# 3.13 Public Health and Safety

# Supplemental Environmental Impact Statement/ Overseas Environmental Impact Statement Mariana Islands Training and Testing

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## 3.13 Public Health and Safety

### 3.13.1 Affected Environment

The purpose of this section is to supplement the analysis of impacts on public health and safety presented in the 2015 Mariana Islands Training and Testing (MITT) Final Environmental Impact Statement/Overseas Environmental Impact Statement (EIS/OEIS) with new information relevant to proposed changes in training and testing activities conducted at sea and on Farallon de Medinilla (FDM). Information presented in the 2015 MITT Final EIS/OEIS that remains valid is noted as such, and referenced in the appropriate sections. Any new or updated information describing the affected environment and analysis of impacts on public health and safety associated with the Proposed Action is provided in this section. Comments received from the public during scoping related to public health and safety are addressed in Section 3.13.3 (Public Scoping Comments).

#### 3.13.1.1 Existing Conditions

##### 3.13.1.1.1 Sea Space

Sea space accessibility within the MITT Study Area is the same as what is described in the 2015 MITT Final EIS/OEIS (Section 2.1.1.2, Sea and Undersea Space and Section 3.13.2.1.1, Sea Space). Only select areas have activity restrictions or prohibitions in accordance with Title 33 Code of Federal Regulations Part 334 (Danger Zone and Restricted Area Regulations). The National Oceanic and Atmospheric Association (NOAA) issues nautical charts that delineate these areas. The military conducts training and testing activities in operating areas away from commercially used waterways and inside special use airspace. Scheduled training and testing activities are published by the United States (U.S.) Coast Guard in Notices to Mariners (NOTMARs) to warn the public of upcoming and potentially hazardous activities. NOTMARs are available online,[1] and email notifications can be received by registering online. Data on the number of NOTMARs issued from 2010 through 2015 for FDM and W-517 is presented in Section 3.12 (Socioeconomic Resources). As with other activities, the Navy posts NOTMARs at least 72 hours in advance of potentially hazardous training and testing activities at FDM. NOTMARs may extend restrictions out to 12 nautical miles as needed for certain training and testing activities to ensure the safety and protection of the public and the military.

Other communication outlets available to the public include the Joint Region Marianas (JRM) Public Affairs Office, which posts press releases on the JRM website and on the JRM Facebook page.[2] Interested members of the public can also follow the JRM on Twitter. Posts to the JRM Facebook page activate a Twitter post. Naval Base Guam Public Affairs posts press releases on the Naval Base Guam Facebook page,[3] and Naval Facilities Engineering Command, Marianas Public Affairs posts press releases on their Facebook page.[4]

Non-military activities are not permitted on or near FDM, and aircraft and marine vessels are restricted from entering within 3 nautical miles of FDM. Even when live fire or other potentially hazardous activities are not occurring at FDM, the threat of unexploded ordnance is always present. The military

[1] https://www.navcen.uscg.gov/?pageName=lnmDistrict&region=14
[2] https://www.facebook.com/jrmguam/
[3] https://www.facebook.com/USNavalBaseGuam/
[4] https://www.facebook.com/navfacmarianas/

prevents civilians from entering FDM when the range is scheduled for use by using visual observers on vessels that scan for non-participants in accordance with standard operating procedures. More details on these procedures are available in Section 5.7.3 (Farallon de Medinilla Access Restrictions) of the 2015 MITT Final EIS/OEIS.

Marine protected areas (MPAs) are marine areas that restrict certain human activities for conservation purposes. The 2015 MITT Final EIS/OEIS describes five MPAs (Section 3.13.2.1.1, Sea Space); however, Table 3.13-1 lists other MPAs that are located within the Study Area along with their primary conservation focus and fishing restrictions. Although fishing restrictions would decrease boat traffic within the MPAs, they could force fishermen to travel further offshore, which is more dangerous and also has the potential to overlap with other training and testing activities.

**Table 3.13-1: Marine Protected Areas within the Study Area**

| Marine Protected Area | Primary Conservation Focus | Fishing Restriction | Location |
|---|---|---|---|
| War in the Pacific National Historic Park | Cultural Heritage | Commercial and Recreational | Guam |
| Tokai Maru | Cultural Heritage | Commercial | Guam |
| Cormoran | Cultural Heritage | Commercial | Guam |
| Aratama Maru | Cultural Heritage | Commercial | Guam |
| Orote Ecological Reserve Area | Natural Heritage | N/A | Guam |
| Guam National Wildlife Refuge | Natural Heritage | Commercial and Recreational | Guam |
| Haputo Ecological Reserve Area | Natural Heritage | N/A | Guam |
| Sasanhaya Fish Reserve | Natural Heritage | Commercial and Recreational | Northern Mariana Islands |
| Lighthouse Reef Trochus Reserve | Natural Heritage | Commercial | Northern Mariana Islands |
| Laulau Bay Sea Cucumber Reserve | Natural Heritage | Commercial and Recreational | Northern Mariana Islands |
| Bird Island Marine Sanctuary | Natural Heritage | Commercial and Recreational | Northern Mariana Islands |
| Bird Island Sea Cucumber Reserve | Natural Heritage | Commercial and Recreational | Northern Mariana Islands |
| Forbidden Island Marine Sanctuary | Natural Heritage | Commercial and Recreational | Northern Mariana Islands |
| Tank Beach Trochus Reserve | Natural Heritage | Commercial and Recreational | Northern Mariana Islands |
| Managaha Marine Conservation Area | Cultural Heritage | Commercial and Recreational | Northern Mariana Islands |

**Table 3.13-1: Marine Protected Areas within the Study Area (continued)**

| Marine Protected Area | Primary Conservation Focus | Fishing Restriction | Location |
|---|---|---|---|
| Mariana Arc of Fire National Wildlife Refuge | Natural Heritage | N/A | At Sea |
| Mariana Trench Marine National Monument | Natural Heritage | Commercial and Recreational | At Sea |

Source: National Oceanic and Atmospheric Administration (2017)

#### 3.13.1.2 Airspace

General information on airspace within the Study Area can be found in the 2015 MITT Final EIS/OEIS (Section 3.13.2.1.2, Airspace); however, there have been changes to special use airspace within the Study Area in order to enhance safety. Changes include the addition of one new restricted area and new warning areas (U.S. Department of the Navy, 2015). These changes further separate non-military and military aviation activities, thereby enhancing safety. The military also requests that the Federal Aviation Administration issue Notices to Airmen to warn the public of upcoming military activities requiring the exclusive use of airspace. Military activity areas and special use airspace are identified on nautical and aeronautical charts to inform surface vessels and aircraft that military activities occur in the area. When necessary, airspace used by the military is restricted for short periods of time (typically on the order of hours) to cover the timeframes of training and testing activities. The Navy posts Notices to Airmen when restrictions are in place prior to initiating a training and testing activity, and the military follows standard operating procedures to visually scan an area to ensure that non-participants (i.e., civilian vessels and aircraft) are not present. More details on these procedures are available in Section 2.3.3 (Standard Operating Procedures) of this Supplemental EIS (SEIS)/OEIS. If non-participants are present, the military delays, moves, or cancels its activity. Public accessibility is no longer restricted once the activity concludes.

#### 3.13.1.3 Safety and Inspection Procedures

As stated in the 2015 MITT Final EIS/OEIS (Section 3.13.2.2, Safety and Inspection Procedures), the Navy adheres to policies that ensure the safety and health of military personnel and the public. This is accomplished by utilizing communication and notification channels provided by the U.S. Coast Guard and Federal Aviation Administration as described above, considering the location when planning activities, and ensuring that training and testing activity areas are clear of non-participants before commencing.

As discussed in the 2015 MITT Final EIS/OEIS (Section 3.13.2.2, Safety and Inspection Procedures), some training and testing activities use ordnance, and the type of ordnance used would be the same as identified in the 2015 MITT Final EIS/OEIS. As such, the procedures for handling and storing of ordnance remain applicable and valid.

##### 3.13.1.3.1 Aviation Safety

Navy procedures and policies detailing aviation safety are outlined in the 2015 MITT Final EIS/OEIS (Section 3.13.2.2.1, Aviation Safety). These policies include the Chief of Naval Operations Instruction 3770.2L and Department of the Defense Directive 4540.1, which specify procedures for planning and managing special use airspace, conducting aircraft maneuvers, and for firing missiles and projectiles over

the high seas. Additional measures involve aircrews being responsible for maintaining a lookout for non-participating aircraft while operating in warning areas and other special use airspace, as well as the implementation of the Bird/Animal Aircraft Strike Hazard program, which is discussed in detail in the 2015 MITT Final EIS/OEIS (Section 3.13.2.2.1, Aviation Safety). These procedures and policies remain applicable and valid.

#### 3.13.1.3.2 Submarine Navigation Safety

Methods for preserving submarine navigation safety are discussed in the 2015 MITT Final EIS/OEIS (Section 3.13.2.2.2, Submarine Navigation Safety). These methods include avoiding collisions while surfaced by using visual scans, radar scans, acoustic depth finders, and satellite navigational systems, as well as avoiding areas with surface vessels while submerged by using inertial navigational charts. These methods remain applicable and valid in this SEIS/OEIS.

#### 3.13.1.3.3 Surface Vessel Navigational Safety

The Navy's methods for ensuring navigational safety for surface vessels are discussed in the 2015 MITT Final EIS/OEIS (Section 3.13.2.2.3, Surface Vessel Navigational Safety) and can involve practicing the fundamentals of safe navigation, posting lookouts to scan for navigational hazards, or utilizing support boats to determine that all safety criteria are met. These safety methods remain applicable and valid.

#### 3.13.1.3.4 Sound Navigation and Sounding (Sonar) Safety

Surface vessel and submarine sonar use is described in the 2015 MITT Final EIS/OEIS (Section 3.13.2.2.4, Sound Navigation and Sounding [Sonar] Safety). The Navy adheres to Naval Sea Systems Command Instruction 3150.2, Appendix 1A, which provides guidance for protecting divers during active sonar use. Guidance for protecting divers remains applicable and valid.

#### 3.13.1.3.5 Electromagnetic Energy Safety

The electromagnetic spectrum and the applications of electromagnetic radiation are described in the 2015 MITT Final EIS/OEIS (Section 3.13.2.2.5, Electromagnetic Energy Safety). Military aircraft, ships, and submarines follow standard operating procedures, which prevent people, ordnance, or fuels from receiving levels of electromagnetic energy that exceed hazardous thresholds. The standard operating procedures that are described in Section 2.3.3 (Standard Operating Procedures) of this SEIS/OEIS remain applicable and valid.

#### 3.13.1.3.6 Laser Safety

Lasers produce a coherent beam of light energy. The Navy uses lasers for precision range finding, as target designation/illumination devices for engagement with laser-guided weapons, for mine detection, for mine countermeasures, and for non-lethal deterrent. Testing activities include high-energy laser weapons tests to evaluate the specifications, integration, and performance of a vessel- or aircraft-mounted high-energy laser. Information regarding low-energy lasers can be viewed in the 2015 MITT Final EIS/OEIS (Section 3.13.2.2.6, Laser Safety). High-energy lasers were not analyzed in the 2015 MITT Final EIS/OEIS. The high-energy laser would be used as a weapon to disable small surface vessels. The Office of the Chief of Naval Operations Instruction 5100.27B/Marine Corps Order 5104.1C, *Navy Laser Hazards Control Program*, prescribes Navy and Marine Corps policy and guidance in the identification and control of laser hazards. The Navy observes strict precautions and has written instructions in place for laser users to ensure that non-participants are not exposed to intense light energy. Laser safety procedures for aircraft require an initial pass over the target before laser activation to ensure that target areas are clear. During actual laser use, aircraft run-in headings are also restricted to avoid or reduce

unintentional contact with personnel or non-participants. Personnel participating in laser activities are required to complete a laser safety course (U.S. Department of the Navy, 2008).

#### 3.13.1.3.7 High-Explosive Ordnance Detonation Safety

Safety measures for high explosive detonations, particularly underwater explosions, are discussed in the 2015 MITT Final EIS/OEIS (Section 3.13.2.2.7, High-Explosive Ordnance Detonation Safety) and remain valid. General underwater detonation procedures involve ensuring impact areas are clear before commencing hazardous activities, coordinating with submarine operational authorities, and firing in accordance with current safety instructions.

#### 3.13.1.3.8 Weapons Firing and Ordnance Expenditure Safety

The safety and inspection procedures discussed in the 2015 MITT Final EIS/OEIS remain applicable and valid to this analysis. Safety continues to be a primary concern for all training and testing activities, and all hazard areas must be clear of all non-participants prior to any use of ordnance. Training and testing activities are delayed, moved, or cancelled if there is any question about public safety.

### 3.13.2 Environmental Consequences

The 2015 MITT Final EIS/OEIS (Section 3.13.3, Environmental Consequences) analyzed training and testing activities currently occurring in the Study Area and considered all potential stressors related to public health and safety. Stressors applicable to public health and safety in the Study Area are the same stressors analyzed in the 2015 MITT Final EIS/OEIS with the exception of explosive stressors. In the 2015 MITT Final EIS/OEIS, explosives were addressed under acoustic stressors; however, for purposes of this analysis, explosives are analyzed as a separate stressor. The following stressors were analyzed for public health and safety. Following each stressor is a list of substressors that have been updated from the 2015 MITT Final EIS/OEIS (Section 3.13.3, Environmental Consequences):

- Underwater Energy (sonar and in-water explosives)
- In-Air Energy (radar, in-air explosives, and lasers)
- Physical Interactions (aircraft, vessels, in-water devices/targets, munitions, seafloor devices)
- Secondary Stressors (impacts on water quality from explosives [in-air explosives and in-water explosives] and explosion byproducts, metals, chemicals other than explosives, and other materials)

This section evaluates how and to what degree potential impacts on public health and safety from stressors described in Section 3.0 (Introduction) may have changed since the analysis presented in the 2015 MITT Final EIS/OEIS was completed. Tables 2.5-1 and 2.5-2 in Chapter 2 (Description of Proposed Action and Alternatives) list the proposed training and testing activities and include the number of times each activity would be conducted annually and the locations within the Study Area where the activity would typically occur under each alternative. The tables also present the same information for activities described in the 2015 MITT Final EIS/OEIS so that the proposed levels of training and testing activities under this SEIS/OEIS can be easily compared. The Navy conducted a review of federal and state regulations and standards relevant to public health and safety and reviewed literature published since 2015 for new information that could supplement the analysis presented in the 2015 MITT Final EIS/OEIS.

The analysis presented in this section also considers standard operating procedures which are discussed in Section 2.3.3 (Standard Operating Procedures) of this SEIS/OEIS. The Navy would implement these

measures to avoid or reduce potential impacts on public health and safety from stressors associated with the proposed training and testing activities.

#### 3.13.2.1 Underwater Energy

Sources of underwater energy are the same as those discussed in the 2015 MITT Final EIS/OEIS (Section 3.13.3.1, Underwater Energy) and include active sonar, underwater explosions, air guns, vessel movements, aircraft overflights, mine warfare devices, and unmanned underwater vehicles. Only recreational swimmers and scuba divers who are underwater and within an unsafe distance of training and testing activities would potentially be exposed to the underwater energy produced by these stressors.

The effect of active sonar on humans varies with the sonar frequency. Generally, mid- to low-frequencies have the greatest effect since they fall within the range of human hearing (20 hertz to 20 kilohertz). In addition to acoustic stressors, underwater explosions produce pressure waves that can cause physical injury depending on the size, type, and depth of the explosive charge and the distance between the person and the explosive. Electromagnetic energy sources and their potential impacts on public health and safety are discussed in the 2015 MITT Final EIS/OEIS (Section 3.13.3.1, Underwater Energy) and remain applicable in this discussion. In addition, standard safety buffers that are specified in Department of Defense Instruction 6055.11, *Protecting Personnel from Electromagnetic Fields* (U.S. Department of Defense, 2009), and Military Standard 464A, *Electromagnetic Environmental Effects: Requirements for Systems* (U.S. Department of Defense, 2002), would continue to be implemented to ensure public safety.

##### 3.13.2.1.1 Impacts from Underwater Energy Stressors Under Alternative 1

While the frequency of certain activities would increase under Alternative 1, the analysis of impacts on public health and safety from underwater energy presented in this SEIS/OEIS is not dependent on the number of activities that occur. Instead, the analysis discusses how likely an activity is expected to impact public health and safety regardless of how often it occurs. Therefore, increases shown in Tables 2.5-1 and 2.5-2 for activities proposed under Alternative 1 would have no appreciable change on the impact analysis or conclusions for underwater energy as presented in the 2015 MITT Final EIS/OEIS.

Standard operating procedures, which are described in Section 2.3.3 (Standard Operating Procedures) of this SEIS/OEIS, are in place to ensure that military activities do not overlap with non-military activities (e.g., boating, swimming, and fishing). Since the only potential receptors of underwater energy stressors are recreational swimmers and divers, training and testing activities that could affect public health and safety are often held far from popular swimming and dive areas, reducing the potential for exposure. The military's safety procedures would ensure that the potential for training and testing activities to impact public health and safety under Alternative 1 would be unlikely.

##### 3.13.2.1.2 Impacts from Underwater Energy Stressors Under Alternative 2

Similar to Alternative 1, the frequency of certain activities would increase under Alternative 2 (see Table 2.5-1 and Table 2.5-2 to see changes in frequency of specific activities). However, as explained above, this analysis is not dependent on the frequency of activities but instead on how likely an activity is to produce underwater energy that would impact public health and safety. Since the only potential receptors of underwater energy stressors are recreational swimmers and divers, training and testing activities that could affect public health and safety are often held far from popular swim and dive areas, reducing the potential for exposure. Furthermore, the military has safety procedures to ensure that the

potential for training and testing activities to impact public health and safety under Alternative 2 would be unlikely.

#### 3.13.2.1.3 Impacts from Underwater Energy Stressors Under No Action Alternative

Under the No Action Alternative, proposed training and testing activities would not occur. Other military activities not associated with this Proposed Action would continue to occur. Underwater energy stressors as listed above would not be introduced into the marine environment. Therefore, existing environmental conditions would either remain unchanged or would improve slightly after cessation of ongoing training and testing activities.

Discontinuing the training and testing activities would result in fewer underwater energy stressors within the marine environment where training and testing activities have historically been conducted. Therefore, discontinuing training and testing activities under the No Action Alternative would lessen the potential for underwater energy impacts on public health and safety, but would not measurably improve public health and safety.

### 3.13.2.2 In-Air Energy

In-air energy stressors include sources of electromagnetic energy and lasers, such as radar, navigational aids, high-energy lasers, and electronic warfare systems. Current practices for protecting military personnel and the public are described in the 2015 MITT Final EIS/OEIS (Section 3.13.3.2) and remain applicable to this analysis. In addition, procedures for laser safety are described above in Section 3.13.1.3.6 (Laser Safety) as well as in Section 2.3.3.5 (Pierside Testing Safety). Training and testing activities that involve electromagnetic energy and lasers are described in the 2015 MITT Final EIS/OEIS and now also includes high-energy laser use.

High-energy lasers are used as weapons to disable surface targets. The Navy would operate high-energy laser equipment in accordance with procedures defined in the Office of the Chief of Naval Operations Instruction 5100.23G, Navy Safety and Occupational Health Program Manual (U.S. Department of the Navy, 2011). These high-energy light sources can cause eye injuries and burns if directly hit with the laser. A comprehensive safety program exists for the use of lasers. Current Navy safety procedures protect individuals from the hazard of injuries caused by laser energy. Laser safety requirements for aircraft and vessels mandate verification that target areas are clear before commencement of an exercise. In the case of aircraft, during actual laser use, the aircraft run-in headings are restricted to preclude inadvertent lasing of areas where the public may be present.

#### 3.13.2.2.1 Impacts from In-Air Energy Stressors Under Alternative 1

The frequency of activities that generate in-air energy would increase under Alternative 1. This increase would result in an increase in ionizing radiation, which can negatively impact public health and safety following chronic exposure and from direct contact. However, repeat exposure would be limited and the impact of each exposure would be minimized due to existing safety procedures. Therefore, increases shown in Tables 2.5-1 and 2.5-2 for activities proposed under Alternative 1 would have no appreciable change on the impact analysis or conclusions for in-air energy as presented in the 2015 MITT Final EIS/OEIS.

High-energy lasers would be used during testing activities that were not previously analyzed. It is unlikely that the public would be exposed to high-energy lasers from testing activities because the Navy would not conduct these activities in proximity to the public and they would only occur in designated areas of the Mariana Islands Range Complex. Explosives would continue to be used at FDM, but the

energy produced from these explosives would be contained within their weapon danger zones, which are restricted to the public and would not have the potential to impact public health and safety. Although there would be a general increase to the frequency of in-air energy stressors, standard operating procedures for electromagnetic energy and lasers would prevent personnel and non-participants from being exposed to these stressors. The military's safety procedures would ensure that the potential for training and testing activities to impact public health and safety under Alternative 1 would be unlikely.

#### 3.13.2.2.2 Impacts from In-Air Energy Stressors Under Alternative 2

Under Alternative 2, the number of proposed training and testing activities that would generate in-air energy would increase as compared to Alternative 1 (see Table 3.0-10, Table 3.0-16, and Table 3.0-19). However, as explained in Alternative 1, the increase in ionizing radiation exposure that would occur from increases in training and testing activities would result in only limited exposure due to existing safety procedures. Alternative 2 would also include the introduction of high-energy lasers; however, the standard operating procedures that pertain to the use of high-energy lasers and other in-air energy sources would prevent any energy being generated from impacting public health and safety. Therefore, the implementation of Alternative 2 would have no appreciable change on the impact conclusions presented in the 2015 MITT Final EIS/OEIS.

#### 3.13.2.2.3 Impacts from In-Air Energy Stressors Under No Action Alternative

Under the No Action Alternative, proposed training and testing activities would not occur. Other military activities not associated with this Proposed Action would continue to occur. In-air energy stressors as listed above would not be introduced into the marine environment. Therefore, existing environmental conditions would either remain unchanged or would improve slightly after cessation of ongoing training and testing activities.

Discontinuing the training and testing activities would result in fewer in-air energy stressors within the marine environment where training and testing activities have historically been conducted. Therefore, discontinuing training and testing activities under the No Action Alternative would lessen the potential for in-air energy impacts on public health and safety, but would not measurably improve public health and safety.

### 3.13.2.3 Physical Interactions

As discussed in the 2015 MITT Final EIS/OEIS (Section 3.13.3.3, Physical Interactions), military aircraft, vessels, targets, munitions, towed devices, seafloor devices, and other expended materials have the potential to directly encounter recreational, commercial, institutional, and governmental aircraft, vessels, and users such as swimmers, divers, and anglers. Methods for providing notice to non-participants of Navy training and testing activities, procedures for minimizing encounters with military expended materials, and a discussion of unexploded ordnance are all outlined in the 2015 MITT Final EIS/OEIS (Section 3.13.3.3, Physical Interactions) as well as in previous sections 3.13.1.1.1 (Sea Space), 3.13.1.2 (Airspace), and 3.13.1.3 (Safety and Inspection Procedures).

#### 3.13.2.3.1 Impacts from Physical Interaction Stressors Under Alternative 1

Under Alternative 1, there would be a general increase in activities involving vessel movements, as shown in Table 3.0-12. Increases in the frequency of vessel movements would increase vessel traffic and the probability for a physical interaction to occur between naval vessels and non-participating vessels. However, standard operating procedures and safety and inspection procedures would be in place to

reduce the potential for non-participants and personnel to be physically impacted by training and testing activities. The military's safety procedures are designed to ensure that the potential for training and testing activities to impact public health and safety under Alternative 1 would be unlikely.

#### 3.13.2.3.2 Impacts from Physical Interaction Stressors Under Alternative 2

Under Alternative 2, the number of training and testing activities involving vessel movement would increase as compared to Alternative 1. However, as described in Alternative 1, the standard operating procedures and safety inspection procedures that are in place would prevent the increase in frequency of vessel movements from impacting public health and safety. Therefore, under Alternative 2, increases shown in Tables 2.5-1 and 2.5-2 would have no appreciable change on the impact conclusions presented in the 2015 MITT Final EIS/OEIS.

#### 3.13.2.3.3 Impacts from Physical Interaction Stressors Under No Action Alternative

Under the No Action Alternative, proposed training and testing activities would not occur. Other military activities not associated with this Proposed Action would continue to occur. Physical interaction stressors as listed above would not be introduced into the marine environment. Therefore, existing environmental conditions would either remain unchanged or would improve slightly after cessation of ongoing training and testing activities.

Discontinuing the training and testing activities would result in fewer physical interaction stressors within the marine environment where training and testing activities have historically been conducted. Therefore, discontinuing training and testing activities under the No Action Alternative would lessen the potential for physical interactions to impact public health and safety, but would not measurably improve public health and safety.

### 3.13.2.4 Secondary Stressors

As discussed in the 2015 MITT Final EIS/OEIS (Section 3.13.3.4, Secondary Impacts), public health and safety has the potential to be impacted if sediment or water quality were degraded. Section 3.1 (Sediments and Water Quality) considered the impacts on marine sediments and water quality of explosions and explosive byproducts, metals, chemicals other than explosives, and other materials (marine markers, flares, chaff, targets, and miscellaneous components of other materials). The analysis determined that no Guam, Commonwealth of the Northern Marianas Islands (CNMI), or federal standards or guidelines would be violated under any of the alternatives. Although a general increase in training and testing activities and military expended materials would occur, training and testing activities would not significantly degrade sediment or water quality or contaminate the food supply as discussed in Sections 3.1 (Sediments and Water Quality) and 3.9 (Fishes). In addition, because standards and guidelines are structured to protect human health, and no violations would occur, no secondary impacts on public health and safety would result from training and testing activities. Sections 3.9 (Fishes) and 3.12 (Socioeconomic Resources) discuss the impacts that the Proposed Action would have on fish and fisheries in the Study Area.

## 3.13.3 Public Scoping Comments

The public raised a number of issues during the scoping period in regard to public health and safety. The issues are summarized in the list below.

- **Impacts of sonar testing on human swimmers and divers –** Swimmers and recreational divers are not expected to be near training and testing activity locations where active sonar activities would occur because of the strict procedures for clearance of nonparticipants before conducting

activities. As discussed in the 2015 MITT Final EIS/OEIS (Section 3.13.3.1, Underwater Energy), the potential for the public to be exposed to these stressors would be limited to divers within unsafe proximity of an event. SCUBA diving is a popular recreational activity that is typically concentrated around known dive attractions such as reefs and shipwrecks. In general, recreational divers should dive at depths not exceeding 130 feet (40 meters) (Professional Association of Diving Instructors, 2011). This depth limit typically limits this activity's distance from shore. Therefore, training and testing activities closest to shore have the greatest potential to co-occur with the public. In addition, swimmers and recreational SCUBA divers are not expected to be near Navy pierside locations because access to these areas is controlled for safety and security reasons. Locations of popular offshore diving spots are well documented, dive boats are typically well marked, and diver-down flags would be visible from the Navy ships conducting training and testing activities. Therefore, co-occurrence of recreational divers and Navy activities is unlikely.

- **Potential risks from unexploded ordnance –** As discussed in the 2015 MITT Final EIS/OEIS (Section 3.13.3.3, Physical Interactions), munitions have low failure rates and generally function as intended. While fishing activities may encounter undetonated ordnance lying on the ocean floor, such an encounter would be unlikely given the large size of the Study Area and because the density of munitions in the Study Area is low. The Army Corps of Engineers prescribes the following procedures if military munitions are encountered: recognize when you may have encountered a munition, retreat from the area without touching or disturbing the item, and report the item to local law enforcement by calling 911 or the U.S. Coast Guard. More information can be viewed at the following link: http://uxoinfo.com/blogcfc/client/enclosures/uxooverview.pdf.
- **Impacts on water quality from explosives, unexploded ordnance, and military expended materials –** As discussed in Section 3.1.4 (Summary of Potential Impacts [Combined Impact of All Stressors] on Sediments and Water Quality) of the 2015 MITT Final EIS/OEIS, additive impacts from explosives, explosive byproducts, metals, chemicals other than explosives, and miscellaneous other materials would be measureable but would not exceed applicable standards and guidelines, which indicate the levels where there would be an impact on human health. The impact analysis in Section 3.1 (Sediments and Water Quality) of this SEIS/OEIS addresses impacts on water quality from all sources associated with the Proposed Action and indicates that there would be no appreciable change from the environmental baseline.
- **Chemical exposure to humans from training and testing activities –** As discussed in Section 3.2.4 (Summary of Potential Impacts [Combined Impacts of All Stressors] on Air Quality) of the 2015 MITT Final EIS/OEIS, emissions associated with Study Area military operations primarily occur offshore. Fixed-wing aircraft emissions typically occur above the 3,000 feet (914 meters) mixing layer. Even though these stressors can co-occur in time and space, atmospheric dispersion would occur so that the impacts would be short term. Changes in criteria and hazardous air pollutant emissions are not expected to be detectable, so the air quality is expected to fully recover before a subsequent activity. For these reasons, impacts on air quality from combining these resource stressors are expected to be similar to the impacts on air quality for any of these stressors taken individually with no additive, synergistic, or antagonistic interactions.

- **Training and testing activity safety measures to prevent harm to the CNMI economy –** A number of standard operating procedures, which were described in Section 2.3.3 (Standard Operating Procedures) of this SEIS/OEIS as well as the safety and inspection procedures discussed in Section 3.13.1.3 (Safety and Inspection Procedures) above are in place to ensure that military activities do not interfere or pose health risks to the public. There are no known instances of harm to the economy within the Study Area that have been reported due to safety measures associated with current training and testing activities. Standard operating procedures allow fishermen to continue to use the ocean without fear and allow tourists to come to the CNMI without reservations.
- **Fishermen safety –** As discussed above in Section 3.13.1.1.1 (Sea Space), the Navy uses Local NOTMARs, NOTMARs, and Marine Broadcast NOTMARs to advise local mariners of scheduled training and testing activities to avoid encountering fishers and boaters. In addition, the Navy also follows standard operating procedures that prevent military activities from occurring in the presence of non-participants. These standard operating procedures include ensuring impact areas and targets are unpopulated prior to potentially dangerous activities, canceling or delaying activities if public or personnel safety is a concern, and implementing temporary access restrictions to training and testing areas when appropriate to ensure public safety.
- **Spills and accidental releases of fuel or other hazardous materials –** Navy policies and procedures identified in Navy instructions, such as the *Environmental Readiness Program Manual*, include directives regarding waste management, pollution prevention, and recycling. These instructions are mandatory and minimize the likelihood of spills or accidental releases of fuel or other hazardous materials.
- **Health risks from a contaminated food supply –** The Record of Decision for the 2015 MITT Final EIS/OEIS indicated that there would be a negligible impact on water quality and that it would not affect the marine environment. Since there would be no significant change in water quality, and fish would not ingest increased amounts of contaminants as discussed in Section 3.9 (Fishes), the food supply would not be contaminated from proposed activities.

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