cm in size, biasing towards inaccurate estimates of smaller sized colonies. In addition, given the planar photographic limitations, overlapping colonies could not be accurately measured. Individual colonies crossing multiple adjacent quadrats were counted and measured as separate, smaller individuals within each quadrat. Standard colony inclusion rules (colony centers needed to be within the quadrats for colonies to be measured to avoid bias in abundance/frequency estimates) were not followed</p>
<p>Vol 9 Appendix E Continued</p>				<p>Followed (the report suggestion that colony sizes exceeded the 10 m2 sample unit is not at all supported by the in situ size-frequency data). Differentiation of colony boundaries using planar photographs is difficult at best absent in-situ evaluation. A paid Navy reviewer (K. Fabricious, Appendix J, Section 3) also noted that, "The photo method used does not allow to assess neither frequency nor size of large colonies (they don't fit into the photo frames)". The sizes of coral colonies were thus not measured.</p> <p>Size-frequency and morphology data have been requested since initiation of resource agency consultations on this project (approximately 2 years ago) as means to better characterize coral impacts from a population, community and functions-services perspective (using numbers, sizes and three dimensional morphologies of individual colonies as opposed to an amalgamated planar cover estimate). Such measures are useful for modeling interim colony loss through creation of size and species specific recovery trajectories, and are fundamental to ensuring equitable</p>

Harbor does not constitute a significant impact and mitigation is not required.

A-012-243

Thank you for your comment. The EIS discussion of methods to assess coral impacts are well documented in the text and this referenced appendix.

A-012-244

Thank you for your comment. The report you refer to is a final report and will not be edited. There may be updates to the report to support the Army Corps of Engineers permits but they would be considered new reports with new information.

A-012-245

Thank you for your comments.

The report you refer to is a final report and will not be edited. There may be updates to the report to support the Army Corps of Engineers permits, but they would be considered new reports with new information. Some of these comments are repeats from previous DEIS Volumes and Sections and have been addressed appropriately.

A-012-246

Thank you for your comment. DoD acknowledges that NMFS does not agree with the methods employed to characterize coral impacts from the proposed action. However, the methods used by DoD are valid and accepted by the scientific community. This discussion is included in Volumes 4 and 9 (Appendix) of the EIS.

A-012-247

Thank you for your comment. The NEPA analysis began with the

<p>A-012-255 Vol 9 Appendix E Comment</p>			<p>Functional replacement (through evaluation of colony numbers, sizes and three dimensional morphologies as opposed to compensation/replacement based on flat, amalgamated spatial representations)</p>	<p>Data is inadequate to meet requirements (mitigation rule and EFH). Data that provides coral size-frequency and structure is essential.</p>
<p>Vol 9 Appendix E</p>	<p>14</p>	<p>4.4</p>	<p>Section 4.4 Initial service loss, Page 14: Appropriate clarity on sediment accumulation and extrapolated tolerance thresholds appears lacking in the DEIS. This raises the question of whether a 25% initial loss associated with indirect impacts is valid or conservative. We recommend quantitative justification for the selection of 25% initial loss be provided after full consideration and addressing of comments/concerns related to anticipated sediment impacts. Note also, as indicated by J. McManus, a paid Navy reviewer of the Dollar et al. (2009) report, (Appendix J, Section 3), "Sediment effects on corals depend greatly on species and position with respect to cleansing currents and waves. Corals tend to grow to close to their tolerance levels. Thus, although these corals are growing in sediment laden waters, this does not mean that adding substantially to the sediment load will have no detrimental effect."</p>	<p>Insufficient data to clarify impacts</p>
<p>Vol 9 Appendix E</p>	<p>14</p>	<p>4.5</p>	<p>Section 4.5 Duration of injury, Page 15: The five year recovery trajectory appears to lack appropriate ecological basis. The Brown et al. (1990) study refers to recovery in very shallow water habitats. The applicants should note that, with respect to recovery and recolonization of reefs, Brown and Howard (1985) suggest, "both generalizations and predictions are dangerous". We recommend a more thorough and quantitative approach be used to determine and justify the recovery rate and trajectory for resources indirectly impacted by sediments.</p>	<p>Provide supporting information to justify conclusion or amend information to better reflect precautionary approach.</p>

issuance of a Notice of Intent in March 2007. The CVN Berthing Study was also completed in 2008. The alternatives for the proposed aircraft carrier wharf were developed during preparation of the DEIS in 2009. At this point, Polaris Point has been identified as the preferred alternative.

A-012-248

Thank you for your comment. The two alternative locations discussed in the Draft EIS are the only two viable locations for a new wharf. DoD carefully examined a number of other potential locations in Apra Harbor (with potentially less impacts on coral) and determined that they did not meet operational or security requirements.

A-012-249

Thank you for your comments. The report you refer to is a final report and will not be edited. There may be updates to the report to support the Army Corps of Engineers permits, but they would be considered new reports with new information.

A-012-250

Thank you for your comments. Additional sampling may be conducted; the FEIS will be updated to reflect justification or additional data and analysis.

A-012-251

Thank you for your comments. The report you refer to is a final report and will not be edited. There may be new and/or additional information to support the Army Corps of Engineers permits, but they would be considered new reports with new information.

A-012-252

Thank you for your comment. This section will be updated in the FEIS to reflect this comment.

<p>A-012-256</p> <p>Vol 9 Appendix E</p>	<p>21</p>	<p>Section 6.0 Mitigation alternatives, Pages 21-22: The use of "proxy" mitigation modeling to generate a dollar figure for an undefined compensatory mitigation project is inappropriate under the CWA and new Compensatory Mitigation Guidelines. The applicant has previously been informed of this through official review and in numerous meetings. We recommend an acceptable mitigation project(s) be selected and that equivalency be modeled in a manner that adequately accounts for functional loss and gain, and that the artificial reef proxy be removed from the document.</p>	<p>Provide supporting information to justify conclusion or amend information to better reflect precautionary approach.</p>
<p>Vol 9 Appendix E</p>	<p>21</p>	<p>Section 6.0 Mitigation alternatives, Pages 21-22: Use of artificial reefs as compensatory mitigation in the project reference occurred prior to the adoption of the new Compensatory Mitigation Guidelines. The new guidelines were established in part to help ensure greater accountability in offsetting the loss of ecological functions. No clarity is provided on exactly how artificial reefs can/will replicate or replace all natural reef ecological functions and structure. In fact, ecological function and structure have never been defined or categorized, and their relationship with the coral cover metric has yet to be shown. Based on existing science and the information presented in this document, the use of an artificial reefs do not appear to be suitable as a compensatory offset under the new guidelines for this project.</p>	<p>The artificial reef alternative presented should be removed from consideration as compensatory mitigation.</p>
<p>Vol 9 Appendix E</p>	<p>22</p>	<p>Section 6.0 Mitigation alternatives, Page 22: No "defensible scientific literature" for the artificial to natural reef ratios was provided. NMFS is unaware of scientific literature that would support the use of artificial reefs for the replacement of lost ecosystem functions.</p>	<p>The artificial reef alternative presented should be removed from consideration as compensatory mitigation.</p>

A-012-253

Thank you for your comments. The report you refer to is a final report and will not be edited. There may be new or additional information to support the Army Corps of Engineers permits, but they would be considered new reports with new information.

A-012-254

Thank you for your comments. The report you refer to is a final report and will not be edited. There may be new or additional information to support the Army Corps of Engineers permits, but they would be considered new reports with new information.

1. The case study referenced in the Philippines was an example of a similar artificial reef scenario. Many examples exist, but this one was chosen for comparison. Numerous studies have shown that artificial reefs provide suitable substrate for a large host of organisms, including coral, to colonize. Text not modified.
2. All mitigation options associated with the proposed CVN transient wharf, including the use of artificial reefs and watershed restoration, are being considered by the Navy. When the Navy develops its proposed compensatory mitigation plan, mitigation options contained within the plan will be evaluated by the USACE to determine compliance with the Compensatory Mitigation Rule. Further studies on watershed models are ongoing.
3. Final - no text modified.
4. Photoquad methods are useful, and limitations are explained. No text modified.
5. An appropriate level of detail is included in the FEIS. Text not modified.

<p>A-012-257</p> <p>Vol 9 App endi x E Cont inue d</p>		<p>Clarity needs to be provided on exactly how the proposed ratios demonstrate equitable replacement of lost coral. It appears a foundation for equity is built upon a conclusion that 1 acre of artificial reef will be equitable to the lowest CHI category, which represents the lowest level of coral cover and relief. One might imagine this to represent a flat pavement with 1 or less percent of encrusting coral cover. However, to offset greater coverage and structural categories, additional artificial reef acreage is simply added (i.e., 3:1 acre represents losses in CHI category 3). This approach just doesn't make sense. It is unclear how more structure that is suggested to equate to a lowest CHI category even remotely begins to account for and offset the greater diversity of colonies and structures (branching, tabular, foliaceous, mounding, etc.) of higher CHI categories. There is no basis or support in the data provided to suggest the modeled communities are equitable. We recommend that artificial reefs be dropped from consideration for compensatory mitigation, and suggest needed data be collected and modeled for evaluating watershed reforestation as potential compensatory mitigation.</p>	<p>Insufficient data was provided to support the artificial reef proposal. NMFS does not feel the data or justification for this alternative exist and unless provided would therefore conclude that this alternative does not fulfill the mitigation requirements.</p>
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6. In the interest of saving space and keeping the report concise, information from the tables is not repeated in the text; rather, tables are referred to. Because of the large number of taxa present, tables were deemed a more appropriate means to display data rather than figures. General trends in data are described without reference to statistical tests. Text not modified.

7. Figure 39 reveals transect locations and sediment characteristics and Figure 40 indicates sediment characteristics. No text modified. Trends in data are described without reference to statistical tests.

A-012-255

Thank you for your comments. The report you refer to is a final report and will not be edited. There may be new or additional information to support the Army Corps of Engineers permits, but they would be considered new reports with new information.

A-012-256

Thank you for your comment. The reports referenced in your three comments are final reports, reflecting information at a point in time. They will not be edited. Updated information will be captured in the Final EIS. There will be additional studies prepared to support the Army Corps of Engineers permit.

The Navy has worked with and coordinated meetings with the resource agencies over the last three years discussing (HEA) approach and methodologies. The Navy has invited them to perform surveys, and attended a USFWS hosted HEA workshop in 2008 (Guam agencies were unable to attend due to scheduling difficulties). The Navy has addressed PDEIS comments and concerns, incorporating additional quantitative coral and finfish studies into the DEIS in attempts to alleviate some of these concerns.

A-012-258

Vol 9 Appendix E	23	7.1	Section 7.1 Reef design and equivalence ratio relative to baseline reefs, Page 23: Clarification/justification of the artificial to natural reef ratios need to be provided. Although not clear in this document, a base ratio initially proposed in the HASEKO (Ocean Pointe Marina project) Hawaii dredge permit was used in a previous version of the HEA report. In a review of that document, it was clearly pointed out to the Navy that (1) the original compensatory mitigation was determined prior to the issuance of the new compensatory guidelines for mitigation, and; (2) the HASEKO project was subsequently amended in recognition that, "In the years since these conditions were established, the scientific understanding of artificial reefs has moved forward significantly, and most scientists currently believe that an artificial reef with a surface area of approximately 1.1 acres would not be sufficient to create useful coral-reef habitat. Rather, a structure of aggregate seafloor structures with a total surface area of this size would function primarily as a fish aggregation device. As such, it would tend to concentrate fish near the structures without providing productive habitat for community growth." HASEKO, Inc. subsequently agreed to creation of a reef 100 acres in size as compensatory mitigation (DLNR 2008), which resulted in an updated value that would equate to a minimum of 100 to 1 artificial reef habitat to natural reef.	Provide clarification and justification of artificial to natural reef ratio.
Vol 9 Appendix E	24	7.3	Requests were previously made of the Navy to investigate coral development rates on artificial structures at harbor depths proposed for artificial reef placement as a reality check for their projections (sunken vessels, piles of cinderblocks, other cement structure, etc.). We continue to recommend this be achieved.	Provide clarification
Vol 9 Appendix E	24	7.3	Section 7.3 Artificial reef site selection and potential adverse impacts, Page 24: Placement of 121-123 acres of cement structure will impact the functional contributions of the soft bottom upon which they are placed. The report appears to anecdotally dismiss the functional loss, and suggests coral recovery in areas proposed for permanent loss will offset any functional loss that occurs to soft bottom habitats. We recommend that the fundamental issues of equity be clearly demonstrated and quantified, or that such statements/proposals be removed.	Provide clarification

As stated by the Department of the Army (17 Feb 2010 response to DEIS): "the employed survey methodology to assess coral reef resources within the proposed CVN wharf and dredge project area has been an extremely contentious subject. Functional assessment methodologies are an evolving science and the adequacies of existing methodologies are heavily debated in the scientific community. A standard functional assessment technique that accurately characterized and quantifies losses and gains of coral reef aquatic resource functions, as would ideally be utilized for the proposed action for Section 10/404 compensatory mitigation purposes, is not currently available. Given that DoD will be responsible for complying with federal regulations requiring an appropriate and practicable functional assessment, we have engaged our Engineer Research and Development center (ERDC) to provided an independent technical review of the adequacy of the employed methodology to date and recommendations for improvements, if necessary. Preliminarily, ERDC has determined that while the methodology is scientifically valid and statistically defensible, a more intensive level of data collection may be necessary to adequately measure habitat function for compensatory mitigation purposes. We expect a more specific and detailed accounting of their review in the coming weeks."

The Navy will continue to work with the USACE and EPA/GEPA and take the steps necessary to satisfy the requirements of Section 10/404 and Section 401 permit documentation.

A-012-257

Thank you for your comment. Agencies have not been able to provide data to support alternative mitigation projects. The artificial reefs were supported by US Army Corps of Engineers for a Hawaii project. This will continue to be a point of contention that will be addressed in negotiations outside of the EIS document.

As identified in Volume 4, Section 11.2.2.5 - 11.2.2-7, federal law

A-012-258	Vol 9 Appendix E	5	Page 5-6: Economic valuation of coral reefs is completely irrelevant, even in a contextual format, to appropriate determination and scaling of the mitigation requirements for the proposed impacts. A role for economic valuation comes into play when a project has anticipated/demonstrated effects on public income, subsistence, recreation or the like. To mitigate these forms of loss to humans, dollar determinations might be made for ascertaining appropriate avenues for compensating levels of loss. None of these losses are considered or presented. The association of economic valuation with this HEA modeling is thus highly inappropriate.	At the evaluation and impact analysis level, HEA should be used to determine replacement of lost ecosystem equity between the impact site and mitigation site. The financial value is an applicant priority.
	Vol 9 Appendix E	7	Page 7: We recommend the statement, "The estimated input values for the variables needed to perform HEA loss calculations, included:" be changed to, "The estimated input values for the variables used to perform HEA loss calculations, included". The specific parameters were chosen for use, not required (and are very different from what has been consistently recommended).	edit text
	Vol 9 Appendix E	7	Page 7: Clarify the use of the term "rugosity" by substituting "broad landscape rugosity" to distinguish it from the more commonly applied rugosity measure used in coral reef science.	edit text
	Vol 9 Appendix E	7	Page 7: Clarify the following statement, "Traditionally, a two-dimensional measurement of all living coral tissue in terms of either percent cover or absolute area has been used as a single HEA input metric." The statement appears to imply that all living coral tissue is accounted for in a % live coral or area metric, which is misleading. Typically, estimates of coral cover are based on a planar perspective (as in the case of this DEIS). Only the exposed flat uppermost horizontal reef surface that has live tissue is measured. Measurement of "all living coral tissue" does not occur for any coral or coral part that displays three dimensional structure (almost all of them) or that is hidden from planar view.	edit text

recognizes the value of irreplaceable marine resources and requires compensatory mitigation. Under the *2008 US Army Corps of Engineers (USACE) Final Compensatory Mitigation Rule* (See USACE November 2009, Comment 147 – Justification for Out-of-Kind and Off-site Mitigation) compensatory mitigation should occur within the same watershed of impact whenever possible. If compensatory mitigation is recommended to occur outside the watershed of impact and/or out-of-kind, a sound ecological rationale must be presented as to why it is the most practicable and environmentally preferred choice.

However, the Navy is considering a suite of potential options for compensatory mitigation for the loss in ecological services and function provided by the coral reef ecosystem in Outer Apra Harbor. These may include upland reforestation (to improve nearshore water quality), artificial reefs (to provide increased fish habitat) or a combination these and other compensatory mitigation alternatives. The compensatory mitigation is subject to approval by USACE, under the Clean Water Act, through the Section 404/10 permit requirements.

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Thank you for your comments. The report you refer to is a final report and will not be edited. There may be new or additional information to support the Army Corps of Engineers permits, but they would be considered new reports with new information.

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Vol 9 App endi x E		7	<p>Pages 7 - 8: The suggested intuitive advantage for the coral cover metric would apply to most if not all parameters. The advantage suggested appears really to be one of simplicity. Simplicity is often favored, but the question becomes one of "at what expense?" Ensuring functional equivalency between losses and gains is the required goal; it should not be sacrificed for the sake of simplicity. This applies also to statements suggesting advantage in ignoring species specific functional attributes despite acknowledgement that different levels of service contributions may occur. In terms of size and structure related functions, size itself represents the variation in functional attributes. Growth rates come into play only in defining temporal loss where permanent loss is not assumed. The measures associated with a size approach have ecological meaning. Coral cover really doesn't (function isn't even considered, nor is there a meaningful measured basis for determining duration of loss).</p>	
Vol 9 App endi x E Cont inued			<p>The strength of the coral cover metric appears to be one simply of "simplicity". Its greatest weakness is that it provides no basis for recognizing or distinguishing variation in coral specific functional attributes, which makes it an inappropriate metric for achieving compensatory mitigation under the compensatory mitigation rule.</p>	<p>Data is inadequate to meet requirements (mitigation rule and EFH). Data that provides coral size-frequency and structure is essential.</p>

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<p>A-012-258</p> <p>Vol 9 App endi x E</p>	<p>8</p>	<p>4.1</p>	<p>Section 4.1 Choice of HEA metric, Page 8: A metric that encompasses the structural complexity of corals is definitely an improvement above and beyond planar coral cover. However, the "broad landscape rugosity" approach applied to the CHI index (which quantifies topographic changes using remote sensing data) is at too large a scale, so it still only results in a flat planar representation of coral colonies. It does not capture the three dimensional structure of the corals, which appears to have been the point of Viehman et al. (2009) regarding including rugosity as a HEA input. Broad landscape rugosity may play a functional role on the reef; however, it is not clear what that role is at the measured scale. Its use appears best limited to enhancing estimates of geographic area (such as taking into consideration the area of slopes which is not encompassed by planar projections).</p>	<p>Data is inadequate to meet requirements (mitigation rule and EFH). Data that provides coral size-frequency and structure is essential.</p>
<p>Vol 9 App endi x E</p>	<p>8</p>	<p>4.1</p>	<p>Section 4.1 Choice of HEA metric, Page 8: The "three-dimensional coral area" mentioned appears simply a renaming of the "100% coral equivalents", which previous recommendations suggested be removed from analysis consideration. In essence, only live coral cover is considered for mitigation, with all other habitat and resource functions and services being excluded. This does not adequately meet CWA requirements.</p>	<p>Data is inadequate to meet requirements (mitigation rule and EFH). Data that provides coral size-frequency and structure is essential.</p>
<p>Vol 9 App endi x E</p>			<p>General Comment: The coral assessment strategy applied used a landscape scale percent cover method. This method does not capture the three dimensional rugosity and age structure necessary to properly evaluate the complexity of the reef system and can not be used to calculate a replacement equivalence for the purpose of complying with compensatory mitigation requirements.</p>	<p>Existing data set is inadequate to meet EFH assessment requirement and fails to provide the information needed to define appropriate compensatory mitigation. The proper data needs to be collected.</p>

<p>A-012-258</p> <p>Vol 9 Appendix E</p>			<p>General Comment: We do not support a coral cover approach as a primary means for scaling compensatory mitigation (nor for characterizing resources and habitats and projected impacts). Live coral cover does not adequately characterize/represent coral contributions in terms of ecological functions and structure to reef ecosystems proposed to be impacted, and provides little ecological basis for determining and evaluating equivalency in compensatory mitigation.</p>	<p>Insufficient data to evaluate condition. Additional data is required that includes measures of colony densities, sizes, and structure.</p>
<p>Vol 9 Appendix E</p>			<p>General Comment: The HEA modeling was not provided within the DEIS.</p>	<p>The HEA Modeling spreadsheets need to be provided to evaluate the calculations that were made.</p>
<p>A-012-259</p> <p>Vol 9 Appendix E</p>			<p>General Comment: Water quality conditions generally display high variability through space and particularly time. Conditions often change with seasons, tides and weather events. This study uses water quality measurements from only two samples collected at 30 sites to establish "baseline data" for site characterization. Such limited sampling is highly inadequate in terms of providing data that could be considered a baseline sample. In addition, even such limited data is difficult to interpret without any associated weather and tidal data. We recommend a much more rigorous measurement and reporting regime be implemented as a means of adequately characterizing water quality at the site. This report appears of little value in providing the necessary information and analysis to understand the baseline water quality characteristics in the proposed CVN area.</p>	<p>Insufficient data to evaluate condition.</p>

A-012-259

Thank you for your comment. The Navy has contracted USACE ERDC to complete a more comprehensive sediment transport model. While the Navy believes that the sediment modeling completed for this DEIS was sufficient, the Navy will be revising the sediment modeling with additional data for inclusion into the USACE CWA Sec.404 permit.

<p>A-012-260</p> <p>Vol 9</p> <p>J</p>		<p>State the number of dive hours logged during the 10 days of fieldwork, and if all field work referred to in this report was conducted at this time. It seems that this is a relatively limited commitment to field time considering the scope, large area and complex biology involved in the project.</p> <p>Clarify whether Photo-quad belt transect methodology, which has been stated has been used extensively, has mainly been applied for the purpose of larger scale monitoring programs to compare change over time rather than feeding in to HEA's to determine compensatory mitigation of functions and services of coral reefs.</p> <p>Clarify that one transect constitutes one sample unit, i.e. one replicate. Describe method by which the starting point for these transects was chosen. Clarify how it was ensured that there was no overlap between contiguously taken photos along 10 m belt.</p>	
<p>Vol 9</p> <p>J</p>	<p>8</p>	<p>Clarify whether any analysis was undertaken in choosing that 50 points was the appropriate number to be overlain on each photoquad. Remove reference to measuring long diameters of colonies; determination of colony size is inappropriate using photoquads (very small or large colonies are not represented). Justify why time was committed to photoquads being analyzed by three different investigators while field time was seemingly compromised.</p> <p>Justify why time was committed to photoquads being analyzed by three different investigators while field time was seemingly compromised.</p>	<p>Justify and incorporate into text.</p>

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Vol 9	J	9	<p>Correct HEA as and acronym for Habitat Equivalency Analysis, not "Assessment". In reference to the claim that the majority of HEAs use area metrics, state how many HEA's have been applied to coral reefs as opposed to wetland systems.</p> <p>Discuss whether method of extrapolating detailed data collected in smaller units using remote sensing (including calibration-validation) can be applied to size class/frequency and species richness/diversity data and not only % cover.</p> <p>Clarify why the calibration-validation points were located near the origin of the sampled transects and not randomly scattered across the area.</p> <p>Reference studies that have also applied the image-object-based classifier approach.</p>	
Vol 9	App endi x J		<p>HEA is simply a tool to evaluate equity between sites. This depends entirely on the framework for comparison. If you are not looking at the size and age structure of a community then it is impractical on coral reef to compare two sites and expect a calculation of equity.</p>	<p>The applied HEA makes assumptions that do not withstand the 2008 mitigation rule and require additional data be required to fulfill this mandate.</p>
Vol 9	App endi x J		<p>The percent cover-2D-3D model does not accurately capture the rugosity scale required to affectively determine coral complexity. This is mitigation and Essential fish habitat critical parameter that is not being met by the presented approach.</p>	<p>Need to complete additional data collection to be able to provide the necessary information to meet this requirement.</p>

<p>A-012-261</p> <p>Vol 9 Appendix J</p>			<p>The peer review completed has several flaws. A peer review is dependent upon two key components: Ask the appropriate questions and ensure that the reviewers have the necessary expertise. Both of these issues fail as the questions asked do not ensure that answers address the concerns that have been raised. While all the reviewers are recognized coral experts, only one or two have experience in conducting assessments with the intent of recovering lost ecosystem function or using the data in a HEA. This is the fundamental requirement of the process and unless this is expressly the request it is quite possible to indicate that an assessment method is scientifically defensible for other purposes as is the case here. In addition, a NMFS Coral Reef Ecosystem employee was asked to provide his independent opinion of this method. Upon making contact with the individual it is clear that very little background was provided on the situation and this negatively impacted the credibility of the review.</p>	
<p>Vol 9 Appendix J Continued</p>			<p>When these issues were raised at a recent meeting, the regulatory agencies offered to build a joint questionnaire and collaborate on selecting peers to review the methods. This offer was turned down.</p>	<p>While the peer review provided a wide array of insights to issues with the assessment, it did not address the primary concern with regard to the method application for use in defining lost ecosystem function. For management purposes for determining the suitability of the data to determine lost ecosystem function, this review should be disregarded.</p>

A-012-261

Thank you for your comment. DoD will continue to work with NMFS on these important issues.

<p>A-012-262 Vol 9 Appendix K Dollor Study</p>	<p>10</p>	<p>3.2</p>	<p>Section 3.3, Remote Sensing Habitat Mapping, Page 10: Clarification on the meaning and limits of ≤ 4 m ground sample distance is needed.</p>	<p>Clarify meaning.</p>
<p>Vol 9 Appendix K Dollor Study</p>	<p>10</p>	<p>3.2</p>	<p>Section 3.3, Remote Sensing Habitat Mapping, Page 11: The use of the word "validation" is not clearly defined in creation of the maps. It appears all data collected was used to create and then further enhance the model algorithms for map projection. What is the basis for suggesting this is "a more robust test of the classification than would be achieved by simply separating the sea-truth data into two halves (i.e. a "training" set and a "testing" set)"? In reality, the resultant map appears never to have been validated through simple ground-truthing (i.e., visiting random sites in the field to validate whether what the map says is there is actually there). Questions regarding map accuracy in the field appear to need to be further addressed.</p>	<p>Clarify meaning.</p>
<p>Vol 9 Appendix K Dollor Study Continued</p>			<p>Much of the sediment generated by the dredging will be meters below the current surface." (Appendix J, Section 3). K. Fabricious (a paid Navy reviewer, Appendix J, Section 3), suggested, "... sediment samples could have been collected at the beginning of each transect; sediment properties vary at small spatial scales and a few more replicates may have started showing some patterns (processing sediment samples is inexpensive).</p>	<p>Support and recommend a much more thorough and meaningful sediment sampling and analysis be implemented.</p>

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<p>A-012-262</p> <p>Vol 9 Appendix K Dollar Study</p>	<p>14</p>	<p>3.6</p> <p>Section 3.6, Sediment Composition, Page 14: Clarification on the method of surface sediment collection should be provided (i.e., cores, hand grabs, scoops, etc.). In addition, clarity should be provided on what the analysis actually addresses. T. Hughes (a Navy paid reviewer), noted, "The analysis of sediments is very superficial, limited to ascertaining the carbonate composition. The rationale for this part of the study is that suspended terrigenous and carbonate-rich sediments each affect corals in different ways. However, the difference is largely due to particle size and organic composition rather than the carbonate fraction per se. Sediment grain size and organic content were not examined. We're told later on p 13 that parts of the turning basin are only 40 ft (13m) deep, so the analysis of surface sediments collected by divers is of limited use."</p>	
<p>Vol 9 Appendix K Dollar Study Cont</p>		<p>was made evident by a comparison study of data from 30 transects used in this report (Minton et al. 2009). Reference by Dollar et al. (2009) to Porites rus should actually be changed to Porites rus/horizontalata (throughout the document), as both Porites rus and Porites horizontalata occur on site in high aggregation areas. Dollar et al. (2009) do not appear to have been able to distinguish Porites horizontalata from their photographs. Also, clarity should be provided, as recommended by T. Hughes (a paid Navy reviewer, Appendix J, Section 3, Page 6) regarding what exactly "a whole ecological identity" means.</p>	<p>Edit colony descriptors to reflect proper growth characterization. Edit species names and define "whole ecological identity".</p>
<p>Vol 9 Appendix K Dollar Study</p>	<p>16 4.2.1</p>	<p>Section 4.2.1, Porites rus Supracorals, Page 16: It should be clarified that the tissue of the separate colonies does not fuse, and that multiple colonies in such tight aggregations maintain their individual characteristics and compete for space. Tissue loss of one colony may lead to encrustation over abandoned skeleton of another, but not tissue fusion. Such formations provide interesting topographic features that result from high coral density; however, the language presented should not allow for any misrepresentation that individual colonies in these high density formations lose their individual attributes, and should be changed accordingly. It should also be noted that colonies in such high density formations within the impact zone are not necessarily limited to one species.</p>	

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A-012-262	Appendix K Dollar		The text appears to be leading towards an indication that such large scale mixing occurs often throughout the site; however, examination of the data presented in Appendix A shows relatively larger concentrations (> 10 %) of <i>Porites cylindrica</i> and <i>Pavona cactus</i> to be rather uncommon (percent cover values > 10 % for these species appear on only 1 [<i>P. cylindrica</i>] and 5 [<i>P. cactus</i>] of 67 transects respectively).	Correct the perception with determinant growth and rewrite section to better define mixing.
Vol 9 Appendix K Dollar Study		17	4.2.2 Section 4.2.2 Mixed Coral Communities, Page 17: The information presented might be considered by some to be somewhat misleading, perhaps not directly in words, but in inference. The word "often" is used in describing the occurrence of in-determinant growth forms. Actually, the majority of coral species at the site display in-determinant growth, which simply means their size is not genetically predetermined/constrained. <i>Porites lutea</i> , number 4 in the 3 of 4 mentioned most common corals, also displays in-determinant growth. Thus the error in suggesting only 3 of the 4 most common species show in-determinant growth should be corrected. Also, information should be provided on the frequency and extent of large scale mixing of <i>Pavona cactus</i> , <i>Porites cylindrica</i> and <i>Porites rus</i> .	
Appendix K Dollar		17	4.2.3 Section 4.2.3 Patch reef margins – <i>Acropora aspera</i> mat, Page 17-18: The species designation of this branching coral as <i>Acropora aspera</i> is questioned and should be reviewed/addressed. Discussions with local resource agency personnel suggest that <i>Acropora</i> mortality observed was more likely a result of bleaching and/or coral disease, not sponge induced mortality as suggested.	Correct or support the supposition of sponge induced mortality of coral branches, particularly on sections where sponges were not observed.
Vol 9 Appendix K Dollar Study		18	4.2.5 Section 4.2.5 Algal beds, Page 18: Algae taxonomic and abundance data were collected by one of the leading phycologists presently at the University of Guam on 30 of the 67 transects. This data was made available to Dollar et al. (2009) and should be used to better define algae species names in this section.	Incorporate UOG algae data.

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<p>A-012-262 Vol 9 Appendix K Dollar Study</p>		18	4.3 Section 4.3, Quantitative evaluation of benthic community structure, Page 20-21 and Figure 21: Figure 21 results show high variation within the strata selected, and we, as well as a few of the Navy reviewers (Appendix J, Section 3), suggest that the selected strata were too general/encompassing and thus do not allow for good interpretation regarding the communities being evaluated. T. R. McClanahan, (a paid reviewer of the study, Appendix J, Section 3), noted, "The chosen strata are not what coral reef ecologists would chose as things that influence coral communities...", and "... the design is weakly presented and the lack of significance suggests that the design elements are not the factors influencing the coral communities".	
<p>Vol 9 Appendix K Dollar Continued</p>			K. Fabricious (a paid Navy reviewer, Appendix J, Section 3), wrote, "Although slope angle may be a useful predictor to categorize benthic habitats, if used in isolation from depth (as done in this study), the <=15 degrees category will combine seafloor sites with reef top sites (as shown in Fig 5), which is obviously ecologically meaningless. Traditionally, a second stratification of shallow-water benthic habitats would have been based on depth, and/or windward/leeward onshore-offshore orientation, rather than on slope angle. Depth is a fundamental factor that determines most ecosystem processes in coral reefs, and assessments of benthic communities are likely to miss the main explanatory factor and source of variation if depth is not included." Recommended stratification was provided to the applicant long ago and is again noted in previous comments.	Continue to recommended appropriate stratification .
<p>Vol 9 Appendix K Dollar Study</p>		21	4.3 Section 4.3, Quantitative evaluation of benthic community structure, Page 21-23, Figures 22-31:	Recommend the applicant consider and address statistical and presentation related Navy reviewer comments, particularly those of Hughes, Fabricious, Sheppard and McClanahan (Appendix J, Section 3).

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<p>Vol 9 Appendix K Dollar Study</p>		<p>23</p>	<p>4.4</p> <p>Section 4.4, Remote sensing analysis of benthic community structure, Page 23-26: It is noted that remote sensing accuracies did not reach 80-90% for this project, and that the conditions were less than ideal. What value does accuracy estimates below 50 % (common for all categories except the 0 % and 50-70% categories) have in terms of adequately defining community composition? T. Hughes (a paid Navy reviewer, Appendix J, Section 3), notes, "The remote sensing could distinguish corals from sediment, but could not discern the amount of coral very well. It provides no information on species composition, The transects provided far more information with much greater precision." He further states, "Remote sensing added very little information to the current study since it cannot distinguish levels of coral cover or say anything about coral or macroalgae composition.". T. Cooper (a paid Navy reviewer, Appendix J, Section 3) states, "... it is uncertain whether the accuracy rate from the remote sensing community structure analyses is sufficient to provide a valid extrapolation for the greater area."</p>
<p>Vol 9 Appendix K Dollar Study Continued</p>			<p>K. Fabricious (a paid Navy reviewer, Appendix J, Section 3) notes, " The need to use remote sensing data seems slightly overstated, since the area under investigation here is small (0.73 km2) and well structured, with some patch reefs in known locations and extended areas of sand that are quick to survey. The area is therefore perfectly amenable to surveys using alternative methods such as photo transects, manta tows and towed video for the deeper sections (which were not covered here)." Clarification is needed on how map product accuracy relates to accurate geographic representation in the field (i.e., a map can be accurately created using field data, but accuracy for geographic reference of biological communities in the field may be very much different). There is no indication that the map produced has been validated post-production by simple ground truthing. Everything appeared simulation based with the exception of the "preliminary" data used to generate the map, which is a rather small sample size for the large area proposed to be impacted.</p> <p>Site Validation of accuracy of map is needed across the parameters presented.</p>

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<p>A-012-262</p> <p>Vol 9 App endi x K- Doll ar Stud y</p>		<p>27</p> <p>4.5</p>	<p>Section 4.5 Index of coral stress, Pages 27 - 28: Recommend adding, "as estimated using this methodology." to the last sentence in the last paragraph. It should be noted, as pointed out by T. Hughes (a paid Navy reviewer, Appendix J, Section 3) that, "... stress is inferred rather than measured directly" by this method. We concur with T. Hughes that the section heading should be changed to "Assessment of spectral reflectance". We also concur that the purpose of these measures is unclear, and recommend clarification be provided. Indications of "stress" may not be limited to differences in chlorophyll content. K. Fabricius (a paid Navy reviewer, Appendix J, Section 3) noted, "... I believe the connotation of dark = healthy is considered somehow simplistic, given the increase in pigmentation in corals exposed to high levels of nutrients". T. Cooper (a paid Navy reviewer, Appendix J, Section 3) also notes,</p>
<p>Vol 9 App endi x K Doll ar Stud y Cont inued</p>			<p>"There are many studies to show that increases in pigment concentrations and zooxanthellae density are in fact a negative response to exposure to nutrients (nitrogen and phosphorus; e.g. see studies by Hoegh-Guldberg and Smith 1989; Stambler et al 1991, 1994) in addition to the well known physiological responses to changes in irradiance. Clearly, the NDVI needs to be interpreted cautiously until further studies are completed and presented in the literature." Application of pertinent methods examining other parameters (enzyme activity, growth, regeneration abilities, reproductive characteristics, etc.) may (or may not) indicate spatial difference in "stress".</p> <p>Issues need to be clarified in the document.</p>

<p>A-012-262</p> <p>Vol 9 Appendix K-Dollar Study</p>		28	4.5	<p>Section 4.5, Size-frequency analysis, Pages 28-30: The coral size data collected using the photographic method and presented in this report are meaningless, as indicated in the Minton et al. (2009) comparison report located in Appendix J. In short, observers using the photographic method did not measure the actual size of a coral colony, only the longest horizontal dimension visible within the photo of their quadrat (1 m x 0.6 m). Coral lengths extending beyond the quadrat perimeters were not measured, so a 90 cm coral with 2 cm inside the quadrat is represented as a colony 2 cm in size, biasing towards inaccurate estimates of smaller sized colonies. In addition, given the planar photographic limitations, overlapping colonies could not be accurately measured. Individual colonies crossing multiple adjacent quadrats were counted and measured as separate,</p>
<p>Vol 9 Appendix K-Dollar Study Continued</p>				<p>smaller individuals within each quadrat. Standard colony inclusion rules (colony centers needed to be within the quadrats for colonies to be measured to avoid bias in abundance/frequency estimates) were not followed smaller individuals within each quadrat. Standard colony inclusion rules (colony centers needed to be within the quadrats for colonies to be measured to avoid bias in abundance/frequency estimates) were not followed (the report suggestion that colony sizes exceeded the 10 m2 sample unit is not at all supported by the in situ size-frequency data). Differentiation of colony boundaries using planar photographs is difficult at best absent in-situ evaluation. A paid Navy reviewer (K. Fabricious, Appendix J, Section 3) also noted that,</p>

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<p>A-012-262 Vol 9 Appendix K Dollars Study Continued</p>			<p>"The photo method used does not allow to assess neither frequency nor size of large colonies (they don't fit into the photo frames)". The sizes of coral colonies were thus not measured.</p> <p>Size-frequency and morphology data have been requested since initiation of resource agency consultations on this project (approximately 2 years ago) as means to better characterize coral impacts from a population, community and functions-services perspective (using numbers, sizes and three dimensional morphologies of individual colonies as opposed to an amalgamated planar cover estimate).</p>
<p>Vol 9 Appendix K Dollars Study Continued</p>			<p>Such measures are useful for modeling interim colony loss through creation of size and species specific recovery trajectories, and are fundamental to ensuring equitable functional replacement (through evaluation of colony numbers, sizes and three dimensional morphologies as opposed to compensation/replacement based on flat, amalgamated spatial representations)</p> <p>Data is inadequate to meet requirements (mitigation rule and EFH). Data that provides coral size-frequency and structure is essential.</p>

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<p>Vol 9 Appendix K Dollar Study</p>		<p>31</p>	<p>4.8</p>	<p>Section 4.8 Sediment composition, Page 31: Clarity should be provided on what the analysis actually addresses. T. Hughes (a Navy paid reviewer), noted, "The analysis of sediments is very superficial, limited to ascertaining the carbonate composition. The rationale for this part of the study is that suspended terrigenous and carbonate-rich sediments each affect corals in different ways. However, the difference is largely due to particle size and organic composition rather than the carbonate fraction per se. Sediment grain size and organic content were not examined. We're told later on p 13 that parts of the turning basin are only 40 ft (13m) deep, so the analysis of surface sediments collected by divers is of limited use. Much of the sediment generated by the dredging will be meters below the current surface."</p>
<p>Vol 9 Appendix K Dollar Study Continued</p>				<p>smaller individuals within each quadrat. Standard colony inclusion rules (colony centers needed to be within the quadrats for colonies to be measured to avoid bias in abundance/frequency estimates) were not followed (the report suggestion that colony sizes exceeded the 10 m2 sample unit is not at all supported by the in situ size-frequency data) . Differentiation of colony boundaries using planar photographs is difficult at best absent in-situ evaluation. A paid Navy reviewer (K. Fabricious, Appendix J, Section 3) also noted that, "The photo method used does not allow to assess neither frequency nor size of large colonies (they don't fit into the photo frames)". The sizes of coral colonies were thus not measured.</p> <p>Size-frequency and morphology data have been requested since initiation of resource agency consultations on this project (approximately 2 years ago) as means to better characterize coral impacts from a population, community and functions-services perspective</p>

<p>A-012-262</p> <p>Vol 9 App endi x K Doll ar Stud y Cont inue d</p>		<p>(using numbers, sizes and three dimensional morphologies of individual colonies as opposed to an amalgamated planar cover estimate). Such measures are useful for modeling interim colony loss through creation of size and species specific recovery trajectories, and are fundamental to ensuring equitable functional replacement (through evaluation of colony numbers, sizes and three dimensional morphologies as opposed to compensation/replacement based on flat, amalgamated spatial representations).</p>	<p>The size-frequency data and analysis presented in this section does not provide the data to adequately characterize the coral resources in the area. Appropriate measurements of coral size-frequencies and morphologies are needed to properly analyze and present characterization of coral colony resources at risk, evaluate recovery potential, and form a fundamental basis for assuring equity in compensating unavoidable loss through mitigation.</p>
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<p>Vol 9 App endi x K Doll ar Stud y</p>	<p>32</p>	<p>5</p>	<p>Section 5 Conclusions and discussion, Page 32, Paragraph 1: We concur with T. Hughes (a paid Navy reviewer, Appendix J, Section 3) that "Describing the area as "an algal reef" is not particularly accurate or useful". Hughes goes on to say, "The hard substrate was created by corals, not macro-algae, so in that sense they are coral reefs. <i>Halimeda</i> mounds on soft sediments are sometimes referred to as algal reefs in the literature. Certainly, macroalgal cover on the reef "flat" and slopes is high, but so too is coral cover in numerous locations. The reefs can justifiably be regarded as human-impacted. Coral species richness is low, and the high cover of macro-algae points to high nutrient levels and overfishing of herbivores. Nonetheless, Figure 18 shows that about one-third of transects have more than 30% coral cover. That's more than many reefs around the world." It is unclear why external reviews were purchased given no document changes appear to have been implemented with respect to critical comments received.</p>
<p>Vol 9 App endi x K Doll ar Stud y Cont inued</p>			<p>In addition, while true that "the regulatory process focuses on the coral component", this is accurate only in part. The writing appears to imply the regulatory focus is somehow limited to the coral component, which would create a very flawed misunderstanding. Regulatory agencies have consistently questioned the lack of applicant focus on habitat and resources other than live coral.</p> <p>1st paragraph on page 32 need to ensure the intent is to focus on habitat and not just corals..</p>

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<p>A-012-262</p> <p>Vol 9 Appendix K Dollar Study</p>	<p>32</p>	<p>5</p> <p>Section 5 Conclusions and discussion, Page 32-33, Paragraph 3-4: We share the concerns raised by T. Hughes, T. Cooper and K. Fabricious (paid Navy reviewers, Appendix J, Section 3) regarding the conclusions made about the contributions made via remote sensing and suggested limitations associated with <i>in situ</i> sampling. Hughes noted, "I don't find the argument here very convincing. Remote sensing added very little information to the current study since it cannot distinguish levels of coral cover or say anything about coral or macroalgae composition." T. Cooper states, "... it is uncertain whether the accuracy rate from the remote sensing community structure analyses is sufficient to provide a valid extrapolation for the greater area." K. Fabricious notes, "The need to use remote sensing data seems slightly overstated, since the area under investigation here is small (0.73 km²) and well structured, with some patch reefs in known locations and extended areas of sand that are quick to survey."</p>	
<p>Vol 9 Appendix K Dollar Study Continued</p>		<p>The area is therefore perfectly amenable to surveys using alternative methods such as photo transects, manta tows and towed video for the deeper sections (which were not covered here). The argument that only 0.1% of the area has been covered by the photo transects is inconsequential, given that all estimates are based on subsampling – not the percentage area covered is relevant, but whether the surveys have been based on a representative sampling regime (hence the importance of a sound choice of strata)."</p>	<p>The issues raised merit completing additional surveys to gather data allow appropriate analysis and determination of impacts.</p>

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<p>A-012-262 Vol 9 Appendix K Dollar Study</p>	<p>32</p>	<p>Figure 1 (no page number provided): Recommend representation of Polaris Point alternative using a different color such as yellow as blue lines are difficult to discern on a blue background. Also, the reef referred to as "unnamed reef" is identified as "Middle Reef" in the DEIS. Recommend consistency be accomplished in naming and referring to geologic formations proposed to be impacted throughout the document.</p>	<p>Edit color and address consistency issue.</p>
<p>Vol 9 Appendix K Dollar Study</p>	<p>32</p>	<p>Figure 2 (no page number provided): Information concerning the image used in the presentation and analyses suggests they were taken in 2003, nearly seven years ago. Clarification should be provided as to why more recent imagery was not collected/purchased and used, and whether or not this imagery adequately represents current conditions at the site.</p>	<p>Provide clarification as to why more recent imagery was not collected/purchased and used, and whether or not this imagery adequately represents current conditions at the site.</p>
<p>Vol 9 Appendix K Dollar Study</p>	<p>32</p>	<p>Figure 3 (no page number provided): Shaded areas are referred to as likely "coral/algae" rich in the text, but are defined as "coral" on the map.</p>	<p>Make appropriate edits.</p>

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<p>A-012-262 9 App endi x K Doll ar Stud y</p>	<p>32</p>	<p>5 Figure 7 (no page number provided):</p>	<p>Modify color of the lines representing direct and indirect impact areas for greater clarity</p>
<p>Vol 9 App endi x K Doll ar Stud y</p>	<p>32</p>	<p>5 Figure 8 (no page number provided): Discussions with the primary author (Steve Dollar) suggest the investigators may never have attempted to discern whether the formation in the upper left of Figure 8 was a single colony or "amalgamation of numerous smaller colonies". Separate colonies of this species, while sometimes difficult to delineate using distant photos or photoquadrats, are fairly simple to delineate <i>in situ</i>. If the investigators never made any qualified effort to distinguish colony numbers, then the language should be changed to indicate that the formation in the upper left is assumed to be an amalgamation of numerous smaller colonies.</p>	<p>edit text</p>
<p>Vol 9 App endi x K Doll ar Stud y</p>	<p>33</p>	<p>5 Section 5 Conclusions and discussion, Page 33-34: J. McManus (a paid Navy reviewer, Appendix J, Section 3) makes an important point regarding statements made concerning the sediment tolerances of corals in the CVN survey area. He states, "Sediment effects on corals depend greatly on species and position with respect to cleansing currents and waves. Corals tend to grow to close to their tolerance levels. Thus, although these corals are growing in sediment laden waters, this does not mean that adding substantially to the sediment load will have no detrimental effect". Additional reviewers, including K. Fabricious and J. McManus (Appendix J, Section 3) point out that dredge effects may be as serious in deep areas as well as shallow, and suggest sediment impacts may occur well below 60 ft and outside the 200 m proposed buffer area.</p>	<p>The contractor information mentioned is merited and supports serious concerns regarding underestimation/miscalculation of proposed sediment impacts in this DEIS. This will require additional analysis and potentially assessment to resolve concerns.</p>

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Vol 9 Appendix K Dollar Study	6	2	<p>Section 2, Purpose, Page 6: Given the statements made concerning the limits of the study (i.e. what it was intended to do and not intended to do), serious questions arise as the adequacy of this study to act as a primary basis for resource characterization, impact analysis and habitat equivalency analysis. Understanding the functional attributes of the community at risk is mentioned, but the approach selected appears extremely limited in its ability to provide the needed information that will adequately define and represent functional loss. Multiple resources agencies have been consistent since being consulted on this project (roughly 2 years ago) that an in situ, size-frequency and morphology approach would be best suited for characterizing coral resources, impacts to such, and in representing functional loss and assuring equitable compensatory mitigation using HEA.</p>	<p>Need to conduct surveys that capture coral size frequency and structure to enable proper determination of appropriate compensatory mitigation.</p>
Vol 9 Appendix K Dollar Study	6	2	<p>Section 2, Purpose, Page 6, Paragraph 3, Lines 8-10: Please clarify this sentence. It appears some words or a line is missing.</p>	<p>Edit text</p>
Vol 9 Appendix K Dollar Study	6	2	<p>Section 3, Methods, General Comment: The methods descriptions are inadequate, particularly with regards to the mapping approach. Many of the methods are scattered throughout the results section.</p>	<p>Provide a consolidated methods descriptions section.</p>

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<p>A-012-262</p> <p>Vol 9 Appendix K Dollar Study Continued</p>		<p>We recommend that appropriate in situ sampling be conducted and suggest (once again) the following strata be broken out by direct and indirect project impacts: (1) shallow reef flats; (2) deep reef flats; (3) windward shallow reef slopes; (4) leeward shallow reef slopes; (5) deep slopes; and (6) the northern-most pinnacle. This would be in line with the recommendation provided by K. Fabricious (a paid Navy reviewer, Appendix J, Section 3), who wrote, "Although slope angle may be a useful predictor to categorize benthic habitats, if used in isolation from depth (as done in this study), the <=15 degrees category will combine seafloor sites with reef top sites (as shown in Fig 5), which is obviously ecologically meaningless. Traditionally, a second stratification of shallow-water benthic habitats would have been based on depth, and/or windward/leeward onshore-offshore orientation, rather than on slope angle. Depth is a fundamental factor that determines most ecosystem processes in coral reefs, and assessments of benthic communities are likely to miss the main explanatory factor and source of variation if depth is not included."</p>	<p>Continue to recommend that the In situ surveys be completed using the existing data to determine how many samples sites are needed.</p>
<p>Vol 9 Appendix K Dollar Study</p>	<p>7</p>	<p>Section 3, Transect Survey Site Selection, Page 7: There is serious question as to whether the strata selected for sampling, characterization and analysis were appropriate given the earlier suggestion in the document that "the reef community structure is inherently non-random: reefs generally exhibit strong geomorphic and ecological zonation (this was confirmed for the CVN study)". Only two strata division criteria were considered (direct-indirect project impact; slope > or < 15 degrees) in the sampling design, despite previously proposed resource agency concerns and recommendations. There is little surprise that the results (p. 23) indicate the four strata considered can not be statistically distinguished from each other (based on the method of community data collection and sample sizes). Such results contrast with the statement above that, as confirmed in the CVN study, "... reefs generally exhibit strong geomorphic and ecological zonation".</p>	

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<p>A-012-262 Vol 9 Appendix K Dollar Study</p>		<p>7 3</p>	<p>Section 3.1, Transect Survey Site Selection, Page 7: The text in the methods states "area of coral or algae are distinguishable from sand or rubble substratum"; however, Figure 3 states the darker areas in the image are "likely" coral/algae rich.</p>	<p>This conflict needs to be edited.</p>
<p>Vol 9 Appendix K Dollar Study</p>		<p>7 2</p>	<p>the impossibility in performing a power analysis is not merited. It is irrelevant that the community distribution is random, however critical that your sampling within the community or its stratified components is random. Power analysis is applied as a means of quantifying Type II error, which in statistical comparisons, highlights the probability of accepting a hypothesis of no difference when a difference truly exists. Type II error is highly relevant to making management decisions, particularly when limitations such as inadequate sample sizes can lead to erroneous conclusions based on incomplete statistical presentations. Power analysis is an objective, widely accepted quantitative approach used to determine sample numbers needed relative to affecting the likelihood of Type II error, which is based on preliminary information on existing variation within the system being measured. No method or basis appears to be provided to suggest that the number of sites selected (67) is appropriate or, as described within the document, "adequately robust".</p>	<p>Edit existing text to reflect the power testing issue properly and provide a quantitative justification for the selection of 67 sites to represent a heterogeneous area exceeding 50 acres.</p>
<p>Vol 9 Appendix K Dollar Study</p>		<p>8 3.2</p>	<p>Section 3.2, Transect Survey Methods, Page 8, Paragraph 5: Clarification should be provided on how direction was "randomly" determined in orienting transects in areas with no distinguishable slope.</p>	<p>Provide clarification</p>

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A-012-262	Vol 9 Appendix K Dollar Study	9	3.2	Section 3.2, Transect Survey Methods, Page 9: Clarification should be provided as to the link length of the chain used to measure rugosity.	Provide clarification of link length of chain.
	Vol 9 Appendix K Dollar Study	9	3.2	Section 3.2, Transect Survey Methods, Page 9: The methods section should clarify that measures of the "long diameters of coral colonies" did not measure a coral colony's length, but rather the longest visible planar dimension of any "discernable" part of a colony within the quadrat (as indicated on p. 29).	The data presented in this report does not capture size class distribution of coral or structure. This limitation needs to be recognized and the data gathered.
	Vol 9 Appendix K Dollar Study	9	3.2	Section 3.2, Transect Survey Methods, Page 9: Clarification should be provided on the extent to which planar images allowed delineation of individual coral colonies. Coral frequencies are reported; however, it appears that adjacent images were analyzed separately leading to multiple counts of individual colonies that crossed adjacent images. Clarification on the use of, and inability to adhere to, the "center rule" for counting corals should also be provided within methods section.	Clarify the method description and incorporate the data limitation with respect to double counting.

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<p>A-012-262</p>	<p>9 Appendix K Doll ar Study</p>	<p>9</p>	<p>3.2 Section 3.3, Remote Sensing Habitat Mapping, Page 9: The text states, "... (image data originally acquired February 18, 2007)"; however, Figure 2 states the image was taken in 2003.</p>	<p>Clarify when the image was captured.</p>
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U.S. DEPARTMENT OF COMMERCE
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DEC 02 2009

Ms. Karen Sumida
Business Line Manager, Environmental
Naval Facilities Engineering Command, Pacific
258 Makalapa Dr. Ste. 1000
Pearl Harbor, Hawaii 96860-3134

Dear Ms. Sumida:

This letter responds to your November 5, 2009 letter presenting the U.S. Navy's effects determination for the construction of the U.S. Navy Carrier Vessel Nuclear (CVN) pier and associated Naval Base Marianas waterfront improvements in Apra Harbor, Guam. In your letter, you made the determination that the proposed action is not likely to adversely affect the continued existence of green and hawksbill sea turtles, and requested the concurrence of the National Marine Fisheries Service (NMFS) under Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. §1531 *et seq.*), with that determination.

NMFS considers it likely that the proposed action may adversely affect ESA-listed green and hawksbill sea turtles, and as such does not concur with your determination. As explained in this letter, this determination is based on the Navy's description of the proposed action, on the confirmed and suspected presence within the action area of green and hawksbill sea turtles, respectively, and on the biology of those sea turtles.

Proposed Action/Action Area: The proposed action is described in your letter (Navy 2009a) and in the Early Review Draft Environmental Impact Statement / Overseas Environmental Impact Statement (ERDEIS/OEIS) for the Guam and CNMI Military Relocation (Navy 2009b). In summary, the portions of the proposed action most relevant to your consultation request consists of the widening the current operational channel, dredging 608,000 cubic yards (CY) of material to create a turning basin and vessel movement area for the proposed CVN pier, installing about 400 24-inch steel pilings to support the CVN pier, maintenance dredging of 283,000 CY of material at Sierra Wharf; replacement of sheet-pilings at Sierra and Tango Wharves; and of constructing ramps for launching and recovering amphibious boats and small boats at Polaris Point. Other work includes above water construction and repairs to make needed waterfront improvements. At the minimum, the action area is estimated to be the in-water area within a 50-yard radius arc around all construction activities. This includes the footprint of all work done to widen the channel, to dredge both areas, the construction area for the proposed CVN pier and around any support boats that may be used for this action, as well as the down-current extent of any plumes that may result from discharges of wastes or toxic chemicals such as fuels and/or lubricants associated with any machinery used for this activity. For the dredging and pile-driving portions of the proposed action, the action area also includes the down-current extent of sediments mobilized by dredging, and the in-water area ensouffled by pile-driving and dredging out to the 120 dB (re 1 uPa) isopleth, but within the confines of Apra Harbor.



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Thank you for your comment. The Navy will fulfill all consultation responsibilities under Section 7 of the ESA.

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Listed Species/Critical Habitat: ESA-listed species under NMFS jurisdiction that are known to occur, or could reasonably be expected to occur in waters of the Mariana Archipelago include green sea turtles (*Chelonia mydas*), hawksbill sea turtles (*Eretmochelys imbricata*), leatherback sea turtles (*Dermochelys imbricata*), and olive ridley sea turtles (*Lepidochelys olivacea*), as well as blue whales (*Balaenoptera musculus*), fin whales (*Balaenoptera physalus*), humpback whales (*Megaptera novaeangliae*), sei whales (*Balaenoptera borealis*), and sperm whales (*Physeter macrocephalus*). Based on preferred habitats and sighting information, green and hawksbill sea turtles are the only ESA-listed species known or expected to occur within the action area.

The green sea turtle was listed as threatened on July 28, 1978 (43 FR 32800), except for breeding populations found in Florida and the Pacific coast of Mexico, which were listed as endangered. Conservation efforts over the past 25 years or more appear to have had some positive results. However, threats and impacts persist for a number of Pacific sea turtle populations, including the population occurring in the Marianas. Significant data gaps exist for this population, and long-term population trend information is lacking. Direct take through poaching, along with habitat degradation and loss continue to be threats to Guam's green sea turtles. Relatively low numbers of green sea turtles forage and rest regularly within Apra Harbor, including on the shoals adjacent to the operational channel and the proposed turning basin. Low level nesting is known to occur on small beaches along the southern shore of the harbor, particularly toward the harbor entrance.

The hawksbill sea turtle was listed as endangered on June 2, 1970 (35 FR 8490). Globally, hawksbill nesting populations declined substantially during the 20th century, and population declines appear to continue. A small population of foraging hawksbills resides around Guam, and low level nesting has been confirmed. However, significant data gaps exist and long-term population trend information is lacking. Direct take through poaching, along with habitat degradation and loss continue to be threats to this population. Hawksbills are thought to forage and rest infrequently within Apra Harbor, including on the shoals adjacent to the operational channel and the proposed turning basin. Nesting was confirmed in the inner Harbor during the 1990s, and has been suspected more recently along the southern shore, close to the harbor entrance.

No critical habitat has been designated or proposed for designation in the Marianas for any ESA-listed marine species. Therefore, this project will have no effect on designated critical habitat under NMFS jurisdiction.

Analysis of Effects: NMFS used the following information to consider the effects of the proposed action: The Navy's consultation request letter, the ERDEIS/OEIS for the Guam and CNMI Military Relocation, the recovery plans and status reviews for green and hawksbill sea turtles (NMFS & USFWS 1998a & b and 2007a&b), and the California Department of Transportation's Compendium of Pile Driving Sound Data (CALTRANS 2007).

In order to concur that a proposed action is not likely to adversely affect listed species, NMFS must find that, down to the level of the individual, the effects of the proposed action are expected to be insignificant, discountable, or beneficial as defined in the joint USFWS-NMFS Endangered Species Consultation Handbook (USFWS & NMFS 1998). Insignificant effects relate to the size

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Thank you for your comments. The FEIS has been revised to reflect information as well as incorporate comments received from your office during the Section 7 consultation process.

of the impact and should never reach the scale where take occurs. Discountable effects are those that are extremely unlikely to occur, and beneficial effects are positive effects without any adverse effects. This standard, as well as consideration of the probable duration and frequency of potential impacts, must be applied during an analysis of effects.

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NMFS expects that the intensity of some of the potentially adverse impacts will likely rise above the threshold of significance for individuals of either or both of the two turtle species considered in this letter. We further expect that, even with the application of the conservation measures currently proposed, the probability of exposure to these adverse impacts rises above the threshold for discountability. As described below, pile-driving for the CVN pier is likely to expose sea turtles to adversely high levels of in-water noise. NMFS expects that the exposure is likely to result in temporary threshold shifts (TTS) and behavioral disturbance, and may result in permanent threshold shifts (PTS). Dredging for the CVN turning basin may injure or kill sea turtles by direct impact, and it will result in permanent loss of known resting and forage habitat. Other potential vectors of impact exist, including collision with vessels, disturbance from human activity and equipment operation, exposure to elevated turbidity, and exposure to wastes and discharges. However, through the implementation of the proposed conservation measures and best management practices, the impacts of those vectors may remain below the thresholds significance and/or discountability.

1. Exposure to elevated noise levels due to pile driving: Pile-driving can produce in-water noise levels that may adversely affect marine life. Effects may include: (1) physical injury; (2) permanent hearing damage, also referred to as permanent threshold shift (PTS); (3) temporarily reduced sensitivity also referred to as temporary threshold shifts (TTS); (4) temporarily masked communications or acoustic environmental cues; and (5) modified behaviors.

Although sound pressure levels (SPL) can be measured and quantified in several ways, the logarithmic decibel (dB) scale is the unit of measure used here. In water, sound pressure is typically referenced to a baseline of 1 micropascal (re 1 μ Pa). To assess the potential impact of a sound on marine resources, NMFS often uses root-mean-square (rms) sound pressure levels (dB_{rms}). This is the portion of a pulse that contains 90% of the sound pressure. For brevity, all further references to sound pressure levels assume dB_{rms} , re 1 μ Pa, unless specified differently.

Thresholds for acoustic impacts have not yet been established for sea turtles. Consequently, NMFS currently applies the marine mammal thresholds, which are based on levels of harassment as defined by the Marine Mammal Protection Act (MMPA), for turtles as well. However, since existing information about sea turtle sensory biology suggests that sea turtles may be less acoustically sensitive than marine mammals, the use of the marine mammal thresholds is considered conservative for sea turtles. For exposure to sounds in water, ≥ 180 dB and ≥ 190 dB are the thresholds for Level A harassment (i.e. injury and PTS) for cetaceans and pinnipeds, respectively. The thresholds for Level B harassment are ≥ 160 dB for TTS and ≥ 120 dB for behavioral effects on all marine mammals.

Sound energy dissipates in water through several mechanisms, which include spreading, scattering, and absorption. Spreading loss refers to the decrease in sound energy at any given point on the wave front because the sound energy is spread across an increasing area as the wave

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front radiates outward from the source. In unbounded homogeneous water, sound spreads out spherically, losing as much as 7 dB with each doubling of range. Toward the other end of the spectrum, sound expands cylindrically when vertically bounded such as by the surface and substrate, losing about 3 dB with each doubling of range. Scattering refers to the sound energy that leaves the wave front when it "bounces" off of a surface or particles in the water. Absorption refers to the energy that is lost through conversion to heat due to friction. Irregular substrates, rough surface waters, and particulates in the water column increase scattering loss, while soft substrates, such as mud and silt increase absorption loss. Sound typically dissipates more rapidly in shallow waters and over soft substrates (74 FR 18492). The water of Apra Harbor is likely a poor environment for acoustic propagation because it is relatively shallow and much of the bottom consists of silt and mud.

Accurately predicting received noise levels at a given range (isopleth) requires complex equations and detailed information that is rarely available. Typically, predictions are made by estimating spreading loss based on the spherical spreading loss ($RL = SL - 20\text{Log}R$) and cylindrical spreading loss ($RL = SL - 10\text{Log}R$) equations ($RL =$ received level; $SL =$ source level; and $R =$ range in meters (m)). Actual spreading loss is thought to be somewhere between the two, with absorption and scattering increasing the loss. In the absence of site specific transmission loss data, $RL = SL - 15\text{Log}R$ is often used to estimate the RLs for actions in the relatively shallow waters of nearshore marine environments. That formula was used to calculate the estimated ranges to particular isopleths given below.

Based on information in the Compendium of Pile Driving Sound Data (CALTRANS 2007), impact-driving 24-inch diameter steel pipe piles similar to those to be used for the proposed CVN pier is likely to produce an in-water SL of 203 dB. Estimating transmission loss based on the $-15\text{Log}R$ spreading loss equation, suggests that the 160 dB and 120 dB isopleths will occur at ranges of about 740 and 340,000 m, respectively. Similarly, using an impact hammer to drive sheet piles similar to those to be used at Sierra and Tango Wharves is likely to produce an in-water SL of 210 dB, with estimated ranges of 2,100 and 1,000,000 m to the 160 dB and 120 dB isopleths, respectively. Use of a vibratory hammer is likely to produce an in-water SL of 178 dB, with estimated ranges to the 160 dB and 120 dB isopleths of about 16 and 7,400 meters, respectively. Based on the low probability that observers will be able to reliably detect sea turtles out past 50 meters (183 dB isopleth for CVN pipe-pilings), NMFS considers it likely that some turtles will be within the range for exposure to adverse levels of sound during pile-driving activities.

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2. Direct physical impact by dredging equipment or falling debris: Dredging has the potential to directly strike sea turtles that may be present when the bucket or related equipment strikes the substrate, or when rubble is broken loose and falls to the sea floor. Potential injuries and their severity will depend on the turtle's proximity to the substrate when struck, the angle of the strike, and the body part impacted, but may include cuts, bruises, broken bones, cracked or crushed carapaces, and amputations, any of which could result in the turtle's death. Turtles may also be pinned to the bottom by debris and drowned. Green sea turtles are known to rest and forage within the proposed dredging footprint for the CVN turning basin.

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Thank you for your comments. The Navy will complete all required consultation responsibilities under section 7 of the ESA.

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Thank you for your comment. The Navy, in accordance with all appropriate regulatory guidance, will implement appropriate BMPs and mitigation measures to avoid and minimize all potential impacts to sea turtles as well as other marine resources. Mitigation measures will be finalized as part of the the Section 7 ESA consultation process.

A-012-267 Existing information about sea turtle sensory biology suggests that sea turtles rely more heavily on visual cues, rather than auditory, to initiate threat avoidance. Thus, it is reasonable to expect that sea turtles may remain in the area even after dredging is underway. The dredging footprint for the turning basin covers about 39 acres of coral reef habitat and it is expected to take up to 18 months of round-the-clock work to complete. Also, due to the small size of the turtles and the turbidity of the harbor's water, it is improbable that the dredging area can be confidently confirmed clear of sea turtles prior to commencing work. Thus, NMFS expects that the probability of injury to sea turtles due to direct impact may be above the discountability threshold, and that a low, but as yet unknown, number of sea turtles may be injured or killed as a result of dredging operations.

A-012-268 3. Loss of known resting and forage habitat: The proposed dredging footprint for the CVN pier covers about 39 acres of inner harbor coral reef habitat. Positioned well to the back of Apra Harbor, this reef habitat is thought to be unique in the Marianas. In addition to providing known resting habitat for green sea turtles these coral reefs support various species of algae that are known forage for these turtles. These reefs also support several species of sponge. Since adult hawksbill sea turtles are known to feed heavily on sponges, and these turtles have a known history in the backwaters of the harbor, NMFS is concerned that the lost habitat may represent a significant adverse affect on hawksbill recovery in the Marianas.

A-012-269 Conclusion: NMFS does not concur with your determination that construction of the U.S. Navy CVN pier and associated Naval Base Marianas waterfront improvements in Apra Harbor, Guam, is not likely to adversely affect ESA-listed marine species. NMFS recommends that the U.S. Navy re-examine its effects determination for the proposed action and initiate formal consultation with NMFS. If you have further questions please contact Donald Hubner on my staff at (808) 944-2233. Thank you for working with NMFS to protect our nation's living marine resources.

Sincerely,


William L. Robinson
Regional Administrator

Cc: Alan Everson, Habitat Conservation Division, NMFS/PIRO
Holly Herod, USFWS, Honolulu

NMFS File No. (PCTS): I/PIR/2008/07326
PIRO Reference No.: I-PI-08-714-LVA

A-012-267

Thank you for your comment. The Navy looks forward to discussing these issues during the formal Section 7 consultation process.

A-012-268

Thank you for your comment.

As stated in the EIS Volume 4, Page 11-66, Sea turtles have not been observed foraging or resting within the proposed project area during multiple dive surveys performed there; it has been observed to function as a transit area to and from Sasa Bay (Navy 2009d). There is no data to our knowledge to suggest otherwise. Additionally, there are several resting and foraging areas utilized by sea turtles within Apra Harbor, so Sasa Bay is not a limited Resource.

The Navy continues to discuss this during formal Section 7 consultation.

A-012-269

Thank you for your comment.

The Navy looks forward to working with NMFS during formal Section 7 consultation.

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February 17, 2010

USDA, Animal and Plant Health Inspection Service, Wildlife Services
Comments on November 2009 Draft EIS/OEIS
Guam and CNMI Military Relocation
Relocating Marines from Okinawa
Visiting aircraft Carrier Berthing, and
Army Air and Missile Defense Task Force

Background

On May 17, 2007, David F. Bice, Major General, USMC (Ret), Executive Director of the Joint Guam Program Office (JGPO) requested that USDA Animal and Plant Health Inspection Service, Wildlife Services (APHIS-WS), serve as a cooperating agency in the development of the EIS/OEIS to help JGPO adequately evaluate the potential environmental effects of the Proposed Action and provide assistance in the development of the EIS/OEIS under NEPA and Executive Order 12114. APHIS agreed to the request on July 16, 2007. We participated in JGPO facilitated preliminary and draft EIS planning meetings and provided comments on a April 2008 Description of Proposed Projects and Alternatives (May 16 2008 transmittal from APHIS to JGPO), and more recently, we provided comments and suggestions on the July 2009 early release draft EIS (August 19, 2009 submittal from APHIS to Mr. Kyle Fujimoto). Because the expedited timeframe for the DEIS allowed for only a brief review of the cooperating agency review draft (early release DEIS), JGPO advised that we should submit additional comments during the public review period that closes in February 2010. Our April 2008 and August 2009 comments are incorporated by reference for additional consideration in finalizing the EIS.

The release of the DEIS is concurrent with the Navy funding the preparation of a comprehensive Biosecurity Plan (BSP) to identify and mitigate risks of animal pathogens, plant pests, diseases, invasive species, and noxious weeds associated with movements of personnel and cargo into and out of the proposed project areas. The BSP will be based on a risk assessment which is currently in development. Given that the BSP will be finalized after the FEIS and ROD are issued, it is anticipated that a certain amount of risk and mitigation information will be deferred by the FEIS to the BSP. If the proposed actions are to begin immediately after the ROD is issued, this approach may inadvertently leave open pathways for invasive species movements and other biosecurity risks to affect listed species and their habitats, economies, agricultural production and export/import, power supplies (from brown tree snake (BTS)), and human health and safety in the project area and elsewhere. Therefore, it would be appropriate for the FEIS to include expanded discussions of risks and interim measures/mitigation plans that would close the

A-013-001

Thank you for your comment. Information on risk assessments and best management practices for the Micronesia Biosecurity Plan (MBP) are included in the FEIS. Some project actions may begin prior to the development of the final MBP. Interim measures are planned to be put into place prior to any proposed actions. These include recommended BMPs and contract specifications, including HACCP plans that would be reviewed prior to construction, rate briefings to workers on invasive species, inspections of materials and vehicles, cleaning equipment, not feeding feral animals, and using guidance provided by NAVFAC MAR on native plants in landscaping. Other interim actions already in place or planned are 100% inspections on DoD shipments, education on invasive species, supporting research on BTS, active trapping at installations, proposed development of rapid response teams, implementation of best management practices for vehicle inspection and cleaning, proposed wash down facility inspections, a BTS-free area for cargo storage, and a possible DoD BTS Working Group to develop and implement an action plan eradicating BTS from DoD facilities. The FEIS has been updated to incorporate these measures.

A-013-001

A-013-001

biosecurity gap until such time as a final BSP, and/or final localized plans, as appropriate, is/are approved and fully operational.

Legal framework

A-013-002

number of legal mandates and authorities establish the regulatory drivers for invasive species, animal and plant pests and disease management and biosecurity. We recommend that the compliance avenues be recognized and summarized in the FEIS. Public laws and acts that may be triggered by the proposal or that guide agency actions include: National Defense Authorization Act (PL 110-181; Sec. 314, Jan 28, 2008 and PL 110-417, Oct 14, 2008); SAFETEA-LU (PL 109-59, Aug 10, 2005); Noxious Weed Control and Eradication Act (PL 108-412, Oct 30, 2004); BTS Control and Eradication Act (PL 108-384, Oct. 30, 2004); Public Health Security and Bioterrorism Preparedness and Response Act (PL 107-188, Jun 12, 2002); Farm Security and Rural Investment Act of 2002 (PL 107-171, May 13, 2002); Plant Protection Act (PL 106-224, Jun 20, 2000); Executive Order 13112 (Feb 1999); Lacey Act (18 USC Sec. 42); National Invasive Species Act (PL 104-332, Oct 26, 1996); Agreement on the Application of Sanitary and Phytosanitary Measures (1995); Alien Species Prevention and Enforcement Act (PL 102-393, Oct 6, 1992); Wild Bird Conservation Act (PL 102-440, Oct 23, 1992); Non-indigenous Aquatic Nuisance Prevention and Control Act (PL 101-646, Nov 29, 1990); CITES (1975); ESA (1973); NEPA (1970); International Plant Protection Convention (1952); Organic Act (1944); Animal Health Protection Act (7 USC 8301 through 8322), and Animal Damage Control Act (1931).

A-013-003

Relationship of the BSP to the FEIS and ROD

The Navy has taken significant steps towards creating an avenue for mitigating invasive species/biosecurity risks by funding the development of a regional biosecurity risk assessment and plan (BSP). We are encouraged that the DEIS also includes initial discussions of specific measures that may be implemented to mitigate BTS and other invasive species risks. We recommend that the FEIS clarify commitments and define how these programs and measures will be implemented in all eight EIS volumes. This would strengthen the conclusion that significant impacts from biosecurity risks including BTS and other invasive species, as well as animal and plant pests and diseases, will be mitigated to less than significant.

Because the final BSP and some of its draft components will not be completed prior to the FEIS and ROD, interim measures would need to be in place to prevent entry/exit and spread of invasive species and other pests during early stages of the project initiation. We recommend that the time line relationships of the draft, final and localized biosecurity plan(s) be explained in the FEIS, including how conformance to the BSP will be linked to the FEIS and ROD. We would be available to participate in discussions with DoD and other affected federal agencies as well as affected territorial and state cooperating and regulatory agencies, to determine a realistic time line for completion of the BSP and the necessary interim measures that may be needed until such time as a final BSP and local plans are approved by appropriate partner and regulatory agencies and are operational.

We recommend that the FEIS outline the contents and framework of the BSP and indicate DOD's commitment to implement and fund BSP recommendations associated with military activities and concurrent increases in the movement of personnel and shipments through the civilian sector. At a minimum, the FEIS should provide a general overview on how the BSP will:

A-013-002

Thank you for your comment. Potentially applicable legal mandates regarding invasive species have been added to the EIS.

A-013-003

Thank you for your comment. The information on invasive species mitigation has been updated in the FEIS. The MBP will not be finalized until 2011. Completed risk assessments and protective measures will be incorporated into the MBP. Specific biosecurity measures have been added to the FEIS to supplement existing practices that address invasive species. These include recommended BMPs and contract specifications, including HACCP plans that would be reviewed prior to construction, briefings to workers on invasive species, inspections of materials and vehicles, and cleaning equipment. Other interim actions already in place or planned are 100% inspections on DoD shipments, education on invasive species, supporting research on BTS, active trapping at installations, proposed development of rapid response teams, best management practices for vehicle inspection and cleaning, proposed wash down facility inspections, a BTS-free area for cargo storage, and a possible DoD BTS Working Group to develop an action plan eradicating BTS from DoD facilities. The FEIS has been updated to incorporate these measures.

A-013-003

- (a) identify short and long-term measures to avoid and minimize the risk of invasive species, animal and plant pests and disease spread as a result of the proposed action (prevention) and discuss monitoring for invasive species introductions (early detection);
- (b) describe initial actions the DOD will take if invasive species are introduced and established (rapid response); and
- (c) describe actions DOD will take if invasive species become established and rapid response was not effective requiring more comprehensive management and control (long-term management of a newly established pest).

We recommend the FEIS provide a framework that ensures federal, territorial, and state cooperation and oversight of BSP implementation (e.g. USFWS, NOAA, ACOE, EPA, APHIS PPQ, VS and WS, and Guam, CNMI and Hawaii quarantine agencies).

A-013-004 Discussion of potential significant risks from invasive species to economies, agriculture, power supply and human health.

The DEIS limited its discussions of invasive species risks to biological resources on Guam and Tinian. Our concern is also with potentially significant impacts on other aspects of the human environment, including project related invasive species impacts on Guam and Tinian's economy, agriculture, power supply, and human health, and on the risk of invasive species introductions from project related activities to other Pacific Islands, including Hawaii, and on the mainland U.S. While mitigating invasive species/biosecurity risks to biological resources in the immediate project area may help to alleviate potential significant impact to other resources, our concern is that mitigation may be overlooked where risks are not fully assessed.

APHIS-WS is particularly interested in BTS effects in both Guam and Hawaii and can provide references to peer reviewed literature on risks and on mitigation. As an example of significant potential effects from BTS outside of Guam, Shwiff et al. (2010) evaluated the potential economic damage on Hawaii's economy if the snake were to become established there and create similar damages as it has on Guam. The economic study estimated that the annual damage to Hawaii would be between \$593 million and \$2.14 billion. Due to the recent economic downturn, the State of Hawaii's budget may not allow for sufficient resources to combat increased snake introduction risks from military and other cargo/personnel movement from Guam and thus the potential for economic and ecological impacts is high if highly effective mitigation plans are not clearly defined, operational before project initiation, and enforced at local commands.

While invasive species risks associated with this project may be significant, commitments in the FEIS to implementing effective and comprehensive biosecurity plans/invasive species management plans will demonstrate DoD's intention to work with partners to mitigate these risks to the extent that is practicable.

A-013-005 Brown tree snake (BTS) mitigation

BTS impacts include biosecurity, endangered species, power distribution, human health and safety, agriculture and economies. Eradicating snakes from Guam and preventing establishment elsewhere has been a long-term goal of a range of agencies. We recommend that the FEIS discuss specific avoidance, minimization and mitigation actions the DoD will take to support and facilitate research and island-wide

A-013-004

Thank you for your comment. Additional discussion on potential impacts of BTS has been added. Information pertaining to the MBP and biosecurity issues are discussed in Volume 2, Chapter 10, Section 10.2.2.6 for terrestrial species, and in Volume 2, Chapter 11, Section 11.2.2.6 for marine species. Volume 2 Chapter 14 (marine transportation) has been updated to include projected cargo traffic through the Port of Guam associated with both organic growth and the military buildup.

A-013-005

Thank you for your comment. The Micronesia Biosecurity Plan (MBP) working groups addressing various pathways are addressing concerns contained in your comment. For instance, the USDA-APHIS is primarily concerned with terrestrial vertebrates (e.g. rodents, brown treesnakes), U.S. Geological Survey (USGS) Biological Resources Discipline (BRD) staff are addressing freshwater aquatic invertebrates and vertebrates, and the Smithsonian Environmental Research Center (SERC) working group members are primarily focused on potentially invasive species in marine pathways (e.g. ballast water and hull fouling). The FEIS has been updated to further describe the MBP and monitoring its progress. The FEIS has been updated to add a statement that the Navy is committed to the DoD-related portion of the MBP. Additional information has been added to the FEIS on avoidance, minimization, and mitigation for BTS. Information pertaining to the MBP and biosecurity issues are discussed in Volume 2, Chapter 10, Section 10.2.2.6 for terrestrial species, and in Volume 2, Chapter 11, Section 11.2.2.6 for marine species. Volume 2 Chapter 14 (marine transportation) has been updated to include projected cargo traffic through the Port of Guam associated with both organic growth and the military buildup.

A-013-005 ITS control efforts both on and off DoD lands. The EIS should reveal how all DoD agencies under the EIS will comply with Public Law (PL) 110-417, Oct. 14, 2008 which states: (DoD) *shall establish a comprehensive program to control and, to the extent practicable, eradicate (BTS) from military facilities in Guam and to ensure that military activities . . . do not contribute to the spread of brown tree snakes.*

To ensure that APHIS-WS will be able to provide expedient assistance in controlling BTS and other invasive species, we recommend that the following provisions be clearly defined in biosecurity plans, and be made fully binding in the EIS.

a Coordination and communications on Guam would need to be described in detail within the BSP and FEIS to facilitate work on the ground with various commands. We request that APHIS-WS be involved in the planning process to identify these needs and develop solutions for workable plan implementation.

b The BSP/invasive species plan and/or EIS should include specific designated facilities within the infrastructure on Base for APHIS-WS staff offices and office equipment, dog kennels, parking, and a warehouse or other suitable workshop area for storage of bait, traps and other equipment, and work areas to build and repair traps for BTS and other invasive vertebrate pests.

c We request that designated APHIS-WS personnel be provided with unescorted access when needed to inspect cargo areas for snakes. The EIS and/or BSP should specify entry requirements for federally authorized, uniformed APHIS-WS personnel.

d We recommend that the FEIS include DOD's commitment to support research, interdiction and endangered species recovery efforts that focus on BTS control and eradication.

Finally, a primary role of APHIS-WS operations is to provide leadership and direct assistance based on agreements to control BTS. The FEIS should not imply that APHIS-WS would be involved with oversight, training or supervision of private or other agency pest control operators.

A-013-006 **USDA APHIS-Plant Protection and Quarantine**

USDA APHIS Plant Protection and Quarantine (APHIS-PPQ) has regulatory authority over invasive species entry into Guam which include plant and animal disease organisms, fungus, noxious weeds, and insect pests. All military and civilian imports from foreign countries are required to meet U.S. entry requirements into Guam. APHIS-PPQ recommends that the FEIS include continued discussion and commitment to support meeting agricultural entry requirements on a cooperative basis.

The Department of Defense and USDA-APHIS cooperate to safeguard U.S. agriculture and natural resources from the risks associated with the entry, establishment and spread of animal pathogens and plant pests, diseases, invasive species, and noxious weeds. This is in accordance with Memorandum of Understanding between the Department of Defense (DOD) and USDA-APHIS titled Military Agricultural Preclearance/Inspection Program (DOD Agreement Number 2006-05-05).

For all military rolling stock, containerized and bulk cargo, and household goods being transferred to Guam from Okinawa, Japan and all other foreign destinations, it will be necessary to conduct pre-inspection, necessary cleaning, and/or preclearance so that agricultural entry requirements are met prior to shipping. This approach would expedite clearances of cargo and personnel and ensure that new pest

A-013-006

Thank you for your comment. The FEIS has been updated to include language that DoD will support meeting agricultural entry requirements on a cooperative basis with USDA APHIS PPQ. The inspection recommendations in the referenced MOU have been noted in the FEIS.

A-013-006 Festations do not occur. Under a cost recovery system, APHIS would provide training to military personnel and review these operations.

Specific Comments

DEIS Vol.:Ch.-Page	Subject or heading	Comments and suggestions
A-013-007 38	1.9.3 Agency Consultations	The DEIS states that a summary of efforts and environmental compliance requirements from meetings with CEQ on the EIS/OEIS is contained in Volume 8. We did not find this information in Volume 8.
A-013-008 10-135 to 137	Project-Specific Protection Measures and BMPs	Introducing the list of BMPs, page 10-135 is the statement "... Navy is considering some or all of the (following) measures. . ." The language in this statement creates uncertainty about DoDs commitment to the items listed. We recommend that the FEIS specify which items will be implemented under the selected action alternative.
2 10-137 to 138	Project-Specific Protection Measures and BMPs- Invasive Species Avoidance, Minimization, and Control	Bulleted items in this section similarly create uncertainty of commitments to implementing these avoidance and mitigative measures. E.g. <u>Second full bullet paragraph:</u> The Navy would provide education that "may include" . . . assurance that BTS awareness extends from the chain of command to the individual. . .". We recommend changing "may include" to "will (or would) include. . ." <u>Third bullet.</u> Specific aspects of the Joint Region BTS Control Plan would be included in the USFWS Biological Opinion. If plans are deferred to the BO, APHIS-WS would not necessarily be involved in assisting with invasive species issues. Besides being a threat to federally listed species, invasive species are a social, agricultural, economic and human health and safety risk. The BO may not be sufficient for mitigating effects of invasive species on Guam's economy, agriculture, or public health and safety. Therefore, we recommend that the BSP be clearly linked to the ROD and FEIS. <u>Fourth bullet:</u> Navy is committed to implementing 100 percent inspection of all outgoing vessels and aircraft with dog detection teams, including the large scale training operations. However, due to limitations on present inspection capacity with USDA, Navy notes that if vehicles and equipment leave Guam without inspection, the Navy would notify the point of destination port or airport authorities. This leaves a pathway open for increased risk of BTS transport off Guam. This bulleted section is preceded with a note that some or all of these measures are being "considered". Therefore, this is not a list of binding BMPs or mitigative

A-013-007

Thank you for your comment. The text of Volume 1 has been updated.

A-013-008

Thank you for your comment. The FEIS has been updated to include only specific mitigation or conservation measures that would be implemented. BTS control measures that will be in the Micronesia Biosecurity Plan and that are being discussed with USFWS for the BO have been included in the FEIS. The FEIS has also been updated to add other specific biosecurity measures to supplement existing practices that address invasive species. As part of the proposed action, the DoN has funded and is a participating agency in the development of the Micronesia Biosecurity Plan. Individual activities for various species will continue, but the DoN and others agree it is more efficient to manage pathways and prescribe corrective measures for a suite of species which will be monitored at discrete control points through time. This approach will be applied to transportation and handling of all the proposed action related cargos (construction and training activities; military and contractors), coming into and out of Guam and Tinian. However, the Micronesia Biosecurity Plan is much greater and is applicable to all agencies in Micronesia and will provide a platform for coordination and integration of inter-agency invasive species management efforts such as control, interdiction, eradication, and research. The purpose of the Micronesia Biosecurity Plan is to address pathways and encourage a more holistic approach to managing invasive species. The National Invasive Species Council (NISC) will develop and coordinate risk assessments and the Micronesia Biosecurity Plan in cooperation with U.S. Department of Agriculture, Animal Plant Health Inspection Service (USDA APHIS) Wildlife Services, USDA APHIS Plant and Protection and Quarantine, USDA APHIS Veterinary Services; U.S. Geological Survey Biological Resources Division; NAVFAC Pacific; Smithsonian Environmental Research Center. The overall goal of biosecurity for the proposed action is to avoid and minimize the potential impacts posed by

A-013-008			measures that would necessarily be implemented if this alternative is selected. We recommend that commitments be included in the FEIS that would provide needed mitigation to reduce the level of risk from invasive species threats on the biological, social and economic environments.
	210-138 to 139	Potential Conservation Measures and BMPs	We are encouraged to see a summary of the major goals and components of the regional BSP. The DEIS notes that a detailed outline of the MBP would be contained in the BA that supports Section 7 consultation with the USFWS. Again, including the BSP in the BA or BO would be beneficial to listed species and their habitats but would not address non-biological aspects of biosecurity (e.g. effects on agriculture, economy, human health and safety), and therefore we recommend that the detailed BSP also be clearly linked to the EIS and ROD. Finally, the heading "Potential" Conservation Measures provides no assurances that action proponents will implement the items discussed on these pages. We recommend that this language be clarified.
A-013-009	310-25	Potential Conservation Measures – Training in Tinian	The BSP discussion is deferred to 2:10. Both volumes 3 and 2 refer to the BSP as <i>potential</i> conservation measures. We recommend that the term potential be removed or that specific conservation measures be otherwise assured of implementation
A-013-010	410-11 to 12	BMPs	Similar comments as above. This section contains more itemized measures that "could" be implemented. We recommend that the terms be clarified.
	410-12	BMPs cont'd	First full bullet paragraph. Discussion of spread of invasive plant and animal species within Guam and to other locations from Guam and the potential for import or export would be mitigated with the BMPs discussed. The BMPs discussed are inadequate for the reasons described above. This section also refers to additional BMPs listed and discussed in Volume 7. We found no additional or substantive BMPs in Vol. 7.
A-013-011	510-19	Potential Mitigation Measures – Wildlife and special status species	This section contains a reference to Vol. 2, but no specific mitigation. Volume 5 should include discussion of adherence to BSP implementation similar to all of the proposed actions.
A-013-012	72-5	Summary of BMPs Guam and Tinian	The item notes that Navy has provided funding for a biosecurity plan. We recommend that it also include discussion of implementation of the plans.
	72-11	cont'd	This section contains SOPs that were applicable before the EIS but does not include additional mitigation to account for project impacts.

non-native invasive species to the natural resources of Guam and Tinian. Until the Micronesia Biosecurity Plan is developed, pathway analysis may be used as a tool to improve programmatic efficiency. Methods such as Hazard Analysis and Critical Control Points or similar will be used to conduct pathway analysis as applied to aspects of interdiction for brown treesnake and other potential invasive species. The approach for the Micronesia Biosecurity Plan will involve risk assessments which will provide decision support and corrective actions that integrate techniques involving exclusion, detection, eradication, and control of non-native and invasive organisms that can be readily developed into standard operating procedures, training instructions, and applied best management practices related to supporting and completing construction projects and infrastructure repairs. Many of these techniques already exist. The risk assessments will identify and prioritize hazards and risks for species, pathways, and vectors which could include, but are not limited to, non-native species, construction equipment, training materials, personal protective equipment, foot traffic, vehicles and vessels, and shipping/packing material. The outcomes from the risk assessments will be corrective measures, monitoring techniques, and best management practices to avoid and minimize the introduction of non-native invasive species to Guam, the CNMI, and other Pacific Islands.

A-013-009

Thank you for your comment. The word "potential" conservation measures is removed from the FEIS.

A-013-010

Thank you for your comment. The FEIS has been updated to provide specific commitment to the measures listed. Additional measures and descriptions to reduce the spread of invasive species within Guam or entering or leaving Guam has also been added.

A-013-013

2-3	Compliance	<p>We recommend that this section contain: CONTROL AND ERADICATION OF BROWN TREE SNAKES.</p> <p>Pub. L. 110-417, [div. A], title III, Sec. 316, Oct. 14, 2008, 122 Stat. 4410, provided that: "The Secretary of Defense shall establish a comprehensive program to control and, to the extent practicable, eradicate the brown tree snake population from military facilities in Guam and to ensure that military activities, including the transport of civilian and military personnel and equipment to and from Guam, do not contribute to the spread of brown tree snakes."</p> <p>This law should also be added to 2:10-138, last paragraph on this page, which lists the legal protocol for biosecurity.</p> <p>We recommend that the FEIS include a detailed discussion of how DoD will comply with this and other legislative mandates on biosecurity and invasive species management.</p>
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Conclusion

Comprehensive biosecurity. BTS and other invasive species, and animal pathogens and plant pest management plans should be clearly tied to the FEIS and ROD so that they are fully supported by individual department project proponents, both financially and logistically. In this way, DoD and its partner agencies will be in a position to best cooperate to minimize or prevent related harmful economic, social, and ecological effects on Guam, its neighbors, and other U.S. interests.

We appreciate the opportunity to provide JGPO with our comments and recommendations. If you would like to discuss these comments further, please contact Mike Pitzler, APHIS-WS Hawaii/Guam State Director at (808) 838-2841, Dan Vice, APHIS-WS Guam Assistant State Director at (671) 635-4400 or Shannon Hebert, APHIS-WS Environmental Coordinator at (503) 327-8937.

Sincerely,



MIKE E. PITZLER
State Director
HI/GU/Pacific Islands

A-013-011

Thank you for your comment. Volume-specific measures are included but the primary mitigation is referenced to Volume 2 to avoid replication.

A-013-012

Thank you for your comment. As part of the military buildup proposed for Guam, a Micronesia Biosecurity Plan will be developed. The introductory language to the SOPs should have indicated that some are already in place and some would be implemented as a result of the proposed action. Additional changes have been made to the BMP list. The FEIS has been updated to reflect this.

A-013-013

Thank you for your comment. Table 2.1-1 that is referenced is meant to contain the major plans, policies, and controls and status of compliance and is not intended to be all-inclusive. BTS control is addressed in the table. The specific law and quote you mention has been added to Volume 2, Chapter 10. Much additional language has been added to the FEIS concerning invasive species to explain procedures for compliance with laws, regulations, and DoD policies. Information pertaining to the MBP and biosecurity issues are discussed in Volume 2, Chapter 10, Section 10.2.2.6 for terrestrial species, and in Volume 2, Chapter 11, Section 11.2.2.6 for marine species.



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, HONOLULU DISTRICT
FORT SHAFTER, HAWAII 96858-5440

17 FEB 2010

CEPOH-EC-R

MEMORANDUM FOR Commander, Pacific Division, Naval Facilities Engineering Command,
(NAVFAC Pacific GPMO/CAPT Don Chandler), 258 Makalapa Drive, Suite 100, Pearl Harbor,
Hawai'i 96860-3134

SUBJECT: U.S. Army Corps of Engineers, Honolulu District Review of *Guam and CNMI
Military Relocation and Build-Up Draft EIS/OEIS*, dated November 2009; Department of the
Army (DA) File Number POH-2009-00269

A-014-001

1. The U.S. Army Corps of Engineers (USACE), Honolulu District received the subject *Draft Environmental Impact Statement/Overseas Environmental Impact Statement (DEIS/OEIS) for the Guam and Commonwealth of the Northern Mariana Islands (CNMI) Military Relocation, for Relocating Marines from Okinawa, Visiting Aircraft Carrier Berthing, and Army Air and Missile Defense Task Force*, dated November 2009, hereinafter referred to as DEIS. The DEIS addresses impacts on the quality of the human and natural environment associated with proposed construction and operations of facilities necessary to support the relocation of 8,600 Marines and their 9,000 dependents from Okinawa to Guam, increased Marine Corps Training on the CNMI island of Tinian, a new Transient Aircraft Carrier Berth on Guam, and a new Army Air and Missile Defense Task Force presence on Guam. As a cooperating agency, our review and enclosed comments on the DEIS entails recommendations for content refinements for your development of a legally sufficient Final EIS (FEIS) necessary for your issuance of a Record of Decision (ROD), as well as consultation on our regulatory program requirements relative to the proposed construction and related activities subject to our jurisdiction under law.
2. We appreciate and acknowledge the magnitude of the U.S. Navy undertaking in the development of this DEIS considering the magnitude and scale of the proposed actions. My Regulatory Branch staff reviewed the DEIS pursuant to our applicable statutory authorities under Section 10 of the Rivers and Harbors Act of 1899, Section 404 of the Clean Water Act, and Section 103 of the Marine Protection Research and Sanctuaries Act of 1972. My staff indicate that the DEIS contains improvements in both content and documentation detail compared to previously reviewed early release versions. We commend you for your efforts in refining the required environmental documentation associated with this highly complex undertaking. We anticipate additional refinements in the FEIS and supplemental information necessary for our evaluation of forthcoming permit applications under the previously referenced statutory authorities. A brief summary of the primary areas where additional information and/or analyses are necessary to adequately support future permit decisions are provided below:

A-014-001

Thank you for your comment.

CEPPOH-EC-R

SUBJECT: U.S. Army Corps of Engineers, Honolulu District Review of *Guam and CNMI Military Relocation and Build-Up Draft EIS/OEIS*, dated November 2009; Department of the Army (DA) File Number POH-2009-00269

A-014-002

a. **Development Plans in waters of the U.S.:** We understand that the projects described in the DEIS would be awarded as design-build contracts and that they are therefore at a preliminary or conceptual level of design detail at this time. In order to definitively assess regulatory requirements, we must fully understand the extent of impacts to waters of the U.S., including wetlands. We have determined that additional detail on project drawings and narratives, for the proposed activities subject to our regulatory jurisdiction, will be required for our evaluation of DA permit applications.

A-014-003

3. **Wetland and Other Freshwater Delineations and Functional Assessments:** We acknowledge that the DEIS employed a "best available information" approach in the identification of wetlands and other potential waters of the U.S. (including streams, lakes, ponds, etc.) within the various project areas of the proposed actions. Additional documentation will be required for DA permit application evaluation purposes, including field-verified delineations of wetlands (in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual and 2009 Hawai'i and Pacific Islands Regional Supplement), streams, and other open fresh waters in areas where direct, secondary, and cumulative impacts may occur. Field-verified delineations are necessary to definitively determine the geographic extent of DA regulatory jurisdiction. Additionally, our regulations mandate appropriate and practicable sequential mitigation measures of avoidance, minimization, and compensation for impacts to aquatic resources prior to the issuance of a DA permit. Additional information will be necessary, including appropriate functional assessments and preliminary mitigation sequencing plans for impacts to identified aquatic resources under our jurisdiction. If the necessary information is not contained in the FEIS, supplemental information and/or analyses would be required during the DA permit application evaluation process(es) to meet legal obligations under the Clean Water Act (CWA).

4. **Alternative Analyses:** Additional documentation and analysis of potentially practicable alternatives will be required to demonstrate compliance with our general requirement under 33 CFR 320.4(r) to avoid and minimize significant public interest impacts or with the CWA 404(b)(1) Guidelines (Guidelines), which prohibit the issuance of a DA permit for an action if a less environmentally damaging practicable alternative is available. In general, the CWA requires that all appropriate and practicable actions to avoid, minimize, and compensate for losses to aquatic resources are employed. Federal regulations require the applicant to provide all documentation necessary to demonstrate compliance with the Guidelines. An analysis of the practicability of potentially less environmentally damaging alternatives is an integral part of this demonstration.

5. **Compensatory Mitigation:** Additional information on your proposed compensatory mitigation for unavoidable impacts to aquatic resources should be included in the FEIS and will be necessary in forthcoming DA permit applications. Applicant-proposed compensatory mitigation plans are required as part of a complete DA permit application and the plan must be finalized before a DA permit can be issued.

A-014-002

Thank you for your comment. This level of information will be provided during the permitting process.

A-014-003

Thank you for your comment. The Final EIS contains updated information reflecting on potential wetland areas and compensatory mitigation. The project design would avoid wetlands to the maximum extent practicable. DoD recognizes that additional information may be required as part of the Clean Water Act permitting process.

CEPPOH-EC-R

SUBJECT: U.S. Army Corps of Engineers, Honolulu District Review of *Guam and CNMI Military Relocation and Build-Up Draft EIS/OEIS*, dated November 2009; Department of the Army (DA) File Number POH-2009-00269

- A-014-004** 6. **Other Applicable Laws:** Please be aware that Federal regulation prohibits the DA from issuing federal permit(s) without evidence from the lead federal action agency that compliance with the Endangered Species Act, the National Historic Preservation Act, Section 401 of the CWA and Coastal Zone Management Act has been achieved as applicable. Additionally, documentation of conformity with the Clean Air Act and consultation requirements required under the Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996, as applicable, will also be necessary prior to permit issuance.
7. **CVN Berth:** The dredging and construction activities of the proposed CVN berth project represent the greatest level of aquatic resource impacts of all the proposed actions addressed in the DEIS.
- a. **404(b)(1) Guidelines Assessment:** The Guidelines assessment, including the least environmentally damaging practicable alternative (LEDPA) analysis, provided in the DEIS will require supplementation to meet our program requirements in our evaluation of the DA permit application. My staff will closely coordinate informational requirements with the U.S. Navy staff to ensure that the forthcoming permit application contains the level of information necessary for a review of Guidelines compliance.
- A-014-005** 8. **Survey Methodology:** As you are aware, the employed survey methodology to assess coral reef resources within the proposed CVN wharf and dredge project area has been an extremely contentious subject. Functional assessment methodologies are an evolving science and the adequacies of existing methodologies are heavily debated in the scientific community. A standard functional assessment technique that accurately characterizes and quantifies losses and gains of coral reef aquatic resource functions, as would ideally be utilized for the proposed action for Section 10/404 compensatory mitigation purposes, is not currently available. Considering that our office will ultimately be responsible for determining compliance with federal regulations requiring an appropriate and practicable functional assessment, we have engaged our Engineer Research and Development Center (ERDC) to provide an independent technical review of the adequacy of the employed methodology to date and recommendations for improvements, if necessary. Preliminarily, ERDC has determined that while the methodology is scientifically valid and statistically defensible, a more intensive level of data collection may be necessary to adequately measure habitat function for compensatory mitigation purposes. We expect a more specific and detailed accounting of their review in the coming weeks and we look forward to working closely with the ERDC and the U.S. Navy to develop any additional information requirements.
- A-014-006** 9. **Compensatory Mitigation Plan:** The preliminary compensatory mitigation documentation in the DEIS needs supplementation to satisfy current USACE regulations. A compensatory mitigation plan that sufficiently offsets unavoidable losses to aquatic resources, including but not necessarily limited to coral reef resources will need to be finalized prior to issuance of a DA permit. The use of an appropriate and practicable functional assessment method to measure

A-014-004

Thank you for your comment. This level of information will be provided during the permitting process.

A-014-005

Thank you for your comment. The Navy looks forward to working with USACE in identifying the additional information necessary to fulfill Section 10/404 requirements.

A-014-006

Thank you for your comment.

The Navy will provide all required information (including a detailed compensatory mitigation plan) to satisfy the requirements of Section 10/404 permit application. The Navy is contracting additional studies associated with compensatory mitigation measures for the Guam watersheds and Apra Harbor.

CEPPOH-EC-R

SUBJECT: U.S. Army Corps of Engineers, Honolulu District Review of *Guam and CNMI Military Relocation and Build-Up Draft EIS/OEIS*, dated November 2009; Department of the Army (DA) File Number POH-2009-00269

A-014-007

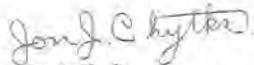
Thank you for your comment.

A-014-006 unavoidable resource losses is an integral part in the development of a successful compensatory mitigation plan. Therefore, we expect that additional information may need to be collected before a final compensatory mitigation plan is adequate for our approval. It is possible that ERDC may be involved in this process as well.

A-014-007 10. Attached to this letter are the specific and comprehensive staff-level comments and recommendations from our technical review of the DEIS. We strongly encourage your technical staff to thoroughly review and specifically address these comments for inclusion in the development of the FEIS and/or for DA permit application planning purposes, as applicable.

11. File Number POH-2009-00269 is assigned to this project. Please reference this file number in future coordination correspondence with our Regulatory Branch. Should you or your staff have any specific questions regarding this letter or the attached comments, please do not hesitate to contact my staff for assistance. You may contact Mr. George Young, Regulatory Branch Chief at (808) 438-9258, by facsimile at (808) 438-4060 or email at george.p.young@usace.army.mil; you may also contact Mr. Ryan Winn, Regulatory Project Manager of our Guam Field Office at (671) 339-2108, by facsimile at (671) 339-2306 or by email at ryan.h.winn@usace.army.mil.

BY AUTHORITY OF THE SECRETARY OF THE ARMY:



Jun J. Chytka
Lieutenant Colonel, U.S. Army
District Commander

Encl

U.S. Army Corps of Engineers, Honolulu District
 Review Comments
 Guam and CNMI Military Relocation and Build-Up Draft EIS/OEIS, dated November 2009

#	Reference (Location in EIS)	USACE Comment
Volume 2: Marine Corps Relocation - Guam:		
A-014-008	1 Vol 2, 2-86, Figure 2.5-4	We recommend that the Navy conduct a wetland delineation, consistent with the 1987 Corps of Engineers Wetlands Delineation Manual (the "USACE '87 Manual") and 2009 Pacific Region Supplement, as well as receive verification from the USACE to ensure that the Proposed Pavement for Cargo Staging/Washdown area would not involve a discharge of fill material in wetlands.
A-014-009	2 Vol 2, 2-90,91	2-90 Last Paragraph, re: proposed dredging for Sierra Wharf: DEIS notes that hydraulic and mechanical dredging are both feasible methods for the project. 2-91, 1 st Paragraph: Mechanical dredging is noted to be the environmentally conservative method (i.e., the method that would result in the greatest level of environmental impact) and that the employment of an alternative method would require agency consultation and USACE approval. Please note that USACE approval is required for either dredging method. Also, while it is understandable why the "environmentally conservative" method was chosen for EIS analysis to ensure that the maximum level of potential impact is assessed, the EIS should disclose that the practicable alternative that minimizes environmental impacts would ultimately be employed.
	3 Vol 2, 2-91; and all other applicable locations in Vol 2 and Vol 4, including 4-12, 4-15....	3 rd paragraph, <i>Sediment Characterization</i> : It should be noted that additional testing/analysis necessary for the dredged material management plan would be conducted in accordance to the <i>Evaluation of Dredged Material Proposed for Ocean Disposal</i> manual for ODMS disposal and the <i>Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. for any discharge</i> that would occur in inland navigable waters of the U.S.

A-014-008

Thank you for your comment. The Final EIS contains updated information reflecting the additional investigation of potential wetland areas. The project would avoid wetlands.

A-014-009

Thank you for your comment. Section 2.5 of the EIS will be revised to state that consultation with the USACE would be required with either dredging method. The method of dredging would be determined from the final design; however, the one minimizing impacts would be chosen if practicable.

A-014-009	4	Vol 2, 2-93; Vol 4, 2-27	1 st paragraph, last sentence, followed by 2 nd paragraph: The DEIS accurately states that a formal ODMDSD designation does not constitute approval for ocean disposal. The DEIS also accurately depicts requirements for the sequential preference of beneficial reuse, followed by upland placement options. The USACE also notes multiple DEIS declarations in Volumes 2 and 4 indicating the availability of practicable upland storage and beneficial reuse options.
A-014-010	5	Vol 2, 2-95, 2-96	Subject: LCAC/AAV Laydown Area 5 th paragraph on 2-95 states that the proposed site is on DoD land, within a man-made fill area. However, the site plan on Figure 2.5-5 depicts the proposed pavement area as extending seaward of the high tide line (HTL) for the majority of the western and southern sides of the fill polygon. Please include information (plans and narrative descriptions) of proposed marine water fill or modify the plan view as appropriate. The USACE recommends a wetland delineation, consistent with the USACE '87 Manual and 2009 Pacific Region Supplement and/or verification from the USACE, to ensure the proposed landscaping, buildings, laydown pads, and access road projects would not involve a discharge of fill material in wetlands. It should also be disclosed in the FEIS that the two proposed concrete ramps would require a Section 404/10 permit from the USACE. The FEIS should include plans and narrative descriptions depicting proposed fill placement below the HTL associated with boat ramps.
A-014-011	6	Vol 2, 2-102	Recommend wetland delineation, consistent with the USACE '87 Manual and 2009 Pacific Regional Supplement and/or verification from the USACE to ensure the proposed MWDK developments would not involve a discharge of fill material in wetlands.
A-014-011	7	Vol 2, 2-116 Table 2.5-9	Please provide additional supporting information for carrying the mechanical dredging method alternative forward but dismissing the hydraulic dredging method alternative, since it appears, based on the information provided, that hydraulic dredging may be feasible and less environmentally damaging.
A-014-012	8	Vol 2, 4-18	Section 4.1.1.5 - Definition: recommend using the USACE/USEPA definition of wetlands found in 33 CFR 328.3 and 40 CFR 230.3. The current definition in the DEIS states that areas described and mapped as wetland communities may also contain small streams, ponds, etc. Please discriminate.

A-014-010

Thank you for your comment. The Final EIS includes information in Volume 2 and Volume 7 of the estimated 0.2 acres of intertidal area that would be filled should the proposed ramps be implemented. Additional design level detail and delineation of jurisdiction wetlands would be done during the permitting phase of the proposed projects.

A-014-011

Thank you for your comment. The differences between the environmental effects of mechanical and hydraulic dredging are discussed in Chapter 2, Volume 4 and Appendix D of the EIS. Mechanical dredging involves use of a clamshell or fixed bucket that excavates the dredge sediment from the harbor floor and then carries the sediment in the full bucket through the water column before lifting the bucket out of the water and placing the dredged sediment in a nearby barge or scrow. During this movement, a small fraction of the collected sediment will escape from the bucket and create suspended sediment in the lower and higher levels of the water column. On the other hand, a hydraulic dredge works solely on the harbor floor and any suspended sediment will emanate only in the lower portion of water column. As a result, the plume of suspended sediment is generally greater with use of conventional clam shell bucket as compared with a hydraulic dredge. However, use of hydraulic dredging is generally limited to soft bottom sediment on relatively flat surfaces. Mechanical dredging, which has historically been used in Apra Harbor, was chosen as the dredging method for evaluating environmental impacts as it presents the most adverse impact scenario.

A sediment plume is an inevitable effect of in-water construction activities. The Navy proposes to minimize sedimentation by using best management practices such as silt curtains and operational controls of dredging equipment. Final mitigation measures for all dredging activities

A-014-012		wetlands from streams and large open and unvegetated water bodies. The DEIS also states that, "swamps are generally...designated as ravine communities rather than as wetland communities." For CWA purposes, swamps should be designated as wetland communities.
A-014-013	9	Vol 2, 4-51 <i>Toxicity Testing of Composite C, D, and E:</i> Considering that dredged material from the Composite C area failed the Ocean Testing Manual criteria, additional testing and/or rationale will likely be necessary for USACE consideration of ocean disposal of the dredged spoils from this area.
A-014-014	10	<i>Wetlands, paragraphs 1 and 2:</i> Please submit the referenced 2007 wetland delineations of the <i>Waterfront Annex and Fleet and Industrial Supply Center (FISC)</i> to the USACE for review and verification.
	11	Vol 2, 4-53; 3 rd Paragraph The USACE notes forthcoming wetland delineations of areas south and along Apra Harbor to Agaña Bay using remote sensing and ground truth verification. We recommend the Navy consult with the USACE to ensure that data collection methods and documentation meet current standards for wetland delineations.
A-014-015	12	Vol 2, 4-86 2 nd Paragraph, under <i>Alternative 1:</i> Please identify the specific project/action to ensure readers understand discussion context. The USACE infers from the narrative content that the discussion is relevant to the LCAC/AAV project.
	13	Vol 2, 4-88 2 nd Paragraph: This paragraph should be expanded in the FEIS to address beneficial reuse or permanent upland disposal and/or placement.
A-014-016	14	Vol 2, 4-95 Last Paragraph, <i>Nearshore Waters:</i> Please include a discussion of fill placement in nearshore waters associated with the construction of the LCAC/AAV project. Information regarding fill placement in navigable waters of the U.S. is critical to the USACE's ability to undertake a complete and adequate review of impacts to aquatic resources and should be included in the nearshore waters impact assessment of the FEIS.

will be determined and agreed upon during the permit phase of the projects.

A-014-012

Thank you for your comment. The Final EIS reflects the discriminatory USFWS/USEPA definition of wetlands.

A-014-013

Thank you for your comment.

A-014-014

Thank you for your comment. The reference will be provided to the USACE for review and verification. The Final EIS contains updated information reflecting the additional investigation of potential wetland areas. The investigations were conducted in accordance with standards commensurate with the methods used. DoD recognizes that the additional data will provide useful planning-level information but that detailed wetland delineations, along with jurisdictional determinations, will be required as part of any permitting action.

A-014-015

Thank you for your comments. This section will be updated in the FEIS to reflect these comments.

A-014-016

Thank you for your comment. The section on the construction of the LCAC/AAV will be updated in the FEIS to reflect any fill placement in nearshore waters.

A-014-017	15	Vol 2, 4-96	Wetlands: We recommend a wetland delineation, consistent with the USACE '87 Manual and 2009 Pacific Regional Supplement and/or verification from the USACE to verify the final statement that there would be no impacts to wetlands.
	16	Vol 2, 4-125	Summary of Waterfront actions in Apra Harbor: Please include a discussion of fill placement in nearshore waters associated with the construction of the LCAC/AAV project. The FEIS should identify and analyze any potential impacts, such as fill in marine waters, from the construction of the LCAC laydown area and the two new concrete ramps as described in section 4.2.8.2 and depicted in Figure 2.5-5, as well as any other impacts that could result from the construction of the LCAC/AAV project.
	17	Vol 2, 4-127	3 rd Paragraph: The FEIS should include appropriate documentation (consistent with the USACE '87 Manual and 2009 Pacific Regional Supplement) to support the conclusion that there are no jurisdictional wetlands involved with the projects in the North and Central areas within Guam.
A-014-018	18	Vol 2, 4-128	Last sentence, 2 nd paragraph: Use of the term "confined" disposal site may lead to less confusion than "upland" disposal site, as one may infer permanent upland disposal. Also, please provide a detailed explanation of the design features of the dredge spoil containment facility that prevents dewatering effluent from entering the adjacent navigable waters of the U.S. The explanation should account for dredge spoils associated with both mechanical and hydraulic (up to 80% water) dredging options, since both are described as practicable alternatives.
A-014-019	19	Vol 2, 4-129	4.2.8.2: Please include fill area and volume calculations below the HTL and marine benthic community impact information in the FEIS.
A-014-020	20	Vol 2, 4-131	Dredging will have direct, albeit temporary, impacts on waters of the U.S. These impacts should be accurately reflected in the FEIS.
A-014-021	21	Vol 2, 11-52, 11-53	11.2.1.1: As a clarification, the CWA 404(b)(1) Guidelines are not a Memorandum of Agreement between the USEPA and the Department of the Army (DA). The Guidelines are federal regulations developed pursuant to Section 404 of the CWA and, as such, are binding on the USACE as the

A-014-017

Thank you for your comment. The Final EIS contains updated information reflecting the additional investigation of potential wetland areas. Section 4.2.8.2 includes a discussion of potential impacts associated with the construction of the LCAC/AAV project. The Final EIS contains a description of the investigation methods used. The investigations were conducted in accordance with standards commensurate with the methods used. Delineations consistent with USACE 87' manual and subsequent jurisdictional determinations are not required under NEPA. The project design would avoid wetlands.

A-014-018

Thank you for your comments. This section will be updated in the FEIS to reflect the use of the term "confined" disposal site to avoid confusion. The section will also include discussion on design features of the dredge spoil containment facility that address dewatering effluent from both mechanical and hydraulic dredging options.

A-014-019

Thank you for your comment. This section will be updated in the FEIS to reflect this comment.

A-014-020

Thank you for your comment. Volume 4, Section 4 contains an analysis of potential impacts from dredging activities in Inner Apra Harbor.

A-014-021

Thank you for your comment.

21. Text modified in the FEIS to refer to the CWA 404(b)(1) guidelines as such, and to remove reference to these guidelines being a Memorandum of Agreement.

A-014-021		agency charged with implementing the Section 404 permitting program. The USACE is specifically prohibited from issuing a permit for any discharge of dredged or fill material in waters of the U.S. that does not comply with the Guidelines.
	22 Vol 2, 11-53	4 th Paragraph. This paragraph appears to be referring to the February 6, 1990, Memorandum of Agreement (MOA) between the Department of the Army and the Environmental Protection Agency on the Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines. While certain provisions of this MOA remain in effect, the more appropriate citation would be to the April 10, 2008, Final Rule on Compensatory Mitigation for Losses of Aquatic Resources, which amended the federal regulations governing compensatory mitigation for activities authorized by permits issued by the Department of the Army (33 CFR Parts 325 and 332). Pursuant to the Mitigation Rule, mitigation plans are approved solely by the USACE, not by the USACE in conjunction with the USEPA. Please also note the phrase in this section that states, "Guidelines Determination of Significance", may not be relevant to the context of the paragraph and should be edited as appropriate.
A-014-022	23 Vol 2, 11-69, Figure 11.2-3	The legend does not contain a key for the area shaded with blue diagonal lines. Also, please correct or explain the discrepancy between the boundaries of the Sasa Bay preserve as depicted here and as depicted in other DEIS figures, where the preserve boundary appears to extend further into the Polaris Point dredge/wharf area.
	24 Vol 2, 11-72	<i>Inner Apra Harbor:</i> Unless there are other considerations, for ease of reference, we recommend that this paragraph point the reader to the description of dredged material disposal options contained in Vol. 2.
	25 Vol 2, 11-73	3 rd Paragraph: Pursuant to the Mitigation Rule, the USACE determines compensatory mitigation requirements for unavoidable impacts to waters of the U.S. authorized through the issuance of DA permits pursuant to Section 404 of the CWA and/or Section 10 of the Rivers and Harbors Act of 1899. Since the USACE has not yet made such a determination with respect to the impacts described in this paragraph, we recommend deletion of the statement regarding the applicability of compensatory mitigation requirements. The USACE emphasizes that while special aquatic sites

22. Text modified in the FEIS to reflect the Final Rule on Compensatory Mitigation for Losses of Aquatic Resources (33 CFR Parts 325 and 332), and removed reference to the MOU and USEPA. Removed the sentence including the "Guidelines Determination of Significance".

A-014-022

Thank you for your comments.

23. The blue lines represent the species general area. The Sasa Bay preserve boundary is not shown in this figure - the estimated ESA-listed species and EFH MUS high concentration area is not the same delineation as the preserve.

24. Text has been added to the FEIS.

25. The text has been modified.

A-014-022		such as coral reefs are subject to additional protection under the 404(b)(1) Guidelines, there are other aquatic resources subject to compensatory mitigation requirements under the Mitigation Rule.
A-014-023	26 Vol 2, 11-78	<i>Construction:</i> The LCAC site plan depicts a direct loss of near shore waters due to fill placement. The FEIS should describe the proposed impacts to marine aquatic resources resulting from this discharge of fill material.
A-014-024	27 Vol 2 general	LEDPA: In compliance with the 404(b)(1) Guidelines, the USACE may not issue a permit for the discharge of dredged or fill material in waters of the U.S. if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences. The analyses underlying the LEDPA determinations in the DEIS will need to be expanded in order to demonstrate compliance with the Guidelines and ultimately support a DA permit decision.
A-014-025	28 Vol 2 general	Terrestrial Construction Activities: Delineations of wetlands (consistent with the USACE '87 Manual and 2009 Pacific Regional Supplement), streams, and other open water areas should be conducted and included in the FEIS. USACE verification of any conclusions regarding an absence of impacts to wetlands or other terrestrially-based water resources associated with the proposed construction activities will be required for DA permit evaluation purposes. Additionally, functional assessments and mitigation sequencing will need to be developed for activities subject to DA regulatory jurisdiction that result in unavoidable impacts to aquatic resources. Please note that additional/expanded narrative descriptions and drawings of activities subject to DA regulatory jurisdiction will be required for DA permit application evaluation purposes. Please consult with the USACE for guidance on what level of detail is necessary.
Volume 3: Marine Corps Relocation – Training in Tinian		
A-014-026	29 Vol 3, 4-11	Section 4.1.2.4 – <i>Definition:</i> Recommend using the USACE/USEPA definition of wetlands found in

A-014-023

Thank you for your comment. Impacts to marine aquatic resources as a result of the proposed LCAC construction has been added to the FEIS as appropriate.

A-014-024

Thank you for your comment. DoD is aware of the LEDPA requirements. The FEIS has been updated to include more information on wetland impacts, LEPDA, etc. DoD is also aware that additional wetlands information, under Section 404(1)(b), may be required as part of any follow-on permitting action.

A-014-025

Thank you for your comment. The Final EIS contains updated information reflecting the additional investigation of potential wetland areas and potential compensatory mitigation measures. A detailed wetland delineation, and corresponding jurisdictional determination, is not required under NEPA. DoD feels that the Waters of the US information contained in the Final EIS is more than adequate to allow the DoD decision-maker to make and informed decision. DoD is well aware that additional wetlands information may be required as part of any follow-on permitting action.
The project design will avoid wetlands.

A-014-026

Thank you for your comment. The Final EIS reflects the discriminatory USFWS/USEPA definition of wetlands. The Final EIS contains updated information reflecting the additional investigation of potential wetland areas. The investigations were conducted in accordance with standards commensurate with the methods used. The project design will avoid wetlands. The reference will be provided to the USACE for review and verification.

A-014-026		33 CFR 328.3 and 40 CFR 230.3. The current definition in the DEIS states that areas described and mapped as wetland communities may also contain small streams, ponds, etc. Please discriminate wetlands from streams and large open and unvegetated water bodies. The DEIS also states that, "swamps are generally...designated as ravine communities rather than as wetland communities." For CWA purposes, swamps should be designated as wetland communities.
30	Vol 3, 4-11 to -12	<p><i>Wetland Areas and Quality:</i> Please ensure the discussion of wetlands is consistent with the USACE '87 Manual and 2009 Pacific Regional Supplement pertaining to wetland indicators for hydrology, soils, and vegetation. For instance, the DEIS states that no <i>facultative obligate</i> plants are in Area C. Please note that the only designations available are <i>obligate, facultative wet, facultative, facultative up, and upland</i> classifications for vegetation. The DEIS also states that hydric soils are found "at depth." Because hydric soils are tied to specific depths, the DEIS should include the depth at which the hydric soils were found.</p> <p>The DEIS states that Areas I, J, and K were not reviewed but nonetheless concludes that, based on their location, they are probably not wetlands. In the FEIS, this conclusion should be supported by data collected consistent with the USACE '87 Manual and 2009 Pacific Regional Supplement. Areas B, D, E, F, G, and H are referred to as (or as likely to have been) "old farm fields" that have no wetland hydrology, hydrophytic plants, or hydric soils. Please provide the data sheets to support this determination. Agricultural sites can be particularly challenging to delineate, so it is critical that the delineation is conducted in accordance to the above referenced prescribed method. The DEIS also states that the areas have no or limited evidence of hydrology since they do not appear to represent depressions that would accumulate runoff, even temporarily. Please note that wetland hydrology is not limited to runoff accumulation; we recommend revision of these statements in the FEIS as appropriate.</p>
31	Vol 3, 4-11	<i>Wetland Areas and Quality:</i> The DEIS refers to a 2007 wetland survey. Please provide the results of that survey, including appropriate data sheets, for verification by the USACE.
A-014-027	32 Vol 3, 4-33	If the wetland area in Alternative 2 is determined to be subject to USACE jurisdiction, the alternatives analysis may result in a different LEDPA determination. Consistent with the 404(b)(1)

A-014-027

Thank you for your comment. The Final EIS contains updated information reflecting the additional investigation of potential wetland areas. The investigations were conducted in accordance with standards commensurate with the methods used. The project design will avoid wetlands. DoD is aware that additional wetlands data may be required for follow-on permitting actions (if required).

A-014-027		Guidelines, the USACE cannot issue a DA permit for an alternative that is not the LEDPA. Also, for all areas that could potentially be impacted by the proposed projects, USACE recommends field delineations consistent with the USACE '87 Manual and 2009 Pacific Regional Supplement for verification from the USACE.
A-014-028	33 Vol 3, 11-14, 11-15	The USACE notes the DEIS reference of coral diversity and size as a measure of coral reef function/quality. Please explain why these metrics were not included in the employed HEA application.
A-014-029	34 Vol 3, 11-18	As a clarification, the CWA 404(b)(1) Guidelines are not a Memorandum of Agreement between the USEPA and the Department of the Army (DA) but are federal regulations developed pursuant to Section 404 of the CWA. Therefore, the Guidelines are binding on the USACE as the agency charged with implementing the Section 404 permitting program. The USACE is prohibited from issuing a permit for any discharge of dredged or fill material in waters of the U.S. that does not comply with the Guidelines.
A-014-030	35 Vol 3, Chapter 4	Wetlands in limestone settings may not have surface water connections but could potentially have discrete shallow subsurface connections or other geographic connections that indicate hydrologic connectivity to a navigable water and may therefore be considered jurisdictional by the USACE.
	36 Vol 3; Chapter 4	Please note that additional wetland field work may be required. Although field verification of the NWI maps are a good starting point, the NWI maps are not intended to be a comprehensive mapping of existing wetlands or their delineated boundaries and should be used only as a planning tool to assist in the suite of field work that may be required.
	37 Vol 3; Chapter 4	Because wetlands are relatively uncommon on Tinian, any impact, however small, has the potential to be considered significant. Please note that Guam and CNMI have a limit of 1/10 acre for allowable loss of waters of the U.S. under the USACE Nationwide Permit (NWP) program. Any action with wetland impacts over 1/10 acre will require review under an individual permit process. There are also several NWPs that are not permitted for use on Guam and CNMI (e.g., NWPs 29, 39, 41-44).

A-014-028

Thank you for your comment. The reference used for Volume 3 Affected Environment, CNMI MMT(2008) and NOAA CRED (Brainard 2008), used these metrics. While some parameters are useful in characterizing a reef, the parameters are not necessarily scalable and usable in HEA modeling. The Navy will continue to work with the USACE and do whatever is necessary to satisfy the requirements of Section 10/404 permit documentation.

A-014-029

Thank you for your comment.

Comment noted and revised accordingly for the FEIS.

A-014-030

Thank you for your comment. The Final EIS contains updated information reflecting the additional investigation of potential wetland areas. The project design will avoid wetlands. Information regarding wetland NWP conditions for Tinian is noted.

Volume 4: Aircraft Carrier Berthing		
A-014-031	38 Vol 4, 1-2	<i>Purpose and Need:</i> The USACE acknowledges that the CVN is an integral element of the overall Build-Up Project. However, for DA regulatory permitting purposes, regulatory actions must be reviewed as a single and complete project. If the proposed CVN Berth, with a purpose defined in the DEIS as, a "transient capable port that would provide maintenance and logistics support for aircraft carriers close to the area of responsibility (AOR)", could be independently constructed and operated without other proposed actions described in the DEIS, the lead federal agency should demonstrate its independent utility for the USACE administrative record. For prudent USACE permit planning, this demonstration and documentation of independent utility should be conducted for all independently distinct regulatory actions proposed. The USACE expects a substantial number of regulatory actions associated with the overall Build-Up Project; demonstrating, where appropriate, the independent utility of specific actions will reduce complications and delays in the permitting process.
A-014-032	39 Vol 4, 1-8	We recommend that the FEIS include additional information that justifies why the aircraft carrier homeport in Japan could not meet the overall project purpose of the CVN berth project. This additional information will be required to demonstrate compliance with the 404(b)(1) Guidelines.
	40 Vol 4, 1-9	We recommend that the FEIS provide additional information that justifies why the Kilo Wharf, as is or as an expanded wharf, is either more environmentally damaging or is not a practicable alternative. This additional information will be required to demonstrate compliance with the 404(b)(1) Guidelines.
	41 Vol 4, 2-7, 2-9 (Table 2.3-1)	Alternative locations considered and dismissed: The <i>Security/Force Protection, Operational/Navigational, Cost/Logistics/Technology</i> dismissal criteria should be further explained and more specific; additional information on potentially less environmentally damaging alternatives to demonstrate compliance with the 404(b)(1) Guidelines should be included in the FEIS to avoid the need for supplementation during the DA permit evaluation process.

A-014-031

Thank you for your comment. DoD understands the need to coordinate closely with USACE to ensure comprehensive sets of information are submitted during the permitting process.

A-014-032

Thank you for your comment. Section 1.1.3.5 explains why Japan was eliminated as a potential location. The aircraft carrier homeport in Japan is within the desired response time range as specified by the Quadrennial Defense Review (QDR); however, this pier is a dedicated homeported nuclear powered aircraft carrier pier and there is no additional capability to meet the needs of a transient nuclear powered aircraft carrier. Guam is close enough to many of the likely contingency areas in the region and potential threats to ensure rapid response, comply with treaty obligations, and assure the deterrent presence that U.S. forces bring to the region. Development of a transient port capability in Guam, because of the proximity of Guam to the Western Pacific/Indian Ocean area of responsibility (AOR), would enable multiple carrier strike groups (CSGs) to maximize time in the Western Pacific/Indian Ocean AOR. Transient port capability meets the defense and national security policy initiatives of the QDR. Finally, because Guam is U.S. sovereign territory, the combined requirements of freedom of action and force protection can be met while meeting the required operational flexibility. Because of this, Japan was not evaluated as an alternative under the Least Environmentally Damaging Practicable Alternative (LEDPA) discussion in Chapter 4, Volume 4.

Chapter 1, Volume 4 describes the reasons why Kilo Wharf is not considered a practicable alternative. Kilo Wharf is already near capacity without considering the aircraft carrier visits. Kilo Wharf is the only wharf in Apra Harbor that has approval for large quantities of munitions and a waiver is required for ships carrying ammunition to berth in Inner Apra Harbor. The evaluation of the capacity of Kilo Wharf is based upon the wharf's use for loading and unloading ammunition carrying ships. The

A-014-033	42	Vol 4, 2-10	Table 2.3-1: The reason for dismissal of the hydraulic dredging method alternative is "potentially less environmental impact than mechanical." In order to comply with the 404(b)(1) guidelines, alternatives that may be less damaging should be further evaluated for practicability. Please provide additional analysis in the FEIS regarding this alternative.
A-014-034	43	Vol 4, 2-14	2.3.3 – Channel Options: To avoid and minimize impacts to coral reef aquatic resources, the USACE notes that the value of coral reef habitat based on the degree of biodiversity were considered in addition to percent cover. Please explain why biodiversity was not considered to be an applicable indicator of function in the employed HEA application.
A-014-035	44	Vol 4, 2-22, 2-23, 2-29	The DEIS states that mechanical dredging is not well suited for hard rock environments and that loose or fine materials tend to be released into the water column. Considering that the DEIS states that blasting will not be employed, please provide a detailed description of the proposed methodology for mechanically dredging hard coral regions to a specific depth. The DEIS also states that hydraulic dredges are able to operate in hard surface environments with a cutterhead. The DEIS states on 2-23 that the mechanical dredging alternative represents the maximum adverse environmental impact, as it has, "the greater combined potential for environmental impacts from direct and indirect impacts to coral reefs due to sediment redistribution." Also, in 4-10: "...it represents the maximum potential adverse environmental effect to water quality." Based on this reasoning, please clarify why the hydraulic dredging alternative was dismissed from further analysis. We recommend that this alternative be fully considered in the FEIS to avoid the need for supplementation during the DA permit evaluation process.
	45	Vol 4, 2-23, 2-26, 4-9	<i>Dredged Material Disposal:</i> Please clarify why additional disposal allocation scenarios were not explored. Please also include a direct comparison of the environmental impacts associated with use of the ODMDS vs. permanent upland placement.
	46	Vol 4, 2-35	Last Paragraph: "The existing Approach Channel to Inner Apra Harbor would be widened and slightly realigned." Please clarify that this statement refers only to navigational aids/lighting and does not reflect a proposal to physically widen or realign the channel via dredging.

smaller load-outs of ammunition to combatant ships are already accomplished at the berths in the inner harbor. No additional capacity can be created at Kilo Wharf as the capacity is based upon use of Kilo Wharf by ships not capable of performing their mission in the inner harbor. These waivers are not readily granted because the large quantities of explosives berthed at a wharf that is unauthorized for large net explosive weights would represent an increased safety risk to nearby populations. There are also other challenges associated with an aircraft carrier berthing at Kilo Wharf that are manageable for the short duration port visits, but would be untenable for longer transient berthing requirements that include logistics, maintenance, and Morale Welfare and Recreation (MWR) support. Dependents, vendors, commercial delivery vehicles and non-DoD personnel are prohibited from entering the explosive safety arcs around Kilo Wharf. There is limited space for MWR activities at Kilo Wharf. For these reasons, expanding Kilo Wharf or moving existing munitions operations to other wharves is not practical. Therefore, Kilo Wharf was considered and dismissed and is therefore not evaluated under the LEDPA discussion in Chapter 4, Volume 4.

The selection criteria are described in Section 2.3. The LEDPA discussion does not warrant a wider alternatives analysis because as the information presented in Chapter 1 and 2 indicate, many alternatives could not be carried forward because they are not operationally practical, would result in security/force protection issues, or have logistics issues. Other locations in Guam and/or the Pacific were also ruled out as options for the reasons presented in Chapter 1 and 2, including not meeting the overall purpose and need.

A-014-033

Thank you for your comment. For the assessment of the "least environmentally damaging practicable alternative," consideration is given to the cost/availability of the alternatives being considered. This is not

A-014-036	47	Vol 4, 2-40, 4-9	Please clarify the narrative description of the proposed fill placement (bank armoring) associated with the wharf construction. Also, the plans provided in the DEIS will need to be supplemented for DA permit application evaluation purposes in order to fully assess the degree of impacts. We recommend that the FEIS provide more detailed plans and descriptions of the proposed wharf construction, specific to all practicable locations, as opposed to conceptual drawings.
	48	Vol 4, 2-41	Minor edit: paragraphs 2 and 3 are identical.
	49	Vol 4, 2-48	Fill below HTL for SRF (fill area between piers): Please provide the specific fill area and volume, below the HTL, and compare the differences between all practicable wharf locations.
	50	Vol 4, 2-57	Please expand the discussion of the No-Action alternative to include the benefits and detriments associated with all categories applicable to the action alternatives.
A-014-037	51	Vol 4, 4-1	4.2.1.1 <i>Methodology</i> , 2 nd paragraph, "available project data". Please note that for DA permit application evaluation purposes, additional data collection is necessary to adequately identify and analyze potential impacts to terrestrially-based waters of the U.S. (wetlands, streams, lakes, ponds, etc.).
	52	Vol 4, 4-1, 4-2	Direct vs. Indirect impacts: Based on the DEIS definition of direct impacts, one could infer that coral reef adjacent to dredging activities may be directly impacted. The USACE suggests clarifying this definition to comport with the definition of "direct effects" in the CEQ regulations at 40 CFR 1508.8.
A-014-038	53	Vol 4, 4-3	<i>Wetlands</i> : Please note that any impacts to wetlands, even if minor or temporary, should be evaluated in the FEIS as activities under DA regulatory jurisdiction. This includes any activity that would result in a discharge of dredged and/or fill material in a water of the U.S. (e.g., activities involving excavation and backfilling of utility trenches, etc.). Also, we recommend that impacts to wildlife habitat in wetlands should be addressed under Water Resources (chapter 4), and not in the Terrestrial Biological Resources section.

the deciding factor but cost/availability is an element of "practicability." The cost/availability in this case of choosing a mechanical dredge over a hydraulic dredge is a factor in the eventual type of dredge that would be used. For purposes of the NEPA analysis and as noted in Chapter 2, 4 and 11 of Volume 9, the mechanical dredge impacts have been analyzed as a conservative estimate (worst case) of the potential impacts from dredging rather than a hydraulic dredge. There are a number of trade-offs between the use of hydraulic or mechanical dredging equipment that range from the type of marine sediment to be excavated and the choice of upland or ocean disposal method. In either case, the use of best management practices including the deployment of silt curtain, would minimize adverse impacts from the suspended sediments caused by the dredging action. The choice of dredging equipment and any restrictions on use would be determined during the permit phase of the proposed project.

A-014-034

Thank you for your comment.

Text has been revised for FEIS as this methodology was not used for this determination.

A-014-035

Thank you for your comment. With regard to use of a hydraulic dredge, Chapter 4 of Volume 4 notes that mechanical dredges have historically been used in Guam. There are a number of trade-offs between the use of hydraulic or mechanical dredging equipment that range from the type of marine sediment to be excavated and the choice of upland or ocean disposal method. In either case, the use of best management practices including the deployment of silt curtains, would minimize adverse impacts from the suspended sediments caused by the dredging action. The choice of dredging equipment and any restrictions on use would be determined during the permit phase of the proposed project. Since

A-014-039

54	Vol 4, 4-9	Table 4.2-1: Please include direct impacts of dredging in waters of the U.S. on the table. Please note that the DEIS HEA calculation for dredging impacts in coral communities assumes a permanent and direct loss.
55	Vol 4, 4-17	4.2.2.4: First Paragraph (typos): Should read, "...would require Section 404 of the CWA, Section 10 of the R&HA, and Section 103 of the MPRSA permits from the USACE...."
56	Vol 4, 4-25	The FEIS should clarify that the USACE is the sole regulatory authority to make LEDPA and 404(b)(1) Guidelines compliance determinations.
57	Vol 4, 4-26	<i>Project Purpose:</i> The overall project purpose drives the alternative analysis under the 404(b)(1) Guidelines (Guidelines). The project purpose in this section should describe a basic project purpose (which is used to determine water dependency and may be as simple as "to build a CVN berth") and an overall project purpose (which is ultimately defined by the USACE). The overall project purpose cannot be limited to a specific location because doing so precludes an analysis of alternative locations. Therefore, "in Apra Harbor, Guam," should be deleted from the purpose statement if it is to comply with the Guidelines. At this time, it appears the overall project purpose may be described as "...a deep draft wharf that would provide maintenance and logistics support for transient aircraft carriers close to the area of responsibility (AOR)". With appropriate documentation, the Guidelines alternative analysis may result in a limited scope of practicable locations (which may ultimately be limited to Apra Harbor), but the project purpose should not be restricted in such a way. Also, the limitation of the alternatives analysis to Polaris Point and the former SRF would not be acceptable for a 404(b)(1) Guidelines alternative analysis. Also, a thorough alternatives analysis requires a greater level of design detail to adequately complete. Please also note that the intent of the Guidelines is to minimize impacts to the maximum extent practicable, which could make the inclusion of the mechanical dredging method (assuming applicability to the 404(b)(1) Guidelines) problematic given the information provided in the DEIS that indicates the alternative has the maximum level of environmental impact.
58	Vol 4, 4-27	<i>Practicability:</i> The term "practicable" has a specific definition under the 404(b)(1) Guidelines; it

mechanical dredging is considered the maximum environmental adverse impact, the EIS focuses on these impacts in case this method of dredging is permitted and utilized for the proposed action; thus, there would be sufficient NEPA coverage for this action.

The DoD is considering several options for disposal of dredged material, including upland placement, ocean disposal, and beneficial uses such as shoreline stabilization, fill for berms, and fill for the Port Authority of Guam, as discussed in the EIS (Chapter 2, Volume 4). Using dredged material for beneficial reuse projects would depend upon the suitability of the material for these projects as well as whether the proposed action timeline coincides with the need for material for a reuse project. Detailed analysis cannot be done at this time because specific projects have not yet been identified with certainty. While beneficial reuse is a priority for the DoD, the final decision on dredged material management will be made during the final design and permitting process. Detailed analysis of the potential impacts from using dredged material for reuse projects will be conducted during the permitting phase.

The statement noted refers only to navigational aids/lighting and no physical widening from dredging in the entrance channel into Inner Apra Harbor between Bravo and Limo Wharfs will take place. Minor clarification in this "aid to navigation" section has been made to confirm that the channel widening is made through the modifications to the aids to navigation.

A-014-036

Thank you for your comment. Additional text has been added to the EIS for clarification about the proposed fill placement. At this EIS stage, wharf construction plans are still in the conceptual design phase and will be finalized during the permitting process.

The FEIS has been modified so that the repeat paragraph is deleted.

A-014-039		refers to whether an alternative is available and capable of being implemented considering cost, logistics, and technology in light of the overall project purpose. The listed <i>security/force protection</i> and <i>operational/navigational</i> criteria should be considered sub-criteria of logistics, not additional criteria of practicability. Also, under the 404(b)(1) Guidelines analysis, the information provided in the DEIS will need to be expanded in order to support the elimination of the alternatives dismissed in Chapter 2. We recommend that additional supporting information be provided in the FEIS to avoid the need for supplementation during the USACE permit application evaluation process.
A-014-040	59 Vol 4, 4-29	Although use of the ODMS is not directly subject to the 404(b)(1) Guidelines, long term upland placement and beneficial reuse of dredge material would likely be considered environmentally preferable to ocean disposal. Discussion of utilizing the ODMS to minimize upland disposal may not be well suited to a Guidelines analysis. Please also describe the additional area of fill that would be required for wharf construction at the formal SRF site and clarify why that additional fill may constitute a greater level of impact to aquatic resources, while considering its specific location, relative to other alternatives.
A-014-041	160 Vol 4, 4-30	2 nd Paragraph, 2 nd to the last sentence: "Impacts to non-coral benthic organisms (not including corals) would be less than significant as a result of implementing the offshore dredging component..." Please clarify the basis for this conclusion. Minor edit: The phrase "not including corals" in parenthesis repeats the preceding term and should be deleted. This repeated wording is used throughout this section and should be revised. 4 th Paragraph, 1 st sentence: "Considering that both of the alternative areas have been previously dredged and that dynamic physical conditions dominate the areas, pre-construction conditions would return relatively quickly..." While this may be true in coral-free areas that receive regular maintenance dredging, it may not well represent the project area, which was dredged 60 years ago and contains slow growing coral and since there are no records of pre-project conditions. Please consider revising. This statement is also under EFH (4-36).

Impacts from the No Action Alternative are described in each of the resource chapters in Volume 4 as well as the other Volumes that contain an analysis of the proposed action.

A-014-037

Thank you for your comment.

51. Navy concurs.

52. The Final EIS has been updated to be consistent with the CEQ definition.

A-014-038

Thank you for your comment. The Final EIS contains updated information reflecting the additional investigation of potential wetland areas. The project design will avoid wetlands. We believe that freshwater aquatic natural resources can be adequately covered under the terrestrial biological resources section.

A-014-039

Thank you for your comment. The table has been updated to include direct impacts from dredging to waters of the U.S. The FEIS reflects changes to the noted typos and clarification about the USACE.

Only practicable alternatives to the proposed project need be considered in determining the LEDPA. An alternative is practicable where "it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." As described in Chapter 2, Volume 4, several alternatives for wharf location, wharf alignment, channel alignment, and turning basin were considered based on selection criteria including security/force protection; operations;

A-014-041		<p><i>Water Circulation, Fluctuation...:</i> Please explain why there would be no significant change. Suggestion: use water circulation study results.</p> <p><i>Suspended Particulates...:</i> Please provide details of sediment plume modeling results and the estimate time of suspension before settling.</p>
A-014-042	61	<p>Vol 4, 4-32</p> <p>4th Paragraph, 3rd sentence: "...potential changes in hydrodynamics from deepening the harbor," is listed as a cumulative impact. This appears to contradict the statements under water circulation (4-30), which states that there would be no significant change. Please clarify.</p> <p><i>Secondary Impacts:</i> "The proposed action is not expected to have significant secondary effects on the aquatic ecosystem." This statement should be clarified, especially considering that indirect impacts to coral communities may be considerable and are included in the DEIS HEA calculations as a 25% loss in function.</p>
	62	<p>Vol 4, 4-33, 4-49</p> <p>As a clarification, please note that the USACE is solely responsible for determining the LEDPA as well as compliance with the Guidelines.</p>
	63	<p>Vol 4, 4-30, 4-33</p> <p><i>Factual Determinations, Subparts C, D, ...:</i> Please ensure that baseline data from which to compare or assess impacts is included.</p>
	64	<p>Vol 4, 4-34</p> <p><i>T&E:</i> Please reference NMFS consultation determinations in your discussion.</p>
	65	<p>Vol 4, 4-37</p> <p><i>Sanctuaries and Refuges:</i> Please discuss impacts to Sasa Bay.</p>
	66	<p>Vol 4, 4-39</p> <p>1st Paragraph: Total dredge footprints, with coral, for Alternatives 1 and 2 are estimated at 53 ac and 44 ac respectively. The statement "with coral" can be interpreted as direct coral dredging acreage so we recommend that it is clarified.</p> <p>2nd Paragraph: Please use 3-D adjusted coral acres.</p>

and logistics and minimizing impacts to the environment to the extent practicable. As Chapter 2 explains, the DoD undertook several measures to avoid environmental impacts, including choosing a channel alignment that avoided dredging of coral shoals, reducing the aircraft carrier turning basin radius, and choosing a parallel to shore wharf alignment with a reduced clearance for the aircraft carrier. After careful consideration of the alternatives based on the selection criteria, it was determined that Polaris Point and the the Former SRF were the only two locations that met the criteria. This is also explained in Chapter 2 of Volume 4. Chapter 4, Volume 4 highlights the differences between these two alternatives in the LEDPA discussion. These alternatives may appear similar but they are different, as explained in Chapter 4. The LEDPA discussion does not warrant a wider alternatives analysis because as the information presented in Chapter 1 and 2 indicate, many alternatives (including Kilo Wharf) could not be carried forward because they are not operationally practical, would result in security/force protection issues, or have logistics issues. Other locations in Guam and/or the Pacific were also ruled out as options for the reasons presented in Chapter 1 and 2, including not meeting the overall purpose and need.

Additional text has been added to the EIS in Chapter 2 expanding the discussion of alternatives considered and dismissed.

A-014-040

Thank you for your comment. The DoD is considering several options for disposal of dredged material, including upland placement, ocean disposal, and beneficial uses such as shoreline stabilization, fill for berms, and fill for the Port Authority of Guam, as discussed in the EIS (Chapter 2, Volume 4). Using dredged material for beneficial reuse projects would depend upon the suitability of the material for these projects as well as whether the proposed action timeline coincides with the need for material for a reuse project. Detailed analysis cannot be

A-014-043

67	Vol 4, 4-43	230.50: The DEIS states that there will be no effect to municipal or private water supplies but other information in the DEIS indicates otherwise. Please revise accordingly.
68	Vol 4, 4-44	Subpart H: <i>Actions Taken to Minimize Adverse Effects</i> : In all categories under this subpart, please include a discussion regarding the impacts as well as minimization measures taken relative to the proposed wharf construction, which involves a discharge of fill material in navigable waters of the U.S. and directly influences the magnitude of losses to coral reef resources due to access dredging. All subparts need to consider these impacts as well as measures taken to minimize it as applicable. 230.77: 2 nd paragraph appears unclear. Perhaps a thorough discussion of how compensatory mitigation would offset unavoidable impacts to aquatic resource functions would be better suited in this location.
69	Vol 4, 4-46, 4-47	<i>Alternatives comparison</i> , 1 st paragraph: "...more practicable alternative." Please note that an alternative is either practicable or not. Although an alternative may be less environmentally damaging and therefore preferred, it cannot be more practicable than another. To clarify, operational and cost considerations are only relevant to the practicability of an alternative. If an alternative is considered practicable, the only comparisons relevant to the Guidelines are environmental. Discussions of differences in operations, quality of life/aesthetics, traffic, utility improvement costs are not applicable to alternatives comparisons under the Guidelines unless directly related to practicability. 2 nd paragraph: please describe differences in wharf fill placement in waters of the U.S. between alternatives
70	General Guidelines Analysis	Please note that our comments regarding the alternatives analysis are not comprehensive but, rather, focus on key considerations. We recommend the Navy work closely with our agency to ensure adequacy of the analysis.

done at this time because specific projects have not yet been identified with certainty. While beneficial reuse is a priority for the DoD, the final decision on dredged material management will be made during the final design and permitting process. Detailed analysis of the potential impacts from using dredged material for reuse projects will be conducted during the permitting phase.

The EIS has been revised to include additional clarification on the fill requirements.

A-014-041

Thank you for your comment. Section revised per your comments. Information regarding corals is in Chapter 11, Marine Biological Resources. The Final EIS reflects a revised discussion regarding the temporal aspects of dredge-related impacts.

A-014-042

Thank you for your comments. The Final EIS has been revised to reflect your comments. In addition, information regarding potential impacts to coral is expanded on in Chapter 11, Marine Biological Resources.

A-014-043

Thank you for your comment. The text is referring to the discharge of dredged or fill material associated with the dredging or construction of the berth areas and wharf structure. While other actions addressed in other volumes of the EIS may include analysis of potential impacts to private or municipal water supplies, the dredging and wharf construction would have no effect on these supplies.

Subpart H text presents the actions taken to minimize adverse impacts while Subparts B, C, D, E, and F discuss extensively the impacts associated with the proposed action. The intent was to account for

A-014-044	71	General Indirect Impacts	The USACE has several concerns regarding the indirect dredging impacts related to sedimentation, including the estimated 200 m lateral extent, the assumed 25% function loss, and the assumed 5 year recovery of all indirectly affected communities. Additional modeling and/or scaling of functional losses and recovery periods, to more accurately predict the magnitude of impacts, are likely to be required during or before the DA permit evaluation process for compensatory mitigation calculation purposes. ERDC is currently reviewing the sediment plume modeling study for adequacy.
A-014-045	72	Vol 4, 11-15	Typographical errors, 3 rd paragraph.
	73	Vol 4, 11-19, 11-20	4 th and 7 th bullets, Smith 2007 study: reefs ranking according to 8 criteria including: coral coverage, diversity, rugosity, health, and size-frequency distribution, diversity and abundance of sessile and mobile macro-invertebrates and finfishes... Please explain why the DEIS does not include these other indicators of coral function/quality as HEA metrics when the DEIS has noted their relevance in multiple locations throughout the DEIS. 8 th Bullet is a repeat of the 7 th
	74	Vol 4, 11-26	Coral Size Frequency Analysis using photo-quadrat transect data: The size frequency analysis in the DEIS is limited by the approximately 3'x2' quadrat dimensions, which likely underestimates the potential size of a given coral. Please explain the relevance of this discussion in the DEIS concerning decision making. Also, related to the above comment, please clarify why size-frequency information was included in the DEIS discussion, but not included as a HEA metric.
A-014-046	75	Vol 4, 11-52, 11-54	Silt curtain effectiveness simulation in Inner Apra Harbor: Please clarify the applicability of this study to proposed dredging in Outer Apra Harbor, which has different circulation and sediment characteristics. 11-54 3 rd paragraph: Please clarify how and/or if the circulation model was verified with current data and sediment grain sizes in the CVN project area or the Alpha-Bravo wharves project area. SEI (2009) modeling: Does the indirect sediment deposition distance represent a planar distance or a sloped distance? Please clarify why sedimentation of deeper (>60') down-slope corals was not

actions taken to minimize the impacts to the specified elements of Subpart H rather than to duplicate impact discussion for the reader. Regarding Section 230.77, "Other Actions," text has been added referring the reader to Volume 7, Sections 7.2 and 7.3 for a discussion of compensatory mitigation proposals included in this EIS.

The phrase "more practicable" has been deleted and "preferred" has been added. Clarification to practicability comment noted. The text in the LEDPA discussion has been revised to show that operational differences, traffic differences, aesthetics, and utility improvement costs, among others, are factors related to selection of the NEPA preferred alternative. The LEDPA discussion and alternatives comparison now focuses on the environmental differences only.

Regarding wharf placement, the wharf design for both alternatives is the same and is shown in Figure 2.5-5.

Regarding the comment about General Guidelines Analysis, it is understood that the comments are not comprehensive and focus on key considerations.

A-014-044

Thank you for your comment.

A-014-045

Thank you for your comment.

72. Text corrected for FEIS.

73. As stated by the Department of the Army (17 Feb 2010 response to DEIS): "the employed survey methodology to assess coral reef resources within the proposed CVN wharf and dredge project area has

A-014-046		<p>considered.</p> <p>1st bullet 11-53: 40 mg/cm² is cited as a threshold for coral impacts: Please provide reference citation.</p> <p>Last paragraph 11-54: Please note that scaling of indirect impact calculations based on modeled or observed sedimentation depths may be appropriate.</p>
A-014-047	76	Vol 4, 11-56
	77	Vol 4, 11-59
	78	Vol 4, 11-60
	79	Vol 4, 11-76
A-014-048	80	Vol 4, 11-77, 78

been an extremely contentious subject. Functional assessment methodologies are an evolving science and the adequacies of existing methodologies are heavily debated in the scientific community. A standard functional assessment technique that accurately characterized and quantifies losses and gains of coral reef aquatic resource functions, as would ideally be utilized for the proposed action for Section 10/404 compensatory mitigation purposes, is not currently available. Considering that our office will ultimately be responsible for determining compliance with federal regulations requiring an appropriate and practicable functional assessment, we have engaged our Engineer Research and Development center (ERDC) to provided an independent technical review of the adequacy of the employed methodology to date and recommendations for improvements, if necessary. Preliminarily, ERDC has determined that while the methodology is scientifically valid and statistically defensible, a more intensive level of data collection may be necessary to adequately measure habitat function for compensatory mitigation purposes. We expect a more specific and detailed accounting of their review in the coming weeks.”

The Navy acknowledges that the issue of coral habitat assessment and mitigation for this project is contentious and evolving. If necessary, Navy will collect additional data and provide supplemental information though supplemental NEPA and/or the USACE permitting process. The Navy will continue to work with the USACE and EPA/GEPA and do whatever is necessary to satisfy the requirements of the Section 10/404 and Section 401 of the CWA.

74. See No. 73.

A-014-046

Thank you for your comments.

Model computed TSS levels (using current data and sediment grain size)

A-014-048		<p>3. The relationship between categories is linear. For instance, to mitigate for Category 2 impacts, you would need an artificial reef at 2:1, Category 3 requires a 3:1, etc. This linear relationship needs to be verified and/or documented in greater detail.</p> <p>In evaluating a proposed mitigation plan, the USACE requires data and analysis positively demonstrating that the proposed mitigation is commensurate with the amount and type of impact that would be authorized. Additional information is necessary to demonstrate how an artificial reef is capable of compensating for the loss of complex coral reef ecosystem functions in the specific project area.</p>
81	Vol 4, 11-78	4 th paragraph: Please clarify the basis for the assumed 5-year recovery period for indirect impacts.
A-014-049	82 General - Independent Utility	<p>It appears that Kilo Wharf is currently utilized 275 days per year, 16 of which are for transient nuclear carriers. The document states that cumulatively, transient nuclear carrier berthing will be required 63 days per year. This may indicate that the new wharf would only be utilized 47 days per year for the CVN. Please clarify how many days the proposed CVN berth would be used and for what purposes. The DEIS also states that weather conditions (40-50 non-consecutive days per year) do not allow for wharf use and that there is an additional 40-45 days the wharf is used for munitions ship maintenance. This amounts to a total of 350-375 days/year. We also note that the Navy expects an increase in munitions operations from 275 to 315 days so it will already be over capacity by 25-50 days. Please clarify how this increase will be accommodated.</p>
83	General - Alternatives Impacts	<p>The DEIS concludes that the Polaris Point alternative (which would result in over an acre of additional coral reef loss) is less environmentally damaging than the SRF based solely on potential indirect impacts to the Big Blue Reef. Please clarify why indirect impacts are considered more environmentally damaging than direct impacts to ensure the impact evaluations (and therefore compensatory mitigation) are consistent with these determinations.</p>
A-014-050	84 General - Dredge disposal	<p>Beneficial Re-use pg. 2-26: The DEIS mentions several possible uses for the dredge material, including the creation of 18 acres of "fast-land" for the Port Authority of Guam expansion. This fill may need to be addressed in cumulative impacts.</p>

compared well with the Alpha-Bravo Wharves project measurements outside the silt curtain. Further explanation on applicability and SEI (2009) methodology was provided in the DEIS, Volume 9, Appendix E, Section E.

See SEI (2009). Distance was planar. Sedimentation was considered at depths and represents the 25% initial indirect significant impacts for accumulation of "thick" (6 mm) sedimentation for the duration of dredging activities occurring within 40 ft. from the dredge limit (pp. 11-54).

Text for FEIS has been revised to add references.

A-014-047

Thank you for your comment.

76. This statement identified has been moved to the first paragraph on pp. 11-56 for the FEIS.

77. The 200 m lateral "buffer area" was a distance that was suggested by USFWS and agreed upon by the Navy to conservatively define the extent of a study area that could encompass any potential indirect effects. This was the area identified as the affected environment, before the 12 m sediment deposition contour was established through modeling cumulative impacts. The 200 m area was 3-D evaluated. The 60 foot depth was established because that was the limits of the satellite imagery. The 25% estimate is consistent with the expectation that cumulative sedimentation caused by dredging is expected to be low (less than approximately one centimeter in affected areas), and the relatively lower sensitivity of dominant coral in affected area (*Porites rus* and *Porites cylindrica*) to such levels of sedimentation.

78. If dredged material, after testing, is suitable for ocean disposal transport of the tug and scow would need to be evaluated. Likewise, if

A-014-051	85	HEA Appendix	The USACE notes that the Vehman paper states that a combination of in situ method with size-frequency and the photographic method would likely produce more appropriate results for large areas of impact. Page 7 of Section F of the HEA states, "[Vehman et al.] recognize while relatively simple metrics have been historically used, future directions will undoubtedly move toward a more holistic system of metrics that more accurately reflect the complexity of coral reef systems." The simple metrics referenced includes percent cover. Since this paper is used to support the Navy's methodology, please clarify why the project is not considered to have the large area of impact that would require additional metrics according to Vehman et al.
	86	Vol 4, General	<u>Functional Assessment (HEA)</u> Please expand the discussion of the functions provided by the coral reefs proposed for impact. Although the USACE understands that reef function is difficult to quantify, a qualified discussion, at a minimum, should be included in the FEIS.
A-014-052	87	Vol 4, General	<u>Indirect Impacts</u> The analysis assumes that there will be 100% recovery of all indirect impacts in 5 years. This may be an unwarranted assumption because the areas closest to the dredge footprint may suffer complete mortality. Please clarify the rationale for this conclusion or revise accordingly.
A-014-053	88	Vol 9, HEA Appendix	<u>Economics</u> : According to Page 5 of Section F of the HEA Appendix, "If the cost of something lost is \$X, it does not make sense to pay more than \$X to replace it." It proceeds to identify the economic value of the coral reef resources to be impacted as \$5.9-11.4 million. There are many flaws with such an approach, as it can be very challenging to accurately assess the "economic value" of natural resources. That aside, it is also erroneous to believe that compensating for a resource that is challenging to replace would be equal to the value of the undisturbed resource. Other cost factors are included such as development of a plan, monitoring, reports, materials, etc. Further, the more challenging the task, the more costly it is to achieve. The USACE recommends deleting this from the FEIS. Compensatory mitigation plans should solely focus on offsetting unavoidable losses to aquatic resource functions.

upland disposal is required, the land use section evaluated those impacts.

79. The Navy will continue to work with the USACE to provide an accurate assessment of the potential impacts, satisfying the requirements of Section 10/404 and Section 401 permit documentation.

A-014-048

Thank you for your comment.

First set of comments:

1. Volume 9, Appendix E, Section F of the EIS contains the HEA and provides a discussion of the CIH as requested;
2. See No. 1
3. The Navy will continue to work with the USACE and do whatever is necessary to satisfy the requirements of Section 10/404 permit documentation.

Second comment:

Text and references supporting 5-year recovery period can be found in the HEA and has been provided in the FEIS text.

A-014-049

Thank you for your comment. The CVN berth would be used approximately 63 days per year but the wharf would be available for other ships as needed. Port Operations has the flexibility to schedule and manage operations which would accommodate what appears to be an excess loading for Kilo Wharf.

As noted in Table 4.3-1 and the paragraph following the table, Polaris Point was selected as the least environmentally damaging practicable

Volume 5: Army Air and Missile Defense Task Force		
A-014-054	89	<p>General: Wetlands/Streams</p> <p>Delimitations of wetlands (consistent with the USACE '87 Manual and 2009 Pacific Regional Supplement) streams, and other open water areas need to be conducted and included in the FEIS. The action agency will need USACE verification of the conclusions regarding an absence of impacts to wetlands or other terrestrially-based water resources associated with the proposed construction activities (munition storage, weapons emplacement, administration/HQ/maintenance facilities) to the extent that national security sensitivities permit.</p>
Volume 6: Related Activities – Utilities and Roadways (Guam)		
A-014-055	90	<p>General – NEPA, Recommended Format</p> <p>The organization and format of the DEIS/OEIS is unduly voluminous and cumbersome. An even broader concern exists with the intent of this project-level EIS/OEIS in terms of expectations for decision making and adoption by our agency. The magnitude, scope and complexity of the proposed action, including the numerous connected actions (which have been characterized as actions that would be implemented only to satisfy the increased demand directly caused by the overall proposed actions) reveals that some actions addressed in this document are ready for decision making and others are not. In order to assist resource and regulatory agencies in understanding this very complex EIS, the Corps recommends an explicit discussion be incorporated into the FEIS/OEIS that clearly identifies: 1) each proposed project/connected action by title, 2) the responsible entity for that project, 3) the anticipated construction start and end dates, and 4) whether this EIS suffices for NEPA compliance and issuance of a Record of Decision (ROD) or supplemental NEPA documentation will be required in order to issue a ROD and obtain necessary permits.</p>
A-014-056	91	<p>General – NEPA, Alternatives Analysis & Environmental Consequences</p> <p>The environmental consequences analysis in Volume 6 with respect to roadway/transportation and waters of the U.S. will need to be expanded in order to provide a thorough and robust analytical assessment for purposes of public disclosure and agency decision-making. We also recommend that the any cross-references in Volume 6 to other volumes of the DEIS/OEIS for purposes of describing the affected environment, provide additional information that would help inform USACE for decision-</p>

alternative (LEDPA) for several reasons, one of which is that there would be less indirect impacts to sensitive areas such as Big Blue Reef. Other reasons are that there would be less high quality coral removal by percentage and fewer impacts to threatened and endangered species. The reality is that impacts of both alternatives are similar (both direct and indirect) but that Navy has determined Polaris is better than the SRF site when you consider all environmental factors.

A-014-050

Thank you for your comment. The Port Authority of Guam's (PAG) harbor improvement projects are listed in the cumulative impact section. The PAG deep draft harbor project that was to generate most of the dredged material for the upland placement is no longer a reasonably foreseeable project and was removed from the cumulative project list.

A-014-051

Thank you for your comment.

85. Without a direct quote from the publication the commentor is referencing it is difficult to respond to the assertions being made. The USACE notes one of the publications (Viehman et.al., 2009) that the Navy identifies the appropriateness of the data parameters collected for the coral impact assessment conducted for this DEIS. Please see a direct quote (page 3, section 2.1) from the referenced recent NOAA publication that describes why data parameters were selected.

"For coral reef grounding injuries in the U.S., NRDA's have traditionally used a two-dimensional measurement of all biological coral tissue cover measured as either area or percent cover [17]. The conceptual basis is that an increase in total coral cover requires successful recruitment and growth, and will promote reef structural complexity and ecosystem richness [17]. The advantage of a coral cover metric in the NRDA process is that the service flow is intuitive; the amount of total coral cover injured requires that a similar amount of coral cover be restored. Field

A-014-056			making, including quantity and quality of existing aquatic resources, associated impacts, and/or conceptual mitigation for impacts to jurisdictional waters of the U.S.
A-014-057	92	General – Format, Presentation of Affected Environment and Environmental Consequences	In our official agency comments offered on the 2009 early release DEIS/OEIS, we recommended the format of the DEIS/OEIS be revised to coalesce the presentation of aquatic resources, including existing conditions (affected environment) and impacts (environmental consequences) in a stand alone chapter or at least in a more consistent location within each individual volume of the EIS/OEIS to aid decision makers in both locating and understanding the differences between the alternatives under consideration. We note the format of the public DEIS/OEIS does not appear to fully address our previous concerns. Consequently, we continue to find a number of inconsistencies in the DEIS/OEIS format from volume to volume, making it difficult for the reviewer to locate key information. For example, Volume 2 (<i>Marine Corps Relocation – Guam</i>) discusses wetlands and environmental consequences to aquatic resources under a Chapter entitled “ <i>Water Resources</i> ”, whereas Volume 6 (<i>Related Actions</i>) discusses wetlands under a Chapter entitled “ <i>Terrestrial Biological Resources</i> ”, but neither Volume 2 nor Volume 6 discuss navigable waters of the U.S. in the context of roadways – one has to refer to Volume 4 (<i>Aircraft Carrier Berthing</i>) for such information. Further, in attempting to understand the environmental consequences related to marine transportation that is addressed in Chapter 16 of Volume 6, the text refers the reviewer back to Volume 2 (<i>Marine Corps Relocation – Guam</i>) for a description of the affected environment. The overall evaluation of impacts to waters of the U.S. is piecemealed and in some cases embedded in varying degrees of detail throughout the multiple volumes to an extent that it impedes a basic understanding of the scope and intensity of impacts to aquatic resources that fall under the USACE legal purview. We reiterate our recommendation to improve the organization of the Final EIS/OEIS in a manner that will offer a clear presentation of the affected environment, proposed alternatives and the associated environmental consequences.
A-014-058	93	General – Need for Assessment of Construction-Related Features/Temporary Construction Impacts	The Navy’s proposed <i>Guam and CNMI Military Relocation and Build-Up Project</i> entails a suite of proposed projects and connected actions, including improvements to, or construction of, new utilities and roadways. For most of the connected actions, a design-build approach will be pursued. However, this construction approach does not obviate the need to identify within the FEIS/OEIS all reasonable impacts that stem from the connected actions. Specific to roadways, the FEIS/OEIS should address

measurements of benthic cover for the initial injury assessment and recovery monitoring can be relatively straightforward [49,50] (although less so for branching corals). In addition, coral cover has been a common parameter in reef monitoring publications for the past several decades, so landscape-scale historical data may exist for a particular reef. From an economic perspective, a coral cover metric is a transparent application of the HEA equation: the amount of coral cover inside the injury is expressed as a percentage of coral cover in a reference area (selected to represent the baseline condition of the injured area), and this proportion is projected over a time to estimate coral cover recovery. With a single coral cover metric that treats all coral species equally, no weighting factors are required within the HEA to equate for different levels of service contributions by different coral species. A coral cover metric is easily translatable to compensatory restoration projects such as transplantation, coral nurseries, and recruitment seeding that are designed to increase coral cover."

The Navy acknowledges that while there may be additional data parameters that may in the future add to a more complete picture in quantifying impacts to coral, those parameters have not been identified as reliable standards for inputs into the NOAA preferred loss/mitigation model (Habitat Equivalency Analysis). The Navy selection of percent coral cover combined with community scale rugosity is appropriate for this community type given the relative homogenous composition of the coral community found within the proposed dredge area. Furthermore, the Navy's selection of these parameters are in line with other USACE approved coral impact assessments completed for a significant number of dredging projects nation-wide.

86. Viehman et.al., 2009 (page 3, section 2.1) describes the challenges associated with identifying what components comprise ecological function of coral reefs. The Navy in its pursuit for capturing the appropriate components that comprise coral reef ecological function solicited nine internationally renowned coral reef scientists and posed the specific question the commentor has asked the Navy to define. The

A-014-058		the need for and use of on-site construction materials (e.g., fill/soils from borrow sites) and other temporary construction features, like staging areas for construction equipment and contract personnel. It is often the case that under design-build contracts a great deal of relevant project design information is developed post-NEPA documentation. While detailed engineering plans and specifications may be developed subsequent to the Navy's ROD and/or left to the discretion of the contractor following contract award, we believe it is important to estimate all foreseeable impacts and give full consideration to the host of temporary construction impacts that are likely to occur outside the footprint of permanent impacts associated with off base roadway projects. Accordingly, we request that the FEIS/OEIS identify all reasonably necessary and foreseeable construction features, such as temporary staging areas, temporary haul routes, construction access ramps/roads, and borrow and disposal sites for excess construction debris. In addition, the FEIS/OEIS should include an estimate of impacts on waters of the U.S. resulting from these construction features, if any.
A-014-059	94 General Comprehensive and Accurate Survey Information for waters of the U.S.	Except for marine biological resources, baseline data (existing conditions) and corresponding maps identifying the location, type and geographic extent/boundaries of other waters of the U.S. occurring within the project area appear to be missing. Although we note Volume 2 (<i>Marine Corps Relocation - Guam</i>) contains vegetation maps showing "wetlands" and "mangroves", the source of these data cites a 2006 USFWS Biological Opinion for an action on Anderson Air Force Base. We find this level of information deficient for project-specific analysis for CWA Section 404 permitting purposes. The absence of aquatic resources technical studies and field work [e.g., a Corps-approved three-parameter jurisdictional determination (JD)] precludes a meaningful and accurate assessment of the potential effects on the aquatic environment resulting from implementation of the on- and off base roadway construction. That is, without adequate baseline data and an approved JD, we are unable to ascertain the scope and magnitude of the environmental consequences with respect to aquatic ecosystems and therefore cannot determine the appropriate Department of the Army (DA) permitting strategy or render a permit decision without supplemental data and analysis. We recommend the Navy perform jurisdictional delineations in accordance with procedures set forth in our 1987 Wetlands Delineation Manual (and 2009 Pacific Regional Supplement) and regulations. In doing so, the Navy may consider utilizing remote sensing tools and existing information (e.g., prior JDs, aerial photographs, infrared aerial photographs, USGS topographic maps, NWI maps, soil maps, and miscellaneous biological studies, etc.) to help direct where to conduct on-site surveys, but these data sources/tools should not be

fundamental problem associated with answering this question is that the system being impacted is an open system comprised of thousands of factors that contribute to a successful, healthy system. The thousands of parameters used to quantify the level of impact must be combined into larger components that can be used to drive a HEA and must be measurable to an extent that success criteria can be established for potential mitigation. Percent coral cover has been historically used as a proxy to consolidate those thousands of ecological parameters.

A-014-052

Thank you for your comment.

Indirect impacts are expected to be temporary, and affected areas are expected to recover to baseline condition within five years, which the Navy believes to be a conservative assumption in light of the expected low level of initial impact and relevant literature (e.g., Brown et al.'s (1990) study of dredging impacts on intertidal coral reefs at Ko Phuket, Thailand, which suggests a one to two year recovery period is reasonable for impacts of this type). The HEA report and supporting studies in Section D in Volume 9 of the EIS provides a more in depth literature review. The matter of recovery is complex. The Navy continues to view 5 years as an overestimate of the recovery time.

As a note, The HEA model assumes the areas directly impacted by dredging to be permanently injured, and therefore experience a 100% loss in ecological services in perpetuity (i.e., no recovery). Any recovery would be lost during future maintenance dredging.

A-014-053

The HEA in Volume 9 has been revised.

A-014-059		relied upon as the sole source for informing decisions on the affected environment and environmental consequences. Without performing field surveys that verify the presence/absence of waters of the U.S. and that delineate the geographic boundaries of jurisdictional features the Corps is unable to determine the LEDPA related to the numerous terrestrially based connected actions.
A-014-060	95 General – Permitting Strategy	It appears an overall permitting strategy for implementation of the Navy's preferred alternative(s) and the connected actions has not been developed. At this juncture of the environmental process it is noteworthy to reiterate that the use of the Corps' 2007 Nationwide Permits (NWP's) is relatively restricted in Guam and CNMI. Honolulu District's NWP Regional Conditions prohibit the use of NWP's #29 (<i>Residential Developments</i>), #39 (<i>Commercial and Institutional Developments</i>), #41 (<i>Reshaping Existing Drainage Ditches</i>), #42 (<i>Recreational Facilities</i>), #43 (<i>Stormwater Management Facilities</i>) and #44 (<i>Mining Activities</i>) and consequently requires such activities be evaluated under standard individual permits. In addition, our regional conditions limit the maximum loss of waters of the U.S. in Guam, American Samoa, and CNMI for a single and complete project to 1/10-acre. In other words, for activities that constitute a single and complete project and exceed a 1/10-acre loss of waters of the U.S., a standard permit will be required.
A-014-061	96 General – Compensatory Mitigation Plan Deficiencies and Need for a Functional Assessment	Without an adequate disclosure of direct and indirect impacts on the aquatic environment, appropriate compensatory mitigation for unavoidable impacts related to roadways and other utilities cannot be fully developed in accordance with the requirements set forth in the Corps' <i>Final Mitigation Rule</i> (33 C.F.R. 332). In fact, compensatory mitigation must be directly related to the impacts of the authorized activity, appropriate to the degree and scope of those impacts, and reasonably enforceable. The amount of mitigation required must be commensurate with the authorized impacts of the project. The goal of compensatory mitigation is to replace aquatic resource functions and services lost as a result of the permitted activity(ies). Compensatory mitigation may also be required to ensure that the authorized work is not contrary to the public interest [33 C.F.R. 320.4(r)]. Accordingly, the Corps recommends the FEIS/OEIS include an evaluation of the impacts that quantifies the direct, permanent, temporary, indirect (secondary), and cumulative losses. The analysis should also characterize the functions and services as described in the 2008 <i>Final Mitigation Rule</i> . Corps decisions related to compensatory mitigation will give substantial weight to the loss in functions and services of the particular aquatic resource(s) being impacted. To date, it does not appear that an analytical or

A-014-054

Thank you for your comment. The Final EIS contains updated information reflecting the additional investigation of potential wetland areas. The investigations were conducted in accordance with standards commensurate with the methods used. DoD will not seek USACE confirmation of the absence of wetland impacts for projects. It is incumbent upon the Federal agency taking the action to ensure that accurate wetlands information is used in planning level analysis/decisions. DoD feels strongly that wetlands and other WUS information contained in the FEIS is more than adequate to assess potential impacts and make an informed decision. DoD is also aware that additional wetlands data may be required for follow-on permitting actions.

A-014-055

Thank you for your comment. The proposed actions are complex and have many components. In order to characterize the affected environment and potential impacts, sufficient detail needed to be included in the Draft EIS. The Draft EIS was broken down by Volumes for each major action, and the Executive Summary provides an overview of the proposed actions to facilitate readability. The Draft EIS was developed with the intent to balance readability with sufficient technical information. Components of the proposed action ready for decision making will be identified in the Record of Decision.

A-014-056

Thank you for your comment. Additional information has been included in Volume 6 of the Final EIS. In addition, detailed information would be included in the permit applications for roadway projects that would impact waters of the United States should the proposed military relocation program be implemented.

A-014-061		scientific process to ascertain the existing functions and services of the aquatic ecosystems existing on Guam and Tinian, nor what the potential loss might be to the functions and services post-construction. The Corps recommends the environmental consequences include a functional assessment for coral reef impacts, as well as wetland and stream impacts to help inform detailed mitigation decisions.
A-014-062	97 Volume 6; Chapter 4 (Roadways) and Chapter 6 (Water Resources) Re: Incomplete Technical Studies	Detailed design and hydraulic modeling of the off base bridge replacement projects for "...[f]lood and erosion control facilities..." has not been conducted as part of this NEPA document, and will be undertaken at a later time by FHWA (DEIS/OEIS, Volume 6, page 6-22). Similarly, page 4-74 of Volume 6 notes "...an on base traffic study is currently being conducted and results from the study will be provided for the FEIS to determine the exact level of impact." Without design information it is not possible to accurately calculate impacts to waters of the U.S., especially potential indirect effects that may result to downstream rivers and other receiving waters, including coral reef ecosystems. Page 6-22 documents: "...[indirect] impacts may occur further downstream outside of the immediate construction area and be prolonged in time. These indirect effects may include degradation of stream channel aquatic habitats and marine habitats supporting coral communities and fisheries". The Corps recommends the Navy perform all necessary traffic studies, hydraulic modeling, engineering design and field surveys to ascertain the direct and indirect effects on the aquatic ecosystems affected by roadway construction projects.
	98 Volume 6; Chapter 2 (Proposed Action & Alternatives); Section 2.5.5 (Permits & Regulatory Requirements)	Section 2.5.5 alludes to impacts to jurisdictional waters of the U.S. that would occur as a result of off base roadway construction, which based on the scope of analysis encompasses up to 49 separate Guam roadway projects that help to define the DoD's overall 'preferred alternative' (Alternative 2). The DEIS/OEIS identifies the Federal Highway Administration (FHWA) as the entity responsible for obtaining all permits required for construction of roadway projects located outside of DoD lands, although the same paragraph suggests something to the contrary for ESA approvals, whereby the text states: "...roadway projects are included in the [ESA] Section 7 consultation for the entire proposed action". It is our understanding that the Navy is the lead action agency pursuant to Section 7 consultation and will be engaging in formal consultation with the U.S. Fish and Wildlife Service for all terrestrial based connected actions, including the roadways (on and off base). The DEIS/OEIS is unclear as to what circumstances the Navy is the lead federal action agency versus the FHWA, and why two separate federal agencies have split compliance responsibilities for the Endangered Species

A-014-057

Thank you for your comment. The format of the Final EIS has been updated to present a clear summary of impacts to aquatic resources, consistent across Chapters and Volumes, and is overall consistent with the DON's approach to analysis and formatting for EISs.

A-014-058

Thank you for your comment. The FEIS includes information as addressed in your comments regarding impacts of utilities and other construction projects associated with implementation of the proposed military relocations. Proposed mitigation measures are listed throughout the document and are summarized in listings provided in Volume 7.

A-014-059

Thank you for your comment. The Final EIS contains updated information reflecting the additional investigation of potential wetland areas. The investigations were conducted in accordance with standards commensurate with the methods used. The project design will avoid wetlands.

As discussed in previous responses, DoD is confident that the wetlands data contained in the FEIS is more than adequate to allow for an informed decision under NEPA. However, DoD recognizes that additional wetlands (or other WUS) information may be required to support any follow-on permitting actions.

A-014-060

Thank you for your comment. This information will be used in the development of a permitting strategy.

A-014-061

Thank you for your comment. The Final EIS contains updated

A-014-062		Act and Clean Water Act, respectively, for the same set of proposed projects that are evaluated under a single project-specific EIS. We suggest that the FEIS clearly identify the federal action agency for compliance with all applicable federal laws, regulations and executive orders applicable to the Guam and CNMI military relocation and build-up project. In this vein, the Navy should collaborate with FHWA in ensuring other federal requirements are integrated into the FEIS/OEIS, for their independent NEPA adoption purposes.
A-014-063	99	Volume 6; Chapter 2 Chapter states that only utility needs directly associated with the build-up are analyzed. Please note, our regulatory program requires discussion of utility demands in the context of indirect impacts as well, not just those directly associated with the build-up.
	100	Volume 6; Chapter 2 Interim and basic alternatives state that no additional analysis will be provided yet few details are provided regarding these projects to ensure this course of action is appropriate. Please provide supporting information for this approach.
	101	Volume 6; Chapter 2 According to the EIS, long-term solutions have not been finalized and Special Purpose Entities (SPEs) will likely address those issues. The Navy anticipates that the SPE will receive funding from Japan. The EIS indicates that the Navy will not exercise authority over these entities. (6-2-3). If long-term solutions are associated/interdependent with the build-up project, then the Navy may need to discuss these in the FEIS (or supplement EISs) even if the Navy is not the SPE.
	102	Volume 6; Chapter 2 The EIS refers to supplementary reports for power, wastewater, and water. These reports and specific locations in the EIS should be referenced and cited throughout the main report as appropriate (6-2-5).
A-014-064	103	Volume 6; Chapter 2 According to the EIS, total DOD power demand could be reached as early as 2015, at which time the estimated demand almost doubles. Please clarify how all basic, interim, and long-term power supplies will be on-line in such a short time period. The EIS should address these items more specifically if this estimate is correct, or revise the statement accordingly.
	104	Volume 6; Chapter 2 Transient demand is estimated at 39.82 MW, 1/3 of the power increase and almost equal to the existing power used by all of DOD. Current planning for the transient demand includes a dedicated

information reflecting additional investigations of potential wetland areas and jurisdictional waters of the U.S. The Final EIS contains a revised impact analysis and discussion of potential mitigation measures to reflect the investigation results.

A-014-062

Thank you for your comment. On-base traffic studies have been completed and are incorporated into the FEIS. Engineering design and hydraulic modeling for off-base roadways have not been completed, nor do they need to be completed for a NEPA analysis. Their effects to aquatic ecosystems were evaluated based on preliminary design and the best available information to date. As design progresses, best management practices and mitigation measures are incorporated into the design process as dictated by the current applicable regulatory/permitting requirements.

The DoD is taking the lead for compliance with issues related to the ESA for the entire proposed action because the impacts from roadway projects to the resources within the purview of the ESA are very limited and mostly involves the removal of habitat (from the Guam National Wildlife Refuge Overlay) at Andersen AFB and NCTS Finegayan for road widening projects. With regards to the Clean Water Act, the DoD and the FHWA have split compliance responsibilities on the basis of what is germane to each agency's mission. FHWA will take responsibility for transportation related projects such as roads and bridges and the DoD will take responsibility for actions related to the construction and operation of a new military installation, and related actions for a CVN pier and the Army initiative.

A-014-063

Thank you for your comments.

99. The utility requirements were considered for both direct and indirect

A-014-064		transmission line between the planned carrier berthing at Polaris Point and Piti Substation. The analysis of power requirements includes this but the interim alternatives do not because, according to the EIS, the berthing would not require a power supply from shore before 2015 or when the long-term power solution would be in place. This Section should be expanded to include exactly how the Navy proposes to meet the power demands of the CVN berth. If unknown, this could indicate that the CVN berth is not a single and complete project independent from the remainder of the build-up, which could impact permit application review (6-2-6).
A-014-065	105 Volume 6; Chapter 2	The analysis of energy alternatives should be expanded. It cites "substantial capital and operational costs" for dismissing most alternatives without providing or citing any specific economic analyses. The FEIS should include these analyses as well as an analysis of improving the efficiency of existing infrastructure/buildings as a potential alternative.
A-014-066	106 107 108 109	<p>106 Volume 6; Chapter 2 The EIS states "7,222 transients at Apra Harbor are not included in water demand – they are housed on ships". This appears to contradict a subsequent statement in the EIS indicating that an aircraft carrier-related water demand of 0.14 MGd is included in the estimates. Please address/clarify the aircraft carrier population demand for water, as well as for electricity (6-2-28 Table 2.2-1).</p> <p>107 Volume 6; Chapter 2 The EIS indicates that the potable water wasted in Guam is 50% (UPW 50%) compared to a Navy UPW of 15%. Please explain why such different UPWs apply to each. Further, it seems there is a great opportunity to improve existing facilities so as to require fewer new wells, new stream diversions (Lost River), increased reservoir capacities, etc. Improving the existing system appears to be a viable alternative that should be further explored and analyzed (6-2-34).</p> <p>108 Volume 6; Chapter 2 Up to 2,000 transients associated with the CVN will require water use. Aircraft carrier-related water demand is 0.14MGd. Please clarify who these transients are and how they are different from the 7,000+ on the carrier itself.</p> <p>109 Volume 6; Chapter 2 Alternatives for water utilities should contain a more thorough review and analysis. For instance, page 6-2-42 states that raising the dam crest was eliminated due to a number of uncertainties. The uncertainties are then listed but are not explained or analyzed. Please provide a discussion and</p>

impacts. Total utility demands provided in Volume 6 Chapters 2 and 3 include impacts from construction workers, induced civilian growth, and normally expected civilian growth. Please see Table 2.1-2 for power, section 2.2.2.1 and 2.2.2.2 for "On-Base Water Demand" and "Off-Base Water Demand", section 2.3.3 "Projected Wastewater Flows" (includes on and off base demand for NDWWTP), and Table 2.4-1 "Projected Solid Waste Estimates (tons)" including both on and off base demand estimates. The DEIS looks at how DoD would facilitate providing for the direct impacts from the proposed buildup, but also looks at what the overall demand/supply situation would be including all indirect impacts and how those might be provided. The final EIS has been reviewed and any confusing statements clarified, plus the discussion of off-base impacts and potential solutions to utilities has been expanded.

100. Interim and basic utility alternatives are described at the project specific level as needed for NEPA review. At this stage, these projects do not have a detailed design, but rather a detailed description of what is proposed that is adequate to assess the impacts of such actions on their affected environment. For power, specific location of facilities (both generating and transmission/distribution (T&D)) and their upgrade requirements are provided in sections 2.1.4, including Table 2.1-4 of detailed T&D upgrade requirements and map of Figure 2.1-2 showing locations of those T&D upgrades. Similar information is provided for the other utilities as required. Between the draft and final EIS, additional detailed information on the required refurbishment of the North District Wastewater Treatment Plant has become available and has been included in the final EIS. Similar information for the reconditioning of existing GPA generating facilities is being gathered but was not available in time for the final EIS. These approaches were studied in four utility studies which have been updated and referenced in the final EIS.

101. The final EIS has expanded the discussions on how private entities (a revised name) likely would contractually relate to the Guam utilities

			analysis
A-014-067	110	Volume 6; Chapter 2	Reclaim potable water: The concerns regarding public perception of the use of reclaimed water are unclear. Although the local residents may have stated concerns, the use of reclaimed water by DoD personnel should be addressed in the FEIS. Although no natural buffers are present to serve as a component in any reuse of reclaimed water, this absence of natural buffers may not be a major concern on the part of the community. Please provide additional analyses to support the conclusion regarding the practicability of this alternative. (6-2-42)
	111	Volume 6; Chapter 2	Option 7 – Indirectly reclaim water. This option appears to have been dismissed primarily because of potential regulatory concerns and public concerns. The EIS should more thoroughly examine the feasibility of potable water through groundwater recharge. The high hydraulic conductivity of the Northern Guam Lens Aquifer may make this alternative infeasible. The FEIS discussion needs to be expanded.
A-014-068	112	General – Alternatives Analysis	The alternatives analysis in the EIS should focus on concrete limiting factors, not speculative regulatory or public controversy issues that could potentially apply to the entire build-up proposal.
A-014-069	113	Volume 6; Chapter 2	This Chapter states that water demand related to construction is not included in the DOD water demand estimates since it is relatively low and is assumed to be supplied by the contractor through the GWA. The Corps recommends an analysis of the usage is included in the FEIS, as this is still a direct impact of the build-up. The FEIS should account for water usage of the DoD activities, the contractors, and the contractor-employees.
A-014-070	114	Volume 6; Chapter 2	Long Term Alternative Lost River calculates water supply yield based on 4 years of data – 1998-2001. This limited data set may not provide accurate estimates of yield. The FEIS should clarify why the data set is likely representative or what limitations there may be. Also, the FEIS should discuss seasonal variation in the Lost River discharges and the extent to which the project will impact them.
A-014-071	115	Volume 6; Chapter 2	Solid waste – Recommend examination of mandatory recycling for all DoD properties as opposed to voluntary recycling. As some cities in the U.S. have mandatory recycling, it is reasonable to examine

and DoD.

102. As mentioned above, most of the utility study reports have been updated for the final EIS. The final EIS has been edited to reference these reports and the reports are contained in Volume 9 Appendices.

A-014-064

Thank you for your comment. The EIS describes a series of loads that include DoD, construction workforce, induced growth and growth of the current Guam population. The power supply growth is based on reconditioning existing capacity to provide reliable peaking and backup generation as well as long term generation planning to expand/replace existing generation with more reliable, lower emission and more efficient generation. The interim alternatives describe how the baseload energy generation will be met with existing power plants, and peaking facilities (Combustion Turbines) will be reconditioned to provide intermittent power when needed and improve the overall reliability of the island-wide power system. The expectation is that short term and interim power capacity will be available by 2012/2013 with long term capacity available 2015.

The FEIS has been revised to clarify the above description and to reduce any confusion with load increases and plans to meet requirements with current power generation planning.

The Navy expects to meet the CVN power demands in one of the following ways:

1. Guam Power Authority would have the first option to provide power to the CVN as they are in the business of selling energy and expect to have the capacity to support the CVN based on current planning in 2015.

A-014-071		the feasibility of this practice on DoD properties. This would likely reduce the need for landfill space and is a potential alternative for landfill use/expansion that should be explored and discussed.
A-014-072	116 Volume 6; Chapter 13	A new outfall is proposed on page 6-13-13. Note that any new or modified outfalls, pipes, etc. located in marine waters that are required for any of the utility projects will require authorization from USACE under Section 10 of the Rivers and Harbors Act of 1899. Note that while the effluent discharged from any new outfall structure/pipe would not be regulated directly by USACE, any impacts on coral reefs or other aquatic resources could require mitigation for indirect impacts associated with the outfall.
	117 Volume 6; Chapter 13	States "In coastal areas, discharge of treated sewage effluent may have no negative effect on coral community structure and may in fact enhance coral growth and benefit coral reef community by providing nutrient subsidies..." Please provide citations for the studies that support this assertion. Please address the applicability of any such studies to Guam by providing an analysis of the limiting factors and nutrient limitations. If the studies do not apply to the situation on Guam, this discussion should be deleted from the FEIS (6-13-18).
A-014-073	118 Volume 6; Chapter 4 (Roadways)	Potential 'mitigation measures' for the on-base and off-base roadway projects are identified in Section 4.2.2.1 and include actions such as road widening, restriping, traffic control devices, road strengthening, bridge replacements and travel demand management. Many of these project elements are referred to in the DEIS as "mitigation measures", which we believe may be misleading. These actions are actually elements of the proposed build alternative(s) for the future Guam roadway network, not compensatory mitigation measures per se that would be implemented to offset impacts on the environment as a result of road construction. In general, linear surface transportation projects adversely impact water quality, air quality, wildlife movement, noise, aquatic resources (wetlands, streams), and other biological resources, all of which typically necessitate mitigation. Mitigation measures to offset such impacts would need to be developed in consideration of each resource category on a case-by-case basis (e.g., construction of adjacent water quality detention basins to treat surface road run-off prior to re-entering downstream aquatic resources).
	119 Volume 6; Chapter 6	Page 6-25 acknowledges that the USACE is currently pursuing a reinvestigation of Federal interest for

If they do not have the available capacity due to unforeseen conditions the Navy will implement one of the other options.

2. The Navy has generation capacity at the Orote power facility and would use available capacity to support Navy loads as the generation capacity is available.

3. The Navy also has the option of leaving the CVN on shop power and not providing hotel power support while in port.

The CVN load and power requirements are included as part of the DoD buildup in Guam.

A-014-065

Thank you for your comment. The Guam Power Generation Study Report considered alternative energy options for Guam and included capital, O&M, fuel, and related costs for each alternative as well as the current maturity in each technology. The FEIS will include this information to better present alternative energy costs versus current energy costs in Guam.

A-014-066

Thank you for your comment.

106) Water demand is estimate for personnel housed on land within the base assuming a per capita demand. The transient population was not included in that estimate. Instead, potable water for the 7,222 transients housed on the CVN is met by 0.14 MGd shore services supplied to the ship through the Navy Island Wide water system. The text will be clarified.

107) The GWA unaccounted for water (UFW) estimate of 50 percent was taken from the GWA's Water Resources Master Plan (WRMP, 2007).

A-014-074	(Water Resources)	the Hagatna (Agaña) River Flood Control Project. Any FHWA-proposed construction that might degrade, raise or realign alternatives under consideration in the Corps' on-going study may require a risk analysis pursuant to 33 U.S.C. 408. We suggest that the Navy and/or FHWA consult with the Honolulu District Programs and Project Management Division and the Government of Guam once a more defined project description has been developed for this river crossing to avoid any conflict.
A-014-075	20 Volume 6; Chapter 6 (Water Resources); Re: Inconsistencies in Reporting Impacts	Please reconcile inconsistencies throughout Volume 6 with respect to the characterization of impacts, or lack thereof, on the aquatic environment. For instance, in Volume 6 (<i>Related Actions—Utilities and Roadways</i>) on page 6-23 the text documents an estimated 0.8-acre direct impact to waters of the U.S. that would occur as a result of off-base bridge replacements, yet page 6-31 asserts none of the alternatives would involve potential impacts to wetlands and therefore no 404(b)(1) alternatives analysis is necessary to identify the LEDPA. In addition to reconciling inconsistencies with the environmental consequences, the FEIS/OEIS should include aquatic resources technical studies to document the presence/absence of wetlands and the lateral extent of non-wetland waters of the U.S. Such studies should include a wetlands delineation in accordance with the Corps 1987 <i>Wetlands Delineation Manual</i> and 2009 Pacific Regional Supplement and establishment of the OHWM pursuant to 33 C.F.R. Parts 328 and 329). It does not suffice to systematically conclude that "no wetlands or other aquatic resources are present" without reference to site-specific field studies and accompanying data sheets.
	21 General – Need for Determination of the LEDPA	As referenced in the comment above, the Navy asserts that because no wetlands would be impacted, identification of the LEDPA is not required. To the contrary, the 404(b)(1) Guidelines require an alternatives analysis for any discharge of dredged or fill material into a waters of the U.S., whether the aquatic resource is a "special aquatic site" (e.g., wetlands, coral reefs, mudflats, etc.) or not. That is, a proposed action that contemplates a discharge of dredged or fill material into jurisdictional waters of the U.S. requires a LEDPA alternatives analysis.
	22 Volume 6; Chapter 6	Methodology: According to the document, all conclusions regarding wetland/water resource impacts are based on available data. Please clarify if new data has been collected and what references were reviewed and the validity of those references to enable our office to validate any of the conclusions regarding impacts to water resources, even those that state no impacts would occur.

Navy water system UFW were taken from the 2005 UTS. Measured UFW values were included in the current water demand. The measured values are generally greater than 15 percent. It is assumed that UFW for expansions to the DoD water system will lose at most 15 percent. The Marine Corps base will be the primary site requiring higher water demand as a result of the relocation. It is assumed that the water sources will be from DoD water supply. Therefore, the ongoing leak detection and repair being performed by GWA will not result in water supply that is available to the Marine Corps base, except in an emergency. Excess supply resulting from improvements to the DoD water systems is potentially useful to the Marine Corps base, but because improvements will be made over a significant timeframe, water would be transported over long distances, and even complete reduction in water loss from the Navy water system will not result in sufficient supply to meet the projected DoD demands (assuming UFC), installation of production wells is needed.

108) Up to 2,000 transients will be housed on the Marine Corps base for training activities. These are in addition to the up to 7,222 transients housed on board ship in Apra Harbor.

109, 110, 111) A more detailed analysis of alternatives eliminated from further consideration is provided below.

Option 4 – Sediment Dredging at the Navy Reservoir

The Navy Reservoir, located in the southern portion of Guam, is a primary source of potable water for the island and was created through impoundment of the Fena River valley by a dam. The Navy Reservoir Dam, constructed by the Navy and completed in 1951, is a zoned earth and rockfill embankment with a maximum height of 85 ft above original grade. The entire watershed impounded by the dam covers an area of 5.88 mi² of moderately to steeply sloped lands, and soil within the

A-014-076	123	General - Organization	A different approach to organization of aquatic resource impacts would be beneficial for our review. We recommend providing a comprehensive analysis of wetland and stream resources and impacts in a consolidated chapter in order to avoid delays in project evaluation.
A-014-077	124	Volume 6; Chapter 6	Pg. 6-12 states: "No wetland areas would be affected by operations because...segments of the water line would be buried in the areas where the line would cross wetland areas and there would be no change to existing hydrology..." To clarify, excavation and backfilling of utility lines constitutes a discharge of fill material, subject to DA regulatory jurisdiction. We recommend that this statement be revised accordingly.
	125	Volume 6; Chapter 6	6-13 states that "no wetland areas would be affected by operations as no delineated wetland areas are located near the proposed water treatment and storage sites." The FHWA does not disclose in this part of the document what exact information was reviewed to arrive at this conclusion. A similar statement was made in 6-14 for Basic Alternative 2. The FEIS should discuss the basis for this conclusion.
	126	Volume 6; Chapter 6	Field verification is stated to have been conducted for one area where wetlands were expected and the area was determined to be upland, however no wetland delineation data sheets are provided to support this determination. The FEIS should reference and include wetland data sheets for all such field verification activities. These data sheets should be submitted separately to USACE for our review and verification.
Volume 7: Potential Mitigation Measures, Preferred Alternative Impacts and Cumulative Impacts			
A-014-078	127	General - Purpose and Utility of Volume 7	While the stated purpose of Volume 7 is to "...present a broader perspective of proposed mitigation measures and potential cumulative impacts of the preferred alternatives", the Corps finds the mitigation measures and best management practices (BMPs) cited in this volume to be overly general and simplistic to offer meaningful information in the context of our Section 404 Clean Water Act decision making. Given the voluminous nature of the DEIS/OEIS and its disjointed organization, we recommend Volume 7 coalesce all the components of the preferred alternative(s)

watershed is predominantly clay of volcanic origin. The slopes and soil type both contribute to rapid runoff rates and significant erosion, particularly in areas where the native vegetation has been removed. Eroded soil is ultimately transported to the reservoir itself by the runoff, and contributes to ongoing reduction of reservoir capacity due to sedimentation.

Description

Relevant studies investigating the reservoir in depth include "Utility Technical Study of the Potable Water Systems, PWC Guam" (Engineering Concepts, Inc. 2005) and "Maintenance Dredging Study" (Engineering Management & Planning Services Corporation [EMPSCO] 2006). The information presented for this option is primarily based on these two studies.

The utility technical study evaluated the water supply system for Guam's naval installations as a whole, and included investigations of the condition and capacity of all potable water sources, and treatment and distribution systems for naval facilities. As such, it was not focused solely on the Navy Reservoir, and did not include a specific investigation of the reservoir itself. Instead, it relied on surveys conducted by others to evaluate conditions in the reservoir.

The maintenance dredging study was focused solely on the Navy Reservoir and included reviews of prior surveys of the reservoir, as well as a new bathymetric survey conducted in 2005 for the study. Specifically, the maintenance dredging study references the pre-construction survey conducted 1949, as well as other surveys conducted in 1973, 1979, and 1990. For the new survey conducted specifically for the maintenance dredging study, the survey area was limited to a 60-acre area near the dam.

A-014-078		unavoidable impacts and resultant compensatory mitigation commitments, both in summary format as well as in detail to inform decision makers of the scope and intensity of environmental impacts potentially resulting from implementation of the proposed actions under consideration. As it stands, the descriptions of direct, indirect and cumulative impacts and proposed mitigation measures, (including BMPs) are either unquantified or so broad in nature that they fail to adequately disclose key information in a comparative format. The known and reasonable foreseeable impacts resulting from the preferred alternative and all other connected actions contemplated in the DEIS should be identified and compared to the No Action alternative.
128	General – Compensatory Mitigation Plan	We are unable to render an opinion on the merits of the proposed compensatory mitigation for unavoidable impacts to jurisdictional waters of the U.S., including, but not limited to coral reefs, other tidally influenced navigable waters, wetlands, streams and inland water bodies. We recommend the FEIS/OEIS include detailed mitigation measures that have been developed to address site-specific conditions and resource-specific needs, both key factors in the Corps' Section 404 of the Clean Water Act analysis and decision-making. Volume 7 should be expanded to include greater specificity on BMPs and compensatory mitigation measures that include, but are not limited to, site locations and overall site feasibility, land ownership, area/size, general timing of mitigation implementation, type of mitigation (e.g., restoration, establishment, enhancement, preservation), responsible party(ies), long-term management goals, site protections (e.g., conservation easements), and estimated costs for implementation. Pursuant to the 404(b)(1) Guidelines, the Navy will need to demonstrate to the Corps that all practicable steps have been taken to avoid or minimize adverse effects to aquatic resources and that no significant degradation of the aquatic environment will occur as a result of the Guam and CNMI Military Relocation and Build-Up Project.
A-014-079	29 General – Disclosure of Indirect and Cumulative Effects and Data Gaps	Please ensure technical studies and analyses, such as hydraulic modeling and engineering design, are performed to adequately characterize and analyze the direct, indirect and cumulative effects to the aquatic environment as a result of the proposed actions and all connected actions. Regardless of the entity responsible for mitigation of unavoidable impacts, the impacts themselves must be described and disclosed in the FEIS/OEIS to the extent practicable. A good faith effort must be made to identify or estimate the reasonably foreseeable impacts, even if not entirely known. Moreover, if it is the case that there are data gaps in relevant information or scientific uncertainty, then it should be

The controlling hydraulic structures that establish the maximum water elevation and minimum usable water elevations in the reservoir are the spillway and outlet structures. The spillway, which establishes the maximum water elevation in the reservoir, is a curved 179-ft long flat-crested sill at an elevation of 111.35 ft above mean lower low water (MLLW). The outlet, which establishes the lowest elevation of usable storage, consists of an intake structure at an elevation of 66.02 ft MLLW (Engineering Concepts 2005).

At full stage (i.e., a water elevation in the reservoir of 111.35 ft MLLW), the reservoir covers an area of 197 acres (roughly 0.31 mi²) and impounds approximately 7,180 ac-ft of water, according to bathymetry collected in 1990. Approximately 6,400 ac-ft of the total impoundment is usable capacity (i.e., water stored above the outlet structure). However, both the total impoundment and usable capacity are constantly being reduced due to sedimentation within the reservoir, and the current storage capacities are not explicitly known.

Analysis of Available Bathymetric Data

In its summary of prior surveys, the maintenance dredging study notes that the anticipated total impoundment of the reservoir, based on the 1949 pre-construction survey, was 8,300 ac-ft. No estimate of the usable capacity of the reservoir was presented. The 1973 survey reported a total capacity of 7,500 ac-ft, with no estimate of the usable storage presented. The 1979 survey purportedly shows a total capacity of 7,860 ac-ft. No usable capacity estimate from the 1979 survey is identified, and the maintenance dredging study indicates that unrevised stage-capacity curves from the 1949 and 1973 surveys are presented in the report for the 1979 survey. The 1990 survey is reported to show a total capacity of about 7,180 ac-ft, of which 6,400 ac-ft is usable capacity. The storage capacity identified in the 1973 survey appears anomalous when compared to the 1979 and 1990 survey results. According to the

A-014-079		acknowledged and made clear that such information is lacking or that uncertainty exists.
A-014-080	30 Chapter 1 (Introduction); Page 1-16, Section 1.4.3.2	The Introduction chapter of Volume 7 discusses the fact that the roads which connect the military training area with Tinian's commercial harbor and airport to the south are used by the Navy during training exercises. With the proposed construction of four new firing ranges on Tinian and the anticipated increase in military personnel utilizing these areas, will the commercial harbor and/or airport require expansion or other modifications to accommodate the ingress/egress of additional military personnel and equipment? If so, these environmental impacts must be identified, quantified and evaluated in the FEIS/OEIS.
A-014-081	31 Volume 7; Chapter 3 (Summary of CWA Section 404 Actions – All Proposed Actions and Alternatives)	The one paragraph summary of CWA Section 404 actions presented in this chapter documents that on Tinian the preferred alternative may impact wetlands and additional studies are planned to verify [the] location of the wetlands. Please disclose what the additional studies will entail (e.g., goals and objectives, field methodology), when the studies will be performed and by whom, and how the results will be used in federal agency decision-making.
A-014-082	32 Volume 7; Chapter 1 (Introduction); Page 1-8; Section 1.3.3.1	The discussion pertaining to wildfires and their affect on the ecology of Guam's natural resources, including coral reefs, cites a 2004 reference entitled <i>Territory of Guam, Fire Assessment</i> , prepared by Neill and Rea of the U.S. Forest Service (dated January 2004). For context, the report's stated goal is to better quantify the fire issues on Guam and secondarily to use as a basis for the development of a Fire Management Plan for lands managed by the Navy. In our review of this report, we were unable to find evidence that supports the statement made in the text of this section of the DEIS/OEIS, which asserts "...[s]oil stabilization efforts by volunteers and forestry workers to plant trees have had little success in preserving natural habitats." We believe this inference to reforestation having little success in preserving natural habitats may be unsubstantiated, based on the data and findings contained in the 2004 USFS assessment. We suggest this statement be removed or revised to represent the findings presented in the subject assessment report.
A-014-083	33 Volume 7; Chapter 2 (Overview of BMPs and Mitigation); Table	This table summarizes BMPs for Guam and Tinian, which includes several measures to minimize impacts to terrestrial and marine natural resources. Item #15 in the table consults the Navy to delineate and enforce No-Training Areas (NTA) around wetlands with known Mariana common

maintenance dredging study, the 1973 survey used updated aerial photography and 500 depth soundings to determine bathymetry. Considering that this represents a sounding density on the order of 2.5 soundings per acre of water surface, the accuracy of this survey is questionable; consequently, this survey is excluded from further use in this analysis.

The 2005 survey did not cover the entire reservoir, and focuses only a 60-acre area immediately near the dam itself; as such, direct comparisons of this survey to the prior surveys to establish rates of sedimentation are not possible. Calculations comparing the 1949 and 2005 surveys indicate that approximately 800 ac-ft of sedimentation has occurred since 1949 within the 60-acre area of the 2005 survey. The estimated loss of total capacity in the reservoir between 1949 and 1990 is 1,120 ac-ft. If the rate of sedimentation is assumed to be linear, the total loss of reservoir capacity would be in excess of 1,300 ac-ft as of 2005.

Dredging Options

The maintenance dredging study presented two distinct options for restoration of storage volume through dredging. "Level 1" dredging would restore the Navy Reservoir bathymetry to that identified in the 1949 pre-construction survey, and would require approximately 1.29 million cubic yards (MCY), or 800 ac-ft, of dredging. "Level 2" dredging would remove sediments that have accumulated since 1949 above an elevation 1 ft below the elevation of the outlet structure (66 ft MLLW; thus, sediments accumulated above 65 ft MLLW would be removed). This option entails dredging 0.29 MCY (180 ac-ft) of sediment.

Costs

Generally, costs for a dredging project are divided into a mobilization/demobilization fee and the dredging cost. For the Navy Reservoir dredging project, the maintenance dredging study estimated a

A-014-083	2.1-1	moorhen ("moorhen") nesting activity. The Corps understands this is an existing BMP the Navy is responsible for and that the Navy will continue to implement. We also interpret this BMP to commit the Navy or other responsible entities to developing NTA's for wetlands currently not monitored for moorhen nesting activity, but that may require the establishment of a NTA. Therefore, table 2.1-1 should clarify that moorhen surveys will be necessary as part of BMP #15.
A-014-084	3.4	General – Redundancy Between BMPs and Compensatory Mitigation Measures In relation to the comment above, we note that Table 2.2-1 includes a mitigation commitment specific to performing Mariana common moorhen surveys to help delineate NTAs, which triggers the question as to the reason for redundancy between proposed BMPs in Table 2.1-1 and proposed compensatory mitigation measures in Table 2.2-1. The specific differences between Tables 2.1-1 (<i>Summary of BMPs</i>) and 2.2-1 (<i>Summary of Potential Mitigation Measures</i>) with respect to BMPs versus potential mitigation measures should be explained within an appropriate chapter of this volume. We generally view BMPs as a form of avoidance or minimization, but not a type of compensatory mitigation (restoration, enhancement, establishment, preservation). Measures, such as BMPs and design modifications, to avoid and minimize impacts to the aquatic ecosystem are expected to be undertaken by the project proponent/applicant as part of the proposed action and only after all practicable means to avoid and minimize impacts have been exhausted does one then look towards ways to offset unavoidable losses.
A-014-085	3.5	Volume 7; Chapter 2 (Overview of BMPs and Mitigation); Table 2.1-1 BMP item #14 in Tables 2.1-1, <i>Summary of Best Management Practices (Guam and Tinian)</i> labels the type of BMP as "U.S. Army Corps of Engineers (USACE)", which is confusing in terms of "type". Regardless, while the reliance on past BMPs recommended for Apra Harbor (Guam) activities requiring Department of the Army authorization may be a sound starting point for some activities related to the <i>Guam and CNMI Military Relocation and Build-Up Project</i> , it does not suffice nor substitute for the need to develop project-specific BMPs that are directly linked to the project-specific impacts and site conditions.
	3.6	Volume 7; Chapter 2; Page 2-21 ; Table 2.2-1 Table 2.2-1 <i>Summary of Potential Mitigation Measures (Guam and Tinian)</i> contains a summary of proposed mitigation measures for a number of environmental resources potentially affected by the proposed action. We note that mitigation measure WR-4, which is within DoD control, indicates dredging is regulated under Section 10 of the Rivers and Harbors Act of 1899. It should also be

unit dredging cost of \$24/cubic yard (CY), and a handling and disposal cost of \$6/CY, for a total dredging unit cost of \$30/CY. As this price is reflective primarily of labor, fuel and equipment costs for workers and material actually onsite during the actual dredging work only, the location of the work in Guam is not likely to materially alter the unit price of the dredging work itself. Dredging costs are therefore estimated at \$38,580,000 for Level 1 dredging, and \$8,733,600 for Level 2 dredging.

The mobilization/demobilization cost, however, will reflect the difficulties of working in a relatively remote location in the form of a higher base cost. The maintenance dredging study estimated the mobilization and demobilization cost as \$500,000. In light of the potential difficulties likely to be encountered in contracting for a dredge, which may increase the distance across which a dredge must be mobilized by at least a factor of 2 (as the study assumed a dredge mobilized from within 2,000 miles), this estimate is similarly scaled by a factor of 2, to a total of \$1,000,000, for the life-cycle costs. Furthermore, while a mobilization for Level 1 dredging would likely entail the movement of a larger dredge to Guam than Level 2 (based on the significant difference in targeted dredge volume), it is assumed that mobilization and demobilization costs would essentially be equal, as the bulk of the cost is expected to be associated with the large distance across the equipment is being mobilized, and in the disassembly and reconstruction of the plant in Guam for overland transportation. Consequently, Level 2 dredging would be negatively impacted by elevated mobilization costs.

Based on the costing rationale described above, and assuming the remaining "incidental" items estimated in the maintenance dredging study have not changed appreciably since 2005, the total the Level 1 dredging project would remove approximately 1.29 MCY of material from Navy Reservoir at a cost of \$40,580,000, while the Level 2 project would remove approximately 0.29 MCY at a cost of \$10,733,600. Assuming a constant rate of sedimentation of 27.3 ac-ft per year (44,100 cy/year)

A-014-085		clarified that dredging can be regulated under Section 404 of the Clean Water Act if the method of dredging results in the discharge of dredged or fill material.
A-014-086	37 Volume 7; Chapter 2; Page 2-21; Table 2.2-1	Mitigation measure WR-4 states that dredging would occur "...[w]ithin seasonal windows to avoid impacts to coral." The Corps requests this component of mitigation measure WR-4 be expanded to clarify that the seasonal limits (i.e., environmental windows that include the start and end dates that would be imposed on the contractor) are intended to avoid or minimize dredging impacts during critical coral spawning and reproduction periods, but that adherence to seasonal dredging in Apra Harbor is not expected to actually avoid the direct, physical impact on coral reefs (i.e., the permanent loss of the resource).
A-014-087	38 Volume 7; Chapter 2; Section 2.2 (Potential Mitigation on Guam and Tinian)	Section 2.2 discusses the constraints imposed by statute for the Navy to implement mitigation on non-DoD lands. While many of the elements of the preferred alternative(s) involve projects on non-DoD lands and will be implemented by other responsible entities, it does not obviate the requirement to fully disclose all unavoidable adverse environmental impacts and the identification of appropriate mitigation, whether that mitigation is to be implemented by the lead agency or another responsible entity.
A-014-088	39 Volume 7; Chapter 2; Page 2-32	According to page 2-32, Navy policy requires "...readable, understandable and consistent mitigation measures addressed in decision documents (Navy 2007). As part of this policy, the Navy is required to provide clearly written and defined mitigation procedures that succinctly specify: (1) what mitigation procedures are to be implemented, (2) how the mitigation procedures should be implemented, (3) when the mitigation measures should be implemented, and (4) who (action proponent, or designee) would be responsible for completing the mitigation measures." We were unable to find discussions within Volume 7 or elsewhere that fulfill this mitigation policy and remain concerned the current Navy schedule for completion of the FEIS/OEIS will not enable necessary data collection and analysis to develop appropriate mitigation plans in accordance with the federal requirements set forth in 33 C.F.R. 332.
A-014-089	40 Volume 7; Chapter 2; Section 2.3	Section 2.3 provides a historical perspective of the origins of "adaptive management" and how this concept is applied to compensatory mitigation in current time. The discussion also includes a

based on the comparison of the 1990 and 1949 surveys, the life cycles of the Level 1 and 2 projects are approximately 29 and 6.5 years, respectively.

The increased water supply from implementation of Option 4 would serve DoD demands in south Guam. Provided water is supplied from the Northern Aquifer near the Finegayan Base Complex, water supply from implementation of this option would not support the USMC relocation, but would provide additional supply in the south that could be transported to north Guam if necessary.

Viability

Potential benefits of the proposed dredging alternatives are several. First, the proposed work is relatively simple in its execution, and does not present a great demand for skilled labor trades that may be difficult to procure from the limited labor pool on Guam. Secondly, the dredging alternatives do not result in the creation of new capital structures which must be operated and maintained on an indefinite basis. The dredging alternatives also maintain the existing hydrology of the reservoir system, and do not require inundation of additional land. Finally, these alternatives do not require changes to the existing water distribution network, in that the existing discharge and bypass points are maintained in place.

Potential obstacles and drawbacks exist, as well. In particular, the potential difficulties in mobilizing a dredge to project site due to its remote location and the large mobilization distances to dredges will cause uncertainty in actual project costs. In addition, there are significant logistics difficulties in managing dredged material on Guam, as noted in the maintenance dredging study (EMPSCO 2006). While that study assumed equal dredged material management unit costs for both dredging alternatives, the lack of sufficient land area may complicate

A-014-089		definition of adaptive management as defined by DOI. We recommend that the FEIS include the joint Corps-EPA definition of "adaptive management" as promulgated at 33 CFR 332.2 (Definitions).
A-014-090	41 Volume 7; Chapter 2; Section 2.3.2 (Adaptive Management)	Text in section 2.3.2 states that "...[A]fter examination of the applicability of adaptive management concepts, the Navy determined it would focus adaptive management techniques on the resource areas of power, potable water, wastewater, and air quality." Irrespective of construction "tempo", the Corps recommends the Navy consider the application of adaptive management for all significant impacts to waters of the U.S., including but not limited to, marine resources (e.g., coral reef ecosystems). Under federal regulation (33 CFR, 332, the 2008 <i>Final Mitigation Rule</i>) the applicant is required to include adaptive management as an integral part of the overall compensatory mitigation plan that must be approved by the Corps prior to DA permit issuance.
A-014-091	42 Volume 7; Chapter 3; Section 3.3.3.1 (Water Resources—Summary of Preferred Alternative Impacts)	Please be advised that the Corps does not regulate groundwater. Page 3-6 projects that under future with-project conditions groundwater production could increase such that secondary effects to cave and pool water levels could result and therefore, could require review and/or permitting by the U.S. Army Corps of Engineers (USACE). The Corps regulates the discharge of dredged or fill material in waters of the United States and any work that occurs in, over, under or affecting navigable waters.
A-014-092	43 Volume 7; Chapter 3; Section 3.3.1 Methodology	The text on page 3-2 indicates: "...[A] second assumption is the mitigation for construction impacts would be completed before the operational period commences." While the physical completion of compensatory mitigation projects may in fact be accomplished prior to the operational phase, the EIS should demonstrate that mitigation objectives will be met, or that full compensation for the lost ecological functions will have been achieved or realized given the ecological complexity of the aquatic ecosystems existing on Guam and CNMI. Please explain the likelihood for compensatory mitigation to reach a state of "completion" prior to the commencement of the project's operational period. Such projects may require many years, if not decades, to realize the full mitigation benefits (functional gains) associated with wetlands and coral reefs.
A-014-093	44 Volume 7; Chapter 3 (Preferred Alternative);	Table 3.3-4 on page 3-7 reports no construction impacts to wetlands ("NI = no impact") would occur as a result of new and/or improved roadways, although this conclusion conflicts with

implementation of the Level 1 alternative. Dredging in the 60-acre area near the dam also does not address upland causes of decreasing reservoir capacity. Without implementation of a comprehensive watershed management plan, the rate of sedimentation will continue unabated, and may increase as climatic conditions and land development increase runoff, and therefore erosion.

Although Option 4 is a viable alternative, it cannot be sustained as a stand-alone alternative for USMC relocation. Water supplied by this option would require transportation to the north to supply the primary USMC relocation water demands, but would provide additional supply for the DoD facilities in southern Guam. It is recommended that this alternative be retained as a means of increasing the DoD water supply.

Option 5 - Expand Naval Reservoir Storage Capacity by Raising Dam Crest

Description

Option 5 involves raising the dam crest of the Navy Reservoir to increase capacity. Structural requirements for dam improvements will need to be assessed, designed and implemented building on the Surface Water Development Study (Barrett, 1994) and subsequent investigations by the Navy.

Additional Yield

Based on a review of topographic maps depicting the immediate vicinity of the Navy Reservoir, the topography is such that raising the elevation of the dam crest by 20 ft would not significantly change the surface area of the reservoir, which is currently 197 acres at full stage. Consequently, for the purpose of this analysis, it is assumed that a 20-ft increase in the dam crest would yield a 3,940 ac-ft, or 55 percent, increase in total

A-014-093	Table 3.3-4	information presented in Volumes 3, 4 and 6. These inconsistencies should be reconciled in the FEIS/OEIS.
A-014-094	45 Volume 7: Chapter 3: Section 3.3.10	The impact and mitigation discussion in section 3.3.10 suggests that construction and operational impacts to marine resources are determined to be less than significant based on the implementation of BMPs. However, the BMPs and mitigation measures proposed for in-water and land-based construction that are listed in Chapter 2 of Volume 7—and elsewhere throughout the DEIS/OEIS—do not substantiate this determination. Therefore, the Corps recommends the BMPs and compensatory mitigation measures be expanded with greater specificity to address the projected short- and long-term impacts of each aquatic resource type that in turn will enable the development of site and resource-specific mitigation measures for replacement of lost functions and services.
	46 General – Minimizing Temporal Losses	In light of the proposed construction schedule for a number of the related terrestrially-based projects, such as roadways, landfills, sewage treatment plants, wharf improvements, and housing, it is difficult to discern the extent and type of mitigation necessary to address temporal losses. There is potential that a number of possible construction scenarios could occur wherein the activity (e.g., dredging or grubbing and clearing) could occur in waters of the U.S. well in advance of mitigation implementation and/or full mitigation success. Therefore, it may be prudent for the Navy and other responsible entities to implement compensatory mitigation in advance of the impacts occurring, which may then reduce the temporal losses and the need for additional mitigation.
A-014-095	47 General – Justification for Out-of-Kind and Off-site Mitigation	The FEIS/OEIS should document an explicit and transparent link between project impacts and proposed mitigation [33 CFR 320.4(r)]. Under the 2008 <i>Final Mitigation Rule</i> , a hierarchy was established that gives preference first to mitigation banks, followed by in-lieu fee programs, and lastly third party or permittee-responsible mitigation. The new mitigation regulations also give greater flexibility to permittee-responsible mitigation with respect to on-site and off-site mitigation; the same holds true for in-kind versus out-of-kind mitigation. In general, if mitigation banks and in-lieu fee programs have been determined impracticable, then implementation of permittee-responsible compensatory mitigation should occur on-site unless it is demonstrated there is no practicable opportunity for on-site mitigation or if off-site mitigation provides greater ecological benefits. Compensatory mitigation should also occur within the same watershed of impact.

reservoir capacity. The assumption that increases in surface area with rising elevation are negligible is a conservative assumption from the standpoints of estimating both safe yield (as the total impounded volume is somewhat underestimated) and capital cost per unit of water delivered (as the cost is assessed against a lower capacity, and is thus an overestimate).

The entire increase in volume would be usable storage, and would represent roughly a 62 percent increase in usable storage over the last known usable storage volume estimate of 6,400 ac-ft (based on the stage-capacity curves determined from the 1990 survey). Assuming that the watershed generates sufficient runoff to ensure reliability of this supply, the safe yield of the reservoir would therefore increase from 11.4 to 15.4 MGD (Barrett 1994), an increase of 4.0 MGD, or 35 percent. This option requires further study to determine whether the safe yield is sustainable in dryer weather.

Conceptual Design for Capturing Water

Preliminary designs for raising the dam called for a rather conventional technique involving placement of additional fill on both the upstream and downstream faces of the dam, thereby raising the crest. A significant drawback of this conventional approach, however, is the volume of fill material required. Further investigation of the existing dam's stability found that impounding additional water using a reinforced soil system cap along the existing dam crest would be feasible (Barrett 1994).

The reinforced soil system consists of modular concrete facing panels retaining a compacted earth fill reinforced with metal strips or geogrids. Effectively, this alternative builds an extension of the dam crest in the form of a wall. The proposed construction is similar to that often used to create retained fills or reinforced embankments on highway and land development projects, and is often generically referred to as "reinforced

A-014-095		whenever possible. If compensatory mitigation is recommended to occur outside the watershed of impact and/or out-of-kind, a sound ecological rationale must be presented as to why it is the most practicable and environmentally preferred choice.
A-014-096	148 Volume 7, Chapter 4: Cumulative Impacts	The Cumulative Impacts analysis will need to be expanded for Corps purposes. The discussion is limited to less than a page each for Guam and Tinian for the entire build-up. Cumulative Impacts evaluations involve more than just listing the various projects and their associated impacts. Please provide a discussion/assessment on cumulative impacts. Please note that during the Corps regulatory review, our agency will require that the analysis also include cumulative impacts for even those projects that fall under a CATX, have geographically and localized impacts, or are considered "de minimis", if there are impacts to waters of the U.S. Specific impacts will need to be disclosed and then a cumulative impacts assessment and summary provided. For instance, most Corps Regulatory assessments include a discussion of the historical presence of rivers, streams, wetlands, and other aquatic resources, and how they have been impacted over the past 50-100 years. This is usually expanded to include a discussion of various types of land uses and development.
Volume 8: Compliance with Other Environmental Laws and Regulations		
A-014-097	149 General -- Compliance with other Environmental Laws	Prior to the issuance of our ROD and 404/10 permit decisions, we will require written evidence that the Navy has documented a project-level conformity determination in accordance with the provisions of the Clean Air Act, complied with Section 7 of the ESA (e.g., final Biological Opinion) and that Section 106 of the NHPA has been satisfactorily achieved (e.g., letter of concurrence regarding determination of effects, executed Programmatic Agreement or MOA). Similarly, prior to a DA permit decision, we will need evidence from the Navy that the Project has obtained Section 401 of the CWA certification (or waiver/exemption thereof) and Section 307(c) of the Coastal Zone Management Act (federal consistency (or exemption)). Please note that Federal regulation prohibits the Corps from issuing a Section 404/10 permit without evidence from the lead federal action agency that compliance with ESA, NHPA, Section 401 of the CWA and CZMA has been achieved.

earth.” Although this alternative requires the construction of a significant quantity of new structural elements, the volume of fill required is substantially reduced, resulting in significant reductions in cost and length of construction. The actual feasibility of this alternative, however, is dependent upon additional geotechnical and structural analyses of the dam.

Costs

Construction Cost

Based on the estimate provided in Barrett (1994), the present worth construction cost for the reinforced earth alternative is estimated at \$4,300,000, not including costs for expansion and improvement of the existing water treatment facility and distribution system. Also not included in this estimate are any operation and maintenance costs that would be associated with this alternative. While operations costs, as such, could be minimal, maintenance costs will be determined by the extent of the maintenance program, which has yet to be developed. In particular, they will be driven by the labor and material costs to perform routine inspections, as well as “typical” non-capital type repairs. These ongoing costs have not yet been established. Further analysis is necessary to validate the assessment and costing provided in Barrett (1994).

The increased water supply from implementation of Option 5 would serve DoD demands in south Guam, provided water is supplied from the Northern Aquifer near the Finegayan Base Complex.

Viability

The primary benefit of this alternative is that it provides a significant increase in usable storage capacity at a relatively low cost, especially as

compared to other in-reservoir options (i.e., dredging). Provided that the existing watershed generates sufficient runoff to reliably supply an expanded Navy Reservoir (an assumption which must be confirmed by a detailed hydrologic analysis), this option provides increased storage and daily use capacity without altering other waterways in ways that may affect downstream ecosystems. This option can also be implemented entirely on lands currently owned by the military, and would therefore not require acquisition of privately-owned lands or displacement of existing residential or commercial land uses.

There are potential drawbacks to the expanded reservoir option, as well. As noted in Barrett (1994), fringe wetlands around the perimeter of the reservoir would be inundated as a result of raising the dam crest, and would be considered as a "fill" by the US Army Corps of Engineers. As a result of the inundation of fringe wetlands, this option would also disturb nesting areas for the moorhen, an endangered species. The swiftlet, fruit bat, giant fern, and starling are other endangered species known or suspected to exist within the project area (Barrett 1994), though it is not clear how or if implementation of this option would affect these species. Further review and analysis is necessary to determine the implementability of this option, e.g., whether this option is reasonable and safe; whether the reservoir can be used while construction is ongoing; and what modifications to the spillway might be necessary. This alternative has the advantages of improving the DoD water supply by increasing its storage capacity in the Navy Reservoir. However, the disadvantages and uncertainties are significant and include:

Technical complexity of design and implementation; Potential adverse environmental impacts; Uncertainties with respect to relative advantages compared to other viable alternatives; Studies (hydraulic, geotechnical, seismic) required; Potential difficulties during construction limiting use of the reservoir; and

Overall cost may be greater than estimated.

The viability of this option is less certain than Options 1 and 2. Therefore, it is recommended that this alternative be eliminated from further evaluation.

Option 6 - Potable Water Reclamation through Effluent Reuse

Description

Wastewater collected from the Finegayan base complex is subject to tertiary treatment as described in the pre-Final Draft Wastewater Utility Study (Earth Tech 2007). The treated, potable water is returned to the main water supply for reuse. An estimated average daily flow of 8.8 MGD treated wastewater from the DoD will be available for potable water use.

While much research has been conducted in the direct potable reuse of reclaimed water, this is not a current practice within the US. However, indirect potable reuse through groundwater reinjection is developed through wastewater treatment plant (WWTP) effluent being combined with well water prior to injection. The perception of effluent reuse is an issue to be dealt with since such an option is likely to be met with significant public opposition. This indirect potable reuse alternative has a psychological advantage in that the injection of the treated effluent into groundwater reduces the perception of reclaimed water (treated effluent) used as potable water.

This alternative includes construction of a new tertiary treatment plant, providing primary treatment, secondary biological treatment, and advanced tertiary treatment, near the proposed development on DoD land. It will treat the DoD wastewater from existing sources and proposed future expansions in Northern Guam region including USMC relocation to drinking water standards.

This treatment application is categorized as direct potable reuse of

reclaimed water, and normal treatment practice consists of primary settlement, submersible membrane bioreactor, disinfection, reverse osmosis (RO), and advanced oxidation.

While this discharge eliminates the option of building an outfall, discharging treated wastewater directly to a potable water treatment plant does not have a proven track record. Only few direct potable reuse applications have been reported worldwide (Metcalf & Eddy, 2007). Even without factoring in its extremely high capital investment cost and sophisticated process operation, it might be difficult to gain regulatory acceptance of this approach, and it is not likely that community acceptance of this approach can be achieved. Currently there are no direct potable reuse applications in the United States. All reclaimed water that is treated by wastewater treatment plants has been used as potable water in an indirect way which includes a temporal or spatial separation such as natural buffers, either a stretch of river or a ground water aquifer, between the reclaimed water introduction and its distribution to the potable water treatment plant.

In addition, brine generated from RO operation will need to be managed. Typical brine disposal routes include evaporation, crystallization, deep underground injection, ocean or sewer discharge. From an economic standpoint, only the last two may be feasible, and will require permission from either the EPA or the GWA. Since there are no regulations on the reclaimed water potable reuse application, the process of establishing treatment requirements and performance monitoring standards for this option will also add time and cost to the project.

A new interceptor system would be constructed to convey wastewater flow from AAFB. A new effluent discharge pipe would be constructed to convey the effluent to the proposed or existing water treatment facility.

The plant biosolids treatment and disposal would be managed by the

DoD and comply with EPA's 40 CFR Part 503 regulations.

Construction of the plant on a site that is located in forested or preservation areas that are populated by native species of animals and vegetation may require mitigation activities to satisfy the GDAWR. The water supply provided by implementation of Option 6 would support the USMC relocation.

Viability

Studies have shown treated wastewater can consistently meet potable water standards, but as listed in EPA (2004), this practice is unlikely to be adopted in the U.S. because:

Opinion surveys show the public will accept many types of nonpotable reuse but are reluctant to accept potable reuse.

Indirect potable reuse is more acceptable to the public than direct potable reuse.

Direct potable reuse is not often necessary.

Other disadvantages include:

Construction of a WWTP is required.

Conveying the effluent to new or existing water treatment plant

GDAWR mitigation requirements

Longer planning effort and longer construction schedule

This alternative remains viable; however, using treated effluent as potable water has certain negative connotations. It might be more acceptable if potable water supplies were less readily available. This

alternative is tied directly to decisions made in the wastewater study and has been rejected as a viable alternative.

In discussions with GEPA, no opposition to this alternative was expressed. However, concern was raised about public perception on effluent reuse for potable water needs and it was noted that it was unlikely that such an option would be acceptable to the public given other viable options for water supplies.

Although this is a viable alternative, it cannot be sustained as a stand-alone alternative. The availability of other viable options doesn't justify consideration of this alternative given the potential hurdles in implementation and the likely negative public response. Therefore, it is recommended that this alternative be eliminated from further evaluation.

Option 7 - Non-Potable Water Reclamation through Effluent Reuse

Description

Non-potable water reclaimed from effluent reuse can be used to recharge the aquifer. This section addresses use of the reclaimed water to supplement the water supply. Wastewater collected from the MCB is subject to tertiary treatment as described in the Wastewater Utility Study (Earth Tech 2007). Based on the Pre-Final Draft Wastewater Utility Study, an estimated average daily flow of 8.8 MGD of treated wastewater will be available for non-potable water use during peak conditions.

Use of water reclamation for industrial uses is not considered in this section because industrial water demand consists of only 6 percent of the total water and does not justify the added complication of a dual water system.

This alternative includes construction of a new tertiary treatment plant near the proposed development on DoD land. It will treat the DoD wastewater from existing sources and future proposed military buildup in

the Northern Guam region, including USMC relocation. Treated effluent would be injected into underground aquifer for groundwater recharge or to limit salt water intrusion. The DoD would be responsible for treatment, groundwater monitoring, and biosolids disposal. A separate sewer interceptor and a transmission line would be constructed to convey reclaimed water to the injection wells. The cost of the transmission line and its operation will depend on topographical condition of piping route and locations of the injection wells that are determined by underground geological structure and required set back distance between injection wells and withdraw wells.

Construction of the plant on a site that is located in forested or preservation areas that are populated by native species of animals and vegetation and may require mitigation activities to satisfy the GDAWR. The water supply provided by implementation of Option 7 would support the USMC relocation.

Injection of Treated Wastewater Effluent

Wastewater production resulting from transfer of DoD assets to Guam is estimated at 8.8 MGD average daily flow. Groundwater injection is one potential means of disposal of wastewater effluent. Two possible injection scenarios were considered. The first is disposal by injection of treated effluent in wells approximately 1,500 to 2,000 ft inland at a location near the proposed WWTP. In this option, treated effluent is disposed in the ocean by leakage from freshwater lens underlying northern Guam, but the placement of the discharge could result in a barrier to saltwater intrusion. In the second option, the highly treated wastewater effluent is used to recharge the freshwater lens at a location that would support the proposed new production wells at AAFB.

Under the disposal option, four injection wells would be located east of Tanguisson Point in a line approximately parallel with the coast with a separation distance between wells of approximately 1,000 ft. Each well

would be capable of an injection rate of approximately 1,600 gpm yielding a maximum combined injection rate of 6,400 gpm. Under non-peak loads, two to three wells would be operated allowing distribution of effluent injection across a 4,000-ft front while enabling at least one well to be removed from service for maintenance and upkeep.

The aquifer recharge option would also include four 1,600-gpm wells with a 1,000-ft spacing. This option would allow one or more wells to be down for maintenance and upkeep during non-peak operations. The recharge option has the wells located in a 4,000-ft line parallel and to the north of Marine Drive on the southern boundary of AAFB. The injection wells are arrayed in a line conforming to a ridge in the volcanic basement below the water bearing limestone. The ridge was chosen because proposed production wells for DoD expansion on Guam are located on either side of the volcanic basement ridge allowing the injected effluent to directly recharge the portions of the aquifer that will be heavily pumped to supply water for new military and support personnel arriving on Guam.

The disposal option utilizes the freshwater lens as the receiving water for the treated wastewater effluent. Injection of the wastewater would elevate the water table surface in the disposal zone. This could have a positive effect on the potable production wells in the Finegayan sub-basin directly upgradient from the injection area. If the doming effect of the injection zone extended inland sufficiently, this could result in slightly higher capacities from the potable production wells in the affected area. However, preliminary calculations tend to indicate no increase as a result of effluent injection.

Two major issues are associated with the aquifer recharge option. The first issue is transferring the treated effluent across the island to the injection point, a distance of 6 to 8 miles (depending on route) and an increase of elevation of 300 ft. The second issue is acceptance of highly

treated wastewater effluent as recharge for potable production wells. This issue has two components: public perception, and technical requirements. The public may perceive that treated wastewater is used as drinking water and therefore reject the concept of aquifer recharge with treated effluent. The technical difficulty is that at the selected injection point, the recommended 9 to 12 month effluent detention time in the aquifer prior to removal could not be met.

The injection wells are assumed to be 12-inch diameter, which readily accommodate an 8-inch conductor pipe and couplings. At present, there are no Federal regulations that specifically address indirect or direct potable reuse of reclaimed water. The EPA developed Guidelines for Water Reuse in 2004 and suggested the quality standard for treated municipal wastewater injection into underground potable aquifer as listed in Table 1

California, Florida, and a few other states are in the forefront of developing discrete criteria relating to planned indirect potable reuse of reclaimed water. California has prepared draft criteria for groundwater recharge (the most recent being in 2004), and are shown in Table 2. With concerns on reliability of some unregulated trace constituents removal, and consideration of source water that meets all drinking water standards, it does not necessarily indicate that the water is safe. The California draft groundwater recharge regulations reflect the mitigation necessary to address these concerns. In present practice reclaimed injection into underground pota

A-014-067

Thank you for your comment. A more detailed analysis of the water reuse alternatives that are eliminated from further consideration is provided below. These options are not discussed in DEIS because they are not viable alternatives. Option 6 - Potable Water Reclamation through Effluent Reuse Description Wastewater collected from the Finegayan base complex is subject to tertiary treatment The treated,

potable water is returned to the main water supply for reuse. An estimated average daily flow of 8.8 MGD treated wastewater from the DoD will be available for potable water use. While much research has been conducted in the direct potable reuse of reclaimed water, this is not a current practice within the US. However, indirect potable reuse through groundwater reinjection is developed through wastewater treatment plant (WWTP) effluent being combined with well water prior to injection. The perception of effluent reuse is an issue to be dealt with since such an option is likely to be met with significant public opposition. This indirect potable reuse alternative has a psychological advantage in that the injection of the treated effluent into groundwater reduces the perception of reclaimed water (treated effluent) used as potable water. This alternative includes construction of a new tertiary treatment plant, providing primary treatment, secondary biological treatment, and advanced tertiary treatment, near the proposed development on DoD land. It will treat the DoD wastewater from existing sources and proposed future expansions in Northern Guam region including USMC relocation to drinking water standards. This treatment application is categorized as direct potable reuse of reclaimed water, and normal treatment practice consists of primary settlement, submersible membrane bioreactor, disinfection, reverse osmosis (RO), and advanced oxidation. While this discharge eliminates the option of building an outfall, discharging treated wastewater directly to a potable water treatment plant does not have a proven track record. Only few direct potable reuse applications have been reported worldwide (Metcalf & Eddy, 2007). Even without factoring in its extremely high capital investment cost and sophisticated process operation, it might be difficult to gain regulatory acceptance of this approach, and it is not likely that community acceptance of this approach can be achieved. Currently there are no direct potable reuse applications in the United States. All reclaimed water that is treated by wastewater treatment plants has been used as potable water in an indirect way which includes a temporal or spatial separation such as natural buffers, either a stretch of river or a ground

water aquifer, between the reclaimed water introduction and its distribution to the potable water treatment plant. In addition, brine generated from RO operation will need to be managed. Typical brine disposal routes include evaporation, crystallization, deep underground injection, ocean or sewer discharge. From an economic standpoint, only the last two may be feasible, and will require permission from either the EPA or the GWA. Since there are no regulations on the reclaimed water potable reuse application, the process of establishing treatment requirements and performance monitoring standards for this option will also add time and cost to the project. A new interceptor system would be constructed to convey wastewater flow from AAFB. A new effluent discharge pipe would be constructed to convey the effluent to the proposed or existing water treatment facility. The plant biosolids treatment and disposal would be managed by the DoD and comply with EPA's 40 CFR Part 503 regulations. Construction of the plant on a site that is located in forested or preservation areas that are populated by native species of animals and vegetation may require mitigation activities to satisfy the GDAWR. The water supply provided by implementation of Option 6 would support the USMC relocation. Viability Studies have shown treated wastewater can consistently meet potable water standards, but as listed in EPA (2004), this practice is unlikely to be adopted in the U.S. because: Opinion surveys show the public will accept many types of nonpotable reuse but are reluctant to accept potable reuse. Indirect potable reuse is more acceptable to the public than direct potable reuse. Direct potable reuse is not often necessary. Other disadvantages include: Construction of a WWTP is required. Conveying the effluent to new or existing water treatment plant. GDAWR mitigation requirements. Longer planning effort and longer construction schedule. This alternative remains viable; however, using treated effluent as potable water has certain negative connotations. It might be more acceptable if potable water supplies were less readily available. This alternative is tied directly to decisions made in the wastewater study and has been rejected as a viable alternative. In

discussions with GEPA, no opposition to this alternative was expressed. However, concern was raised about public perception on effluent reuse for potable water needs and it was noted that it was unlikely that such an option would be acceptable to the public given other viable options for water supplies. Although this is a viable alternative, it cannot be sustained as a stand-alone alternative. The availability of other viable options doesn't justify consideration of this alternative given the potential hurdles in implementation and the likely negative public response. Therefore, it is recommended that this alternative be eliminated from further evaluation.

Option 7 - Non-Potable Water Reclamation through Effluent Reuse Description Non-potable water reclaimed from effluent reuse can be used to recharge the aquifer. This section addresses use of the reclaimed water to supplement the water supply. Wastewater collected from the MCB is subject to tertiary treatment as described in the Wastewater Utility Study (Earth Tech 2007). Based on the Pre-Final Draft Wastewater Utility Study, an estimated average daily flow of 8.8 MGD of treated wastewater will be available for non-potable water use during peak conditions. Use of water reclamation for industrial uses is not considered in this section because industrial water demand consists of only 6 percent of the total water and does not justify the added complication of a dual water system. This alternative includes construction of a new tertiary treatment plant near the proposed development on DoD land. It will treat the DoD wastewater from existing sources and future proposed military buildup in the Northern Guam region, including USMC relocation. Treated effluent would be injected into underground aquifer for groundwater recharge or to limit salt water intrusion. The DoD would be responsible for treatment, groundwater monitoring, and biosolids disposal. A separate sewer interceptor and a transmission line would be constructed to convey reclaimed water to the injection wells. The cost of the transmission line and its operation will depend on topographical condition of piping route and locations of the injection wells that are determined by underground geological structure and required set back distance between injection wells and withdraw

wells. Construction of the plant on a site that is located in forested or preservation areas that are populated by native species of animals and vegetation and may require mitigation activities to satisfy the GDAWR. The water supply provided by implementation of Option 7 would support the USMC relocation. Injection of Treated Wastewater Effluent Wastewater production resulting from transfer of DoD assets to Guam is estimated at 8.8 MGD average daily flow. Groundwater injection is one potential means of disposal of wastewater effluent. Two possible injection scenarios were considered. The first is disposal by injection of treated effluent in wells approximately 1,500 to 2,000 ft inland at a location near the proposed WWTP. In this option, treated effluent is disposed in the ocean by leakage from freshwater lens underlying northern Guam, but the placement of the discharge could result in a barrier to saltwater intrusion. In the second option, the highly treated wastewater effluent is used to recharge the freshwater lens at a location that would support the proposed new production wells at AAFB. Under the disposal option, four injection wells would be located east of Tanguisson Point in a line approximately parallel with the coast with a separation distance between wells of approximately 1,000 ft. Each well would be capable of an injection rate of approximately 1,600 gpm yielding a maximum combined injection rate of 6,400 gpm. Under non-peak loads, two to three wells would be operated allowing distribution of effluent injection across a 4,000-ft front while enabling at least one well to be removed from service for maintenance and upkeep. The aquifer recharge option would also include four 1,600-gpm wells with a 1,000-ft spacing. This option would allow one or more wells to be down for maintenance and upkeep during non-peak operations. The recharge option has the wells located in a 4,000-ft line parallel and to the north of Marine Drive on the southern boundary of AAFB. The injection wells are arrayed in a line conforming to a ridge in the volcanic basement below the water bearing limestone. The ridge was chosen because proposed production wells for DoD expansion on Guam are located on either side of the volcanic basement ridge allowing the injected effluent to directly

recharge the portions of the aquifer that will be heavily pumped to supply water for new military and support personnel arriving on Guam. The disposal option utilizes the freshwater lens as the receiving water for the treated wastewater effluent. Injection of the wastewater would elevate the water table surface in the disposal zone. This could have a positive effect on the potable production wells in the Finegayan sub-basin directly upgradient from the injection area. If the doming effect of the injection zone extended inland sufficiently, this could result in slightly higher capacities from the potable production wells in the affected area. However, preliminary calculations tend to indicate no increase as a result of effluent injection. Two major issues are associated with the aquifer recharge option. The first issue is transferring the treated effluent across the island to the injection point, a distance of 6 to 8 miles (depending on route) and an increase of elevation of 300 ft. The second issue is acceptance of highly treated wastewater effluent as recharge for potable production wells. This issue has two components: public perception, and technical requirements. The public may perceive that treated wastewater is used as drinking water and therefore reject the concept of aquifer recharge with treated effluent. The technical difficulty is that at the selected injection point, the recommended 9 to 12 month effluent detention time in the aquifer prior to removal could not be met. The injection wells are assumed to be 12-inch diameter, which readily accommodate an 8-inch conductor pipe and couplings. At present, there are no Federal regulations that specifically address indirect or direct potable reuse of reclaimed water. California, Florida, and a few other states are in the forefront of developing discrete criteria relating to planned indirect potable reuse of reclaimed water. California has prepared draft criteria for groundwater recharge (the most recent being in 2004), and are shown in Table 1. With concerns on reliability of some unregulated trace constituents removal, and consideration of source water that meets all drinking water standards, it does not necessarily indicate that the water is safe. The California draft groundwater recharge regulations reflect the mitigation necessary to address these concerns.

In present practice reclaimed injection into underground potable aquifer normally has multiple barrier protection system (such as RO and advanced oxidation process) for advanced treatment to avoid unknown potential health risks. Table 1: California Draft Groundwater Injection Regulations

Parameter	Requirement
Turbidity	0.2 NTU
Total nitrogen	2.2
total coliform/100 mL	Total Organic Carbon
	0.5 mg/L

Set back distance 2,000 ft Retention time underground 12 month Drinking water standards. Meet all drinking water maximum contaminant levels (except nitrogen and new federal and state regulations as they are adopted) Source: Draft Groundwater Recharge Regulations, California Department of Health Services. The northern part of Guam is set on a karst limestone high plateau, where highly porous and channelized limestone subsurface media with a high hydraulic conductivity exist. From ground surface to groundwater surface is approximately 200 to 350 ft. This geology provides little reliable opportunity for soil aquifer treatment which offers additional treatment as water passes through the soil vadose zone to an underlying aquifer. Due to limited surface area contact, flow through fractured limestone media may offer inefficient soil aquifer treatment. Since GWUDI in the Northern Guam area has already been a concern to the GEPA, to gain public confidence on the practice of injecting reclaimed water directly into potable aquifer in a karst limestone region, a treatment processes train similar to California practice is used for this study. Groundwater recharge with reclaimed water in the Orange County Groundwater Replenishment Project, which treats secondary effluent from Orange County Sanitation District Plant #1, employs a process including microfiltration, RO, advanced oxidation with ultraviolet (UV), and hydrogen peroxide.

Hydraulic Feasibility of Injection Wells

When water is discharged into a well, a cone develops above the potentiometric surface in much the same way as a cone develops below the potentiometric surface when water is pumped from a well. When water is injected, the cone is reversed. In other words, it becomes a cone

of impression or recharge rather than a cone of depression or discharge. This cone of impression surrounds the pumping well and can be analyzed mathematically in a very similar way as the cone of depression.

The amount of water introduced into the aquifer depends on the rate of injection, hydraulic conductivity, type of well, and potentiometric levels. However, the most important factor in any injection system is proper design of injection wells. A properly designed injection well will operate more efficiently requiring less hydraulic pressure with reduced probabilities of incrustation, thus resulting in longer well life and decreased overall operating costs.

To calculate injection pressures and water build-up in the injection wells, it was assumed that each injection well will receive 1,600 gpm continuous flow. This flow rate is well below the legally permissible injection rates under the EPA UIC regulations of 3.5 MGD (2,430 gpm) and velocity restriction of 8 fps.

It is important to determine injection pressures to ensure that there are no concerns from the engineering, economic, and regulatory points of view. Flow and pressure restrictions are imposed to protect the receiving formation from potential fracturing pressures. Fracturing pressures for limestones are approximately 600 pounds per square inch (psi). It is prudent to maintain a safety factor and maintain injection pressures in the limestone at less than 200 ft of water or below 87 psi.

Estimates of water level build-up and injection pressures were made using the Theis equation and hydraulic conductivities of 50 ft/day, 100 ft/day and 200 ft/day. Assuming a hydraulic conductivity of 200 ft/day, the head in the injection well above the top of the aquifer would be approximately 21 ft and the injection pressure head will be about 9 psi. If hydraulic conductivity is 100 ft/day, the head in the injection well above the top of the aquifer would be approximately 39 ft and the injection pressure head will be 17 psi. At the lowest hydraulic conductivity of 50 ft/day, the head in the injection well above the top of the aquifer would be

approximately 74 ft and the injection pressure head will be 32 psi.

The calculated injection pressures are low and appear to have adequate safety factor for potential adverse aquifer effects that may reduce flow. The equations used are based on assumptions of perfect aquifer hydraulics and ideal water quality conditions in the aquifer; including (for example) homogeneous formation, isotropic aquifer characteristics, fully penetrating wells, and laterally extensive aquifers. Over time, injection pressure will increase as a result of screen plugging from incrustation and biological fouling. It would be important to clean and maintain the wells every few years.

Viability

This option is considered further because: Use of treated wastewater to recharge the aquifer is not considered a viable option because the residence time is far smaller than the EPA-recommended time of 9 months. Use of treated wastewater to act as a barrier to saltwater intrusion is not considered viable because calculations show the disposal of the treated water to be an ineffective barrier.

Additionally, this option may not meet regulatory approval. GEPA UIC regulations categorize sewage treatment effluent recharge wells as Class V wells. GEPA does not specify the treatment standards and criteria for underground injecting the sewage treatment effluent to recharge the aquifer. GEPA will review the design and documents before approving the groundwater injection of treated effluent.

Additional disadvantages include:

Existing DoD wastewater diverted from GWA to a new DoD
WWTPWWTP construction GDAWR mitigation
requirementsGroundwater discharge permit Longer planning effort and
longer construction schedule leading to increased costs

A-014-068

Thank you for your comment.

A-014-069

Thank you for your comment. The FEIS has been updated to include the volume of water required during construction. Approximately 50,000 gallons of water will be needed on average per day for concrete production based on the total square footage of the planned facilities. It is assumed that water demand the construction will be provided by the contractor from off base sources.

A-014-070

Thank you for your comment. The conclusions drawn for the Lost River are from a 2007 study. Relevant available data for the watershed was incorporated into the study including rainfall data from 1996 to 2006 and Fena Reservoir level and supply from 1996 to 2006. The Lost River daily discharge and peak flood stage data were determined from a USGS gaging station which has data available from 1994 to 2002. Complete daily discharge data is available from 1998 through 2001 which is a period containing four consecutive dry periods. The estimates of Lost River supplemental dry season supply from the 1998 through 2001 are conservatively low.

Use of the Lost River is a long term alternative. Additional studies will be conducted to more fully assess implementation of this option.

A-014-071

Thank you for your comment. The new Layon Landfill is designed to accommodate municipal solid waste from all current and future DoD sources as well as civilian and commercial sources. Based on conservative waste generation rates, the new landfill will reach capacity in approximately 33 years. The DoD will be implementing diversion and recycling programs that will significantly reduce solid waste generation

and will help to extend the life of the landfill. Details of these programs have been added to Volume 6, Chapter 2.

The Navy is preparing a Recycling and Solid Waste Diversion Study for DoD Bases, Guam that has established a diversion goal of 50 percent, not including construction and demolition debris. The Study is considering the following alternatives: 1) DoD would construct two refuse transfer facilities, one in northern Guam and one in Southern Guam; 2) DoD would implement a source separation recycling program at all facilities; 3) DoD would construct recycling center(s); and 4) DoD would construct a materials resource recovery facility.

Additionally, the Navy is preparing a Construction and Demolition (C&D) Debris Reuse and Diversion Study for DOD Bases, Guam that addresses waste characterization, processing, recycling and disposal of construction debris. Information from this study will be used to update the FEIS.

The study is considering the following alternatives: 1) Contractors would continue to process all C&D debris, and DoD would construct a composting facility to process green waste and 2) DoD would construct a C&D debris central processing facility and a composting facility to process green waste.

Through project specific contractual requirements, DoD contractors would be required to process and divert 50% of C&D debris that is generated on each project. Another alternative would be for the DoD to construct a central processing facility that would be used to recover and reuse or recycle scrap metal, concrete (without lead-based paint), asphalt concrete, and untreated wood. Contractors would be required to haul C&D to this facility. Based on the C&D debris composition assumed in the study, the Navy will be able to achieve a C&D debris waste diversion goal of greater than 50% by the end of fiscal year 2015. A site

for the central processing facility is currently being evaluated but will most likely be located in northern Guam. Disposal of C&D debris that is not divertible or recyclable will be disposed at the Navy Hardfill at Apra Harbor. The study also evaluates the construction of a composting facility to handle green waste generated by land clearing activities required for new development.

A-014-072

Thank you for your comment.

116. Comment acknowledged. Text has been revised to add that any impacts on coral reefs or other aquatic resources could require mitigation from indirect impacts associated with the outfall.

117. Citations for the studies have been added. The following statement has also been added: "The applicability of this statement for the coastal waters of Guam have not been evaluated."

A-014-073

Thank you for your comment. Impact analysis and proposed mitigation measures for each resource category from the construction and operation of the improved roadway system are analyzed in the various chapters of Volume 6 beginning with Chapter 3. Traffic volumes were modeled for each buildup alternative to understand the impact on the existing roadway network, including already DPW-programmed road improvements. With current capacities, this initial modeling effort showed severe military-related congestion along several routes in the northern and central portions of the island. The results formed the proposed roadway improvements such as roadway widening, pavement strengthening, bridge replacements, and others, needed to mitigate impacts on traffic and on the existing roadway system itself. Individual road projects were identified from these transportation and traffic studies. A specific combination of projects to support each main cantonment

alternative formed each roadway alternative (refer to Volume 6, Chapter 2, Section 2.5).

A-014-074

Thank you for your comment. The proposed construction for the Agana River Bridge Replacement project which is part of the proposed Haul Road Network will take into consideration the Agana River Flood Control Project during the US Army Corps of Engineers Section 404 permitting process which will occur during the design phase of the project.

A-014-075

Thank you for your comment. The noted inconsistencies have been reconciled in Volume 6 in the Final EIS. The Final EIS contains updated information reflecting additional investigations of potential wetland areas. The source of this additional data has been provided. The Final EIS contains a revised impact analysis and discussion of potential mitigation measures to reflect the investigation results.

A-014-076

Thank you for your comment. Volume 7, Chapter 3 contains a table that summarizes the Clean Water Act Section 404 actions. This table is updated in the Final EIS.

A-014-077

Thank you for your comment. Text revised. The Final EIS contains updated information reflecting the additional investigation of potential wetland areas. The project design will avoid wetlands. Field data sheets are not included in the Final EIS.

A-014-078

Thank you for your comment. Due to the complexity of the project, there are two parts of the cumulative impact analysis: the summary of impacts

for all components of the proposed action and an assessment of the additive impacts of the proposed action on other past, present and reasonably foreseeable projects. A systematic methodology was applied in both analyses that were necessarily qualitative.

Volume 7, Chapter 3 summarizes the combined potential impacts of the preferred alternatives for the entire proposed action on Guam and Tinian. This is the aggregate analysis that you requested in your comment. The impacts of Volumes 2 through 6 are discussed by resource. At the end of Volume 7, Chapter 3.3 there is a table summarizing the combined impacts of all components of the preferred alternatives. Significant impacts are identified. Trends in the resource health due to anthropogenic and non-anthropogenic factors that impact resource health on Guam and Tinian since World War II are described. The discussion of trends in resource health reflect the no action alternative. There is a section that compares the preferred alternatives to the no action under each resource category. This section includes limited quantitative data for proposed action impacts. For example, special-status species habitat loss due to the proposed action and current amount of habitat available island-wide is presented in Volume 7, Section 3.3. There is no quantitative island-wide data readily available for most of the resource areas assessed and the impact analysis was qualitative.

Volume 7, Chapter 4, Cumulative Impacts, assesses the potential additive impact of the Draft EIS proposed actions when compared to potential impacts of past, present and reasonably foreseeable projects. The period of consideration for the cumulative impact analysis was 2004 and 2019. The project list was based on best available information from DoD and the Guam Land Use Commission database. There was no National Environmental Policy Act (or similar) document disclosing project impacts for most of the cumulative projects listed; therefore, there was insufficient data on most cumulative projects listed

to conduct a quantitative impact analysis. There is a table at the end of Chapter 4 that summarizes the potential cumulative impacts. Potential significant cumulative impacts are identified for some resources.

Volume 7, Section 3.5 is dedicated to summarizing the Section 404 actions.

Volume 7 is intended to summarize the best management practices, mitigation and compensatory mitigation proposals. The available details of compensatory mitigation are presented in the Marine Biology Section of Volume 2. The compensatory mitigation proposals will be finalized during the Army Corps of Engineers permitting process.

A-014-079

Thank you for your comment but it is too general for a substantive response. Direct, indirect and cumulative impacts of the proposed actions were assessed. A good faith effort was made to apply standard methodologies for each resource impact assessment. Impacts and mitigation measures are disclosed. 100 percent engineering design would not be available until after the Record of Decision. All scientific data has a degree of uncertainty or confidence.

A-014-080

Thank you for your comment. Volume 3 discusses the specific proposed actions and environmental effects related to training on Tinian. As indicated in Section 2.3.3.2 of Volume 3, no new transportation infrastructure would be required except for bio-security quarantine and inspection areas that would be constructed at arrival locations.

A-014-081

Thank you for your comment. The Final EIS contains updated information reflecting the additional investigation of potential wetland

areas. The Final EIS contains a description of the investigation methods used. The investigations were conducted in accordance with standards commensurate with the methods used. The project design will avoid wetlands.

A-014-082

Thank you for your comment. The unsubstantiated statement referenced has been removed.

A-014-083

Thank you for your comment. Potential Mariana common moorhen nesting areas in proposed training areas are known except at a location near one of the proposed ranges on Tinian. This situation was addressed in TB-27 of the DEIS and is also addressed in the Final EIS.

A-014-084

Thank you for your comment. The use of BMPs and mitigation has been clarified throughout the FEIS. Volume 7 of the FEIS contains a comprehensive list of BMPs and mitigation.

A-014-085

Thank you for your comment. DoD will work with the USACE regulatory branch and other Federal and Guam/CNMI resource agencies to develop satisfactory and project specific BMPs and mitigation measures during the permitting phase of this proposed military relocation program. As noted, the permits would include compliance with Section 404 of the Clean Water Act should any discharge of dredged and fill materials be part of the proposed project.

A-014-086

Thank you for your comment. DoD will work with the USACE to finalize

mitigation measures for unavoidable impacts during the permit phase of the proposed project.

A-014-087

Thank you for your comment. Development and impacts undertaken by others with the responsibility and authority to implement is not the responsibility of the DoD.

A-014-088

Thank you for your comment. The tables in Volume 7 are modified per your request in the Final EIS.

The compensatory mitigation plan for loss to coral ecosystems and wetlands will be prepared to support the Army Corps of Engineers permits. This is anticipated to meet the 33 CFR 332 requirements.

A-014-089

Thank you for your comment. Text has been added to the EIS.

A-014-090

Thank you for your comment. DoD will work closely with the USACE during the permitting phase of this proposed project and will incorporate best management practices, mitigation measures including monitoring and other aspects of adaptive management to minimize adverse impacts on the environment.

A-014-091

Thank you for your comment. The Final EIS reflects this point of clarification regarding regulatory purview.

A-014-092

Thank you for your comment. DoD agrees with your comment about the timeframe needed to monitor for success of mitigation measures to compensate for the adverse impacts caused by implementation of the proposed action. DoD will work closely with the USACE during the permitting phase of the proposed project to develop satisfactory mitigation and monitoring measures as required.

A-014-093

Thank you for your comment. These noted inconsistencies have been reconciled in the Final EIS.

A-014-094

Thank you for your comment. DoD will work closely with the USACE to develop and implement required mitigation measures during the permitting phase for the proposed project.

A-014-095

Thank you for your comment. DoD has continued to study and present options for mitigation measures. Additional studies including watershed assessments and potential for reforestation programs have been conducted following the publication of the DEIS. Information from these studies is included in the EIS in Volumes 4 and 9 (Appendix) of the FEIS. DoD will continue to work closely with the USACE on these issues during the permitting phase of the proposed project.

A-014-096

Thank you for your comment. Due to the complexity of the project, there are two parts of the cumulative impact analysis: the summary of impacts for all components of the proposed action (Volume 7 Chapter 3) and an assessment of the additive impacts of the proposed action in combination with other past, present and reasonably foreseeable

projects (Volume 7, Chapter 4). A systematic methodology was applied in both analyses.

Volume 7, Chapter 3 summarizes the combined potential impacts of all of the preferred alternatives on Guam and Tinian. The impacts of Volumes 2 through 6 are discussed by resource. At the end of Volume 7, Chapter 3.3 there is a table summarizing the combined impacts of all long-term (operational) components of the preferred alternatives. Significant impacts are identified. Trends in the resource health on Guam and Tinian since World War II are described. This section includes limited quantitative data for proposed action impacts. For example, special-status species habitat loss due to the proposed action and current amount of habitat available island wide is presented in Volume 7, Section 3.3. There is no quantitative island-wide data readily available for most of the resource areas assessed and the impact analysis is often qualitative.

Volume 7, Chapter 4, Cumulative Impacts, assesses the potential additive impact of the EIS proposed actions when combined with potential impacts of other past, present and reasonably foreseeable future actions. The period of consideration for the cumulative impact analysis is 2004 to 2019. The project list is based on best available information from DoD and the Guam Land Use Commission database. There is no National Environmental Policy Act (or similar) document disclosing project impacts for most of the cumulative projects listed; therefore, there is insufficient data on most cumulative projects listed to conduct a quantitative impact analysis. In Chapter 4 a table summarizes the potential cumulative impacts on Guam and another table summarizes the potential cumulative impacts on Tinian. Potential additive cumulative impacts are identified for a number of resources. Mitigation measures are proposed earlier in the EIS. The cumulative impacts analysis has been expanded in the FEIS, including the addition of climate change analysis and analysis of cumulative impacts to coral.

A-014-097

Thank you for your comment. This level of information will be provided during the permitting process.



**Western
Pacific
Regional
Fishery
Management
Council**

February 17, 2010

JGPO c/o NAVFAC Pacific
258 Makalapa Drive, Suite 100
Pearl Harbor, Hawaii 96860 - 3134
Attention: GPMP

Dear Madam/Sir:

The Western Pacific Regional Fishery Management Council (Council) offers the following comments on the Navy's Draft Environmental Impact Statement (DEIS) for the Military Relocation to Guam and the Northern Mariana Islands (NMI). We maintain our position that the 90-day comment period was inadequate for an in-depth review of the DEIS and its appendices. We communicated this position to the Department of Defense (DOD) in a November 20, 2009 letter. The DOD responded on December 18, 2009 by stating that the 90-day comment period best balances the need for public review and the DOD's requirement to complete the military buildup on an aggressive schedule. We remain concerned that an aggressive build-up schedule is being followed in lieu of proper public review and engagement.

A-015-001

1. Range of Alternatives

The DEIS does not mention that the DOD has considered alternative relocation sites other than Guam and NMI. Did the DOD examine the possibility of renegotiating Status of Forces Agreements with South Korea and the Philippines as potential locations for the relocation? What about other U.S. bases on the West Coast or Hawaii? The National Environmental Policy Act (NEPA) requires that Federal agencies consider a reasonable range of alternatives to the proposed action. In this case, it seems that the DOD has only considered Guam and NMI as the sites for the proposed relocation and that no alternatives to these sites were given in-depth consideration and evaluation.

A-015-002

2. Impacts to Fisheries

Essential Fish Habitat

Essential Fish Habitat (EFH) and Habitat Areas of Particular Concern (HAPC) for the Western Pacific Region were established by the Council and approved by the National Marine Fisheries Service (NMFS) in 1999. Volume 2-Chapter 11 of the DEIS states that the Navy is consulting with NMFS on proposed activities that may adversely affect EFH. The consultation process provides NMFS an opportunity to provide EFH conservation recommendations to the Navy regarding the potential effects of the proposed action on EFH.

A-015-003

A Council Authorized by the Magnuson Fishery Conservation and Management Act of 1976

1164 BISHOP STREET • SUITE 1400 • HONOLULU • HAWAII 96813 USA • TELEPHONE (808) 522-8220 • FAX (808) 522-8226
www.wpcouncil.org

A-015-001

Thank you for your comment. The DoD carefully considered all requests to extend the length of the comment period beyond the 45-day minimum required by NEPA. In evaluating multiple options, DoD leadership determined that a 90-day comment period best balanced the need for sufficient time to review a complex document with the requirement to reach a timely decision regarding the proposed military buildup on Guam.

A-015-002

Thank you for your comment, which focused on how Guam was chosen for the military relocation rather than other places within the Pacific region. Volume 1 at Section 1.4 in the Draft EIS provides a Global Perspective Background, which explains the various international and military capability requirements that were considered for the realignment of military forces. Because this section of the Draft EIS explains the background analysis of strategic military capability locations within the Pacific, it will remain the same for the Final EIS. For instance, this section describes how several locations were considered throughout the Pacific region for the military relocation based upon 1) response times, 2) freedom of action (the ability of the U.S. to use bases and training facilities freely and without restriction at a particular locale), and 3) international treaties and agreements with Japan and other Western Pacific allies. The U.S. locations in the Pacific region considered for the military relocation were Hawaii, Alaska, California, and Guam. Non-U.S. locations considered included Korea, the Philippines, Singapore, Thailand, and Australia, because they are allies to the U.S. and are well situated for strategic force deployment. After analyzing the international and military capability requirements for each locale mentioned above, Guam was the only location for the relocation that met all the criteria.

A-015-003

Thank you for your comment.

A-015-003

The DEIS does not provide any information on whether NMFS has provided such information. The public and Council would benefit from knowing what NMFS believes the impacts to EFH may be from the proposed action. Without NMFS' assessment, it is difficult to ascertain impacts to EFH from the information provided in the DEIS. Furthermore, Volume 2-Chapter 11 of the DEIS makes conclusive statements that impacts to EFH will not be significant, but it does not provide detailed analysis on how this conclusion was reached nor does it provide information from NMFS, which is identified as the consulting agency on this issue.

Volume 4-Chapter 11 of the DEIS does indicate that significant impacts to EFH for coral reef species will occur from the proposed action related to aircraft carrier berthing and that such impacts would be mostly short-term and localized. To reduce effects on EFH and associated fish species, the Navy should consider alternative sites such as Delta or Echo Pier.

Impacts to nearshore and offshore fishery resources

An increase of approximately 80,000 people to Guam's population in 2013 will affect nearshore and offshore marine resources. The DEIS does not address the potential impacts of military personnel and their families as well as contract workers conducting fishing activities in the nearshore or offshore waters around Guam. There are potentially significant negative indirect effects from commercial, recreational, and non-commercial fishing associated with this population increase. Commercial fisheries may increase due to enhanced market demand. Recreational fishing may increase as fishing for sport or pleasure is national pastime and fishing around Guam is an enjoyable, family activity. Non-commercial fishing may also increase as military personnel and contract workers fish to supplement their diets. To appropriately address this issue, the Navy should consider establishing a mandatory permit and catch reporting program for all military/DOD personnel, their families, and contract workers. The Council has made this recommendation previously to the Joint Guam Program Office (JGPO), and we reiterate it because data fishing effort and harvests are essential to properly manage the resource. JGPO should also establish a comprehensive education and outreach program to provide information to military/DOD personnel, their families, and contract workers regarding existing fishery management regulations and catch reporting, as well as fish identification and cultural aspects of fish resources for people new to the area.

A-015-004

Impacts to fishery access by local residents

The military build-up may limit fishing access to local residents, whose access to ancestral and historical fishing grounds have already been restricted by current military facilities. The FEIS should contain mitigation measures that promote or allow access to important fishing areas, and the DOD should work with the local community to identify such locations.

A-015-004

Thank you for your comment. DoD understands and recognizes the significance of cultural and recreational sites located on DoD property in Guam. Restricting access to certain DoD areas at certain times is required to maintain public safety. It is the intent of DoD to maintain public access to DoD lands that contain cultural sites consistent with safety and operational requirements. Access will be granted at approved times such as when the lands are not being used for military training. Final plans concerning access to sites potentially impacted by the proposed action have not been developed. DoD looks forward to working with stakeholders to develop plans for cultural stewardship and access that balances operational needs, public safety concerns, and the continuing public use and enjoyment of these sites.

A-015-005

3. Fishery Ecosystem Plans

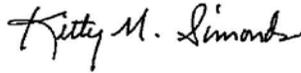
The Secretary of Commerce recently (December 2009) approved the Council's five Fishery Ecosystem Plans, which replace its previous five Fishery Management Plans (see 75 FR 2198 or wpcouncil.org for more information). Please update the FEIS accordingly.

A-015-006

4. Conclusion

Thank you for the opportunity to provide comments on the DEIS, although we believe additional time would have allowed the public to provide more informed comments, which in turn would have benefited the DOD in its planning efforts. For this reason, we find it imperative that the JGPO continue to consult Guam and NMI communities as the military build-up process unfolds. Lastly, we believe that a permit and catch reporting program is essential for military personnel and contract workers in addition to a comprehensive marine resources education and outreach program. We are available to assist the DOD in developing these programs and look forward to collaborating on such efforts.

Sincerely,



Kitty M. Simonds
Executive Director

A-015-005

Thank you for your comment. The FEIS has been updated.

A-015-006

Thank you for your comment.



DEPARTMENT OF THE AIR FORCE
PACIFIC AIR FORCES

February 17, 2010

Joint Guam Program Office
c/o Naval Facilities Engineering Command Pacific
258 Makalapa Drive, Suite 100
Pearl Harbor, Hawaii 96860-3134
Attention: GPMO

**SUBJECT: Review of the Draft Environmental Impact Statement/Overseas
Environmental Impact Statement (DEIS/OEIS) for the Guam and CNMI Military
Relocation**

Dear Sir:

Thank you for the opportunity to review the Draft EIS/OEIS for the Guam and CNMI Military Relocation. Enclosed you will find the comment response matrices from the Pacific Air Forces (PACAF) and 36 Wing. PACAF staff members plan to participate in the Tiger Team meetings in Honolulu to discuss the high priority issues related to the EIS/OEIS.

Should you have any questions regarding our comments, please contact Mr. Robert Leong at (808) 449-1078.

Respectfully

A handwritten signature in black ink, appearing to read "J. Thompson", written over a horizontal line.

JOHN D. THOMPSON, YF-03
Chief, Programs Division

#	Volume	Ch. #	Page #	Line, Tab, Fig #	Comment or Obj.	Commenter (last name)	Comment	Admin. Est.	Response	Date	Response
A-016-001		7	7-8	5,16,12,19,20	PACAF/AAPX	Bliley	Anderson AFB main base proper refers to not called "North Army". Should "North Army" words from page.				
A-016-002		32	1		PACAF/ATPI	Hong	Cultural Resources section does not include adequate cultural resources survey information for sufficient analysis.				
	2	5	12	2	PACAF/ATPI	Hong	Current signatures to this PA should include the Air Force. Air Force has a mission requirements project to the Guam Bulkhead DEIS with the new Air Mobility Campus on the south ramp at Andersen AFB. Since the AF has an action in the JGPO EIS, then the Air Force should be a signatory to the PA in order to fulfill the Air Force's requirements under NEPA.				
	4	5	32	2	PACAF/ATPI	Hong	The PA is scheduled for signature in October 2008 prior to the release of the Final Environmental Impact Statement (FEIS). The information should be updated, since the PA has not been signed as of yet.				
A-016-003		3		4.3.2	PACAF/ATPI	Hong	The ISR/Strike EIS was finalized and Record of Decision (ROD) was signed on 12 January 2007.				
	6	7	8	8	Tbl 4.3-1, N-4	PACAF/ATPI	Lead Agency or Proponent is "Air Force".				
	7	7	4	8	Tbl 4.3-1, N-4	PACAF/ATPI	Project Name/Location is: "Establishment and Operation of an Intelligence, Surveillance, Reconnaissance, and Strike Capability, Andersen AFB, Guam".				
	8	7	4	9	Tbl 4.3-1, C-28	PACAF/ATPI	Point of Contact at Lead Agency is Terry Sladek, PACAF/ATPI.				
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Comments

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A-016-001

Thank you for your comment.

A-016-002

Thank you for your comment.

A-016-003

Thank you for your comment.

Comment 5. The complete date for ISR/Strike ROD is added to the Final EIS as suggested.

Comment 6. N-4 is corrected to list Air Force as lead agency.

Comment 7. The comment likely refers to N-7. Title is corrected as suggested.

Comment 8. Point of contact is added to cumulative project C-28 row.