# Appendix D: Air Quality Emissions Calculations and Record of Non-Applicability

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## D AIR QUALITY EMISSIONS CALCULATIONS

This appendix discusses emission factors, calculations, and assumptions used in the air quality analyses presented in the Air Quality section of Chapter 3 (see Section 3.2).

## D.1 SURFACE OPERATIONS EMISSIONS

Surface operations are activities associated with vessel movements. Training and testing activities use a variety of marine vessels, including cruisers, destroyers, frigates, carriers, submarines, amphibious vessels, and small boats. These vessels use a variety of propulsion methods, including marine outboard engines, diesel engines, and gas turbines.

## Marine Outboard Engines:

The United States Environmental Protection Agency (USEPA) has published emissions factors for air pollutants produced by several types of two-stroke and four-stroke outboard engines. The most conservative emission factors for two-stroke engines of various horsepower are presented in Table D.1-1.

USEPA Outboard Engine Emissions Factors (grams/hp-hr.)										
NOx         CO         VOC         SOx										
0.018	0.63	0.25	0.00108							

### Table D.1-1: Emission Factors for Two Stroke Engines

Notes: CO = carbon monoxide, hp = horsepower, hr. = hour,  $NO_x = nitrogen oxides$ ,  $SO_x = sulfur oxides$ , USEPA = United States Environmental Protection Agency, VOC = volatile organic compounds

Source: USEPA 1999, Exhaust Emissions Factors for Non-Road Engine Modeling-Spark Ignition. Report No. NR-010b; Office of Mobile Sources, Assessment and Modeling Division, EPA-R-99-009.

Emissions for surface craft using outboard engines were calculated using USEPA AP-42 factors, and multiplied by the engine horsepower and hours of operation.

Where:

Emissions = surface craft emissions HP = horsepower (reflective of a particular load factor/engine power setting) HR/YR = hours per year EF = emission factor for specific engine type ENG = number of engines

To obtain the total criteria pollutant emissions for the Proposed Action, emissions were calculated for each training or testing activity, type of surface vessel, and criteria pollutant. These individual estimates of emissions, in units of tons per year, were then summed by criteria pollutant to obtain the aggregate emissions for surface vessel emissions activities.

## Diesel Engines:

Limited data were available for large marine diesel engines. Therefore, USEPA AP-42 emissions factors for industrial reciprocating engines were used to calculate diesel engine emissions. Other sources of vessel emissions factors were previous United States Department of the Navy (Navy) Environmental Impact Statement (EIS)/Overseas EIS (OEIS) documents (citing JJMA 2001). Diesel was assumed to be the

primary fuel to ensure a conservative estimate. Calculation methods similar to those described for Marine Outboard Engines were used to obtain emissions estimates for diesel engines.

Emissions = HP×HR/YR×EF×ENG

Where:

Emissions = surface craft emissions HP = horsepower (reflective of a particular load factor/engine power setting) HR/YR = hours per year EF = emission factor for specific engine type ENG = number of engines

Diesel engine emission factors were multiplied by the engine horsepower and annual hours of operation to calculate the pollutant emissions per year.

## D.2 AIR OPERATIONS EMISSIONS

Training and testing consists of the activities of various aircraft, including the F/A-18, P-3, SH-60B and other military aircraft. Aircraft operations of concern are those that occur from ground level up to 3,000 feet (ft.) (914 meters [m]) above ground level (AGL). The 3,000 ft. (914 m) AGL ceiling was assumed to be the atmospheric mixing height above which any pollutant generated would not contribute to increased pollutant concentrations at ground level (known as the mixing zone). All pollutant emissions from aircraft generated above 3,000 ft. (914 m) AGL are excluded from analysis for compliance with National Ambient Air Quality Standards. The pollutant emission rate is a function of the aircraft engine's fuel flow rate and efficiency. Emissions for one complete training activity for a particular aircraft are calculated by knowing the specific engine pollutant emission factors for each mode of operation.

For this EIS/OEIS, emission factors for most military engines were obtained from Navy's Aircraft Environmental Support Office (AESO) memoranda and previous Navy EIS/OEIS documentation (primarily citing the Federal Aviation Administration's Emissions and Dispersion Modeling [EDMS] model). For those aircraft for which engine data were unavailable, an applicable surrogate was used. Table D.2-1 is an example of emission factors for the aircraft engines. The table lists the various engine power modes, time in each mode, fuel flow, and corresponding pollutant emission factors.

Aircraft Type	Engine Model	Number of Engines	Time in Mode*, hours	Fuel Flow, lb./hr./engine	Emission Factors, Ib./1,000 gallons (gal.) of fuel						
		5			СО	NOx	VOC	SOx	РМ		
EA-6B	J52-P-408A (2)	2	3.2	3,195	7.99	5.71	1.09	0.40	12.20		
FA-18E/F	F414-GE-400 (2)	2	38.4	5,169	0.72	14.75	0.12	0.40	6.56		
P-3	T56-A-14 (4)	4	2.4	1,200	1.82	8.43	0.41	0.40	3.97		
SH-60B	T700-GE-401C (2)	2	120	600	6.25	6.40	0.55	0.40	4.20		

Table D.2-1: Emission Factors for Military Aircraft

\*Time in Mode = time operating below 3,000 ft. during a Joint Expeditionary Exercise

## D.3 ORDNANCE AND MUNITIONS EMISSIONS

Available emissions factors (AP-42, *Compilation of Air Pollutant Emission Factors*) were used. These factors were then multiplied by the net weight of the explosive and the number of items that were used per year. This calculation provides estimates of annual emissions.

### Emissions = EXP/YR×EF×Net Wt

Where:

Emissions = ordnance emissions EXP/YR = explosives, propellants, and pyrotechnics used per year EF = emissions factor Net Wt = net weight of explosive

## D.4 EMISSIONS FROM VEHICLES AND OTHER EQUIPMENT

Available emissions factors (AP-42, *Compilation of Air Pollutant Emission Factors* and other sources) were used. These factors were then multiplied by the fuel usage for the vehicle or the equipment.

Emissions = EF x fuel usage

Where:

Emissions = vehicle/equipment emissions Fuel usage = lb./year EF = emissions factor

## **D.5 EMISSIONS ESTIMATES SPREADSHEETS**

Tables D.5-1 to D.5-22 presented after the Record of Non-Applicability contain the emission factors and the emissions calculations for aircraft, vessels, ordnance, vehicles and other equipment for training and testing. The emissions are provided in total as well as by geographical jurisdiction (onshore and within state waters, federal waters, and beyond federal waters) for surface vessels and aircraft. Table D.5-23

presents the emissions from activities that will occur in Guam's sulfur oxide non-attainment areas, which are also included for purposes of the conformity analysis.

## D.6 RECORD OF NON-APPLICABILITY

The following are the Record of Non-Applicability memorandum (Figure D.6-1), the Navy Record of Non-Applicability (Figure D.6-2) and the Conformity Analysis (Figure D.6-3). The conformity analysis is included in Section 3.2, Air Quality.

## MEMORANDUM FOR THE RECORD

From: Commander, U.S. Pacific Fleet

Subj: Applicability Analyses for Mariana Islands Training and Testing (MITT) Environmental Impact Statement/Overseas Environmental Impact Statement – Military Readiness Activities in Waters of the Territory of Guam

Ref: (a) 40 CFR, Part 93, Subpart B: Determining Conformity of General Federal Actions to State or Federal Implementation Plans

Encl: (1) Record of Non-Applicability for Mariana Islands Training and Testing Activities in Waters of the Territory of Guam;

(2) Conformity Analyses for Preferred Alternative in Waters of the Territory of Guam

1. Enclosure (1) is a Record of Non-Applicability for those activities associated with Pacific Fleet training and testing activities that are expected to occur annually in waters of the Territory of Guam.  $SO_x$  emissions of the Preferred Alternative are included in Enclosure (2). Comparison of the calculated values in Enclosure 2 with those in 40 C.F.R. 93.153(b) show that this project is below the *de minimis* levels.

2. If there are any questions or if additional information is needed, please call John VanName at (808) 471-1714.

Figure D.6-1: Record of Non-Applicability Memorandum

## NAVY RECORD OF NON-APPLICABILITY FOR CLEAN AIR ACT CONFORMITY

The Proposed Action falls under the Record of Non-Applicability (RONA) category, and is documented with this RONA.

Action Proponents: United States Pacific Fleet Naval Sea Systems Command Naval Air Systems Command Space and Naval Warfare Systems Command Office of Naval Research

Proposed Action Name: Mariana Islands Training and Testing (MITT)

Proposed Action Location: Mariana Islands Range Complex, Guam

**Proposed Action and Emissions Summary:** 

See attached Conformity Analysis

Affected Air Basin: Guam Air Basin

Date RONA prepared: April 17, 2015

RONA prepared by: Naval Facilities Engineering Command, Pacific

Attainment Area Status and Emissions Evaluation Conclusion:

To the best of my knowledge and belief, the information contained within this General Conformity Applicability Analysis is correct and accurate. By signing this statement, I am in agreement with the finding that the total of all reasonably foreseeable direct and indirect emissions that will result from this action is below the *de minimis* threshold set forth in 40 C.F.R. 93.153(b). Accordingly, it is the Navy's determination that this action conforms to the applicable State Implementation Plan (SIP).

**RONA Approval:** 

Signature: (

Name/Rank: Mr. Larry Foster

Position: Director, Fleet Environmental

Activity: Commander, U.S. Pacific Fleet

Enclosure 1

Figure D.6-2: Record of Non-Applicability Form

Date: 21 APR 2015

## Subject: Conformity Analysis for Navy Training and Testing

The Proposed Action falls under the Record of Non-Availability (RONA) category pursuant to 40 Code of Federal Regulations (CFR) Parts 52 and 93, and the basis for exemption from conformity requirements is documented with this RONA.

The MITT EIS/OEIS has been prepared to assess current and future training and testing activities. The Study Area includes the waters of the Territory of Guam. The training and testing activities generally will involve a variety of boats and other watercraft. Aircraft overflights and vessel operations during portions of anti-submarine warfare and anti-surface warfare training and testing events would occur within the waters of the Territory of Guam.

Table 1 lists the emission sources, their engines, and their fuels that will operate in the non-attainment areas of Guam. This and other engine information were used to calculate the potential emissions of sulfur oxides.

Boat or Source	Fuel	Number of Engines and Engine Size
Cruiser	Distillate Oil	Four – 33,600 hp
Amphibious assault ship	Distillate Oil	Two boilers, two turbines – 70,000 hp total
Amphibious transport dock	Distillate Oil	Two boilers, two turbines – 24,000 hp total
Guided missile frigate	Distillate Oil	Two – 41,000 hp total
Landing craft – utility	Distillate Oil	Two – 680 hp
Landing craft – air cushioned	Distillate Oil	Four – 16,000 hp total
Rigid hull inflatable boat	Gasoline	Two – 300 hp
Combat rubber raiding craft	Gasoline	One – 55 hp
CH-46	Jet Fuel	Two – 1870 hp
CH-53	Jet Fuel	Two – 3925 hp
MH-53	Jet Fuel	Three – 4380 hp
MV-22	Jet Fuel	Two – 6150 hp
UH-1	Jet Fuel	One – 1,100 hp
AH-1	Jet Fuel	Two – 1690 hp
AV-8	Jet Fuel	One – 23,500 pound force
AV-8B	Jet Fuel	One – 23,500 pound force
H-60	Jet Fuel	Two – 1890 hp
SH-60B	Jet Fuel	Two – 1890 hp
C-130	Jet Fuel	Four – 4590 hp
MQ-4C	Jet Fuel	One – 8,917 pound force
Light armored vehicle	Distillate Oil	One – 19.5 hp
Assault Amphibious Vehicle	Distillate Oil	One – 400 hp
High Mobility Multi-Purpose Wheeled Vehicle	Distillate Oil	One – 190 hp
Truck	Distillate Oil	One – 170 hp
Dozer	Distillate Oil	One – 420 hp
Forklift	Distillate Oil	One – 120 hp
Generator	Distillate Oil	One – 120 hp
Reverse Osmosis Water Purification Unit	Distillate Oil	One – 120 hp

## Table 1: List of Emission Sources, Engines, and Fuels

Note: hp = horsepower

### Enclosure 2

### Figure D.6-3: Conformity Analysis

In addition to the engine information for each vessel, the annual hours of operation for each vessel was needed to estimate the emissions of SO<sub>x</sub>. Using the engine and fuel information and proposed hours of operation, the appropriate emission factors were identified from various U.S. Environmental Protection Agency documents for marine engines. These documents included:

- 1. Draft Regulatory Impact Analysis: Control of Emissions of Air Pollution from Locomotive Engines and Marine Compression-Ignition Engines Less than 30 Liters per Cylinder, EPA420-D-007-001, March 2007.
- 2. USEPA Memorandum, "Emission Factors for Recreational Marine Diesel Engines," EPA Doc No. EPA420-F-02-044, dated 09 September 2002.
- 3. Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling Compression-Ignition EPA 420-P-04-009. April 2004.
- 4. "Conversion Factors for Hydrocarbon Emission Components" EPA420-R-05-015. December 2005, NR-002c.

For each source, the appropriate emission factor is multiplied by the period of use and the engine size to estimate emissions. Similar methods were applied to calculate aircraft emissions. The emissions of sulfur oxides from all sources were added. Appendix D of the EIS/OEIS contains the information from which these emissions estimates were calculated. The emissions estimates for sulfur oxides for each alternative are provided in Table 2 below.

# Table 2: Emissions Estimates for the Preferred Alternative for Training and Testing Activities in the Non-Attainment Areas of Guam

Emissions by Air Pollutant (TPY)										
	SOx									
No Action Alternative	172									
Alternative 1										
Aircraft	9									
Vessels	254									
Ordnance	0									
Other	0									
Alternative 1 Total	263									
Change	91									
De Minimis Threshold	100									
Exceeds Threshold?	No									

Enclosure 2 (continued)

Figure D.6-3: Conformity Analysis (continued)

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Surface Ship	Emissions Factors (lb/hr) Propulsion Engines + Generators										
	co	NOx	HC	SOx	PM10						
CG-3	114.75	65.22	7.67	33.55	3.44						
DDG-3	106.67	53.84	7.84	21.22	2.80						
FFG-3	120.04	78.11	11.64	16.08	4.30						
TRB-3	6.47	56.22	1.55	7.40	1.18						
AOE-2	6.67	39.37	5	119.43	23.77						
USCG	5.74	57.91	0.88	11.55	0.21						
LHA-1	7.38	43.53	5.53	130.97	26.29						
LHD-2	6.80	40.12	5.10	120.70	24.23						
LPD-2	2.94	17.32	2.20	52.11	10.46						
LCAC	25.41	55.32	0.72	43.30	3.89						
LCU	36.21	44.95	0.52	3.11	1.57						
AAV-2	0.76	6.22	0.82	1.25	0.26						
AAAV											
PC-2	17.21	38.14	2.94	8.23	0.92						
MK V-2	3.86	29.49	0.99	4.73	0.40						
RIB-4	0.34	9.14	0.06	1.44	0.15						
CRRC-5		0.15	12.90								
AE-2	20.17	20.93	0.99	5.97	1.57						
BW-3		0.26	26.30								
SSN	0	0	0	0	0						
SSGN	0	0	0	0	0						
T-AGO(LFA)	6.67	39.37	5	119.43	23.77						
CG-PARTNER	107.79	47.1	9.9	21	2.6						
DDG-PARTNER	103.99	49.9	9	17.9	2.5						
SS-PARTNER	2.94	17.32	2.2	52.11	10.46						

Table D.5 -1 Surf	ace Ship Emission	Factors
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		Emission Indice	es, lb/1,000	lb fuel	Emissions Factors (lb/hr)						
Aircraft	со	NOx	voc	SOx	PM	со	NOx	voc	SOx	PM	
AH-1W	11.21	5.44	0.57	0.4	4.2	9.10252	4.41728	0.46284	0.3248	3.4104	
AV-8B	8.8	6.71	0.28	0.4	7.1	52.8	40.26	1.68	2.4	42.6	
C-130 F/R/T	2.07	8.16	0.47	0.4	3.97	9.315	36.72	2.115	1.8	17.865	
CH-46	17.04	4.12	2.64	0.4	1.78	20.448	4.944	3.168	0.48	2.136	
CH-53	2.13	8.08	0.15	0.4	2.21	9.50832	36.06912	0.6696	1.7856	9.86544	
E-2 / E-2C	2.16	8.06	0.49	0.4	3.97	4.752	17.732	1.078	0.88	8.734	
EA-18G	0.72	14.75	0.12	0.4	6.56	7.44336	152.4855	1.24056	4.1352	67.81728	
EA-6B	7.99	5.71	1.09	0.4	12.12	51.0561	36.4869	6.9651	2.556	77.4468	
EP-3	3.7	7.8	0.5	0.4	3	15.5844	32.8536	2.106	1.6848	12.636	
F-15	3.62	46.72	0.65	0.4	8.15	22.42952	289.4771	4.0274	2.4784	50.4974	
FA-18A/C	2.44	6.74	0.44	0.4	6.36	16.19184	44.72664	2.91984	2.6544	42.20496	
FA-18E/F	0.72	14.75	0.12	0.4	6.56	7.44336	152.4855	1.24056	4.1352	67.81728	
HH-60	6.25	6.4	0.55	0.4	4.2	7.5	7.68	0.66	0.48	5.04	
Learjet	22.38	5.9	4.26	0.4	1.27	23.81232	6.2776	4.53264	0.4256	1.35128	
MH-60R/S	6.25	6.4	0.55	0.4	4.2	7.5	7.68	0.66	0.48	5.04	
P-3C	1.82	8.43	0.41	0.4	3.97	8.736	40.464	1.968	1.92	19.056	
P-8 MMA	1.24	9.26	0.28	0.4	0.56	4.045624	30.21168	0.913528	1.30504	1.827056	
S-3	14.1	4.07	1.86	0.4	3.62	32.289	9.3203	4.2594	0.916	8.2898	
S-3B	14.1	4.07	1.86	0.4	3.62	32.289	9.3203	4.2594	0.916	8.2898	
SH-60	6.25	6.4	0.55	0.4	4.2	7.5	7.68	0.66	0.48	5.04	
SH-60B	6.25	6.4	0.55	0.4	4.2	7.5	7.68	0.66	0.48	5.04	
SH-60B/F	6.25	6.4	0.55	0.4	4.2	7.5	7.68	0.66	0.48	5.04	
SH-60F	6.25	6.4	0.55	0.4	4.2	7.5	7.68	0.66	0.48	5.04	
UH-1N	3.34	4.72	0.17	0.4	4.2	1.8036	2.5488	0.0918	0.216	2.268	
A-10	4	8.83	0.4	0.4	2.67	12.104	26.71958	1.2104	1.2104	8.07942	
B-1B	0.84	13.12	0.11	0.4	0.14	5.5776	87.1168	0.7304	2.656	0.9296	
E-2	0.65	10.45	0.16	0.4	3.97	2.8847	46.3771	0.71008	1.7752	17.61886	
E-3	2.07	8.45	0.31	0.4	0.26	67.65588	276.1798	10.13204	13.0736	8.49784	
KC-135	1.34	13.5	0.03	0.4	0.13	30.66992	308.988	0.68664	9.1552	2.97544	
MQ-4C						2.1	38.84	0.66	3.54	0.61	
MV-22	19.74	3.94	3.43	0.4	1.78	22.1088	4.4128	3.8416	0.448	1.9936	

Table D.5-2 Aircraft Emission Factors

	Ordnance	Emission Factor (Ib per Ib)						Emission Factor (Ib/item)							
Ordnance Type		CO2	со	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>	SO2	Lead	CO <sub>2</sub>	со	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	Lead
BOMB	CBU MK20														
DOME	ROCKEYE		-	ļ						0.00				-	
	GBU32I JDAM		0.1482							57.06					
	LGTR					-				0.00	5				
	MK76		0.085	-		-		-		0.00					5
	BDIL 48		0.000							0.26					
	MK82 HE		0.3184	-						61	-				-
	GBU12 -		0.0104							01					2
	Paveway II		0.3184							61					
	MK82 INERT		0.085							0.26					
	BDU 45		0.085							0.26					
	MK83 HE		0.1482							62					
	GBU 16		0.1482							66	· · · · · ·				
	MK84		0.1482							140					
	MK83 INERT		0.085							0.26	_				
OTHER ORD	Туре			•											
The second contraction of the	EER/IEER	10	0.0044	0.011				0.00004		and Country					
	AN/SQQ-110	1.2	0.0044	0.011				0.00004		0.02					
	BLASTING								1 005 02	2 105 04	A FOF OF	1.005.04	2 005 04		1 205 04
	CAP MK11				<u> </u>				1.80E-05	5.10E-04	4.50E-05	4.60E-04	2.90E-04		1.50E-04
	EIRING													-	
	DEVICE														
	FUSE														
	GRENADE								4 405 00		1				
	SIMULATOR								4.10E-03	0.0004	5.60E-03	0.12		4.70E-04	1.40E-06
	Grenades	6.30E-01	0.021	6.30E-03	2.10E-02	1.50E-02	1.20E-04	1.40E-04		0.00					
	Haversacks	6.30E-01	0.021	6.30E-03	2.10E-02	1.50E-02	1.20E-04	1.40E-04		0.42					
	K143	. In the second second		analistation taken		a damaran		and the second second							
	Antipersonnel	6.30E-01	0.021	6.30E-03	2.10E-02	1.50E-02	1.20E-04	1.40E-04		0.02					
	Mine									0.03					
	BANGALORE	6 30E-01	0.021	6 30E-03	2 10E-02	1 50E-02	1 20E-04	1 40E-04							
	TORP	0.002.01	0.021		2.102.02	1.002 02	1.200 04	1.400 04		0.21					
	M7													-	
	BANDOLEER														
	MK57		0.15108												
	(Claymore														

Table D.5-3 Ordnance Emission Factors

				Emissio	n Factor (I	b per lb)					Emissi	on Factor (	lb/item)		
Ordnance Type	Ordnance	CO <sub>2</sub>	со	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>	SO2	Lead	CO <sub>2</sub>	со	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>	SO2	Lead
	M112 DEMO								7 90E-01	2 60E-02	7 90E-03	2 60E-02	1 90E-02		1 70E-04
	CHARGE								7.90E-01	2.00E-02	7.90E-03	2.00E-02	1.900-02		1.70E-04
	M700		NE 1721 /264380				-								
	BLASTING		0.149						0.0000	0.0000	0.0000	0.00000	0.00000	0.000000	0
	FUSE								0.0008	0.0003	0.0002	0.00009	0.00009	0.000002	0
	Flare, Aircraft														
	Parachute												-		
		0.039	0.021	0.054	0.1	0.092	0.00018			5.91E-05	0.000152	0.000282	0.000259	5.07E-07	
	Chaff	0.039	0.021	0.054	0.1	0.092	0.00018			5.91E-05	0.000152	0.000282	0.000259	5.07E-07	
	MK36 M0														
	DEMO														
	CHARGE														_
	MK75														
	CHARGE														
	MK84 [86]														
	EOD Shaped														
	Charge			-											
	MK120														
	NUNELEC														
			-				1	-	-		1		-	-	9
	NONELEC														
	MK138 DEMO	-												-	
	CHG	6.30E-01	0.021	6.30E-03	2.10E-02	1.50E-02	1.20E-04	1.40E-04							
	ASSEMBLY														
	MK140							5				(*)			
	FLEXIBLE														
	CHARGE														
	PBXN-109		· · · · · · · · · · · · · · · · · · ·				· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·	š
	TEST Det														
	Cord														
	SIGNAL MK														
	18(G950)														
	SMOKE								<u>.</u>						
	C4 1.25 LB	6.30E-01	0.021	6.30E-03	2.10E-02	1.50E-02	1.20E-04	1.40E-04		0.02625	0.007875	0.02625	0.018/5	0.00015	
	C45LB	6.30E-01	0.021	6.30E-03	2.10E-02	1.50E-02	1.20E-04	1.40E-04		0.105	0.0315	0.105	0.075	0.0006	
	C4 15 LB	6.30E-01	0.021	6.30E-03	2.10E-02	1.50E-02	1.20E-04	1.40E-04		0.315	0.0945	0.315	0.225	0.0018	
	C4 40 LB	6.30E-01	0.021	6.30E-03	2.10E-02	1.50E-02	1.20E-04	1.40E-04		0.84	0.252	0.84	0.6	0.0048	0.0056
	C4 100 LB	6.30E-01	0.021	6.30E-03	2.10E-02	1.50E-02	1.20E-04	1.40E-04		2.1	0.63	2.1	1.5	0.012	0.014

Table D.5-3 Ordnance Emission Factors

Onderse Trues	Ordnenee			Emissio	n Factor (l'	b per lb)					Emissio	on Factor (	lb/item)		
Ordnance Type	Ordnance	CO <sub>2</sub>	со	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	Lead	CO <sub>2</sub>	со	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	Lead
	C4 300 LB	6.30E-01	0.021	6.30E-03	2.10E-02	1.50E-02	1.20E-04	1.40E-04		0.021	0.0063	0.021	0.015	0.00012	0.00014
	C4 500 LB	6.30E-01	0.021	6.30E-03	2.10E-02	1.50E-02	1.20E-04	1.40E-04		0.021	0.0063	0.021	0.015	0.00012	0.00014
	TNT Blocks		0.398			· · · ·	<u> </u>					I	,		
1	0.5 lbd	┝───┤		$\vdash$	$ \longrightarrow $	<b>⊢−−−−</b> ′	┝───┘		'		$\vdash$	<b>└───</b> ┤	└───┘	└───┘	┢────┦
	DEMO SHEET						[]					L!		L]	
	DETONATING	$\square$				[	$\square$				$\square$				
7	CORD	$\square$		$\square$	$\square$	<b>└───</b> ′	L/		<b> </b>	$\vdash$	$\square$	<u> </u>	$\square$		$\square$
			1 1	1 !	[ ]	i '	1 /			/	[ ]	1 1	1 1	1 /	
		<b>├</b> ──┤	<u>/</u>	┝───┦	<u> </u>	<u> </u>		$\vdash$	'		$\vdash$		<b>├</b> ──┦	<b>⊢</b>	
	ARTILLERY	6.30E-01	0.021	6.30E-03	2.10E-02	1.50E-02	1.20E-04	1.40E-04		0.002888	0.000866	0.002888	0.002063	1.65E-05	
PROJECTILE (LARGE)	155MM HE	6.51	2.35E+01	1.43E+00	0.496	0.2418	1 /	2.26E-03			[ ]	( I		/	
	155MM ILL					['			6.00	8.63	0.087	3.44	0.13	0.0027	0.029
	5"/54 Inert	2.60E-04	3.50E-04	3.60E-05	2.60E-05	2.30E-05	<u> </u>	6.70E-04	[]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5"/54	5"/54 BLP	1.60E-02	2.00E-02		1.20E-03	9.30E-04	'	6.00E-06		· · · · ·	$\square$		$ \longrightarrow $		
	5"/54	$\square$	()			ſ'	(		[]	· · · · ·	$\square$		,		
	HCVT+32	1.60E-02	2.00E-02	1 !	1.20E-03	9.30E-04	1 /	6.00E-06	1	!	1 = 1	1	1	1	
1	(EOD)			$\vdash$			┝───┘		'	0.16	0	0.0096	0.00/44		0.000048
	5"/54 HECV1	1.60E-02	2.00E-02	<b>└───</b> ┦	1.20E-03	9.30E-04	<b>└───┘</b>	6.00E-06	'	0.1280	0.1600	0.0096	0.0074		
	5"/54 HEPD	1.60E-02	2.00E-02		1.20E-03	9.30E-04	<b>└───</b> ┘	6.00E-06	'	0.16	0	0.0096	0.00744	0	0.000048
	5"/54 HEVT	1.60E-02	2.00E-02		1.20E-03	9.30E-04	L/	6.00E-06	'	1.60E-01	0.00E+00	9.60E-03	7.44E-03	0.00E+00	4.80E-05
	5"/54 ILL	1.50E-02	1.40E-02	3.60E-04	9.20E-04	7.60E-04	⊢/	1.30E-06	'	1.12E-01	2.88E-03	7.36E-03	6.08E-03	0.00E+00	1.04E-05
late later	5"54/54 VTNF	1.60E-02	2.00E-02		1.20E-03	9.30E-04		6.00E-06	'	1.60E-01	0.00E+00	9.60E-03	7.44E-03	0.00E+00	4.80E-05
5"/62	5"/62	1.60E-02	2.00E-02		1.20E-03	9.30E-04		6.00E-06	·	1.60E-01	0.00E+00	9.60E-03	7.44E-03	0.00E+00	4.80E-05
	5"/62 HE-MFF	1.60E-02	2.00E-02		1.20E-03	9.30E-04		6.00E-06	'	1.60E-01	0.00E+00	9.60E-03	7.44E-03	0.00E+00	4.80E-05
	5"/62 HECVT	1.60E-02	2.00E-02		1.20E-03	9.30E-04		6.00E-06	'	1.60E-01	0.00E+00	9.60E-03	7.44E-03	0.00E+00	4.80E-05
	5"/62 HEET	1.60E-02	2.00E-02		1.20E-03	9.30E-04		6.00E-06		1.60E-01	0.00E+00	9.60E-03	7.44E-03	0.00E+00	4.80E-05
	5"/62 KEET	1.60E-02	2.00E-02		1.20E-03	9.30E-04		6.00E-06		1.60E-01	0.00E+00	9.60E-03	7.44E-03	0.00E+00	4.80E-05
60mm	60MM					L'	L'		0.4	0.06	0.005	0.062	0.03		0.0004
	60MM WP					L'			0.13	0.154	0.0124	0.221	0.494	0.00014	0.001
76mm	76MM BLP	1.44E-02	1.80E-02		1.08E-03	8.37E-04		5.40E-06							
	81MM HE					<u> </u>			1.48	0.14	0.016	0.173	0.096		0.0007
	81MM ILL					<u> </u>	$\square$		1.48	0.14	0.016	0.173	0.096		0.0007
CAS	GAU-17		1 1	1 !	[ ]	i '	/	1 1		/	[ ]	í !	1 1	[ ]	
	30mm	<b>└───</b> ┤	<u> </u>	$\vdash$	$\vdash$	<b>└───</b> ┘	┝───┘		·		┢───┦	<i>_</i>	└───┘	<b>└──</b> ┦	<u> </u>
(SMALL)	20MM	0.19	0.38	0.0049	0.0075	0.0053	/	0.00026	0.016	0.033	0.00043	0.00066	0.00046		0.000023

Table D.5-3 Ordnance Emission Factors

Ordnanaa Tura	Ordnanaa			Emissio	n Factor (I	b per lb)					Emissi	on Factor (	lb/item)		
Ordnance Type	Urdnance	CO <sub>2</sub>	со	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>	SO2	Lead	CO2	со	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>	SO2	Lead
	25MM								0.11	0.019	0.00067	0.0027	0.0017		0.000055
	30MM EFV Main Gun	0.14	0.028	0.0063	0.13	0.08		0.00037		7.28E-03	1.64E-03	3.38E-02	2.08E-02	0.00E+00	9.62E-05
	40MM	5.70E-01	6.00E-02	1.30E-02	1.10E-01	5.60E-02		6.20E-04	4.90E-02	4.00E-03	1.30E-03	9.50E-03	5.10E-03	0.00E+00	8.00E-05
	40MM HE	5.70E-01	6.00E-02	1.30E-02	1.10E-01	5.60E-02		6.20E-04	4.90E-02	4.00E-03	1.30E-03	9.50E-03	5.10E-03	0.00E+00	8.00E-05
	40MM ILL	7.20E-02	2.40E-02	6.50E-03	1.40E-01	1.20E-01	0.00019	7.90E-04	0.015	0.005	0.0014	0.029	0.025	0.00004	1.60E-04
	40MM PRACTICE	2.60E-01	2.50E-01	9.50E-03	1.40E-02	1.10E-02		1.10E-03	2.70E-03	2.60E-03	9.70E-05	1.40E-04	1.20E-04	0.00E+00	1.10E-05
	.45 CAL	2.80E-01	3.40E-01	1.00E-02	4.70E-02	4.00E-02		1.60E-02	2.20E-04	2.60E-04	8.10E-06	3.70E-05	3.10E-05		1.20E-05
	5.56	2.40E-01	4.40E-01	1.30E-02	9.20E-03	7.60E-03		3.20E-03	8.70E-04	1.60E-03	8.50E-05	3.90E-05	2.80E-05		5.10E-06
	5.56 BLANK	2.60E-01	3.20E-01	2.30E-02	7.80E-03	6.80E-03	0.00011	1.10E-03	2.30E-04	2.80E-04	2.00E-05	6.90E-06	6.00E-06	9.80E-09	9.70E-07
	.50CAL	1.50E-01	3.30E-01	3.60E-02	9.60E-03	5.60E-03		4.00E-04	5.10E-03	1.10E-02	1.20E-03	3.10E-04	1.90E-04		1.30E-05
	.50CAL	1.50E-01	3.30E-01	3.60E-02	9.60E-03	5.60E-03		4.00E-04	5.10E-03	1.10E-02	1.20E-03	3.10E-04	1.90E-04		1.30E-05
	.50CAL BLANK	3.10E-01	2.70E-01	4.10E-03	1.40E-02	1.30E-02		1.70E-03	5.10E-03	1.10E-02	1.20E-03	3.10E-04	1.90E-04		1.30E-05
	7.62	3.50E-01	2.50E-01	1.60E-02	6.10E-03	5.60E-03	0.00013	9.70E-04	1.20E-03	2.30E-03	9.70E-05	5.10E-05	3.80E-05		4.90E-06
	7.62	3.50E-01	2.50E-01	1.60E-02	6.10E-03	5.60E-03	0.00013	9.70E-04	1.20E-03	2.30E-03	9.70E-05	5.10E-05	3.80E-05		4.90E-06
	9MM								2.00E-04	3.10E-04	1.50E-05	2.40E-05	2.00E-05	8.20E-08	6.80E-06
	.300 WIN MAG								1.90E-03	3.00E-03	1.50E-05	9.40E-05	7.30E-05		1.80E-05
	.223 Rifle Rounds								7.50E-05	8.00E-05	5.00E-06	3.40E-06	2.60E-06		1.90E-06
	.22 Magnum						Î		7.50E-05	8.00E-05	5.00E-06	3.40E-06	2.60E-06		1.90E-06
	.22 Long Rifle								7.50E-05	8.00E-05	5.00E-06	3.40E-06	2.60E-06		1.90E-06
	12 Guage Shotgun	5.10E-03	1.10E-02	1.20E-03	3.10E-04	1.90E-04		1.30E-05							
MINE SHAPE	M18A1	1.6	2.00E-02	1.80E-02	4.90E-02	2.60E-02		5.70E-05							
	MK76														
MISSILE	AGM-114B														
	AGM-65 Ma∨erick														
	AGM-84	0.4		0.06	0.1025	0.1025			140	30.62356	35.574	61.795	61.795		
	AIM-120														
	AIM-7														
	AIM-9														
	BGM-71E <b>TOW-</b> A														
	GBU-9														

Table D.5-3 Ordnance Emission Factors

Onderse Truns	Onderserves			Emissio	n Factor (I	b per lb)					Emissi	on Factor (	lb/item)		
Ordnance Type	Ordnance	CO <sub>2</sub>	со	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	Lead	CO <sub>2</sub>	со	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	Lead
	AGM-88 HARM														
	NSM														
	JSOW														
	Japanese Missile Tests														
	Tactical Tomahawk														
	Seasparrow Missile														
	SLAM ER														
	SM2 or														
	equivalent														
ROCKET	2.75" RKT	4.50E-01	5.60E-02	7.10E-03	6.10E-02	3.80E-02		1.20E-03							
	2.75" RKT HE	3.00E-01	1.70E-01	2.40E-03	1.00E-01	5.30E-02		2.60E-04	5.5	0.93	0.0056	0.4	0.29		0.07
	2.75" RKT I	4.50E-01	5.60E-02	7.10E-03	6.10E-02	3.80E-02		1.20E-03							
PYROTECHNICS	MK58 Marine Location Marker	1	1.30E-02	1.20E-02	3.20E-02	1.70E-02	6.10E-05	3.80E-05							
	Smoke Grenade AN- M8								3.30E-02	4.60E-02	1.00E-03	6.80E-01	1.10E-01	1.20E-04	4.70E-04

Table D.5-3 Ordnance Emission Factors

			EM	ISSION FA	CTORS, I	b/hr		
ITEM	со	NOx	voc	SOx	<b>PM</b> 10	CO <sub>2</sub>	N20 (Ib/gal)	CH4
AAV	0.61	1.67	0.20	0.00	0.77	151.0000	0.0006	0.0179
LAV	0.61	1.67	0.20	0.00	0.77	151.0000	0.0006	0.0179
HMMW	0.61	1.67	0.20	0.00	0.77	151.0000	0.0006	0.0179
Trucks	0.61	1.67	0.20	0.00	0.77	151.0000	0.0006	0.0179
Dozer	1.1058	2.3867	0.2854	0.0025	0.0993	239.0000	0.0006	0.0257
Forklift	0.2215	0.3551	0.0497	0.0006	0.0178	54.4000	0.0006	0.0045
ROWPU	0.4857	0.7130	0.1008	0.0009	0.0537	77.9000	0.0006	0.0091
Generator	0.2974	0.5083	0.0702	0.0007	0.0296	61.0000	0.0006	0.0063
Crane	0.4553	1.1066	0.1276	0.0014	0.0466	129.0000	0.0006	0.0115

## Table D.5-4 Emission Factors for Other Items

AAV – Assault Amphibious Vehicle

LAV – Light Armored Vehicle

HMMWV – High Mobility Multipurpose Wheeled Vehicle

ROWPU – Reverse Osmosis Water Purification Unit

				OPERATI	ONAL	INFOR		- VESSE	ELS									En	nissions	<b>Bv</b> Juris	diction (	lb/vear)									Green	house Gas E	mission	s (lb/vea	r)
	(#) 9		Ship /	Vessel / Boat		F	Range Time	(hr)	Dist	tribution	(hr)		S	tate (0-3 r	nm offshore	)			Wa	aters of U S	6 (3-12 nm	)			Intern	ational Wa	aters (>12 r	nm)		Î					
Type of Training	Training Op	Number	Ship Type	Type	Participation	Per Ship	Time at Each Power Level (%)	Total	0-3 nm from shore	3-12 nm from shore	>12 nm from shore	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SO,	PM10	PM <sub>2.5</sub>	со	NOx	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	Fuel Flow (GP	Annual Fuel Consumption (gal)	CO2	N <sub>2</sub> O	СН₄	CO2e
ANTI-AIR WARFARE																										1									
Air Combat Maneuver	720																																		
Air Defense Exercise	80																																		
Air Intercept Control	0																																		
Gunnery Exercise, A-A (Medium Caliber)	12																																		
Missile Exercise, A-A	12				1	1			1.																										
Gunnery Exercise, S-A (Large Caliber)	0	0	FFG	Guided Missil Frigate	e 2.00	2.0	100%	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79	0	0	0	0	0
Gunnery Exercise, S-A (Medium Caliber)	0	0	FFG	Guided Missil Frigate	e 2.00	2.0	100%	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79	0	0	0	0	0
Missile Exercise, S-A	2	4	FFG	Guided Missil Frigate	e 2.00	2.0	100%	8.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79	0	0	0	0	0
STRIKE WARFARE					1	1																													
Bombing Exercise, A-G	1300																																		
Missile Exercise, A-G	60																																		
Gunnery Exercise, A-G	22				_	-																													
Rescue	60																																		
AMPHIBIOUS WARFARE		· · ·																6																	
Fire Support Exercise - Land-Based target	8	8	CG	Cruiser	1	8.0	100%	64.00	64.0	0.0	0.0	7,344	4,174	491	2,147	220	198	0	0	0	0	0	0	0	0	0	0	0	0	184	11,776	247,932	8	7	250,572
Amphibious Rehearsal, No Landing - Marine Air Ground Task Force	0																																		
Amphibious Assault - Marine Air Ground Task Force	4	4	CG	Cruiser	1	8.0	100%	32.0	32.0	0.0	0.0	3,672	2,087	245	1,074	110	99	0	0	0	0	0	0	0	0	0	0	0	0	184	5,888	123,966	4	4	125,286
		4	LHA	Amphib. Assault Ship - Tarawa	1	8.0	100%	32.0	32.0	0.0	0.0	236	1,393	177	4,191	841	757	0	0	0	0	0	0	0	0	0	0	0	0	373	11,936	251,301	8	7	253,977
		8	LPD	Amphibious Transport Dock - Wasp	2	8.0	100%	64.0	64.0	0.0	0.0	188	1,109	141	3,335	669	602	0	0	0	0	0	0	0	0	0	0	0	0	373	23,872	502,601	16	14	507,954
		8	FFG	Guided Missil Frigate	e 2	8.0	100%	64.0	64.0	0.0	0.0	7,683	4,999	745	1,029	275	248	0	0	0	0	0	0	0	0	0	0	0	0	79	5,056	106,449	3	3	107,583
Amphibious Raid - Special Purpose Marine Air Ground Task Force		2	LHA	Amphib. Assault Ship - Tarawa	1	6.0	100%	12.0	12.0	0.0	0.0	89	522	66	1,572	315	284	0	0	0	0	0	0	0	0	0	0	0	0	373	4,476	94,238	3	3	95,241
	2	4	LPD	Amphibious Transport Dock - Wasp	2	2.5	100%	10.0	10.0	0.0	0.0	29	173	22	521	105	94	0	0	0	0	0	0	0	0	0	Û	0	Ũ	373	3,730	78,531	3	2	79,368
Urban Warfare Training	17																																		
Non-Combatant Evacuation Operation	2	2	LHA	Amphib. Assault Ship - Tarawa	1	80.0	100%	160.0	160,0	0.0	0.0	1,181	6,965	885	20,955	4,206	3,786	0	0	0	0	0	0	0	0	0	0	0	0	373	59,680	1,256,503	41	36	1,269,884

		-	_	OPERATIO	MAL	NEORI	MATION	VESSE					_	_	_	_		Er	niccione	By Jurie	diction	(lh/year)		_	_			_	_	r	Green	house Gas F	mission	(lh/vear	4
	(#)		Ship / V	essel / Boat		Ra	ange Time	(hr)	Dist	ribution	(hr)		S	tate (0-3 n	m offshore	)		EI	Wa	aters of U S	6 (3-12 nm	(ID/year) 1)			Interr	ational Wa	ters (>12 r	nm)	_	Î	Green	nouse Gas E	inission	s (ib/yeai	/
Type of Training	Training Ops	Number	Ship Type	Type	Participation	Per Ship	Time at Each Power Level (%)	Total	0-3 nm from shore	3-12 nm from shore	>12 nm from shore	со	NO <sub>x</sub>	НС	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	HC	SOx	PM10	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	Fuel Flow (GPI	Annual Fuel Consumption (gal)	CO <sub>2</sub>	N <sub>2</sub> O	CH4	CO <sub>2-€</sub>
		4	LPD	Amphibious Transport Dock - Wasp	2	80.0	100%	320.0	320.0	0.0	0.0	940	5,543	705	16,676	3,347	3,012	0	0	0	0	0	0	0	0	0	0	0	0	373	119,360	2,513,005	82	71	2,539,769
		2	LCU	Landing Craft Utility	1	80.0	100%	160.0	160.0	0.0	0.0	5,794	7,192	83	498	251	226	0	0	0	0	0	0	0	0	0	0	0	0	66	10,560	222,330	7	6	224,698
Humanitarian Assistance/ Disaster Relief Operations	2	2	LHA	Amphib. Assault Ship - Tarawa	1	8.0	100%	16.0	16.0	0.0	0.0	118	696	88	2,096	421	379	0	0	0	0	0	0	0	0	0	0	0	0	373	5,968	125,650	4	4	126,988
		4	LPD	Transport Dock - Wasp	2	8.0	100%	32.0	32.0	0.0	0.0	94	554	70	1,668	335	301	0	0	0	0	0	0	0	0	0	0	0	0	373	11,936	251,301	8	7	253,977
		2	LCAC	Air Cushioned	1	8.0	100%	16.0	16.0	0.0	0.0	407	885	12	693	62	56	0	0	0	0	0	0	0	0	0	0	0	0	611	9,776	205,824	7	6	208,016
Intelligence, Surveillance, and Reconaissance	0																																		
ANTI-SURFACE WARFAR	E	<u> </u>	-	1	· · · · ·	<u> </u>					<u> </u>												117												
Gunnery Exercise, A-S (Small Caliber) - Ship	220																																		
Gunnery Exercise, A-S (Medium Caliber) - Ship	155																																		
Missile Exercise (A-S) - Rocket	0																																		
Missile Exercise (A-S)	2																																		
Laser Targeting	60		_																																
Bombing Exercise (A-S)	28																																		
(Submarine to Surface)	0																																		
Missile Exercise (S-S)	0	0	FFG	Guided Missile Frigate	2.00	2.0	100%	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79	0	0	0	0	0
Gunnery Exercise (S-S)- Ship, Large Caliber	12			ar. 6	-		a de contante		10000																										
		3	CG	Cruiser Guided Missile	0.22	2.5	100%	6.6 13.5	0.0	1.8	4.8	0	0	0	0	0	0	212	121	14 30	62 80	6	6	545	310	36 76	206	16	15 24	184	1,214	25,568	1	1	25,840
			550	Destroyer Guided Missile	0.10	2.0	10010	10.0	0.0										201			-		1,001			200		- 1	70	2,020		-	-	
		2	FFG	Frigate	0.15	2.5	100%	4.5	0.0	1.3	3.2	U	U	U	U	U	U	151	98	15	20	5	5	389	253	38	52	14	13	79	356	7,485	U	U	7,564
		1	Unknown USCG	Other US Coast Guard	0.05	2.5 2.5	100% 100%	1.5 3.6	0.0	0.4	1.1 2.6	0	0	0	0	0	0	3 6	17 58	2 1	51 12	10 0	9 0	15	43 150	6 2	130 30	26 1	24 0	66 66	99 238	2,084 5,002	0	0	2,107 5,056
		$\left  \right $				$\left  \right $				-							-																		
Gunnery Exercise (S-S)- Ship, Medium caliber	5																																		
		1	CG	Cruiser	0.22	2.5	100%	2.8	0.0	0.8	2.0	0	0	0	0	0	0	88	50	6	26	3	2	227	129	15	66	7	6	184	506	10,653	0	0	10,767
		2	DDG	Guided Missile Destroyer	0.45	2.5	100%	5.6	0.0	1.6	4.1	0	0	0	0	0	0	168	85	12	33	4	4	432	218	32	86	11	10	187	1,052	22,146	1	1	22,382

				OPERATIC	DNAL	INFOR	MATION	- VESSE	ELS									E	missions	By Juris	diction	(lb/year)								el contra de la co	Green	house Gas E	mission	s (Ib/yeaı	r)
	(#) sd		Ship / Ve	essel / Boat	1 3.5	R	ange Time	(hr)	Dist	tribution	(hr)		s	itate (0-3 n	nm offshore	e) 1	r		Wa	aters of U	S (3-12 nm	i) I I			Interr	national W	aters (>12	nm)	1	(H-	c				
Type of Training	Training O	Number	Ship Type	Type	Participation	Per Ship	Time at Each Power Level (%)	Total	0-3 nm from shore	3-12 nm from shore	>12 nm from shore	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	Fuel Flow (G	Annual Fuel Consumption (gal)	CO2	N <sub>2</sub> O	CH4	CO <sub>2.€</sub>
		1	FFG	Guided Missile Frigate	0.15	2.5	100%	1.9	0.0	0.5	1.4	0	0	0	0	0	0	63	41	6	8	2	2	162	105	16	22	6	5	79	148	3,119	0	0	3,152
		1	USCG	US Coast Guard	0.12	2.5	100%	1.5	0.0	0.4	1.1	0	0	0	0	0	0	2	24	0	5	0	0	6	63	1	12	0	0	66	99	2,084	0	0	2,107
Sinking Exercise (SINKEX)	2	10	FFG	Guided Missile Frigate	5.00	16.0	100%	160.0	0.0	0.0	160.0	0	0	0	0	0	0	0	0	0	0	0	0	19,206	12,498	1,862	2,573	688	619	79	12,640	266,123	9	8	268,957
Gunnery Exercise (S-S) Boat – Medium-caliber	0	0	FFG	Guided Missile Frigate	5.00	3.0	100%	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79	0	0	0	0	0
Gunnery Exercise (S-S) Small-caliber	32	64	CRRC	Combat Rubber Raiding Craft	2	3.0	100%	192.0	0.0	.0.0	192.0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	2,477	.0	0	0	3	576	12,127	0	0	12,256
Maritime Security Operations (MSO)	6	6	FFG	Guided Missile Frigate	1	8.0	100%	48.0	0.0	0.0	48.0	0	0	0	0	0	0	0	0	0	0	0	0	5,762	3,749	559	772	206	186	79	3,792	79,837	3	2	80,687
		6	RHIB	Rigid Hulled Inflatable Boat Combat	1	8.0	100%	48.0	0.0	0.0	48.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	16.3	438.7	2.9	69.1	7.2	6	14	672	14,148	0	0	14,299
	DE	6	CRRC	Rubber Raiding Craft	1	8.0	100%	48.0	0.0	0.0	48.0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	619	0	0	0	3	144	3,032	0	0	3,064
		ГТ		1	T	TT		<u> </u>		1								1						<u> </u>											
Tracking Exercise-Helo	18																																		
Torpedo Exercise-Helo	4																																		
Tracking Exercise-Mantime Patrol Advanced Extended Echo Ranging Sonobuoys	8																																		
Tracking Exercise - Maritime Patrol Aircraft	8																																		
Torpedo Exercise-Maritime Patrol Aircraft	4																																		
Tracking Exercise -Surface	30	30	FFG	Guided Missile Frigate	1	2.0	100%	60.0	0.0	30.0	30.0	0	0	0	0	0	0	3,601	2,343	349	482	129	116	3,601	2,343	349	482	129	116	79	4,740	99,796	3	3	100,859
Torpedo Exercise-Surface	3	3	FFG	Guided Missile Frigate	1	2.0	100%	6.0	0.0	3.0	3.0	0	0	0	0	0	0	360	234	35	48	13	12	360	234	35	48	13	12	79	474	9,980	0	0	10,086
Submarine	10																																		
i orpedo Exercise – Submarine	10																																		
MAJOR TRAINING EVENT	s																																		
Joint Expeditionary Exercise	1	1	CVN	Nuclear Carrier (No emissions)	1	80.0	100%	80.0	0.0	80.0	0.0																								
		1	CG		1	80.0	100%	80.0	0.0	0.08	0.0	0	0	0	0	0	0	9,180	5,218	614	2,684	275	248	0	0	0	0	0	0	184	14,720	309,915	10	9	313,215

	1000	T		OPERATIO	NAL I	NFOR	MATION	- VESS	ELS									Er	nissions	By Juris	diction (	(lb/year)									Green	house Gas E	mission	s (lb/yea	ır)
	(#) Sd		Ship / Ves	ssel / Boat		R	ange Time	(hr)	Dist	ribution (	(hr)		S	tate (0-3 n	m offshore	)			Wa	aters of U	S (3-12 nm	1)			Intern	ational Wa	aters (>12	nm)		Ē	E				
Type of Training	Training Op	Number	Ship Type	Type	Participation	Per Ship	Time at Each Power Level (%)	Total	0-3 nm from shore	3-12 nm from shore	>12 nm from shore	со	NO <sub>x</sub>	нс	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>	Fuel Flow (G	Annual Fuel Consumptior (gal)	CO2	N <sub>2</sub> O	CH4	CO <sub>2-e</sub>
		2 5 1 2 1 1	FFG DDG LHD/LHA LSD LPD TAOE	Nuclear	2 5 1 2 1	80.0 80.0 80.0 80.0 80.0 80.0	100% 100% 100% 100% 100% 100%	160.0 400.0 80.0 160.0 80.0 80.0	0.0 0.0 0.0 0.0 0.0 0.0	160.0 400.0 80.0 160.0 80.0 80.0	0.0 0.0 0.0 0.0 0.0 0.0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	19,206 42,668 590 1,088 235 534	12,498 21,536 3,482 6,419 1,386 3,150	1,862 3,136 442 816 176 400	2,573 8,488 10,478 19,312 4,169 9,554	688 1,120 2,103 3,877 837 1,902	619 1,008 1,893 3,489 753 1,711	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	79 187 373 373 373 1,865	12,640 74,800 29,840 59,680 29,840 149,200	266,123 1,574,839 628,251 1,256,503 628,251 3,141,257	9 51 20 41 20 102	8 45 18 36 18 89	268,957 1,591,611 634,942 1,269,884 634,942 3,174,711
		1	SSN	Carrier (No emissions)	1	80.0	100%	80.0	0.0	80.0	0.0																								
		1 2	SSGN T-AGO(LFA)	Carrier (No emissions)	1 2	80.0 80.0	100% 100%	80.0 160.0	0.0 0.0	80.0 160.0	0.0	0	0	0	0	0	0	1,067	6,299	800	19,109	3,803	3,423	0	0	0	0	0	0	1,865	298,400	6,282,514	204	178	6,349,422
		1 2 1 5 2 19 2 14	CG-PARTNER DDG- PARTNER SS-PARTNER LCAC LCU CRRC RHIB AAV		1 2 1 5 2 19 2 14	80.0 80.0 80.0 80.0 80.0 80.0 80.0 80.0	100% 100% 100% 100% 100% 100% 100%	80.0 160.0 80.0 160.0 1520.0 160.0 1120.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	80.0 160.0 80.0 400.0 160.0 1520.0 160.0 1120.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0	8,623 16,638 235 10,164 5,794 0 54 851	3,768 7,984 1,386 22,128 7,192 226 1,462 6,966	792 1,440 176 288 83 19,610 10 918	1,680 2,864 4,169 17,320 498 0 230 1,400	208 400 837 1,556 251 0 24 291	187 360 753 1,400 226 0 22 262	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	184 187 373 611 66 3 14 3	14,720 29,920 29,840 244,400 10,560 4,560 2,240 3,360	309,915 629,936 628,251 5,145,598 222,330 96,006 47,161 70,741	10 20 167 7 3 2 2	9 18 145 6 3 1 2	313,215 636,644 634,942 5,200,398 224,698 97,029 47,663 71,495
Joint Multi-Strike Group Exercise	1	3	CVN		3	80.0	100%	240.0	0.0	0.0	240.0														45.050				740		11.100	200 715		22	
		3 3 12 3 5	FFG DDG TAOE SSN		3 3 12 3 5	80.0 80.0 80.0 80.0 80.0	100% 100% 100% 100% 100%	240.0 240.0 960.0 240.0 400.0	0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0	240.0 240.0 960.0 240.0 400.0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	27,540 28,810 102,403 1,601	15,653 18,746 51,686 9,449	1,841 2,794 7,526 1,200	8,052 3,859 20,371 28,663	826 1,032 2,688 5,705	743 929 2,419 5,134	184 79 187 1,865	44,160 18,960 179,520 447,600	929,745 399,184 3,779,614 9,423,770	30 13 123 306	26 11 107 266	939,646 403,435 3,819,867 9,524,134
		2 1	T-AGO(LFA) SS-PARTNER	Nuclear	2 1	80.0 80.0	100% 100%	160.0 80.0	0.0 0.0	0.0 0.0	160.0 80.0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	1,067 235	6,299 1,386	800 176	19,109 4,169	3,803 837	3,423 753	1,865 373	298,400 29,840	6,282,514 628,251	204 20	178 18	6,349,422 634,942
Fleet Strike Group Exercise	0	0	CVN CG	Carrier (No emissions)	1	56.0 56.0	100% 100%	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	184	0	0	0	0	0
		0 0 0 0	FFG DDG LHD/LHA TAOE SSN	Nuclear Carrier (No emissions)	1 3 1 1	56.0 56.0 56.0 56.0 56.0	100% 100% 100% 100%	0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0	0 0 0	0 0 0	0 0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0 0	0 0 0	0 0 0	0 0 0 0	0 0 0 0	0 0 0	79 187 373 1,865	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0 0
Integrated Anti-Submarine		0	CVN	Nuclear Carrier (No	1	40.0	100%	0.0	0.0	0.0	0.0																								
	0	0 0	CG FFG	emissions)	1	40.0 40.0	100% 100%	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	184 79	0 0	0 0	0 0	0 0	0 0
		0 0	DDG SSN	Nuclear Carrier (No emissions)	3 1	40.0 40.0	100% 100%	0.0 0.0	0.0 0.0	0.0 0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	187	0	0	0	0	0
Ship Squadron Anti- Submarine Warfare Exercise	0																																		
Maritime Homeland Defense / Security Mine Countermeasures	0	0	FFG	Guided Missile Frigate	4	8.0	100%	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79	0	0	0	0	0
Marine Air Ground Task Force Exercise (Amphibious)	4	4	LHD/LHA		1	80.0	100%	320.0	320.0	0.0	0.0	2,362	13,930	1,770	41,910	8,413	7,572	0	0	0	0	0	0	0	0	0	0	0	0	373	119,360	2,513,005	82	71	2,539,769

	~			OPERATIO	ONAL	INFOR	MATION	- VESSE	ELS									E	missions	By Juris	diction (	lb/year)									Green	house Gas E	mission	s (Ib/yea	r)
	#) sd		Ship / V	/essel / Boat		R	ange Time	(hr)	Dist	ribution (	hr)		S	tate (0-3 n	m offshore	)	19 19 10 10		Wa	aters of U	S (3-12 nm	)			Interr	national W	aters (>12	nm) I I		(Hd	Ц				
Type of Training	Training O	Number	Ship Type	Type	Participation	Per Ship	Time at Each Power Level (%)	Total	0-3 nm from shore	3-12 nm from shore	>12 nm from shore	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>	Fuel Flow (G	Annual Fuel Consumptio (gal)	CO2	N₂O	CH₄	CO <sub>2 e</sub>
		4 4	LSD LPD		1 1	80.0 80.0	100% 100%	320.0 320.0	320.0 320.0	0.0 0.0	0.0 0.0	2,176 940	12,838 5,543	1,632 705	38,624 16,676	7,754 3,347	6,978 3,012	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	373 373	119,360 119,360	2,513,005 2,513,005	82 82	71 71	2,539,769 2,539,769
Special Purpose Marine Air Ground Task Force Exercise	2	2	LHA	Amphib. Assault Ship - Tarawa	1	80.0	100%	160.0	52.8	52.8	54.4	390	2,298	292	6,915	1,388	1,249	390	2,298	292	6,915	1,388	1,249	401	2,368	301	7,125	1,430	1,287	373	59,680	1,256,503	41	36	1,269,884
		4	LPD	Amphibious Transport Dock - Wasp	2	80.0	100%	320.0	105.6	105.6	108.8	310	1,829	233	5,503	1,105	994	310	1,829	233	5,503	1,105	994	319	1,885	240	5,670	1,138	1,024	373	119,360	2,513,005	82	71	2,539,769
Urban Warfare Exercise	5	5	LHA	Amphib. Assault Ship - Tarawa	1	112.0	100%	560.0	560.0	0.0	0.0	4,133	24,377	3,097	73,343	14,722	13,250	0	0	0	0	0	0	0	0	0	0	0	0	373	208,880	4,397,760	143	124	4,444,596
		10	LPD	Amphibious Transport Dock - Wasp	2	112.0	100%	1120.0	1120.0	0.0	0.0	3,288	19,401	2,466	58,367	11,715	10,543	0	0	0	0	0	0	0	0	0	0	0	0	373	417,760	8,795,519	285	249	8,889,191
ELECTRONIC WARFARE																																			
Electronic Warfare Operations (EW Ops)	72	72	FFG	Guided Missile Frigate	<sup>9</sup> 1	4	100%	288.0	0.0	0.0	288.0	0	0	0	0	0	0	0	0	0	0	0	0	34,572	22,496	3,352	4,631	1,238	1,115	79	22,752	479,021	16	14	484,122
Counter Targeting Flare Exercise (FLAREX)- Aircraft	546																																		
Counter Targeting Chaff Exercise (CHAFFEX) - Ship	16	16	FFG	Guided Missile Frigate	9 1	4	100%	64.0	0.0	0.0	64.0	0	0	0	0	0	0	0	0	0	0	0	0	7,683	4,999	745	1,029	275	248	79	5,056	106,449	3	3	107,583
Counter Targeting Chaff Exercise (CHAFFEX) - Aircraft	546																																		
MINE WARFARE										- 4		-																							
Submarine Mine Exercise	0	0										-																							
Mine Countermeasure Exercise – Sonar (AQS-20, LCS)	0	0	CG	Cruiser	0.2	1.5	100%	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	184	0	0	0	0	0
			DDG	Guided Missile Destroyer	9 0.14	1.5	100%	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	187	0	0	0	0	0
			FFG	Guided Missile Frigate	9 0.12	1.5	100%	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79	0	0	0	0	0
Mine Countermeasure Exercise – Surface (SMCMEX) Sonar (SQQ- 32, MCM)	0	0	МСМ	MCM Class	1	8	100%	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	373	0	0	0	0	0
Mine Neutralization – Remotely Operated Vehicle Sonar (AQS- 235[AQS-20], SLQ-48)	0	0	RHIB	Rigid Hulled Inflatable Boat	1	12	100%	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	0	0	0
Mine Laying - Aircraft	3																																		
Mine Neutralization – Explosive Ordnance Disposal	20	60	RHIB	Rigid Hulled Inflatable Boat	3	12.0	100%	720.0	720.0	0.0	0.0	244.8	6580.8	43.2	1036.8	108.0	97	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	14	10,080	212,224	7	6	214,485
Limpet Mine Neutralization System/Shock Wave Generator	0	0	RHIB	Rigid Hulled Inflatable Boat	t 1	4.0	100%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	14	0	0	0	0	0
Mine Countermeasure – Towed Mine Detection	0	0	МСМ	MCM Class	1	15.0	100%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	373	0	0	0	0	0
NAVAL SPECIAL WARFA	RE																																		

		OPERATIONAL INFORMATION - VESSELS																E	missions	By Juris	diction	(lb/vear)									Greer	house Gas E	mission	s (lb/vea	r)
	(#) 9		Ship / Ve	essel / Boat		R	tange Time	e (hr)	Dis	tribution	(hr)		S	tate (0-3 n	m offshore	)			Wa	ters of U s	6 (3-12 nm	1)			Inter	national W	/aters (>12	2 nm)		Î					.,
Type of Training	Training Ope	Number	Ship Type	Type	Participation	Per Ship	Time at Each Power Level (%)	Total	0-3 nm from shore	3-12 nm from shore	>12 nm from shore	со	NO <sub>x</sub>	нс	so,	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SO,	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NOx	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	Fuel Flow (GP	Annual Fuel Consumption (gal)	CO2	N <sub>2</sub> O	CH4	CO2e
Personnel I&E	150	750	RHIB	Rigid Hulled Inflatable Boat	5	8.0	100%	6000.0	6000.0	0.0	0.0	2040.0	54840.0	360.0	8640.0	900.0	810	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	14	84,000	1,768,536	57	50	1,787,371
		900	CRRC	Rubber Raiding Craft	6	8.0	100%	7200.0	7200.0	0.0	0.0	0	1,070	92,890	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	21,600	454,766	15	13	459,610
Parachute Insertion	12			Landing Croft				- or																-											
Embassy Reinforcement	50	50	LCAC	Air Cushioned	1	24.0	100%	1200.0	1200.0	0.0	0.0	30,492	66,384	864	51,960	4,668	4,201	0	0	0	0	0	0	0	0	0	0	0	0	611	733,200	15,436,793	501	436	15,601,195
Direct Action (Combat Close Quarters)	40																																		
Direct Action (Breaching)	40																															- -			
(TAC-P)	3			Combot																												- <u>)</u> 19			
Underwater Demolition Qualifications	30	30	CRRC	Rubber Raiding Craft	1	8.0	100%	240.0	0.0	240.0	0.0	0	0	0	0	0	0	0	36	3,096	0	0	0	0	0	0	0	0	0	3	720	15,159	0	0	15,320
Intelligence, Surveillance, Reconnaissance	16	$\square$		Arrabit																															
Urban Warfare Training	8	8	LHA	Amphib. Assault Ship - Tarawa Amphibious	1	40.0	100%	320.0	320.0	0.0	0.0	2,362	13,930	1,770	41,910	8,413	7,572	0	0	0	0	0	0	0	0	0	0	0	0	373	119,360	2,513,005	82	71	2,539,769
		16	LPD	Transport Dock - Wasp	2	40.0	100%	640.0	640.0	0.0	0.0	1,879	11,086	1,409	33,353	6,694	6,025	0	0	0	0	0	0	0	0	0	0	0	0	373	238,720	5,026,011	163	142	5,079,538
Underwater Survey	6	18	RHIB	Rigid Hulled Inflatable Boat	3	8.0	100%	144.0	144.0	0.0	0.0	49.0	1316.2	8.6	207.4	21.6	19	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	14	2,016	42,445	1	1	42,897
		18	CRRC	Combat Rubber Raiding Craft	3	8.0	100%	144.0	144.0	0.0	0.0	0	21	1,858	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	432	9,095	0	0	9,192
OTHER																															3				
Surface Ship Sonar Maintenance	0	0	FFG	Guided Missile Frigate	1	4.0	100%	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79	0	0	0	0	0
Submarine Sonar Maintenance	0																																		
Small Boat Attack	0	0	CRRC	Combat Rubber Raiding Craft	1	4.0	100%	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
Search and Rescue at Sea	0																										50								
Submarine Navigation	0							-										5																	
Precision Anchoring	0	0	FFG	Guided Missile Frigate	1	4.0	100%	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79	0	0	0	0	0
Maneuver (Convoy, Land Navigation) Water Purification	16 0																																		
Field Training Exercise	100									-																									
Force Protection	75						-			-														-											
Anti-Terrorism	80																																		
Seize Airfield	10																																		
Airfield Expeditionary	12								-														1									9. 12			
Unmanned Aerial Vehicle Operation	0																																		

	1000		OPERATIONAL INFORMATION - VESSELS														En	nissions	By Juris	diction	(lb/year)									Green	nouse Gas E	missions	(lb/year)	ľ	
	(#) %		Ship / Ve	ssel / Boat		R	tange Time	e (hr)	Dist	ribution	(hr)		SI	tate (0-3 ni	m offshore)	)	0		Wa	ters of U s	S (3-12 nm	n)			Interr	ational W	aters (>12 i	nm)		Î					
Type of Training	Training Ope	Number	Ship Type	Type	Participation	Per Ship	Time at Each Power Level (%)	Total	0-3 nm from shore	3-12 nm from shore	>12 nm from shore	со	NOx	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NOx	нс	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NOx	НС	so <sub>x</sub>	PM <sub>18</sub>	PM <sub>2.5</sub>	Fuel Flow (GP	Annual Fuel Consumption (gal)	CO2	N <sub>2</sub> O	СН4	CO <sub>2.0</sub>
Land Demolitions (Improvised Explosive Device) Discovery / Disposal	120																																		
Land Demolitions (Unexploded Ordnance) Discovery / Disposal	200																																		
TOTAL TRAINING EMISSIONS (LBS/YEAR)									20,148	5,563	3,634	78,437	271,737	113,127	434,900	80,406	72,365	122,686	118,538	35,655	117,774	20,849	18,764	236,398	156,060	25,101	107,387	20,124	18,112		4,742,184	99,841,942	3,239	2,822	100,905,258
TOTAL TRAINING EMISSIONS (TONS/YEAR)												39	136	57	217	40	36	61	59	18	59	) 10	9	118	78	13	54	10	9		4,742,184	49,921	2	1	50,453

-				OPERATIO	NALI	NFORM	MATION	- VESSI	ELS									E	missions	By Juris	diction	(lb/year)									Greer	nhouse Gas	Emissior	s (Ib/yea	r)
	(#) S(		Ship / Ve	ssel / Boat	T.	Ra	ange Time	(hr)	Dist	ribution	(hr)		St	ate (0-3 n	n offshore	)			W	aters of U	S (3-12 nm	n)			Intern	ational Wa	iters (>12	nm)		(Ha	-				
Type of Training	Training Op	Number	Ship Type	Type	Participation	Per Ship	Time at Each Power Level (%)	Total	0-3 nm from shore	3-12 nm from shore	>12 nm from shore	со	NO <sub>x</sub>	нс	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NOx	нс	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	Fuel Flow (G	Annual Fuel Consumptior (gal)	CO2	N₂O	CH₄	CO <sub>2-e</sub>
ANTI-SURFACE W	ARFARE				T	r r			1	Ϋ́																				<u> </u>					
Missile Test	0																																		
ANTI-SUBMARINE	WARFA	RE			T	<b>1</b> 1		-	1	1																									
Anti-submarine Warfare Tracking Test - MPA	0																																		
Anti-submarine Warfare Torpedo Test	0																																		
Broad Area Maritime Surveillance											33																								
(BAMS) Testing	1																-																		
LIFECYCLE ACTIV	ITIES TE	STING	1	starts Starts or	r -	r r		1	r	T	<b></b> 1																			<b>1</b>					
Ship Signature Testing	0	0	FFG	Guided Missile Frigate	1	4.0	100%	0.00	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	79	0	0	0	0	0
ANTI-SURFACE W	ARFARE	/ ANT	I-SUBMARINE	WARFARE TE	STING																														
Torpedo Explosive Testing	0	0	DDG		3	4	100%	0.00	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	187.0	0.0	0	0.00	0.00	0
Countermeasure Testing	0	0	DDG		2.00	2.0	100%	0.0	0.0	0.0	0.0	0	0	0	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0	187	0	0	0	0	0
At-Sea Sonar Testing	D	0	SSN	Nuclear Carrier (No emissions)	4.00	2.0	100%	0.0	0.0	0.0	0.0																								
		0 0	CG DDG		1 4.00	2.0 2.0	100% 100%	0.00 0.0	0.0 0.0	0.0 0.0	0.00 0.0	0.0 0	0.0 0	0.0 0	0.0 0	0.0 0	0.0 0	0.0 0	0.0 0	0.0 0	0.0 0	0.0 0	0.0 0	0 0	0 0	0 0	0 0	0 0	0 0	184 187	0 0	0 0	0 0	0 0	0 0
SHIPBOARD PROT	ECTION	SYST	EMS AND SWI	MMER DEFENS	SE TES	TING			-	-	· · ·																		_	<b>1</b> 1					
Pierside Integrated Swimmer Defense	0	0	FFG	Guided Missile Frigate	1	8.0	100%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	79.0	0	0	0	0	0
NEW SHIP CONSTI	RUCTIO	N			<b>.</b>				L	4								í																	
ASW Mission Package Testing	0	0	LCS	Littoral Combat Ship	1	60.0	100%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	79.0	0	0	0	0	0
MCM Mission Package Testing	0	0	LCS	Littoral Combat Ship	1	60.0	100%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	79.0	0	0	0	0	0
ASUW Mission Package Testing	0	0	LCS	Littoral Combat Ship	1	40.0	100%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	79.0	0	0	0	0	0
OFFICE OF NAVAL	RESEA	RCH			<u> </u>													-						L						<b>I</b> J					
North Pacific					1																														
Acoustic Lab Philippine Sea 2018-19 Experiment (Deep Water)																																			
, see y	1										-																		-						
TOTAL TESTING EMISSIONS (lbs per year)									0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
TOTAL TESTING EMISSIONS (tons per year)												0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0

9 	120			OPERATIO	NALIN	<b>VFORM</b>	ATION -	VESSE	LS								-	E	missions	s By Juri	sdiction	(lb/year)	)	Ċ.							Greer	nhouse Gas I	mission	s (lb/yea	ır)
	(#)		Ship / V	essel / Boat		R	Range Time	ə (hr)	Dist	tribution	(hr)		S	tate (0-3 n	m offshore	9)			W	aters of U	S (3-12 nr	m)			Interr	national W	aters (>12	nm)		Î					
Type of Training	Training Op	Number	Ship Type	Type	Participation	Per Ship	Time at Each Power Level (%)	Total	0-3 rim from shore	3-12 nm from shore	>12 nm from shore	со	NO <sub>x</sub>	нс	so,	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	so,	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NOx	нс	so,	PM <sub>10</sub>	PM <sub>2.5</sub>	Fuel Flow (GP	Annual Fuel Consumption (gal)	CO2	N₂O	CH4	CO <sub>2-e</sub>
ANTI-AIR WARFARE																																			
Air Combat Maneuver	4800																																		
Air Defense Exercise	100																													5 m					
Air Intercept Control	4800																																		
Gunnery Exercise, A-A (Medium Caliber)	36																																		
Missile Exercise, A-A	18																																		
Gunnery Exercise, S-A (Large Caliber)	5	10	FFG	Guided Missile Frigate	2.00	2.0	100%	20.0	0.0	0.0	20.0	0	0	0	0	0	0	0	0	0	0	0	0	2,401	1,562	233	322	86	77	79	1,580	33,265	1	1	33,620
Gunnery Exercise, S-A (Medium Caliber)	12	24	FFG	Guided Missile Frigate	2.00	2.0	100%	48.0	0.0	0.0	48.0	0	0	0	0	0	0	0	0	0	0	0	0	5,762	3,749	559	772	206	186	79	3,792	79,837	3	2	80,687
Missile Exercise, S-A	15	30	FFG	Guided Missile Frigate	2.00	2.0	100%	60.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79	0	0	0	0	0
STRIKE WARFARE		<u> </u>			-			<u> </u>	<u> </u>																										
Bombing Exercise, A-G	2300																																		
Missile Exercise, A-G	85																																		
Gunnery Exercise, A-G	96																																		
Combat Search and Rescue	80																																		
AMPHIBIOUS WARFARE						_		-																-											
Fire Support Exercise - Land-Based target	10	10	CG	Cruiser	1	8.0	100%	80.00	80.0	0.0	0.0	9,180	5,218	614	2,684	275	248	0	0	0	0	0	0	0	0	0	0	0	0	184	14,720	309,915	10	9	313,215
Amphibious Rehearsal, No Landing - Marine Air Ground Task Force		48	LHD/LHA		4	24.0	100%	1152.0	1152.0	0.0	0.0	8501.8	50146.6	6370.6	150877.4	30286.1	27257.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	373.0	429696	9046819.584	293.482	255.669	9143168.17
	12	48	LSD		4	24.0	100%	1152.0	1152.0	0.0	0.0	7833.6	46218.2	5875.2	139046.4	27913.0	25121.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	373.0	429696	9046819.584	293.482	255.669	9143168.17
		48	LPD		4	24.0	100%	1152.0	1152.0	0.0	0.0	3382.2	19955.2	2536.7	60034.6	12049.2	10844.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	373.0	429696	9046819.584	293.482	255.669	9143168.17
Amphibious Assault - Marine Air Ground Task		6	CG	Cruiser	1	8.0	100%	48.0	48.0	0.0	0.0	5,508	3,131	368	1,610	165	149	Ō	0	0	0	0	0	0	0	0	0	0	0	184	8,832	185,949	6	5	187,929
Horce	6	<i>c</i>		Amphib. Assault	8	0.0	400%	10.0	10.0		0.0	254	2 000	205	0.007	1.000	4 400		0	0	0	0	0		0	0	0	0		070	17.004	270.054	10	44	200.005
		D	LHA	Ship - Tarawa Amphibious		8.0	100%	48.0	48.0	0.0	0.0	304	2,089	200	0,287	1,262	1,130	U	U	U	U	U	U	U	U	U	U	U	U	313	17,904	376,951	12	11	380,965
		12	LPD	Transport Dock - Wasp Cuidad Missila	2	8.0	100%	96.0	96.0	0.0	0.0	282	1,663	211	5,003	1,004	904	0	0	0	0	0	0	0	0	0	0	0	0	373	35,808	753,902	24	21	761,931
		12	FFG	Frigate	2	8.0	100%	96.0	96.0	0.0	0.0	11,524	7,499	1,117	1,544	413	372	0	0	0	0	0	0	0	0	0	0	0	0	79	7,584	159,674	5	5	161,374
Amphibious Raid - Special Purpose Marine Air Ground Task Force	6	6	LHA	Amphib. Assault Ship - Tarawa	1	6.0	100%	36.0	36.0	0.0	0.0	266	1,567	199	4,715	946	852	0	0	0	0	0	0	0	0	0	0	0	0	373	13,428	282,713	9	8	285,724
		12	LPD	Amphibious Transport Dock - Wasp	- 2	2.5	100%	30.0	30.0	0.0	0.0	88	520	66	1,563	314	282	0	0	0	0	0	0	0	0	0	0	0	0	373	11,190	235,594	8	7	238,103
Urban Warfare Training	36																							1											
Non-Combatant Evacuation Operation	5	5	LHA	Amphib. Assault Ship - Tarawa	1	80.0	100%	400.0	400.0	0.0	0.0	2,952	17,412	2,212	52,388	10,516	9,464	0	0	0	0	0	0	0	0	0	0	0	0	373	149,200	3,141,257	102	89	3,174,711
	3	10	I PD	Amphibious		80.0	100%	800.0	800.0	0.0	0.0	2 349	13 858	1 762	41 691	8 368	7 531	Ω	Ο	O	n	Ω	Ω	n	Ο	n	Û	Ω	ñ	373	298 400	6 282 514	204	178	6 349 4 22
		F		Wasp Landing Craft	4	00.0	100%	400.0	400.0	0.0	0.0	14 404	17,000	.200	1 044	6.00	5051	0	0	e e	0	0	0	0	0	0	0	0	0	60	200,400	555 000	40	16	561745
		S	LCU	Utility		00.0	100%	400.0	400.0	0.0	0.0	14,404	17,960	200	1,244	028	000	U	V	V	U	U	U	V	U	U	U	U	U	00	20,400	000,020	10	10	301,743

				OPERATIO	NAL IN	IFORM	MATION -	VESSE	LS									E	missions	s By Juri	sdiction	(lb/year)									Greer	house Gas	Emissior	is (lb/yea	ır)
	(#)		Ship / V	essel / Boat		F	Range Time	e (hr)	Dist	ribution	(hr)		S	tate (0-3 n	m offshore	)	1 m		W	aters of U	S (3-12 ni	m)			Intern	ational W	aters (>12	nm)		Î					
Type of Training	Training Ops	Number	Ship Type	Type	Participation	Per Ship	Time at Each Power Level (%)	Total	0-3 nm from shore	3-12 nm from shore	>12 nm from shore	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.6</sub>	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>	Fuel Flow (GP	Annual Fuel Consumption (gal)	CO <sub>2</sub>	N₂O	CH4	CO <sub>2-e</sub>
Humanitarian Assistance/ Disaster Relief Operations	5	5	LHA	Amphib. Assault Ship - Tarawa	1	8.0	100%	40.0	40.0	0.0	0.0	295	1,741	221	5,239	1,052	946	0	0	0	0	0	0	0	0	0	0	0	0	373	14,920	314,126	10	9	317,471
		10	LPD	Amphibious Transport Dock - Wasp	2	8.0	100%	80.0	80.0	0.0	0.0	235	1,386	176	4,169	837	753	0	0	0	0	0	0	0	0	0	0	0	0	373	29,840	628,251	20	18	634,942
		5	LCAC	Landing Craft Air Cushioned	1	8.0	100%	40.0	40.0	0.0	0.0	1,016	2,213	29	1,732	156	140	0	0	0	0	0	0	0	0	0	0	0	0	611	24,440	514,560	17	15	520,040
Unmanned Aerial Vehicle - Intelligence, Surveillance, and Reconaissance	100										0.							4																	
ANTI-SURFACE WARFAR	E					10.0		20																											
Gunnery Exercise, A-S (Small Caliber) - Ship	242																																		
Gunnery Exercise, A-S (Medium Caliber) - Ship	295																																		
Missile Exercise (A-S) - Rocket	3																																		
Missile Exercise (A-S)	20																																		
Laser Targeting	600																																		
Bombing Exercise (A-S)	37																																		
Torpedo Exercise (Submarine to Surface)	5																																		
Missile Exercise (S-S)	12	24	FFG	Guided Missile Frigate	2.00	2.0	100%	48.0	0.0	0.0	48.0	0	0	0	0	0	0	0	0	0	0	0	0	5,762	3,749	559	772	206	186	79	3,792	79,837	3	2	80,687
Gunnery Exercise (S-S)- Ship, Large Caliber	140																																		
		31	CG	Cruiser Guided Missile	0.22	2.5	100%	77.0	0.0	21.6	55.4	0	0	0	0	0	0	2,474	1,406	165	723	74	67	6,362	3,616	425	1,860	191	172	184	14,168	298,293	10	8	301,470
		63	DDG	Destroyer	0.45	2.5	100%	157.5	0.0	44.1	113.4	0	0	0	0	0	0	4,704	2,374	346	936	123	111	12,096	6,105	889	2,406	318	286	187	29,453	620,093	20	18	626,697
		21	FFG	Frigate	0.15	2.5	100%	52.5	0.0	14.7	37.8	0	0	0	0	0	0	1,765	1,148	171	236	63	57	4,538	2,953	440	608	163	146	79	4,148	87,321	3	2	88,251
		17	Unknown	Other US Coast Guard	0.05	2.5	100%	42.0	0.0	4.9	12.6 30.2	0	0	0	0	0	0	33 68	197 681	25 10	591 136	119 2	107 2	86 174	506	64 27	1,521 349	305 6	275 6	66 66	1,155	24,317 58,362	1	1	24,576 58 983
Gunnery Exercise (S-S)-				oo coast olard	0.12	2.0	10070	42.0	0.0	11.0	50.2	-		0	0				001	10	150	2	2		1,751	21	54.5		0	.00	2,112	00,002	2	2	55,555
Ship, weddin canber	100	22	CG	Cruiser	0.22	2.5	100%	55.0	0.0	15.4	39.6	0	0	0	0	0	0	1.767	1.004	118	517	53	48	4.544	2.583	304	1.329	136	123	184	10.120	213.066	7	6	215.336
		45	DDG	Guided Missile	0.45	2.5	100%	112.5	0.0	31.5	81.0	0	0	0	0	0	0	3,360	1,696	247	668	88	79	8,640	4,361	635	1,719	227	204	187	21,038	442,924	14	13	447,641
		15	FFG	Guided Missile	0.15	2.5	100%	37.5	0.0	10.5	27.0	0	0	0	0	0	0	1,260	820	122	169	45	41	3,241	2,109	314	434	116	104	79	2,963	62,372	2	2	63,037
		1	LPD	Amphibious Transport Dock -	0.01	2.5	100%	1.5	0.0	0.4	1,1	0	0	0	0	0	0	1	7	1	22	4	4	3	19	2	56	11	10	373	560	11,780	0	0	11,905
		5	Unknown	Wasp Other	0.05	2.5	100%	12.5	0.0	3.5	9.0	0	0	0	0	0	0	24	140	18	422	85	76	61	361	46	1,086	218	196	66	825	17,370	1	0	17,555
			LA Local and Landon A.		or Clewin		to browney.		1290700	and a start	and year	diese	2047	11467		A 621	-2007	Algeria.	144 (1885)	1020	10000	1120707	10105435		16-1 <sup>4</sup> (24333)	with	Analissian	111.0210	Participan.	and and a	10 A 10 A 10	and the second second	1977	100	Construction of the Constr

				OPERATIO	NALIN	IFORM	ATION -	VESSEI	LS									E	missions	s By Juri	sdiction	(lb/year)								1	Greer	house Gas	Emission	s (lb/yea	ır)
	(#) S		Ship / \	/essel / Boat		F	Range Time	(hr)	Dist	ribution	ı (hr)		SI	ate (0-3 nr	n offshore	)			N	aters of U	S (3-12 nr	n)			Intern	ational W	aters (>12	nm)		(H					
Type of Training	Training Op	Number	Ship Type	Type	Participation	Per Ship	Time at Each Power Level (%)	Total	0-3 nm from shore	3-12 nm from shore	>12 nm from shore	со	NOx	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	НС	SO <sub>x</sub>	PM <sub>18</sub>	PM <sub>2.5</sub>	Fuel Flow (GF	Annual Fuel Consumption (gal)	CO <sub>2</sub>	N₂O	CH₄	CO <sub>2-e</sub>
		12	USCG	US Coast Guard	0.12	2.5	100%	30.0	0.0	8.4	21.6	0	0	0	0	0	0	48	486	7	97	2	2	124	1,251	19	249	5	4	66	1,980	41,687	1	1	42,131
Sinking Exercise (SINKEX)	2	10	FFG	Guided Missile Frigate	5.00	16.0	100%	160.0	0.0	0.0	160.0	0	0	0	0	0	0	0	0	0	0	0	0	19,206	12,498	1,862	2,573	688	619	79	12,640	266,123	9	8	268,957
Gunnery Exercise (S-S) Boat – Medium-caliber	10	50	FFG	Guided Missile Frigate	5.00	3.0	100%	150.0	0.0	0.0	150.0	0	0	0	0	0	0	0	0	0	0	0	0	18,006	11,717	1,746	2,412	645	581	79	11,850	249,490	8	7	252,147
Gunnery Exercise (S-S) Small-caliber	40	80	CRRC	Combat Rubber Raiding Craft	2	3.0	100%	240.0	0.0	0.0	240.0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	3,096	0	0	0	3	720	15,159	0	0	15,320
Maritime Security Operations (MSO)	40	40	FFG	Guided Missile Frigate	1	8.0	100%	320.0	0.0	0.0	320.0	0	0	0	0	0	0	0	0	0	0	0	0	38,413	24,995	3,725	5,146	1,376	1,238	79	25,280	532,245	17	15	537,914
		40	RHIB	Rigid Hulled Inflatable Boat	1	8.0	100%	320.0	0.0	0.0	320.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	108.8	2924.8	19.2	460.8	48.0	43	14	4,480	94,322	3	3	95,326
		40	CRRC	Combat Rubber Raiding Craft	1	8.0	100%	320.0	0.0	0.0	320.0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	4,128	0	0	0	3	960	20,212	1	1	20,427
ANTI-SUBMARINE WARFA	RE	· · ·					•										11																		
Tracking Exercise-Helo	62																																		
Torpedo Exercise-Helo	4																																		
Tracking Exercise-Maritime Patrol Advanced Extended Echo Ranging Sonobuoys	11																																		
Tracking Exercise -Maritime Patrol Aircraft	34																																		
Torpedo Exercise-Maritime Patrol Aircraft	4																	0.																	
Tracking Exercise –Surface	132	132	FFG	Guided Missile Frigate	1	2.0	100%	264.0	0.0	132.0	132.0	0	0	0	0	0	0	15,845	10,311	1,536	2,123	568	511	15,845	10,311	1,536	2,123	568	511	79	20,856	439,102	14	12	443,779
Torpedo Exercise-Surface	3	3	FFG	Guided Missile Frigate	1	2.0	100%	6.0	0.0	3.0	3.0	0	0	0	0	0	0	360	234	35	48	13	12	360	234	35	48	13	12	79	474	9,980	0	0	10,086
Tracking Exercise– Submarine	12																																		
Torpedo Exercise – Submarine	10																																		
MAJOR TRAINING EVENTS	S																																		

	~			OPERATION	IAL IN	FORM	ATION - Y	VESSEL	S									/E	missions	s By Juri	sdiction	(lb/year)		h-					17		Gree	nhouse Gas I	Emission	s (Ib/yea	r)
	#) s		Ship / V	essel / Boat		R	ange Time	(hr)	Dist	ribution	(hr)		S	ate (0-3 n	m offshore	)			W	aters of L	S (3-12 nn	n)			Intern	ational W	aters (>12	nm)	. 1	Î					
Type of Training	Training Op	Number	Ship Type	Type	Participation	Per Ship	Time at Each Power Level (%)	Total	0-3 nm from shore	3-12 nm from shore	>12 nm from shore	со	NO <sub>x</sub>	НС	SO <sub>x</sub>	PM <sub>18</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	НС	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	Fuel Flow (GP	Annual Fuel Consumption (gal)	CO <sub>2</sub>	N <sub>2</sub> O	CH₄	CO <sub>2-e</sub>
Joint Expeditionary Exercise	1	Ť,	CVN	Nuclear Carrier (No emissions)	1	80.0	100%	80.0	0.0	80.0	0.0																								
		1 2 5 1 2	CG FFG DDG LHD/LHA LSD		1 2 5 1 2	80.0 80.0 80.0 80.0 80.0 80.0	100% 100% 100% 100% 100%	80.0 160.0 400.0 80.0 160.0	0.0 0.0 0.0 0.0 0.0	80.0 160.0 400.0 80.0 160.0	0.0 0.0 0.0 0.0 0.0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0	9,180 19,206 42,668 590 1,088 235	5,218 12,498 21,536 3,482 6,419	614 1,862 3,136 442 816	2,684 2,573 8,488 10,478 19,312	275 688 1,120 2,103 3,877 837	248 619 1,008 1,893 3,489	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	184 79 187 373 373	14,720 12,640 74,800 29,840 59,680	309,915 266,123 1,574,839 628,251 1,256,503 628,251	10 9 51 20 41	9 8 45 18 36	313,215 268,957 1,591,611 634,942 1,269,884
		1	TAOE	Nuclear Carrier (No emissions)	1	80.0 80.0	100% 100%	80.0 80.0	0.0	80.0 80.0	0.0 0.0 0.0	0	0	0	0	0	0	534	3,150	400	9,554	1,902	1,711	0	0	0	0	0	0	1,865	149,200	3,141,257	102	89	3,174,711
		1	SSGN T-AGO(LFA)	Nuclear Carrier (No emissions)	1 2	80.0 80.0	100% 100%	80.0 160.0	0.0 0.0	80.0 160.0	0.0 0.0	0	0	0	0	0	0	1,067	6,299	800	19,109	3,803	3,423	0	0	0	0	0	0	1,865	298,400	6,282,514	204	178	6,349,422
		1	CG-PARTNER DDG- PARTNER		1 2	80.0 80.0	100% 100%	80.0 160.0	0.0 0.0	80.0 160.0	0.0 0.0	0 0	0 0	0 0	0 0	0 0	0 0	8,623 16,638	3,768 7,984	792 1,440	1,680 2,864	208 400	187 360	0 0	0 0	0 0	0 0	0 0	0 0	184 187	14,720 29,920	309,915 629,936	10 20	9 18	313,215 636,644
		1 : 5 2 19 2 14	SS-PARTNER LCAC LCU CRRC RHIB AAV		1 5 2 19 2 14	80.0 80.0 80.0 80.0 80.0 80.0	100% 100% 100% 100% 100% 100%	80.0 400.0 160.0 1520.0 160.0 1120.0	0.0 0.0 0.0 0.0 0.0 0.0	80.0 400.0 160.0 1520.0 160.0 1120.0	0.0 0.0 0.0 0.0 0.0 0.0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	235 10,164 5,794 0 54 851	1,386 22,128 7,192 226 1,462 6,966	176 288 83 19,610 10 918	4,169 17,320 498 0 230 1,400	837 1,556 251 0 24 291	753 1,400 226 0 22 262	0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	373 611 66 3 14 3	29,840 244,400 10,560 4,560 2,240 3,360	628,251 5,145,598 222,330 96,006 47,161 70,741	20 167 7 3 2 2	18 145 6 3 1 2	634,942 5,200,398 224,698 97,029 47,663 71,495
Joint Multi-Strike Group Exercise	1	3	CVN		3	80.0	100%	240.0	0.0	0.0	240.0																								
		3 3 12 3 5	CG FFG DDG TAOE SSN		3 3 12 3 5	80.0 80.0 80.0 80.0 80.0	100% 100% 100% 100% 100%	240.0 240.0 960.0 240.0 400.0	0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0	240.0 240.0 960.0 240.0 400.0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	27,540 28,810 102,403 1,601	15,653 18,746 51,686 9,449	1,841 2,794 7,526 1,200	8,052 3,859 20,371 28,663	826 1,032 2,688 5,705	743 929 2,419 5,134	184 79 187 1,865	44,160 18,960 179,520 447,600	929,745 399,184 3,779,614 9,423,770	30 13 123 306	26 11 107 266	939,646 403,435 3,819,867 9,524,134
		2	T-AGO(LFA) SS-PARTNER		2 1	80.0 80.0	100% 100%	160.0 80.0	0.0 0.0	0.0	160.0 80.0	0 0	0 0	0 0	0 0	0 0	0	0	0 0	0 0	0 0	0 0	0 0	1,067 235	6,299 1,386	800 176	19,109 4,169	3,803 837	3,423 753	1,865 373	298,400 29,840	6,282,514 628,251	204 20	178 18	6,349,422 634,942
Fleet Strike Group Exercise	0	0	CVN	Nuclear Carrier (No emissions)	1	56.0	100%	0.0	0.0	0.0	0.0	1407	din	10000	1922		1024	185	1450		10004			- 		14Q.4	248	740	200	0.000			11051	104	
		0 0 0 0	CG FFG DDG LHD/LHA TAOE SSN	Nuclear Carrier (No emissions)	1 1 3 1 1 1	56.0 56.0 56.0 56.0 56.0 56.0	100% 100% 100% 100% 100% 100%	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	184 79 187 373 1,865	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0						
Integrated Anti-Submarine Warfare Exercise	0	0 0 0 0	CVN CG FFG DDG SSN	Nuclear Carrier (No emissions) Nuclear Carrier (No emissions)	1 1 3 1	40.0 40.0 40.0 40.0 40.0	100% 100% 100% 100%	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	184 79 187	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0						
Ship Squadron Anti- Submarine Warfare Exercise	1	1	CG		1	40.0	100%	40.0	0.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4590.0	2608.8	306.8	1342.0	137.6	123.8	0.0	0.0	0.0	0.0	0.0	0.0	184.0	7360	154957.44	5.02688	4.3792	156607.736

1	_			OPERATIO	NALIN	FORM	ATION -	VESSEI	_S			1						E	missions	By Juri	sdiction	(lb/year)	l.								Greer	house Gas	Emissior	ns (Ib/yea	ar)
	(#)		Ship / V	/essel / Boat		R	tange Time	(hr)	Dist	ribution	(hr)		S	tate (0-3 ni	n offshore	)			W	aters of U	S (3-12 nr	m)	, j		Interr	ational W	aters (>12	nm)		Î			6 a.		
Type of Training	Training Ops	Number	Ship Type	Type	Participation	Per Ship	Time at Each Power Level (%)	Total	0-3 nm from shore	3-12 nm from shore	>12 nm from shore	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	Fuel Flow (GP	Annual Fuel Consumption (gal)	CO2	N₂O	CH4	CO <sub>2-e</sub>
		1	FFG		1	40.0	100%	40.0	0.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4801.6	3124.4	465.6	643.2	172.0	154.8	0.0	0.0	0.0	0.0	0.0	0.0	79.0	3160	66530.64	2.15828	1.8802	67239.191
		3	DDG		3	40.0	100%	120.0	0.0	120.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12800.4	6460.8	940.8	2546.4	336.0	302.4	0.0	0.0	0.0	0.0	0.0	0.0	187.0	22440	472451.76	15.3265	13.3518	477483.369
Maritime Homeland Defense / Security Mine Countermeasures	1	4	FFG	Guided Missile Frigate	4	8.0	100%	32.0	32.0	0.0	0.0	3,841	2,500	372	515	138	124	0	0	0	0	0	0	0	0	0	0	0	0	79	2,528	53,225	2	2	53,791
Marine Air Ground Task Force Exercise (Amphibious)	4	4	LHD/LHA		1	80.0	100%	320.0	320.0	0.0	0.0	2,362	13,930	1,770	41,910	8,413	7,572	0	0	0	Ō	0	0	0	0	0	0	0	0	373	119,360	2,513,005	82	71	2,539,769
		4 4	LSD LPD		1	80.0 80.0	100% 100%	320.0 320.0	320.0 320.0	0.0 0.0	0.0 0.0	2,176 940	12,838 5,543	1,632 705	38,624 16,676	7,754 3,347	6,978 3,012	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	373 373	119,360 119,360	2,513,005 2,513,005	82 82	71 71	2,539,769 2,539,769
Special Purpose Marine Air Ground Task Force Exercise	2	2	LHA	Amphib. Assault Ship - Tarawa	1	80.0	100%	160.0	52.8	52.8	54.4	390	2,298	292	6,915	1,388	1,249	390	2,298	292	6,915	1,388	1,249	401	2,368	301	7,125	1,430	1,287	373	59,680	1,256,503	41	36	1,269,884
		4	LPD	Amphibious Transport Dock - Wasp	2	80.0	100%	320.0	105.6	105.6	108.8	310	1,829	233	5,503	1,105	994	310	1,829	233	5,503	1,105	994	319	1,885	240	5,670	1,138	1,024	373	119,360	2,513,005	82	71	2,539,769
Urban Warfare Exercise	5	5	LHA	Amphib. Assault Ship - Tarawa Amphibious	1	112.0	100%	560.0	560.0	0.0	0.0	4,133	24,377	3,097	73,343	14,722	13,250	0	0	0	0	0	0	0	0	0	0	0	0	373	208,880	4,397,760	143	124	4,444,596
		10	LPD	Wasp	2	112.0	100%	1120.0	1120.0	0.0	0.0	3,200	19,401	2,400	56,507	11,715	10,545	0	0	0	0	U	0.	U	U	U	0	U	0	515	411,100	0,190,019	200	249	0,009,191
ELECTRONIC WARFARE	<u> </u>	<del></del>		1	1	1 1		r	r	1		-						r						-						<b>1</b> 1					
Electronic Warfare Operations (EW Ops)	480	480	FFG	Guided Missile Frigate	1	4	100%	1920.0	0.0	0.0	1920.0	0	0	0	0	0	0	0	0	0	0	0	0	230,477	149,971	22,349	30,874	8,256	7,430	79	151,680	3,193,471	104	90	3,227,481
Counter Targeting Flare Exercise (FLAREX) - Aircraft	3200																																		
Counter Targeting Chaff Exercise (CHAFFEX) - Ship	40	40	FFG	Guided Missile Frigate	1	4	100%	160.0	0.0	0.0	160.0	0	0	0	0	0	0	0	0	0	0	0	0	19,206	12,498	1,862	2,573	688	619	79	12,640	266,123	9	8	268,957
Counter Targeting Chaff Exercise (CHAFFEX) - Aircraft	3200																																		
MINE WARFARE												·																							
Submarine Mine Exercise	16																																		
Mine Countermeasure Exercise – Sonar (AQS-20, LCS)	4	1	CG	Cruiser	0.2	1.5	100%	1.2	0.0	0.7	0.5	0.0	0.0	0.0	0.0	0.0	0	85.4	48.5	5.7	25.0	2.6	2	52.3	29.7	3.5	15.3	1.6	1	184	221	4,649	0	0	4,698
		1	DDG	Guided Missile Destroyer	0.14	1.5	100%	0.8	0.0	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0	55.6	28.0	4.1	11.1	1.5	1	34.0	17.2	2.5	6.8	0.9	1	187	157	3,307	0	0	3,342
		1	FFG	Guided Missile Frigate	0.13	1.5	100%	0.8	0.0	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0	58.1	37.8	5.6	7.8	2.1	2	35.6	23.2	3.5	4.8	1.3	1	79	62	1,297	0	0	1,311

				OPERATION	VAL IN	IFORM	ATION -	VESSEL	.s									E	mission	s By Juri	sdiction	(lb/year)	È.								Gree	nhouse Gas I	mission	s (lb/yea	ar)
	(#) 9		Ship / V	essel / Boat		R	ange Time	(hr)	Dist	ribution	(hr)		S	tate (0-3 ni	n offshore	)		1	٧	Vaters of U	S (3-12 nr	n)			Interr	national Wa	aters (>12	nm)	N2-	Î					
Type of Training	Training Op	Number	Ship Type	Type	Participation	Per Ship	Time at Each Power Level (%)	Total	0-3 nm from shore	3-12 nm from shore	>12 nm from shore	со	NO <sub>x</sub>	нс	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	Fuel Flow (GP	Annual Fuel Consumption (gal)	CO₂	N <sub>2</sub> O	CH₄	CO <sub>2-e</sub>
Mine Countermeasure Exercise – Surface (SMCMEX) Sonar (SQQ-32, MCM)	4	4	МСМ	MCM Class	1	8,0	100%	32.0	32.0	0.0	0.0	94.0	554.3	70.5	1667.6	334.7	301	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	373	11,936	251,301	8	7	253,977
Mine Neutralization – Remotely Operated Vehicle Sonar (AQS-235[AQS-20], SLQ-48)	4	4	RHIB	Rigid Hulled Inflatable Boat	1	12.0	100%	48.0	48.0	0.0	0.0	16.3	438.7	2.9	69.1	7.2	6	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	14	672	14,148	0	0	14,299
Mine Laying - Aircraft	4																																		
Mine Neutralization – Explosive Ordnance Disposal	20	60	RHIB	Rigid Hulled Inflatable Boat	3	12.0	100%	720.0	720.0	0.0	0.0	244.8	6580.8	43.2	1036.8	108.0	97	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	14	10,080	212,224	7	6	214,485
Limpet Mine Neutralization System/Shock Wave Generator	40	40	RHIB	Rigid Hulled Inflatable Boat	1	4.0	100%	160.0	160.0	0.0	0.0	54.4	1462.4	9.6	230.4	24.0	22	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	14	2,240	47,161	2	1	47,663
Mine Countermeasure – Towed Mine Detection	4	4	МСМ	MCM Class	1	15.0	100%	60.0	60.0	0.0	0.0	176.2	1039.3	132.1	3126.8	627.6	565	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	373	22,380	471,189	15	13	476,207
NAVAL SPECIAL WARFAR	RE	L L				1 I																													
Personnel I&E		1200	RHIB	Rigid Hulled	5	8.0	100%	9600.0	9600.0	0.0	0.0	3264.0	87744 0	576.0	13824.0	1440.0	1 296	0.0	0.0	0.0	0.0	0.0	Û	0.0	0.0	0.0	0.0	0.0	n	14	134 400	2 829 658	92	80	2 859 793
	240	1440	CRRC	Inflatable Boat Combat Rubber Raiding Craft	6	8.0	100%	11520.0	11520.0	0.0	0.0	0	1,711	148,625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	34,560	727,626	24	21	735,375
Parachute Insertion	20																																		
Embassy Reinforcement	50	50	LCAC	Landing Craft Air Cushioned	1	24.0	100%	1200.0	1200.0	0.0	0.0	30,492	66,384	864	51,960	4,668	4,201	0	0	0	0	0	0	0	0	0	0	0	0	611	733,200	15,436,793	501	436	15,601,195
Direct Action (Combat Close Quarters)	72																																		
Direct Action (Breaching)	72																																		
Direct Action (TAC-P)	18																																		
Underwater Demolition Qualifications	30	30	CRRC	Combat Rubber Raiding Craft	1	8.0	100%	240.0	0.0	240.0	0.0	0	0	0	0	0	0	0	36	3,096	0	0	0	0	0	0	0	0	0	3	720	15,159	0	0	15,320
Intelligence, Surveillance, Reconnaissance	16																																		
Urban Warfare Training	18	18	LHA	Amphib, Assault Ship - Tarawa	1	40.0	100%	720.0	720.0	0.0	0.0	5,314	31,342	3,982	94,298	18,929	17,036	0	0	0	0	0	0	0	0	0	0	0	0	373	268,560	5,654,262	183	160	5,714,480
		36	LPD	Amphibious Transport Dock - Wasp	2	40.0	100%	1440.0	1440.0	0.0	0.0	4,228	24,944	3,171	75,043	15,062	13,555	0	0	0	0	0	0	0	0	0	0	0	0	373	537,120	11,308,524	367	320	11,428,960

				OPERATIO	NALIN	VFOR	MATION -	VESSE	LS									E	missions	s By Juri	sdiction	(lb/year)									Greer	house Gas l	mission	s (lb/yea	ur)
	#) S		Ship / V	/essel / Boat		1	Range Tim	e (hr)	Dis	tribution	ı (hr)		S	tate (0-3 n	nm offshore	)			W	aters of U	S (3-12 nr	n)			Intern	ational Wa	ters (>12	nm)	-	(H					
Type of Training	Training Op	Number	Ship Type	Type	Participation	Per Ship	Time at Each Power Level (%)	Total	0-3 nm from shore	3-12 nm from shore	>12 nm from shore	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>18</sub>	PM <sub>2.6</sub>	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	Fuel Flow (GF	Annual Fuel Consumption (gal)	CO2	N <sub>2</sub> O	CH4	CO <sub>2-e</sub>
Underwater Survey	16	48	RHIB	Rigid Hulled Inflatable Boat	3	8.0	100%	384.0	384.0	0.0	0.0	130.6	3509.8	23.0	553.0	57.6	52	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	14	5,376	113,186	4	3	114,392
		48	CRRC	Combat Rubber Raiding Craft	3	8.0	100%	384.0	384.0	0.0	0.0	0	57	4,954	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1,152	24,254	1	1	24,513
OTHER				•		-						- D/											1.1												
Surface Ship Sonar Maintenance	42	42	FFG	Guided Missile Frigate	1	4.0	100%	168.0	168.0	0.0	0.0	20,167	13,122	1,956	2,701	722	650	0	0	0	0	0	0	0	0	0	0	0	0	79	13,272	279,429	9	8	282,405
Submarine Sonar Maintenance	48			Combat Dubban																															
Small Boat Attack	18	18	CRRC	Raiding Craft	1	4.0	100%	72.0	0.0	72.0	0.0	0	0	0	0	0	0	0	11	929	0	0	0	0	0	0	0	0	0	3	216	4,548	0	0	4,596
Search and Rescue at Sea	40	80	USCG	US Coast Guard	1 2	40.0	100%	3200.0	0.0	3200.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18368.0	185312.0	2816.0	36960.0	672.0	604.8	0	0	0	0	0	0	66	211200	4446605	144.25	125.66	4,493,961
Submanne Navigation	40					_			_		_																								
Precision Anchoring	18	18	FFG	Frigate	1	4.0	100%	72.0	72.0	0.0	0.0	8,643	5,624	838	1,158	310	279	0	0	0	0	0	0	0	0	0	0	0	0	79	5,688	119,755	4	3	121,031
Navigation)	16																																		
Water Purification	16		5								-																								
Field Training Exercise	100																																		
Force Protection	75																																		
Anti-Terrorism	80																																		
Seize Airfield	12																																		
Airfield Expeditionary	12																																		
Onmanned Aenal Vehicle Operation	1000																																		
Land Demolitions (Improvised Explosive Device) Discovery / Disposal	120																																		
Land Demolitions (Unexploded Ordnance) Discovery / Disposal	236																																		
TOTAL TRAINING EMISSIONS (LBS/YEAR)									34,98	8 9,294	4 6,994	158,513	619,825	198,044	967,349	187,053	168,348	3 190,097	333,400	43,461	165,170	23,228	20,905	557,915	367,448	59,762	156,736	31,938	3 28,744		7,501,337	157,933,149	5,123	4,463	159,615,136
TOTAL TRAINING EMISSIONS (TONS/YEAR)												79	260	99	484	94	84	96	167	22	83	12	10	279	184	30	78	16	5 14		7,501,337	78,967	3	2	79,808

	-			OPERATION	VAL IN	IFORM	IATION -	VESSE	LS									E	nissions E	By Jurisc	liction (Ib	o/year)									Greer	house Gas I	Emission	s (lb/yea	ar)
	(#) S		Ship / Ves	sel / Boat	_	R	ange Time	(hr)	Dist	ribution	(hr)		Sta	te (0-3 nn	n offshore)				Wat	ers of U S	(3-12 nm)	-	P		Intern	ational Wa	ters (>12	nm)	_	Ĵ					
Type of Training	Training Op	Number	Ship Type	Type	Participation	Per Ship	Time at Each Power Level (%)	Total	0-3 nm from shore	3-12 nm from shore	>12 nm from shore	со	NO <sub>x</sub>	нс	sox	PM <sub>18</sub>	PM <sub>2.5</sub>	со	NOx	нс	SOx	PM <sub>18</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	so,	PM <sub>10</sub>	PM <sub>2.5</sub>	Fuel Flow (GF	Annual Fuel Consumption (gal)	CO2	N <sub>2</sub> O	СН₄	CO <sub>2-e</sub>
ANTI-SURFACE WARFA	RE					_		-																	n										
Air to Surface Missile Test	8																																		
ANTI-SUBMARINE WAR	FARE							_																											
Anti-submarine Warfare Tracking Test - MPA	188																																		
Anti-submarine Warfare Torpedo Test	40																																		
Broad Area Maritime Surveillance (BAMS) Testing	10																																		
LIFECYCLE ACTIVITIES	TESTI	NG		90 90	8	15	ie																												
Ship Signature Testing	17	17	FFG.	Guided Missile	1	4.0	100%	68.0	22.4	22.4	23.1	2,694	1,753	261	361	96	87	2,694	1,753	261	361	96	87	2,775	1,806	269	372	99	89	79	5,372	113,102	4	3	114,307
ANTI-SURFACE WARFA	RE / A	NII-SUBA	IARINE WARE	ARETESTING	r	T	r	1	1	r –	<u> </u>	ř												·						<b>1</b> 7					
Torpedo Explosive Testing	2	6	DDG		3	4.0	100%	24.0	0.0	0.0	24.0	0	0	0	0	0	0	0	0	0	0	0	0	2,560	1,292	188	509	67	60	187	4,488	94,490	3	3	95,497
Countermeasure Testing	2	4	DDG		2	2.0	100%	8.0	4.0	4.0	0.0	427	215	31	85	11	10	427	215	31	85	11	10	0	0	0	0	0	0	187	1,496	31,497	1	1	31,832
		0	CON	Nuclear Carrie	1	2.0	10096	160.0	0.0	0.0	160.0																								
At-Sea Sonar Testing	20	00	0014	reaction carrie		2.0	10070	100.0	0.0	0.0	100.0																								
		20 80	CG DDG		1 4	2.0 2.0	100% 100%	40.0 160.0	0.0 0.0	0.0 0.0	40.0 160.0	0 0	0 0	0 0	0 0	0 0	0	0	0 0	0 0	0 0	0 0	0 0	4,590 17,067	2,609 8,614	307 1,254	1,342 3,395	138 448	124 403	184 187	7,360 29,920	154,957 629,936	5 20	4 18	156,608 636,644
SHIPBOARD PROTECTI	ON SY	STEMS A	ND SWMMER	DEFENSE TES	TING			-																											
Swimmer Defense	1	1	FFG	Guided Missile	e 1	8.0	100%	0.8	8.0	0.0	0.0	960	625	93	129	34	31	0	0	0	0	0	0	0	0	0	0	0	0	79	632	13,306	0	0	13,448
NEW SHIP CONSTRUCT	TION				L																														
ASW Mission Package Testing	33	33	LCS	Littoral Comba	a 1	60	1	1980	0	1980	0	0	0	0	0	0	0	237679.2	154657.8	23047.2	31838.4	8514	7662.6	0	0	0	0	0	0	79	156420	3293266.68	106.835	93.0699	3328339.955
MCM Mission Package	2.2	32	LCS	Littoral Comba	a 1	60	1	1920	0	1920	0	0	0	0	0	0	0	230476.8	149971.2	22348.8	30873.6	8256	7430.4	0	0	0	0	0	0	79	151680	3193470.72	103.597	90.2496	3227481.168
ASUW Mission Package Testing	32	4	LCS	Littoral Comba	a' 1	40	1	160	0	80	80	0	0	0	0	0	0	9603.2	6248.8	931.2	1286.4	344	309.6	9603.2	6248.8	931.2	1286.4	344	309.6	79	12640	266122.56	8.63312	7.5208	268956.764
OFFICE OF NAVAL RES	EARCH	-		I	L	L	L		I																					<b></b>					
					1																														
North Pacific Acoustic Lab Philippine Sea 2018- 19 Experiment (Deep Water)	1								-																										
TOTAL TESTING EMISSIONS (LBS/YEAR)									34	4,006	487	4,081	2,593	386	574	142	128	480,880	312,846	46,620	64,444	17,222	15,500	36,596	20,570	2,950	6,905	1,096	987		370,008	7,790,148	253	220	7,873,113
TOTAL TESTING EMISSIONS (TONS/YEAR)												2	1	0	0	0	0	240	156	23	32	9	8	18	10	1	3	1	0		370,008	3,895	0	0	3,937
0 .				OPERATIO	NALI	NFORM	MATION -	VESSE	LS									E	mission	s By Juri	sdiction	(lb/year)									Gree	house Gas	Emission	is (lb/yea	r)
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	(#) \$		Ship / V	essel / Boat		R	ange Time	(hr)	Dist	ribution	(hr)		St	ate (0-3 n	m offshore	)			W	/aters of U	S (3-12 nr	n)	u		Interr	ational W	aters (>12	nm)		Î			I		
Type of Training	Training Ops	Number	Ship Type	Type	Participation	Per Ship	Time at Each Power Level (%)	Total	0-3 nm from shore	3-12 nm from shore	>12 nm from shore	со	NO <sub>x</sub>	нс	so,	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NOx	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	Fuel Flow (GP	Annual Fuel Consumption (gal)	CO2	N₂O	CH4	CO <sub>2-e</sub>
ANTI-AIR WARFARE																																			
Air Combat Maneuver	5300																																		
Air Defense Exercise	100																																		
Air Intercept Control	5300																																		
Gunnery Exercise, A-A (Medium Caliber)	45																																		
Missile Exercise, A-A	24																																		
Gunnery Exercise, S-A (Large Caliber)	5	10	FFG	Guided Missile Frigate	2.00	2.0	100%	20.0	0.0	0.0	20.0	0	0	0	0	0	0	0	0	0	0	0	0	2,401	1,562	233	322	86	77	79	1,580	33,265	1	1	33,620
Gunnery Exercise, S-A (Medium Caliber)	12	24	FFG	Frigate	2.00	2.0	100%	48.0	0.0	0.0	48.0	0	0	0	0	0	0	0	0	0	0	0	0	5,762	3,749	559	772	206	186	79	3,792	79,837	3	2	80,687
Missile Exercise, S-A	15	30	FFG	Guided Missile Frigate	2.00	2.0	100%	60.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79	0	0	0	0	0
STRIKE WARFARE					ű.	4 - 34	ų	1 <u>0 0</u>	-		_																			-					
Bombing Exercise, A-G	2520			4. (* 1																															
Missile Exercise, A-G	85																																		
Gunnery Exercise, A-G	96																																		
Combat Search and Rescue	80																																		
AMPHIBIOUS WARFARE																																6			
Fire Support Exercise - Land- Based target	10	10	CG	Cruiser	1	8.0	100%	80.00	80.0	0.0	0.0	9,180	5,218	614	2,684	275	248	0	0	0	0	0	0	0	0	0	0	0	0	184	14,720	309,915	10	9	313,215
Amphibious Rehearsal, No Landing - Marine Air Ground	10	48	LHD/LHA		4	24.0	100%	1152.0	1152.0	0.0	0.0	8501.8	50146.6	6370.6	150877.4	30286.1	27257.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	373.0	429696	9046819.584	293.482	255.669	9143168.17
TASK FUICE	12	48	LSD		4	24.0	100%	1152.0	1152.0	0.0	0.0	7833.6	46218.2	5875.2	139046.4	27913.0	25121.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	373.0	429696	9046819 584	293 482	255 669	9143168 17
		48	LPD		4	24.0	100%	1152.0	1152.0	0.0	0.0	3382.2	19955.2	2536.7	60034.6	12049.2	10844.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	373.0	429696	9046819.584	293.482	255.669	9143168.17
Amphibious Assault - Marine Air Ground Task Force		6	CG	Cruiser	1	8.0	100%	48.0	48.0	0.0	0.0	5,508	3,131	368	1,610	165	149	0	0	0	0	0	0	0	0	0	0	0	0	184	8,832	185,949	6	5	187,929
	6	6	LHA	Amphib. Assault Ship -	1	8.0	100%	48.0	48.0	0.0	0.0	354	2 089	265	6.287	1.262	1.136	0	0	0	0	0	0	0	0	0	0	0	0	373	17.904	376.951	12	11	380.965
				Tarawa Amphibious			10000																							27.0		750 000			704 0004
		12	LPD	- Wasp	2	8.0	100%	96.0	96.0	0.0	0.0	282	1,663	211	5,003	1,004	904	U	U	U	U	U	U	U	U	U	U	U	U	373	35,808	753,902	24	21	761,931
		12	FFG	Guided Missile Frigate	2	8.0	100%	96.0	96.0	0.0	0.0	11,524	7,499	1,117	1,544	413	372	0	0	0	0	0	0	0	0	0	0	0	0	79	7,584	159,674	5	5	161,374
Amphibious Raid - Special Purpose Marine Air Ground Task Force	6	6	LHA	Amphib. Assault Ship - Tarawa	1	6.0	100%	36.0	36.0	0.0	0.0	266	1,567	199	4,715	946	852	0	0	0	0	0	0	0	0	0	0	0	0	373	13,428	282,713	9	8	285,724
		12	LPD	Amphibious Transport Dock - Wasp	2	2.5	100%	30.0	30.0	0.0	0.0	88	520	66	1,563	314	282	0	0	0	0	0	0	0	0	0	0	0	0	373	11,190	235,594	8	7	238,103
Urban Warfare Training	36																																		
Non-Combatant Evacuation Operation		5	LHA	Amphib. Assault Ship -	1	80.0	100%	400.0	400.0	0.0	0.0	2,952	17,412	2,212	52,388	10,516	9,464	0	0	0	0	0	0	0	0	0	0	0	0	373	149,200	3,141,257	102	89	3,174,711
an generation and a second	5	10	IPD	Amphibious		80.0	100%	800.0	800.0	0.0	0.0	2 340	13 858	1 762	41 601	8 262	7 521	n	Ω	Û	0	n	0	D	0	D	n	n	n	373	298.400	6 282 514	204	178	6 349 4 22
		5	LCU	- Wasp Landing Craft	1	80.0	100%	400.0	400.0	0.0	0.0	14,484	17,980	208	1,244	628	565	0	0	0	0	0	0	0	0	0	0	0	0	66	26,400	555,826	18	16	561,745
				Juniy		_																													

				OPERATIO	NAL II	NFORM	MATION	VESSE	LS		1							Ē	missions	s By Juri	isdiction	(lb/year)									Greer	house Gas	Emission	is (lb/yea	ar)
	(#) 9		Ship / Ve	essel / Boat		R	ange Time	(hr)	Dist	ribution	(hr)		S	tate (0-3 n	m offshore	)			N	/aters of U	J S (3-12 nr	n)			Intern	ational W	aters (>12	nm)		Î					
Type of Training	Training Op	Number	Ship Type	Type	Participation	Per Ship	Time at Each Power Level (%)	Total	0-3 nm from shore	3-12 nm from shore	>12 nm from shore	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>18</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>	Fuel Flow (GP	Annual Fuel Consumption (gal)	CO <sub>2</sub>	N <sub>2</sub> O	CH4	CO <sub>2-e</sub>
Humanitarian Assistance/ Disaster Relief Operations	5	5	LHA	Amphib. Assault Ship - Tarawa	1	8.0	100%	40.0	40.0	0.0	0.0	295	1,741	221	5,239	1,052	946	0	0	0	0	0	0	0	0	0	0	0	0	373	14,920	314,126	10	9	317,471
		10	LPD	Amphibious Transport Dock - Wasp	< 2	8.0	100%	80.0	80.0	0.0	0.0	235	1,386	176	4,169	837	753	0	0	0	0	0	0	0	0	0	0	0	0	373	29,840	628,251	20	18	634,942
		5	LCAC	Landing Craft Air Cushioned	1	8.0	100%	40.0	40.0	0.0	0.0	1,016	2,213	29	1,732	156	140	0	0	0	0	0	0	0	0	0	0	0	0	611	24,440	514,560	17	15	520,040
Unmanned Aerial Vehicle - Intelligence, Surveillance, and Reconaissance	100																																		
ANTI-SURFACE WARFARE																																			
Gunnery Exercise, A-S (Small Caliber) - Ship	242																																		
Gunnery Exercise, A-S (Medium Caliber) - Ship	295																																		
Missile Exercise (A-S) - Rocket	10																																		
Missile Exercise (A-S)	20																																		
Laser Targeting	600																																		
Bombing Exercise (A-S)	37											с. С.																							
Torpedo Exercise (Submarine to Surface)	5																																		
Missile Exercise (S-S)	12	24	FFG	Guided Missile Frigate	2.00	2.0	100%	48.0	0.0	0,0	48.0	0	0	0	0	0	0	0	0	0	0	0	0	5,762	3,749	559	772	206	186	79	3,792	79,837	3	2	80,687
Gunnery Exercise (S-S)- Ship, Large Caliber	140	24		Children	0.22	25	10004	77.0	0.0	21.6	EE 4	0	0	0	0	0	0	2.474	1.406	165	702	74	67	6 262	2 616	425	1 960	101	170	104	14 160	200 202	10	0	201.470
		63	DDG	Guided Missile	0.22	2.5	100%	157.5	0.0	44.1	113.4	0	0	0	0	ö	0	4 704	2 374	346	936	123	111	12 096	6 105	889	2 406	318	286	187	29 453	620.093	20	18	626 697
		21	FEG	Destroyer Guided Missile	0.15	25	100%	52.5	0.0	14.7	27.0	0	0	0	0	ñ	0	1 765	1 1/19	171	226	63	57	1 529	2 05 3	440	609	162	146	70	4 149	97 201	2	2	99.051
		7	Unknown	Frigate Other	0.05	2.5	100%	17.5	0.0	4.9	12.6	0	0	0	0	0	0	33	197	25	591	119	107	86	506	64	1,521	305	275	66	1,155	24,317	1	1	24,576
		17	USCG	US Coast Guard	0.12	2.5	100%	42.0	0.0	11.8	30.2	0	0	0	0	0	0	68	681	10	136	2	2	174	1,751	27	349	6	6	66	2,772	58,362	2	2	58,983
Gunnery Exercise (S-S)-							-	s	12														-									÷			
Ship, Medium caliber	100	22	CG	Cruiser	0.22	2.5	100%	55.0	0.0	15.4	39.6	0	0	0	0	0	0	1,767	1,004	118	517	53	48	4,544	2,583	304	1,329	136	123	184	10,120	213,066	7	6	215,336
		45	DDG	Guided Missile Destroyer	0.45	2.5	100%	112.5	0.0	31.5	81.0	0	0	0	0	0	0	3,360	1,696	247	668	88	79	8,640	4,361	635	1,719	227	204	187	21,038	442,924	14	13	447,641
		15	FFG	Guided Missile Frigate	0.15	2.5	100%	37.5	0.0	10.5	27.0	0	0	0	0	0	0	1,260	820	122	169	45	41	3,241	2,109	314	434	116	104	79	2,963	62,372	2	2	63,037
		1	LPD	Amphibious Transport Dock	0.01	2.5	100%	1.5	0.0	0.4	1.1	0	0	0	0	0	0	1	7	1	22	4	4	3	19	2	56	11	10	373	560	11,780	0	0	11,905
		5	Unknown	- Wasp Other	0.05	2.5	100%	12.5	0.0	3.5	9.0	0	0	0	0	0	0	24	140	18	422	85	76	61	361	46	1,086	218	196	66	825	17,370	1	0	17,555
					70	10 - 20																													

				OPERATIO	NALIN	<b>IFORM</b>	ATION -	VESSE	LS									E	mission	s By Juri	isdiction	(lb/year	)	-							Green	house Gas	Emissior	ns (Ib/yea	ur)
	(#) S		Ship / Ve	essel / Boat		R	ange Time	(hr)	Dist	ribution	(hr)		S	tate (0-3 ni	n offshore	)			W	Vaters of U	JS (3-12 n	m)		1	Interr	national W	aters (>12	nm)		Î					
Type of Training	Training Op	Number	Ship Type	Type	Participation	Per Ship	Time at Each Power Level (%)	Total	0-3 nm from shore	3-12 nm from shore	>12 nm from shore	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	so,	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NOx	нс	so,	PM <sub>10</sub>	PM <sub>2.5</sub>	Fuel Flow (GP	Annual Fuel Consumption (gal)	CO <sub>2</sub>	N <sub>2</sub> O	CH₄	CO <sub>2-e</sub>
		12	USCG	US Coast Guard	0,12	2.5	100%	30.0	0.0	8.4	21.6	0	0	0	0	0	0	48	486	7	97	2	2	124	1,251	19	249	5	4	66	1,980	41,687	1	1	42,131
Sinking Exercise (SINKEX)	2	10	FFG	Guided Missile Frigate	5.00	16.0	100%	160.0	0.0	0.0	160.0	0	0	0	0	0	0	0	0	0	0	0	0	19,206	12,498	1,862	2,573	688	619	79	12,640	266,123	9	8	268,957
Gunnery Exercise (S-S) Boat – Medium-caliber	10	50	FFG	Guided Missile Frigate	5.00	3.0	100%	150.0	0.0	0.0	150.0	0	0	0	0	0	0	0	0	0	0	0	0	18,006	11,717	1,746	2,412	645	581	79	11,850	249,490	8	7	252,147
Gunnery Exercise (S-S) Small-caliber	40	80	CRRC	Combat Rubber Raiding Craft	r 2	3.0	100%	240.0	0.0	0.0	240.0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	3,096	0	0	0	3	720	15,159	0	0	15,320
Maritime Security Operations (MSO)	40	40	FFG	Guided Missile Frigate	1	8.0	100%	320.0	0.0	0.0	320.0	0	0	0	0	0	0	0	0	0	Ō	0	0	38,413	24,995	3,725	5,146	1,376	1,238	79	25,280	532,245	17	15	537,914
	12200	40	RHIB	Rigid Hulled Inflatable Boat	1	8.0	100%	320.0	0.0	0.0	320.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	108.8	2924.8	19.2	460.8	48.0	43	14	4,480	94,322	3	3	95,326
		40	CRRC	Combat Rubber Raiding Craft	r' 1	8.0	100%	320.0	0.0	0.0	320.0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	4,128	0	0	0	3	960	20,212	1	1	20,427
ANTI-SUBMARINE WARFAF	RE			4		<u> </u>																		1											
Tracking Exercise-Helo		TT			T				r –	<b></b>								<u>г</u>						T T							1				
Theorem g Excholate Hold	62																																		
Torpedo Exercise-Helo	4																																		
Tracking Exercise-Maritime Patrol Advanced Extended Echo Ranging Sonobuoys	11																																		
Tracking Exercise -Maritime Patrol Aircraft	34																																		
Torpedo Exercise-Maritime Patrol Aircraft	4																																		
Tracking Exercise –Surface	132	132	FFG	Guided Missile Frigate	1	2.0	100%	264.0	0.0	132.0	132.0	0	0	0	0	0	0	15,845	10,311	1,536	2,123	568	511	15,845	10,311	1,536	2,123	568	511	79	20,856	439,102	14	12	443,779
Torpedo Exercise-Surface	3	3	FFG	Guided Missile Frigate	1	2.0	100%	6.0	0.0	3.0	3.0	0	0	0	0	0	0	360	234	35	48	13	12	360	234	35	48	13	12	79	474	9,980	0	0	10,086
Tracking Exercise- Submarine	12																																		
Torpedo Exercise – Submarine	10																																		
MAJOR TRAINING EVENTS	S			1				l		L		N																							
Joint Expeditionary Exercise	1	1	CVN	Nuclear Carrier (No emissions)	1	80.0	100%	80.0	0.0	80.0	0.0																								
		1 2 5 1 2	CG FFG DDG LHD/LHA LSD		1 2 5 1 2	80.0 80.0 80.0 80.0 80.0	100% 100% 100% 100% 100%	80.0 160.0 400.0 80.0 160.0	0.0 0.0 0.0 0.0 0.0 0.0	80.0 160.0 400.0 80.0 160.0	0.0 0.0 0.0 0.0 0.0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	9,180 19,206 42,668 590 1,088	5,218 12,498 21,536 3,482 6,419	614 1,862 3,136 442 816	2,684 2,573 8,488 10,478 19,312	275 688 1,120 2,103 3,877	248 619 1,008 1,893 3,489	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	184 79 187 373 373	14,720 12,640 74,800 29,840 59,680	309,915 266,123 1,574,839 628,251 1,256,503	10 9 51 20 41	9 8 45 18 36	313,215 268,957 1,591,611 634,942 1,269,884

Type of Training     Ship / Vessel / Boz       uageurn     uageurn       1     LPD       1     LPD       1     TAOE       1     SSN       1     SSGN       1     SSGN       1     SSGN       1     SSGN	oat         End         End <thend< th=""> <thend< th=""> <thend< th=""></thend<></thend<></thend<>	Result         Result<	Rep         Rep           Rep         Rep           80.0         80.0           80.0         80.0	Distribution shore 0-3 nm from 0.0 0-3 nm from	<ul> <li>3-12 nm from</li> <li>5hore</li> <li>&gt;12 nm from</li> <li>&gt;12 nm from</li> <li>shore</li> </ul>		SI	tate (0-3 nn	n offshore)				w	aters of U	S (3-12 nm	ı) 			Intern	ational Wa	aters (>12 i	nm)		(HdS	_ 5				
Type of Training     add Diruge L     add L     add L     add L     add L       1     1     LPD TAOE     1       1     1     SSN     Nuclear O (No emiss)       1     SSGN     Nuclear O (No emiss)	Bit of the second sec	dub         ber Sup sup sup sup sup sup sup sup sup sup s	et of the second	0.0 0-3 nm from 6 0.0 0-3 nm from 7 0.0 0 0-3 nm from 7 0 0 0 0-3 nm from 7 0 0 0 0 0 0 0-3 nm from 7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	<ul> <li>3-12 nm from</li> <li>shore</li> <li>&gt;12 nm from</li> <li>shore</li> </ul>	3										(c					20.0		12	6	- 5				
1     LPD       1     TAOE       1     SSN       1     SSGN       Nuclear C       1     SSGN	1         80.0           1         80.0           Ir Carrier nissions)         1         80.0           Ir Carrier nissions)         1         80.0           2         80.0         1           1         80.0         1         80.0	80.0 100% 80.0 100% 80.0 100%	80.0 80.0 80.0	0.0	000	ιu	NO <sub>x</sub>	нс	SO,	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NOx	нс	SO,	PM <sub>18</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>	Fuel Flow (	Annual Fuel Consumptic (gal)	CO2	N <sub>2</sub> O	CH4	CO <sub>2-e</sub>
1 SSN Nuclear ( (No emis: 1 SSGN Nuclear C (No emiss	r Carrier nissions) 1 80.0 nr Carrier nissions) 1 80.0 2 80.0 1 80.0	80.0 100%	80.0		80.0 0.0	0	0 0	0 0	0 0	0	0 0	235 534	1,386 3,150	176 400	4,169 9,554	837 1,902	753 1,711	0 0	0 0	0 0	0 0	0 0	0 0	373 1,865	29,840 149,200	628,251 3,141,257	20 102	18 89	634,942 3,174,711
1 SSGN (No emis:	1 80.0 2 80.0 1 80.0	00.0 4000/		0.0	80.0 0.0																								
	1 80.0	80.0 100%	80.0	0.0	80.0 0.0	0	0	0	0	ō	0	1.067	6 200	000	10 100	2 002	2 4 7 2	0	0	0	0	0	0	1 965	209 400	6 202 514	204	179	6 240 400
1 CG-PARTNER		80.0 100%	80.0	0.0	80.0 0.0	0	0	0	0	0	0	8,623	0,299 3,768	792	1,680	208	3,425 187	0	0	0	0	0	0	1,805	14,720	309,915	204 10	9	313,215
2 DDG- PARTNER 1 SS-PARTNER 5 LCAC 2 LCU 19 CRRC 2 RHIB 14 AAV	2 80,0 1 80,0 5 80,0 2 80,0 19 80,0 2 80,0 14 80,0	80.0         100%           80.0         100%           80.0         100%           80.0         100%           80.0         100%           80.0         100%           80.0         100%           80.0         100%           80.0         100%           80.0         100%	160.0 80.0 400.0 160.0 1520.0 160.0 1120.0	0.0     1       0.0     4       0.0     1       0.0     1       0.0     1       0.0     1       0.0     1       0.0     1	160.0         0.0           80.0         0.0           400.0         0.0           520.0         0.0           160.0         0.0           120.0         0.0	0 0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	16,638 235 10,164 5,794 0 54 851	7,984 1,386 22,128 7,192 226 1,462 6,966	1,440 176 288 83 19,610 10 918	2,864 4,169 17,320 498 0 230 1,400	400 837 1,556 251 0 24 291	360 753 1,400 226 0 22 262	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	187 373 611 66 3 14 3	29,920 29,840 244,400 10,560 4,560 2,240 3,360	629,936 628,251 5,145,598 222,330 96,006 47,161 70,741	20 20 167 7 3 2 2	18 18 145 6 3 1 2	636,644 634,942 5,200,398 224,698 97,029 47,663 71,495
Joint Multi-Strike Group Exercise 1 3 CCVN 3 CG 3 FFG 12 DDG 3 TAOE 5 SSN 2 T-AGO(LFA) 1 SS-PARTNER	3 80.0 3 80.0 12 80.0 3 80.0 5 80.0 2 80.0 1 80.0	80.0         100%           80.0         100%           80.0         100%           80.0         100%           80.0         100%           80.0         100%           80.0         100%           80.0         100%           80.0         100%           80.0         100%           80.0         100%	240.0 240.0 240.0 960.0 240.0 400.0 160.0 80.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0         240.           0.0         240.           0.0         240.           0.0         240.           0.0         240.           0.0         960.           0.0         240.           0.0         240.           0.0         160.           0.0         80.0	) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) )	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	27,540 28,810 102,403 1,601 1,067 235	15,653 18,746 51,686 9,449 6,299 1,386	1,841 2,794 7,526 1,200 800 176	8,052 3,859 20,371 28,663 19,109 4,169	826 1,032 2,688 5,705 3,803 837	743 929 2,419 5,134 3,423 753	184 79 187 1,865 1,865 373	44,160 18,960 179,520 447,600 298,400 29,840	929,745 399,184 3,779,614 9,423,770 6,282,514 628,251	30 13 123 306 204 20	26 11 107 266 178 18	939,646 403,435 3,819,867 9,524,134 6,349,422 634,942
Fleet Strike Group Exercise 1 CVN Nuclear C	r Carrier 1 56.0	56.0 100%	56.0	0.0	0.0 56.0																								
1 CG 1 FFG 3 DDG 1 LHD/LHA 1 TAOE 1 SSN Nuclear ( (No emis	1 56.0 1 56.0 3 56.0 1 56.0 1 56.0 1 56.0 1 56.0	$\begin{array}{ccc} 56.0 & 100\% \\ 56.0 & 100\% \\ 56.0 & 100\% \\ 56.0 & 100\% \\ 56.0 & 100\% \\ 56.0 & 100\% \\ 56.0 & 100\% \end{array}$	56.0 56.0 168.0 56.0 56.0 56.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0         56.0           0.0         56.0           0.0         168.           0.0         56.0           0.0         56.0           0.0         56.0           0.0         56.0           0.0         56.0           0.0         56.0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	6,426 6,722 17,921 413 374	3,652 4,374 9,045 2,438 2,205	430 652 1,317 310 280	1,879 900 3,565 7,334 6,688	193 241 470 1,472 1,331	173 217 423 1,325 1,198	184 79 187 373 1,865	10,304 4,424 31,416 20,888 104,440	216,940 93,143 661,432 439,776 2,198,880	7 3 21 14 71	6 3 19 12 62	219,251 94,135 668,477 444,460 2,222,298
Integrated Anti-Submarine Warfare Exercise 1 1 CVN (No emiss 1 CG 1 FFG 3 DDG 1 SSN Nuclear C (No emiss 1 SSN Nuclear C	In Carrier hissions) 1 40.0 1 40.0 1 40.0 1 40.0 3 40.0 In Carrier hissions) 1 40.0	40.0         100%           40.0         100%           40.0         100%           40.0         100%           40.0         100%           40.0         100%	40.0 40.0 40.0 120.0 40.0	0.0 · · · · · · · · · · · · · · · · · ·	40.0     0.0       40.0     0.0       40.0     0.0       120.0     0.0       40.0     0.0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	4,590 4,802 12,800	2,609 3,124 6,461	307 466 941	1,342 643 2,546	138 172 336	124 155 302	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	184 79 187	7,360 3,160 22,440	154,957 66,531 472,452	5 2 15	4 2 13	156,608 67,239 477,483
Ship Squadron Anti-			1000-00	1985	sector and	inter-we	11111111111	Rev Vel		80 (Br. )		10.000 (M)	25234453	VALUESCHER -	P	10000	BAR 25 123	Key Mel -			80 B.C	w	Trabalant 1		Resident -		Wildow Concern		
Submarine Warfare 1 CG Exercise 1 EFG	1 40.0	40.0 100%	40.0	0.0	40.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	4590.0 4801.6	2608.8 3124.4	306.8 465.6	1342.0 643.2	137.6	123.8	0.0	0.0	0.0	0.0	0.0	0.0	184.0 79.0	7360 3160	66530.64	5.02688 2.15828	4.3792	156607.736
3 DDG	3 40.0	40.0 100%	120.0	0.0 1	120.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	12800.4	6460.8	940.8	2546.4	336.0	302.4	0.0	0.0	0.0	0.0	0.0	0.0	187.0	22440	472451.76	15.3265	13.3518	477483.369
Maritime Homeland Defense / Security Mine 4 FFG Guided M Countermeasures 1	1 Missile 4 8.0	8.0 100%	32.0	32.0	0.0 0.0	3,841	2,500	372	515	138	124	0	0	0	0	0	0	0	0	0	0	0	0	79	2,528	53,225	2	2	53,791
Marine Air Ground Task Force Exercise 4 LHD/LHA (Amphibious) 4 LHD/LHA	1 80.0	80.0 100%	320.0	320.0	0.0 0.0	2,362 2,176	13,930 12.838	1,770	41,910 38,624	8,413 7,754	7,572 6,978	0	0	0	0	0	0	0	0	0	0	0	0	373 373	119,360	2,513,005	82 82	71	2,539,769

				OPERATIO	NAL INFO	RMATION	I - VESS	ELS									E	mission	s By Juri	isdiction	(lb/year)									Greer	house Gas	Emission	s (lb/yea	ar)
	(#)		Ship / Ve	ssel / Boat	_	Range Tir	ne (hr)	Dis	tribution	(hr)		St	ate (0-3 n	m offshore	)	112		٧	Vaters of L	J S (3-12 ni	m)			Intern	ational W	aters (>12	nm)		Î					
Type of Training	Training Ops	Number	Ship Type	Type	Participation	Time at Each Power Level	Total	0-3 nm from shore	3-12 nm from shore	>12 nm from shore	со	NOx	нс	so,	PM <sub>10</sub>	PM2.5	со	NOx	нс	SO <sub>x</sub>	PM18	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SO,	PM <sub>10</sub>	PM2.5	-uel Flow (GPI	Annual Fuel Consumption (gal)	CO2	N <sub>2</sub> O	CH4	CO <sub>2-e</sub>
		4	LPD		1 80	.0 100%	320.0	320.0	0.0	0.0	940	5,543	705	16,676	3,347	3,012	0	0	0	0	0	0	0	0	0	0	0	0	373	119,360	2,513,005	82	71	2,539,769
Special Purpose Marine Air Ground Task Force Exercise	2	2	LHA	Amphib. Assault Ship - Tarawa	1 80	.0 100%	160.0	52.8	52.8	54.4	390	2,298	292	6,915	1,388	1,249	390	2,298	292	6,915	1,388	1,249	401	2,368	301	7,125	1,430	1,287	373	59,680	1,256,503	41	36	1,269,884
		4	LPD	Amphibious Transport Dock - Wasp	2 80	.0 100%	320.0	105.6	105.6	108.8	310	1,829	233	5,503	1,105	994	310	1,829	233	5,503	1,105	994	319	1,885	240	5,670	1,138	1,024	373	119,360	2,513,005	82	71	2,539,769
Urban Warfare Exercise	5	5 10	LHA LPD	Amphib. Assault Ship - Tarawa Amphibious Transport Dock - Wasp	1 11: 2 11:	2.0 100% 2.0 100%	560.0 1120.	560.0 0 1120.0	0.0	0.0 0.0	4,133 3,288	24,377 19,401	3,097 2,466	73,343 58,367	14,722 11,715	13,250 10,543	0 0	0 0	0 0	0 0	0 0	0 0	0	0 0	0 0	0 0	0 0	0 0	373 373	208,880 417,760	4,397,760 8,795,519	143 285	124 249	4,444,596 8,889,191
				1.100 B		- 14																									1			
Electronic Warfare Operations (EW Ops)	530	530	FFG	Guided Missile Frigate	1 4	100%	2120.	0.0	0.0	2120.0	0	0	0	0	0	0	0	0	0	0	0	0	254,485	165,593	24,677	34,090	9,116	8,204	79	167,480	3,526,124	114	100	3,563,677
Counter Targeting Flare Exercise (FLAREX) - Aircraft	3534																																	
Counter Targeting Chaff Exercise (CHAFFEX) - Ship	40	40	FFG	Guided Missile Frigate	1 4	100%	160.0	0.0	0.0	160.0	0	0	0	0	0	0	0	0	0	0	0	0	19,206	12,498	1,862	2,573	688	619	79	12,640	266,123	9	8	268,957
Counter Targeting Chaff Exercise (CHAFFEX) - Aircraft	3534																																	
MINE WARFARE						4																												
Submarine Mine Exercise	16	0																																
Mine Countermeasure Exercise – Sonar (AQS-20, LCS)	4	1	CG	Cruiser	0.2 1.	5 100%	1.2	0.0	0.7	0.5	0.0	0.0	0.0	0.0	0.0	0	85.4	48,5	5.7	25.0	2.6	2	52.3	29.7	3.5	15.3	1.6	1	184	221	4,649	0	0	4,698
		1	DDG	Guided Missile Destroyer	0.14 1.	5 100%	0.8	0.0	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0	55.6	28.0	4.1	11.1	1.5	1	34.0	17.2	2.5	6.8	0.9	1	187	157	3,307	0	0	3,342
		1	FFG	Guided Missile Frigate	0.13 1.	5 100%	8,0	0.0	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0	58.1	37.8	5.6	7.8	2.1	2	35.6	23.2	3.5	4.8	1.3	1	79	62	1,297	0	0	1,311
Mine Countermeasure Exercise – Surface (SMCMEX) Sonar (SQQ-32, MCM)	4	4	МСМ	MCM Class	1 8.	0 100%	32.0	32.0	0.0	0.0	94.0	554.3	70.5	1667.6	334.7	301	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	373	11,936	251,301	8	7	253,977
Mine Neutralization – Remotely Operated Vehicle Sonar (AQS-235[AQS-20], SLQ-48)	4	4	RHIB	Rigid Hulled Inflatable Boat	1 12	.0 100%	48.0	48.0	0.0	0.0	16.3	438.7	2.9	69.1	7.2	6	0.0	0.0	0.0	0.0	0.0	0	0.0	0,0	0.0	0.0	0.0	0	14	672	14,148	0	0	14,299
Mine Laying - Aircraft	4																																	
Mine Neutralization – Explosive Ordnance Disposal	20	60	RHIB	Rigid Hulled Inflatable Boat	3 12	.0 100%	720.0	720.0	0.0	0.0	244.8	6580.8	43.2	1036.8	108.0	97	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	14	10,080	212,224	7	6	214,485

2	-			OPERATIO	NALIN	VFORM	MATION -	VESSE	LS			1						E	mission	s By Jur	isdiction	(lb/year)									Gree	nhouse Gas	mission	is (lb/yea	ar)
	(#) %	1	Ship / Ve	essel / Boat		R	ange Time	(hr)	Dist	tribution	(hr)		SI	tate (0-3 n	m offshore	)	2		٧	Vaters of L	J S (3-12 nr	n)			Intern	national W	aters (>12	nm)		Î					
Type of Training	Training Ops	Number	Ship Type	Type	Participation	Per Ship	Time at Each Power Level (%)	Total	0-3 nm from shore	3-12 nm from shore	>12 nm from shore	со	NO <sub>x</sub>	НС	SO,	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NOx	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>	Fuel Flow (GP	Annual Fuel Consumption (gal)	CO <sub>2</sub>	N₂O	CH₄	CO <sub>2-e</sub>
Limpet Mine Neutralization System/Shock Wave Generator	40	40	RHIB	Rigid Hulled Inflatable Boat	1	4.0	100%	160.0	160.0	0.0	0.0	54.4	1462.4	9.6	230.4	24.0	22	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	14	2,240	47,161	2	1	47,663
Mine Countermeasure – Towed Mine Detection	4	4	MCM	MCM Class	1	15.0	100%	60.0	60.0	0.0	0.0	176.2	1039.3	132.1	3126.8	627.6	565	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	373	22,380	471,189	15	13	476,207
NAVAL SPECIAL WARFAR	E	10 10																• •						6 0.											
Personnel I&E	240	1200 1440	RHIB	Rigid Hulled Inflatable Boat Combat Rubber	5 r 6	8.0 8.0	100% 100%	9600.0 11520.0	9600.0 11520.0	0.0	0.0	3264.0 0	87744.0	576.0 148,625	13824.0 0	1440.0 0	1,296 0	0.0 0	0.0	0.0 0	0.0 0	0.0 0	0 0	0.0 0	0.0 0	0.0 0	0.0 0	0.0 0	0	14 3	134,400 34,560	2,829,658 727,626	92 24	80 21	2,859,793 735,375
Parachute Insertion	20																																		
Embassy Reinforcement	50	50	LCAC	Landing Craft Air Cushioned	1	24.0	100%	1200.0	1200.0	0.0	0.0	30,492	66,384	864	51,960	4,668	4,201	0	0	0	0	0	0	0	0	0	0	0	0	611	733,200	15,436,793	501	436	15,601,195
Direct Action (Combat Close Quarters)	72																																		
Direct Action (Breaching)	72										·																								
Direct Action (TAC-P)	18																																		
Underwater Demolition Qualifications	30	30	CRRC	Combat Rubber Raiding Craft	r 1	8.0	100%	240.0	0.0	240.0	0.0	0	0	0	0	0	0	0	36	3,096	0	0	0	0	0	0	0	0	0	3	720	15,159	0	0	15,320
Intelligence, Surveillance, Reconnaissance	16																																		
Urban Warfare Training	18	18 36	LHA LPD	Amphib. Assault Ship - Tarawa Amphibious Transport Dock - Wasp	1	40.0 40.0	100% 100%	720.0 1440.0	720.0 1440.0	0.0 0.0	0.0 0.0	5,314 4,228	31,342 24,944	3,982 3,171	94,298 75,043	18,929 15,062	17,036 13,555	0	0 0	0 0	0 0	0 0	0 0	0	0 0	0	0 0	0 0	0 0	373 373	268,560 537,120	5,654,262 11,308,524	183 367	160 320	5,714,480 11,428,960
Underwater Survey	16	48	RHIB	Rigid Hulled Inflatable Boat	3	8.0	100%	384.0	384.0	0.0	0.0	130.6	3509.8	23.0	553.0	57.6	52	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	14	5,376	113,186	4	3	114,392
		48	CRRC	Combat Rubbei Raiding Craft	r 3	8.0	100%	384.0	384.0	0.0	0.0	0	57	4,954	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1,152	24,254	1	1	24,513
OTHER	1			1				I	1																										
Surface Ship Sonar Maintenance	42	42	FFG	Guided Missile Frigate	1	4.0	100%	168.0	168.0	0.0	0.0	20,167	13,122	1,956	2,701	722	650	0	0	0	0	0	0	0	0	0	0	0	0	79	13,272	279,429	9	8	282,405
Submarine Sonar Maintenance	48																																		
Small Boat Attack	18	18	CRRC	Combat Rubber Raiding Craft	r 1	4.0	100%	72.0	0.0	72.0	0.0	0	0	0	0	0	0	0	11	929	0	0	0	0	0	0	0	0	0	3	216	4,548	0	0	4,596
Search and Rescue at Sea	40	80	USCG	US Coast Guard	2	40.0	100%	3200.0	0.0	3200.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18368.0	185312.0	2816.0	36960.0	672.0	604.8	0	0	0	0	0	0	66	211200	4446605	144.25	125.66	4,493,961
Submarine Navigation	40											14																							

1				OPERATIO	NAL INF	ORMA	TION -	VESSE	LS									E	mission	ns By Jur	isdiction	(lb/year)	1						i i i i i i i i i i i i i i i i i i i		Greer	nhouse Gas	Emission	s (lb/yea	ar)
	(#)		Ship / Ve	essel / Boat		Rang	ge Time	(hr)	Dist	ribution	(hr)		St	ate (0-3 n	m offshore	e)			٧	Naters of L	J S (3-12 ni	m)			Intern	ational W	aters (>12	! nm)		Î					
Type of Training	Training Ops	Number	Ship Type	Type	Participation	Per Ship Time at Fach	Power Level (%)	Total	0-3 nm from shore	3-12 nm from shore	>12 nm from shore	со	NO <sub>x</sub>	нс	so,	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>	Fuel Flow (GP	Annual Fuel Consumption (gal)	CO2	N <sub>2</sub> O	CH4	CO <sub>2-e</sub>
Precision Anchoring	18	18	FFG	Guided Missile Frigate	1	4.0	100%	72.0	72.0	0.0	0.0	8,643	5,624	838	1,158	310	279	0	0	0	0	0	0	0	0	0	0	0	0	79	5,688	119,755	4	3	121,031
Maneuver (Convoy, Land Navigation)	16																																		
Water Purification	16																																		
Field Training Exercise	100																																		
Force Protection	75								1			Υ.																							
Anti-Terrorism	80											A.																	4		1				
Seize Airfield	12																																		
Airfield Expeditionary	12																																		
Unmanned Aerial Vehicle Operation	1000																																		
Land Demolitions (Improvised Explosive Device) Discovery / Disposal	l 120																																		
Land Demolitions (Unexploded Ordnance) Discovery / Disposal	236																																		
TOTAL TRAINING EMISSIONS (LBS/YEAR)									34,988	9,574	7,698	158,513	519,825	198,044	967,349	187,053	3 168,348	212,289	345,594	4 45,174	169,702	2 23,874	21,486	613,778	404,784	65,078	180,319	36,505	5 32,855		7,721,569	162,569,914	5,274	4,594	164,301,283
TOTAL TRAINING EMISSIONS (TONS/YEAR)												79	260	99	484	94	1 84	106	6 173	3 23	86	5 12	11	307	202	33	90	0 16	3 16		7,721,569	81,285	3	2	82,151

		8. 		OPERATIO	NAL IN	IFORM	ATION -	VESSEI	LS		1							E	mission	s By Juri	sdiction	(lb/year)	-								Green	house Gas	Emissior	ns (lb/ye	ar)
	(#) S(		Ship / Ve	ssel / Boat	-	Ra	ange Time	(hr)	Distr	ibution (	hr)		Sta	te (0-3 nm	n offshore)				V	aters of U	S (3-12 nm	n)			Intern	ational Wa	aters (>12 i	nm)		Ĵ.	_				
Type of Training	Training Op	Number	Ship Type	Type	Participation	Per Ship	Time at Each Power Level (%)	Total	0-3 nm from shore	3-12 nm from shore	>12 nm from shore	со	NOx	нс	so,	PM <sub>18</sub>	PM <sub>2.5</sub>	со	NOx	нс	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	Fuel Flow (G	Annual Fuel Consumption (gal)	CO2	N₂O	СҢ₄	CO <sub>2-e</sub>
ANTI-SURFACE WARF	ARE																																		
Air to Surface Missile Test	10																																		
ANTI-SUBMARINE WAR	RFARE	_																						6											
Anti-submarine Warfare Tracking Test - MPA	207																																		
Anti-submarine Warfare Torpedo Test	44																																		
Broad Area Maritime Surveillance (BAMS) Testing	11																																		
LIFECYCLE ACTIVITIES	S TESTIN	NG																I																	1
Ship Signature Testing	19	19	FFG	Guided Missile	e 1	4.0	100%	76.0	25.1	25.1	25.8	3,011	1,959	292	403	108	97	3,011	1,959	292	403	108	97	3,102	2,018	301	416	111	100	79	6,004	126,408	4	4	127,754
ANTI-SURFACE WARF	ARE / AN	VTI-SUBM	IARINE WAR	FARE TESTING																															
Torpedo Explosive Testing	2	6	DDG		3	4.0	100%	24.0	0.0	0.0	24.0	0	0	0	0	0	Ō	0	0	0	0	0	0	2,560	1,292	188	509	67	60	187	4,488	94,490	3	3	95,497
Countermeasure Testing	3	6	DDG		2	2.0	100%	12.0	6.0	6.0	0.0	640	323	47	127	17	15	640	323	47	127	17	15	0	0	0	0	0	0	187	2,244	47,245	2	1	47,748
At-Sea Sonar Testing	24	96	SSN	Nuclear Carrie	əi 4	2.0	100%	192.0	0.0	0.0	192.0																								
		24 96	CG DDG		1	2.0 2.0	100% 100%	48.0 192.0	0.0 0.0	0.0 0.0	48.0 192.0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	5,508 20,481	3,131 10,337	368 1,505	1,610 4,074	165 538	149 484	184 187	8,832 35,904	185,949 755,923	6 25	5 21	187,929 763,973
Pierside Integrated	ION SYS	STEMS A	ND SWMMER	DEFENSE TES	STING		10000		0.0	0.0	0.0	0.00	005	0.0	100	04		<u>^</u>	-	0	0	0	0		<u>^</u>	0	0	0	0	70	000	40.000		0	10.110
Swimmer Defense	1	1	FFG	Guided Missin	e i	8.0	100%	8.0	8.0	0.0	0.0	960	020	93	129	34	31	U	U	U	U	U	U	U	U	U	U	U	U	79	032	13,300	U	U	13,448
NEW SHIP CONSTRUCT	TION				39 <mark>8</mark> 2	<b>.</b>											7																		
ASW Mission Package Testing	37	37	LCS	Littoral Comba	a 1	60	1	2220	0	2220	0	0	0	0	0	0	0	266488.8	173404.2	25840.8	35697.6	9546	8591.4	0	0	0	0	0	0	79	175380	3692450.52	119.785	104.351	3731775.101
MCM Mission Package Testing	36	36	LCS	Littoral Comba	a 1	60	1	2160	0	2160	0	0	0	0	0	0	0	259286.4	168717.6	25142.4	34732.8	9288	8359.2	0	0	0	0	0	0	79	170640	3592654.56	116.547	101.531	3630916.314
ASUW Mission Package Testing	4	4	LCS	Littoral Comba	a 1	40	1	160	0	80	80	0	0	0	0	0	0	9603.2	6248.8	931.2	1286.4	344	309.6	9603.2	6248.8	931.2	1286.4	344	309.6	79	12640	266122.56	8.63312	7.5208	268956.764
OFFICE OF NAVAL RES	SEARCH	1		T	<del>.</del>	<del></del>												r						<b>T</b>						<del></del>	_				j)
North Pacific Acoustic Lab Philippine Sea 2018 19 Experiment (Deep Water)	1																																		
TOTAL TESTING EMISSIONS (Ibs per year)									39	4,491	562	4,611	2,907	432	659	159	143	539,029	350,653	52,253	72,247	19,303	17,372	41,254	23,027	3,294	7,896	1,225	1,103		416,764	8,774,549	285	248	8,867,998
TOTAL TESTING EMISSIONS (tons per year)												2	1	0	0	0	0	270	175	26	36	10	9	21	12	2	4	1	1		416,764	4,387	0	0	4,434

		2 5			0	PERAT	TIONAL	INFORM	ATION .	- AIRCR/	<b>AFT</b>										EMIS	SSIONS/Y	EAR (lb)	BY JURIS	SDICTION	1							Greenby	use Gas	missions	(lb/year)
			Aircra	aft	Ti	ïme	Alti	tude	Dis	stribution	(%)	Dis	tribution	(hr)			State (0-3 n	m offshore	)			W	aters of U	IS (3-12 nm	ו)			Inter	national \	Waters (>1:	2 nm)		Greening	Juse Gas	_11115510115	(ib/year)
Type of Training	Training Ops (#)	Distribution	A/C Sorties (#)	Type	Ave Time on Range (hr)	Total Time on Range (hr)	Time < 3,000 ft (%)	Time < 3,000 ft (hr)	0-3 nm from shore	3-12 nm from Shore	>12 nm from Shore	Total Time 0-3 nm from shore	Total Time 3-12 nm from shore	Total Time >12 nm from shore	со	NOx	нс	SOx	РМ	PM2.5	со	NOx	НС	SOx	РМ	PM2.5	со	NOx	нс	SOx	PM	P M2.5	CO <sub>2</sub>	N₂O	СҢ₄	CO <sub>2-e</sub>
Amphibious Raid - Special Purpose Marine Air Ground Task Force	2	4	8.0 H	H-53	12.0	96.0	100%	96.0	100%	0%	0%	96.00	0.00	0.00	913	3463	64	171	947	852	0	0	0	0	0	0	0	0	0	0	0	0	1326848	43	37	1,340,979
		10	20.0 r	MV-22	12.0	240.0	100%	240.0	100%	0%	0%	240.00	0.00	0.00	5306	1059	922	108	478	431	0	0	0	0	0	0	0	0	0	0	0	0	1664504	54	47	1,682,231
		2	4.0 U	UH-1	12.0	48.0	100%	48.0	100%	0%	0%	48.00	0.00	0.00	87	122	4	10	109	98	0	0	0	0	0	0	0	0	0	0	0	0	80253	3	2	81,108
		4	8.0	AH-1	12.0	96.0	100%	96.0	100%	0%	0%	96.00	0.00	0.00	874	424	44	31	327	295	0	0	0	0	0	0	0	0	0	0	0	0	241353	8	7	243,924
		4	8.0 #	AV-8	12.0	96.0	0%	0.0	100%	0%	0%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1783398	58	50	1,802,391
Urban Warfare Training	17	1	17	AH-1	28.0	476.0	100%	476.0	100%	0%	0%	476.00	0.00	0.00	4333	2103	220	155	1623	1461	0	0	0	0	0	0	0	0	0	0	0	0	1196709	39	34	1,209,454
		1	17 I	UH-1	28.0	476.0	100%	476.0	100%	0%	0%	476.00	0.00	0.00	859	1213	44	103	1080	972	0	0	0	0	0	0	0	0	0	0	0	0	795841	26	22	804,317
		1	17 I	MV-22	28.0	476.0	100%	476.0	100%	0%	0%	476.00	0.00	0.00	10524	2100	1829	213	949	854	0	0	0	0	0	0	0	0	0	0	0	0	3301267	107	93	3,336,426
		1	17 H	H-53	28.0	476.0	100%	476.0	100%	0%	0%	476.00	0.00	0.00	4526	17169	319	850	4696	4226	0	0	0	0	0	0	0	0	0	0	0	0	6578954	213	186	6,649,020
		1	17 r	MH-53	8.0	136.0	100%	136.0	100%	0%	0%	136.00	0.00	0.00	1293	4905	91	243	1342	1208	0	0	0	0	0	0	0	0	0	0	0	0	1879701	61	53	1,899,720
		1	17 H	H-60	8.0	136.0	100%	136.0	100%	0%	0%	136.00	0.00	0.00	1020	1044	90	65	685	617	0	0	0	0	0	0	0	0	0	0	0	0	505296	16	14	510,677
Non-Combatant Evacuation Operation	2	10	20 r	MV-22	20.0	400.0	100%	400.0	100%	0%	0%	400.00	0.00	0.00	8844	1765	1537	179	797	718	0	0	0	0	0	0	0	0	0	0	0	0	2774174	90	78	2,803,719
		4	8 H	H-53	20.0	160.0	100%	160.0	100%	0%	0%	160.00	0.00	0.00	1521	5771	107	286	1578	1421	0	0	0	0	0	0	0	0	0	0	0	0	2211413	72	62	2,234,965
		2	4 l	UH-1	20.0	0.08	100%	80.0	100%	0%	0%	80.00	0.00	0.00	144	204	7	17	181	163	0	0	0	0	0	0	0	0	0	0	0	0	133755	4	4	135,179
		4	8 /	AH-1	20.0	160.0	100%	160.0	100%	0%	0%	160.00	0.00	0.00	1456	707	74	52	546	491	0	0	0	0	0	0	0	0	0	0	0	0	402255	13	11	406,539
		4	8 /	AV-8	20.0	160.0	0%	0.0	100%	0%	0%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2972329	96	84	3,003,985
Humanitarian Assistance/ Disaster Relief Operations	2	10	20 r	MV-22	20.0	400.0	100%	400.0	100%	0%	0%	400.00	0.00	0.00	8844	1765	1537	179	797	718	0	0	0	0	0	0	0	0	0	0	0	0	2774174	90	78	2,803,719
		4	8	H-53	20.0	160.0	100%	160.0	100%	0%	0%	160.00	0.00	0.00	1521	5771	107	286	1578	1421	0	0	0	0	0	0	0	0	0	0	0	0	2211413	72	62	2,234,965
		2	4 (	UH-1	20.0	0.08	100%	80.0	100%	0%	0%	80.00	0.00	0.00	144	204	7	17	181	163	0	0	0	0	0	0	0	0	0	0	0	0	133755	4	4	135,179
		4	8	AH-1	20.0	160.0	100%	160.0	100%	0%	0%	160.00	0.00	0.00	1456	707	74	52	546	491	0	0	0	0	0	0	0	0	0	0	0	0	402255	13	11	406,539
		4	8 /	AV-8	20.0	160.0	0%	0.0	100%	0%	0%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2972329	96	84	3,003,985
Unmanned Aerial Vehicle - Intelligence, Surveillance, and Reconaissance	0	1	1 0.0	MQ-4C	4.0	0.0	100%	0.0	100%	0%	0%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANTI-SURFACE WARFA	RE																																			
Gunnery Exercise, A-S (Small Caliber) - Shin	220	0.25	55 F	FA-18E/F	2.0	110.0	10%	11.0	0%	0%	100%	0.00	0.00	11.00	0	0	0	0	0	0	0	0	0	0	0	0	82	1677	14	45	746	671	3520910	114	100	3,558,408
(omun cunter) omp		0.75	165	SH-60B	2.0	330.0	100%	330.0	0%	0%	100%	0.00	0.00	330.00	0	0	0	0	0	0	0	0	0	0	0	0	2475	2534	218	158	1663	1497	1226086	40	35	1,239,144
Gunnery Exercise, A-S (Medium Caliber) - Ship	155	0.25	8.75 F	FA-18E/F	2.0	77.5	10%	7.8	0%	0%	100%	0.00	0.00	7.75	0	0	0	0	0	0	0	0	0	0	0	0	58	1182	10	32	526	473	2480641	80	70	2,507,060
Miceila Everning (A.S)		0.75 1	10.25	or1-00B	2.U	232.5	100%	232.5	0%	U%	100%	0.00	0.00	232.50	U	U	U	U	U	U	U	U	U	U	U	U	1744	1780	103	112	11/2	1055	803833	28	24	013,U33
Rocket	0	0.33	0 F	FA-18E/F	2.0	0.0	10%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.66	0 \$	SH-60B	2.0	0.0	100%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Missile Exercise (A-S)	2	0.5	1 F	FA-18E/F	2.0	2.0	10%	0.2	0%	0%	100%	0.00	0.00	0.20	0	0	0	0	0	0	0	0	0	0	0	0	1	30	0	1	14	12	64017	2	2	64,698
		0.0	1 8	011-00B	2.0	2.0	100%	2.0	0%	0%0	100%	0.00	0.00	2.00	U	U	U	U	U	Ų	U	U	U	U	U	U	10	10			IU	a	7431	U	U	1,010
Laser Targeting	60	0.5 0.5	30 F	FA-18E/F SH-60B	1.0 1.0	30.0 30.0	10% 100%	3.0 30.0	0% 0%	0% 0%	100% 100%	0.00	0.00	3.00 30.00	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	22 225	457 230	4 20	12 14	203 151	183 136	960248 111462	31 4	27 3	970,475 112.649
				novalet: Asiateli(1)(1)	1000250m	5.000 (1993) (1)			1000000	1.505550	and a state of the second s	0.0 10 16 18 00	10000000			1.62	1.653	10758	0.185700	- 38 <sup>0</sup> 00	120	1.00000	1.02	- 1999 (St.	1.000551	. 1993)	ormer/10100	omoni Ohm		11.22020	- 7/0800	0.0000000		1967	. 107	100000 \$200000 T

1					C	PERAT	IONAL	INFORM	ATION	- AIRCR	AFT										EMIS	SIONS/YE	EAR (lb)	BY JURIS	DICTION								Onesta			(1)= (
			Aircra	ft	Т	ime	Alti	tude	Di	stributior	(%)	Di	stributior	n (hr)		:	State (0-3 nr	n offshore)				W	aters of U	S (3-12 nm	)			Inter	mational <sup>v</sup>	Waters (>1:	2 nm)	-	Greenno	use Gas E	missions	(ib/year)
Type of Training	Training Ops (#)	Distribution	A/C Sorties (#)	Type	Ave Time on Range (hr)	Total Time on Range (hr)	Time < 3,000 ft (%)	Time < 3,000 ft (hr)	0-3 nm from shore	3-12 nm from Shore	>12 nm from Shore	Total Time 0-3 nm from shore	Total Time 3-12 nm from shore	Total Time >12 nm from shore	со	NOx	нс	SOx	PM	PM2.5	со	NOx	нс	SOx	РМ	PM2.5	со	NOx	нс	SOx	РМ	PM2.5	CO <sub>2</sub>	N2O	СҢ	CO <sub>2.e</sub>
Bombing Exercise (A-S)	28	0.5	14 F	FA-18E/F	1.0	14.0	10%	1.4	0%	0%	100%	0.00	0.00	1.40	0	0	0	0	0	0	0	0	0	0	0	0	10	213	2	6	95	85	448116	15	13	452,888
Torpedo Exercise	0	0.5	14 F	<sup>2</sup> -3	1.0	14.0	10%	1.4	0%	0%	100%	0.00	0.00	1.40	0	0	0	0	0	0	0	0	0	0	0	0	12	57	3	3	27	24	208063	7	6	210,279
Missile Exercise (S-S)	0																																			
Gunnery Exercise (S-S)- Ship, Large Caliber	12	0	0																																	
Gunnery Exercise (S-S)- Ship, Medium caliber	5	0	0				-																													
Sinking Exercise (SINKEX)	2	2	4 F	FA-18E/F	8.0	32.0	10%	3.2	0%	0%	100%	0.00	0.00	3.20	0	0	0	0	0	0	0	0	0	0	0	0	24	488	4	13	217	195	1024265	33	29	1,035,173
		1	2 F	P-3	8.0	16.0	10%	1.6	0%	0%	100%	0.00	0.00	1.60	0	0	0	0	0	0	0	0	0	0	0	0	14	65	3	3	30	27	237786	8	7	240,319
		1	2 S	SH-60B	8.0	16.0	100%	16.0	0%	0%	100%	0.00	0.00	16.00	0	0	0	0	0	0	0	0	0	0	0	0	120	123	11	8	81	73	59447	2	2	60,080
Gunnery Exercise (S-S) Boat – Medium-caliber	0																																			
Gunnery Exercise (S-S) Small-caliber	32	-											1								5															
Maritime Security Operations (MSO)	6	1	6 S	6H-60B	4.0	24.0	100%	24.0	100%	0%	0%	24.00	0.00	0.00	180	184	16	12	121	109	0	0	0	0	0	0	0	0	0	0	0	0	89170	3	3	90,120
ANTI-SUBMARINE WARF	ARE		de																	1						-										
Tracking Exercise-Helo	18	3	54 5	60B	4.0	216.0	100%	216.0	0%	100%	0%	0.00	216.00	0.00	0	0	0	0	0	0	1620	1659	143	104	1089	980	0	0	0	0	0	0	802529	26	23	811,076
Torpedo Exercise-Helo	4	3	12 9	60 B	4.0	48.0	100%	48.0	0%	100%	0%	0.00	48.00	0.00	0	0	0	0	0	0	360	369	32	23	242	218	0	0	0	0	0	0	178340	6	5	180,239
Tracking Exercise- Maritime Patrol Advanced Extended Echo Ranging Sonobuoys	8	1	8 F	<sup>2</sup> -3	6.0	48.0	75%	36.0	0%	100%	0%	0.00	36.00	0.00	0	0	0	0	0	0	314	1457	71	69	686	617	0	0	0	0	0	0	713359	23	20	720,956
Tracking Exercise - Maritime Patrol Aircraft	8	1	8 F	<b>&gt;</b> -3	6.0	48.0	75%	36.0	0%	100%	0%	0.00	36.00	0.00	0	0	0	0	0	0	314	1457	71	69	686	617	0	0	0	0	0	0	713359	23	20	720,956
Torpedo Exercise- Maritime Patrol Aircraft	4	1	4 F	P-3	6.0	24.0	75%	18.0	0%	100%	0%	0.00	18.00	0.00	0	0	0	0	0	0	157	728	35	35	343	309	0	0	0	0	0	0	356680	12	10	360,478
Tracking Exercise –Surface	30																																			
Torpedo Exercise- Surface	3																																			
Tracking Exercise– Submarine	10																																			
Torpedo Exercise – Submarine	10																				12 12															
MAJOR TRAINING EVEN	rs								-	-																										
Joint Expeditionary Exercise	1	48	48 F	-A-18E/F	8.0	384.0	10%	38.4	0%	100%	0%	0.00	38.40	0.00	0	0	0	0	0	0	286	5855	48	159	2604	2344	0	0	0	0	0	0	12291177	399	347	12,422,078
		4	4 F	A-6B	8.0	32.0	10%	32	0%	100%	0%	0.00	3 20	0.00	0	0	0	0	0	0	163	117	22	8	248	223	0	0	0	0	0	0	633106	21	18	639 849
		4	4	-2	8.0	32.0	10%	3.2	0%	100%	0%	0.00	3.20	0.00	0	0	õ	0	0	0	15	57	3	3	28	25	0	0	0	0	0	0	217971	7	6	220,292
		3	3 F	p-3	8.0	24.0	10%	2.4	0%	100%	0%	0.00	2.40	0.00	0	0	0	0	0	0	21	97	5	5	46	41	0	0	0	0	0	0	356680	12	10	360,478

					0	PERA	TIONAL	INFORM	ATION	AIRCR	AFT										EMIS	SIONS/YE	EAR (lb)	BY JURIS	DICTION	1							Greenbe	una Can	missions	(lh/uppr)
			Aircr	aft	Т	ime	Alti	tude	Di	stribution	(%)	Dis	tribution	(hr)			State (0-3 i	nm offshore				W	aters of U	S (3-12 nm	)			Inter	national \	Waters (>1:	2 nm)		Greening	use Gas I	imissions	(ib/year)
Type of Training	Training Ops (#)	Distribution	A/C Sorties (#)	Type	∆ve Time on Range (hr)	Total Time on Range (hr)	Time < 3,000 ft (%)	Time < 3,000 ft (hr)	0-3 nm from shore	3-12 nm from Shore	>12 nm from Shore	Fotal Time 0-3 nm from shore	Total Time 3-12 nm from shore	Total Time >12 nm from shore	со	NOx	нс	SOx	РМ	PM2.5	со	NOx	нс	SOx	РМ	PM2.5	со	NOx	нс	SOx	РМ	PM2.5	CO2	N₂O	сң	CO <sub>2-e</sub>
-		6	6	AV-8B	8.0	48.0	10%	4.8	0%	100%	0%	0.00	4.80	0.00	0	0	0	0	0	0	253	193	8	12	204	184	0	0	0	0	0	0	891699	29	25	901,195
		2	2	C-130	8.0	16.0	10%	1.6	0%	100%	0%	0.00	1.60	0.00	0	0	0	0	0	0	15	59	3	3	29	26	0	0	0	0	0	0	222925	7	6	225,299
		4	4	A-10	8.0	32.0	10%	3.2	0%	100%	0%	0.00	3.20	0.00	0	0	0	0	0	0	39	86	4	4	26	23	0	0	0	0	0	0	599618	19	17	606,004
		1	1	E-3	8.0	8.0	10%	0.8	0%	100%	0%	0.00	0.80	0.00	0	0	0	0	0	0	54	221	8	10	7	6	0	0	0	0	0	0	3238254	105	92	3,272,741
		1	1	KC-135	8.0	8.0	10%	0.8	0%	100%	0%	0.00	0.80	0.00	0	0	0	0	0	0	25	247	1	7	2	2	0	0	0	0	0	0	2267689	74	64	2,291,840
		15	15	SH-60B	8.0	120.0	100%	120.0	0%	100%	0%	0.00	120.00	0.00	0	0	0	0	0	0	900	922	79	58	605	544	0	0	0	0	0	0	445849	14	13	450,598
		4	4	CH-53	8.0	32.0	100%	32.0	0%	100%	0%	0.00	32.00	0.00	0	0	0	0	0	0	304	1154	21	57	316	284	0	0	0	0	0	0	442283	14	12	446,993
		12	12	CH-46	8.0	96.0	100%	96.0	0%	100%	0%	0.00	96.00	0.00	U	U	U	U	U	U	1963	475	304	46	205	185	U	U	U	U	U	U	356680	12	10	360,478
		4	4	АН-1	8.0	32.0	100%	32.0	0%	100%	0%	0.00	32.00	0.00	U	U	U	U	U	U	291	141	10	10	109	98	U	U	U	U	U	U	80451	3	2	81,308
		2	2	UH-1	8.0	16.0	100%	16.0	0%	100%	0%	0.00	16.00	0.00	0	0	0	0	0	0	29	41	1	3	36	33	0	0	0	0	0	0	26751	1	1	27,036
		10	10	MV-22	8.0	80.0	100%	80.0	0%	100%	0%	0.00	80.00	0.00	0	0	0	0	0	0	1769	353	307	36	159	144	0	0	0	0	0	0	554835	18	16	560,744
Joint Multi-Strike Group Exercise	1	144	144	FA-18E/F	8.0	1152.0	10%	115.2	0%	0%	100%	0.00	0.00	115.20	0	0	0	0	0	0	0	0	0	0	0	0	857	17566	143	476	7813	7031	36873530	1196	1042	37,266,233
		12	12	EA-6B	8.0	96.0	10%	9.6	0%	0%	100%	0.00	0.00	9.60	0	0	0	0	0	0	0	0	0	0	0	0	490	350	67	25	743	669	1899318	62	54	1,919,546
		12	12	E-2	8.0	96.0	10%	9.6	0%	0%	100%	0.00	0.00	9.60	0	0	0	0	0	0	0	0	0	0	0	0	46	170	10	8	84	75	653912	21	18	660,877
		5	5	P-3	8.0	40.0	10%	4.0	0%	0%	100%	0.00	0.00	4.00	0	0	0	0	0	0	0	0	0	0	0	0	35	162	8	8	76	69	594466	19	17	600,797
		1	1	E-3	8.0	8.0	10%	0.8	0%	0%	100%	0.00	0.00	0.80	0	0	0	0	0	0	0	0	0	0	0	0	54	221	8	10	7	6	3238254	105	92	3,272,741
		2	2	KC-135	8.0	16.0	10%	1.6	0%	0%	100%	0.00	0.00	1.60	0	0	0	0	0	0	0	0	0	0	0	0	49	494	1	15	5	4	4535378	147	128	4,583,680
		6	6	B-1B	8.0	48.0	10%	4.8	0%	0%	100%	0.00	0.00	4.80	0	0	0	0	0	0	0	0	0	0	0	0	27	418	4	13	4	4	3947253	128	112	3,989,292
		24	24	F-15	8.0	192.0	10%	19.2	0%	0%	100%	0.00	0.00	19.20	U	U	0	U	U	U	0	U	0	0	0	U	431	2765	11	48	970	8/3	3683311	119	29	3,722,538
Fleet Strike Group	0	45	45	EA_1 9E/E	8.0	0.0	100%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n 0	0	0	n	45 0	0	0
Exercise	ÿ	40	Ő	FA-68	8.0	0.0	10%	0.0	0%	0%	100%	0.00	0.00	0.00	0	ů O	Ň	ů.	0	ů N	0	0	0	0	0 0	ů N	0	ů N	0	0	ů	0	ů N	0	0	ů
		4	0	E-2	8.0	0.0	10%	0.0	0%	0%	100%	0.00	0.00	0.00	0 0	0	0	0	n	0	n	0 N	n	n	n	0 N	n n	n	n	n n	n	0	0 N	0 N	n	n
		3	0	P-3	8.0	0.0	10%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		6	0	AV-8B	8.0	0.0	10%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		1	0	E-3	8.0	0.0	10%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		1	0	KC-135	8.0	0.0	10%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		24	0	F-15	8.0	0.0	10%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		15	0	SH-60B	8.0	0.0	100%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		4	0	CH-53	8.0	0.0	100%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		12	0	CH-46	8.0	0.0	100%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		4	0	AH-1	8.0	0.0	100%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		2	0	UH-1	8.0	0.0	100%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10	0	MV-22	8.0	0.0	100%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
initegrated Anti- Submarine Warfare Exercise	0	48	0	FA-18E/F	8.0	0.0	10%	0.0	0%	100%	0%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		4	0	EA-6B	8.0	0.0	10%	0.0	0%	100%	0%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		4	0	E-2	8.0	0.0	10%	0.0	0%	100%	0%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		3	0	P-3	8.0	0.0	10%	0.0	0%	100%	0%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		15	0	SH-60B	8.0	0.0	100%	0.0	0%	100%	0%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

					0	PERAT	IONAL I	NFORM	IATION -	AIRCRA	AFT										EMIS	SSIONS/Y	EAR (lb)	BY JURI	SDICTION		0						Greenho	uco Goc I	missions	(lb/uear)
		100	Aircr	aft	Ti	ime	Altit	tude	Dis	tribution	(%)	Dis	tribution	(hr)	1		State (0-3 n	m offshore	)			M	aters of U	JS (3-12 nr	n)			Inter	national \	Vaters (>12	2 nm)		Greening	use Gas i		(ib/year)
Type of Training	Training Ops (#)	Distribution	A/C Sorties (#)	Type	Ave Time on Range (hr)	Total Time on Range (hr)	Time < 3,000 ft (%)	Time < 3,000 ft (hr)	0-3 nm from shore	3-12 nm from Shore	>12 nm from Shore	Total Time 0-3 nm from shore	Total Time 3-12 nm from shore	Total Time >12 nm from shore	со	NOx	нс	SOx	РМ	PM2.5	со	NOx	НС	SOx	РМ	PM2.5	со	NOx	НС	SOx	РМ	PM2.5	CO <sub>2</sub>	N2O	CH4	CO <sub>2-e</sub>
Ship Squadron Anti- Submarine Warfare Exercise	0																																			
Maritime Homeland Defense / Security Mine Countermeasures	0																																			
Marine Air Ground Task Force Exercise (Amphibious)	4	1	4	C-130	8.0	32.0	10%	3.2	50%	50%	0%	1.60	1.60	0.00	15	59	3	3	29	26	15	59	3	3	29	26	0	0	0	0	0	0	445849	14	13	450,598
		2	8	SH-60B	8.0	64.0	100%	64.0	50%	50%	0%	32.00	32.00	0.00	240	246	21	15	161	145	240	246	21	15	161	145	0	0	0	0	0	0	237786	8	7	240,319
		4	16	CH-53	8.0	128.0	100%	128.0	50%	50%	0%	64.00	64.00	0.00	609	2308	43	114	631	568	609	2308	43	114	631	568	0	0	0	0	0	0	1769130	57	50	1,787,972
		12	48	CH-46	8.0	384.0	100%	384.0	50%	50%	0%	192.00	192.00	0.00	3926	949	608	92	410	369	3926	949	608	92	410	369	0	0	0	0	0	0	1426718	46	40	1,441,913
		4	16	AH-1	8.0	128.0	100%	128.0	50%	50%	0%	64.00	64.00	0.00	583	283	30	21	218	196	583	283	30	21	218	196	0	0	0	0	0	0	321804	10	9	325,231
		2	8	UH-1	8.0	64.0	100%	64.0	50%	50%	0%	32.00	32.00	0.00	58	82	3	7	73	65	58	82	3	7	73	65	0	0	0	0	0	0	107004	3	3	108,143
		10	40	MV-22	8.0	320.0	100%	320.0	50%	50%	0%	160.00	160.00	0.00	3537	706	615	12	319	287	3537	706	615	72	319	287	0	0	0	0	0	0	2219339	72	63	2,242,975
Special Purpose Marine Air Ground Task Force Exercise	2	1	2	C-130	8.0	16.0	10%	1.6	50%	50%	0%	0.80	0.80	0.00	7	29	2	1	14	13	7	29	2	1	14	13	0	0	0	0	0	0	222925	7	6	225,299
		4	8	CH-53	8.0	64.0	100%	64.0	50%	50%	0%	32.00	32.00	0.00	304	1154	21	57	316	284	304	1154	21	57	316	284	0	0	0	0	0	0	884565	29	25	893,986
		12	24	CH-46	8.0	192.0	100%	192.0	50%	50%	0%	96.00	96.00	0.00	1963	475	304	46	205	185	1963	475	304	46	205	185	0	0	0	0	0	0	713359	23	20	720,956
		4	8	AH-1	8.0	64.0	100%	64.0	50%	50%	0%	32.00	32.00	0.00	291	141	15	10	109	98	291	141	15	10	109	98	0	0	0	0	0	0	160902	5	5	162,616
		2	4	UH-1	8.0	32.0	100%	32.0	50%	50%	0%	16.00	16.00	0.00	29	41	1	3	36	33	29	41	1	3	36	33	0	0	0	0	0	0	53502	2	2	54,072
		10	20	MV-22	8.0	160.0	100%	160.0	50%	50%	0%	80.00	80.00	0.00	1769	353	307	36	159	144	1769	353	307	36	159	144	0	0	0	0	0	0	1109670	36	31	1,121,488
Urban Warfare Exercise	5	1	5	C-130	8.0	40.0	10%	4.0	100%	0%	0%	4.00	0.00	0.00	37	147	8	7	71	64	0	0	0	0	0	0	0	0	0	0	0	0	557312	18	16	563,247
		4	20	CH-53	8.0	160.0	100%	160.0	100%	0%	0%	160.00	0.00	0.00	1521	5771	107	286	1578	1421	0	0	0	0	0	0	0	0	0	0	0	0	2211413	72	62	2,234,965
		12	60	CH-46	8.0	480.0	100%	480.0	100%	0%	0%	480.00	0.00	0.00	9815	2373	1521	230	1025	923	0	0	0	0	0	0	0	0	0	0	0	0	1783398	58	50	1,802,391
		4	20	AH-1	8.0	160.0	100%	160.0	100%	0%	0%	160.00	0.00	0.00	1456	707	74	52	546	491	0	0	0	0	0	0	0	0	0	0	0	0	402255	13	11	406,539
		2	10	UH-1	8.0	80.0	100%	80.0	100%	0%	0%	80.00	0.00	0.00	144	204	7	17	181	163	0	0	0	0	0	0	0	0	0	0	0	0	133755	4	4	135,179
		10	50	MV-22	8.0	400.0	100%	400.0	100%	0%	0%	400.00	0.00	0.00	8844	1765	1537	179	797	718	0	0	0	0	0	0	0	0	0	0	0	0	2774174	90	78	2,803,719
ELECTRONIC WARFARE																											_									
Electronic Warfare Operations (EW Ops)	72	1	72	FA-18E/F	2.0	144.0	0%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4609191	150	130	4,658,279
Counter Targeting Flare E	546	0.9	491.4	F-15	3.0	1474.2	0%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28280919	917	799	28,582,111
		0.06	32.76	FA-18E/F	3.0	98.3	0%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3145773	102	89	3,179,275
		0.04	21.84	SH-60B	3.0	65.5	100%	65.5	0%	0%	100%	0.00	0.00	65.52	0	0	0	0	0	0	0	0	0	0	0	0	491	503	43	31	330	297	243434	8	7	246,026
Counter Targeting Chaff E	16						7																													
Exercise (CHAFFEX) -	546	0.9	491.4	F-15	3.0	1474.2	0%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28280919	917	799	28,582,111
Aircraft		0.06	32.76	FA-18F/F	3.0	98.3	0%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	n	n	Ω	n	n	Ω	Ω	n	0	n	n	0	0	0	0	0	3145773	102	89	3 179 275
		0.04	21.84	SH-60B	3.0	65.5	100%	65.5	0%	0%	100%	0.00	0.00	65.52	0	0	õ	0	0	0	0	0	0	0	0	0	491	503	43	31	330	297	243434	8	7	246.026
		of all and the		(and the state of the	And a second	1000	parent of the	2012	100000	6796672	0000000	20002	9000000	50000550	20	-	8	8	573	122		180	×.		1050		10000	agra/9502	100	(330)	10000	(Carl)	naprefisiti	uert.	20	anna dha a
		- T	-				2		-					-							-															
Submarine Mine Exercise	0						1		-												2					5										

					C	OPERAT	IONAL	INFORM	ATION -	AIRCR	AFT										EMIS	SSIONS/YI	EAR (lb)	BY JURIS	SDICTION	1							Greenh	DUCA Gas B	missions	(lb/uear)
			Airc	raft	Т	ime	Alti	tude	Dis	tribution	(%)	Dis	tribution	(hr)	5. 6		State (0-3 n	m offshore	)			. v	aters of U	IS (3-12 nm	1)			Inter	national V	Vaters (>12	2 nm)		Greenn	Juse Gas L	.1115510115	(ib/year)
Type of Training	Training Ops (#)	Distribution	VC Sorties (#)	ype	We Time on Range (hr)	otal Time on Range (hr)	'ime < 3,000 ft (%)	ime < 3,000 ft (hr)	-3 nm from shore	-12 nm from Shore	*12 nm from Shore	otal Time 0-3 nm from thore	otal Time 3-12 nm from thore	otal Time >12 nm from thore	со	NOx	нс	SOx	РМ	PM2.5	со	NOx	НС	SOx	РМ	PM2.5	со	NOx	HC	SOx	РМ	P M2.5	CO2	N₂O	Сн₄	CO <sub>2.e</sub>
Mine Countermeasure Exercise – Sonar (AQS- 20, LCS)	0											_ <del>_</del> _ w		Pre- 01																						
Mine Countermeasure Exercise – Surface (SMCMEX) Sonar (SQQ- 32, MCM)	0																																			
Mine Neutralization – Remotely Operated Vehicle Sonar (AQS- 235[AQS-20], SLQ-48)	0																																			
Mine Laying - Aircraft	3	0.5 0.5	2 2	FA-18E/F P-3	0.5 1.0	0.8 1.5	0% 0%	0.0 0.0	0% 0%	0% 0%	100% 100%	0.00 0.00	0.00	0.00 0.00	0	0 0	0 0	0 0	0 0	0 0	0	0 0	0 0	0 0	0 0	0	0	0 0	0 0	0 0	0 0	0 0	24006 22292	1 1	1 1	24,262 22,530
Mine Neutralization – Explosive Ordnance Disposal	20																																			
Limpet Mine Neutralization System/Shock Wave Generator	0																																			
Mine Countermeasure – Towed Mine Detection	0									2																										
NAVAL SPECIAL WARFA	RE			1			I		-	I																										
Personnel I&E	150	4 2	600 300	H-60 MV-22	8.0 8.0	4800.0 2400.0	100% 100%	4800.0 2400.0	100% 100%	0% 0%	0% 0%	4800.00 2400.00	0.00	0.00 0.00	36000 53061	36864 10591	3168 9220	2304 1075	24192 4785	21773 4306	0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	17833976 16645045	579 540	504 470	18,023,908 16,822,314
Parachute Insertion	12	1	12	C-130	4.0	48.0	100%	48.0	100%	0%	0%	48.00	0.00	0.00	447	1763	102	86	858	772	0	0	0	0	0	0	0	0	0	0	0	0	668774	22	19	675,897
		1	12	CH-46	4.0	48.0	100%	48.0	100%	0%	0%	48.00	0.00	0.00	982	237	152	23	103	92	0	0	0	0	0	0	0	0	0	0	0	0	178340	6	5	180,239
		1	12	H-60	4.0	48.0	100%	48.0	100%	0%	0%	48.00	0.00	0.00	360	369	32	23	242	218	0	0	0	0	0	0	0	0	0	0	0	0	178340	6	5	180,239
Embassy Reinforcement	50	1	50 50	SH-60B AV-8B	4.0 4.0	200.0 200.0	100% 100%	200.0 200.0	100% 100%	0% 0%	0% 0%	200.00 200.00	0.00 0.00	0.00 0.00	1500 10560	1536 8052	132 336	96 480	1008 8520	907 7668	0	0	0 0	0 0	0	0 0	0	0	0	0	0 0	0 0	743082 3715412	24 121	21 105	750,996 3,754,981
Direct Action (Combat Close Quarters)	40																																			
Direct Action (Breaching)	40	-			_																						· .						_			
(TAC-P)	3																																			
Underwater Demolition Qualifications	30																																			
Intelligence, Surveillance, Reconnaissance	16	1	16.0	MQ-4C	4.0	64.0	100%	64.0	0%	50%	50%	0.00	32.00	32.00	0	0	0	0	0	0	67	1243	21	113	20	18	67	1243	21	113	20	18	501729	16	14	507,073
Urban Warfare Training	8																																			
Underwater Survey	6	1	6	SH-60B	2.0	12.0	100%	12.0	100%	0%	0%	12.00	0.00	0.00	90	92	8	6	60	54	0	0	0	0	0	0	0	0	0	0	0	0	44585	1	1	45,060
OTHER																																				
Surface Ship Sonar Maintenance	0																																			
Submarine Sonar Maintenance	0																																			

						OF	PERAT	IONAL	INFORM	ATION	- AIRCR	AFT										EMIS	SSIONS/YE	EAR (lb) l	BY JURIS	DICTION								Greenb	uco Goo I	missions	(lb/uppr)
			Air	craft		Tir	ne	Alti	tude	Di	stribution	(%)	Dis	tribution	ı (hr)		ŝ	State (0-3 n	m offshore	e)	-		W	aters of U	S (3-12 nm)	)			Inter	mational \	Naters (>1	12 nm)	_	Greenn	Juse Gas i		(ib/year)
Type of Training	Training Ops (#)	Distribution	A/C Sorties (#)		Adv 1	Ave Time on Range (hr)	Total Time on Range (hr)	Time < 3,000 ft (%)	Time < 3,000 ft (hr)	0-3 nm from shore	3-12 nm from Shore	>12 nm from Shore	Total Time 0-3 nm from shore	Total Time 3-12 nm from shore	Total Time >12 nm from shore	со	NOx	нс	SOx	РМ	PM2.5	со	NOx	нс	SOx	PM	PM2.5	со	NOx	нс	SOx	PM	PM2.5	CO₂	N2O	Сң₄	CO <sub>2-e</sub>
Small Boat Attack	0						10																														
Search and Rescue at Sea	0																																				
Submarine Navigation	0			0.5.95		ľ			-					2																							
Precision Anchoring	0																											-									
Maneuver (Convoy, Land Navigation)	16									5																								κ.			
Water Purification	0									1																											
Field Training Exercise	100																																				
Force Protection	75								2		2	-																									
Anti-Terrorism	80	1	80	SH-60	в	2.0	160.0	100%	160.0	100%	0%	0%	160.00	0.00	0.00	1200	1229	106	77	806	726	0	0	0	0	0	0	0	0	0	0	0	0	594466	19	17	600,797
Seize Airfield	12																																				
Airfield Expeditionary	12			N <sup>1</sup> To							à											i.					in N										
Unmanned Aerial Vehicle Operation	0																																				
Land Demolitions (Improvised Explosive Device) Discovery / Disposal	120																																				
Land Demolitions (Unexploded Ordnance) Discovery / Disposal	200																																				
TOTAL TRAINING EMISSIONS (LBS/YEAR)																214,984	144,751	28,708	3 9,431	71,800	8 64,628	22,544	24,096	3,203	1,332	10,575	9,518	12,781	72,715	1,430	2,302	2 32,34	2 29,108	360,075,875	11,681	10,176	363,910,681
TOTAL TRAINING EMISSIONS (TONS/YEAR)																107	72	14	4 5	3	5 32	11	12	2	1	5	5	6	36	1		1 1	6 15	180,038	6	5	181,955

						OPE	ERATIC	DNAL IN	VFORM.	ATION -	AIRCRA	FT	2									EMIS		(EAR (Ib)	) BY JUR	ISDICTION	N							Greenh	ouce Gae	missions	(lb/upar)
			Air	craft		Tim	ne	Altit	tude	Dis	stribution	(%)	Dist	ribution	(hr)			State (0-3 r	m offshore	)	r		1	Naters of L	J S (3-12 ni	m)	-		Inte	mational '	Waters (>1	2 nm)		Gieenii	ouse Gas		(ib/year)
Type of Training	Fraining Ops (#)	Distribution	VC Sorties (#)	édé		we time on Kange (nr)	otal Time on Range (hr)	ime < 3,000 ft (%)	ime < 3,000 ft (hr)	-3 nm from shore	-12 nm from Shore	12 nm from Shore	otal Time 0-3 nm from hore	otal Time 3-12 nm from hore	otal Time >12 nm from hore	со	NOx	нс	SOx	РМ	PM2.5	со	NOx	нс	SOx	PM	PM2.5	со	NOX	НС	SOx	РМ	PM2.5	CO2	N <sub>2</sub> O	CH₄	CO2e
ANTI-SURFACE WARF	ARE		<u> </u>			<u>د ا</u>	- H	her	<u> </u>		0		H υ	_ ⊢ .ø	ι Η ω												1.0000								<b>-</b>		
Air to Surface Missile Test	0	1	0	P-3	1	4	0	75%	0	0%	0%	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANTI-SUBMARINE WA	RFARE	E																										•									
Anti-submarine Warfare Tracking Test - MPA	0	1	0	P-3	6	5.0	0.0	75%	0.0	0%	100%	0%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Anti-submarine Warfare Torpedo Test	0	0.33	0	SH-60	8	5.0	0.0	75%	0.0	0%	100%	0%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.33 0.33	0 0	MH-60 P-3	8	0.0 1.0	0.0 0.0	75% 75%	0.0 0.0	0% 0%	100% 100%	0% 0%	0.00 0.00	0.00 0.00	0.00 0.00	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
Broad Area Maritime Surveillance (BAMS) Testing	1	1	1	MQ-4C	1	.0	1.0	100%	1.0	100%	0%	0%	1.00	0.00	0.00	2	39	1	4	1	1	0	0	0	0	0	0	0	0	0	0	0	0	7840	0	0	7,923
LIFECYCLE ACTIVITIE	S TES	TING																																			
Ship Signature Testing	0																																				
ANTI-SURFACE WARF	ARE /	ANTI-S	UBMAR	NE WAR	FARE TE	STIN	G																														
Torpedo Explosive Testing	0																																				
Countermeasure Testing	0																																				
At-Sea Sonar Testing	0																																				
SHIPBOARD PROTEC	TION S	SYSTEM	IS AND	SWMME		ISE TE	ESTING																														
Pierside Integrated Swimmer Defense	0																																				
NEW SHIP CONSTRUC	CTION		1	-						1	-		-	-																				1			
ASW Mission Package Testing	0																																				
MCM Mission Package Testing	0																																				
OFFICE OF NAVAL RE	SEAR	сн	1	-	-					1	r -	<u> </u>	1	r –		(						1												r			
North Pacific Acoustic Lab Philippine Sea 2018-19 Experiment (Deep Water)	1																																				
TOTAL TESTING EMISSIONS (Ibs per year)																2.1	38.84	0.6	6 3.54	0.61	0.549	o		0 0	0 0	(	0 0	o	0	0	) 0	)	0 0	7839.518824	0.2543171	0.22155	7923.009662
TOTAL TESTING EMISSIONS (tons per year)																0	0		0 0	0	0	O		0 0	0 0	(	0 0	o	0	0	) 0	1	0 0	3.919759412	0.0001272	0.0001108	3.961504831

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1		OPERATIONAL INFORMATION - AIRCRAFT           Aircraft         Time         Altitude         Distribution (%)         Distribution (hr)         State (0-3 nm offshore) <u> <u> </u></u>													EMIS	SIONS/YE	EAR (Ib)	BY JURIS	DICTION		17 <sup>-1</sup>						Greenho	use Gas I	missions	(lb/vear)						
			Aircr	aft	TI	ime	Altit	tude	Dis	tribution	(%)	Dist	tribution	(hr)			State (0-3 n	m offshore		_		W	aters of U	S (3-12 nm	)			Interr	national W	/aters (>12	2 nm)		Greenino	use Gas I	-1115510115	(ID/year)
Type of Training	Training Ops (#)	Distribution	A/C Sorties (#)	Type	Ave Time on Range (hr)	Total Time on Range (hr)	Time < 3,000 ft (%)	Time < 3,000 ft (hr)	0-3 nm from shore	3-12 nm from Shore	>12 nm from Shore	Total Time 0-3 nm from shore	Total Time 3-12 nm from shore	Total Time >12 nm from shore	со	NOx	НС	SOx	PM	PM2.5	со	NOx	нс	SOx	РМ	PM2.5	со	NOx	нс	SOx	РМ	PM2.5	CO <sub>2</sub>	N₂O	CH₄	CO <sub>2.e</sub>
		10	120	MV-22	24.0	2880.0	100%	2880.0	100%	0%	0%	2880.00	0.00	0.00	63673	12709	11064	1290	5742	5167	0	0	0	0	0	0	0	0	0	0	0	0	19974054	648	564	20,186,777
Amphibious Assault - Marine Air Ground Task Force	6	4	24.0	CH-53	18.0	432.0	100%	432.0	100%	0%	0%	432.00	0.00	0.00	4108	15582	289	771	4262	3836	0	0	0	0	0	0	0	0	0	0	0	0	5970815	194	169	6,034,404
		10	60.0	MV-22	18.0	1080.0	100%	1080.0	100%	0%	0%	1080.00	0.00	0.00	23878	4766	4149	484	2153	1938	0	0	0	0	0	0	0	0	0	0	0	0	7490270	243	212	7,570,041
		2	12.0	UH-1	18.0	216.0	100%	216.0	100%	0%	0%	216.00	0.00	0.00	390	551	20	47	490	441	0	0	0	0	0	0	0	0	0	0	0	0	361138	12	10	364,984
		4	24.0	AH-1	18.0	432.0	100%	432.0	100%	0%	0%	432.00	0.00	0.00	3932	1908	200	140	1473	1326	0	0	0	U	0	U	U	U	0	U	U	0	1086089	35	31	1,097,656
		4	24.0	AV-8	18.0	432.0	0%	0.0	100%	0%	0%	10.00	0.00	0.00	0	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	8025289	260	221	8,110,759
Amphibious Raid - Special Purpose Marine Air Ground Task Force	6	4	24.0	H-53	12.0	288.0	100%	288.0	100%	0%	0%	288.00	0.00	0.00	2738	10388	193	514	2841	2557	0	0	0	0	0	0	0	0	0	0	0	0	3980544	129	112	4,022,936
		10	60.0	MV-22	12.0	720.0	100%	720.0	100%	0%	0%	720.00	0.00	0.00	15918	3177	2766	323	1435	1292	0	0	0	0	0	0	0	0	0	0	0	0	4993513	162	141	5,046,694
		2	12.0	UH-1	12.0	144.0	100%	144.0	100%	0%	0%	144.00	0.00	0.00	260	367	13	31	327	294	0	0	0	0	0	0	0	0	0	0	0	0	240759	8	7	243,323
		4	24.0	AH-1	12.0	288.0	100%	288.0	100%	0%	0%	288.00	0.00	0.00	2622	1272	133	94	982	884	0	0	0	0	0	0	0	0	0	0	0	0	724059	23	20	731,771
		4	24.0	AV-8	12.0	288.0	0%	0.0	100%	0%	0%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5350193	174	151	5,407,172
	22		-	and the second second	100.01	alatera la	- And Carlot	Constants, inc.		0.00	-	10000-000		0.00			112			199.03		-			-		-		-			12.1		212	100	
Urban Wartare Training	36	1	36	AH-1	28.0	1008.0	100%	1008.0	100%	0%	0%	1008.00	0.00	0.00	9175	4453	467	327	3438	3094	U	U	U	U	U	U	U	U	U	U	U	U	2534208	82	72	2,561,197
		1	36	UH-1	28.0	1008.0	100%	1008.0	100%	0%	0%	1008.00	0.00	0.00	1818	2569	93	218	2286	2058	0	0	0	0	0	0	0	0	0	0	0	0	1685311	55	48	1,703,259
		1	36	H-53	20.0	1008.0	100%	1008.0	100%	0%	0%	1008.00	0.00	0.00	9584	36358	675	432	9944	8950	0	0	0	0	0	0	0	0	0	n	0	0	13931902	452	394	14 080 277
		1	36	MH-53	8.0	288.0	100%	288.0	100%	0%	0%	288.00	0.00	0.00	2738	10388	193	514	2841	2557	0	0	0	0	0	0	0	0	0	0	0	0	3980544	129	112	4,022,936
		1	36	H-60	8.0	288.0	100%	288.0	100%	0%	0%	288.00	0.00	0.00	2160	2212	190	138	1452	1306	0	0	0	0	0	0	0	0	0	0	0	0	1070039	35	30	1,081,434
Non-Combatant Evacuation Operation	5	10	50	MV-22	20.0	1000.0	100%	1000.0	100%	0%	0%	1000.00	0.00	0.00	22109	4413	3842	448	1994	1794	0	0	0	0	0	0	0	0	0	0	0	0	6935435	225	196	7,009,298
		4	20	H-53	20.0	400.0	100%	400.0	100%	0%	0%	400.00	0.00	0.00	3803	14428	268	714	3946	3552	0	0	0	0	0	0	0	0	0	0	0	0	5528533	179	156	5,587,412
		2	10	UH-1	20.0	200.0	100%	200.0	100%	0%	0%	200.00	0.00	0.00	361	510	18	43	454	408	0	0	0	0	0	0	0	0	0	0	0	0	334387	11	9	337,948
		4	20	AH-1	20.0	400.0	100%	400.0	100%	0%	0%	400.00	0.00	0.00	3641	1767	185	130	1364	1228	0	0	0	0	0	0	0	0	0	0	0	0	1005638	33	28	1,016,348
		4	20	AV-8	20.0	400.0	0%	0.0	100%	0%	0%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7430824	241	210	7,509,962
Humanitarian Assistance/ Disaster Relief Operations	5	10	50	MV-22	20.0	1000.0	100%	1000.0	100%	0%	0%	1000.00	0.00	0.00	22109	4413	3842	448	1994	1794	0	0	0	0	0	0	0	0	0	0	0	0	6935435	225	196	7,009,298
		4	20	H-53	20.0	400.0	100%	400.0	100%	0%	0%	400.00	0.00	0.00	3803	14428	268	714	3946	3552	0	0	0	0	0	0	0	0	0	0	0	0	5528533	179	156	5,587,412
		2	10	UH-1	20.0	200.0	100%	200.0	100%	0%	0%	200.00	0.00	0.00	361	510	18	43	454	408	0	0	0	0	0	0	0	0	0	0	0	0	334387	11	9	337,948
		4	20	AH-1	20.0	400.0	100%	400.0	100%	0%	0%	400.00	0.00	0.00	3641	1/6/	185	130	1364	1228	0	0	0	0	0	0	0	0	0	0	0	0	1005638	33	28	1,016,348
		4	20	AV-8	20.0	400.0	0%0	0.0	100%	0%	0%0	0.00	0.00	0.00	0	Ų	Ų	U	U	0	Ų	0	U	Ū	U	U	U	Ū	U	U	U	Ų	7430624	24 1	210	7,509,962
Unmanned Aerial Vehicle - Intelligence, Surveillance, and Reconaissance	100	1	100.0	MQ-4C	4.0	400.0	100%	400.0	100%	0%	0%	400.00	0.00	0.00	840	15536	264	1416	244	220	0	0	0	0	0	0	0	0	0	0	0	0	3135808	102	89	3,169,204
ANTI-SURFACE WARFAF	RE																																			
Gunnery Exercise, A-S (Small Caliber) - Ship	242	0.25	60.5	FA-18E/F	2.0	121.0	10%	12.1	0%	0%	100%	0.00	0.00	12.10	0	0	0	0	0	0	0	0	0	0	0	0	90	1845	15	50	821	739	3873001	126	109	3,914,248
		0.75	181.5	SH-60B	2.0	363.0	100%	363.0	0%	0%	100%	0.00	0.00	363.00	0	0	0	0	0	0	0	0	0	0	0	0	2723	2788	240	174	1830	1647	1348694	44	38	1,363,058
	_																																			

					C	OPERA	TIONAL	INFORM	MATION	- AIRCR	AFT										EMIS	SIONS/YE	EAR (Ib)	BY JURIS	DICTION								Greenho	use Gas I	missions	(lb/year)
			Airc	raft	Т	ïme	Alti	tude	Dis	stribution	(%)	Dist	ribution (I	hr)			State (0-3 n	m offshore	)	1		W	aters of U	IS (3-12 nm	1)			Inten	national V	/aters (>12	2 nm)		Greening	use Gas I		(ID/year)
Type of Training	Training Ops (#)	Distribution	A/C Sorties (#)	Type	Ave Time on Range (hr)	Total Time on Range (hr)	Time < 3,000 ft (%)	Time < 3,000 ft (hr)	0-3 nm from shore	3-12 nm from Shore	>12 nm from Shore	Total Time 0-3 nm from shore	Total Time 3-12 nm from shore	Total Time >12 nm from shore	со	NOx	нс	SOx	РМ	PM2.5	со	NOx	нс	SOx	РМ	PM2.5	со	NOx	нс	SOx	РМ	PM2.5	CO <sub>2</sub>	N₂O	CH₄	CO <sub>2-e</sub>
Gunnery Exercise, A-S (Medium Caliber) - Ship	295	0.25 0.75	73.75 221.25	FA-18E/F SH-60B	2.0 2.0	147.5 442.5	10% 100%	14.8 442.5	0% 0%	0% 0%	100% 100%	0.00	0.00	14.75 442.50	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	110 3319	2249 3398	18 292	61 212	1000 2230	900 2007	4721220 1644070	153 53	133 46	4,771,501
Missile Exercise (A-S) - Rocket	3	0.33 0.66	0.99 1.98	FA-18E/F SH-60B	2.0 2.0	2.0 4.0	10% 100%	0.2 4.0	0% 0%	0% 0%	100% 100%	0.00 0.00	0.00 0.00	0.20 3.96	0	0	0	0	0	0 0	0	0	0	0	0	0	1 30	30 30	0 3	1 2	13 20	12 18	63376 14713	2 0	2 0	64,051 14,870
Missile Exercise (A-S)	20	0.5 0.5	10 10	FA-18E/F SH-60B	2.0 2.0	20.0 20.0	10% 100%	2.0 20.0	0% 0%	0% 0%	100% 100%	0.00	0.00 0.00	2.00 20.00	0 0	0	0	0	0	0 0	0 0	0 0	0	0 0	0 0	0 0	15 150	305 154	2 13	8 10	136 101	122 91	640165 74308	21 2	18 2	646,983 75,100
Laser Targeting	600	0.5 0.5	300 300	FA-18E/F SH-60B	1.0 1.0	300.0 300.0	10% 100%	30.0 300.0	0% 0%	0% 0%	100% 100%	0.00 0.00	0.00 0.00	30.00 300.00	0 0	0 0	0 0	0 0	0 0	0 0	0	0 0	0 0	0 0	0 0	0 0	223 2250	4575 2304	37 198	124 144	2035 1512	1831 1361	9602482 1114624	312 36	271 32	9,704,748 1,126,494
Bombing Exercise (A-S)	37	0.5 0.5	19 19	FA-18E/F P-3	1.0 1.0	18.5 18.5	10% 10%	1.9 1.9	0% 0%	0% 0%	100% 100%	0.00	0.00 0.00	1.85 1.85	0	0	0	0	0	0	0	0 0	0	0 0	0 0	0	14 16	282 75	2 4	8 4	125 35	113 32	592153 274940	19 9	17 8	598,459 277,869
Torpedo Exercise (Submarine to Surface)	5																																			
Gunnery Exercise (S-S)- Ship, Large Caliber	140																																			
Gunnery Exercise (S-S)- Ship, Medium caliber	100																																			
Sinking Exercise (SINKEX)	2	2 1 1	4 2 2	FA-18E/F P-3 SH-60B	8.0 8.0 8.0	32.0 16.0 16.0	10% 10% 100%	3.2 1.6 16.0	0% 0% 0%	0% 0% 0%	100% 100% 100%	0.00 0.00 0.00	0.00 0.00 0.00	3.20 1.60 16.00	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	24 14 120	488 65 123	4 3 11	13 3 8	217 30 81	195 27 73	1024265 237786 59447	33 8 2	29 7 2	1,035,173 240,319 60,080
Gunnery Exercise (S-S) Boat – Medium-caliber	10																																			
Gunnery Exercise (S-S) Small-caliber Maritime Security	40										1.10									22.0							10									
Operations (MSO)	40	1	40	SH-60B	4.0	160.0	100%	160.0	100%	0%	0%	160.00	0.00	0.00	1200	1229	106	11	806	726	U	0	0	0	U	U	0	0	U	U	0	0	594466	19	17	600,797
AN II-SUBMARINE WARF Tracking Exercise-Helo	-ARE 62	3	186	SH-60B	40	744.0	100%	744 0	0%	100%	0%	0.00	744 00	0.00	0	Ő	0	Û	Ο	0	5580	5714	491	357	3750	3375	0	0	0	0	0	0	2764266	90	78	2,793,706
Torpedo Exercise-Helo	4	3	12	SH-60B	4.0	48.0	100%	48.0	0%	100%	0%	0.00	48.00	0.00	0	0	0	0	0	0	360	369	32	23	242	218	0	0	0	0	0	0	178340	6	5	180.239
Tracking Exercise- Maritime Patrol Advanced Extended Echo Ranging Sonobuoys	11	1	11	P-3	6.0	66.0	75%	49.5	0%	100%	0%	0.00	49.50	0.00	0	0	0	0	0	0	432	2003	97	95	943	849	0	0	0	0	0	0	980869	32	28	991,315
Tracking Exercise - Maritime Patrol Aircraft	34	1	34	P-3	6.0	204.0	75%	153.0	0%	100%	0%	0.00	153.00	0.00	0	0	0	0	0	0	1337	6191	301	294	2916	2624	0	0	0	0	0	0	3031776	98	86	3,064,064
Torpedo Exercise- Maritime Patrol Aircraft	4	1	4	P-3	6.0	24.0	75%	18.0	0%	100%	0%	0.00	18.00	0.00	0	0	0	0	0	0	157	728	35	35	343	309	0	0	0	0	0	0	356680	12	10	360,478

					C	OPERA'	TIONAL	INFORM	<b>MATION</b>	- AIRCR	AFT										EMIS	SIONS/YE	EAR (Ib) I	BY JURIS	SDICTION	ľ	255						Greenbo	use Gas I	missions	(lb/upar)
			Airci	raft	Т	ïme	Alti	tude	Dis	stribution	(%)	Dis	tribution	(hr)			State (0-3 r	nm offshor	)	1		W	aters of U	S (3-12 nn	1)			Inten	national V	Vaters (>12	2 nm)	r	Greening	Juse Gas I	11115 510115	(ib/yeai)
Type of Training	Training Ops (#)	Distribution	A/C Sorties (#)	Type	Ave Time on Range (hr)	Total Time on Range (hr)	Time < 3,000 ft (%)	Time < 3,000 ft (hr)	0-3 nm from shore	3-12 nm from Shore	>12 nm from Shore	Total Time 0-3 nm from shore	Total Time 3-12 nm from shore	Total Time >12 nm from shore	со	NOx	нс	SOx	РМ	PM2.5	со	NOX	нс	SOx	РМ	PM2.5	со	NOx	НС	SOx	РМ	PM2.5	CO₂	N <sub>2</sub> O	CH₄	CO <sub>2-e</sub>
Tracking Exercise –Surface	132																																			
Torpedo Exercise- Surface	3																																			
Tracking Exercise– Submarine	12																																			
Torpedo Exercise – Submarine	10																																			
MAJOR TRAINING EVEN	ITS							L	L				· · · · ·																							
Joint Expeditionary Exercise	1	48	48	FA-18E/F	8.0	384.0	10%	38.4	0%	100%	0%	0.00	38.40	0.00	0	0	0	0	0	0	286	5855	48	159	2604	2344	0	0	0	0	0	0	12291177	399	347	12,422,078
		4	4	EA-6B	8.0	32.0	10%	3.2	0%	100%	0%	0.00	3.20	0.00	0	0	0	0	0	0	163	117	22	8	248	223	0	0	0	0	Ö	0	633106	21	18	639,849
		4	4	E-2	8.0	32.0	10%	3.2	0%	100%	0%	0.00	3.20	0.00	0	0	0	0	0	0	15	57	3	3	28	25	0	0	0	0	0	0	217971	7	6	220,292
		3	3	P-3	8.0	24.0	10%	2.4	0%	100%	0%	0.00	2.40	0.00	0	0	0	0	0	0	21	97	5	5	46	41	0	0	0	0	0	0	356680	12	10	360,478
		6	6	AV-8B	8.0	48.0	10%	4.8	0%	100%	0%	0.00	4.80	0.00	0	0	0	0	0	0	253	193	8	12	204	184	0	0	0	0	0	0	891699	29	25	901,195
		2	2	C-130	8.0	16.0	10%	1.6	0%	100%	0%	0.00	1.60	0.00	0	0	0	0	0	0	15	59	3	3	29	26	0	0	0	0	0	0	222925	7	6	225,299
		4	4	<b>A-1</b> 0	8.0	32.0	10%	3.2	0%	100%	0%	0.00	3.20	0.00	0	0	0	0	0	0	39	86	4	4	26	23	0	0	0	0	0	0	599618	19	17	606,004
		1	1	E-3	8.0	8.0	10%	0.8	0%	100%	0%	0.00	0.80	0.00	0	0	0	0	0	0	54	221	8	10	7	6	0	0	0	0	0	0	3238254	105	92	3,272,741
		1	1	KC-135	8.0	8.0	10%	0.8	0%	100%	0%	0.00	0.80	0.00	0	0	0	0	0	0	25	247	1	7	2	2	0	0	0	0	0	0	2267689	74	64	2,291,840
		15	15	SH-60B	8.0	120.0	100%	120.0	0%	100%	0%	0.00	120.00	0.00	0	0	0	0	0	0	900	922	79	58	605	544	0	0	0	0	0	0	445849	14	13	450,598
		4	4	CH-53	8.0	32.0	100%	32.0	0%	100%	0%	0.00	32.00	0.00	0	0	0	0	0	0	304	1154	21	57	316	284	0	0	0	0	0	0	442283	14	12	446,993
		12	12	CH-46	8.0	96.0	100%	96.0	0%	100%	0%	0.00	96.00	0.00	0	0	0	0	0	0	1963	475	304	46	205	185	0	0	0	0	0	0	356680	12	10	360,478
		4	4	AH-1	8.0	32.0	100%	32.0	0%	100%	0%	0.00	32.00	0.00	0	0	0	0	0	0	291	141	15	10	109	98	0	0	0	0	0	0	80451	3	2	81,308
		2	2	UH-1	8.0	16.0	100%	16.0	0%	100%	0%	0.00	16.00	0.00	0	0	0	0	0	0	29	41	1	3	36	33	0	0	0	0	0	0	26751	1	1	27,036
		10	10	MV-22	8.0	80.0	100%	80.0	0%	100%	0%	0.00	80.00	0.00	0	0	0	0	0	0	1769	353	307	36	159	144	0	0	0	0	0	0	554835	18	16	560,744
Exercise	1	144	144	FA-18E/F	8.0	1152.0	10%	115.2	0%	0%	100%	0.00	0.00	115.20	0	0	0	0	0	0	0	0	0	0	0	0	857	17566	143	476	7813	7031	36873530	1196	1042	37,266,233
		12	12	EA-6B	0.0	90.0	10%	9.0	0%	0%	100%	0.00	0.00	9.00	0	0	0	0	0	0	0	0	0	0	0	0	490	350	10	20	943	75	653012	0Z 21	04 19	660 877
		5	12	D.2	8.0	40.0	10%	9.0 4.0	0%	0%	100%	0.00	0.00	4.00	0	0	0	0	0	0	0	0	0	0	0	0	35	162	8	8	76	69	594466	19	17	600,877
		1	1	F-3	8.0	8.0	10%	0.8	0%	0%	100%	0.00	0.00	0.80	ů O	ů O	ů O	0 0	n	ů.	n n	0	n	0	0	ů Ú	54	221	8	10	7	6	3238254	105	92	3 272 741
		2	2	KC-135	8.0	16.0	10%	1.6	0%	0%	100%	0.00	0.00	1.60	0	0	0	0	0	0	0	0	0	0	0	0	49	494	1	15	5	4	4535378	147	128	4,583,680
		6	6	B-1 B	8.0	48.0	10%	4.8	0%	0%	100%	0.00	0.00	4.80	0	0	0	0	0	0	0	0	0	0	0	0	27	418	4	13	4	4	3947253	128	112	3,989,292
		24	24	F-15	8.0	192.0	10%	19.2	0%	0%	100%	0.00	0.00	19.20	0	0	0	0	0	0	0	0	0	0	0	0	431	5558	77	48	970	873	3683311	119	104	3,722,538
		45	45	SH-60B	8.0	360.0	100%	360.0	0%	0%	100%	0.00	0.00	360.00	0	0	0	0	0	0	0	0	0	0	0	0	2700	2765	238	173	1814	1633	1337548	43	38	1,351,793
Fleet Strike Group Exercise	0	48	0	FA-18E/F	8.0	0.0	10%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		4	0	EA-6B	8.0	0.0	10%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		4	0	E-2	8.0	0.0	10%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		3	0	P-3	8.0	0.0	10%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		6	0	AV-8B	8.0	0.0	10%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		1	0	E-3	8.0	0.0	10%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		1	U	KC-135	8.0	0.0	10%	0.0	0%	0%	100%	0.00	0.00	0.00	U	0	0	0	0	0	U Q	0	0	U	U	0	0	U	U	U	0	0	0	U	U	0
		24	U	r-15	8.U	0.0	10%	0.0	0%	0%	100%	0.00	0.00	0.00	Ų	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U

1					(	OPERA'	TIONAL	INFORM	ATION	- AIRCR	AFT										EMIS	SIONS/YE	EAR (Ib)	BY JURIS	DICTION								Greenbo	uco Gao E	missions	(lbhaar)
			Airc	raft I	Г	Time	Alti	tude	Dis	tribution	(%)	Dist	ribution (	hr)		)	State (0-3 ni	m offshore	)			W	aters of U	S (3-12 nm	)	1		Inter	national V	Vaters (>12	2 nm)		Gieenino		1115510115	(ID/year)
Type of Training	Training Ops (#)	Distribution	A/C Sorties (#)	Type	Ave Time on Range (hr)	Total Time on Range (hr	Time < 3,000 ft (%)	Time < 3,000 ft (hr)	0-3 nm from shore	3-12 nm from Shore	>12 nm from Shore	Total Time 0-3 nm from shore	Total Time 3-12 nm from shore	Total Time >12 nm from shore	со	NOx	нс	SOx	РМ	PM2.5	со	NOx	нс	SOx	РМ	PM2.5	со	NOx	нс	SOx	РМ	PM2.5	CO <sub>2</sub>	N₂O	CH₄	CO <sub>2-e</sub>
Integrated Anti- Submarine Warfare Exercise	0	15 4 12 4 2 10 48 4	0 0 0 0 0 0	SH-60B CH-53 CH-46 AH-1 UH-1 MV-22 FA-18E/F EA-6B	8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	100% 100% 100% 100% 100% 100%	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0% 0% 0% 0% 0%	0% 0% 0% 0% 0% 100%	100% 100% 100% 100% 100% 100% 0%	0.00 0.00 0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00 0.00 0.00	0 0 0 0 0 0	0 0 0 0 0 0		0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0
		4 3 15	0 0 0	E-2 P-3 SH-60B	8.0 8.0 8.0	0.0 0.0 0.0	10% 10% 100%	0.0 0.0 0.0	0% 0% 0%	100% 100% 100%	0% 0% 0%	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
Submarine Warfare Examina	1	3 4 4	3 4 4	P-3 MH-60 SH-60H	40.0 40.0 40.0	120.0 160.0 160.0	10% 75% 100%	12.0 120.0 160.0	0% 0% 0%	100% 100% 100%	0% 0% 0%	0.00 0.00 0.00	12.00 120.00 160.00	0.00 0.00 0.00	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	105 900 1200	486 922 1229	24 79 106	23 58 77	229 605 806	206 544 726	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	1783398 594466 594466	58 19 19	50 17 17	1,802,391 600,797 600,797
Maritime Homeland Defense / Security Mine Countermeasures	1																																			
Marine Air Ground Task Force Exercise (Amphibious)	4	1 2 4 12 4 2 10	4 8 16 48 16 8 40	C-130 SH-60B CH-53 CH-46 AH-1 UH-1 MV-22	8.0 8.0 8.0 8.0 8.0 8.0 8.0	32.0 64.0 128.0 384.0 128.0 64.0 320.0	10% 100% 100% 100% 100% 100%	3.2 64.0 128.0 384.0 128.0 64.0 320.0	50% 50% 50% 50% 50% 50%	50% 50% 50% 50% 50% 50%	0% 0% 0% 0% 0%	1.60 32.00 64.00 192.00 64.00 32.00 160.00	1.60 32.00 64.00 192.00 64.00 32.00 160.00	0.00 0.00 0.00 0.00 0.00 0.00 0.00	15 240 609 3926 583 58 3537	59 246 2308 949 283 82 706	3 21 43 608 30 3 615	3 15 114 92 21 7 72	29 161 631 410 218 73 319	26 145 568 369 196 65 287	15 240 609 3926 583 58 3537	59 246 2308 949 283 82 706	3 21 43 608 30 3 615	3 15 114 92 21 7 72	29 161 631 410 218 73 319	26 145 568 369 196 65 287	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	445849 237786 1769130 1426718 321804 107004 2219339	14 8 57 46 10 3 72	13 7 50 40 9 3 63	450,598 240,319 1,787,972 1,441,913 325,231 108,143 2,242,975
Special Purpose Marine Air Ground Task Force Exercise	2	1 4 12 4 2 10	2 8 24 8 4 20	C-130 CH-53 CH-46 AH-1 UH-1 MV-22	8.0 8.0 8.0 8.0 8.0 8.0	16.0 64.0 192.0 64.0 32.0 160.0	10% 100% 100% 100% 100% 100%	1.6 64.0 192.0 64.0 32.0 160.0	50% 50% 50% 50% 50%	50% 50% 50% 50% 50%	0% 0% 0% 0% 0%	0.80 32.00 96.00 32.00 16.00 80.00	0.80 32.00 96.00 32.00 16.00 80.00	0.00 0.00 0.00 0.00 0.00 0.00	7 304 1963 291 29 1769	29 1154 475 141 41 353	2 21 304 15 1 307	1 57 46 10 3 36	14 316 205 109 36 159	13 284 185 98 33 144	7 304 1963 291 29 1769	29 1154 475 141 41 353	2 21 304 15 1 307	1 57 46 10 3 36	14 316 205 109 36 159	13 284 185 98 33 144	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	222925 884565 713359 160902 53502 1109670	7 29 23 5 2 36	6 25 20 5 2 31	225,299 893,986 720,956 162,616 54,072 1,121,488
Urban Warfare Exercise ELECTRONIC WARFARE	5	1 4 12 4 2 10	5 20 60 20 10 50	C-130 CH-53 CH-46 AH-1 UH-1 MV-22	8.0 8.0 8.0 8.0 8.0 8.0	40.0 160.0 480.0 160.0 80.0 400.0	10% 100% 100% 100% 100% 100%	4.0 160.0 480.0 160.0 80.0 400.0	100% 100% 100% 100% 100% 100%	0% 0% 0% 0% 0%	0% 0% 0% 0% 0%	4.00 160.00 480.00 160.00 80.00 400.00	0.00 0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00 0.00	37 1521 9815 1456 144 8844	147 5771 2373 707 204 1765	8 107 1521 74 7 1537	7 286 230 52 17 179	71 1578 1025 546 181 797	64 1421 923 491 163 718	0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	557312 2211413 1783398 402255 133755 2774174	18 72 58 13 4 90	16 62 50 11 4 78	563,247 2,234,965 1,802,391 406,539 135,179 2,803,719

				OF	PERAT	IONAL	INFORM	<b>MATION</b>	- AIRCR	AFT										EMIS	SIONS/YE	EAR (Ib)	<b>BY JURIS</b>	DICTION								Greenby	uco Goc F	missions	(lb/war)
	_	Air	craft	Tin	ne	Altit	tude	Dis	stribution	(%)	Dis	tribution (	hr)			state (0-3 n	m offshore	)			W	aters of U	S (3-12 nm	)	_		Inter	national V	Vaters (>1:	2 nm)		Greening	use Gas c		(ID/year)
Type of Training	Training Ops (#)	A/C Sorties (#)	Type	Ave Time on Range (hr)	Total Time on Range (hr)	Time < 3,000 ft (%)	Time < 3,000 ft (hr)	0-3 nm from shore	3-12 nm from Shore	>12 nm from Shore	Total Time 0-3 nm from shore	Total Time 3-12 nm from shore	Total Time >12 nm from shore	со	NOx	нс	SOx	РМ	PM2.5	со	NOX	нс	SOx	РМ	PM2.5	со	NOx	нс	SOx	РМ	PM2.5	CO2	N2O	СН₄	CO <sub>2-e</sub>
Direct Action (Combat Close Quarters)	72																																		
Direct Action (Breaching)	72																																		
Direct Action (TAC-P)	18																																		
Underwater Demolition Qualifications	30																																		
Intelligence, Surveillance, Reconnaissance	16	16.0	MQ-4C	4.0	64.0	100%	64.0	0%	50%	50%	0.00	32.00	32.00	0	0	0	0	0	0	67	1243	21	113	20	18	67	1243	21	113	20	18	501729	16	14	507,073
Urban Warfare Training	18																																		
Underwater Survey	16	16	SH-60B	2.0	32.0	100%	32.0	100%	0%	0%	32.00	0.00	0.00	240	246	21	15	161	145	0	0	0	0	0	0	0	0	0	0	0	0	118893	4	3	120,159
OTHER		de:	-26			6			-																(†) (†)	йн П									
Surface Ship Sonar Maintenance	42																																		
Submarine Sonar Maintenance	48																																		
Small Boat Attack	18																																		
Search and Rescue at Sea	40 :	80	MH-60	40.0	3200.0	75%	2400.0	100%	0%	0%	2400.00	0.00	0.00	18000.00	18432.00	1584.00	1152.00	12096.00	10886.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11889318	385.69	336.00	12,015,939
Submarine Navigation	40																																		
Precision Anchoring	18																																		
Maneuver (Convoy, Land Navigation)	16																																		
	10	-	-			-		-	<u> </u>			-																							
Field Training Exercise	100																																		
Force Protection	75																																		
Anti-Terrorism	80 ·	80	SH-60B	2.0	160.0	100%	160.0	100%	0%	0%	160.00	0.00	0.00	1200	1229	106	77	806	726	0	0	0	0	0	0	0	0	0	0	0	0	594466	19	17	600,797
Seize Airfield	12																																		
Airfield Expeditionary	12																																		
Unmanned Aerial Vehicle Operation	1000	1000	MQ-4C	4.0	4000.0	100%	4000.0	100%	0%	0%	4000.00	0.00	0.00	8400.00	155360.00	2640.00	14160.00	2440.00	2196.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31358075	1017.27	886.20	31,692,039
Land Demolitions (Improvised Explosive Device) Discovery / Disposal	120																																		

						OPERA'	TIONAL	INFOR	MATION	- AIRCR	AFT									EMISS	SIONS/YE	AR (lb) E	BY JURIS	DICTION								Groophy	uco Coc I	missions	(lhhinar)
		14.64	Aircn	aft	-	Time	Alt	tude	Di	stribution	(%)	Dis	tribution (hr)		S	tate (0-3 nr	n offshore)			10	Wa	aters of U	S (3-12 nm	)			Inter	national V	/aters (>12	! nm)		Greening	Juse Gas I	20015	(ib/year)
Type of Training	Training Ops (#)	Distribution	A/C Sorties (#)	Type	Ave Time on Range (hr)	Total Time on Range (hr)	Time < 3,000 ft (%)	Time < 3,000 ft (hr)	0-3 nm from shore	3-12 nm from Shore	>12 nm from Shore	Total Time 0-3 nm from shore	Total Time 3-12 nm from shore Total Time >12 nm from shore	со	NOx	нс	SOx	PM	PM2.5	со	NOX	НС	SOx	РМ	PM2.5	со	NOx	нс	SOx	РМ	PM2.5	CO2	N₂O	CH₄	CO <sub>2.e</sub>
Land Demolitions (Unexploded Ordnance) Discovery / Disposal	236																																		
TOTAL TRAINING EMISSIONS (LBS/YEAR)														545,479	522,741	76,376	38,682	165,678	149,110	29,934	36,181	4,025	2,000	17,431	15,688	59,291	839,957	8,432	23,454	375,635	338,071	1,451,235,021	47,079	41,013	1,466,690,668
TOTAL TRAINING EMISSIONS (TONS/YEAR)														273	261	38	19	83	75	15	18	2	1	9	8	30	420	4	12	188	169	725,618	24	21	733,345

14	8					OPE	RATION	IAL IN	IFORMA	TION -	AIRCRA	FT				T.						EMI	SSIONS/Y	'EAR (Ib)	BY JURI	ISDICTION	N							Greenh	ouse Gas F	missions	: (lh/vear)
			Airo	raft		Time		Altitu	ude	Dis	tribution	(%)	Dis	tributio	n (hr)		-	State (0-3	nm offsho	re)	-		<u>۷</u>	Vaters of L	J S (3-12 nr	m)	-		Inte	mational \	Naters (>1	2 nm)	-	Greenin			s (ib/year)
Type of Training	[raining Ops (#)	Jistribution	vC Sorties (#)	ype	we Time on Range (hr)	- - )	otal Time on Range (hr)	ime < 3,000 ft (%)	ime < 3,000 ft (hr)	-3 nm from shore	-12 nm from Shore	12 nm from Shore	otal Time 0-3 nm from hore	otal Time 3-12 nm from hore	otal Time >12 nm from hore	со	NOx	нс	SOx	PM	PM2.5	co	NOx	нс	SOx	PM	PM2.5	со	NOx	нс	SOx	PM	PM2.5	со,	N₂O	CH₄	CO <sub>2-6</sub>
ANTI-SURFACE WAR	FARE		4			_		-			52			L H o	_ ⊢ ω_		1						1							1		1		-			
Air to Surface Missile Test	8	1	8	P-3	4		32 7	'5%	24	0%	0%	100%	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	209.664	971.136	47.232	46.08	457.344	411.6096	475572.7059	15.427765	13.44	480637.5529
ANTI-SUBMARINE W	ARFARE	E																																			
Anti-submarine Warfare Tracking Test MPA	- 188	1	188	P-3	6.0	0 11	128.0 7	′5%	846.0	0%	100%	0%	0.00	846.0	0.00	0	0	0	0	0	0	7391	34233	1665	1624	16121	14509	0	0	0	0	0	0	16763938	544	474	16,942,474
Anti-submarine Warfar Torpedo Test	e 40	0.33	13	SH-60	8.0	0 10	05.6 7	'5%	79.2	0%	100%	0%	0.00	79.20	0.00	0	0	0	0	0	0	594	608	52	38	399	359	0	0	0	0	0	0	392347	13	11	396,526
		0.33 0.33	13 13	MH-60 P-3	8.0 8.0	0 10 0 10	05.6 7 05.6 7	75% 75%	79.2 79.2	0% 0%	100% 100%	0% 0%	0.00 0.00	79.20 79.20	0.00	0 0	0 0	0 0	0 0	0 0	0 0	594 692	608 3205	52 156	38 152	399 1509	359 1358	0 0	0 0	0	0 0	0 0	0 0	392347 1569390	13 51	11 44	396,526 1,586,104
Broad Area Maritime Surveillance (BAMS) Testing	10	1	10	MQ-4C	1.0	0 1	10.0 10	00%	10.0	100%	0%	0%	10.00	0.00	0.00	21	388	7	35	6	5	0	0	0	0	0	0	0	0	0	0	0	0	78395	3	2	79,230
LIFECYCLE ACTIVITI	ES TEST	TING				_							÷	-																							
Ship Signature Testing	17																																				
ANTI-SURFACE WAR	FARE /	ANTI-S	JBMARI	NE WARF	ARETE	STING	·																					<b>3</b>									
Torpedo Explosive Testing	2																																				
Countermeasure Testing	2																																				
At-Sea Sonar Testing	20																																				
SHIPBOARD PROTEC	CTION S	YSTEM	S AND S	WMMER	DEFENS	SE TES	STING																														
Pierside Integrated Swimmer Defense	1		Ĩ																																		
NEW SHIP CONSTRU	CTION																					-						-						-			
ASW Mission Package Testing	<sup>9</sup> 33		6		_					-					-	-																					
Testing	32																																				
OFFICE OF NAVAL R	ESEARC	сн																																			
North Pacific Acoustic Lab Philippine Sea 2018-19 Experiment (Deep Water)	1																																				
TOTAL TESTING EMISSIONS (Ibs per year)																2'	388	.4	6.6 35	.4 6.	1 5.4	9270.5472	2 38653.80	5 1925.34	1852.42	18428.947	7 16586.05	209.664	971.136	47.232	46.08	457.34	411.6096	19671990.67	638.16708	555.9435	19881497.28
TOTAL TESTING EMISSIONS (tons per year)																1	1	0	0	0	0 1	) (	5 1:	9 4	1 1	S	9 8	o	0	0	C		) 0	9835.995335	0.3190835	0.2779718	9940.748639

					C	OPERA'	TIONAL	INFORM	MATION	- AIRCR	AFT										EMIS	SSIONS/YI	EAR (lb)	BY JURI	SDICTION	1							Greenby	NICA Gar	mission	c (lh/uear)
			Airc	raft	Т	ime	Alt	itude	Dis	stribution	(%)	Dis	tribution	(hr)			State (0-3 n	m offshore	)			N	aters of L	JS (3-12 nm	1)			Inter	national <sup>v</sup>	Waters (>1	2 nm)	-	Greening	Juse Gas	-111551011	s (ib/year)
Type of Training	Training Ops (#)	Distribution	VC Sorties (#)	уре	Ave Time on Range (hr)	otal Time on Range (hr)	ime < 3,000 ft (%)	ime < 3,000 ft (hr)	-3 nm from shore	-12 nm from Shore	-12 nm from Shore	otal Time 0-3 nm from thore	otal Time 3-12 nm from thore	otal Time >12 nm from hore	со	NOx	нс	SOx	РМ	PM2.5	со	NOx	НС	SOx	РМ	PM2.5	со	NOx	нс	SOx	PM	PM2.5	CO2	N2O	Сң₁	CO <sub>2-e</sub>
ANTI-AIR WARFARE										<u>_</u>		LΗ ω	<u> </u>	E o																						
Air Combat Maneuver	5300	1	5300	FA-18E/F	1.0	5300.0	0%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	169643843	5503	4794	171,450,550
		1	5300	AV-8B	1.0	5300.0	0%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	98458412	3194	2783	99,506,993
Air Defense Exercise	100	2	200	FA-18E/F	1.0	200.0	50%	100.0	0%	0%	100%	0.00	0.00	100.00	0	0	0	0	0	0	0	0	0	0	0	0	744	15249	124	414	6782	6104	6401654	208	181	6,469,832
Air Intercept Control	5300	2	10600	FA-18E/F	1.0	10600.0	) 50%	5300.0	0%	0%	100%	0.00	0.00	5300.00	0	0	0	0	0	0	0	0	0	0	0	0	39450	808173	6575	21917	359432	323488	339287687	11007	9588	342,901,099
Gunnery Exercise, A-A (Medium Caliber)	45	1	45	AV-8B	1.0	45.0	0%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	835968	27	24	844,871
		1	45	FA-18E/F	1.0	45.0	0%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1440372	47	41	1,455,712
Missile Exercise, A-A	24	1	24	AV-8B	1.0	24.0	0%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	445849	14	13	450,598
		1	24	FA-18E/F	1.0	24.0	0%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	768199	25	22	776,380
Gunnery Exercise, S-A (Large Caliber)	5	1	5	AV-8B	1.0	5.0	0%	0.0	0%	0%	0%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	92885	3	3	93,875
		1	5	FA-18E/F	1.0	5.0	0%	0.0	0%	0%	0%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	160041	5	5	161,746
Gunnery Exercise, S-A (Medium Caliber)	12	1	12	AV-8B	1.0	12.0	0%	0.0	0%	0%	0%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	222925	7	6	225,299
		1	12	FA-18E/F	1.0	12.0	0%	0.0	0%	0%	0%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	384099	12	11	388,190
Missile Exercise, S-A	15																																			
STRIKE WARFARE																																				
Bombing Exercise, A-G	2520	1	2520	FA-18E/F	1.0	2520.0	10%	252.0	0%	0%	100%	0.00	0.00	252.00	0	0	0	0	0	0	0	0	0	0	0	0	1876	38426	313	1042	17090	15381	80660846	2617	2280	81,519,884
Missile Exercise, A-G	85	0.5	43	FA-18E/F	2.0	85.0	10%	8.5	0%	0%	100%	0.00	0.00	8.50	0	0	0	0	0	0	0	0	0	0	0	0	63	1296	11	35	576	519	2720703	88	77	2,749,679
		0.5	43	SH-60B	2.0	85.0	100%	85.0	0%	0%	100%	0.00	0.00	85.00	0	0	0	0	0	0	0	0	0	0	0	0	638	653	56	41	428	386	315810	10	9	319,173
Gunnery Exercise, A-G	96	0.5	48	FA-18E/F	2.0	96.0	10%	9.6	0%	0%	100%	0.00	0.00	9.60	0	0	0	0	0	0	0	0	0	0	0	0	71	1464	12	40	651	586	3072794	100	87	3,105,519
		0.5	48	SH-60B	2.0	96.0	100%	96.0	0%	0%	100%	0.00	0.00	96.00	0	0	0	0	0	0	0	0	0	0	0	0	720	737	63	46	484	435	356680	12	10	360,478
Combat Search and	80	0.5	40	SH-60B	2.0	80.0	100%	80.0	50%	50%	0%	40.00	40.00	0.00	300	307	26	19	202	181	300	307	26	19	202	181	0	0	0	0	0	0	297233	10	8	300,398
Resource		0.5	40	C-130	2.0	80.08	10%	8.0	50%	50%	0%	4.00	4.00	0.00	37	147	8	7	71	64	37	147	8	7	71	64	0	0	0	0	0	0	1114624	36	32	1,126,494
AMPHIBIOUS WARFARE					4		1			L																							I			
Fire Support Exercise - Land-Based target	10	Π	1												9																					
					-	-	-								-																					
Amphibious Rehearsal, No Landing - Marine Air Ground Task Force	12	2	24	SH-60B	24.0	576.0	100%	576.0	100%	0%	0%	576.00	0.00	0.00	4320	4424	380	276	2903	2613	0	0	0	0	0	0	0	0	0	0	0	0	2140077	69	60	2,162,869
		4	48	CH-53	24.0	1152.0	100%	1152.0	100%	0%	0%	1152.00	0.00	0.00	10954	41552	771	2057	11365	10228	0	0	0	0	0	0	0	0	0	0	0	0	15922174	517	450	16,091,745
		12	144	CH-46	24.0	3456.0	100%	3456.0	100%	0%	0%	3456.00	0.00	0.00	70668	17086	10949	1659	7382	6644	0	0	0	0	0	0	0	0	0	0	0	0	12840463	417	363	12,977,214
		4	48	AH-1	24.0	1152.0	100%	1152.0	100%	0%	0%	1152.00	0.00	0.00	10486	5089	533	374	3929	3536	0	0	0	0	0	0	0	0	0	0	0	0	2896238	94	82	2,927,083
		2	24	UH-1	24.0	576.0	100%	576.0	100%	0%	0%	576.00	0.00	0.00	1039	1468	53	124	1306	1176	0	0	0	0	0	0	0	0	0	0	0	0	963035	31	27	973,291
-							1									and the second second		Construction of					2000000													and a second sec

						C	PERAT		INFORM	IATION -	AIRCR	AFT										EMIS	SIONS/YE	EAR (lb)	BY JURIS	DICTION								Grooph	Nuco Gool	missions	(lb/uppr)
				Aircr	raft	Т	ïme	Alti	tude	Dis	tribution	(%)	Dis	stribution	(hr)			State (0-3 n	m offshore	)			W	aters of U	S (3-12 nm	)			Inter	national V	Vaters (>12	2 nm)		Greenno	Juse Gas I	missions	(ib/year)
Image: Second	Type of Training	Training Ops (#)	Distribution	A/C Sorties (#)	Type	Ave Time on Range (hr)	Total Time on Range (hr)	Time < 3,000 ft (%)	Time < 3,000 ft (hr)	0-3 nm from shore	3-12 nm from Shore	>12 nm from Shore	Total Time 0-3 nm from shore	Total Time 3-12 nm from shore	Total Time >12 nm from shore	со	NOx	нс	SOx	РМ	PM2.5	со	NOx	НС	SOx	PM	PM2.5	со	NOx	НС	SOx	РМ	PM2.5	CO <sub>2</sub>	N₂O	сң	CO <sub>2.e</sub>
No.         No.        No.        No.         No			10	120	MV-22	24.0	2880.0	100%	2880.0	100%	0%	0%	2880.00	0.00	0.00	63673	12709	11064	1290	5742	5167	0	0	0	0	0	0	0	0	0	0	0	0	19974054	648	564	20,186,777
	Amphibious Assault - Marine Air Ground Task Force	6	4	24.0	CH-53	18.0	432.0	100%	432.0	100%	0%	0%	432.00	0.00	0.00	4108	15582	289	771	4262	3836	0	0	0	0	0	0	0	0	0	0	0	0	5970815	194	169	6,034,404
I         I        I        I         I         I         <			10	60.0	MV-22	18.0	1080.0	100%	1080.0	100%	0%	0%	1080.00	0.00	0.00	23878	4766	4149	484	2153	1938	0	0	0	0	0	0	0	0	0	0	0	0	7490270	243	212	7,570,041
N         I         N        N        N         N        N <th< td=""><th></th><td></td><td>2</td><td>12.0</td><td>UH-1</td><td>18.0</td><td>216.0</td><td>100%</td><td>216.0</td><td>100%</td><td>0%</td><td>0%</td><td>216.00</td><td>0.00</td><td>0.00</td><td>390</td><td>551</td><td>20</td><td>47</td><td>490</td><td>441</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>361138</td><td>12</td><td>10</td><td>364,984</td></th<>			2	12.0	UH-1	18.0	216.0	100%	216.0	100%	0%	0%	216.00	0.00	0.00	390	551	20	47	490	441	0	0	0	0	0	0	0	0	0	0	0	0	361138	12	10	364,984
A         A         B			4	24.0	AH-1	18.0	432.0	100%	432.0	100%	0%	0%	432.00	0.00	0.00	3932	1908	200	140	1473	1326	0	0	0	0	0	0	0	0	0	0	0	0	1086089	35	31	1,097,656
And a			4	24.0	AV-8	18.0	432.0	0%	0.0	100%	0%	0%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8025289	260	227	8,110,759
	Amphibious Raid - Special Purpose Marine Air Ground Task Force	6	4	24.0	H-53	12.0	288.0	100%	288.0	100%	0%	0%	288.00	0.00	0.00	2738	10388	193	514	2841	2557	0	0	0	0	0	0	0	0	0	0	0	0	3980544	129	112	4,022,936
<tr< td=""><th></th><td></td><td>10</td><td>60.0</td><td>MV-22</td><td>12.0</td><td>720.0</td><td>100%</td><td>720.0</td><td>100%</td><td>0%</td><td>0%</td><td>720.00</td><td>0.00</td><td>0.00</td><td>15918</td><td>3177</td><td>2766</td><td>323</td><td>1435</td><td>1292</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>4993513</td><td>162</td><td>141</td><td>5,046,694</td></tr<>			10	60.0	MV-22	12.0	720.0	100%	720.0	100%	0%	0%	720.00	0.00	0.00	15918	3177	2766	323	1435	1292	0	0	0	0	0	0	0	0	0	0	0	0	4993513	162	141	5,046,694
A A A B A B			2	12.0	UH-1	12.0	144.0	100%	144.0	100%	0%	0%	144.00	0.00	0.00	260	367	13	31	327	294	0	0	0	0	0	0	0	0	0	0	0	0	240759	8	7	243,323
			4	24.0	AH-1	12.0	288.0	100%	288.0	100%	0%	0%	288.00	0.00	0.00	2622	1272	133	94	982	884	0	0	0	0	0	0	0	0	0	0	0	0	724059	23	20	731,771
</td <th></th> <td></td> <td>4</td> <td>24.0</td> <td>AV-8</td> <td>12.0</td> <td>288.0</td> <td>0%</td> <td>0.0</td> <td>100%</td> <td>0%</td> <td>0%</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0</td> <td>5350193</td> <td>174</td> <td>151</td> <td>5,407,172</td>			4	24.0	AV-8	12.0	288.0	0%	0.0	100%	0%	0%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5350193	174	151	5,407,172
Normation         Normation <t< td=""><th>Urban Warfare Training</th><td>36</td><td>1</td><td>36</td><td>AH-1</td><td>28.0</td><td>1008.0</td><td>100%</td><td>1008.0</td><td>100%</td><td>0%</td><td>0%</td><td>1008.00</td><td>0.00</td><td>0.00</td><td>9175</td><td>4453</td><td>467</td><td>327</td><td>3438</td><td>3094</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>2534208</td><td>82</td><td>72</td><td>2,561,197</td></t<>	Urban Warfare Training	36	1	36	AH-1	28.0	1008.0	100%	1008.0	100%	0%	0%	1008.00	0.00	0.00	9175	4453	467	327	3438	3094	0	0	0	0	0	0	0	0	0	0	0	0	2534208	82	72	2,561,197
A         A         B			1	36	UH-1	28.0	1008.0	100%	1008.0	100%	0%	0%	1008.00	0.00	0.00	1818	2569	93	218	2286	2058	0	0	0	0	0	0	0	0	0	0	0	0	1685311	55	48	1,703,259
			1	36	MV-22	28.0	1008.0	100%	1008.0	100%	0%	0%	1008.00	0.00	0.00	22286	4448	3872	452	2010	1809	0	0	0	0	0	0	0	0	0	0	0	0	6990919	227	198	7,065,372
			1	36	H-53	28.0	1008.0	100%	1008.0	100%	0%	0%	1008.00	0.00	0.00	9584	36358	675	1800	9944	8950	0	0	0	0	0	0	0	0	0	0	0	0	13931902	452	394	14,080,277
1         1        <			1	36	MH-53	8.0	288.0	100%	288.0	100%	0%	0%	288.00	0.00	0.00	2738	10388	193	514	2841	2557	0	0	0	0	0	0	0	0	0	0	0	0	3980544	129	112	4,022,936
Prio-Constant operimedication			1	36	H-60	8.0	288.0	100%	288.0	100%	0%	0%	288.00	0.00	0.00	2160	2212	190	138	1452	1306	0	0	0	0	0	0	0	0	0	0	0	0	1070039	35	30	1,081,434
	Non-Combatant Evacuation Operation	5	10	50	MV-22	20.0	1000.0	100%	1000.0	100%	0%	0%	1000.00	0.00	0.00	22109	4413	3842	448	1994	1794	0	0	0	0	0	0	0	0	0	0	0	0	6935435	225	196	7,009,298
k         k			4	20	H-53	20.0	400.0	100%	400.0	100%	0%	0%	400.00	0.00	0.00	3803	14428	268	714	3946	3552	0	0	0	0	0	0	0	0	0	0	0	0	5528533	179	156	5,587,412
Image: A 1         A         B			2	10	UH-1	20.0	200.0	100%	200.0	100%	0%	0%	200.00	0.00	0.00	361	510	18	43	454	408	0	0	0	0	0	0	0	0	0	0	0	0	334387	11	9	337,948
Image: Serie			4	20	AH-1	20.0	400.0	100%	400.0	100%	0%	0%	400.00	0.00	0.00	3641	1767	185	130	1364	1228	0	0	0	0	0	0	0	0	0	0	0	0	1005638	33	28	1,016,348
Huminary entrome province of the provin			4	20	AV-8	20.0	400.0	0%	0.0	100%	0%	0%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7430824	241	210	7,509,962
A         A         B         A         C         M         C         M	Humanitarian Assistance/ Disaster Relief Operations	5	10	50	MV-22	20.0	1000.0	100%	1000.0	100%	0%	0%	1000.00	0.00	0.00	22109	4413	3842	448	1994	1794	0	0	0	0	0	0	0	0	0	0	0	0	6935435	225	196	7,009,298
A       A       B			4	20	H-53	20.0	400.0	100%	400.0	100%	0%	0%	400.00	0.00	0.00	3803	14428	268	714	3946	3552	0	0	0	0	0	0	0	0	0	0	0	0	5528533	179	156	5,587,412
k         k			2	10	UH-1	20.0	200.0	100%	200.0	100%	0%	0%	200.00	0.00	0.00	361	510	18	43	454	408	0	0	0	0	0	0	0	0	0	0	0	0	334387	11	9	337,948
i       i			4	20	AH-1	20.0	400.0	100%	400.0	100%	0%	0%	400.00	0.00	0.00	3641	1767	185	130	1364	1228	0	0	0	0	0	0	0	0	0	0	0	0	1005638	33	28	1,016,348
Understand       Understand <th></th> <td></td> <td>4</td> <td>20</td> <td>AV-8</td> <td>20.0</td> <td>400.0</td> <td>0%</td> <td>0.0</td> <td>100%</td> <td>0%</td> <td>0%</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0</td> <td>7430824</td> <td>241</td> <td>210</td> <td>7,509,962</td>			4	20	AV-8	20.0	400.0	0%	0.0	100%	0%	0%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7430824	241	210	7,509,962
ANT-SURFACE WARFACE WA	Unmanned Aerial Vehicle - Intelligence, Surveillance, and Reconaissance	100	1	100.0	MQ-4C	4.0	400.0	100%	400.0	100%	0%	0%	400.00	0.00	0.00	840	15536	264	1416	244	220	0	0	0	0	0	0	0	0	0	0	0	0	3135808	102	89	3,169,204
Cancer been been been been been been been be	ANTI-SURFACE WARFA	RE																																			
A         B	Gunnery Exercise, A-S (Small Caliber) - Ship	242	0.25	60.5	FA-18E/F	2.0	121.0	10%	12.1	0%	0%	100%	0.00	0.00	12.10	0	0	0	0	0	0	0	0	0	0	0	0	90	1845	15	50	821	739	3873001	126	109	3,914,248
Gunnery Exercise, AS (Medium Caliber)- Ship 29 0.5 73.7 FA18E/F 2.0 147.5 10% 14.8 0% 0% 10.0 0.0 0.0 14.7 0 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Contract a series of 1 - series		0.75	181.5	SH-60B	2.0	363.0	100%	363.0	0%	0%	100%	0.00	0.00	363.00	0	0	0	0	0	0	0	0	0	0	0	0	2723	2788	240	174	1830	1647	1348694	44	38	1,363,058
	Gunnery Exercise, A-S (Medium Caliber) - Ship	295	0.25	73.75	FA-18E/F	2.0	147.5	10%	14.8	0%	0%	100%	0.00	0.00	14.75	0	0	0	0	0	0	0	0	0	0	0	0	110	2249	18	61	1000	900	4721220	153	133	4,771,501

					0	PERAT	IONAL	INFORM	IATION -	- AIRCR/	AFT										EMIS	SSIONS/YI	EAR (lb)	BY JURI	SDICTION								Greenh	use Gas l	Emissions	(lh/year)
			Aircra	aft	Ti	ime	Alti	tude	Dis	stribution	(%)	Dis	stributior	ı (hr)			State (0-3 n	m offshore)				W	aters of U	S (3-12 nm	1)	-		Inter	national \	Waters (>12	? nm)		Greenin	Juse Gas I	LIIISSIOIIS	s (ib/year)
Type of Training	Training Ops (#)	Distribution	A/C Sorties (#)	Type	Ave Time on Range (hr)	Total Time on Range (hr)	Time < 3,000 ft (%)	Time < 3,000 ft (hr)	0-3 nm from shore	3-12 nm from Shore	>12 nm from Shore	Total Time 0-3 nm from shore	Total Time 3-12 nm from shore	Total Time >12 nm from shore	со	NOx	нс	SOx	РМ	PM2.5	со	NOx	НС	SOx	РМ	PM2.5	со	NOx	нс	SOx	РМ	PM2.5	CO <sub>2</sub>	N₂O	СҢ₄	C0 <sub>2.e</sub>
		0.75	21.25	SH-60B	2.0	442.5	100%	442.5	0%	0%	100%	0.00	0.00	442.50	0	0	0	0	0	0	0	0	0	0	0	0	3319	3398	292	212	2230	2007	1644070	53	46	1,661,579
Missile Exercise (A-S) - Rocket	10	0.33	3.3	FA-18E/F	2.0	6.6	10%	0.7	0%	0%	100%	0.00	0.00	0.66	0	0	0	0	0	0	0	0	0	0	0	0	5	101	1	3	45	40	211255	7	6	213,504
		0.66	6.6	SH-60B	2.0	13.2	100%	13.2	0%	0%	100%	0.00	0.00	13.20	0	0	0	0	0	0	0	0	0	0	0	0	99	101	9	6	67	60	49043	2	1	49,566
Missile Exercise (A-S)	20	0.5	10	FA-18E/F	2.0	20.0	10%	2.0	0%	0%	100%	0.00	0.00	2.00	0	0	0	0	0	0	0	0	0	0	0	0	15	305	2	8	136	122	640165	21	18	646,983
	0.001	0.5	10 :	SH-60B	2.0	20.0	100%	20.0	0%	0%	100%	0.00	0.00	20.00	U			U	0	U	U	0	0	0	0	U	150	154	13	10	101	91	/4308	2	2	75,100
Laser Targeting	600	0.5	300 300 :	FA-18E/F SH-60B	1.0 1.0	300.0 300.0	10% 100%	30.0 300.0	0% 0%	0% 0%	100% 100%	0.00	0.00	30.00 300.00	0	0 0	0	0 0	0 0	0	0	0	0	0	0	0 0	223 2250	4575 2304	37 198	124 144	2035 1512	1831 1361	9602482 1114624	312 36	271 32	9,704,748 1,126,494
Bombing Exercise (A-S)	37	0.5	19	FA-18E/F	1.0	18.5	10%	1.9	0%	0%	100%	0.00	0.00	1.85	0	0	0	0	0	0	0	0	0	0	0	0	14	282	2	8	125	113	592153	19	17	598,459
		0.5	19	P-3	1.0	18.5	10%	1.9	0%	0%	100%	0.00	0.00	1.85	0	0	0	0	0	0	0	0	0	0	0	0	16	75	4	4	35	32	274940	9	8	277,869
Torpedo Exercise (Submarine to Surface)	5																																			
Missile Exercise (S-S)	12																																			
Gunnery Exercise (S-S)- Ship, Large Caliber	140																																			
Gunnery Exercise (S-S)- Ship, Medium caliber	100																																			
Sinking Exercise (SINKEX)	2	2	4 1	FA-18E/F	8.0	32.0	10%	3.2	0%	0%	100%	0.00	0.00	3.20	0	0	0	0	0	0	0	0	0	0	0	0	24	488	4	13	217	195	1024265	33	29	1,035,173
(		1 1	2	P-3 SH-60B	8.0 8.0	16.0 16.0	10% 100%	1.6 16.0	0% 0%	0% 0%	100% 100%	0.00 0.00	0.00 0.00	1.60 16.00	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	14 120	65 123	3 11	3 8	30 81	27 73	237786 59447	8 2	7 2	240,319 60,080
Gunnery Exercise (S-S) Boat – Medium-caliber	10																																			
Gunnery Exercise (S-S) Small-caliber	40																																			
Maritime Security Operations (MSO)	40	1	40	SH-60B	4.0	160.0	100%	160.0	100%	0%	0%	160.00	0.00	0.00	1200	1229	106	77	806	726	0	0	0	0	0	0	0	0	0	0	0	0	594466	19	17	600,797
ANTI-SUBMARINE WARF	ARE	<u> </u>				<u> </u>			L		I		-																							
Tracking Exercise-Helo	62	3	186	SH-60B	4.0	744.0	100%	744.0	0%	100%	0%	0.00	744.00	0.00	0	0	0	0	0	0	5580	5714	491	357	3750	3375	0	0	0	0	0	0	2764266	90	78	2,793,706
Torpedo Exercise-Helo	4	3	12	SH-60B	4.0	48.0	100%	48.0	0%	100%	0%	0.00	48.00	0.00	0	0	0	0	0	0	360	369	32	23	242	218	0	0	0	0	0	0	178340	6	5	180,239
Tracking Exercise- Maritime Patrol Advanced Extended Echo Ranging Sonobuoys	11	1	11	P-3	6.0	66.0	75%	49.5	0%	100%	0%	0.00	49.50	0.00	0	0	0	0	0	0	432	2003	97	95	943	849	0	0	0	0	0	0	980869	32	28	991,315
Tracking Exercise - Maritime Patrol Aircraft	34	1	34	P-3	6.0	204.0	75%	153.0	0%	100%	0%	0.00	153.00	0.00	0	0	0	0	0	0	1337	6191	301	294	2916	2624	0	0	0	0	0	0	3031776	98	86	3,064,064
Torpedo Exercise- Maritime Patrol Aircraft	4	1	4	P-3	6.0	24.0	75%	18.0	0%	100%	0%	0.00	18.00	0.00	0	0	0	0	0	0	157	728	35	35	343	309	0	0	0	0	0	0	356680	12	10	360,478

					C	PERAT	TIONAL	INFORM	ATION	- AIRCR	AFT	6									EMIS	SSIONS/Y	EAR (lb)	BY JURI	SDICTION								Greenbe	use Gas I	missions	(lb/year)
			Airc	raft	Т	ime	Alti	tude	Dis	stribution	(%)	Dis	tribution	(hr)		-	State (0-3 i	nm offshore	)			N	aters of U	S (3-12 nn	ו)			Inter	national V	Vaters (>12	2 nm)	-	Greenin	Juse Gas I		(ib/year)
Type of Training	Training Ops (#)	Distribution	A/C Sorties (#)	Type	Ave Time on Range (hr)	Total Time on Range (hr)	Time < 3,000 ft (%)	Time < 3,000 ft (hr)	0-3 nm from shore	3-12 nm from Shore	>12 nm from Shore	Total Time 0-3 nm from shore	Total Time 3-12 nm from shore	Total Time >12 nm from shore	со	NOx	нс	SOx	PM	PM2.5	со	NOx	нс	SOx	РМ	PM2.5	со	NOx	нс	SOx	РМ	P M2.5	CO2	N₂O	сң	CO <sub>2-e</sub>
Tracking Exercise –Surface	132																																			
Torpedo Exercise- Surface	3																																			
Tracking Exercise– Submarine	12																																			
Torpedo Exercise – Submarine	10																																			
MAJOR TRAINING EVEN	ITS			<u>.</u>		L				1		L	L								¶															
Joint Expeditionary Exercise	1	48	48	FA-18E/F	8.0	384.0	10%	38.4	0%	100%	0%	0.00	38.40	0.00	0	0	0	0	0	0	286	5855	48	159	2604	2344	0	0	0	0	0	0	12291177	399	347	12,422,078
Exercise		4 3 6 2 4 1 15 4 12 4 2 10	4 3 6 2 4 1 15 4 12 4 2 10	EA-6B E-2 P-3 AV-8B C-130 E-3 KC-135 SH-60B CH-53 CH-46 AH-1 UH-1 UH-1 MV-22	8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	32.0 32.0 24.0 48.0 16.0 32.0 8.0 120.0 32.0 96.0 32.0 16.0 80.0	10% 10% 10% 10% 10% 10% 10% 100% 100% 1	3.2 3.2 2.4 4.8 1.6 3.2 0.8 120.0 32.0 96.0 32.0 16.0 80.0	0% 0% 0% 0% 0% 0% 0% 0% 0% 0%	100% 100% 100% 100% 100% 100% 100% 100%	0% 0% 0% 0% 0% 0% 0% 0% 0% 0%	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	3.20 3.20 2.40 4.80 1.60 3.20 0.80 120.00 32.00 96.00 32.00 16.00 80.00	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		163 15 21 253 15 39 54 25 900 304 1963 291 29 1769	117 57 97 193 59 86 221 247 922 1154 475 141 41 353	22 3 5 8 3 4 8 1 79 21 304 15 1 307	8 3 5 12 3 4 10 7 58 57 46 10 3 36	248 28 46 204 29 26 7 2 605 316 205 316 205 309 36 159	223 25 41 184 26 23 6 2 544 284 185 98 33 33	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	633106 217971 356680 891699 222925 599618 3238254 2267689 445849 442283 356680 80451 26751 554835	21 7 29 7 19 105 74 14 14 12 3 1 18	18 6 10 25 6 17 92 64 13 12 10 2 1 16	639,849 220,292 360,478 901,195 225,299 606,004 3,272,741 2,291,840 450,598 446,993 360,478 81,308 27,036 560,744
Joint Multi-Strike Group Exercise	1	144 12 5 1 2 6 24 45	144 12 5 1 2 6 24 45	FA-18E/F EA-6B E-2 P-3 E-3 KC-135 B-1B F-15 SH-60B	8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	1152.0 96.0 96.0 40.0 8.0 16.0 48.0 192.0 360.0	10% 10% 10% 10% 10% 10% 10% 10%	<ol> <li>115.2</li> <li>9.6</li> <li>4.0</li> <li>0.8</li> <li>1.6</li> <li>4.8</li> <li>19.2</li> <li>360.0</li> </ol>	0% 0% 0% 0% 0% 0%	0% 0% 0% 0% 0% 0% 0%	100% 100% 100% 100% 100% 100% 100%	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	115.20 9.60 4.00 0.80 1.60 4.80 19.20 360.00	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	857 490 46 35 54 49 27 431 2700	17566 350 170 162 221 494 418 5558 2765	143 67 10 8 8 1 4 77 238	476 25 8 10 15 13 48 173	7813 743 84 76 7 5 4 970 1814	7031 669 75 69 6 4 4 873 1633	36873530 1899318 653912 594466 3238254 4535378 3947253 3683311 1337548	1196 62 21 19 105 147 128 119 43	1042 54 18 17 92 128 112 104 38	37,266,233 1,919,546 660,877 600,797 3,272,741 4,583,680 3,989,292 3,722,538 1,351,793
Fleet Strike Group Exercise	1	48 4 3 6 1 1 24	48 4 3 6 1 1 24	FA-18E/F EA-6B E-2 P-3 AV-8B E-3 KC-135 F-15	8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	384.0 32.0 24.0 48.0 8.0 8.0 192.0	10% 10% 10% 10% 10% 10% 10%	38.4 3.2 3.2 2.4 4.8 0.8 0.8 0.8 19.2	0% 0% 0% 0% 0% 0%	0% 0% 0% 0% 0% 0%	100% 100% 100% 100% 100% 100% 100%	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	38.40 3.20 3.20 2.40 4.80 0.80 0.80 19.20	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0	286 163 15 21 253 54 25 431	5855 117 57 97 193 221 247 5558	48 22 3 5 8 8 1 77	159 8 3 5 12 10 7 48	2604 248 28 46 204 7 2 970	2344 223 25 41 184 6 2 873	12291177 633106 217971 356680 891699 3238254 2267689 3683311	399 21 7 12 29 105 74 119	347 18 6 10 25 92 64 104	12,422,078 639,849 220,292 360,478 901,195 3,272,741 2,291,840 3,722,538

					(	OPERAT	TIONAL	INFORM	ATION	- AIRCR	AFT										EMIS	SIONS/YE	EAR (lb)	BY JURI	SDICTION	1							<b>.</b>	•		<i>(III.)</i>
			Airc	raft	1	Гime	Alti	tude	Di	stribution	(%)	Dis	stribution	(hr)			State (0-3 ni	m offshore	)			W	aters of U	S (3-12 nm	1)			Inter	mational \	Waters (>1:	2 nm)	10	Greenho	use Gas	missions	(lb/year)
Type of Training	Training Ops (#)	Distribution	A/C Sorties (#)	Type	Ave Time on Range (hr)	Total Time on Range (hr)	Time < 3,000 ft (%)	Time < 3,000 ft (hr)	0-3 nm from shore	3-12 nm from Shore	>12 nm from Shore	Total Time 0-3 nm from shore	Total Time 3-12 nm from shore	Total Time >12 nm from shore	со	NOx	нс	SOx	РМ	PM2.5	со	NOx	нс	SOx	РМ	PM2.5	со	NOx	нс	SOx	РМ	PM2.5	CO <sub>2</sub>	N₂O	сң	CO <sub>2-e</sub>
Integrated Anti- Submarine Warfare Exercise		15 4 12 4 2 10 48 4 4 4 3	15 4 12 4 2 10 48 4 8 4 4 3	SH-60B CH-53 CH-46 AH-1 UH-1 MV-22 FA-18E/F EA-6B E-2 D-3	8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	120.0 32.0 96.0 32.0 16.0 80.0 384.0 32.0 32.0 32.0 24.0	100% 100% 100% 100% 100% 100% 10%	120.0 32.0 96.0 32.0 16.0 80.0 38.4 3.2 3.2 2.4	0% 0% 0% 0% 0% 0% 0%	0% 0% 0% 0% 0% 100% 100% 100%	100% 100% 100% 100% 100% 0% 0% 0%	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	0.00 0.00 0.00 0.00 0.00 3.20 3.20 2.40	120.00 32.00 96.00 32.00 16.00 80.00 0.00 0.00 0.00		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 286 163 15 21	0 0 0 0 5855 117 57 97	0 0 0 0 0 48 22 3 5	0 0 0 0 159 8 3 5	0 0 0 0 2604 248 28 46	0 0 0 0 2344 223 25 41	900 304 1963 291 29 1769 0 0 0	922 1154 475 141 41 353 0 0 0 0	79 21 304 15 1 307 0 0 0	58 57 46 10 3 36 0 0 0 0	605 316 205 109 36 159 0 0 0	544 284 185 98 33 144 0 0 0	445849 442283 356680 80451 26751 554835 12291177 633106 217971 356880	14 14 12 3 1 18 399 21 7 12	13 12 10 2 1 16 347 18 6 10	450,598 446,993 360,478 81,308 27,036 560,744 12,422,078 639,849 220,292 360,478
Ship Squadron Anti- Submarine Warfare Exercise	1	3 15 3 4 4	3 15 3 4 4	P-3 SH-60B P-3 MH-60 SH-60H	8.0 8.0 40.0 40.0 40.0	120.0 120.0 120.0 160.0 160.0	10% 100% 10% 75% 100%	120.0 120.0 120.0 160.0	0% 0% 0% 0%	100% 100% 100% 100%	0% 0% 0% 0%	0.00	120.00 120.00 120.00 160.00	0.00	0	0	0 0 0 0	0	0 0 0 0 0	0	900 105 900 1200	97 922 486 922 1229	79 24 79 106	58 23 58 77	40 605 229 605 806	4 1 544 206 544 726	0	0 0 0 0 0	0	0 0 0 0	0	0 0 0 0	445849 1783398 594466 594466	12 14 58 19 19	10 13 50 17 17	450,598 1,802,391 600,797 600,797
Maritime Homeland Defense / Security Mine Countermeasures	1																																			
Marine Air Ground Task Force Exercise (Amphibious)	4	1 2 4 12 4 2 10	4 8 16 48 16 8 40	C-130 SH-60B CH-53 CH-46 AH-1 UH-1 MV-22	8.0 8.0 8.0 8.0 8.0 8.0 8.0	32.0 64.0 128.0 384.0 128.0 64.0 320.0	10% 100% 100% 100% 100% 100%	3.2 64.0 128.0 384.0 128.0 64.0 320.0	50% 50% 50% 50% 50% 50%	50% 50% 50% 50% 50% 50%	0% 0% 0% 0% 0%	1.60 32.00 64.00 192.00 64.00 32.00 160.00	1.60 32.00 64.00 192.00 64.00 32.00 160.00	0.00 0.00 0.00 0.00 0.00 0.00 0.00	15 240 609 3926 583 58 3537	59 246 2308 949 283 82 706	3 21 43 608 30 3 615	3 15 114 92 21 7 72	29 161 631 410 218 73 319	26 145 568 369 196 65 287	15 240 609 3926 583 58 3537	59 246 2308 949 283 82 706	3 21 43 608 30 3 615	3 15 114 92 21 7 72	29 161 631 410 218 73 319	26 145 568 369 196 65 287	0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0	0 0 0 0 0 0	445849 237786 1769130 1426718 321804 107004 2219339	14 8 57 46 10 3 72	13 7 50 40 9 3 63	450,598 240,319 1,787,972 1,441,913 325,231 108,143 2,242,975
Special Purpose Marine Air Ground Task Force Exercise	2	1 4 12 4 2 10	2 8 24 8 4 20	C-130 CH-53 CH-46 AH-1 UH-1 MV-22	8.0 8.0 8.0 8.0 8.0 8.0	16.0 64.0 192.0 64.0 32.0 160.0	10% 100% 100% 100% 100%	1.6 64.0 192.0 64.0 32.0 160.0	50% 50% 50% 50% 50%	50% 50% 50% 50% 50%	0% 0% 0% 0% 0%	0.80 32.00 96.00 32.00 16.00 80.00	0.80 32.00 96.00 32.00 16.00 80.00	0.00 0.00 0.00 0.00 0.00 0.00	7 304 1963 291 29 1769	29 1154 475 141 41 353	2 21 304 15 1 307	1 57 46 10 3 36	14 316 205 109 36 159	13 284 185 98 33 144	7 304 1963 291 29 1769	29 1154 475 141 41 353	2 21 304 15 1 307	1 57 46 10 3 36	14 316 205 109 36 159	13 284 185 98 33 144	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	222925 884565 713359 160902 53502 1109670	7 29 23 5 2 36	6 25 20 5 2 31	225,299 893,986 720,956 162,616 54,072 1,121,488
Urban Warfare Exercise	5	1 4 12 4 2 10	5 20 60 20 10 50	C-130 CH-53 CH-46 AH-1 UH-1 MV-22	8.0 8.0 8.0 8.0 8.0 8.0 8.0	40.0 160.0 480.0 160.0 80.0 400.0	10% 100% 100% 100% 100%	4.0 160.0 480.0 160.0 80.0 400.0	100% 100% 100% 100% 100%	0% 0% 0% 0% 0%	0% 0% 0% 0% 0%	4.00 160.00 480.00 160.00 80.00 400.00	0.00 0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00 0.00	37 1521 9815 1456 144 8844	147 5771 2373 707 204 1765	8 107 1521 74 7 1537	7 286 230 52 17 179	71 1578 1025 546 181 797	64 1421 923 491 163 718	0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0 0	557312 2211413 1783398 402255 133755 2774174	18 72 58 13 4 90	16 62 50 11 4 78	563,247 2,234,965 1,802,391 406,539 135,179 2,803,719

					C	OPERA	TIONAL	INFOR	MATION	- AIRCE	RAFT										EMI	SSIONS/Y	'EAR (Ib	) BY JUR	SDICTIO	N							Greenh	DUCO GOC	Emission	(lh/upar)
			Aircra	aft	Т	ime	Alt	itude	Di	stributior	ו (%)	Di	stribution	ı (hr)		1	State (0-3 r	m offshor	e)	1		V	Vaters of	U S (3-12 ni	n)			Inte	mational	Waters (>	12 nm)	-	Greenin	Juse Gas	Emission	s (ib/year)
Type of Training	Training Ops (#)	Distribution	A/C Sorties (#)	Type	Ave Time on Range (hr)	Total Time on Range (hr)	Time < 3,000 ft (%)	Time < 3,000 ft (hr)	0-3 nm from shore	3-12 nm from Shore	>12 nm from Shore	Total Time 0-3 nm from shore	Total Time 3-12 nm from shore	Total Time >12 nm from shore	со	NOx	нс	SOx	РМ	PM2.5	со	NOx	нс	SOx	РМ	PM2.5	со	NOx	нс	SOx	РМ	PM2.5	CO2	N₂O	СН4	CO <sub>2-e</sub>
ELECTRONIC WARFARE	5														-										•								•			•
Electronic Warfare Operations (EW Ops)	530	1	530	FA-18E/F	2.0	1060.0	0%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33928769	1101	959	34,290,110
Exercise (FLAREX) -	3534	0.9	3180.6	F-15	3.0	9541.8	0%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	183049027	5938	5173	184,998,498
Aircraft		0.06	212.04	FA-18E/F	3.0	636.1	0%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20361102	661	575	20,577,948
		0.04	141.36	SH-60B	3.0	424.1	100%	424.1	0%	0%	100%	0.00	0.00	424.08	0	0	0	0	0	0	0	0	0	0	0	0	3181	3257	280	204	2137	1924	1575632	51	45	1,592,412
Counter Targeting Chaff Exercise (CHAFFEX) - Ship	40																																			
Counter Targeting Chaff	0504		24 92 C	- 45		0544.0	0.00		0.01	0.01/	40086	0.00	0.00	0.00	~	0	0	0	2	0		0	0	0	0	0	0	0	0	0	0	0	402040007	502.0	5470	101.000.100
Exercise (CHAFFEX) - Aircraft	3534	0.9	3180.6	F-15	3.0	9541.8	0%	0.0	0%	0%	100%	0.00	0.00	0.00	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	183049027	2938	5173	184,998,498
		0.06	212.04	FA-18E/F	3.0	636.1	0%	0.0	0%	0%	100%	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20361102	661	575	20,577,948
		0.04	141.36	SH-60B	3.0	424.1	100%	424.1	0%	0%	100%	0.00	0.00	424.08	0	0	0	0	0	0	0	0	0	0	0	0	3181	3257	280	204	2137	1924	1575632	51	45	1,592,412
MINE WARFARE	r	<u>т т</u>			<del>.</del>	r	r -	T	<del>.</del>	1	T	<del>.</del>	1	1							1						1						r			
Submarine Mine Exercise	16																																			
Exercise – Sonar (AQS- 20, LCS)	4																																			
Mine Countermeasure Exercise – Surface (SMCMEX) Sonar (SQQ- 32, MCM)	4																																			
Mine Neutralization – Remotely Operated Vehicle Sonar (AQS- 235[AQS-20], SLQ-48)	4																																			
Mine Laying - Aircraft	4	0.5 0.5	2 2	FA-18E/F P-3	0.5 1.0	1.0 2.0	0% 0%	0.0 0.0	0% 0%	0% 0%	100% 100%	0.00 0.00	0.00	0.00 0.00	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	32008 29723	1 1	1	32,349 30,040
Mine Neutralization – Explosive Ordnance Disposal	20																																		0.00	U
Limpet Mine Neutralization System/Shock Wave Generator	40																																			
Mine Countermeasure – Towed Mine Detection	4																																			
NAVAL SPECIAL WARF	ARE															. Lisanaa				and the second	_	3675					-									and an and a second
Personnel I&E	240	4 2	960 480	H-60 MV-22	8.0 8.0	7680.0 3840.0	100% 100%	7680.0 3840.0	) 100% ) 100%	0% 0%	0% 0%	7680.01 3840.01	0 0.00 0 0.00	0.00 0.00	57600 84898	58982 16945	5069 14752	3686 1720	38707 7655	34836 6890	0 0	0 0	0	0 0	0 0	0 0	0	0	0	0	0 0	0	28534362 26632072	926 864	806 753	28,838,253 26,915,703
Parachute Insertion	20	1	20	C-130	4.0	80.08	100%	80.0	100%	0%	0%	80.00	0.00	0.00	745	2938	169	144	1429	1286	0	0	0	0	0	0	0	0	0	0	0	0	1114624	36	32	1,126,494
		1	20	CH-46	4.0	80.0	100%	80.0	100%	0%	0%	80.00	0.00	0.00	1636	396	253	38	171	154	0	0	0	0	0	0	0	0	0	0	0	0	297233	10	8	300,398
		1	20	H-60	4.0	80.0	100%	80.0	100%	0%	0%	80.00	0.00	0.00	600	614	53	38	403	363	0	U	U	U	U	U	U	0	U	U	U	U	297233	10	8	300,398
Embassy Reinforcement	50	1	50 50	SH-60В AV-8В	4.0 4.0	200.0	100%	200.0 200.0	100%	0% 0%	0% 0%	200.00	0.00	0.00	1500 10560	1536 8052	132 336	96 480	1008 8520	907 7668	0	0	U 0	U 0	0	U 0	0	0 0	0	0	0	0	743082 3715412	24 121	21 105	750,996 3,754,981

				(	OPERAT	IONAL	INFORM	ATION .	- AIRCR/	<b>\FT</b>	6									EMIS	SIONS/Y	EAR (lb)	BY JURI	SDICTION								Greenh	ouse Gas F	missions	(lb/vear)
	F	Ai	craft	1	lime	Alti	tude	Dis	stribution	(%)	Dis	tribution	(hr)			State (0-3 n	m offshore	)			N	aters of U	S (3-12 nn	1)			Inter	mational V	Waters (>	12 nm)		Greenin	Juse Gas L		(ib)year)
Type of Training	Training Ops (#)	A/C Sorties (#)	Type	Ave Time on Range (hr)	Total Time on Range (hr)	Time < 3,000 ft (%)	Time < 3,000 ft (hr)	0-3 nm from shore	3-12 nm from Shore	>12 nm from Shore	Total Time 0-3 nm from shore	Total Time 3-12 nm from shore	Total Time >12 nm from shore	со	NOx	нс	SOx	РМ	PM2.5	со	NOx	нс	SOx	РМ	PM2.5	со	NOx	нс	SOx	РМ	P M2.5	CO2	N₂O	сң	CO <sub>2.e</sub>
Direct Action (Combat Close Quarters)	72																																		
Direct Action (Breaching)	72																								2										
Direct Action (TAC-P)	18																																		
Underwater Demolition Qualifications	30																																		
Intelligence, Surveillance, Reconnaissance	16	16.0	MQ-4C	4.0	64.0	100%	64.0	0%	50%	50%	0.00	32.00	32.00	0	0	0	0	0	0	67	1243	21	113	20	18	67	1243	21	113	20	18	501729	16	14	507,073
Urban Warfare Training	18																																		
Underwater Survey	16	1 16	SH-60B	2.0	32.0	100%	32.0	100%	0%	0%	32.00	0.00	0.00	240	246	21	15	161	145	0	0	0	0	0	0	0	0	0	0	0	0	118893	4	3	120,159
OTHER																																			
Surface Ship Sonar Maintenance	42																																		
Submarine Sonar Maintenance	48																																		
Small Boat Attack	18																																		
Search and Rescue at Sea	40	2 80	MH-60	40.0	3200.0	75%	2400.0	100%	0%	0%	2400.00	0.00	0.00	18000	18432	1584	1152	12096	10886	0	0	0	0	0	0	0	0	0	0	0	0	11889318	386	336	12,015,939
Submarine Navigation	40																																		
Precision Anchoring	18						-																												
Maneuver (Convoy, Land Navigation)	16																																		
Water Purification	16																																		
Field Training Exercise	100																																		
Force Protection	75																																		
Anti-Terrorism	80	80	SH-60B	2.0	160.0	100%	160.0	100%	0%	0%	160.00	0.00	0.00	1200	1229	106	77	806	726	0	0	0	0	0	0	0	0	0	0	0	0	594466	19	17	600,797
Seize Airfield	12																									1									
Airfield Expeditionary	12																																		
Unmanned Aerial Vehicle Operation	1000	1000	MQ-4C	4.0	4000.0	100%	4000.0	100%	0%	0%	4000.00	0.00	0.00	8400.00	155360.00	2640.00	14160.00	2440.00	2196.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31358075	1017.27	886.20	31,692,039
Land Demolitions (Improvised Explosive Device) Discovery / Disposal	120																																		

					(	OPERAT	FIONAL	INFOR	ATION	- AIRCR	AFT										EMIS	SIONS/Y	EAR (lb)	<b>BY JURI</b>	SDICTION	1							Grooph	uco Gool	missions	(lh/uppr)
			Aircr	aft	٦	lime	Alt	itude	Di	stribution	ı (%)	Di	stribution	n (hr)			State (0-3 r	nm offshor	e)			W	/aters of U	IS (3-12 nn	n)			Inter	mational \	Vaters (>1:	2 nm)		Greening	use Gas i	11115510115	(ib/year)
Type of Training	Training Ops (#)	Distribution	A/C Sorties (#)	Type	Ave Time on Range (hr)	Total Time on Range (hr)	Time < 3,000 ft (%)	Time < 3,000 ft (hr)	0-3 nm from shore	3-12 nm from Shore	>12 nm from Shore	Total Time 0-3 nm from shore	Total Time 3-12 nm from shore	Total Time >12 nm from shore	со	NOx	нс	SOx	PM	PM2.5	со	NOx	НС	SOx	РМ	PM2.5	со	NOx	нс	SOx	РМ	PM2.5	CO <sub>2</sub>	N2O	сң	CO <sub>2-e</sub>
Land Demolitions (Unexploded Ordnance) Discovery / Disposal	236																																			
TOTAL TRAINING EMISSIONS (LBS/YEAR)															545,479	522,741	76,37	6 38,682	2 165,678	149,110	31,319	43,229	9 4,182	2,232	20,962	18,866	70,354	935,743	10,040	26,119	417,056	375,351	1,597,897,713	51,836	45,158	1,614,915,316
TOTAL TRAINING EMISSIONS (TONS/YEAR)															273	261	3	8 19	) 83	75	16	22	2 2	! 1	10	ı 9	35	468	5	13	209	188	798,949	26	23	807,458

-						O	PERATI	IONAL I	NFORM	ATION -	AIRCRA	FT										EMI	SSIONS/Y	EAR (Ib)	BY JURI	SDICTION	N							Greenh	ouce Gae I	mission	e (lháigar)
			A	ircraft		Т	ime	Alti	itude	Di	stribution	(%)	Dis	tribution	(hr)			State (0-3	nm offshon	e)	1		V	/aters of L	J S (3-12 nn	n)	-		Inte	mational \	Waters (>1	2 nm)		Greenin		2001	s (in/year)
Type of Training	Training Ons (#)	riaimig Ops (#) Distribution	A/C Sorties (#)		Lype	4ve Time on Range (hr)	Fotal Time on Range (hr)	Time < 3,000 ∰ (%)	Time < 3,000 ft (hr)	0-3 nm from shore	3-12 nm from Shore	>12 nm from Shore	Total Time 0-3 nm from shore	Total Time 3-12 nm from shore	Fotal Time >12 nm from shore	со	NOx	нс	SOx	PM	PM2.5	со	NOx	НС	SOx	PM	PM2.5	со	NOx	нс	SOx	РМ	PM2.5	CO2	N₂O	CH4	CO <sub>2-e</sub>
ANTI-SURFACE WAR	RFARE				F							<u></u>		1.2.0																							
Air to Surface Missile Test	10	0	10	P-3		4	40	75%	30	0%	0%	100%	0	0	30	0	0	0	0	0	0	0	0	0	0	0	0	262.08	1213.92	59.04	57.6	571.68	514.512	594465.8824	19.284706	16.8	600796.9412
ANTI-SUBMARINE V	ARFA	RE TES	TING												÷																						
Anti-submarine Warfare Tracking Test MPA	:- 20	07 1	207	7 P-3		6.0	1242.0	75%	931.5	0%	100%	0%	0.00	931.50	0.00	0	0	0	0	0	0	8138	37692	1833	1788	17751	15976	0	0	0	0	0	0	18458166	599	522	18,654,745
Anti-submarine Warfa	re	0.3	3 15	SH-	60	8.0	116.2	75%	87.1	0%	100%	0%	0.00	87.12	0.00	0	0	0	0	0	0	653	669	57	42	439	395	0	0	0	0	0	0	431582	14	12	436,179
Torpedo Test		4 0.3	3 15	MH-	-60	8.0	116.2	75%	87.1	0%	100%	0%	0.00	87.12	0.00	0	0	0	0	0	0	653 761	669	57	42	439	395 14.94	0	0	0	0	0	0	431582	14 56	12	436,179
Broad Area Maritime Surveillance (BAMS	ə )	1	11	MQ	-4C	1.0	11.0	100%	11.0	100%	0%	0%	11.00	0.00	0.00	23	427	7	39	7	6	0	0	0	0	0	0	0	0	0	0	0	0	86235	3	2	87,153
Testing	1	1																																			
LIFECYCLE ACTIVIT	IES TE	STING	T					1		1	r	1	1	1								1						1									
Ship Signature Testin	g 19	9																																			
ANTI-SURFACE WAR	RFARE	/ ANTI	SUBMA	RINE W	ARFAR	ETESTI	NG	1		_			_		_	-												-									
Torpedo Explosive Testing	2	2																																			
Countermeasure Testing	3	3																																			
At-Sea Sonar Testing	24	4																																			
SHIPBOARD PROTE	CTION	SYSTE	MS ANE	SWM	MER DE	FENSE	TESTING	3																													
Pierside Integrated Swimmer Defense	1																																				
NEW SHIP CONSTRU	JCTION	N																																			
ASW Mission Packag Testing	Je 3.	7																																			
MCM Mission Packag Testing	je 31	6																																			
OFFICE OF NAVAL F	RESEA	RCH																																			
North Pacific Acoustic Lab Philippine Sea 2018-19 Experiment (Deep Water)	1																																				
TOTAL TESTING EMISSIONS (Ibs per year)			1													23.1	427.24	1 7.2	26 38.94	6.71	I 6.039	10205.464	42555.603	3 2119.64	4 2039.39	20288.992	2 18260.09	262.08	1213.92	59.04	57.6	571.68	3 514.512	21728359.62	704.87649	614.05785	21959766.55
TOTAL TESTING EMISSIONS (tons pe year)	r															0	C	)	o c			. 5	i 2'	1 1	1 1	10	0 9	0	1	0	0	(	) 0	10864.17981	0.3524382	0.3070289	10979.88327

Ordnance	Training	Testing	Emissio	ons from	Ordnand	e During	Training	j, Ib/year	Emissio	ns from	Ordnanc	e During	Testing,	lb/year
Category	units/year	units/year	со	NOx	voc	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NOx	voc	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>
BOMBS							-11	10						
Bombs (H-E)	2,978	0	182,053.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bombs (N-E)	2,872	0	732.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROJECTILES									*					
Small Caliber	63,000	0	144.9	6.1	0.0	0.0	3.2	2.4	0.0	0.0	0.0	0.0	0.0	0.0
Medium Caliber (H-E)	100	0	0.4	0.1	0.0	0.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Medium Caliber (N-E)	48,000	0	124.8	4.7	0.0	0.0	6.7	5.8	0.0	0.0	0.0	0.0	0.0	0.0
Large Caliber (H-E)	1,040	0	133.1	166.4	0.0	0.0	10.0	7.7	0.0	0.0	0.0	0.0	0.0	0.0
Large Caliber (N-E)	200	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Missiles (H-E)	103	0	3,154.2	3,664.1	0.0	0.0	6,364.9	6,364.9	0.0	0.0	0.0	0.0	0.0	0.0
Missiles (N-E)	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rockets (H-E)	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rockets (N-E)	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COUNTERMEASUR	ES													
Chaff	5,830	0	0.3	0.9	0.0	0.0	1.6	1.5	0.0	0.0	0.0	0.0	0.0	0.0
Flares	5,720	0	0.3	0.9	0.0	0.0	1.6	1.5	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL EMISSIONS (LBS/YEAR)			186,344	3,843	0	0	6,389	6,384	0	0	0	0	0	0
TOTAL EMISSIONS (TONS/YEAR)			93.2	1.9	0.0	0.0	3.2	3.2	0.0	0.0	0.0	0.0	0.0	0.0

# Table D.5-17 Emissions from Ordnance During Training and Testing, No Action Alternative

Ordnance	Training	Testing	Emissic	ons from	Ordnand	ce During	y Training	I, Ib/year	Emissio	ns from	Ordnanc	e During	Testing,	lb/year
Category	units/year	units/year	со	NOx	voc	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NOx	voc	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>
BOMBS							•							
Bombs (H-E)	7,440	0	454,828.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bombs (N-E)	4,838	0	1,233.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROJECTILES														
Small Caliber	173,530	0	399.1	16.8	0.0	0.0	8.9	6.6	0.0	0.0	0.0	0.0	0.0	0.0
Medium Caliber (H-E)	19,186	2050	76.7	24.9	0.0	0.0	182.3	97.8	8.2	2.7	0.0	0.0	19.5	10.5
Medium Caliber (N-E)	177,650	2050	461.9	17.2	0.0	0.0	24.9	21.3	5.3	0.2	0.0	0.0	0.3	0.2
Large Caliber (H-E)	8,803	24	1,126.8	1,408.5	0.0	0.0	84.5	65.5	3.1	3.8	0.0	0.0	0.2	0.2
Large Caliber (N-E)	5,220	24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Missiles (H-E)	189	20	5,787.9	6,723.5	0.0	0.0	11,679.3	11,679.3	612.5	711.5	0.0	0.0	1,235.9	1,235.9
Missiles (N-E)	0	4	0.0	0.0	0.0	0.0	0.0	0.0	122.5	142.3	0.0	0.0	247.2	247.2
Rockets (H-E)	2,114	0	1,966.0	11.8	0.0	0.0	845.6	613.1	0.0	0.0	0.0	0.0	0.0	0.0
Rockets (N-E)	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COUNTERMEASUR	ES													]
Chaff	25,840	0	1.5	3.9	0.0	0.0	7.3	6.7	0.0	0.0	0.0	0.0	0.0	0.0
Flares	25,600	0	1.5	3.9	0.0	0.0	7.2	6.6	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL EMISSIONS (lbs per year)			465,883	8,211	0	0	12,840	12,497	752	860	0	0	1,503	1,494
TOTAL EMISSIONS (tons per year)			232.9	4.1	0.0	0.0	6.4	6.2	0.4	0.4	0.0	0.0	0.8	0.7

Table D.5-18 Emissions from Ordnance During Training and Testing, Alternative 1

Ordnance	Training	Testing	Emissio	ons from	Ordnand	e During	Training	, Ib/year	Emissio	ns from	Ordnanc	e During	Testing,	lb/year
Category	units/year	units/year	со	NOx	voc	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>	со	NOx	voc	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>
BOMBS											÷.			
Bombs (H-E)	8,019	0	490,223.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bombs (N-E)	5,090	0	1,298.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROJECTILES														
Small Caliber	154,630	0	355.6	15.0	0.0	0.0	7.9	5.9	0.0	0.0	0.0	0.0	0.0	0.0
Medium Caliber (H-E)	26,336	2250	105.3	34.2	0.0	0.0	250.2	134.3	9.0	2.9	0.0	0.0	21.4	11.5
Medium Caliber (N-E)	179,900	2250	467.7	17.5	0.0	0.0	25.2	21.6	5.9	0.2	0.0	0.0	0.3	0.3
Large Caliber (H-E)	1,653	28	211.6	264.5	0.0	0.0	15.9	12.3	3.6	4.5	0.0	0.0	0.3	0.2
Large Caliber (N-E)	5,220	28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Missiles (H-E)	201	25	6,155.3	7,150.4	0.0	0.0	12,420.8	12,420.8	765.6	889.4	0.0	0.0	1,544.9	1,544.9
Missiles (N-E)	0	5	0.0	0.0	0.0	0.0	0.0	0.0	153.1	177.9	0.0	0.0	309.0	309.0
Rockets (H-E)	2,380	0	2,213.4	13.3	0.0	0.0	952.0	690.2	0.0	0.0	0.0	0.0	0.0	0.0
Rockets (N-E)	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COUNTERMEASUR	ES													
Chaff	28,512	0	1.7	4.3	0.0	0.0	8.0	7.4	0.0	0.0	0.0	0.0	0.0	0.0
Flares	28,272	0	1.7	4.3	0.0	0.0	8.0	7.3	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL EMISSIONS (Ibs per year)			501,034	7,504	0	0	13,688	13,300	937	1,075	0	0	1,876	1,866
TOTAL EMISSIONS (tons per year)			250.5	3.8	0.0	0.0	6.8	6.6	0.5	0.5	0.0	0.0	0.9	0.9

 Table D.5-19 Emissions from Ordnance During Training and Testing, Alternative 2

			OPERATIONAL	INFORM	IATION			E	missions	, Ib/year	•		-	G	reenhouse G	ias Emissi	ons	
	(#) S(		Vehicles/Equipment	:	Range	lime (hr)		St	ate (0-3 nn	n offshore	)		(f	gal)				
Type of Training	Training Op	Number	Type	Participation	Per Vehicle/ Equipment	Total	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM2.5	Fuel Flow (GPH	Annual Fuel Consumption (	CO₂	N₂O	CH₄	CO <sub>2-e</sub>
AMPHIBIOUS WARF	ARE		1												2		m	
Fire Support Exercise - Land-Based target	8																	
Amphibious Assault - Marine Air Ground Task Force	4	56	LAV	14	2.0	112.0	69	187	23	0	86	77	7	756	16,912	0	2	17,088
Amphibious Raid - Special Purpose Marine Air Ground Task Force	2	28	LAV	14	2.0	56.0	34	93	11	0	43	39	7	378	8,456	0	1	8,544
Urban Warfare Training	17	17 136 68 68 34 68 34 68 34 68 34	USMC-LAV USMC-TRUCK USAF-TRUCK USAF-TRUCK NAVY-HMMWV NAVY-TRUCK ARMY-HMMWV ARMY-TRUCK	1 8 4 2 4 2 4 2	56.0 56.0 16.0 16.0 16.0 16.0 16.0 16.0	952.0 7616.0 3808.0 1088.0 544.0 1088.0 544.0 1088.0 544.0	585 4,682 2,341 669 334 669 334 669 334	1,588 12,703 6,351 1,815 907 1,815 907 1,815 907	194 1,549 775 221 111 221 111 221 111	3 21 10 3 1 3 1 3 1	730 5,841 2,921 834 417 834 417 834 417	657 5,257 2,629 751 376 751 376 751 376	7 7 7 7 7 7 7 7	6,426 51,409 25,704 7,344 3,672 7,344 3,672 7,344 3,672	143,752 1,150,016 575,008 164,288 82,144 164,288 82,144 164,288 82,144 164,288 82,144	4 29 15 4 2 4 2 4 2	17 136 68 19 10 19 10 19 10	145,245 1,161,963 580,981 165,995 82,997 165,995 82,997 165,995 82,997
Non-Combatant Evacuation Operation	2	32 16 2	HMMWV TRUCK LAV	16 8 1	40.0 40.0 40.0	1280.0 640.0 80.0	787 393 49	2,135 1,067 133	260 130 16	3 2 0	982 491 61	884 442 55	7 7 7	8,640 4,320 540	193,280 96,640 12,080	5 2 0	23 11 1	195,288 97,644 12,205
Humanitarian Assistance/ Disaster Relief Operations	2	32 16 2	HMMWV TRUCK LAV	16 8 1	40.0 40.0 40.0	1280.0 640.0 80.0	787 393 49	2,135 1,067 133	260 130 16	3 2 0	982 491 61	884 442 55	7 7 7	8,640 4,320 540	193,280 96,640 12,080	5 2 0	23 11 1	195,288 97,644 12,205
Unmanned Aerial Vehicle - Intelligence, Surveillance, and Reconaissance	0																	

Table D.5-20 Emissions from Other Items During Training, No Action Alternative

1			OPERATIONAL	INFORM	IATION		4). 11-	E	missions	s, Ib/year	-			G	ireenhouse G	as Emissi	ons	
	(#) Si		Vehicles/Equipment	t	Range <sup>-</sup>	Гime (hr)		St	ate (0-3 nr	n offshore	)		Ŧ	gal)				
Type of Training	Training Op	Number	Type	Participation	Per Vehicle/ Equipment	Total	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM2.5	Fuel Flow (GPF	Annual Fuel Consumption (	CO2	N₂O	CH₄	CO <sub>2-e</sub>
MAJOR TRAINING E	VENTS																	
Joint Expeditionary	а	14.0	AAV	14	20.0	280.0	172	467	57	1	215	193	7	1,890	42,280	1	5	42,719
Exercise		13.0 78.0 36.0 2.0 6.0	LAV HMMWV TRUCKS DOZER FORKLIFT	13 78 36 2 6	20.0 40.0 40.0 20.0 20.0	260.0 3120.0 1440.0 40.0 120.0	160 1,918 885 44 27	434 5,204 2,402 95 43	53 635 293 11 6	1 8 4 0	199 2,393 1,104 4 2	179 2,154 994 4 2	7 7 7 11 2	1,755 21,060 9,720 427 292	39,260 471,120 217,440 9,560 6,528	1 12 6 0 0	5 56 26 1 1	39,668 476,014 219,699 9,657 6,591
		2.0	ROWPU	2	240.0	480.0	233	342	48	0	26	23	3	1,672	37,392	1	4	37,779
Joint Multi-Strike Group Exercise	1																	
Fleet Strike Group Exercise	0																	
Integrated Anti- Submarine Warfare Exercise	0																	
Maritime Homeland Defense / Security Mine Countermeasures	0																	
Marine Air Ground Task Force Exercise (Amphibious)	4	56.0	AAV	14	20.0	1120.0	689	1,868	228	3	859	773	7	7,560	169,120	4	20	170,877
		20.0	LAV	5	20.0	400.0	246	667	81	1	307	276	7	2,700	60,400	2	7	61,027
		312.0	HMMWV	78	40.0	12480.0	7,673	20,815	2,538	34	9,572	8,615	7	84,241	1,884,480	48	223	1,904,057
		144.0 8.0	DOZER	30	20.0	160.0	3,541	3,607	46	10	4,418	3,976	11	30,001	38 240	1	103	38 628
		24.0	FORKLIFT	6	20.0	480.0	106	170	24	0	9	8	2	1,167	26,112	1	2	26,364
		8.0	ROWPU	2	240.0	1920.0	932	1,369	193	2	103	93	3	6,686	149,568	4	17	151,116
Special Purpose Marine Air Ground Task Force Exercise	2	6.0	AAV	3	20.0	120.0	74	200	24	0	92	83	7	810	18,120	0	2	18,308
	- 1883). -	10.0	LAV	5	20.0	200.0	123	334	41	1	153	138	7	1,350	30,200	1	4	30,514
		32.0	HMMWV	16	40.0	1280.0	787	2,135	260	3	982	884	7	8,640	193,280	5	23	195,288
		16.0	TRUCKS	8	40.0	640.0	393	1,067	130	2	491	442	7	4,320	96,640	2	11	97,644
		2.0	DOZER	1	20.0	40.0	44	95	11	0	4	4	11	427	9,560	0	1	9,657
		4.0	FORKLIFT	2	20.0	80.0	18	28	4	0	1	1	2	195	4,352	0	0	4,394
		2.0	NU VV PU	4	240.0	480.0	233	342	48	U	20	23	వ	1,072	51,392		4	51,119

Table D.5-20 Emissions from Other Items During Training, No Action Alternative
			OPERATIONAL	INFORM	IATION			E	missions	s, Ib/year				G	reenhouse G	as Emissi	ons	
	(#) Si		Vehicles/Equipment		Range	Гime (hr)		St	ate (0-3 nr	n offshore	)		Ŧ	gal)				
Type of Training	Training Op	Number	Type	Participation	Per Vehicle/ Equipment	Total	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM2.5	Fuel Flow (GPH	Annual Fuel Consumption (	CO₂	N₂O	CH₄	CO <sub>2-e</sub>
Urban Warfare Exercise	5	15.0	AAV	3	28.0	420.0	258	701	85	1	322	290	7	2,835	63,420	2	8	64,079
	5	25.0 80.0 40.0 5.0 10.0	LAV HMMWV TRUCKS DOZER FORKLIFT ROWELL	5 16 8 1 2	28.0 56.0 28.0 28.0	700.0 4480.0 2240.0 140.0 280.0	430 2,754 1,377 155 62 816	1,168 7,472 3,736 334 99	142 911 456 40 14	2 12 6 0 0	537 3,436 1,718 14 5	483 3,093 1,546 13 4	7 7 11 2 2	4,725 30,241 15,120 1,496 681 5,850	105,700 676,480 338,240 33,460 15,232 130,872	3 17 9 1 0	13 80 40 4 1	106,798 683,508 341,754 33,800 15,379 132,227
NAVAL SPECIAL WA	RFARE	5.0	IIOMIO		000.0	1000.0	010	1,150	105	2	50	.01	5	0,000	150,072	9	10	102,227
Personnel I&E	150	<b>I</b>	Ī		r –		ľ –											
Parachute Insertion	12																	
Embassy Reinforcement	50	200 100		4	12.0 12.0	2400.0	1,476 738	4,003	488 244	6	1,841 920	1,657 828	7	16,200 8 100	362,400 181 200	9 5	43 21	366,165 183.082
Direct Action (Combat Close Quarters)	40			-														
Direct Action (Breaching)	40																	
Direct Action (TAC-P)	3																	
Underwater Demolition Qualifications	30																	
Intelligence, Surveillance, Reconnaissance	16																	
Urban Warfare Training	8	32 16	h <b>mmwv</b> truck	4 2	20.0 20.0	640.0 320.0	393 197	1,067 534	130 65	2 1	491 245	442 221	7 7	4,320 2,160	96,640 48,320	2 1	11 6	97,644 48,822
Underwater Survey	6																	
OTHER			1				T.											
Surface Ship Sonar Maintenance	0																	

			OPERATIONAL	INFORM	IATION			E	mission	s, Ib/yea	r			G	ireenhouse G	ias Emissi	ons	
	s (#)		Vehicles/Equipmen	t	Range	Time (hr)		St	tate (0-3 nr	n offshore	e)		0	gal)				
Type of Training	Training Op	Number	Type	Participation	Per Vehicle/ Equipment	Total	со	NO <sub>x</sub>	НС	SOx	PM <sub>10</sub>	PM2.5	Fuel Flow (GPH	Annual Fuel Consumption (	CO <sub>2</sub>	N₂O	CH₄	CO <sub>2-e</sub>
Submarine Sonar Maintenance	0																	
Small Boat Attack	0																	
Submarine Navigation	0																	
Precision Anchoring	0																	
Maneuver (Convoy, Land Navigation)	16	16 64	LAV HMMWV	1 4	4.0 4.0	64.0 256.0	39 157	107 427	13 52	0 1	49 196	44 177	7 7	432 1,728	9,664 38,656	0 1	1 5	9,764 39,058
	5	32	TRUCK	2	4.0	128.0	79	213	26	0	98	88	7	864	19,328	0	2	19,529
Water Purification	0	0	ROWPU	1	8.0	0.0	0	0	0	0	0	0	#DIV/01	0	0	0	0	0
Field Training Exercise	100	1600	нммму	16	12.0	19200.0	11,804	32,024	3,905	52	14,726	13,254	7	129,602	2,899,200	74	344	2,929,318
		1200 800	TRUCK Generator	12 8	12.0 48.0	14400.0 38400.0	8,853 11,421	24,018 19,517	2,929 2,697	39 27	11,045 1,135	9,940 1,022	7 3	97,202 104,712	2,174,400 2,342,400	55 60	258 242	2,196,988 2,365,983
Force Protection	75	300 150 150	HMMWV TRUCK Generator	4 2 2	8.0 8.0 8.0	2400.0 1200.0 1200.0	1,476 738 357	4,003 2,001 610	488 244 84	6 3 1	1,841 920 35	1,657 828 32	7 7 3	16,200 8,100 3,272	362,400 181,200 73,200	9 5 2	43 21 8	366,165 183,082 73,937
Anti-Terrorism	80	320	HMMWV	4	4.0	1280.0	787	2,135	260	3	982	884	7	8,640	193,280	5	23	195,288
	Control (	160	TRUCK	2	4.0	640.0	393	1,067	130	2	491	442	7	4,320	96,640	2	11	97,644
Seize Airfield	12	36 36	H <b>mmwv</b> Truck	3 3	4.0 4.0	144.0 144.0	89 89	240 240	29 29	0 0	110 110	99 99	7 7	972 972	21,744 21,744	1 1	3 3	21,970 21,970
Airfield Expeditionary	12	12 72 12 12 12	Dozer Truck Crane Forklift Earth Mover	1 6 1 1 1	2.0 4.0 2.0 2.0 2.0	24.0 288.0 24.0 24.0 24.0	27 177 11 5 27	57 480 27 9 57	7 59 3 1 7	0 1 0 0	2 221 1 0 2	2 199 1 0 2	11 7 6 2 11	256 1,944 138 58 256	5,736 43,488 3,096 1,306 5,736	0 1 0 0	1 5 0 0 1	5,794 43,940 3,126 1,318 5,794
Unmanned Aerial Vehicle Operation	0							- Meddin	177 EU			10.100		0.15 Mollow 20	- <u></u>		1998	
Land Demolitions (Improvised Explosive Device) Discovery / Disposal	120	240	HMMWV	2	2.0	480.0	295	801	98	1	368	331	7	3,240	72,480	2	9	73,233
		120	TRUCK	1	2.0	240.0	148	400	49	1	184	166	7	1,620	36,240	1	4	36,616

			<b>OPERATIONA</b>	L INFORM	ATION			En	nissions	, Ib/year				G	Greenhouse G	as Emissio	ns	
	(#) SC		Vehicles/Equipme	nt	Range 7	Гime (hr)		Stat	te (0-3 nm	offshore)			Ŷ	(gal)				
Type of Training	Training Op	Number	Type	Participation	Per Vehicle/ Equipment	Total	со	NOx	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM2.5	Fuel Flow (GPI	Annual Fuel Consumption (	CO <sub>2</sub>	N₂O	CH₄	CO <sub>2-e</sub>
Land Demolitions (Unexploded Ordnance) Discovery / Disposal	200	400 200	HMMWV TRUCK	2	2.0 2.0	800.0 400.0	492 246	1,334 667	163 81	2	614 307	552 276	7 7	5,400 2,700	120,800 60,400	3 2	14 7	122,055 61,027
TOTAL TRAINING EMISSIONS (ibs per year)							78,022	196,576	24,366	312	80,481	72,433			18,483,346	471	2,150	18,674,505
TOTAL TRAINING EMISSIONS (tons per year)							39	98	12	0	40	36			9,242	0	1	9,337

16	r		OPERATIONA	L INFOR	MATION			E	mission	s, Ib/yeaı	5			G	ireenhouse G	Gas Emissi	ions	
	(#) sc	v	ehicles/Equipme	ent	Range	Time (hr)		St	ate (0-3 ni	n offshore	)		(F	(gal)				
Type of Training	Training Op	Number	Type	Participation	Per Vehicle/ Equipment	Total	со	NO <sub>x</sub>	НС	SOx	PM <sub>10</sub>	PM2.5	Fuel Flow (GPI	Annual Fuel Consumption (	CO₂	N₂O	СН₄	CO <sub>2-e</sub>
AMPHIBIOUS WARFAR	E				201				n.c. a	11. J. I.		••••••••••••••••••••••••••••••••••••••						
Fire Support Exercise - Land-Based target	10	· · · · ·																
Amphibious Assault - Marine Air Ground Task Force	6	84	LAV	14	2.0	168.0	103	280	34	0	129	116	7	1,134	25,368	1	3	25,632
Amphibious Raid - Special Purpose Marine Air Ground Task Force	6	84	LAV	14	2.0	168.0	103	280	34	0	129	116	7	1,134	25,368	1	3	25,632
Urban Warfare Training	36	36 288 144 144 72 144 72 144 72	USMC-LAV USMC-HMMWV USAF-HMMWV USAF-TRUCK NAVY-HMMWV NAVY-TRUCK ARMY-HMMWV ARMY-TRUCK	1 8 4 2 4 2 4 2 4 2	56.0 56.0 16.0 16.0 16.0 16.0 16.0 16.0 16.0	2016.0 16128.0 8064.0 2304.0 1152.0 2304.0 1152.0 2304.0 1152.0	1,239 9,915 4,958 1,416 708 1,416 708 1,416 708	3,362 26,900 13,450 3,843 1,921 3,843 1,921 3,843 1,921	410 3,280 1,640 469 234 469 234 469 234	5 44 22 6 3 6 3 6 3	1,546 12,370 6,185 1,767 884 1,767 884 1,767 884	1,392 11,133 5,567 1,590 795 1,590 795 1,590 795	7 7 7 7 7 7 7 7 7	13,608 108,866 54,433 15,552 7,776 15,552 7,776 15,552 7,776	304,416 2,435,328 1,217,664 347,904 173,952 347,904 173,952 347,904 173,952	8 62 31 9 4 9 4 9 4	36 289 144 41 21 41 21 41 21	307,578 2,460,627 1,230,314 351,518 175,759 351,518 175,759 351,518 175,759
Non-Combatant Evacuation Operation	6	96 48 6	HMMWV TRUCK LAV	16 8 1	40.0 40.0 40.0	3840.0 1920.0 240.0	2,361 1,180 148	6,405 3,202 400	781 391 49	10 5 1	2,945 1,473 184	2,651 1,325 166	7 7 7	25,920 12,960 1,620	579,840 289,920 36,240	15 7 1	69 34 4	585,864 292,932 36,616
Humanitarian Assistance/ Disaster Relief Operations	6	96 48 6	HMMWV TRUCK LAV	16 8 1	40.0 40.0 40.0	3840.0 1920.0 240.0	2,361 1,180 148	6,405 3,202 400	781 391 49	10 5 1	2,945 1,473 184	2,651 1,325 166	7 7 7	25,920 12,960 1,620	579,840 289,920 36,240	15 7 1	69 34 4	585,864 292,932 36,616
Unmanned Aerial Vehicle - Intelligence, Surveillance, and Reconaissance	100																	

	F		OPERATIONA	L INFOR	MATION		07 11-	E	missions	s, Ib/year	5		-	G	reenhouse G	as Emissi	ons	
	(#) S	v	ehicles/Equipme	nt	Range <sup>-</sup>	Time (hr)		St	ate (0-3 nr	n offshore	)		÷	gal)				
Type of Training	Training Op	Number	Type	Participation	Per Vehicle/ Equipment	Total	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM2.5	Fuel Flow (GPF	Annual Fuel Consumption (	CO₂	N₂O	CH4	CO <sub>2-e</sub>
MAJOR TRAINING EVE	NTS		<b>r</b>	2														
Exercise	1	14.0	AAV	14	20.0	280.0	172	467	57	1	215	193	7	1,890	42,280	1	5	42,719
0.0000/9609929919902902	0.94.00	13.0	LAV	13	20.0	260.0	160	434	53	1	199	179	7	1,755	39,260	1	5	39,668
		78.0	HMMWV	78	40.0	3120.0	1,918	5,204	635	8	2,393	2,154	7	21,060	471,120	12	56	476,014
		36.0	TRUCKS	36	40.0	1440.0	885	2,402	293	4	1,104	994	7	9,720	217,440	6	26	219,699
		2.0	DOZER	2	20.0	40.0	44	95	11	0	4	4	11	427	9,560	0	1	9,657
		6.0 2.0	FORKLIFT	6	20.0 240.0	120.0 480.0	27 233	43 342	6 48	0	2 26	2	2	292 1.672	6,528 37 392	0 1	1 4	6,591 37 779
laint Multi Strika Craun				-	210.0	idoire.	200	50 1 L S			20			1,012	301,002		1950	01,110
Exercise	1				·		-											
Fleet Strike Group Exercise	0																	
Integrated Anti- Submarine Warfare Exercise	0																	
Maritime Homeland Defense / Security Mine Countermeasures	1																	
Marine Air Ground Task Force Exercise (Amphibious)	4	56.0	AAV	14	20.0	1120.0	689	1,868	228	3	859	773	7	7,560	169,120	4	20	170,877
		20.0	LAV	5	20.0	400.0	246	667	81	1	307	276	7	2,700	60,400	2	7	61,027
		312.0	HMMWV	78	40.0	12480.0	7,673	20,815	2,538	34	9,572	8,615	7	84,241	1,884,480	48	223	1,904,057
		144.0	TRUCKS	36	40.0	5760.0	3,541	9,607	1,172	16	4,418	3,976	7	38,881	869,760	22	103	878,795
		8.0	DOZER	2	20.0	160.0	1//	382	46	0	16	14	11	1,709	38,240	1	4	38,628
		24.0 8.0	ROWPU	2	240.0	1920.0	932	1,369	24 193	2	9 103	93	3	6,686	149,568	4	2 17	20,304 151,116
Special Purpose Marine Air Ground Task Force Exercise	2	6.0	AAV	3	20.0	120.0	74	200	24	0	92	83	7	810	18,120	0	2	18,308
		10.0	LAV	5	20.0	200.0	123	334	41	1	153	138	7	1,350	30,200	1	4	30,514
		32.0	HMMWV	16	40.0	1280.0	787	2,135	260	3	982	884	7	8,640	193,280	5	23	195,288
		16.0		8	40.0	640.0	393	1,067	130	2	491	442	7	4,320	96,640	2	11	97,644
		2.0	DOZER	1	20.0	40.0	44	95	11	0	4	4	11	427	9,560	0	1	9,657
		2.0	ROWPU	1	240.0	480.0	233	342	48	0	26	23	3	1,672	37,392	1	4	37,779

5- 			OPERATIONA	L INFOR	MATION			E	missions	s, Ib/year				G	reenhouse (	as Emissi	ons	
	(#) S	V	/ehicles/Equipme	ent	Range	Time (hr)		St	ate (0-3 nn	n offshore	)		(f	gal)				
Type of Training	Training Op	Number	Type	Participation	Per Vehicle/ Equipment	Total	со	NO <sub>x</sub>	нс	so,	PM <sub>10</sub>	PM2.5	Fuel Flow (GPH	Annual Fuel Consumption (	CO₂	N₂O	CH₄	CO <sub>2-e</sub>
Urban Warfare Exercise	5	15.0 25.0 80.0 40.0 5.0 10.0	AAV LAV HMMWV TRUCKS DOZER FORKLIFT	3 5 16 8 1 2	28.0 28.0 56.0 28.0 28.0 28.0	420.0 700.0 4480.0 2240.0 140.0 280.0	258 430 2,754 1,377 155 62	701 1,168 7,472 3,736 334 99	85 142 911 456 40 14	1 2 12 6 0 0	322 537 3,436 1,718 14 5	290 483 3,093 1,546 13 4	7 7 7 11 2	2,835 4,725 30,241 15,120 1,496 681	63,420 105,700 676,480 338,240 33,460 15,232	2 3 17 9 1 0	8 13 80 40 4 1	64,079 106,798 683,508 341,754 33,800 15,379
	DF	5.0	NO VV PO		550.0	1080.0	810	1,190	109	Z	90	01	3	5,850	130,072	5	15	152,221
Personnel I&E	240	1	1	1	10		1						r					1
Parachute Insertion	20		1															
Embassy Reinforcement	50	200 100	HMMWV TRUCK	4 2	12.0 12.0	2400.0 1200.0	1,476 738	4,003 2,001	488 244	6 3	1,841 920	1,657 828	7 7	16,200 8,100	362,400 181,200	9 5	43 21	366,165 183,082
Direct Action (Combat Close Quarters)	72																	
Direct Action (Breaching)	72																	
Direct Action (TAC-P)	18																	
Underwater Demolition Qualifications	30												5					
Intelligence, Surveillance, Reconnaissance	16																	
Urban Warfare Training	18	72 36	HMMWV TRUCK	4 2	20.0 20.0	1440.0 720.0	885 443	2,402 1,201	293 146	4 2	1,104 552	994 497	7 7	9,720 4,860	217,440 108,720	6 3	26 13	219,699 109,849
Underwater Survey	16																	
OTHER																		
Surface Ship Sonar Maintenance	42																	
Submarine Sonar Maintenance	48																	

5.			OPERATIONA	L INFOR	MATION			E	missions	s, Ib/year	r			G	reenhouse G	as Emissi	ons	
	(#) SC	v	/ehicles/Equipme	ent	Range	Time (hr)		St	ate (0-3 nn	n offshore	)		Ŧ	gal)				
Type of Training	Training Op	Number	Type	Participation	Per Vehicle/ Equipment	Total	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM2.5	Fuel Flow (GPI	Annual Fuel Consumption (	CO2	N <sub>2</sub> O	CH4	CO <sub>2-e</sub>
Small Boat Attack	18																	
Submarine Navigation	40																	
Precision Anchoring	18			а. 														
Maneuver (Convoy, Land Navigation)	16	16 64 32	LAV HMMWV TRUCK	1 4 2	4.0 4.0 4.0	64.0 256.0 128.0	39 157 79	107 427 213	13 52 26	0 1 0	49 196 98	44 177 88	7 7 7	432 1,728 864	9,664 38,656 19,328	0 1 0	1 5 2	9,764 39,058 19,529
Water Purification	16	16	ROWPU	1	8.0	128.0	62	91	13	0	7	6	3	446	9,971	0	1	10,074
Field Training Exercise	100	1600 1200 800	HMMWV TRUCK Generator	16 12 8	12.0 12.0 48.0	19200.0 14400.0 3 <b>8</b> 400.0	11,804 8,853 11,421	32,024 24,018 19,517	3,905 2,929 2,697	52 39 27	14,726 11,045 1,135	13,254 9,940 1,022	7 7 3	129,602 97,202 104,712	2,899,200 2,174,400 2,342,400	74 55 60	344 258 242	2,929,318 2,196,988 2,365,983
Force Protection	75	300 150 150	HMMWV TRUCK Generator	4 2 2	8.0 8.0 8.0	2400.0 1200.0 1200.0	1,476 738 357	4,003 2,001 610	488 244 84	6 3 1	1,841 920 35	1,657 828 32	7 7 3	16,200 8,100 3,272	362,400 181,200 73,200	9 5 2	43 21 8	366,165 183,082 73 937
Anti-Terrorism	80	320 160	HMMWV TRUCK	4	4.0 4.0	1280.0 640.0	<b>787</b> 393	2,135 1,067	260 130	3	982 491	884 442	7 7	8,640 4,320	193,280 96,640	5 2	23 11	195,288 97,644
Seize Airfield	12	36 36	hmm <b>wv</b> truck	3 3	4.0 4.0	144.0 144.0	89 89	240 240	29 29	0 0	110 110	99 99	7 7	972 972	21,744 21,744	1 1	3 3	21,970 21,970
Airfield Expeditionary	12	12 72 12 12 12	Dozer Truck Crane Forklift Earth Mover	1 6 1 1 1	2.0 4.0 2.0 2.0 2.0	24.0 288.0 24.0 24.0 24.0	27 177 11 5 27	57 480 27 9 57	7 59 3 1 7	0 1 0 0	2 221 1 0 2	2 199 1 0 2	11 7 6 2 11	256 1,944 138 58 256	5,736 43,488 3,096 1,306 5,736	0 1 0 0 0	1 5 0 0 1	5,794 43,940 3,126 1,318 5,794
Unmanned Aerial Vehicle Operation	1000																	
Land Demolitions (Improvised Explosive Device) Discovery / Disposal	120	240	HMMWV	2	2.0	480.0	295	801	98	1	368	331	7	3,240	72,480	2	9	73,233
Land Demolitions	1-	120	TRUCK	1	2.0	240.0	148	400	49	1	184	166	7	1,620	36,240	4	4	36,616
(Unexploded Ordnance) Discovery / Disposal	236	472	нммwv	2	2.0	944.0	580	1,574	192	3	724	652	7	6,372	142,544	4	17	144,025
		236	TRUCK	1	2.0	472.0	290	787	96	1	362	326	7	3,186	71,272	2	8	72,012

			OPERATIONA	L INFOR	MATION	t.		E	nissions	, Ib/year				G	reenhouse G	as Emissio	ons	i i i i i i i i i i i i i i i i i i i
	(#) SC	V	ehicles/Equipme	ent	Range	Гime (hr)		Sta	ite (0-3 nn	n offshore	)		ſ	(gal)	i.			
Type of Training	Training Op	Number	Type	Participation	Per Vehicle/ Equipment	Total	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM2.5	Fuel Flow (GPI	Annual Fuel Consumption (	CO2	N₂O	CH4	CO <sub>2-e</sub>
TOTAL TRAINING (Ibs per year)							95,844	244,850	30,255	390	102,645	92,380		1,021,699	22,855,405	582	2,669	23,091,982
TOTAL TRAINING (tons per year)							48	122	15	0	51	46		1,021,699	11,428	0	1	11,546

Table D.5-21 Emissions from Other Items During Training, Alternative 1

	0		OPERATIONA	L INFOR	MATION			E	missions	s, Ib/year				G	Greenhouse G	as Emissi	ons	
	(#)		/ehicles/Equipme	nt	Range -	Time (hr)		St	ate (0-3 nn	n offshore	)		(	gal)				
Type of Training	Training Op	Number	Type	Participation	Per Vehicle/ Equipment	Total	со	NO <sub>x</sub>	нс	SOx	PM <sub>10</sub>	PM2.5	Fuel Flow (GPH	Annual Fuel Consumption (	CO₂	N2O	CH4	CO <sub>2-e</sub>
AMPHIBIOUS WAR	ARE														8			
Fire Support Exercise - Land- Based target	10																	
Amphibious Assault - Marine Air Ground Task Force	6	84	LAV	14	2.0	168.0	103	280	34	0	129	116	7	1,134	25,368	1	3	25,632
Amphibious Raid - Special Purpose Marine Air Ground Task Force	6	84	LAV	14	2.0	168.0	103	280	34	0	129	116	7	1,134	25,368	1	3	25,632
Urban Warfare Training	36	36	USMC-LAV	1	56.0	2016.0	1,239	3,362	<b>41</b> 0	5	1,546	1,392	7	13,608	304,416	8	36	307,578
		288	USMC-HMMWV	8	56.0	16128.0	9,915	26,900	3,280	44	12,370	11,133	7	108,866	2,435,328	62	289	2,460,627
		144	USMC-TRUCK	4	56.0	8064.0	4,958	13,450	1,640	22	6,185	5,567	7	54,433	1,217,664	31	144	1,230,314
		144		4	16.0	2304.0	1,416	3,843	469	ь	1,/6/	1,590	1	15,552	347,904	9	41	351,518
		12	USAF-TRUCK	2	16.0	1152.0	1.110	1,921	234	3	884	795	7	1,110	173,952	4	21	110,109
		72		4	16.0	2304.0	7.00	3,843	409	2	1,707	705	7	7 776	341,904	9 1	4 I 21	175 750
		111	ADAY HAAAAA	2	16.0	1152.0	1 /16	7'25T	204 160	5	004 1 767	1 500	7	15 552	247 004	4	Z1 A1	251 518
		72	ARMY-TRUCK	2	16.0	1152.0	708	1,921	234	3	884	795	7	7,776	173,952	4	21	175,759
Non-Combatant Evacuation Operation	6	96	HMMWV	16	40.0	3840.0	2,361	6,405	781	10	2,945	2,651	7	25,920	579,840	15	69	585,864
o por anon	0	48	TRUCK	8	40.0	1920.0	1.180	3.202	391	5	1.473	1.325	7	12 960	289 920	7	34	292 932
		6	LAV	1	40.0	240.0	148	400	49	1	184	166	7	1,620	36,240	1	4	36,616
Humanitarian Assistance/ Disaster Relief Operations	6	96	HMMWV	16	40.0	3840.0	2,361	6,405	781	10	2,945	2,651	7	25,920	579,840	15	69	585,864
		48	TRUCK	8	40.0	1920.0	1,180	3,202	391	5	1,473	1,325	7	12,960	289,920	7	34	292,932
		6	LAV	1	40.0	240.0	148	400	49	1	184	166	7	1,620	36,240	1	4	36,616
Unmanned Aerial Vehicle - Intelligence, Surveillance, and Reconaissance	100																	

Table D.5-22 Emissions from Other Items During Training, Alternative 2

			OPERATIONA	L INFOR	MATION			E	missions	, Ib/year	i.			G	reenhouse G	ias Emissi	ons	
	(#) Si	V	/ehicles/Equipme	ent	Range	Time (hr)		St	ate (0-3 nn	n offshore	)		÷	gal)				
Type of Training	do guining	Number	Type	Participation	Per Vehicle/ Equipment	Total	со	NO <sub>x</sub>	нс	SOx	PM <sub>10</sub>	PM2.5	Fuel Flow (GPF	Annual Fuel Consumption (	CO2	N₂O	CH4	CO <sub>2-e</sub>
Joint Expeditionary	LULINIS	1				CONTRACT.	1000	and a second	214		ALC: NO.	and a		20 (1995)	and the second		dire.	an a
Exercise	1	14.0 13.0 78.0 36.0 2.0 6.0 2.0	AAV LAV HMMWV TRUCKS DOZER FORKLIFT ROWPL	14 13 78 36 2 6 2	20.0 20.0 40.0 20.0 20.0 240.0	280.0 260.0 3120.0 1440.0 40.0 120.0 480.0	172 160 1,918 885 44 27 233	467 434 5,204 2,402 95 43 342	57 53 635 293 11 6 48	1 1 8 4 0 0	215 199 2,393 1,104 4 2 25	193 179 2,154 994 4 2 23	7 7 7 11 2 3	1,890 1,755 21,060 9,720 427 292 1,672	42,280 39,260 471,120 217,440 9,560 6,528 37 392	1 12 6 0 1	5 56 26 1 1	42,719 39,668 476,014 219,699 9,657 6,591 37,779
		2.0	NOWFO	2	240.0	480.0	200	342	40	0	20	25	3	1,072	57,552	1.	4	51,115
Joint Multi-Strike Group Exercise	1												r.					
Fleet Strike Group Exercise	1																	
Integrated Anti- Submarine Warfare Exercise	1																	
Maritime Homeland Defense / Security Mine Countermeasures	1												τ.					
Marine Air Ground Task Force Exercise (Amphibious)	4	56.0	AAV	14	20.0	1120.0	689	1,868	228	3	859	773	7	7,560	169,120	4	20	170,877
		20.0 312.0 144.0 8.0 24.0 8.0	LAV HMMWV TRUCKS DOZER FORKLIFT ROWPU	5 78 36 2 6 2	20.0 40.0 20.0 20.0 240.0	400.0 12480.0 5760.0 160.0 480.0 1920.0	246 7,673 3,541 177 106 932	667 20,815 9,607 382 170 1,369	81 2,538 1,172 46 24 193	1 34 16 0 2	307 9,572 4,418 16 9 103	276 8,615 3,976 14 8 93	7 7 11 2 3	2,700 84,241 38,881 1,709 1,167 6,686	60,400 1,884,480 869,760 38,240 26,112 149,568	2 48 22 1 1 4	7 223 103 4 2 17	61,027 1,904,057 878,795 38,628 26,364 151,116
Special Purpose Marine Air Ground Task Force Exercise	2	6.0	AAV	3	20.0	120.0	74	200	24	0	92	83	7	810	18,120	0	2	18,308
		10.0	LAV	5	20.0	200.0	123	334	41	1	153	138	7	1,350	30,200	1	4	30,514

			OPERATIONA	L INFOR	RMATION	Ĩ.		E	missions	s, Ib/year				G	reenhouse (	Sas Emissi	ons	
	(#) S(	v	ehicles/Equipme	ent	Range	Time (hr)		St	ate (0-3 nn	n offshore	)		Ŧ	gal)				
Type of Training	Training Op	Number	Type	Participation	Per Vehicle/ Equipment	Total	со	NO <sub>x</sub>	нс	so,	PM <sub>10</sub>	PM2.5	Fuel Flow (GPH	Annual Fuel Consumption (	CO2	N₂O	CH₄	CO <sub>2-e</sub>
		32.0 16.0 2.0 4.0 2.0	HMMWV TRUCKS DOZER FORKLIFT ROWPU	16 8 1 2 1	40.0 40.0 20.0 20.0 240.0	1280.0 640.0 40.0 80.0 480.0	787 393 44 18 233	2,135 1,067 95 28 342	260 130 11 4 48	3 2 0 0 0	982 491 4 1 26	884 442 4 1 23	7 7 11 2 3	8,640 4,320 427 195 1,672	193,280 96,640 9,560 4,352 37,392	5 2 0 0 1	23 11 1 0 4	195,288 97,644 9,657 4,394 37,779
Urban Warfare Exercise	5	15.0 25.0 80.0 40.0 5.0 10.0 5.0	AAV LAV HMMWV TRUCKS DOZER FORKLIFT ROWPU	3 5 16 8 1 2 1	28.0 28.0 56.0 56.0 28.0 28.0 336.0	420.0 700.0 4480.0 2240.0 140.0 280.0 1680.0	258 430 2,754 1,377 155 62 816	701 1,168 7,472 3,736 334 99 1,198	85 142 911 456 40 14 169	1 2 12 6 0 0 2	322 537 3,436 1,718 14 5 90	290 483 3,093 1,546 13 4 81	7 7 7 11 2 3	2,835 4,725 30,241 15,120 1,496 681 5,850	63,420 105,700 676,480 338,240 33,460 15,232 130,872	2 3 17 9 1 0 3	8 13 80 40 4 1 15	64,079 106,798 683,508 341,754 33,800 15,379 132,227
NAVAL SPECIAL W	ARFARE				Tr													
Personnel I&E	240																	
Parachute Insertion	20																	
Embassy Reinforcement	50	200 100	HMMWV TRUCK	4 2	12.0 12.0	2400.0 1200.0	1,476 738	4,003 2,001	488 244	6 3	1,841 920	1,657 828	7 7	16,200 8,100	362,400 181,200	9 5	43 21	366,165 183,082
Direct Action (Combat Close Quarters)	72																	
Direct Action (Breaching)	72																	
Direct Action (TAC-P)	18																	
Underwater Demolition Qualifications	30																	
Intelligence, Surveillance, Reconnaissance	16																	
Urban Warfare Training	18	72 36	HMMWV TRUCK	4 2	20.0 20.0	1440.0 720.0	885 443	2,402 1,201	293 146	4 2	1,104 552	994 497	7 7	9,720 4,860	217,440 108,720	6 3	26 13	219,699 109,849
Underwater Survey	16							100				0		č.	(š.			8

			OPERATION/	AL INFOR	MATION			E	missions	s, Ib/year	•			C	Greenhouse G	as Emissi	ons	
	(#) S	V	/ehicles/Equipm	ent	Range <sup>-</sup>	Гime (hr)		St	ate (0-3 nn	n offshore	)		( <del>I</del>	gal)				
Type of Training	Training Op	Number	Type	Participation	Per Vehicle/ Equipment	Total	со	NO <sub>x</sub>	НС	SO <sub>x</sub>	PM <sub>10</sub>	PM2.5	Fuel Flow (GPH	Annual Fuel Consumption (	CO2	N₂O	CH₄	CO <sub>2-e</sub>
OTHER	#																hi:	
Surface Ship Sonar Maintenance	42																	
Submarine Sonar Maintenance	48																	
Small Boat Attack	18																	
Submarine Navigation	40																	
Precision Anchoring	18																	
Maneuver (Convoy, Land Navigation)	16	16 64 32	LAV HMMWV TRUCK	1 4 2	4.0 4.0 4.0	64.0 256.0 128.0	39 157 79	107 427 213	13 52 26	0 1 0	49 196 98	44 177 88	7 7 7	432 1,728 864	9,664 38,656 19,328	0 1 0	1 5 2	9,764 39,058 19,529
Water Purification	16	16	ROWPU	1	8.0	128.0	62	91	13	0	7	6	3	446	9,971	0	1	10,074
Field Training Exercise	100	1600 1200 800	HMMWV TRUCK Generator	16 12 8	12.0 12.0 48.0	19200.0 14400.0 38400.0	11,804 8,853 11,421	32,024 24,018 19.517	3,905 2,929 2.697	52 39 27	14,726 11,045 1,135	13,254 9,940 1.022	7 7 3	129,602 97,202 104,712	2,899,200 2,174,400 2,342,400	74 55 60	344 258 242	2,929,318 2,196,988 2,365,983
Force Protection	75	300 150 150	HMMWV TRUCK Generator	4 2 2	8.0 8.0 8.0 8.0	2400.0 1200.0 1200.0	1,476 738 357	4,003 2,001 610	488 244 84	6 3 1	1,841 920 35	1,657 828 32	7 7 3	16,200 8,100 3,272	362,400 181,200 73,200	9 5 2	43 21 8	366,165 183,082 73,937
Anti-Terrorism	80	320 160	HMMWV TRUCK	4 2	4.0 4.0	1280.0 640.0	<b>787</b> 393	2,135 1,067	260 130	3 2	982 491	884 442	7 7	8,640 4,320	193,280 96,640	5 2	23 11	195,288 97,644
Seize Airfield	12	36 36	HMMWV TRUCK	3 3	4.0 4.0	144.0 144.0	89 89	240 240	29 29	0 0	110 110	99 99	7 7	972 972	21,744 21,744	1 1	3 3	21,970 21,970
Airfield Expeditionary	12	12	Dozer	1	2.0	24.0	27	57	7	0	2	2	11	256	5,736	0	1	5,794
		12	Crane	р 1	4.0 2.0	288.0 24.0	1//	480 27	59 3	1 0	1	199 1	6	1,944	43,488 3,096	0	с 0	45,940
		12 12	⊢orklift Earth Mover	1	2.0 2.0	24.0 24.0	5 27	9 57	1 7	0	0 2	0 2	2 11	58 256	1,306 5,736	0	0	1,318 5,794

			OPERATIONA	L INFOR	MATION		Emissions, Ib/year							Greenhouse Gas Emissions						
Type of Training	(#) SC	٧	/ehicles/Equipme	Range 1	Range Time (hr)		State (0-3 nm offshore)													
	Training O	Training O	Number	Type	Participation	Per Vehicle/ Equipment	Total	со	NO <sub>x</sub>	нс	SO <sub>x</sub>	PM <sub>10</sub>	PM2.5	Fuel Flow (GPI	Annual Fuel Consumption (	CO2	N₂O	CH4	CO <sub>2-e</sub>	
Unmanned Aerial Vehicle Operation	1000												Q							
Land Demolitions (Improvised Explosive Device) Discovery (Disposal	120	240	нммwv	2	2.0	480.0	295	801	98	1	368	331	7	3,240	72,480	2	9	73,233		
		120	TRUCK	1	2.0	240.0	148	400	49	1	184	166	7	1,620	36,240	1	4	36,616		
Land Demolitions (Unexploded Ordnance) Discovery (Disposal	236	472	нммwv	2	2.0	944.0	580	1,574	192	3	724	652	7	6,372	142,544	4	17	144,025		
Discovery / Disposal	250	236	TRUCK	1	2.0	472.0	290	787	96	1	362	326	7	3,186	71,272	2	8	72,012		
TOTAL TRAINING (lbs per year)							95,844	244,850	30,255	390	102,645	92,380		1,021,699	22,855,405	582	2,669	23,091,982		
TOTAL TRAINING (tons per year)							48	122	15	0	51	46		1,021,699	11,428	0	1	11,546		

Table D.5-22 Emissions from Other Items During Training, Alternative 2

		No Action	Alternat	ive, Ibs p	er year		Alternative 1, lbs per year							Alternative 2, lbs per year					
Training Activities in																	а.		
Nonattainment Area	со	NO,	VOC	SO,	PM <sub>10</sub>	PM2.5	со	NO,	voc	SO,	PM <sub>10</sub>	PM2.5	со	NO,	voc	SO,	PM <sub>10</sub>	PM2.5	
AMW - Amp Assault		•		•					1								10		
Vessels	11779	9588	1308	9629	1896	1706	17668	14381	1962	14444	2844	2560	17668	14381	1962	14444	2844	2560	
Aircraft	21538	15204	3105	961	5585	5027	32307	22806	4658	1442	8378	7540	32307	22806	4658	1442	8378	7540	
Ordnance																			
Others	69	187	23	0	86	77	103	280	34	0	129	116	103	280	34	0	129	116	
Alviv - Amp Raid																			
Vessels	118	696	88	2093	420	378	354	2087	265	6278	1260	1134	354	2087	265	6278	1260	1134	
Aircraft	7179	5068	1035	320	1862	1676	21538	15204	3105	961	5585	5027	21538	15204	3105	961	5585	5027	
Ordnance																			
Others	34	93	11	0	43	39	103	280	34	0	129	116	103	280	34	0	129	116	
AMW - Urban WT																			
Vessels	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Aircraft	22554	28535	2592	1629	10375	9337	47762	60427	5489	3449	21971	19773	47762	60427	5489	3449	21971	19773	
Ordnance													500 (000 K) (000 K) (000 K)						
Others	10619	28808	3513	47	13248	11923	22487	61005	7440	99	28054	25248	22487	61005	7440	99	28054	25248	
AMW - NEO																			
Vessels	7914	19700	1673	38129	7805	7024	19785	49250	4182	95323	19512	17560	19785	49250	4182	95323	19512	17560	
Aircraft	11966	8447	1725	534	3103	2793	29914	21117	4313	1335	7758	6982	29914	21117	4313	1335	7758	6982	
Others	1000	2222	107	-	4504	4004	2074	0240	4047	4.4	2025	0450	2074	00.40	4047	4.4	2025	0450	
	1230	3330	407	5	1534	1381	3074	8340	1017	14	3835	3452	3074	8340	1017	14	3835	3452	
ANN - HADR	C10	2126	170	4450	01.0	700	1546	5240	120	111 10	20.44	1.040	4540	E240	400	11110	2044	1940	
Aircraft	11066	2130	170	524	2102	730	20014	21117	420	1225	7750	1840	20014	21117	420	1225	7750	6092	
Ordnanco	11900	04417	1725	554	5105	2795	29914	21117	4515	1222	1156	0962	29914	21117	4315	1000	1150	0902	
Others	1220	2226	407	E	1 5 7 4	1001	2074	9240	1017	1.1	2025	2452	2074	0240	1017	14	2025	2450	
ABAIN HAMICO	1250	5550	407	5	1554	1901	5074	6540	1017	14	2000	54JZ	5074	0340	1017	14	3033	3452	
AIVIV - UAV/ISK	1																		
Vessels Airora #	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Andrait	U	U	0	U	U	U	840	15536	264	1416	244	220	840	15536	264	1416	244	220	
Ordnance	-		2	~	0			2		~		2	0	0	0	0	0	0	
	U	U	0	U	U	U	U	U	U	0	U	U	U	U	0	0	0	U	
ASUW - MISU			<u>^</u>	0	0		<u> </u>			-	-		0	0					
Vessels	0	0	0	0	0	0	0	0	0	0	0	700	0	4000	100	U 77	0	0	
Aircrail	180	184	16	12	121	109	1200	1229	106	11	806	726	1200	1229	106	11	806	120	
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	~	
MALOP Maritima Hamala	U U	U	0	U	U	U	U	U	U	0	U	U	U	U	U	0	U	0	
		^		0	0	~	2044	2500	272	FAE	420	424	2044	2500	070	EAE	420	101	
Aircraft	U	0	0	0	0	0	3841	2500	372	515	138	124	3841	2500	312	515	138	124	
Ordeopoo	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	
Othom				0	0		0	0	0	0	~	0	0	0		2			
	U	0	0	U	U	U	U	U	U	U	U	U	U	U	U	0	U	U	
MAJOR - SPMAGTF	-		stepazor an a		a constant			12.000.000											
Vessels	700	4128	525	12418	2493	2243	700	4128	525	12418	2493	2243	700	4128	525	12418	2493	2243	
Aircraft	4364	2193	651	154	840	756	4364	2193	651	154	<b>84</b> 0	756	4364	2193	651	154	840	756	
Ordnance													t giftigaten anton						
Uthers	1672	4202	519	7	1749	1574	1672	4202	519	7	1749	1574	1672	4202	519	7	1749	1574	

Table D.5-23	Emissions in the N	Ionattainment Area of	Guam, All Alternatives
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		No Action	n Alternat	ive, Ibs p	er year		Alternative 1, Ibs per year							Alternative 2, Ibs per year						
Training Activities in Nonattainment Area	со	NO <sub>x</sub>	voc	SO <sub>x</sub>	PM <sub>10</sub>	PM2.5	со	NO <sub>x</sub>	voc	SO <sub>x</sub>	PM <sub>10</sub>	PM2.5	со	NO <sub>x</sub>	voc	SO <sub>x</sub>	PM <sub>10</sub>	PM2.5		
MAJOR - Urban WT									•											
Vessels	7421	43778	5563	131710	26437	23793	7421	43778	5563	131710	26437	23793	7421	43778	5563	131710	26437	23793		
Aircraft	21818	10967	3254	772	4200	3780	21818	10967	3254	772	4200	3780	21818	10967	3254	772	4200	3780		
Ordnance																				
Others	5853	14708	1818	23	6122	5510	5853	14708	1818	23	6122	5510	5853	14708	1818	23	6122	5510		
MW - Limpet Mine																				
Vessels	0	0	0	0	0	0	54	1462	10	230	24	22	54	1462	10	230	24	22		
Aircraft	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Ordnance					0		0	0				~		0	0	0	0	0		
NGW Incertion /Entrept	0	U	0	U	U	U	U	U	U	U	0	U	U	Ų	U	U	U	U		
Norcols	100	55040	02250	004.0	000	010	2264	00.455	1 402 04	42024	1110	1200	2264	00455	440204	42004	4440	4000		
Aircraft	2040	55910	1000	804U 2270	900 20077	35070	3264	89455	149201	13824	1440	1296	3264	89400 75000	149201	5407	1440	1290		
Ordnance	10068	47455	12300	5519	20911	20079	142490	12920	19071	5407	40505	41720	142490	10920	19021	5407	40303	41720		
Others	0	0	0	n	Ο	n	0	Ω	n	Ο	Ο	0	0	0	Ω	n	Ω	n		
NSW - Parachute Inserti	on		<u> </u>	•	~		, v		Ū.		•		. ~	Ŭ	, v	~	Ŭ	<u> </u>		
Vessels	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Aircraft	1789	2369	285	132	1202	1082	2981	3948	475	221	2003	1803	2981	3948	475	221	2003	1803		
Ordnance																				
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
NSW - Embassy Reinford	cement																			
Vessels	30492	66384	864	51960	4668	4201	30492	66384	864	51960	4668	4201	30492	66384	864	51960	4668	4201		
Aircraft	12060	9588	468	576	9528	8575	12060	9588	468	576	9528	8575	12060	9588	468	576	9528	8575		
Ordnance													7. 1800 (NAME)							
Others	2213	6004	732	10	2761	2485	2213	6004	732	10	2761	2485	2213	6004	732	10	2761	2485		
NSW - ISR													-							
Vessels	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Aircrait	0	0	0	U	U	0	0	0	0	0	0	0	0	0	U	0	0	U		
Ordnance	~		~	~	0	~	0	~	~	0	0	0	0	~	0	0	0	~		
Others	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0		
	1241	25016	2170	75062	45407	12500	0544	FC 200	7450	100242	22000	205.04	05.44	ECOOC	7450	460240	22000	20504		
Aircraft	4241	25016	31/9	15265	15107	13290	9541	08200	/152	169342	33990	20291	9541	00200 0	1152	109342	22,990 U	0		
Ordnance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Others	590	1601	195	З	736	663	1328	3603	439	6	1657	1491	1328	3603	439	6	1657	1491		
NSW - Underwater Surv	ev	1001	155	3	750	003	1526	3003	-55		1037	1451	1020	3003	433	0	1057	1451		
Vessels	<b>-y</b>	1338	1866	207	22	19	131	3567	4977	553	58	52	131	3567	4977	553	58	52		
Aircraft	90	92	8	6	60	54	240	246	21	15	161	145	240	246	21	15	161	145		
Ordnance	50	02	Ŭ		00	0.1	210	2.10	21	10	101	110	210	210	. <del></del> .,	10	101	110		
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Other - Small Boat Attac	:k		and M																	
Vessels	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Aircraft	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Ordnance									- 30000			5								

#### Table D.5-23 Emissions in the Nonattainment Area of Guam, All Alternatives

		No Action	n Alternat	ive, Ibs p	oer year		Alternative 1, lbs per year							Alternative 2, lbs per year						
Training Activities in Nonattainment Area																				
	со	NO <sub>x</sub>	voc	SO <sub>x</sub>	PM <sub>10</sub>	PM2.5	со	NOx	voc	SO <sub>x</sub>	PM <sub>10</sub>	PM2.5	со	NOx	voc	SO <sub>x</sub>	PM <sub>10</sub>	PM2.5		
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Other - ROWPU				10.00																
Vessels	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Aircraft	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Ordnance			15.		2.4.5	1200	and the second		1947		10	95	10.56	100	275.2	<i></i>	1.01	35.87		
Others	0	0	0	0	0	0	62	91	13	0	7	6	62	91	13	0	7	6		
Other - Field Training Exer	cise																			
Vessels	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Aircraft	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Ordnance	1179D2																			
Others	32078	75559	9531	118	26906	24216	32078	75559	9531	118	26906	24216	32078	75559	9531	118	26906	24216		
Other - Force Protection																				
Vessels	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Aircraft	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Ordnance							19						(dra)							
Others	2570	6614	817	11	2797	2517	2570	6614	817	11	2797	2517	2570	6614	817	11	2797	2517		
Other - AT					1000			Dec. Solo								2.00	100000			
Vessels	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Aircraft	1200	1229	106	77	806	726	1200	1229	106	77	806	726	1200	1229	106	77	806	726		
Ordnance	1200	ILLO	100	1. A.	000	120	1200	TLLD	100	,,	000	120	1200	1220	100		000	120		
Others	1180	3202	391	5	1473	1325	1180	3202	391	5	1473	1325	1180	3202	391	5	1473	1325		
Other - IED																				
Vessels	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Aircraft	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Ordnance																				
Others	443	1201	146	2	552	497	443	1201	146	2	552	497	443	1201	146	2	552	497		
Testing - BAMS																				
Vessels	-						and a second second													
Aircraft	2	39	1	4	1	1	21	388	7	35	6	5	23	427	7	39	7	6		
Ordnance																				
Uthers																				
EMISSIONIS (LBS/VEAD)	330919	517340	154357	343831	189869	170882	519695	793969	246498	525318	291320	262188	519697	794008	246499	525321	291320	262188		
TOTAL NONATTAINMENT						-				100 C										
EMISSIONS (TONS/YEAR)	165	259	77	172	95	85	260	397	123	263	146	131	260	397	123	263	146	131		

# Table D.5-23 Emissions in the Nonattainment Area of Guam, All Alternatives