Appendix A
Weapon Systems

Table A-1: Typical Missile Exercise Weapons Used at PMRF

TYPE	CHARACTERISTICS				
	Weight	Length	Diameter	Range	Propulsion
Surface-to-Air Missiles					
Short Range					
Stinger (FIM-92A	10.0 kg (22 lb)	1.5 m (5 ft)	70 mm (2.8 in)	4.8 km (3.4 nmi)	Solid fuel
Sea Sparrow (RIM-7)	204 kg (450 lb)	3.7 m (12 ft)	203-2 mm (8 in)	14.8 km (10.6 nmi)	Solid fuel
Rolling Airframe (RIM-116)	73.5 kg (162 lb)	2.8 m (9 ft 3 in)	127 mm (5 in)	7 km (5.0 nmi)	Solid fuel
Medium Range					
Standard SM-1 MR (RIM-66B)	499 kg (1,100 lb)	4.5 m (14 ft 8 in)	342.9 mm (13.5 in)	46.3 km (33 nmi)	Solid fuel
Standard SM-2 (RIM-66C)	612 kg (1,350 lb)	4.4 m (14 ft 7 in)	342.9 mm (13.5 in)	74.1 km (53 nmi)	Solid fuel
Long Range					
Standard SM-2 ER (RIM-67A/B and 67-C/D)	1,325 kg (2,920 lb)	8.2 m (27 ft)	342.9 mm (13.5 in)	166.7 km (90 nmi)	Solid fuel
Standard SM-2 AER (RIM-67B)	1,452 kg (3,200 lb)	6.7 m (22 ft)	342.9 mm (13.5 in)	150 km (107.1 nmi)	Solid fuel
Air-to-Air Missiles					
Short Range					
Sidewinder (AIM-9)	84.4 kg (186 lb)	2.9 m (9 ft 6 in)	127 mm (5 in)	18.5 km (10 nmi)	Solid fuel
Medium Range					
Sparrow (AIM-7)	231 kg (510 lb)	3.6 m (11 ft 10 in)	203.2 mm (8 in)	55.6 km (30 nmi)	Solid fuel
Long Range					
Phoenix (AIM-54)	447 kg (985 lb)	4 m (13 ft)	381 mm (15 in)	203.9 km (110 nmi)	Solid fuel
Air-to-Surface Missiles					
Short Range					
Skipper II (AGM-123)	582 kg (1,283 lb)	4.3 m (14 ft)	355.6 mm (14 in)	9.6 km (5.2 nmi)	Solid fuel

ft feet
in inches
kg kilograms
km kilometers
lb pounds
m meters
mm millimeters
nmi nautical miles

Table A-1: Typical Missile Exercise Weapons Used at PMRF (Continued)

TYPE	CHARACTERISTICS				
	Weight	Length	Diameter	Range	Propulsion
Air-to-Surface Missiles (Continued)					
Medium Range					
HARM (AGM-88)	366.1 kg (807 lb)	4.2 m (13 ft 9 in)	254 mm (10 in)	18.5 km (10 nmi)	Solid fuel
Shrike (AGM-45)	177 kg (390 lb)	3 m (10 ft)	203.2 mm (8 in)	18.5 km (10 nmi)	Solid fuel
Sidearm (AGM-122)	90.7 kg (200 lb)	3 m (10 ft)	127 mm (5 in)	17.8 km (9.6 nmi)	Solid fuel
Long Range					
Harpoon (AGM-84/ RGM-84/UGM-84)*	797 kg (1,757 lb)	5.2 m (17 ft 2-in)	342.9 mm (13.5 in)	278 km (150 nmi)	Solid fuel
Surface-to-Surface Missiles (Cruise)					
Harpoon (AGM-84/ RGM-84/UGM-84)*	797 kg (1,757 lb)	5.2 m (17 ft 2-in)	342.9 mm (13.5 in)	278 km (150 nmi)	Solid fuel

*Characteristics vary according to variant. Those for RGM-84F are shown.

ft feet
in inches
kg kilograms
km kilometers
lb pounds
m meters
mm millimeters
nmi nautical miles

Source: Laur and Llanso, 1995, p.237 through 264.

Table A-2: Typical Aerial Target Drones and Missiles Used at PMRF

TYPE	CHARACTERISTICS			
	Length	Speed (Maximum)	Operational Altitude (Maximum)	Time on Station (Maximum)
Subsonic				
BQM-34S	7 m (23 ft)	Mach 0.9	15,240 m (50,000 ft)	60 minutes
BQM-74C	4 m (13 ft)	430 knots	10,668 m (35,000 ft)	75 minutes
Supersonic				
MQM-8G (ER)	7.6 m (25 ft)	Mach 2.7	1,524 m (5,000 ft)	N/A
AQM-37C	4.1 m (13.6 ft)	Mach 4.0	30,480 m (100,000 ft)	N/A

ft feet
m meters
N/A Not Applicable

Source: Pacific Missile Range Facility, 1991, p.112-114.

Table A-3: Typical Existing Target Systems Used at PMRF

Type	Category	Name	Propellant Type
Ballistic Missile			
	Small	AQM-37C	Liquid
		Black Brant V	Solid
		Hawk	Solid
		Recruit	Solid
		Malemute	Solid
	Medium	Terrier	Solid
		Talos	Solid
		Castor	Solid
		STRYPI	Solid
	Large	Strategic Target System	Solid
	Supersonic	AQM-37C	Liquid
		Vandal ~~(Simulating Cruise Missile)~~	Liquid/Solid
Balloon			
		Balloon	N/A
Towed			
	Aerial	TDU-34A	N/A
Subsurface			
		MK 30 Mod 1	Liquid
		EMATT	Liquid
		SPAT-1 (Self Prop Acoustic Target)	Liquid
		MK-17 (Stationary Target for MK-46)	N/A
Surface			
		QST 35	Liquid
		HULK (TBD)	N/A
		ISTT (Improved Surface Towed Target)	N/A
Cruise Missiles			
	Subsonic	BQM-34S	Liquid
		BQM-74/CHUKAR	Liquid
		AQM-34	Liquid
	Supersonic	Vandal	Liquid/Solid

Table A-4: Typical Existing Weapon Systems Used at PMRF

Type	Category	Name	Propellant Type (Liquid/Solid)
Missiles			
	Ship	ASROC	Liquid/Solid
	Ship	Harpoon (RTM-84)	Liquid
	Ship	MK 46 VLA	Liquid/Solid
	Ship	SM-2 BLK II	Solid
	Ship	SM-2 BLK III	Solid
	Ship	SM-2 BLK IV	Solid
	Ship	Sparrow (A1M7)	Solid
	Surf/Ship/Sub	Harpoon (R/UGM-84)	Liquid/Solid
	Air	AGM-45 (SHRIKE)	Solid
	Air	Harpoon (AGM-84)	Liquid
	Air	Phoenix	Solid
	Air	Sidewinder	Solid
	Air	Sparrow	Solid
	Air/Surf/Sub	Tomahawk	Liquid/Solid
	Land	Hawk	Solid
	Land/Ship	Stinger	Solid
Guns			
	Ship	Naval Guns	N/A
	Ship	Phalanx/Vulcan	N/A
	Air	Aircraft Mounted Guns	N/A
Weather Rocket			
	Land	PWN-11D	Solid
	Land	PWN-12A	Solid
Torpedoes			
	Sub	MK 48 ADCAP	Liquid
	Sub	MK 48	Liquid
	Air/Ship	MK 44 (PLLT)	Battery
	Air/Ship	MK 50	Liquid
	Air/Ship	Type 80 (Japanese)	Liquid
	Air/Surf	MK 46	Liquid

N/A Not Applicable

Table A-4: Typical Existing Weapon Systems Used at PMRF (Continued)

Type	Category	Name	Propellant Type (Liquid/Solid)
Sub Launched Mines			
	Sub	MK-67-2 Sub Launched Mobile Mine (SLMM)	Battery
Air Deployed Mines			
	Air	MK-25	N/A
	Air	MK-36	N/A
	Air	MK-36 DST	N/A
	Air	MK-52	N/A
	Air	MK 76	N/A
Bombs			
	Air	BDU-45	N/A
	Air	MK-82	N/A

N/A Not Applicable

Table A-5: Typical Electronic Warfare Assets Used at PMRF

TYPE	CHARACTERISTICS		
	Frequency Bands	Power Output (Maximum)	Location Used
Air and Seaborne Electronic Warfare Assets			
Airborne Simulator Systems			
APS-504(V)5	8.9925-9.375 GHz	8 kW	PMRF RC-12F Aircraft
MK-67	907.2 kg (2,000 lb)	4.00 m (13 ft 5 in)	533 mm (21 in)
Expendable Radar Transmitter Sets			
AN/DPT-1(V)	7.8-9.6, 14.0-15.2 GHz	80 kW	BQM-334S Targets
AN/DPT-2(V)	9.375 GHz	20 kW	BQM-74C Targets
Airborne Electronic Countermeasures Systems			
Traveling Wave Tube Countermeasures System	425-445 MHz, 902-928 MHz, 2-4 GHz	100-W	PMRF RC-12F Aircraft
ALT-41	425-445 MHz	100-W	PMRF RC-12F Aircraft
ALT-42	902-928 MHz	100-W	PMRF RC-12F Aircraft
DLQ-3	2-4 GHz	100-W	PMRF RC-12F Aircraft
ULQ-21	8-10.5 GHz	100-W	PMRF RC-12F Aircraft

Table A-5: Typical Electronic Warfare Assets Used at PMRF (Continued)

TYPE	CHARACTERISTICS		
	Frequency Bands	**Power Output (Maximum)**	**Location Used**
Seaborne Simulator Systems			
AN/DPT-1(V)	7.8-9.6, 14.0-15.2 GHz	80 kW	Range Boats
AN/DPT-2(V)	7.8-9.6, 14.0-15.2 GHz	150 kW	Range Boats
Land-Based Electronic Warfare Assets			
Simulator Systems - Fixed			
AN/DPT-1(V)	7.8-9.6, 14.0-15.2 GHz	70 kW	Makaha Ridge, Kauai
ENSYN	2-4, 7-11 GHz	1 kW	Makaha Ridge, Kauai
I/J-TES	7.8-9.6, 14.0-15.2 GHz	70 kW	Makaha Ridge, Kauai
AN/DPT-1(V)	7.8-9.6, 14.0-15.2 GHz	70 kW	Mauna Kapu, Oahu
Simulator Systems - Mobile			
AN/DPT-1(V)	2.9-3.1, 7.8-9.6, 14.0-15.2 GHz	70 kW	Barking Sands, Kauai
AN/UPT-2A(V)	2.9-3.1, 7.8-9.6, 14.0-15.2 GHz	150 kW	Barking Sands, Kauai
AN/D/DPT-1(V)	7.8-9.6, 14.0-15.2 GHz	70 kW	Perch Site, Niihau
AN/UPT-2A(V)	2-4, 8-18 GHz	150 kW	Perch Site, Niihau
ENSYN	2-4, 8-18 GHz	1 kW	NAS Barbers Point, Oahu
AN/DPT-1(V)	2.9-3.1, 7.8-9.6, 14.0-15.2 GHz	70 kW	NAS Barbers Point, Oahu
Electronic Countermeasures Systems - Fixed			
ALT-41	425-445 MHz	100 W	Makaha Ridge, Kauai
ALT-42	902-928 MHz	100 W	Makaha Ridge, Kauai
ULQ-26	2-4 GHz	100 W	Makaha Ridge, Kauai
ULQ-21	8.0-10.5-GHz	100 W	Makaha Ridge, Kauai
Electronic Countermeasures Systems - Mobile			
DLQ-3	425-445 MHz—14.0-15.2 GHz	100 W	Range Boats, Remote Sites
ULQ-26	425-445 MHz—14.0-15.2 GHz	100 W	Range Boats, Remote Sites
ULQ-21	425-445 MHz—14.0-15.2 GHz	100 W	Range Boats, Remote Sites
ALT-41/42	425-445 MHz—14.0-15.2 GHz	100 W	Range Boats, Remote Sites

ft feet in inches kW kilowatts m meters mm millimeters
GHz gigahertz kg kilograms lb pounds MHz megahertz W watts
Source: Chun, 1996, Dec, p.1.

Table A-6: Existing PMRF Radars, Locations, and Characteristics

Emitter	Comments	Location	Power Peak (kW)	Scan Rate	Frequency (MHz)		Pulse Width (µS)	PRF (PPS)	Ant. Gain (dBi)	Ant. Elev. (m)	Remarks
					Low	High					
AN/MPS-25	Monopulse Tracking (2 each)	Main Base	1,000	--	5,400	5,900	0.25, 0.5, 1	160, 640	46	18	AZ = 0 to 360 degrees. Elevation = -5 to +185 degrees
AN/SPS-10	Surveillance	Main Base	250	15 rpm	5,450	5,825	0.5, 1.3	640	30	22	
AN/UPX-27	AN/SPS-10 IFF Interrogator	Main Base	1	15 rpm	1,030	1,030	0.8	640	23	22	Uses AN/SPS-10 antenna
AN/FPS-106	Weather Radar	Main Base	500		5,450	5,650	0.5	320	35	20	
AN/WRF-100	DOE Radar Facility	Main Base	250	--	9,375	9,375	1	640	32	10	
AN/MPS-25	Monopulse Tracking (2 each)	Makaha Ridge	1,000	--	5,400	5,900	0.25, 0.5, 1	160, 640	46	500	AZ = 0 to 360 degrees. Elevation = -5 to +185 degrees
AN/FPQ-10	Monopulse Tracking (2 each)	Makaha Ridge	1,000	--	5,400	5,900	0.25, 0.5, 1	160, 640	43	473	AZ = 0 to 360 degrees. Elevation = -5 to +90 degrees
AN/SPS-48E	Track-While-Scan Surveillance	Makaha Ridge	2,400	15 rpm	2,908	3,110	27	Various	39.1	462	
AN/UPX-27	AN/SPS-48E IFF Interrogator	Makaha Ridge	1	15 rpm	1,030	1,030	0.8	Various	19	462	
AN/APS-134	Surface Surveillance	Makaha Ridge	500	15 rpm	9,500	10,000	0.5	500	42	457	Linear frequency chirp each pulse
AN/FPS-16	Monopulse Tracking	Kokee	1,000	--	5,400	5,900	0.25, 0.5, 1	160, 640	43	1,155	AZ = 0 to 360 degrees. Elevation = -5 to +185 degrees
AN/FPQ-10	Monopulse Tracking	Kokee	1,000	--	5,400	5,900	0.25, 0.5, 1	160, 640	43	1,150	AZ = 0 to 360 degrees. Elevation = -5 to +90 degrees
USB	Unified S-Band System	Kokee	20	--	2,090	2,120	CW	CW	44	1,110	
AN/FPS-117	Surveillance	Kokee	24.75	5 rpm	1,215	1,400	51.2, 409.6	241	38.6	1,310	
OX-60/FPS-117	AN/FPS-117 IFF Interrogator	Kokee	2	5 rpm	1,030	1,030	Various	241	21	1,310	
AN/APS-134	Surveillance	Niihau	500	15 rpm	9,500	10,000	0.5	500	42	375	
R73-6	Raytheon Pathfinder (3 each)	Weapons Recovery Boat and Torpedo Weapons Recovery	10	24 rpm	9,410	9,410	0.08, 0.4, 0.8, 1.2	2,000, 1,500, 750, 500	16	8	

Source: Modified from Miller, 1996, 12 Dec, p.1

Table A-7: Representative Proposed Action Target Systems

Type	Category	Name	Propellant Type
Ballistic Missile			
	Small	HERMES	Solid
		Lance	Liquid
		Standard	Solid
		Tomahawk (Rocket)	Liquid/Solid
		Honest John (Booster)	Solid
		Nike (Booster)	Solid
		PATRIOT as a Target (PAAT)	Solid
		Apache	Solid
		Cajun	Solid
		Genie (14" diameter)	Solid
	Medium	Antares (Stack)	Solid
		Aries	Solid
		Spartan	Solid
		Talos	Solid
		SR-19 (Air Drop)	Solid
		STORM	Solid
		MA-31	Liquid
		Foreign Material Assets	Liquid/Solid
	Large	Hera	Solid
	~~Supersonic~~	~~MA-31~~	~~Liquid~~
		Terrier	Solid
Aircraft			
	Subsonic	QF-4	Liquid
		AF-16	Liquid
Cruise Missiles			
	Subsonic	MQM-107	Liquid
		Harpoon	Liquid
		Foreign Material Asset	Liquid
		Tactical Air Launched Decoy (TALD ADM-141A)	Liquid
		ITALD (Improved version ADM-141C)	Liquid
	Supersonic	MA-31	Liquid
		Terrier	Solid
		FMA	Liquid

Table A-8: Target Launch Pad—Rail and Stool Requirements

Item/Facility Type	~~Area Defense~~ Requirements 0 to 1,200 kilometers (0 to 647.9 nautical miles)
Dimensions of Launch Pads/Construction Materials Assumed	12.2 meters x 15.2 meters + 15.2 meters (40 x 50 feet + 50 feet) for environmental shelter = 12.2 meters x 30.5 meters (40 x 100 feet) = 371.6 square meters (4,000 square feet). Concrete pad with outer gravel or coral area.
Cleared Area/No Vegetation Zone Surrounding Launch Pad	15.2 to 30.5 meters (50 to 100 feet)
ESQDs by Category Type [Intraline (IL), Public Transportation Route (PTR), Inhabited Building (IB)]	85.3 meters (280 feet) IL 228.6 meters (750 feet) PTR 381 meters (1,250 feet) IB ESQD
GHA Radius	For most unguided systems, GHA = 609.6 meters (2000 feet) For guided systems, GHA = 1,828.8 to 3,048 meters (6,000 to 10,000 feet)
Electromagnetic Radiation Constraints to Personnel, Fuels, or Ordnance	Consider HERO (ordnance electronic triggering mechanisms potentially set off due to electromagnetic radiation).
Launch Pad Fencing/Security Needs	Should have access control to the hazardous operations/ launching area. The target payload may be classified.
Utilities to Launch Pad/Type Needed	Will bring some portable electrical generator capability (campaign). Will require a power distribution system, fuel storage, and containment area to avoid soil contamination.
Road Access to Launch Pad/Hazardous Transportation Route/ % Grade	Prefer gravel road of less than 6 percent grade. Prefer to stay off public highways.
Environmental Shelter/Pad/Dimensions	Depends on the type of missile system and site environmental constraints (some missiles are temperature, humidity, and salt spray dependent). At KTF, only tarps are used in some cases. Some booster rockets must be maintained between 15.5 to 26.7 degrees Celsius (60 to 80 degrees Fahrenheit). Also stool launch items will require wind protection.
Soil Conditions Desired	Stable soil, cleared gravel or paved area around the launcher.
Minimum Distance to Shoreline If Any	None. Consider waves, salt spray.

Table A-9: Target Support/Preparation and Launch Control Facilities Requirements

Item/Facility Type	~~Area Defense~~Requirements
Missile Assembly—Need missile assembly building on Island or Build-up at Another Location (Specify if Known), Ship by Aircraft or Barge to Island, or Other Logistics Based on Distance, Weight, Airfield, Etc.	No new missile assembly building needed. Build up at PMRF. Transport by aircraft or barge to island. May have an environmental shelter (stool) and/or clamshell (rail) at the launch site. Possible Environmental Control addition to Rocket Motor Staging Area at KTF—may want to add air conditioning.
Vertical Target Missile Service Tower Needed, Dimensions	None required.
Launch Control Van or Building	Mobile Launch Control Van (could be a van brought in by air or barge or a trailer like Kokole Point at PMRF with a berm [if a rail], or a van in a hardened van shelter [if a stool]).
Launch Pad Equipment Building	Equipment building (2.4 x 2.4 meters [8 x 8 feet]) next to pad.
Missile Storage Facility	May need missile storage if the number of launches per year justifies the cost.
Warehousing	Would use existing warehousing if available. If not, keep supplies on a barge or fly in/out. May use military vans or enclosed semi trailers
Road Access Dimensions/Minimum Radii	3.7 meters (12 feet) wide road minimum, 15.2 meters (50 feet) turning radius to launch pad, 2.4 meters (8 feet) minimum to launch control.
Min. Distance to Shoreline If Any	None. Wave action? Salt spray?
Utilities to Facilities/ Type Needed	Electricity.
Security/Fencing/Clear Zone Needed/Dimensions	Not required unless there is a need to provide security protection or to mitigate for bird control (site specific—Tern). Dimensions undefined.
Electromagnetic Radiation Constraints to Personnel, Fuels, or Ordnance	Consider HERO (ordnance electronic triggering mechanisms potentially set off due to electromagnetic radiation).
View of Launch Pad Needed From Control Van/Building	Desired.

Table A-10: Representative Defense Missile Systems

Type	Category	Name	Propellant Type (Liquid/Solid)
Missiles			
	Ship	SM-2 BLK IVA	Solid
	Ship	SM-3	Solid
	Air	AMRAAM	Solid
	Land	MEADS	Solid
	Land	PATRIOT (PAC-2)	Solid
	Land	PAC-3	Solid
	Land	THAAD	Solid

Table A-11: Land-based Interceptor Launch Site (Mobile) Requirements

Item/Facility Type	Requirements 0 to 1,200 kilometers (0 to 647.9 nautical miles)
Desired Operational Launch Orientation/Flight Path	Need target range of between 350 and 1,000 kilometers (217.5 and 621.4 miles)
Dimensions of Launch Pads/Construction Materials Assumed	Need a hardstand area (prefer gravel or coral) and relatively level ground. Need an area of approximately 42.1 x 20.1 meters = 846 square meters (138 x 66 feet = 9,108 square feet). The launchers are to be sited within the 120 degree angle of the radar signal (60 degrees either side of the boresight). The launchers are to be located between 130.1 meters (427 feet) and 10 kilometers (6.2 miles) from the radar set. Several launchers may be sited within this area.
Cleared Area/No Vegetation Zone Surrounding Launch Pad	None. Consider security/visibility.
ESQD by Category Type (IL, PTR, and IB)	381 meters (1,250 feet) for IB ESQD, 85.3 meters (280 feet) IL, 228.6 meters (750 feet) PTR Note—Should plan for 381 meters (1,250 feet)—Dual mode Area Interceptors.
GHA Radius	1,829-meter (6,000-foot) radius
Electromagnetic Radiation Constraints to Personnel, Fuels, or Ordnance	120.1 meters (394 feet) in front of the radar - 60 degrees both sides of boresight (refer to PAC-3 environmental document).
Launch Pad Fencing/ Security Needs/Dimensions	Security guards required.

Table A-11: Land-based Interceptor Launch Site (Mobile) Requirements (Continued)

Item/Facility Type	~~Area Defense~~Requirements 0 to 1,200 kilometers (0 to 647.9 nautical miles)
Utilities to Launch Pad/Type Needed	Utilities are required for aerospace ground equipment and test instrumentation.
Road Access to Launch Pad/Percent Grade	Require road access through rough terrain, gravel preferred. Turning radius of 15.2 meters (50 feet). System designed to be mobile.
Soil Conditions Desired	Stable soil. Gravel surface desirable. Don't want equipment to sink.
Environmental Shelter/Pad/Dimensions	Re-enforced structures for Command and Control trailers.
Minimum Distance to Shoreline If Any	None. Consider wave action, salt spray.

Table A-12: Telemetry, Optics, and Radar Instrumentation Requirements

Item/Facility Type	~~Area Defense~~Requirements
Instrumentation Devices/Facilities Required—Targets	Targets—Short- and medium-range multi-participant target and interceptor tracking and telemetry reception, additional range safety monitoring, and additional data products needed. Makaha Ridge: Radars (COSIP), optics, lasers, electronic warfare, telemetry (receivers, recorders, antennas) and internal power plant upgrades Kokee Parcel A: Radar (x band), Communications (CEC [tower], voice, data [telephone poles]) Parcel C: Telemetry antenna (phase array or dish), building (40x60) Parcel D: Radar (COSIP), telemetry antenna
Instrumentation Device(s)/Facilities Required - Interceptors	Area Interceptors—Assumes that Range assets are fixed or trailer mounted (portable).
Number of Interceptor Personnel Working/How Long	Radar site requires 15 people working 2 to 3 weeks.
Mobile Instrumentation Alternative	May consider mobile instrumentation at some sites if no or inadequate on-ground facilities exist. Example is the Wallops Flight Facility (NASA) system. Requires C-141 accessibility for airborne assets. On-ground assets require concrete pad for mobile radar pedestal, line of sight, adequate safety clear zone, and generator use. May also consider military P-3 aircraft use.

Table A-13: Communications, Command, and Control Requirements

Item/Facility Type	~~Area Defense~~Requirements
Number of Interceptor Personnel Working/How Long	Battle management, communications, command, and control, and intelligence—15 people for 2 to 3 weeks.
Command and Control Enhancements—Targets/ Interceptors	Command and control needed; enhanced range safety monitoring needed; and FTS enhancement needed. Possible use of Building 105—Control Center at PMRF. Expand fiber optics. Expand office space. Add transmitters and receivers, other communication equipment. Could be mobile in aircraft.

Table A-14: Support Infrastructure Requirements

Item/Facility Type	~~Area Defense~~Requirements
Electric Power/Portable Generator/Backup	For Interceptors—Need power under Test mode, no power under Tactical mode. Self contained. For Targets—Power needed, either local power or a generator.
Sanitation/Septic/Waste Treatment	For Interceptors—Total sanitation need is for 47 personnel for 2 to 3 weeks/launch. For Targets—Total sanitation need is for 6 to 10 personnel for 1 to 2 weeks/launch.
Solar Power	None for Interceptors. Targets—No need defined.
Natural Gas/Propane	None for Interceptors. Targets—No need defined.
Potable Water/Fire Flow/Storage	Interceptors and Targets—Drinking water for personnel, minor fire control.
Solid Waste Disposal/Transfer	Interceptors and Targets—Temporary on site storage and/or transport away.
Hazardous Materials Temporary Storage Transfer–Liquid and Storage	Interceptors and Targets—Temporary storage.
Storage/Warehousing/ Logistics Support and Services—Campaign Only	Interceptors and Targets—Use existing space, if available.
On-Island Road Access/Vehicle Storage, Maintenance, and Parking—Campaign Only	Interceptors and Targets—Semi-trailer road access to assets required. Campaign–No storage.
Off-Island Transportation (Air, Barge, Other)	Interceptors and Targets—Air transport (C-130, C-141, and C-5/C-17) and landing craft or ship. Aircraft use desirable.
Fire Station/Pumper/ Training/Equipment/ Emergency Medical Team	As defined by PMRF Safety.

Table A-14: Support Infrastructure Requirements (Continued)

Item/Facility Type	~~Area Defense~~Requirements
Security Forces/Training	Interceptors and Targets—Security guards will be required during launches. No permanent support.
Recreation Facilities/Services	Interceptor and Targets—No need defined.
Fuel Storage	Interceptor and Targets—Electric generator and vehicle fuel storage.
Transient Quarters/Berthing Quarters-Barges	Interceptor and Targets—Need defined. Self-contained onshore camp concept or ship/barge quarters. See personnel numbers. Depends on frequency/location.
Permanent Housing (Base UEPH/Family Housing or Private Rental Housing)	Interceptor and Targets–No need defined.
Administrative Services/Office Space/ Campaign Trailer	Interceptor and Targets—Possible use of Building 105 at PMRF or SNL/KTF complex. Possible use of campaign trailer(s).
Medical Facility and Services	Interceptors and Targets—No special facilities required. Typical services assumed.
Mess Hall/Laundry Facility and Services	Interceptors and Targets—Self-contained onshore camp concept or ship/barge facilities.
Communications Facility and Services	Interceptors and Targets—No need defined.
Liquid Propellant Storage (Hypergolic)	Interceptor—May require temporary storage. Targets—Need defined for targets.
Small Explosives/Igniter/Squib Storage/Setbacks	Interceptor—No need defined. Targets—May require squib storage.
Heavy Equipment/Crane	Interceptor—No need defined. Targets—May require crane.
Lightering Boat and Marine Crew Services/Stevedoring	Interceptor and Targets—Need defined.
Berthing/Moorage/Dock and Ramp	Interceptor and Targets–Need defined if no adequate airfield.
Helipad	Interceptor and Targets–Need helipad support capability for emergency medical evacuation and supplies delivery, or airfield capability.
Aircraft Runway (C130, C141, C5, C17 or Other)/Airfield operations and maintenance/Hotpad/Aircraft Parking and Maintenance	C-130, C-141, and C-5/C-17.

Table A–15: Representative TMD Propellant and Exhaust Components

Missile	Propellant Class	Major Propellant Components	Major Exhaust Components
Weapon Systems			
MEADS	Solid	Aluminum, HTPB	Aluminum Oxide, Carbon Dioxide, Carbon Monoxide, Hydrogen, Hydrogen Chloride, Nitrogen, Water
PAC-2	Solid	Aluminum, Ammonium Perchlorate, Iron Oxide, Polymer Binder	Aluminum Oxide, Carbon Dioxide, Carbon Monoxide, Hydrogen, Hydrogen Chloride, Nitrogen, Water
PAC-3	Solid	Aluminum, HTPB	Aluminum Oxide, Carbon Dioxide, Carbon Monoxide, Hydrogen, Hydrogen Chloride, Nitrogen, Water
Standard Missile	Solid	Aluminum, Ammonium Perchlorate, HMX	Aluminum Chloride, Aluminum Oxide, Ammonia, Carbon Dioxide, Carbon Monoxide, Ferric Chloride, Ferric Oxide, Hydrogen, Hydrogen Chloride, Nitric Oxide, Nitrogen, Water
THAAD	Solid	Aluminum, Ammonium Perchlorate, Binder	Aluminum Oxide, Carbon Dioxide, Carbon Monoxide, Hydrogen, Hydrogen Chloride, Nitrogen, Water
Target System			
HERA	Solid	Aluminum, Ammonium Perchlorate, CTPB, HMX, Nitrocellulose-Nitroglycerine	Aluminum Oxide, Carbon Dioxide, Carbon Monoxide, Hydrogen, Hydrogen Chloride, Nitrogen, Water
LANCE	Liquid	IRFNA (Hydrogen Fluoride, Nitric Acid, Nitrogen Dioxide), UDMH, Water	Carbon Dioxide, Carbon Monoxide, Nitrogen, Oxygen, Water
STRYPI	Solid	Aluminum, Ammonium Perchlorate, CTPB, Nitrocellulose-Nitroglycerine, Polysulfide Elastomer	Aluminum Oxide, Carbon Dioxide, Carbon Monoxide, Chlorine, Hydrogen, Hydrogen Chloride, Hydrogen Sulfide, Nitrogen, Sulfur Dioxide, Water

CTPB = Carboxyl-terminated Polybutadiene HTPB = Hydroxyl-terminated Polybutadiene
HMX = Cyclotetramethylenetetranitramine UDMH = Unsymmetrical Dimethyl Hydrazine
IRFNA = Inhibited Red Fuming Nitric Acid

Table A-16: Fleet Training Exercises

Exercise	Purpose	Participants	Frequency and Duration	Weapons~~/ Sensors~~	Targets
Over the Horizon Targeting (OTH-T) Exercise	Practice and evaluation in tracking targets that are not directly observable	One or more ships, radar platforms (PMRF, ship, and/or Airborne Warning and Control System aircraft), relays (aircraft, ship, and/or satellite)	6-10 events/year; 8 hours/event	~~PMRF or ship borne radars~~	Weapons Recovery Boat (WRB) or Torpedo Weapon Retriever (TWR)
Composite Training Underway Exercise (COMPTUEX)	Provides fleet units training in multi-ship tactical coordination against underwater, surface, and airborne threats. Allows the best possible simulation of a combat environment.	Three or more surface units	0-3 events/year; (aver. = 1.2); 3 days/ event	Missiles, guns, torpedoes	Torpedo underwater targets, Seaborne Powered Target (SEPTAR) surface targets, aerial target drones, and submarine targets
Multi-Threat Exercise (MTX)	Provides fleet surface units experience in multi-threat environments. Fulfills annual firing requirements for shipboard qualifications.	One to two surface ships	0-1 event/year; 5 hours/ event	Missiles, torpedoes, guns, electronic warfare	Surface target boat, and aerial target drones
Middle East Force Exercise (MEFEX)	Increases the combat readiness of Navy task forces en-route to the Middle East	One to five deploying ships, and TWR, WRB, SEPTAR, Improved Surface Towed Target (ISTT), and aerial target drones	2-7 events/year (aver. = 4.2); 5 hours/ event		TWR, WRB, SEPTAR, ISTT, and aerial target drones
Tailored Ships Training Availability (TSTA)	Provides specific readiness training needs for a particular ship	Varies according to the specific component exercises conducted	0-19 events/year (aver. = 9.8); 8 hours/ event	Guns, torpedoes, missiles, and weapons used in GUNNEX, ASWEX, AIRASWEX, SAMEX, TRACKEX, etc.	Varies according to specific component exercises
Prospective Commanding Officer Free Play Exercise (HOLLYWOOD)	Certifies the proficiency of future commanding officers in weapon deployment and submarine tactics development	Two submarines, two to five surface units (during the second week), torpedo underwater targets, WRBs and TWR, and helicopters	2 events/year; 2-week period in February and August. 1 week of submarine-only operations and a second week of submarine versus surface ship combatants	Torpedoes	Submarines, torpedo underwater targets, WRBs, TWRs, and surface ship

Table A-16: Fleet Training Exercises (Continued)

Exercise	Purpose	Participants	Frequency and Duration	Weapons	Targets
Rim of the Pacific Exercise (RIMPAC)	Provides the navies of Pacific Rim countries the opportunity to work together as cooperating forces	Up to 40 undersea and surface units (including 2 carrier battle groups), many aircraft, submarines, underwater targets, 30 to 40 aerial target drones, SEPTARs, WRBs and/or TWR, full-scale hulk targets, missiles (surface-to-air, surface-to-surface, anti-radiation, high speed anti-radiation, air-to-air) torpedoes, and bombs. Countries involved may include Canada, Japan, South Korea, Australia, Peru, Chile, Singapore, France, United Kingdom, and Russia	1 event/2 years; 8 weeks/event	Missiles, torpedoes, bombs, including weapons used in SAMEX, GUNNEX, AIRASWEX, AAWEX, MINEX, SINKEX, and amphibious assaults	Underwater targets, aerial target drones, SEPTARs, WRBs, TWRs, environmentally-approved full-scale hulk targets
AEGIS Post Delivery Test and Trials (PDT&T)	Trains the crew of a new AEGIS ship and evaluates both crew and hardware performance	AEGIS ship, torpedo underwater targets, range helicopters, civilian helicopters for passenger runs, helicopters, anti-submarine warfare aircraft, WRB and/or TWR range boats, aircraft, aerial target drones, SEPTAR, tanker aircraft, torpedoes, and anti-submarine rockets (for VLA)	0-4 events/year; 2.5-3 weeks/event	Includes weapons used in AAWEX, CSSQT, WSAT, OTH-T, ASWEX, EWEX, and AIRASWEX	Torpedo underwater targets, WRB and/or TWR range boats, aerial target drones, SEPTAR
Combat System Ship Qualification Trial (CSSQT)	Tests a ship's crew and system hardware	Varies depending on the nature of exercise conducted	0-2 events/year; 2.5-3 weeks/event	Torpedoes, missiles, and weapons used in ASWEX, AIRASWEX, SAMEX, MEFEX, EWEX	Underwater, surface, and air
Post Regular Overhaul Training and Testing (PRT&T)	Demonstrates combat readiness, verifies all systems and integration programs operate as designed, and provides crew training to restore proficiency following crew turnover during routine overhauls and upgrades	One AEGIS ship	0-1 events/year; 1 week/event	Torpedoes, missiles	Underwater, surface and air

Table A-16: Fleet Training Exercises (Continued)

Exercise	Purpose	Participants	Frequency and Duration	Weapons	Targets
AEGIS Anti-Air Warfare Fleet Training Requirements Testing	Provides training requirements for anti-ship missile defense against a single subsonic sea-skimming target, for high altitude, long-range missile firing against a single, supersonic, high-altitude target, and for a low-angle missile firing against a single, supersonic sea-skimming target.	One AEGIS ship	1 event/20 months; three exercises during each AEGIS ship's period between deployment	Torpedoes, missiles	Underwater, surface, and air

Table A-17: Missile Training Exercises

Exercise	Purpose	Participants	Frequency and Duration	Weapons	Targets
Air-to-Air Missile Exercise (AAMEX)	Provides aircrews proficiency in using aircraft fire control systems and develops new firing tactics of air-to-air missiles	Two aircraft and a jet target. Sometimes up to six aircraft and two to four targets.	0-7 events/year (aver. = 3.2); 1.5 hours/event	Air-to-air missile	Jet Target Drone launched from PMRF or Mobile Aerial Target Support System (MATSS), or both
Air-to-Surface Missile Exercise (ASMEX)	Provides a basic training environment for fleet and Marine air groups in missile firing and bomb drops	One to four aircraft, targets such as a SEPTAR boat, the Improved Surface Tow Target (ISTT), full-scale hulk, air-to-surface missiles, anti-radiation missiles, high-speed anti-radiation missiles, bombs, and photographic helicopters	0-6 events/year (aver. = 2.2); 4 hours/event	Air-to-surface missile	Naval Gunfire Scoring System (NGSS); SEPTAR and/or Towed target; or environmentally-approved full-scale hulk
Surface-to-Air Missile Exercise (SAMEX)	Provides basic training for fleet units in firing surface-to-air missiles	Surface ship, airborne targets, and surface-to-air missiles	1-2 events/year (aver. = 1.8); 2 hours/event	Surface-to-air missile	Aircraft-launched target drones that have preprogrammed flight paths; Remote-controlled ground- or air-launched target drones
Surface-to-Surface Missile Exercise (SSMEX)	Provides basic training for fleet units to exercise singly or as multiple units in firing surface-to-surface missiles	One or more surface units, SEPTAR boats, WRB, and a helicopter for environmental and photo evaluation	0-4 events/year (aver. = 1.4) 2 hours/event	Surface-to-surface missile	SEPTAR

Table A-17: Missile Training Exercises (Continued)

Exercise	Purpose	Participants	Frequency and Duration	Weapons	Targets
Army Surface-to-Air Missile Exercise (Army SAMEX)	Provides Army personnel the means to qualify in the firing of heat-seeking missiles	Army personnel and targets	4 events/year; 4 hours daily for 2 weeks/ event	Heat-seeking missiles	Aerial target drones
Harpoon Anti-Surface Missile Exercise (HARPOONEX)	Provides experience in pursuing surface targets and firing Harpoon anti-ship missiles	Firing unit (ship, submarine, and/or aircraft), full-scale hulk or SEPTARs, a photographic helicopter, and surveillance and other airborne optical sensors	0-2 events/year (aver. = 1) 8 hours/event	Harpoon anti-ship missiles	Environmentally-approved full-scale hulks or SEPTARs
Penguin Anti-Surface Missile Exercise (PENGUINEX)	Provides experience in pursuing a surface target and firing medium-range Penguin anti-ship missiles	Firing unit (ship and/or aircraft), full-scale hulk or SEPTAR, photographic helicopter, and airborne radar aircraft (possible)	0-2 events/year (last done in 1996); 4 hours/event	Penguin anti-ship missiles	Environmentally-approved full-scale hulk or SEPTAR
Anti-Air Warfare Exercise (AAWEX)	Provides realistic training and evaluation environment for surface ships and their crews	One or more surface ships, one or more targets, one helicopter for target recovery, and one range boat for target recovery	0-1 event/year; 2 hours/event	Surface-to-air missiles	Target drones

Table A-18: Gunnery Exercises

Exercise	Purpose	Participants	Frequency and Duration	Weapons	Targets
Gunnery Exercises (GUNNEX)	Provides surface vessel crews gunnery practice at both stationary and moving targets	One or more surface vessels, Naval Gunfire Scoring System, observation helicopters, SEPTARs, ISTTs, orange buoys, towed aerial targets, full-scale hulks, and jet aerial targets	0-6 events/year (aver. = 3.2); 8 hours/event	Ship-deployed and air-deployed weapon systems, ranging from 20 mm to 5-in. caliber guns	SEPTARs, Improved Surface Tow Targets, orange buoys, towed aerial targets, environmentally-approved full-scale hulk, jet aerial target drones, Island of Kaula, Naval Gunfire Scoring System
Army Surface-to-Air Gunnery Exercise (Army SAGEX)	Enables Army personnel to qualify in firing Gatling gun cannons	Army personnel, aircraft, and ballistic aerial targets	Not done in last 5 years; 4 hours daily for 8 weeks. First 4 weeks dedicated to qualifying personnel in the use of the cannon against aerial towed targets.	Ship-deployed and air-deployed weapon systems, ranging from 20 mm to 5-in. caliber guns	Aerial towed targets

Table A-19: Mine Warfare Exercises

Exercise	Purpose	Participants	Frequency and Duration	Weapons	Target areas
Aerial Mining Exercise (MINEX)	Provides basis for air crew qualification in aerial mining	One or more aircraft	20-30 events/ year; 1 hour/event	Computer-simulated and exercise mines	Mining lines off the southwest coast of Kauai and the northeast coast of Niihau
Mining Readiness Certification Inspection	Provides the basis for anti-submarine warfare aircraft squadron certification and simulates wartime air-deployed mining of an enemy harbor	Four or five aircraft and one helicopter	0-7 events/ year (aver. = 2.4, not done currently); 1 hour/event	Dummy mines equipped with dye packs	Impact points determined by Operations Controller
Submarine-Launched Mobile Mines Exercise (SLMMEX)	Provides practice and evaluation with techniques and hardware for effectively firing submarine-launched mobile mines	One or more submarines, WRBs, one or more diver teams for mine recovery, and one or more helicopters	2-5 events/ year; 2 days/event	Inert submarine-laid mines ranging in size from 798 kg (1,759 lb) to 1,053 kg (2,321 lb) (Note: All mines are recovered)	Shallow water north of PMRF

Table A-20: Electronic Warfare Exercises

Exercise	Purpose	Participants	Frequency and Duration	Weapons/Electronic Warfare Assets	Targets
Electronic Warfare Exercise (EWEX)	Tests the capabilities of a ship or other unit to function in an electronic warfare environment	One to four ships, one or two submarines, range boats, and range aircraft	205-310 events/year (aver. = 272); 4 to 8 hours/event	Makaha Ridge, Niihau electronic warfare site, portable sites, PMRF aircraft and range boat	N/A
Electronic Countermeasures Exercise (ECMEX)	Trains and evaluates fleet units in conducting anti-air warfare in an electronic warfare environment	One or more surface ships, one or more electronic warfare equipped aircraft, and shore-based jamming units	10-15 events/year; 4 to 8 hours/event	Makaha Ridge, Niihau electronic warfare site, portable sites, PMRF aircraft and range boats, chaff, decoys, flares	N/A

N/A = Not applicable

Table A-21: Anti-Submarine Warfare Exercises

Exercise	Purpose	Participants	Frequency and Duration	Weapons	Targets
Air Anti-Submarine Warfare Exercise (AIRASWEX)	Provides crews of anti-submarine warfare aircraft and helicopters experience in locating and pursuing underwater targets and dropping torpedo weapons	P-3 aircraft, a Light Airborne Multi-Purpose System (LAMPS) MK III helicopter, fixed wing aircraft, torpedo targets, and/or one or more submarines, and a WRB and/or helicopters for target recovery	79-89 events/year (aver. = 83); 1 week/event	Air-dropped mines, lightweight and heavyweight wire-guided long-range torpedoes launched from helicopters, aircraft, surface ships, and submarines Sensors include sonars, non-acoustic sensors, and airborne early warning radars	Underwater targets or submarine
Anti-Submarine Warfare Exercise (ASWEX)	Provides realistic training in tracking an underwater target, localizing it, and delivering a weapon	One ship, an anti-submarine warfare helicopter, a submarine or underwater target, a helicopter for target launch and recovery, a WRB, and torpedoes	1-8 events/year (aver. = 3.8); 4 to 8 hours/event	Air-dropped mines, lightweight and heavyweight wire-guided long-range torpedoes launched from helicopters, aircraft, surface ships, and submarines Sensors include sonars, non-acoustic sensors, and airborne early warning radars	Submarine or underwater target
Surface Weapons Systems Accuracy Test (WSAT)	Checks the accuracy and compatibility of shipboard fire control systems and weapons	Surface ship, an underwater target, a WRB, and a helicopter	1-4 events/year (aver. = 2.4); 13 hours/event	Air-dropped mines, lightweight and heavyweight wire-guided long-range torpedoes launched from helicopters, aircraft, surface ships, and submarines Sensors include sonars, non-acoustic sensors, and airborne early warning radars	Buoy or underwater target (torpedo)

Table A-22: Submarine Operational Exercises

Exercise	Purpose	Participants	Frequency and Duration	Weapons	Targets
Submarine Warfare Exercise (SUBEX)	Provides realistic training and evaluation for submarines and crews	Submarine, a torpedo target, a submarine target (optional), a surface target (optional), a target and torpedo recovery helicopter, and a WRB or TWR boat	81-94 events/year (aver. = 88); 2 days/event	See table A-4, appendix A	Submarines, surface ships, or standard underwater target and underwater-training minefield
Range Exercise (RANGEX)	Develops and tests tactics and develops teamwork, using multiple submarines	Multiple submarines	2-3 events/year; 3 days/event	No weapons are fired	Submarines
Torpedo Training and Certification Program (TCP)	Certifies submarines in launching torpedoes and for training submarine crews in various tactics while firing torpedoes	Submarine, a torpedo underwater target, a WRB, and a surface ship target	3-5 events/year; 8 hours/event	Torpedoes	Torpedo underwater target, WRB, surface ship target, submarine

Table A-23: Land-based Training Exercises

Exercise	Purpose	Participants	Frequency and Duration	Weapons	Targets
Mobile Inshore Undersea Warfare Exercise (MIUWEX)	Allows a Mobile Inshore Undersea Warfare (MIUW) Unit to practice/train against underwater targets	MIUW Unit, torpedo underwater target, surface ships/boats, target deployment/recovery helicopters, WRB and/or TWR, anti-submarine aircraft.	0-1 event/year; 7-10 days/event	None	Torpedoes, submarines, and surface ships
Amphibious Exercise (AMPHIBEX)	Amphibious assault training, reconnaissance training, hydrographic surveying, surf condition observance, and communication	Zodiac rubber boats, amphibious vehicles, landing craft, and helicopters	0-2 events/year (aver. = 1); from 2:00 a.m. until 9:00 p.m., 3 times a year, over a 4- to 5-day period	Simulated mines and bombs	Land-based structures on base
RIMPAC Exercise	Amphibious assault training	Amphibious vehicles, landing craft, helicopters, fixed-wing aircraft	1 event/2 years; 2-3 days/event	Small arms	Structures on base
Downed Pilot Survival Training Exercises	Provides survival and detection-avoidance training	Pilots dropped from helicopters, observers on horseback	3-5 events/year; 6-7 hours/event	N/A	N/A
Helicopter Terrain Flight Training	Provides low-altitude, terrain-following training for helicopter crews	2 to 6 helicopters from Kanehoe Marine Corps Base on Oahu	30-50 events/year; once or twice per month	N/A	N/A
Special Recon Warfare Exercises	Provides covert insertion and recon training for small Special Warfare units	Special Warfare small units, helicopters, boats, submarine	1-2 events/year; 1-4 days/event	None	Recon land sites

Table A-24: Miscellaneous Exercises and Activities

Exercise	Purpose	Participants
Midcourse Tracking Intercontinental Ballistic Missile Exercise	Supplies midcourse tracking support to other launch sites such as Vandenberg AFB	Launch site, an Intercontinental Ballistic Missile (ICBM), and other Pacific-range sites.
Tracking Exercise 200-300 events/year	Tracking of participants	Vary depending on the particular operation
Radar Calibration 5-33 events/year	Verifies radar performance and identifies any systemic problems or errors	One or more radar sites, the orbital vehicle, and the Base Operation Support Services (BOSS) computer room
Sandia Kauai Operational Launch (SKOL) 1-3 events/year	PMRF support of Sandia National Laboratories (SNL) rocket launches	SNL/KTF, PMRF, a possible satellite, and possible tracking ships/aircraft, surveillance aircraft, and boats
Strategic Target System 1-2 events/year	PMRF support of Strategic Target System rocket launches, multi-stage rocket launch is tracked by various sensors, multiple objects may be deployed to simulate a multiple independent reentry vehicle ICBM	Strategic Target System missile, KTF, PMRF, possible satellite, tracking ships, possible aircraft, missile accident emergency team, an inter-range instrumentation group, possible AMOS, and range aircraft for range clearing
Sandia Rocket Target 1-3 events/year	Research rockets with a mock warhead	KTF, PMRF, other agencies, and tracking ships/aircraft, surveillance aircraft, and boats

Table A-25: Number of Individual Operations and Actual Hours Scheduled, FY91–92 to FY95–96

Number of Individual Operations—FY91-92 to FY95–96											
	FY92 Count	% of Total	FY93 Count	% of Total	FY94 Count	% of Total	FY95 Count	% of Total	FY96 Count	% of Total	Average	Average %
Training	659	67.2	691	66.5	591	71.1	756	65.4	694	76.7	678	69.0
RDT&E	179	18.2	292	28.1	173	20.8	351	30.4	196	21.7	238	24.3
Service	132	13.5	44	4.2	54	6.5	38	3.3	7	0.7	55	5.6
FMS	11	1.1	12	1.2	13	1.6	10	0.9	8	0.9	11	1.1
Total	981		1,039		831		1,155		905		982	

Actual Hours Used—FY91-92 to FY95–96											
	FY92 Count	% of Total	FY93 Count	% of Total	FY94 Count	% of Total	FY95 Count	% of Total	FY-96 Count	% of Total	Average	Average %
Training	3,080	74.1	3,552	67.7	3,114	74.3	4,173	66.9	3,496	72.5	3,483	70.6
RDT&E	727	17.5	1,414	27	916	21.8	1,894	30.4	1,238	25.7	1,238	25.1
Service	282	6.8	212	4.0	106	2.5	113	1.8	40	0.8	151	3.1
FMS	65	1.6	66	1.3	57	1.4	57	0.9	50	1.0	59	1.2
Total	4,154		5,244		4,193		6,237		4,824		4,931	

Source: Thomason, 1996, 18 Dec, p.1.
Note: RDT&E = Research, development, test and evaluation
FMS = Foreign military sales, where U.S. allies test their naval weapons systems
FY = Fiscal Year
% = Percent

Table A-26: Number of Aircraft, 1992–1995

Type	Year			
	1992	1993	1994	1995
Helicopter	10,877	7,175	8,558	7,894
Single Engine Propeller	1,359	582	486	299
Twin Engine Propeller	2,363	2,295	2,664	2,412
Four Engine Propeller	2,793	3,352	1,481	1,210
Jet Aircraft	868	317	569	520
Total	18,260	13,721	13,758	12,335

Source: Timmer, 1997, 21 Jan, p.1.

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Appendix B
Notice of Intent and OEQC Articles Relating to the Preparation of the Environmental Impact Statement

[Federal Register: May 23, 1997 (Volume 62, Number 100)]
[Notices]
[Page 28451-28452]
From the Federal Register Online via GPO Access [wais.access.gpo.gov]
[DOCID:fr23my97-72]

DEPARTMENT OF DEFENSE
Department of the Navy
Notice of Intent To Prepare an Environmental Impact Statement for the Enhancement of the Capability of the Pacific Missile Range Facility, Kauai, HI To Conduct Missile Defense Testing and Training Activities

SUMMARY: Pursuant to Section 102(2)(c) of the National Environmental Policy Act of 1969 as implemented in the Council on Environmental Quality regulations (40 CFR parts 1500-1508), the Department of the Navy announces its intent to prepare an Environmental Impact Statement (EIS) for the enhancement of the capability of the Pacific Missile Range Facility (PMRF), Kauai, Hawaii to conduct missile defense testing and training activities. Agencies invited to cooperate in the preparation of this EIS include the Department of the Army, Department of the Air Force, Ballistic Missile Defense Organization, Coast Guard, Department of the Interior, Department of Energy, Federal Aviation Administration, and the State of Hawaii.

The 42,000-square-mile range, located on the west and north side of Kauai and in the adjacent ocean area, is currently operated as a missile test and training facility by the Navy. Congress has directed the Navy to develop a Theater Ballistic Missile Defense Program (TBMD). Implementing the program at PMRF is in accordance with the Senate Report 103-321 on the 1995 Defense Appropriations Bill, which designated PMRF as ``the primary test range for the completion of Navy (TBMD) flight tests.''

The Proposed Action is to enhance the capability of PMRF to allow testing and training for the Navy's TBMD program and for the overall DoD Theater Missile Defense (TMD) program. The no-action alternative is the continuation of PMRF's current activities in support of existing DoD test and training programs. This EIS will examine environmental impacts of developing and operating potential launch sites and tracking stations/areas. Areas being considered for the launch and/or instrumentation sites include: (1) Kauai and the Hawaiian Islands, (2) other Pacific land-based support locations, and (3) ocean areas within and outside U.S. territorial waters.

The distances between PMRF and some of the locations under consideration may exceed limitations in current international agreements related to distances for target missile flights, but they will not exceed distances to the anticipated areas of operations. Any testing would comply with current U.S. policy concerning compliance with treaties and international agreements.

In accordance with Hawaii Revised Statutes (HRS) Chapter 343, the Governor of Hawaii has determined that an EIS is required. Since the State and Federal actions and decisions are interconnected, the analyses will be documented in a single joint EIS. The decisions to be made by the State of Hawaii are: (1) Whether to revise the existing restrictive easement with the Navy to extend the easement term from January 1, 2003 to December 31, 2030, and (2) Whether to extend and/or revise other Navy leases and concur with or grant approvals as may be required for Navy use of lands in the Northwestern Hawaiian chain, to support the enhancement of PMRF to facilitate development and testing of TMD systems.

The objective of the EIS is to describe and evaluate environmental impacts of existing activities at the range (the no-action alternative), describe the alternatives for enhancing the range for purposes of testing TBMD systems, and evaluate the environmental impacts from various enhancement alternatives. Environmental resource areas that will be addressed in the EIS include air quality; biological resources, including threatened and endangered species; cultural resources; geology and soils; hazardous materials and waste; health and safety; land use; noise; socioeconomics; transportation, including airspace; utilities; visual and aesthetic resources; and water quality.

The Navy will host four scoping meetings to solicit input on significant issues that should be addressed in the EIS. Each scoping meeting will provide opportunities for clarification of the EIS and alternatives and solicit input from representatives of government agencies and interested individuals. The Navy will set up information stations at these scoping meetings. Each information station will be attended by a Navy representative who will be available to answer questions from meeting attendees. Comments will be entered into the official record via written comment sheets available at each meeting. Written comments will also be accepted via mail or fax. Regardless of the commenting method chosen, all comments will receive the same attention and consideration during EIS preparation.

The four public scoping meetings will be held at the following times and locations: (1) June 17 from 4:00-8:00 pm at the Waimea Neighborhood Center, Waimea, Kauai; (2) June 19 from 4:00-8:00 pm at the Kilauea Neighborhood Center, Kilauea, Kauai; (3) June 21 from 1:00-4:00 pm at the Wilcox Elementary School Cafeteria, Lihue, Kauai; and (4) June 23 from 4:00-8:00 pm at the US Army Reserve Center Assembly Hall, Room 101, Ft. Schafter Flats, Ft. Schafter, Oahu.

ADDRESSES: Agencies and the public are encouraged to provide written comments. To be most helpful, comments should clearly describe specific issues or topics that the EIS

[[Page 28452]]

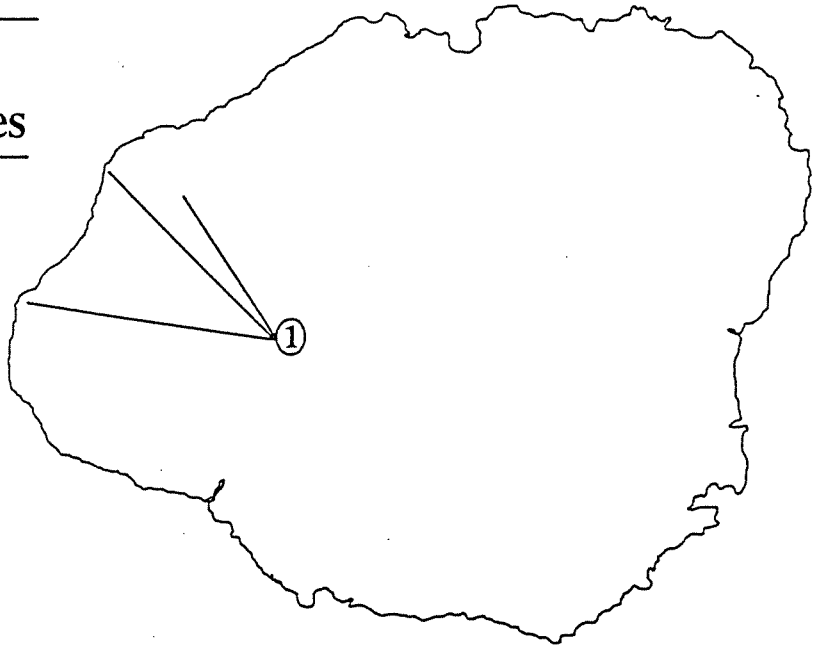
should address. Please mail written comments to: Vida Mossman, Pacific Missile Range Facility, P.O. Box 128, Kekaha, Kauai, Hawaii, 96752-0128, or send by facsimile at (808) 335-4660. Please postmark comments by June 23, 1997.

FOR FURTHER INFORMATION CONTACT: Additional information concerning this notice may be obtained by contacting Vida Mossman, Pacific Missile Range Facility, P.O. Box 128, Kekaha, Kauai, Hawaii, 96752-0128, telephone (808) 335-4740.

Dated: May 20, 1997.
D. E. Koenig,
LCDR, JAG, USN, Federal Register Liaison Officer.
[FR Doc. 97-13639 Filed 5-22-97; 8:45 am]
BILLING CODE 3810-FF-P

May 23, 1997

Environmental Impact Statement Preparation Notices



(1) Pacific Missile Range Enhanced Capability

District: Waimea
TMK: 1-2-02:por. 1, 15 and 24
Applicant: Department of Land and Natural Resources
1151 Punchbowl Street
Honolulu, Hawaii 96813
Contact: Gary Martin (587-0421)

Approving Agency/Accepting Authority: Governor, State of Hawaii
c/o Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu Hawaii 96813

Consultant: U.S. Navy
Pacific Missile Range Facility
P.O. Box 128
Kekaha, Hawaii 96752-0128
Contact: Vida Mossman (335-4740)

Public Comment Deadline: June 23, 1997

Status: EISPN First Notice pending public comment. Address comments to the applicant with copies to the approving agency or accepting authority, the consultant and OEQC.

The Navy is proposing to enhance the capability of the Pacific Missile Range Facility (PMRF) to allow testing and training for both the Navy's Theater Ballistic Missile Defense (TBMD) program, as directed by Congress, and other Department of Defense (DOD) agencies' Theater Missile Defense (TMD) projects. (Senate Report 103-321 and House Report 103-747) Accordingly, this Environmental Impact Statement (EIS) Preparation Notice (PN) is designed to be an informational document that evaluates the possible environmental consequences of the use of proposed State lands in support of the Navy proposal to enhance the capabilities of PMRF.

The proposed uses of State lands include modification of an existing restrictive easement granted by the State of Hawaii to the Navy regarding lands adjacent to PMRF. The modification would include expanding the types of missile launches and extending the easement term through 31 December 2030. This expansion would correspond to the renewal of other PMRF leases currently in place. Other State actions include the expansion of the leased area at Kamokala Caves and consideration of Kure Atoll in the Northwestern Hawaiian chain as a potential launch and/or instrumentation site.

The Navy's proposal assumes the continuation of existing activities at PMRF and combines these with the upgrading of existing radar, telemetry, optics, electronic warfare, and other instrumentation and communications facilities, and the construction and operation of additional target and interceptor launch sites, and sensor and instrumentation facilities that would enhance the capability of PMRF. This would potentially involve the use of certain lands not currently used by DOD in addition to the previously mentioned possible revision to the existing restrictive easement with the State of Hawaii for land adjacent to PMRF. Areas being considered for the launch and/or instrumentation sites include: (1) Kauai and the Hawaiian Islands, (2) Western Pacific support locations, (3) Vandenberg Air Force Base, and (4) ocean areas within and outside U.S. territorial waters.

DEPARTMENT OF DEFENSE

Department of the Navy

Preparation of an Environmental Impact Statement (EIS) for the Disposal and Reuse of Surplus U.S. Navy Property Located in the Territory of Guam

AGENCY: Department of the Navy, DoD.
ACTION: Notice.

SUMMARY: The Department of the Navy announces the intent to prepare an Environmental Impact Statement (EIS) for the disposal and subsequent reuse of surplus U.S. Navy property in the Territory of Guam. A public scoping workshop will be held to receive oral and written comments to identify potentially significant issues for study in the EIS and to notify parties interested in and affected by the property disposal and reuse. Federal, state and local agencies, and interested individuals are invited to be present or represented at the workshop.

DATES: Public scoping workshop date is Thursday, May 7, 1998, 7 to 9 p.m.

ADDRESSES: Public scoping workshop location is Chamorro Village Main Pavilion, Paseo Complex, Agana, Guam.

FOR FURTHER INFORMATION CONTACT: Mr. John Bigay, (808) 471–9338.

SUPPLEMENTARY INFORMATION: Preparation of this EIS is pursuant to section 102(2)(c) of the National Environmental Policy Act (NEPA) of 1969, as implemented by the Council on Environmental Quality regulations (40 CFR parts 1500–1508).

The proposed action of the EIS is disposal by the Navy and subsequent reuse of 19 parcels of land, totaling approximately 2,800 acres, at 14 sites on the island. The properties consist of developed and undeveloped land, buildings and infrastructure. The properties will be disposed of in accordance with the provisions of the Defense Base Closure and Realignment Act (Pub. L. 101–510) of 1990 as amended, and applicable federal property disposal regulations.

The properties are among those identified in a plan for Department of Defense real estate on Guam, the Guam Land Use Plan Update 1994 (GLUP 94). The GLUP reviewed all military land requirements on Guam and made recommendations for land retention and disposal based on foreseeable mission tasking and force levels.

The properties to be disposed of are identified as: the former Federal Aviation Administration (FAA) Housing Area in Dededo; the Navy Print Shop (Harmon Annex) and Marine Drive (Wettengel Junction) parcels in Dededo; Tamuning Telephone Exchange; four parcels adjacent to Naval Computer and Telecommunications Activity Master Station, Barrigada; Nimitz Hill Enlisted Housing and nearby vacant land; parcels at Sasa Valley and Tenjo Vista in Piti; a parcel at Polaris Point; a parcel near the New Apra Heights family housing area; a parcel on Route 2A in Santa Rita; Rizal or Aflleje Beach in Santa Rita; Old Apra Heights and; two parcels at the naval ordnance area in Santa Rita.

Potential reuse alternatives for the parcels are defined in a Government of Guam (GovGuam) reuse plan prepared for the GLUP 94 Reuse Planning Committee and the Guam Economic Development Authority. Excluded from consideration in this EIS are GLUP 94 Air Force properties. Also excluded are GLUP 94 Navy power plant properties and areas at the former Naval Air Station, Agana, which are being addressed as separate actions.

The EIS will analyze the proposed action, reasonable alternatives to the proposed action, and individual and cumulative environmental impacts. Alternatives considered in the EIS will be influenced by the identification of feasible future uses of the land areas. The GovGuam reuse plan features various land uses, including resort, industrial, commercial, residential, agricultural, parks, recreation, historic and conservation use.

Environmental issues to be considered will include, but are not limited to, effects on cultural resources, terrestrial and aquatic habitats, threatened or endangered species, air and water quality, infrastructure, traffic, noise, flood plain management, installation restoration and environmental clean-up, and the socioeconomic environment. Direct, indirect and cumulative impacts will be analyzed, and mitigation measures will be developed if appropriate.

The scoping workshop will provide opportunities for clarification of the U.S. Navy's action in response to Base Realignment and Closure (BRAC) decisions and subsequent identification of surplus properties, and to solicit input from representatives of government agencies and interested individuals regarding the scope of the EIS. The U.S. Navy and the Guam Economic Development Authority will set up information stations at the workshop. Each information station will be attended by a knowledgeable person who will be available to answer questions from attendees. Agency representatives and the public are encouraged to provide comments. Comments will be entered into the official record via written comment sheets available to attendees at the workshop and via summary of oral comments. To ensure accuracy of the record, it is suggested that comments be submitted in writing. All comments, oral and written, will become part of the public record and will receive attention and consideration during EIS preparation.

Written comments may also be mailed to Mr. John Bigay (Code 231), Pacific Division, Naval Facilities Engineering Command, Pearl Harbor, HI 96860–7300; or contact Mr. Bigay by telephone (808) 471–9338 or facsimile (808) 474–5909. Written comments are requested not later than May 26, 1998. Additional information concerning this notice may be obtained by contacting Mr. Leland Munson (Department of Defense Base Transition Coordinator) at (671) 339–5443 on Guam.

Dated: April 7, 1998.

Lou Rae Langevin,

Lieutenant, Judge Advocate General's Corps, U.S. Navy, Alternate Federal Register Liaison Officer.

[FR Doc. 98–9566 Filed 4–9–98; 8:45 am]
BILLING CODE 3810–FF–P

DEPARTMENT OF DEFENSE

Department of the Navy

Notice of Public Hearing for the Pacific Missile Range Facility Enhanced Capability Draft Environmental Impact Statement at Pacific Missile Range

AGENCY: Department of the Navy, DOD.
ACTION: Notice.

SUMMARY: The Department of the Navy announces that it will hold two public hearings to inform the public of the Pacific Missile Range Facility Enhanced Capability Draft Environmental Impact Statement (DEIS) findings and to solicit comments.

Federal, state, and local agencies and interested parties are invited and urged to be present or represented at the hearings. Oral statements will be heard and transcribed by a stenographer. However, to assure the accuracy of the record, all statements should be submitted in writing. All statements, both oral and written, will become part of the public record on this action and will be given equal consideration.

In the interest of available time, each speaker will be asked to limit his or her oral comments to five minutes. If longer statements are to be presented, they should be summarized at the public hearing(s) and submitted in writing either at the public hearing(s) or mailed

to the address below. Written comments on the DEIS should be mailed to the address below and must be postmarked not later than May 26, 1998 to be part of the official record.

The DEIS has been distributed to various federal, state and local agencies, elected officials, special interest groups, the media, and concerned citizens. Copies of the DEIS have also been placed in local libraries in Hawaii. A limited number of copies are available at the address below.

DATES AND ADDRESSES: Public hearing dates and locations are as follows:

1. Saturday, April 25, 1998, 10 a.m., Waimea United Church of Christ Educational Center, Waimea, Hawaii
2. Tuesday, April 28, 1998, 5 p.m., Weinberg Memorial Hall, Disabled American Veterans Park, 2685 North Nimitz Hwy., Honolulu, Oahu, Hawaii

FOR FURTHER INFORMATION, TO PROVIDE COMMENTS OR FOR A COPY OF THE DEIS CONTACT: Ms. Vida Mossman, P.O. Box 128, Kekaha, Kauai, Hawaii, 96752-0128.

SUPPLEMENTARY INFORMATION: Pursuant to Council on Environmental Quality regulations (40 CFR parts 1500-1508) implementing the procedural provisions of the National Environmental Policy Act, the Department of the Navy has prepared and filed with the U.S. Environmental Protection Agency, the Pacific Missile Range Facility (PMRF) Enhanced Capability Draft Environmental Impact Statement at Pacific Missile Range Facility. The DEIS assesses the potential impacts associated with enhancing PMRF capabilities. The Proposed Action would enable PMRF to fully accommodate the testing and training needs of the Navy's Theater Ballistic Missile Defense (TBMD) program as well as other DOD Theater Missile Defense (TMD) programs. The proposed enhancement would also serve to increase PMRF's viability in the future by providing the capability for potential customers to develop, test and train in the use of evolving defensive systems.

The DEIS analyzes additional missile launch and support locations, facility construction, launch preparation activities, missile flight tests, radar and optical tracking operations, and intercept tests in the Pacific Ocean.

Environmental issues analyzed in the DEIS for enhancing PMRF include: Air quality; airspace control; biological resources; cultural resources; geology and soils; hazardous materials and waste; safety and health; land use; noise; socioeconomics; transportation; utilities; visual and aesthetics; and water resources. In addition, the document addresses ocean areas and environmental justice.

Proposed Action

The Navy proposes to enhance capabilities of PMRF to conduct missile defense testing by (1) upgrading existing radar, telemetry, optics, electronic warfare, differential global positioning system, and other instrumentation facilities; and (2) the construction and operation of additional missile launch sites, sensor and instrumentation facilities, and a missile storage building.

Areas being considered for the launch and/or instrumentation sites include (1) Kauai and Niihau; (2) land-based support locations on Tern Island and Johnston Atoll; and (3) ocean areas within and outside U.S. territorial waters. Any testing would comply with current U.S. policy concerning compliance with treaties and international agreements.

No Action

The No-Action Alternative is the continuation of existing range and land-based training and operations; existing research development, testing and evaluation activities; and ongoing base operations and maintenance of the technical and logistical facilities that support the training and operations missions conducted at PMRF.

Dated: April 7, 1998.

Lou Rae Langevin,

LT, JAGC, USN, Alternate Federal Register Liaison Officer.

[FR Doc. 98-9561 Filed 4-9-98; 8:45 am]

BILLING CODE 3810-FF-P

DEPARTMENT OF ENERGY

Environmental Management Site-Specific Advisory Board, Department of Energy, Los Alamos National Laboratory

AGENCY: Department of Energy.

ACTION: Notice of open meeting.

SUMMARY: Pursuant to the provisions of the Federal Advisory Committee Act (Public Law 92-463, 86 Stat. 770) notice is hereby given of the following Advisory Committee meeting: Environmental Management Site-Specific Advisory Board (EM SSAB), Los Alamos National Laboratory.

DATES: Thursday, April 28, 1998: 6:00 p.m.-9:00 p.m.; 6:30 p.m. to 7:00 p.m. (public comment session)

ADDRESSES: Sweeney Center, 201 West Marcy Street, Santa Fe, New Mexico.

FOR FURTHER INFORMATION CONTACT: Ms. Ann DuBois, Northern New Mexico Citizens' Advisory Board, Los Alamos National Laboratory, 528 35th Street, Los Alamos, New Mexico 87544, (505) 665-5048.

SUPPLEMENTARY INFORMATION: Purpose of the Board: The purpose of the Advisory Board is to make recommendations to DOE and its regulators in the areas of environmental restoration, waste management, and related activities.

Tentative Agenda

6:00 p.m.
Call to Order—Agenda Approval—Minutes of Previous Meeting
6:15 p.m.
DOE Comments
6:30 p.m.
Public Comments
7:00 p.m.
Introduction of Committees
7:15 p.m.
Break
7:30 p.m.
Discussion: Bylaws, Elections, Retreat, Next Meeting
8:30 p.m.
Review of Outstanding Environmental Restoration/Waste Management Recommendations
9:00 p.m.
Adjourn

Public Participation: The meeting is open to the public. Written statements may be filed with the Committee either before or after the meeting. Individuals who wish to make oral statements pertaining to agenda items should contact Ms. Ann DuBois, at (505) 665-5048. A sign-up sheet will also be available at the door of the meeting room for members of the public to indicate their desire to address the Board. Requests must be received 5 days prior to the meeting and reasonable provision will be made to include the presentation in the agenda. The Designated Federal Official is empowered to conduct the meeting in a fashion that will facilitate the orderly conduct of business.

Minutes: The minutes of this meeting will be available for public review and copying at the Freedom of Information Public Reading Room, 1E-190, Forrestal Building, 1000 Independence Avenue, SW, Washington, DC 20585 between 9:00 a.m. and 4 p.m., Monday-Friday, except Federal holidays. Minutes will also be available by writing to Mr. Mat Johansen, Deputy Designated Federal Officer, Department of Energy, Los Alamos Area Office, 528 35th Street, Los Alamos, NM 87185-5400.

ENVIRONMENTAL PROTECTION AGENCY

[ER–FRL–5490–6]

Environmental Impact Statements; Notice of Availability

Responsible Agency: Office of Federal Activities, General Information (202) 564–7167 OR (202) 564–7153.

Weekly receipt of Environmental Impact Statements Filed March 30, 1998 Through April 03, 1998 Pursuant to 40 CFR 1506.9.

EIS No. 980106, DRAFT EIS, NPS, MI, Isle Royale National Park General Management Plan, Implementation, Keweenaw County, MI, Due: May 26, 1998, Contact: Douglas A. Barnard (906) 482–0984.

EIS No. 980107, DRAFT EIS, DOE, UT, Spanish Fork Canyon—Nephi Irrigation System (SFN) System, Construction and Operation, Bonneville Unit, Central Utah Project, Central Utah Water Conservancy District, Utah, Salt Lake and Juab Counties, UT, Due: June 15, 1998, Contact: Sheldon H. Talbot (801) 226–7105.

EIS No. 980108, DRAFT EIS, FHW, AR, MI, US–71 Transportation Improvements, from south of Bella Vista to Pineville, Benton County, AR and McDonald County, MI, Due: June 05, 1998, Contact: Elizabeth A. Romero (501) 324–5625.

EIS No. 980109, FINAL SUPPLEMENT, COE, AL, FL, GA, Lake Seminole Hydrilla Action Plan Updated Information to the Lake Seminole and Jim Woodruff Lock and Dam, Operation and Maintenance Project, Implementation, Gadsden and Jackson Counties, FL; Decatur and Seminole Counties, GA; and Houston County, AL, Due: May 11, 1998, Contact: Mike Eubanks (334) 694–3861.

EIS No. 980110, FINAL EIS, COE, CA, Upper Guadalupe River Feasibility Study, Flood Control Protection, Construction, National Economic Development Plan (NED), Santa Clara Valley Water District, City of San Jose, Santa Clara County, CA, Due: May 11, 1998, Contact: William Dejager (415) 977–8670.

EIS No. 980111, DRAFT EIS, USN, HI, Pacific Missile Range Facility Enhanced Capabilities, To Accommodate Theater Ballistic Missile Defense (TBMD) Training & Testing and Theater Missile Defense (TMD) Testing, NPDES Permit, several counties, HI, Due: May 26, 1998, Contact: Vida Mossman (808) 335–4740.

EIS No. 980112, DRAFT EIS, GSA, VA, U.S. Patent and Trademark Office (PTO) Consolidation, Acquisition of 2.4 million Rentable Square Feet with a 20-year Lease Term, Three Possible Sites: Crystal City, Carlyle and Eisenhower Avenue, VA, Due: May 26, 1998, Contact: Carl Winters (202) 401–1025.

EIS No. 980113, DRAFT EIS, COE, NJ, Brigantine Inlet to Great Egg Harbor Inlet Feasibility Study, Storm Damage Reduction Project, New Jersey Shore Protection, City of Brigantine, Brigantine Island, Along the Atlantic Coast, NJ, Due: May 26, 1998, Contact: Beth Brandreth (215) 656–6558.

EIS No. 980114, FINAL EIS, USN, CA, Long Beach Complex Disposal and Reuse, Implementation, COE Section 10 and 404 Permits, NPDES Permit, in the City of Long Beach and Los Angeles County, CA, Due: May 11, 1998, Contact: Melanie Ault (619) 532–4744.

EIS No. 980115, FINAL EIS, FHW, MN, MN-Trunk-Highway-371 (MN–TH–371) Relocation Project, New Construction, North of the entrance to the Crow Wing State Park to the existing Intersection of MN–TH–371 and MN–TH–210 in the City of Baxter, Funding and US Army COE Section 10 Permit Issuance, Crow Wing Township, Crow Wing County, MN (Tier 2 FEIS), Due: May 11, 1998, Contact: Cheryle Martin (612) 291–6120.

Dated: April 7, 1998.

Ken Mittelholtz,

Environmental Protection Specialist, Office of Federal Activities.

[FR Doc. 98–9568 Filed 4–9–98; 8:45 am]

BILLING CODE 6560–50–U

ENVIRONMENTAL PROTECTION AGENCY

[FRL–5995–2]

Notice of Public Meeting of the National Environmental Education Advisory Council

Notice is hereby given that the National Environmental Education Advisory Council, established under section 9 of the National Environmental Education Act of 1990 (the Act), will hold a public meeting on May 18th and 19th, 1998. The meeting will take place at the River Inn, 924 Twenty-Fifth Street, NW, Washington, DC from 9:00 am to 5:00 pm on Monday, May 18th and Tuesday, May 19th. The purpose of this meeting is to provide the Council with an opportunity to advise EPA's Office of Communications, Education and Media Relations (OCEMR) and the Office of Environmental Education (OEE) on its implementation of the Act. Members of the public are invited to attend and to submit written comments to EPA following the meeting.

For additional information regarding the Council's upcoming meeting, please contact Ginger Keho, Office of Environmental Education (1707), Office of Communications, Education and Media Relations, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460 or call (202) 260–4129.

Dated: March 25, 1998.

Ginger Keho,

Designated Federal Official, National Environmental Education Advisory Council.

[FR Doc. 98–9550 Filed 4–9–98; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[FRL–5994–9]

Meeting of the Ozone Transport Commission for the Northeast United States

AGENCY: Environmental Protection Agency.

ACTION: Notice of meeting.

SUMMARY: The United States Environmental Protection Agency is announcing the Annual meeting of the Ozone Transport Commission to be held on May 22, 1998.

This meeting is for the Ozone Transport Commission to deal with appropriate matters within the transport region, as provided for under the Clean Air Act Amendments of 1990. This meeting is not subject to the provisions of the Federal Advisory Committee Act, Public Law 92–463, as amended.

DATES: The meeting will be held on May 22, 1998 from 9:00 a.m. to 3:00 p.m.

ADDRESSES: The meeting will be held at: Hawthorne Hotel, On the Common, Salem, MA 01970, (978) 744–4080.

FOR FURTHER INFORMATION CONTACT: *EPA:* Susan Studlien, U.S. Environmental Protection Agency—Region 1, John F. Kennedy Federal Building, Boston, MA 02203, (617) 565–3800.

THE STATE CONTACT: *Host Agency:* Sonia Hamel, Executive Office of Environmental Affairs, 100 Cambridge Street, Boston, MA 02202, (617) 727–9800.

FOR DOCUMENTS AND PRESS INQUIRIES CONTACT: Stephanie A. Cooper, Ozone Transport Commission, 444 North Capitol Street, N.W., Suite 638, Washington, DC 20001, (202) 508–3840, e-mail: ozone@sso.org

that have taken place since the 1989 EIS was approved, such as the construction of the major infrastructure, mass grading operations that have been completed, traffic, and socio-economic conditions.

Draft Environmental Impact Statements

(4) Pacific Missile Range Facility Enchanced Capability

District: Waimea
TMK: 1-2-02: Por. 1, 15, and Por. 24
Applicant: U.S. Navy
Pacific Missile Range Facility
P.O. Box 128
Kekaha, Kauai, Hawaii 96752-0128
Contact: Vida Mossman (335-4740)
Approving Agency/Accepting Authority: Department of Land and Natural Resources
Kalanimoku Building
1151 Punchbowl Street
Honolulu, Hawaii 96813
Contact: Gary Martin (587-0414)
Public Comment Deadline: May 26, 1998
Status: DEIS First Notice pending public comment. Address comments to the applicant.
Permits Required: Lease & restrictive easement from DLNR

This notifies the public that the Navy is issuing a draft environmental impact statement (DEIS) for the enhancement of the Pacific Missile Range Facility (PMRF). The DEIS assesses the potential impacts associated with enhancing PMRF capabilities. The Proposed Action would enable PMRF to fully accommodate the testing and training needs of the Navy's Theater Ballistic Missile Defense (TBMD)program as well as other Department of Defense Theater Missile Defense (TMD) programs. The proposed enhancement would also serve to increase PMRF's viability in the future by providing the capability for potential customers to develop, test and train in the use of evolving defensive systems. The DEIS analyzes additional missile launch and support locations, facility construction, launch preparation activities, missile flight tests, radar and optical tracking operations, and intercept tests in the Pacific Ocean.

Environmental issues analyzed in the DEIS for enhancing PMRF include: air quality; airspace control; biological resources (such as threatened or endangered species and wetlands); cultural resources; geology and soils; hazardous materials and waste; safety and health; land use; noise; socioeconomics; transportation; utilities; visual and aesthetics; and water resources. In addition, the document addresses ocean areas and environmental justice. In accordance with the National Environmental Policy Act (NEPA), the Navy has determined that an EIS is required to support Navy decisions. The decisions to be made by the Navy are: 1) whether to enhance the capabilities of PMRF to conduct TMD testing, evaluation, and training for both the Navy TBMD program and other DOD programs within 22.2 kilometers (12 nautical miles) of the U.S. boundary. This enhancement would include the consideration of placing additional assets at PMRF and at off-range locations to support PMRF activities. 2) Which remote sites to develop to support testing and training scenarios for Navy and other DOD TMD systems.

In accordance with Hawaii Revised Statutes (HRS) Chapter 343, an EIS is required to support the State of Hawaii decisions. Since the State and Federal actions and decisions are interconnected, the analyses have been documented in a single joint EIS. The decisions to be made by the State of Hawaii are: 1) Extend the term of the existing easement from 2003 to 2030. This existing easement allows PMRF to restrict public access to a) less than 70 acres of the 140 acre Polihale State Park and b) 2,039 acres of lands in sugar cane for no more than four hours for no more than 30 times each year. This action will require these lands to remain in their present non-commercial uses. 2) Add approximately 50 acres to an existing 74.5-acre lease from the State to the Navy at the Kamokala ordnance storage magazines from the State to the Navy. The lease is needed for additional ordnance storage; a new ordnance shed will be built on the leased area. 3) Whether to add an easement for approximately 136 acres to insure that no development will occur in an area presently in sugar cane for the Explosive Safety Quantity Distance area related to the Kamokala Magazines. The Navy will pay the State fair market value. Recreation, rural, agricultural, and fishing uses are all compatible with the proposed military uses.

Individuals or organizations may provide comments or request a copy of the DEIS by writing to: Ms. Vida Mossman P.O. Box 128, Kekaha, Kauai, Hawaii, 96752-0128. In addition, individuals or organizations may offer verbal or written comments at public meetings to be held at the following times and locations:

Waimea United Church of Christ Education Center, Waimea, Kauai, April 25, 1998; 10:00 a.m.

Disabled American Veterans Hall, Honolulu, Oahu, April 28, 1998; 5:00 p.m.

Interested citizens and public officials will be able to receive pertinent information regarding the findings of the Draft EIS at these meetings. Public comments are invited through May 26, 1998. The Navy intends to issue the Final EIS in July 1998.

Land Use Commission Notices

Haliimaile Residential Subdivision

The LUC has received the following request regarding a proposed district boundary amendment pursuant to Chapter 205, Hawaii Revised Statutes:

Docket No.:	A98-723
Petitioner:	A&B Properties, Inc.
Location:	Haliimaile, Maui
Acreage:	62.994 acres
TMK:	2-5-03: portion of 10
Request:	Reclassification of State Land Use Agricultural District lands to the Urban District.
Date Filed:	February 26, 1998

If you would like further detailed information on this matter, please contact:

State Land Use Commission

Location Address
Leiopapa A Kamehameha Building
(State Office Tower)
235 S. Beretania Street, Room 406
Honolulu, Hawaii 96813

Mailing Address
P.O. Box 2359
Honolulu, Hawaii 96804-2359

Phone: 587-3822

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PACIFIC MISSILE RANGE FACILITY DRAFT ENVIRONMENTAL IMPACT STATEMENT EXECUTIVE SUMMARY

INTRODUCTION

This document is a joint State of Hawaii and United States Navy Environmental Impact Statement (EIS) that provides a comprehensive environmental analysis to support State and Federal decisions concerning the use of State, Federal, and private lands to support range enhancements at the Pacific Missile Range Facility (PMRF) at Barking Sands, Kauai, Hawaii. This Draft EIS (DEIS) analyzes the environmental impacts of the Navy's proposal to enhance the capability of PMRF to accommodate the Department of Defense's (DOD) Ballistic Missile Defense (BMD) testing, evaluation, and training. Since the State and Federal actions and decisions are interconnected, the analyses will be documented in this joint EIS. By providing for joint preparation, excessive paperwork is reduced. In addition, since actions are proposed to occur both inside and outside U.S. territorial waters, this document complies with both the National Environmental Policy Act (NEPA) and Executive Order 12114, *Environmental Effects Abroad of Major Federal Actions.*

Hawaii Revised Statutes (HRS) Chapter 343 and its implementing rules (Title 11, Chapter 200, Hawaii Administrative Rules, Department of Health) require that systematic consideration be given to the environmental and social consequences of any State agency action, including the use of State or county lands. Use of State or county lands includes any grant of title, lease, permit, easement, license, or entitlement to those lands. The proposed uses of State lands include modification of the existing lease of exclusive easement granted by the State of Hawaii in 1993 to the Navy regarding lands adjacent to PMRF. This modification would address missile launches that generate the need to utilize State lands as a ground hazard area and extend the term of that existing easement from 1 January 2003 to 31 December 2030. This extension would bring this easement in conformity with other existing PMRF leases expiring in 2029 and 2030. Another State action is the expansion of the current leased area at Kamokala Magazines storage magazines by approximately 20 hectares (ha) (50 acres [ac]) and the establishment of an associated safety easement limiting building of structures and habitation by the public, or commercial structures. The current Kamokala Magazine lease ends on 19 August 2029. Both the proposed expansion lease and the safety easement expiration dates would be 19 August 2029.

The National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) regulation implementing NEPA (Title 40, Code of Federal Regulations 1500-1508), DOD Directive 6050.1, *Environmental Effects in the United States of Department of Defense Actions* and *Environmental and Natural Resources Program Manual* (OPNAVINST 5090.1B) direct the Navy and DOD officials to consider environmental consequences when making decisions to authorize or approve Federal actions. In addition, Executive Order 12114, *Environmental Effects Abroad of Major Federal Actions,* requires consideration of environmental effects in decisions for actions outside the United States or its territories.

PURPOSE AND NEED FOR THE PROPOSED ACTION

Congress has directed DOD to develop a highly effective Theater Missile Defense (TMD) program to defend our armed forces abroad and our friends and allies from theater missile attacks. No fully effective defense against these missiles currently exists. However, theater missiles are being developed and/or purchased by many nations, some of which are not friendly to the U.S. Congress tasked the DOD's Ballistic Missile Defense Organization (BMDO) to develop this system in cooperation with all elements of U.S. Armed Services.

Theater Ballistic Missile Defense (TBMD) is the name of the Navy program that is a part of the overall DOD TMD program. The Proposed Action would enable the Pacific Missile Range Facility (PMRF) to fully accommodate the testing and training needs of the Navy's TBMD program and other DOD TMD programs as well. This proposed enhancement would also increase PMRF's viability in the future by providing more capability for potential customers to develop, test and train.

To fully accomplish these objectives, continued use of some State and private land by PMRF is needed. For State lands, (1) the term of an existing restrictive easement needs to be extended and (2) the lease of some additional State land is proposed.

Revision of the existing restrictive easement involves only changes in the types of missile launches for which the easement may be used and in the number of years that the easement is in effect. The number of times that State property would be closed to public access would not change and the amount of State land involved would not change. The proposed lease of some other State land would provide for additional explosives storage facilities and an associated safety zone.

NO-ACTION ALTERNATIVE AND PROPOSED ACTION

The No-action Alternative is the continuation of (1) existing range and land-based training and operations, (2) existing research, development, testing, and evaluation (RDT&E) activities, and (3) ongoing base operations and maintenance of the technical and logistical facilities that support the training and operations missions conducted at PMRF.

The Proposed Action assumes the continuation of existing activities at PMRF. The Proposed Action combines the activities of the No-action Alternative with slight increases in activities of a similar nature. It also combines these activities with (1) the upgrading of existing radar, telemetry, optics, electronic warfare, differential global positioning system, and other instrumentation facilities, and (2) the construction and operation of additional missile launch sites, sensor and instrumentation facilities, and a missile storage building that would enhance the capability of PMRF as guided by Congress to support TBMD and TMD activities.

Areas being considered for the launch and/or instrumentation sites include: (1) Kauai and Niihau, (2) other Pacific land-based support locations (Tern Island and Johnston Atoll), and (3) ocean areas within and outside U.S. territorial waters. Any testing would comply with current U.S. policy concerning compliance with treaties and international agreements.

The proposed use of State lands would occur under the Proposed Action to enhance the capabilities of PMRF to support TBMD and TMD. Under the Proposed Action, the use of State Lands would involve the renewal of the existing restrictive easement to 31 December 2030 when the current agreement expires on 31 December 2002. The basic conditions of the restrictive easement (30 activations per year) would not change from those in the current agreement, except it would allow for the activation for the missiles to support both TBMD and TMD. In addition, under the Proposed Action the lease of State lands at Kamokala Magazines, would be expanded to permit the Navy to accommodate additional storage of ordnance and related ESQD arcs until 19 August 2029.

Areas analyzed as part of the No-action Alternative and Proposed Action include PMRF (PMRF/Main Base; Restrictive Easement (ground hazard area); Makaha Ridge; Kokee; Kamakola Magazines; and Port Allen, Kauai), PMRF support sites (Niihau; Kaula; Maui Space Surveillance System, Maui; Kaena Point, Oahu; Wheeler Network Segment Control/PMRF Communication Sites, Oahu; Department of Energy Communication Sites, Kauai and Oahu); candidate sites (Tern Island and Johnston Atoll); and Ocean Area (outside U.S. territory).

DECISIONS TO BE MADE

The decisions to be made by the State of Hawaii are (1) whether to revise the existing restrictive easement with the Navy to expand the types of missile launches and extend the easement term from 1 January 2003 to 31 December 2030; and (2) whether to extend and/or revise other Navy leases and concur with or grant approvals as may be required for Navy use of lands to support the enhancement of PMRF to facilitate development and testing of TMD systems. The Governor of Hawaii would be the accepting authority for the analysis, as well as the approval authority for the State Proposed Action.

Neither the No-action Alternative nor the Proposed Action conflicts with any land use plans, policies, or controls. A determination of compatibility on the use of Tern Island within the Hawaiian Island National Wildlife Refuge will be made by the USFWS. This compatibility determination will be based on the intended purpose of the refuge and the activities planed for that site. PMRF would revise the current restrictive easement with the State of Hawaii for the continued use of lands for safety purposes adjacent to the facility for missile launching activities. In addition, PMRF would obtain a lease and restrictive easement for the construction and use of two new ordnance storage magazines on Kauai.

NEPA-related decisions to be made by the Federal Government are (1) whether to enhance the capabilities of PMRF to conduct TMD testing, evaluation, and training for both the Navy TBMD program and other DOD programs within 22.2 km (12 nmi) of the U.S. boundary. This enhancement would include the consideration of placing additional assets at PMRF and at off-range locations to support PMRF activities; and (2) which remote sites to develop to support testing and training scenarios for Navy and other DOD TMD systems.

The decision-maker for the Federal Government is the Secretary of the Navy for Installations and Environment.

SCOPE OF THE STUDY

This DEIS evaluates the potential environmental effects of the No-action Alternative and proposed enhancement of test and training capabilities of PMRF, including additional launch, instrumentation, and support sites and various levels of testing and training intensities. The DEIS also discusses the potential impacts of revising the existing easement with the State of Hawaii for land adjacent to PMRF for an additional 28-year period as well as other potential land use agreements to provide for buffer zones adjacent to PMRF and an off-site storage facility. The DEIS addresses all of the measurably foreseeable activities in the particular geographical areas affected by the No-action and Proposed Action and focuses on the activities ripe for decision. Because the Proposed Action requires the use of State of Hawaii lands (revision of the restrictive easement and the potential use of other land), this DEIS also assesses the environmental consequences of the Proposed Action in accordance with Hawaii law. The DEIS embraces both Federal and State requirements and provides necessary analyses to allow agencies at all levels to fully consider the environmental effects of their decisions.

SUMMARY OF ENVIRONMENTAL IMPACTS

This section describes the potential environmental effects from implementing the No-action Alternative and the Proposed Action. The environment is analyzed in terms of 14 resource areas: air quality, airspace, biological resources, cultural resources, geology and soils, hazardous materials and hazardous waste, health and safety, land use, noise, socioeconomics, transportation, utilities, visual and aesthetic resources, and water resources. In addition, an evaluation of the ocean area outside the territorial limits of the United States and an environmental justice analysis were conducted. Each resource area is discussed at each location unless the No-action Alternative and Proposed Action activities at that location would not foreseeably result in an impact. The data presented are commensurate with the importance of the potential impacts in order to provide the proper context for evaluating impacts. For some locations, it was determined through initial evaluation that no impacts would occur. These sites are briefly discussed within the DEIS and are summarized below. Table ES-1 provides a summary of the environmental consequences associated with the implementation of the No-action Alternative and Proposed Action at each of the locations evaluated. The environmental consequences of the State of Hawaii actions are included within the Restrictive Easement and Kamokala Magazines columns in table ES-1. Environmental consequences under the jurisdiction of Executive Order 12114 are included within the Ocean area. The information in the table is based on the environmental impact analysis presented in chapter 4 of this DEIS. The level of impacts shown in table ES-1 are defined as:

- **No Impact**—No impact is predicted.
- **No Adverse Impact**—An impact is predicted, but the impact does not meet the intensity or context criteria needed to trigger a regulatory requirement or impact the quality of the human or natural environment.
- **Adverse Impact**—An impact is predicted that meets the intensity or context criteria necessary to trigger a regulatory requirement or impact the quality of the human or natural environment.

Table ES-1: Summary of Potential Environmental Consequences

LOCATION	PMRF/ Main Base		Restrictive Easement (Ground Hazard Area)		Makaha Ridge		Kokee		Kamokala Magazines		Port Allen		Niihau		Kaula		Kaena Point		Maui Space Surveillance System		Wheeler Network Segment Control/PMRF		DOE Comm. Sites		Tern		Johnston Atoll		Ocean Area (Outside U.S. Territory)	
RESOURCE	No-action	Proposed	No-action	Proposed	No-action	Proposed	No-action	Proposed	No-action	Proposed	No-action	Proposed	No-action	Proposed	No-action	Proposed	No-action	Proposed	No-action	Proposed	No-action	Proposed	No-action	Proposed	No-action	Proposed	No-action	Proposed	No-action	Proposed
Air Quality	△	△	△	△	△	△	△	△	□	△	△	△	△	△	□	□	□	□	□	□	□	□	□	□	□	△	□	△	□	□
Airspace	△	△	□	□	□	□	□	□	□	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	△
Biological Resources	△	△	△	△	△	△	△	△	□	△	□	□	△	■	△	△	□	□	□	□	□	□	□	□	□	■	□	△	△	△
Cultural Resources	△	△	□	□	△	△	△	△	△	△	□	□	△	△	□	□	□	□	□	□	□	□	□	□	□	□	□	△	□	□
Geology and Soils	△	△	□	□	△	△	△	△	△	△	□	□	□	△	■[2]	■[2]	□	□	□	□	□	□	□	□	□	△	□	△	□	□
Hazardous Materials and Hazardous Waste	△	△	□	□	△	△	△	△	□	□	△	△	△	△	□	□	□	□	□	□	□	□	□	□	□	△	□	△	□	□
Health and Safety	△	△	□	□	△	△	△	△	△	△	△	△	△	△	△	△	□	□	□	□	□	□	□	□	□	△	□	△	□	△
Land Use	△	△	△	△	□	□	△	△	△	△	□	□	△	△	△	△	□	□	□	□	□	□	□	□	□	△	□	△	□	□
Noise	△	△	△	△	△	△	△	△	□	□	△	△	△	△	□	□	□	□	□	□	□	□	□	□	△	△	□	△	□	□
Socioeconomics	+	+	△	△	□	□	□	□	□	□	□	□	□	+	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□
Transportation	□	△	△	△	□	□	□	□	□	□	□	△	□	+	□	□	□	□	□	□	□	□	□	□	□	+	□	△	□	□
Utilities	□	□	□	□	■[1]	■[1]	■[1]	■[1]	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	△	□	△	□	□
Visual and Aesthetics	△	△	□	□	△	△	△	△	□	△	□	□	△	△	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□
Water Resources	△	△	□	□	□	□	△	△	△	△	□	□	□	△	□	□	□	□	□	□	□	□	□	□	□	△	□	△	□	□
Environmental Justice	△	△	△	△	□	□	□	□	□	□	□	□	△	△	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□

EXPLANATION

□ **No Impact**: No impact is predicted.

△ **No Adverse Impact**: An impact is predicted, but the impact does not meet the intensity or context criteria needed to trigger a regulatory requirement or impact the quality of the human or natural environment.

■ **Adverse Impact**: An impact is predicted that meets the intensity or context criteria necessary to trigger a regulatory requirement or impact the quality of the human or natural environment.

\+ **Beneficial Impact**: An impact is predicted to have a beneficial effect on the quality of the human or natural environment.

Notes:

[1] Both on-going and proposed activities would continue to contribute to the existing water shortage until a new well is on-line within one to two years.

[2] Adverse impact due to permanent adverse soil and geologic effects from past ordnance explosions.

- **Beneficial Impact**—An impact is predicted to have a beneficial effect on the quality of the human or natural environment.

There are no unresolved issues to the No-action Alternative and Proposed Action.

A listing of State of Hawaii permits or approvals is contained in appendix H, Potential Permits, Licenses, and Entitlements Required. Laws and regulations considered are provided in appendix J.

No-action Alternative

Under the No-action Alternative, three locations (Makaha Ridge, Kokee and Kaula) evaluated in this DEIS were predicted to have adverse impacts (see table ES-1). For each location analyzed in the DEIS, potential adverse impacts are discussed below. For all remaining locations, either no impacts or no adverse impacts were predicted to arise from implementation of the No-action Alternative.

Makaha Ridge. For utilities, on-going activities at Makaha Ridge would continue to have an adverse impact on the water shortage that exists in the water supply system that supplies water to Makaha Ridge form the State of Hawaii water main at Kokee State Park until a new well is on-line within 1 to 2 years. Currently a mandatory water conservation program is in effect.

Kokee. For utilities, on-going activities at Kokee Park would continue to have an adverse impact on the water shortage that exists in the water supply system that supplies water from the State of Hawaii water main at Kokee Park, the same system that supplies Makaha Ridge. This is expected to continue until a new well is on-line within 1 to 2 years. Currently a mandatory water conservation program is in effect.

Kaula. The No-action Alternative is the continued use of the southeast end of Kaula to train aviators in air-to-surface weapons delivery. Authorized ordnance includes aircraft cannon rounds. Permanent adverse soil and geologic effects have been noted by the Navy resulting from shattering of rocks in explosions and the possibility of both live and inert ordnance (duds) which may remain in the target area (Department of the Navy, 1980). The Navy minimizes the impact by managing the targeting to the distal southeast tip of the island, approximately 8 percent of the total land mass (Department of the Navy, 1980).

Proposed Action

Under the Proposed Action, six locations (Makaha Ridge, Kokee, Niihau, Kaula, and Tern Island) evaluated in this DEIS were predicted to have adverse impacts. For each of these locations the adverse impacts are discussed below. Either no impacts or no adverse impacts to any of the environmental resources analyzed in this DEIS from implementation of the Proposed Action would be expected for the remaining locations.

Makaha Ridge. Proposed activities would not result in an increase in the amount of water use at Makaha Ridge. However, the existing adverse impacts to the water supply may continue until a new well is drilled.

Kokee. Proposed activities would not result in an increase in the amount of water use at Kokee. However, the existing adverse impacts to the water supply may continue until a new well is drilled.

Niihau. Activation of the proposed Restricted Area over the Aerostat site on Niihau would have the potential to impact the V-16 en route low altitude airway that crosses the middle of the island. The proposed 5.6 km (3-nmi) radius Restricted Area, from ground level to 5,182 m (17,000 ft) surrounding both proposed sites would lie within the boundaries of the airway, which extends from the surface up to, but not including 5,486 m (18,000 ft) mean sea level, and 7.4 km (4 nmi) either side of the airway's center line. As such, whenever the Aerostat is used and the Restricted Area is activated at either proposed site, traffic on the V-16 airway would be required to change from its regular flight course, and would represent an adverse impact to the region of influence's en route airways.

Adverse impacts to marine biological resources may occur. Additional traffic at the existing logistics landing sites and other landing craft landing areas may disturb monk seals that are hauled out to bask, or possibly pup, on the sandy beach areas. Disturbance of green sea turtle nesting sites at the existing logistics landing sites and other sandy beach areas could also occur. However, the operational activities of the Proposed Action are not expected to affect viability or jeopardize the continued survival of either of these two sensitive species.

Kaula. Because no activities are planned for Kaula other than those described in the No-action Alternative, no additional impacts are anticipated.

Tern Island. Terrestrial and marine biological resources at Tern Island may experience impacts resulting from the Proposed Action. Removal of some habitat and physical disturbance of nesting seabirds and migratory shore birds during construction of launch pad(s) are expected to cause an impact. Construction related noise is expected to disturb the Hawaiian monk seals in areas close to the construction site, depending on the site's proximity to the monk seal use area. The increased noise, in conjunction with the increased presence of, and activity by, humans (construction workers and project technical advisors), could also have an adverse impact on the seals present in the area. Green sea turtles basking or nesting in areas close to the construction could be disturbed by the noise and activity by workers.

Dredging to provide added surface area to the island for construction of launch facilities, and to increase depth of current channels to allow the MATSS and the tugboat access to the western end of the island would increase turbidity in the lagoon. Increases in turbidity may increase the presence of the microscopic algae *Cigutera* and therefore the incidence of ciguatoxins in the fish in the vicinity of Tern Island. There is some indication that ciguatoxins adversely affect monk seals. Because the dredging activity would be localized, the potential impact of the dredging is not expected to jeopardize the survival of the species, and geological studies would be conducted in close coordination with the USFWS before dredging began.

Launch noise could impact Hawaiian monk seals by startling them and causing them to flee into the water. This could injure pups, and put adults, pups, and juveniles at risk to shark predation. The effects of noise on monk seals hauled out on islands downrange but within the area affected by sonic booms can be expected to be similar to that near the launch

site. The potential effects of noise on the population at Tern Island could disturb the monk seals. However, with the limited number of launch events (four per year) and the short term nature of the events, the species is not expected to be jeopardized. With implementation of restrictions on the access of project personnel to the beach areas used by the monk seal, impacts due to increased human activity on the island should be minimized and result in a negligible impact on the monk seal for this aspect of the Proposed Action.

Appendix C
Leases and Easements

Existing Easement

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LEASE OF EXCLUSIVE EASEMENT

THIS INDENTURE, made and entered into this 1st day of January, 1994, by and between the STATE OF HAWAII, by its Board of Land and Natural Resources, hereinafter referred to as the "GRANTOR", and the UNITED STATES OF AMERICA, hereinafter referred to as the "GRANTEE", represented by the Commander, Pacific Division, Naval Facilities Engineering Command, Pearl Harbor, Hawaii 96860.

WHEREAS, the GRANTEE operates the Pacific Missile Range Facility, Hawaiian Area, at Barking Sands, Kauai, Hawaii, hereinafter referred to as the "FACILITY", to provide major range services for training, tactics development, and evaluation for air, surface, and subsurface weapons systems by Pacific Fleet units, and to support U.S. Department of Defense, including Ballistic Missile Defense Organization (BMDO), and other government projects involved with the launching and tracking of and collection of data associated with guided missiles and satellites, and space vehicle research, development, evaluation and training programs; and

WHEREAS, these programs involve missile launching operations for which the establishment of ground hazard safety areas, hereinafter referred to as "GHAs", is considered essential to safeguard the safety, health, and welfare of persons not directly associated with said operations and activities by controlling the land uses therein on a temporary basis; and

WHEREAS, the GRANTEE plans 11 launches over the term of this easement with a GHA of 10,000 feet and 72 launches over the term of this easement with a GHA of 6,000 feet; and

WHEREAS, the Commanding Officer, Pacific Missile Range Facility requires the evacuation of all unauthorized and non-essential personnel from a GHA for standard safety precautions just prior to and after a missile launch; and

WHEREAS, the non-GRANTEE controlled lands affected by the GHA are owned by the GRANTOR and are portions of the land outleased to the Kekaha Sugar Company, Limited for agricultural purposes under General Lease No. S-4222.

WITNESSETH THAT:

The GRANTOR, for and in consideration of the sum of $319,000.00, the receipt of which is hereby acknowledged, and of the terms, conditions, and covenants herein contained, to be kept, observed, and performed, does hereby grant and convey unto the GRANTEE and its assigns, for a period of nine (9) years from January 1, 1994 to December 31, 2002, an easement in, over, under and across the following described lands owned by the GRANTOR for the establishment and maintenance of GHAs in connection with operations of the GRANTEE:

All that land situated at Mana, Waimea (Kona), Kauai, State of Hawaii, identified as Parcels 1 and 2, containing 2,039.185 acres and 69.579 acres, respectively, as more fully described in Exhibit "A", attached hereto and made a part hereof by reference.

THE GRANTEE COVENANTS AND AGREES WITH THE GRANTOR AS FOLLOWS:

1. Use of the property within the easement area is hereby limited and restricted in favor of the GRANTEE as follows:

a. Parcel "1" may only be used for agricultural purposes, such as the growing of crops and the grazing of cattle;

b. Parcel "2" may only be used for public recreational (park) purposes; and

c. No building or structure shall be constructed or permitted within the easement area without the prior written consent of the GRANTEE.

2. Subject to the limitations of paragraphs 3 and 4 hereof, the GRANTEE may use the easement area as GHAs for STARS and VANDAL missile launching operations from the FACILITY. For this purpose, the GRANTOR hereby conveys to the GRANTEE the following rights in order that the GHAs may be verified clear of all persons twenty (20) minutes before a scheduled launch; namely, the right to:

a. Enter the easement area and notify all persons therein either orally or in writing or by the posting of appropriate signs that a launch is pending and that they will be required to leave at a specific time;

b. Close off all roads leading into the easement area;

c. Prohibit the entry of all persons into the easement area;

d. Exclude all persons from the easement area; and

e. Post guards within the easement area, it being the intent of this easement to give the GRANTEE exclusive control over access to and use of the easement area during said period.

3. The GRANTEE may exercise the rights conveyed by paragraph 2 above beginning three (3) hours before a scheduled launch. The easement area shall be reopened shortly after a successful launch when safety personnel of the GRANTEE declare the area safe. In the event hazardous conditions exist in the GHAs after a launch, said safety personnel may continue to maintain exclusive control over the easement area until it is safe for the general public to reenter the area.

4. The GRANTEE may exercise the rights conveyed by paragraph 2 above up to thirty (30) times during each annual period of this indenture, the first such annual period commencing as of January 1, 1994.

5. The GRANTEE will delay a launch to permit the passage of emergency vehicles and equipment .

6. The GRANTEE shall provide procedures and responsibilities for launches and emergencies, including the coordination with County and civil defense agencies.

7. The GRANTEE shall develop a protection plan for known historic sites, if any, in the affected area.

8. The GRANTEE shall also have the right to post permanent warning signs at the edge of and within the easement area advising the general public of the existence of the GHAs and that the area is subject to closure during planned missile launches.

9. THE GRANTEE hereby agrees to clean up any debris or any releases of hazardous substances resulting from its launches in accordance with all federal and applicable State and local environmental laws. It is the intent of the parties that the obligations of this section survive the expiration of the underlying document.

10. The GRANTEE will notify the GRANTOR, through the Department of Land and Natural Resources and Department of Transportation, and any lessee of the GRANTOR leasing lands within the GHA at least seven (7) calendar days prior to each scheduled launch requiring the exercise of the above rights and specify the relevant GHA and the sections of roadway that will be affected by the launch.

11. The GRANTOR reserves to itself and its successors and assigns all such rights and privileges in the easement area as may be used and enjoyed without interfering with or abridging the rights granted to the GRANTEE by this indenture. The GRANTOR, also, hereby reserves the right to maintain, repair or replace in their present condition and at their present locations all existing structures, including but not limited to buildings roadways, power and telephone poles, now within the easement area.

12. The GRANTEE shall be responsible for any claims for personal injury or damage to property caused by or resulting from a launch or other activities in conjunction with its use of the easement area herein described, as provided in the Federal Tort Claims Act (62 Stat. 869-982; 28 U.S.C. 2671-2680), the Military Claims Act (10 U.S.C. 2731-2734), and other applicable laws.

13. The GRANTOR will not be responsible for any loss liability, claim or demand for property damage, property loss or personal injury including, but not limited to, death arising out of any injury or damage caused by, or resulting from, any act or omission of the GRANTEE in connection with the GRANTEE's use of the easement area.

14. Should there be any contaminants or pollutants found within the easement area as a result of the launches which significantly threaten the public health, and which have not been previously discussed in the environmental documents for the project, the grant of easement shall be terminated.

IN WITNESS WHEREOF, the STATE OF HAWAII, by its Board of Land and Natural Resources, has caused the seal for the Department of Land and Natural Resources to be hereunto affixed and the parties hereto have caused this indenture to be executed as of the day, month, and year first above written.

STATE OF HAWAII

Approved by the Board of Land and Natural Resources at its meeting held on November 19, 1993

By _____
Chairperson and Member
Board of Land and
Natural Resources

GRANTOR

By _____

J. MICHAEL KILIAN
Director, Real Estate Division
Pacific Division, Naval Facilities Engineering Command
Real Estate Contracting Officer

GRANTEE

APPROVED AS TO FORM:

_____
Deputy Attorney General

Date: December 21, 1993

Restrictive Easement (Ground Hazard Area) Example Revision

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EXAMPLE

Navy Identification No. N6274293RP00075

AMENDMENT TO LEASE OF EXCLUSIVE EASEMENT
(GENERAL LEASE NO. S-5352)

THIS INDENTURE, made and entered into this ____ day of _____, 1998, by and between the STATE OF HAWAII, by its Board of Land and Natural Resources, hereinafter referred to as "GRANTOR" and the UNITED STATES OF AMERICA, hereinafter referred to as the "GRANTEE", represented by the Commander, Pacific Division, Naval Facilities Engineering Command, Pearl Harbor, Hawaii 96860-7300.

WITNESSETH THAT:

WHEREAS, by General Lease No. S-5352, dated and effective January 1, 1994, for a term of nine (9) years, the GRANTOR did grant and convey unto the GRANTEE an easement in, over, under and across certain lands situate at Mana, Waimea (Kona), Kauai, Hawaii, subject to the terms, covenants and conditions set forth therein; and

WHEREAS, the GRANTEE desires to continue missile launching operations from the Pacific Missile Range Facility, including but not limited to the launching of STARS and VANDAL missiles, beyond the present expiration date of General Lease No. S-5352; and

WHEREAS, these launching operations require the periodic establishment of a ground hazard safety area; and

WHEREAS, the GRANTEE desires the right to continue to exercise exclusive control over and access to and use of the easement area not more than thirty (30) times per year; and

WHEREAS, the GRANTEE requested said lease of exclusive easement be amended to extend the term to December 31, 2030, to provide for this continuing requirement; and

WHEREAS, Board of Land and Natural Resources, at its meeting held on _____, 1998, with the concurrence of the State Forester, approved the amendment of General Lease No. S-5352 to extend the term to December 31, 2030,

NOW, THEREFORE, in consideration of (insert amount per appraisal) Dollars ($), the receipt of which is hereby acknowledged, General Lease No. S- 5352 is hereby amended as follows:

1. The term is hereby extended to December 31, 2030.

EXAMPLE

2. The words "STARS and VANDAL" are hereby deleted from Paragraph 2.

Except as herein amended, all term and conditions of General Lease No. S-5352 shall continue in full force and effect.

IN WITNESS WHEREOF, the STATE OF HAWAII, by its Board of Land and Natural Resources, has caused the seal of the Department of Land and Natural Resources to be hereunto affixed and the parties hereto have caused this indenture to be executed as of the day, month and year first written above.

STATE OF HAWAII

By: _____
Chairman and Member
Board of Land and
Natural Resources

And By: _____
Member
Board of Land and
Natural Resources

UNITED STATES OF AMERICA

By: _____

Approved as to Form:

_____
Deputy Attorney General
Dated: _____

EXAMPLE

Navy Identification No. N6274293RP00076

AMENDMENT TO GRANT OF EASEMENT

THIS INDENTURE, made and entered into this ____ day of _____, 1998, by and between AMFAC SUGAR–KAUAI, a Hawaii Corporation, whose postal address is c/o Amfac/JMB Hawaii, Inc., 700 Bishop Street, P.O. Box 3230, Honolulu, Hawaii 96801, hereinafter called the "GRANTOR", and the UNITED STATES OF AMERICA, represented by the Commander, Pacific Division, Naval Facilities Engineering Command, Pearl Harbor, Hawaii 96860-7300, hereinafter referred to as the "UNITED STATES".

WITNESSETH THAT:

WHEREAS, by that Grant of Easement recorded in the Bureau of Conveyances as Document No. 94-010951, dated and effective January 11, 1994, for a term of nine (9) years, the GRANTOR did grant and convey unto the UNITED STATES an easement in, over and under all that land situated at Mana, Waimea (Kona), Kauai, Hawaii, identified as Parcel 1-A, containing 1.324 acres, subject to the covenants set forth therein; and

WHEREAS, the Government desires that the term of the easement be extended to August 19, 2029,

NOW, THEREFORE, in consideration of the sum of (insert amount per appraisal) Dollars ($), the receipt of which is hereby acknowledged, said Grant of Easement is hereby amended as follows:

1. The term is hereby extended to December 31, 2030.
2. Paragraph 16 is amended to delete the date "December 31, 2002" and insert the date "December 31, 2030".

Except as herein amended, all terms and conditions of said Grant of Easement shall remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have executed this indenture as of the day and year first written above.

EXAMPLE

EXAMPLE

AMFAC SUGAR–KAUAI

By: _____
Its

UNITED STATES OF AMERICA

By: _____

STATE OF HAWAII)
) ss.
CITY AND COUNTY OF HONOLULU)

On this _____ day of _____, _____, before me appeared _____, to me personally known, who, being by me duly sworn, did say that he is the _____ of AMFAC SUGAR–KAUAI and that the seal affixed to the foregoing instrument is the corporate seal of said corporation, and that the instrument was signed and sealed in behalf of said corporation by authority of its Board of Directors; and said officer acknowledged the execution of said instrument to be a free act and deed of said corporation.

_____
Notary Public, State of Hawaii

My commission expires _____

EXAMPLE

Kamokala Magazines Example Lease and Explosive Safety Quantity-Distance Easement

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EXAMPLE

Navy No. N6274298RP00___

GENERAL LEASE NO. S-3852

THIS INDENTURE, made and entered into this _____ day of _____, 1998, by and between the STATE OF HAWAII, by its Board of Land and Natural Resources, hereinafter referred to as the "Lessor" and the UNITED STATES OF AMERICA, hereinafter referred to as the "Government", represented by the Commander, Pacific Division, Naval Facilities Engineering Command, Pearl Harbor, Hawaii 96860-7300.

WITNESSETH THAT:

WHEREAS, by General Lease No. S-3852, dated and effective August 20, 1964, for a term of sixty-five (65) years, the Lessor leased and demised unto the Government four (4) tracts of land together with appurtenant road access and utility rights-of-way, situate at Mana, Waimea (Kona), Kauai, Hawaii, subject to the terms, covenants and conditions set forth therein; and

WHEREAS, the Government requested said lease be amended to add approximately 5 acres of land to accommodate the expansion of Government facilities at the site; and

WHEREAS, Board of Land and Natural Resources, at its meeting held on _____, 1998, with the concurrence of the State Forester, approved the amendment of General Lease No. S-3852 by the addition of the requested acreage,

NOW, THEREFORE, in consideration of (insert amount per appraisal) Dollars ($0.00), the receipt of which is hereby acknowledged, General Lease No. S- 3852 is hereby amended as follows:

1. Paragraph 2 is amended to include that certain tract of land more particularly described on Exhibit "A", attached hereto and made a part hereof.

Except as hereby amended, all term and conditions of General Lease No. S-3852 shall remain in full force and effect.

EXAMPLE

EXAMPLE

IN WITNESS WHEREOF, the STATE OF HAWAII, by its Board of Land and Natural Resources, has caused the seal of the Department of Land and Natural Resources to be hereunto affixed and the parties hereto have caused this indenture to be executed as of the day, month and year first written above.

STATE OF HAWAII

By: _____
Chairman and Member
Board of Land and
Natural Resources

And By: _____
Member
Board of Land and
Natural Resources

UNITED STATES OF AMERICA

By: _____

Approved as to Form:

_____
Deputy Attorney General
Dated: _____

EXAMPLE

EXAMPLE

Navy Identification No. N6274298RP00___

GRANT OF EASEMENT

THIS INDENTURE, made and entered into this ____ day of _____, 1998, by and between THE STATE OF HAWAII, by its Board of Land and Natural Resources, hereinafter called the "GRANTOR", and the UNITED STATES OF AMERICA, hereinafter referred to as the "GOVERNMENT", represented by the Commander, Pacific Division, Naval Facilities Engineering Command, Pearl Harbor, Hawaii 96860-7300.

WITNESSETH THAT:

WHEREAS, the Department of the Navy operates the Pacific Missile Range Facility at Barking Sands, Kauai, Hawaii; hereinafter called the "Facility", to support the Department of Defense and other federal projects involved with the launching, tracking and collection of data associated with guided missile, satellite and space vehicle research, development and evaluation and military training programs; and

WHEREAS, these programs involve the storage and transportation of materials for which the establishment of explosive safety quantity distance (hereinafter "ESQD") arcs is necessary to limit the exposure of persons and property to potential risks related to the storage and transportation of these materials; and

WHEREAS, portions of the ESQD arcs generated by the high explosive magazines located at Kamokala Ridge and used by the GOVERNMENT pursuant to that certain lease identified as General Lease No. S-3852 extend beyond the lease boundary,

NOW, THEREFORE, in consideration of the sum of (insert amount per appraisal) Dollars ($), the receipt of which is hereby acknowledged, and of the terms, conditions and covenants contained herein, to be kept, observed and performed, the GRANTOR does hereby grant and convey unto the GOVERNMENT and its assigns, for a period of thirty-one (31) years from August 20, 1998, to August 19, 2029, an easement in, over, under and across the following described lands owned by the GRANTOR for the establishment and maintenance of ESQD areas in connection with the operations of the GOVERNMENT:

> All that land situate at Mana, Waimea (Kona), Kauai, Hawaii, identified as (insert description or lot numbers), containing (insert number) acres, as more fully described in Exhibit "A", attached hereto and made a part hereof by reference.

EXAMPLE

EXAMPLE

The GRANTOR and the GOVERNMENT covenant and agree as follows:

1. Use of the property within the easement area is hereby limited in favor of the GOVERNMENT as follows;

a. Lands within the easement area may be used solely for agricultural purposes, such as the growing of crops and the grazing of cattle; and

b. No building or structure shall be constructed or permitted within the easement area without the prior written consent of the GOVERNMENT, except those buildings and structures currently existing; and

c. The GRANTOR, shall not suffer or permit public access to the easement area.

2. The GOVERNMENT shall have the right to post and maintain permanent warning signs at the edge and within the easement area advising the general public of the existence of the ESQD area and hazards related thereto.

3. The GRANTOR shall not be liable for any loss, liability, claim or demand for property damage, property loss, or personal injury including, but not limited to, death arising out of any act or omission of the GOVERNMENT in connection the GOVERNMENT'S use of the easement area.

4. The GOVERNMENT shall be liable for all claims arising from the death of or personal injury to all persons, or loss of or damage to the property of all persons, resulting from the use of the easement area by the GOVERNMENT to the extent provided under the Federal Torts Claims Act (28 U.S.C. Sections 1346(b), and 2671-2680).

5. This easement shall run with the land.

IN WITNESS WHEREOF, the STATE OF HAWAII, by its Board of Land and Natural Resources, has caused the seal for the Department of Land and natural Resources to be hereunto affixed and the parties hereto have caused this indenture to be executed as of the day, month and year first above written.

STATE OF HAWAII

By: _____
Chairman and Member
Board of Land and
Natural Resources

And By: _____
Member
Board of Land and
Natural Resources

EXAMPLE

EXAMPLE

UNITED STATES OF AMERICA

By: _____

Approved as to Form:

_____
Deputy Attorney General
Dated: _____

EXAMPLE

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Appendix D
Environmental Resource Determination

APPENDIX D
ENVIRONMENTAL RESOURCE DETERMINATION

Consistent with Council on Environmental Quality regulations, the scope of the analysis presented in this environmental impact statement (EIS) was defined by the range of potential environmental impacts that would result from implementation of the No-action Alternative and Proposed Action. Resources that have a potential for impacts were considered in the EIS analysis to provide the decisionmakers with sufficient evidence and analysis for evaluation of the potential effects of the action. Code of Federal Regulations 1502.15 states that "The environmental impact statement shall succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration. The descriptions shall be no longer than is necessary to understand the effects of the alternatives. Data and analyses in a statement shall be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced. Agencies shall avoid useless bulk in statements and shall concentrate effort and attention on important issues." In addition, Code of Federal Regulations 1500.4 directs Federal agencies to reduce excessive paperwork by discussing only briefly issues other than significant ones.

For this EIS, the environment is discussed in terms of 14 resource areas: air quality, airspace, biological resources, cultural resources, geology and soils, hazardous materials and hazardous waste, health and safety, land use, noise, socioeconomics, transportation, utilities, visual and aesthetic resources, and water resources. In addition, a discussions of environmental justice and the ocean area are provided. Each resource area is discussed at each location addressed in this EIS unless the action(s) proposed at that location would not foreseeably result in an impact. Provided below is the rationale for not addressing all 14 resources at specific locations where activities would occur. The outline follows that presented in Chapter 3, Affected Environment.

D1.1 PACIFIC MISSILE RANGE FACILITY (PMRF)

D1.1.1 PMRF/MAIN BASE

All 14 resource areas were addressed.

D1.1.2 RESTRICTIVE EASEMENT

Of the 14 resources, airspace was not addressed and is discussed below.

D1.1.2.1 Airspace

Activation of the restrictive easement does not require control of the airspace above this land area. Airspace issues associated with PMRF operations are addressed under PMRF/Main Base.

D1.1.3 MAKAHA RIDGE

Of the 14 resources, socioeconomics was not addressed and is discussed below.

D1.1.3.1 Socioeconomics

The socioeconomic issues associated with Makaha Ridge are included within PMRF/Main Base.

D1.1.4 KOKEE

Of the 14 resources, socioeconomics was not addressed and is discussed below.

D1.1.4.1 Socioeconomics

The socioeconomic issues associated with Kokee are included within PMRF/Main Base.

D1.1.5 KAMOKALA MAGAZINES

Of the 14 resources, airspace, noise, socioeconomics, and utilities were not addressed and are discussed below.

D1.1.5.1 Airspace

Use of the Kamokala storage magazine does not require control of the airspace above this land area. Airspace issues associated with PMRF operations are addressed under PMRF/Main Base.

D1.1.5.2 Noise

Other than short-term construction noise associated with the construction of two storage buildings under the Proposed Action, activities at the storage magazines do not generate noise other than an occasional truck used to transport ordnance. There are no sensitive receptors near the site.

D1.1.5.3 Socioeconomics

Socioeconomic issues associated with Kamokala Caves are included within PMRF/Main Base.

D1.1.5.4 Utilities

Other than electricity for lighting the storage facilities, no other utility systems are required.

D1.1.6 PORT ALLEN

Of the 14 resources, airspace, biological resources, cultural resources, geology and soils, and socioeconomics were not addressed and are discussed below.

D1.1.6.1 Airspace

Use of Port Allen does not require control of the airspace above this land area. Airspace issues associated with PMRF operations are addressed under PMRF/Main Base.

D1.1.6.2 Biological Resources

Under both the No-action Alternative and Proposed Action there would be no ground-disturbing activities that could affect biological resources at Port Allen. PMRF operations at Port Allen represent only a small portion of the activities at this port and are similar to any port area.

D1.1.6.3 Cultural Resources

Under both the No-action Alternative and Proposed Action there would be no ground-disturbing activities or building modifications that could affect cultural resources.

D1.1.6.4 Geology and Soils

Under both the No-action Alternative and Proposed Action there would be no ground-disturbing activities or building modifications that could affect geology and soils. Potential issues associated with hazardous materials use is addressed under hazardous materials and hazardous waste.

D1.1.6.5 Socioeconomics

The socioeconomic issues associated with Port Allen are included within PMRF/Main Base.

D1.2 SUPPORT SITES

D1.2.1 NIIHAU

All 14 resources areas were addressed.

D1.2.2 KAULA

Of the 14 resources, air quality, hazardous materials and hazardous waste, noise, socioeconomics, transportation, utilities, and visual and aesthetic resources were not addressed and are discussed below.

D1.2.2.1 Air Quality

Under either the No-action Alternative or Proposed Action, there would be no air emissions generated at Kaula Island other than an occasional aircraft operation. The aircraft operations would not change regional air quality.

D1.2.2.2 Hazardous Materials and Hazardous Waste

Potential soil contamination caused by the use of ordnance on the island is addressed under geology and soils. Because the range is active, no ordnance is removed.

D1.2.2.3 Noise

Potential noise impacts to wildlife are addressed under the biological resources section. Because access to the island is restricted, no noise impacts to civilian or military personnel would occur under either the No-action Alternative or Proposed Action.

D1.2.2.4 Socioeconomics

Access to the island is restricted because of the presence of live ordnance. Additionally, there are no facilities on the island; therefore, there are no socioeconomic issues associated with the use of Kaula.

D1.2.2.5 Transportation

Access to the island is restricted because of the presence of live ordnance. Additionally, there is no transportation on this island; therefore, there are no transportation issues associated with the use of Kaula.

D1.2.2.6 Utilities

There are no utilities on the island.

D1.2.2.7 Visual and Aesthetic Resources

Access to the island is restricted because of the presence of live ordnance; therefore, there are no visual and aesthetic issues associated with the use of Kaula.

D1.2.3 MAUI SPACE SURVEILLANCE SYSTEM, MAUI

A review of the 14 environmental resources against program activities determined there would be no impacts from site activities under either the No-Action Alternative or the Proposed Acton at this location. Operations at this site consist of an existing telemetry tower, communications, and tracking facilities. No building modifications would occur. No air emissions would be generated from site activities unless use of diesel generators would be required for back-up power. The site does not affect the existing airspace structure in the region. Because no ground disturbance or building modifications would occur as a result of PMRF activities, there would be no impact to biological resources, cultural resources, or geology and soils. The use of hazardous materials and generation of hazardous waste at this site would be in accordance with applicable regulations. There are established safety zones around electromagnetic radiation hazards, which eliminate health and safety issues. The site is compatible with existing surrounding land uses, and activities are consistent to the maximum extent practicable with the Hawaii Coastal Zone Management Program. No noise is generated by site activities, and the site is operated by up to 60 persons. This small staff would not affect local transportation levels of service or utilities. There is no socioeconomic impact from site operations, and the site does not block any prominent public vistas. Activities would not generate any waste streams that could impact local water quality (EDAW, Inc., 1997, Nov, p.1 through 3).

D1.2.4 KAENA POINT, OAHU

A review of the 14 environmental resources against program activities determined there would be no impacts from site activities under either the No-Action Alternative or the Proposed Acton at Kaena Point. Operations at this site consist of an existing tracking radar operated by the Air Force, and no building modifications would occur. No air emissions would be generated from site activities unless use of diesel generators would be required for back-up power. The site does not affect the existing airspace structure in the region. Because no ground disturbance or building modifications would occur, there would be no impact to biological resources, cultural resources, or geology and soils. Operation of the radar does require the use of small amounts of hazardous materials for facility maintenance such as paint repair and oil for the radar unit and generates small amounts of hazardous waste. All hazardous materials used and hazardous waste generated would continue to be managed in accordance with Air Force, Federal, and state regulations. There is an established safety zone around the radar unit to prevent electromagnetic radiation hazards exposures, which eliminates health and safety issues. The site is compatible with existing surrounding land uses, and activities are consistent to the maximum extent practicable with the Hawaii Coastal Zone Management Program. No noise is generated by site activities. The site, which employs up to 15 personnel, would not affect local transportation levels of service or utilities. There is no socioeconomic impact from site operations, and the site does not block any prominent public vistas. PMRF activities would not generate any waste streams that could impact local water quality (EDAW, Inc., 1997, Nov, p.4).

D1.2.5 WHEELER NETWORK SEGMENT CONTROL/PMRF COMMUNICATION AND COMPUTER SITES, KAUAI, OAHU, AND MAUI

A review of the 14 environmental resources against program activities determined there would be no impacts from site activities under either the No-Action Alternative or the Proposed Acton at these locations. Operations at these sites consist of an existing communications network, associated receiving and transmitting stations, an electronic warfare site, a radar unit on Oahu/Kauai, and a computer center on Maui; no building modifications would occur at these sites. No air emissions would be generated from activities unless use of diesel generators would be required for back-up power. The sites do not affect the existing airspace structure in the region. Because no ground disturbance or building modifications would occur, there would be no impact to biological resources, cultural resources, or geology and soils. PMRF activities at these locations would continue to use small amounts of hazardous materials and generate hazardous waste associated with facility maintenance to prevent building corrosion. All hazardous materials used and hazardous waste generated would continue to be handled in accordance with Federal and State regulations. The sites do not represent any public health and safety issues. The sites are compatible with existing surrounding land uses and activities are consistent to the maximum extent practicable with the Hawaii Coastal Zone Management Program. No noise is generated by site activities. The sites which are only operated by a few personnel, would not affect local transportation levels of service or utilities. There is no socioeconomic impact from operations, and the sites do~~es~~ not block any prominent public vistas. PMRF activities would not generate any waste streams that could impact local water quality (EDAW, Inc., 1997, Nov, p.4 through 8).

D1.2.6 DOE COMMUNICATION SITES

A review of the 14 environmental resources against program activities determined there would be no impacts from site activities under either the No-Action Alternative or the Proposed Acton at any of the DOE Communication Sites. Operations at these sites consist of existing telemetry towers and communications, and no building modifications would occur. No air emissions would be generated from activities at the sites unless use of diesel generators would be required for back-up power. The sites do not affect the existing airspace structure in the region. Because no ground disturbance or building modifications would occur, there would be no impact to biological resources, cultural resources, or geology and soils. Operation of these sites does require small amounts of hazardous materials for facility maintenance and generates small amounts of hazardous waste. All hazardous materials used and hazardous waste generated would continue to be managed in accordance with applicable regulations. There is no electromagnetic radiation generated at the sites; therefore, there are no public health and safety issues. The sites are compatible with existing surrounding land uses, and activities are consistent to the maximum extent practicable with the Hawaii Coastal Zone Management Program. No noise is generated by activities at the sites. The sites, which are only manned during operations, employ two to four persons. Such a small work force would not affect local transportation levels of service or utilities. There is no socioeconomic impact from operation of the sites, and the sites do not block any prominent public vistas. Activities at the sites would not generate any waste streams that could impact local water quality (EDAW, Inc., 1997, Nov, p.4 through 8).

D1.3 CANDIDATE SITES

D1.3.1 TERN ISLAND

Of the 14 resources, socioeconomics was not addressed and is discussed below.

D1.3.1.1 Socioeconomics

The use of Tern Island and the generation of income by site employees does not affect any local economies. Neither the No-action Alternative nor the Proposed Action would change the socioeconomic condition of Tern Island. Temporary closure of the area around the island for launch operations would not impact fishing, as the area's use is currently restricted.

D1.3.2 JOHNSTON ATOLL

Of the 14 resources, socioeconomics was not addressed and is discussed below.

D1.3.2.1 Socioeconomics

Neither the No-action Alternative nor the Proposed Action would change the socioeconomic condition of Johnston Atoll. Under the No-action Alternative there would be no change in current site operations. Under the Proposed Action a small number of target launch personnel would be on temporary duty during launch operations. Launches

would not impact any commercial fishing areas, as use of the areas is currently restricted to Johnston Atoll personnel.

D1.4 OCEAN AREA

Under the No-action Alternative, no impacts were predicted for air quality, airspace, cultural resources, geology and soils, hazardous materials and hazardous waste, health and safety, land use, noise, socioeconomics, transportation, utilities, visual and aesthetics, water resources, and environmental justice. For a more detailed description, refer to section 4.5.

Under the Proposed Action, no impacts were predicted for air quality, cultural resources, geology and soils, hazardous materials and hazardous waste, land use, noise, socioeconomics, transportation, utilities, visual and aesthetics, water resources, and environmental justice.

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Appendix E
Land Title

APPENDIX E
LAND TITLE

The 103rd Congress enacted Public Law 103-150 on November 23, 1993, apologizing to Native Hawaiians for the U.S. role in the 1893 overthrow of the monarchy. The Joint Resolution is not applicable to the disposition of ceded lands at PMRF or support sites. Specifically, the Resolution neither recognizes nor creates rights to any of the ceded lands in Native Hawaiian or any other group defined by race or ancestry, and contains the following express disclaimer: "Nothing in this Joint Resolution is intended to serve as a settlement of any claims against the government." The Resolution provides no direction to any individual Federal agency as to any specific implementing action. There is no instruction with respect to ceded lands. The Resolution can be seen as an appeal to Federal agencies having dealings with the Native Hawaiian community to be alert to the special sensitivities of that community with respect to the ending of the monarchy.

For the EIS process, such sensitivity is already mandated by the statutes and regulations governing the process, particularly those concerning scoping and subsequent public input. It was precisely the public input during scoping that prompted an examination of the ceded lands issue. An assessment of this issue for the EIS would have occurred whether or not the Resolution had been passed.

Many who offered testimony or wrote letters in response to the scoping notice questioned the military's title to PMRF and support sites. They asserted that persons of Hawaiian descent have claims to the land or may be entitled to have some sort of special control over the disposition of these lands. In response to these concerns, a review of the title to these ceded lands was conducted. The possibility that Hawaiians or native Hawaiians (as those terms are used in existing legislation to denote classes defined by race or ancestry) should have special consideration in decisions concerning ceded lands has been carefully evaluated.

The circumstances by which the lands now known as PMRF came into Federal ownership are described at the end of this appendix. This report shows that valid legal title to these lands was vested in the United States either by condemnation, by conveyance, or by set-aside of ceded public lands of the Territory.

The claims advanced during the scoping process focused on ceded lands, i.e., the lands known as Crown or government lands during the period of the monarchy, which were ceded (granted) to the United States when Hawaii was annexed to the United States in 1898. The claims seek "return" of these lands to the "Hawaiian people," to "native Hawaiians" or to "Hawaiians." It is noted that the terms "native Hawaiian" and "Hawaiian" are defined in a number of state and Federal statutes solely in terms of race or ancestry; that is, as referring to persons descended from inhabitants of the Hawaiian Islands just prior to the discovery of the islands by Captain Cook in 1778. There is no accepted definition of "the Hawaiian people" in state or Federal law, but it is assumed for purposes of the discussion below that the term as used during the scoping process referred

generally to persons who are either "native Hawaiians" or "Hawaiians" as otherwise defined by law.

The basis for the claims advanced during scoping was not explained in detail, so the status of the Crown and government lands under the monarchy was reviewed to determine whether any basis for such claims might exist.

Both the Crown and government lands were set apart from the lands under the exclusive control of the king at the time of the Great Mahele. Under the monarchy, the government lands were dedicated to public purposes. The instrument by which Kamehameha III conveyed the lands that would eventually become known as "government lands" stated, with respect to the lands conveyed, that:

> These lands are to be in the perpetual keeping of the Legislative Council (Nobles and Representatives) or in that of the superintendents of said lands, appointed by them from time to time, and shall be regulated, leased, or sold, in accordance with the will of said Nobles and Representatives, for the good of the Hawaiian Government, and to promote the dignity of the Hawaiian Crown.

The Crown lands were intended for the support of the king in what might be called his official capacity. Any doubt on this point was resolved in 1865, when legislation was enacted making the Crown lands inalienable and forbidding leases for more than 30 years. The preamble to this legislation, after noting the history of the Crown Lands, stated:

> *And whereas,* the history of the lands shows that they were vested in the King for the purpose of maintaining the Royal State and Dignity; and it is therefore disadvantageous to the public interest, that the lands should be alienated, or the said Royal Domain diminished. *And whereas, further,* during the two late reigns, the said Royal Domain has been greatly diminished, and is now charged with mortgages to secure considerable sums of money; now therefore,...

This was followed by the text of the law. Leasing was placed under the control of a body known as the Commissioners of Crown Lands. Bonds were authorized for the purpose of retiring mortgages against the property, and the proceeds of the leases, less a portion to be used for discharging the bonds, were made payable to the king. By this statute, the status of the Crown lands as a public resource for the support of the head of the government, rather than the personal property of the King, was confirmed in the law of the kingdom.

Thus, it clearly appears that during the monarchy, both Crown lands and the government lands were essentially dedicated to governmental purposes. At least during the later years of the monarchy, many citizens of the kingdom were not of Hawaiian descent, but the government lands appear to have been administered for the benefit of the citizenry as a whole rather than solely for those of Hawaiian ancestry. There is no indication that during the monarchy any individual (except the king, his wife, and his successors with respect to Crown lands) or any group or category of persons defined by Hawaiian ancestry alone had any claim to the Crown or government lands. Indeed, even the right of the monarch to dispose of the Crown lands at his will was rejected not only by the courts and the

legislature, but ultimately by Kamehameha V himself when he signed the 1865 legislation making the Crown lands inalienable.

Beyond the historical documents themselves, a review of respected historical works discloses no support for a position that during the existence of the kingdom, Crown or government lands were somehow intended only for the benefit of persons of Hawaiian ancestry, except perhaps for the monarch's claim to the Crown lands[1]. With respect to the personal rights of the monarch, it should be noted that Queen Liliuokalani's claim that she held an interest in the Crown lands as her individual property, and was entitled to compensation from the United States for its loss, was carefully considered and specifically rejected by the U.S. Claims Court in 1910. In that case, entitled *Liliuokalani v. U.S.,* 45 St. Cl. 418 (1910), the Queen argued that she held a vested equitable life estate in the Crown lands. After discussing the history of the establishment of the Crown lands, their treatment under the kingdom, and the 1865 legislation that made Crown lands inalienable, the court stated:

> The [1848] reservations [of Crown lands] were made to the Crown and not the King as an individual. The Crown lands were the resourceful methods of income to sustain, in part at least, the dignity of the office to which they were inseparably attached. When the office ceased to exist they became as other lands of the Sovereignty and passed to the defendants as part and parcel of the public domain.

During both the Republic and the Territorial periods, ceded lands were treated as public property, and under the Territory they were explicitly dedicated to public purposes. With the possible exception of the Hawaiian Homes Commission Act, the governing statutes neither acknowledged nor created property rights in any of these lands based on Hawaiian ancestry.

At statehood, the special status of these lands as dedicated to governmental purposes was confirmed by section 5(f) of the Admission Act, which limited the uses of ceded lands to the following:

- Support of the public schools and other public education institutions
- Betterment of the conditions of native Hawaiians, as defined in the Hawaiian Homes Commission Act, 1920, as amended
- Development of farm and home ownership on as widespread a basis as possible
- Making public improvements

[1] Perhaps the single most valuable resource on the subject is R.S. Kuykendall, *The Hawaiian Kingdom* (3 vols., 1938), esp. Vol. I, Chapter XV, "The Land Revolution." Other writers with thoughtful if varying viewpoints include L.H. Fuchs, *Hawaii Pono: A Social History* (1961) pp. 14-17 and Gavan Daws, *Shoal of Time: A History of the Hawaiian Islands* (1974), esp. pp. 124-128. More technical works include L. Cannelora, *The Origin of Hawaii Land Titles and of the Rights of Native Tenant*s (1974); Jon J. Chinen, *Original Land Titles in Hawaii* (1961); Neil M. Levy, *Native Hawaiian Land Rights*, 63 Cal. L. R. 848 (1975).

- Provision of lands for public use

This statute established no requirement that any specific portion of the ceded lands be used for "native Hawaiians," or that any portion of the ceded lands be so used. It is simply included such use among those permitted. No property rights were established in any individual or group simply by virtue of Hawaiian ancestry.

Taken together, the foregoing facts indicate that no individual has a legal claim, based on any right of property, to any federally-retained ceded lands simply by virtue of Hawaiian ancestry. As against any such claim, the government's chain of title, from a purely legal standpoint, is unimpeachable. Even if such a claim might once have existed, it would appear to be barred by the 12-year statute of limitations in the Federal Quiet Title Act.

No other valid basis was offered during the scoping process for the claim that some or all Hawaiians, racially defined, should have special status in determining the disposition of ceded lands, and no such basis has been independently identified. Of course, persons of Hawaiian ancestry, like all members of the community who are or may be affected by the decisions concerning PMRF, have a variety of rights under Federal law to participate in the process leading up to those decisions.

For all of these reasons, the only legal and legitimate course for the DOD in making decisions concerning ceded lands is to treat these lands just like any other lands owned in fee simple by the government, and to afford to all persons, including Hawaiians and native Hawaiians, who may wish to be involved in those decisions the full range of rights provided by law, without discrimination.

Resolving claims that the ceded lands were wrongfully taken by the United States, and that they should be returned (or compensation provided) to a class defined by race or ancestry, is beyond the scope of this EIS and the discretion committed to this action to the DOD. In the final analysis, such resolution is a political issue for which such redress as may be due must be provided by Congress within the boundary of constitutional law.

DEPARTMENT OF THE NAVY

PACIFIC MISSILE RANGE, BARKING SANDS
(Formerly Known as Mana Airport Military Reservation)

1,925.090	Acres - Fee (Set aside)
201.927	Acres - Lease
1.864	Acres - Easement
2,128.881	Acres - Total

Department of the Navy
Pacific Missile Range
Barking Sands

CEDED LANDS—I

1. LOCATION OF PROPERTY: Pacific Missile Range, Kekaha; Waimea District, Kauai, HI

2. DATE CEDED AND HOW: June 29, 1940, Governor's Executive Order Number 887.

3. RESTRICTIONS ON USE OR DISPOSAL:

a. Set aside "for a site for the Mana Airport Military Reservation."

b. Executive Orders Numbers 945 and 887 contain provisions that "the land herein described is set aside upon the understanding that access to the shore for the purpose of fishing will be denied only on the portion used for bombing and that only while same is actually in progress or about to commence."

4. ACREAGE: 548.57 acres (Original)
548.57 acres (Current)

5. CONTROLLING DOD SERVICE COMPONENT: U.S. Navy Pacific Missile Range Facility, Barking Sands.

6. STATUS OF TITLE: U.S.-owned

7. ENCUMBRANCES:

a. Host-Tenant Real Estate Agreement dated October 1, 1992, for a term of five years, with the Department of the Air Force for use of certain buildings, runways, taxiways, aircraft parking space, and associated lands.

8. NARRATIVE: Prior to 1967 was used as an auxiliary landing field for Army and Air Force purposes. The field was transferred to the Navy on February 2, 1968, for use as a missile range. Since transfer, the facility has been used for missile launching as well as the appurtenant housing and administrative buildings and landing strip.

a. PRESENT USE: Missile launching with supporting facilities.

b. PAST USE: Air Field

c. CODE: 1. "Missile Launching Site and Supporting Facilities"

Department of the Navy
Pacific Missile Range
Barking Sands

CEDED LANDS - II

1. LOCATION OF PROPERTY: Pacific Missile Range, Kekaha; Waimea District, Kauai, HI

2. DATE CEDED AND HOW: June 10, 1941, Governor's Executive Order Number 945.

3. RESTRICTIONS ON USE OR DISPOSAL:

a. Set aside "for additions to Mana Airport Military Reservation."

b. Executive Orders Numbers 945 and 887 contain provisions that "the land herein described is set upon the understanding that access to the shore for the purpose of fishing will be denied only on the portion used for bombing and that only while same is actually in progress or about to commence."

4. ACREAGE: 1,509.00 acres (Original)
1,376.52 acres (Current)

5. CONTROLLING DOD SERVICE COMPONENT: U.S. Navy Pacific Missile Range Facility, Barking Sands.

6. STATUS OF TITLE:

a.	U.S.-owned (Navy)	1,376.52 acres
b.	Conveyed to Hawaii	132.48 acres
	TOTAL	1,509.00 acres

7. ENCUMBRANCES:

a. Subject to three easements for drainage ditches, each 80 feet in width, as shown on a plan attached to, and made a part of, GEO Number 945.

b. Use Agreement dated May 5, 1969 for an unlimited term issued to the Department of Commerce and amended on October 13, 1969, to modify the original use area. The current Use Agreement covers the exclusive use of 31.8 acres and is to be used in connection with the National Bureau of Standards Frequency-time Broadcast Station, WWVH, BARSAN site.

8. NARRATIVE: Governor's Executive Order Number 945 was issued on June 10, 1941 and set aside 1,509 acres for the Mana Airport Military Reservation. 132.48 acres of the set-aside land was conveyed to the State of Hawaii by Quitclaim Deed dated January, 1963.

See discussion of Governor's Executive Order Number 887 for current and past uses and code.

Department of the Navy
Pacific Missile Range
Barking Sands

ACQUIRED LANDS

1. LOCATION OF PROPERTY: Pacific Missile Range, Kekaha; Waimea District, Kauai, HI

2. LANDS ACQUIRED UNDER LEASE: 201.927 acres are under lease from the State of Hawaii, dated August 20, 1964, for purposes of road and pipeline rights-of-way.

3. LANDS ACQUIRED BY TRANSFER: An easement for electric line and water pipeline comprising 1.864 acres was transferred from the Department of the Air Force by letter dated August 26, 1964.

DEPARTMENT OF THE NAVY

PACIFIC MISSILE RANGE REMOTE RADAR FACILITY

245.321	Acres - Lease
245.321	Acres - Total

Department of the Navy
Pacific Missile Range
Remote Radar Facility

ACQUIRED LANDS

1. LOCATION OF PROPERTY: Pacific Missile Range Remote Radar Facility; Makaha Ridge, Kekaha, Kauai, HI

2. LANDS UNDER LEASE: 245.321 acres are used under General Lease Number S-3952, dated December 17, 1965, from the State of Hawaii.

DEPARTMENT OF THE NAVY

KAULA ROCK BOMBING TARGET

108	Acres - Fee (Set aside)
108	Acres - Total

Department of the Navy
Kaula Rock Bombing Target

CEDED LANDS

1. LOCATION OF PROPERTY: Kaula Rock Bombing Target, Kaula Island; approximately 20 miles SW of the Island of Niihau in the Hawaiian Islands.

2. DATE CEDED AND HOW: December 13, 1924, Governor's Executive Order Number 173.

3. RESTRICTIONS ON USE OR DISPOSAL: United States Lighthouse Reservation for Lighthouse Station to be under the management and control of the Department of Commerce.

4. ACREAGE: 108 acres (Original)
108 acres (Current)

5. CONTROLLING DOD SERVICE COMPONENT: Naval Air Station Barbers Point.

6. STATUS OF TITLE: U.S.-owned

7. ENCUMBRANCES: None

8. NARRATIVE: Kaula Island was originally set-aside for use by the Lighthouse Service as a lighthouse station on December 13, 1924. The United States Coast Guard, successor to the Lighthouse Service, granted a revocable permit to the Department of the Navy on September 9, 1952, to use Kaula Rock as an aerial bombing target involving the use of live ammunition. The Department of the Navy reported to the Bureau of the Budget, in their Hawaii Property Review Report dated June 28, 1961, that Kaula Rock was being utilized as a bombing target and it was expected to continue being used as such until after August 21, 1964. The United States Coast Guard transferred Kaula Island to the Department of the Navy by letter dated June 11, 1965, under the terms and conditions of 10 U.S.C. 2571, as amended, and under authorization of the Director of the Budget.

In 1978, the State of Hawaii contemplated the inclusion of Kaula Island into a State Seabird Sanctuary and in a memorandum dated May 30, 1978, to the Chairman, Board of Land and Natural Resources, the Deputy Attorney General for the State took the position that the Island belonged to the State. Also, that since the property was no longer being used for lighthouse purposes by the United States the set aside in Governor's Executive Order Number 173 should be canceled by appropriate documentation.

The Legal Counsel for the Pacific Division Naval Facilities Engineering Command in written "Opinion on Title to the Island of Kaula" dated July 27, 1978, took the position that the Island is owned by the United States and that transfer of jurisdiction, control, accountability and custody of Kaula Island to the Department of Navy from the United States Coast Guard was proper and in conformance with United States law.

a. PRESENT USE: It was reported that approximately 9.5 acres or 8.8% of the Island is being used as an aerial bombing impact area and the remainder as a bird sanctuary. The use of the impact area is under the control of the Commander Third Fleet.

b. PAST USE: From 1924 to 1952, used as a lighthouse station by the Lighthouse Service and its successor the United States Coast Guard. 1952 to 1965 it was used jointly by the United States Coast Guard and the Department of the Navy as a lighthouse station and an aerial bombing target. From 1965 to the present time, the Island has continued to be used as an aerial bombing target.

c. CODE: 1. (Aerial Bombing Target)

DEPARTMENT OF THE AIR FORCE

KOKEE AIR FORCE STATION

9.61	Acres - Lease
0.48	Acres - Lease (Non-exclusive)
10.09	Acres - Total

Department of the Air Force
Kokee Air Force Station
(Transferred to NASA)

ACQUIRED LANDS

1. LOCATION OF PROPERTY: Kokee Air Force Station; 22 miles NW of Lihue, Island of Kauai, HI

2. LANDS USED UNDER LEASE: 9.61 acres are used under no-cost leases from the State of Hawaii for purposes of an Aircraft Control and Warning System. In addition, there are non-exclusive lease interests from the State of Hawaii covering 0.48 acres for water and power lines.

DEPARTMENT OF THE AIR FORCE

KAENA POINT SATELLITE TRACKING STATION

0.01	Acres - Easement
1.91	Acres - License
20.00	Acres - Lease
131.01	Acres - Lease (Non-exclusive)
152.93	Acres - Total

Department of the Air Force
Kaena Point Satellite Tracking Station

ACQUIRED LANDS

1. LOCATION OF PROPERTY: Kaena Point Satellite Tracking Station; Waialua and Waianae Districts, Oahu, HI

2. LANDS USED UNDER LICENSE: 1.91 acres are used under no-cost license for water line right-of-way.

3. LANDS USED UNDER LEASE: 20 acres are leased from the State of Hawaii at no cost. In addition, there are non-exclusive use rights from the State of Hawaii, covering 130.01 acres for road, water line and power line rights-of-way.

4. LANDS ACQUIRED BY RESERVATION: Easement interest in 0.01 acre was reserved by the United States in a Quitclaim Deed dated December 28, 1966.

DEPARTMENT OF THE AIR FORCE

MAUI DEEP SPACE SURVEILLANCE SITE
(formerly ARPA Midcourse Optical Station)

3.58	Acres - Lease
0.19	Acres - License
3.77	Acres - Total

Department of the Air Force
Maui Deep Space Surveillance Site

ACQUIRED LANDS

1. LOCATION OF PROPERTY: 21 miles SE of Wailuka, County of Maui, Island of Maui, HI

2. LANDS USED UNDER LEASE: 3.58 acres are leased from the University of Hawaii as a site for a research observatory.

3. LANDS USED UNDER LICENSE: 0.19 acres of right-of-way for an access road is used under license from the State of Hawaii.

OTHER LOCATIONS PROPERTY LAND TITLE

User/Location	Instrument	Property Owner
PMRF/Kokee, Kauai	Lease through NASA	State of Hawaii
DOE/Mount Kahili Repeater Station, Kauai	Lease	County of Kauai
DOE/Mauna Kapu Communication Site, Oahu	Memorandum of Agreement	Federal Aviation Administration
DOE/Makua Radio/Repeater/Cable Head, Oahu	Memorandum of Agreement	U.S. Air Force
PMRF/Mauna Kapu Electronic Warfare Site, Oahu	Lease	Campbell Estate
DOE/Mount Haleakala, Maui	Memorandum of Agreement	Federal Aviation Administration
Maui High Performance Computing Center, Maui	Lease	Private Landholders
Wheeler Army Airfield, Oahu	N/A	U.S. Army
Mt Kaala Air Force Station, Oahu	N/A	U.S. Air Force
Tern Island	N/A	U.S. Department of Interior
Johnston Atoll	N/A	U.S. Air Force

PMRF MISCELLANEOUS IN-GRANTS (Page 1 of 2)

PROJECT CONTRACT	DNLR NUMBER	INSTRUMENT	PARTY	ACTIVITY	AREA/LOCATION	TERM START	TERM END
63323 NOy(R)		IN-LEASE	STATE C&C HONO	PMRF HAWAREA	SOUTH POINT, HI/CABLES & LINE OF SIGHT		65 YRS
54650 NOy(R)		IN-LEASE	HUTCHINSON SUGAR CO	PMRF HAWAREA	KAMAOA, HAWAII		
54649 NOy(R)		IN-LEASE	HUTCHINSON SUGAR CO.	PMRF HAWAREA	PAKINI IKI, HAWAII		
3217 NF(R)		IN-REVOC PERMIT	STATE DOT	PMRF HAWAREA	PORT ALLEN KAUAI 4,970SF WAREHOUSE SPACE	11/1/69	INDEF
3202 NF(R)		IN-PERMIT	COUNTY OF KAUAI	PMRF HAWAREA	KEKAHA DUMPING GROUNDS KOKOLE PT, KAUAI	5/1/69	INDEF
28896 NF(R)		IN-AGRMT	STATE DLNR	PMRF HAWAREA	BRIDGE WIDENING/ROAD 6000 SF	1/28/77	1/27/27
80RP00037		IN-ESMT GRNT/SURR	STATE	PMRF HAWAREA	ELEC/WATER ESMT ALONG KAUMUALII HWY, KAUAI	5/20/80	INDEF
80RP00007		IN-LEASE	STATE	PMRF HAWAREA	MANA, WAIMEA(KONA) ROAD ESMT B5 & B6	10/29/79	INDEF
79RP00066	9-2-103E	IN-ESMT CORRECTON	CAMBELL ESTATE	PMRF HAWAREA	MAUNA KAPU/UNDGND DUCT LINE ESMT 110 COOR NOY(R)6802		
79RP00030	10-5-132	IN-LEASE	STATE DLNR	PMRF HAWAREA	MANA, WAIMEA, KAUAI DRAINAGE ESMTS	9/8/78	8/19/29
79RP00019	10-5-127	IN-LEASE	STATE	PMRF HAWAREA	WIDEN BRIDGE NO. 96, MANA, WAIMEA, KAUAI	1/28/77	1/27/27
68046 NOy(R)	10-4-001	IN-LEASE	STATE	PMRF HAWAREA	BONHAM AFB, TRACTS 1-4 AMEND 5/31/73	4/26/65	
68020 NOy(R)	9-2-103E	IN-ESMT	CAMPBELL ESTATE	PMRF HAWAREA	MAUHA KAPU ROADWAY	11/5/64	

PMRF MISCELLANEOUS IN-GRANTS (Page 2 of 2)

PROJECT CONTRACT	DNLR NUMBER	INSTRUMENT	PARTY	ACTIVITY	AREA/LOCATION	TERM START	TERM END
86RP016P COAST GUARD		IN-PERMIT	COAST GUARD	PMRF HAWAREA	ACCESS & UTIL TO NAVY KOKOLE PT FAC ON KAUAI	5/20/86	4/30/96
84RP00040	10-5-136	IN-LEASE	ALEXANDER & BALDWIN	PMRF HAWAREA	PORT ALLEN WAREHOUSE/OPEN STORAGE	7/16/91	7/15/93
84RP00036	NOT DLR	IN-LEASE	STATE HARBOR DIV	PMRF HAWAREA	PORT ALLEN PIER SHED 12,079 SF/TORPEDO SHOP	7/1/85	6/30/04
84RP00035	NOT DLR	IN-LEASE	STATE HARBOR DIV	PMRF HAWAREA	PORT ALLEN, OFFICE/WAREHOUSE SPACE/4,108 SF	7/1/91	6/30/93
80RP00063	9-2-115	IN-PERMIT	ARMY	PMRF HAWAREA	UNDERGROUND ELEC SYS MAUNA KAPU COMM STA	8/1/80	7/31/95
78RP00040	9-2-104	IN-LEASE	CAMPBELL ESTATE	PMRF HAWAREA	LOT 340, 0.426 AC. SUPPORT MAUNA KAPU COM	7/1/63	6/30/18
65222 NOy(R)		IN-PERMIT	COAST GUARD	PMRF HAWAREA	MAKAHUENA PT, KAUAI MOBILE RADAR SITE	5/1/57	INDEF
		IN-PERMIT	COAST GUARD	PMRF HAWAREA	KILAUEA PT. LIGHT STA KAUAI/MOBIL RADAR SITE	5/1/57	INDEF
83RP00007		IN-LEASE	ROBINSON HELEN M. (NIIHAU)	PMRF HAWAREA	PAHIAU RIDGE, NIIHAU 2.93 AC/RADAR SITE	6/4/84	6/7/99
KA DACA84-5-68-38 S-3746-7-101		IN-LEASE TO ARMY	STATE DLNR	PACMISRANFAC HAWAREA	INSTALL NAVY MICROWAVE ON MT KAALA/5,333 SF LAND	5/14/68	9/9/99
EC 90RP00011		IN-PERMIT	STATE	PACMISRANFAC	PIER SHED SPACE, PORT ALLEN/2,325 SF	10/1/89	9/9/99
N6274289RP00003		IN-LEASE	ROBINSON HEIEN M. (NIIHAU)	PACMISRANFAC	LANDING AND RECOVERY SITE, NIIHAU, 1,167 ACRES	11/1/88	10/31/99

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Appendix F
Executive Summary for the Final Environmental Impact Statement for the Restrictive Easement, Kauai, Hawaii

APPENDIX F
EXECUTIVE SUMMARY FOR THE FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE RESTRICTIVE EASEMENT, KAUAI, HAWAII

The Final Environmental Impact Statement (EIS) for the Restrictive Easement, Kauai, Hawaii, has been prepared in accordance with Hawaii Revised Statutes (HRS), Chapter 343, that implements Environmental Impact Rules, Title 11, Chapter 200, Hawaii Administrative Rules, Department of Health. (U.S. Army Space and Strategic Defense Command, 1993, Oct, p.S-1 through S-4)

PROJECT DESCRIPTION

The U.S. Government proposes to acquire a restrictive easement of approximately 854 hectares (2,110 acres) on State of Hawaii and Kekaha Sugar Company land adjacent to the U.S. Navy Pacific Missile Range Facility (PMRF), Barking Sands, Kauai. The objective is to provide the protection of all persons, private property, and vehicles during Vandal launches and Strategic Target System launches conducted by the U.S. Government. The restrictive easement would give the U.S. Government the authority to restrict access to the land within the ground hazard area prior to, during, and shortly after a launch. In order to support planned launch activities, the U.S. Government is requesting the restrictive easement for a 9-year period beginning on January 1, 1994.

ALTERNATIVES

Two alternatives to the proposed action have been identified and are discussed in the EIS. They are a revision to the Memorandum of Agreement and no action. The current Memorandum of Agreement with the State of Hawaii, the Kekaha Sugar Company, and the lessee of the state land within the ground hazard area would be renewed for a 9-year period beginning in January 1994. The use of the land, time and duration of use, and clearance procedures within the ground hazard area would be the same as described under the proposed action. Under the no-action alternative the U.S. Government would not acquire a restrictive easement. This alternative assumes that the land within the restrictive easement boundary would remain in the current sugar cane and recreational uses.

Two other alternatives were identified but eliminated from further consideration. They are the Department of Defense acquisition of or trade for the land and a 1-year easement each year for 9 years. Alternatives regarding a launch location other than the PMRF and booster types other than the Polaris A3 have been addressed in the Strategic Target System EIS.

ENVIRONMENTAL CONSEQUENCES AND MITIGATIONS

Geology and Soils

No physical changes to the environment within the restrictive easement are anticipated. Establishment of the restrictive easement would limit new development, thereby maintaining the current physiographic conditions. Launch-related activities within the ground hazard area would not significantly impact geology or soil resources. No short- or long-term impacts would occur from the proposed action. Although no impacts are anticipated, the U.S. Navy would conduct a baseline survey for possible lead contamination around the Vandal launch site and perform periodic monitoring of the site.

Water Resources

No new development that would affect water resources within the restrictive easement is planned. Launch-related activities within the ground hazard area would not impact water resources. No impacts to water resources are anticipated since the implementation of the restrictive easement does not involve this resource directly or indirectly.

Air Quality

Emissions from helicopter and launch-related activities may slightly degrade local air quality, but impacts to air quality would be negligible, temporary, and not significant. Due to the intermittent and small number of sweep-and-search occurrences and launches, no change to the current attainment status in the region would occur. Launch-related impacts have been addressed in the Strategic Target System EIS.

Biological Resources

The only direct mission-related activity that would occur over the easement area with the potential for impacts would be intermittent helicopter flights to ensure clearance prior to launches. The proposed easement area would continue to be used for agricultural and public recreational purposes. Launch-related activities within the ground hazard area would not impact biological resources. Helicopter and launch noise could cause a startle effect on wildlife in the area, but no significant impacts are expected.

Cultural Resources

Land uses within the restrictive easement area and ground hazard area would remain unchanged from current purposes, and no new construction is planned under the proposed action. With the exception of the placement of warning signs throughout the easement area, no ground-disturbing activities or other activities with the potential to adversely affect significant cultural resources sites or burial grounds would take place. To ensure that there are no adverse effects on the traditional and customary rights and practices of native groups, those concerns related to program activities expressed by such groups or individuals would be addressed through consultation with the Department of Land and Natural Resources State Historic Preservation Division, the Office of Hawaiian Affairs, and Hui Malama I Na Kupuna 'O Hawai'i Nei; any required mitigation measures within the easement area and ground hazard area would be determined through that process. As a

result, no significant impacts would occur. Launch-related impacts have been addressed in the Strategic Target System EIS.

Visual Resources

With the exception of signs advising the public of the existence of the ground hazard area, no new development would occur as part of the restrictive easement. Launch-related activities within the ground hazard area would not impact visual resources. The visual character of the area would be maintained, and no significant impacts would occur.

Noise

Noise from helicopters used in pre-launch support activities would intermittently increase the level of noise in the restrictive easement area, but this impact would be temporary and similar to other noise levels experienced in the region of influence. Launch-related activities within the ground hazard area would not result in significant noise impacts.

Hazardous Materials and Waste

There are no known hazardous material/waste sites within the restrictive easement boundary, and no new hazardous materials would be introduced. The ground hazard area within the PMRF will contain hazardous fuels, oxidizers, and other materials associated with the Vandal and Strategic Target System launch activities. The area within the ground hazard area may be impacted by hazardous materials as a result of an unlikely early flight termination. Hazardous wastes resulting from early flight termination would be cleared from the area in accordance with cleanup procedures described in the Strategic Target System Draft and Final EISs. No significant impacts are expected to occur.

Health and Safety

Health and safety measures would be taken to ensure that the land within the ground hazard area would be clear of the public during launches from the Kauai Test Facility and the PMRF. Clearing this area would ensure that no injuries would occur to the public in the unlikely event of an early flight termination. Impacts to health and safety would not be significant.

Infrastructure

The activities associated with the restrictive easement would not affect local utilities. For transportation, road control points would be established at the northern and southern portions of the restrictive easement boundary at Polihale State Park and at the intersection of Kao Road and Lower Saki Mana Road. Kao Road, a county-owned road that provides access from State Highway 50 to Lower Saki Mana Road, would not be closed. Launch-related activities within the ground hazard area would not impact infrastructure. There would be separate control points for the Vandal and Strategic Target System ground hazard areas. No significant impacts are expected to transportation due to the short total closure period of approximately 15 hours per year.

Socioeconomics

The restrictive easement is not expected to place the State of Hawaii in a disadvantageous position in lease negotiations with the Kekaha Sugar Company or other potential sugar cane producers. Lease of land within the restrictive easement for diversified crops other than sugar cane would also have negligible impacts on the agricultural value of the land or the lease rates obtained by the state. The easement is not expected to be a factor in curtailing future resort development or tourism growth on the island. Launch-related activities within the ground hazard area would not impact socioeconomics. No significant impacts are expected.

Recreation

The state park area within the restrictive easement boundary to be cleared during launch activities does not contain any developed campsites or picnicking areas. People within the easement boundary would need to move to the north end of the state park so that the area within the easement boundary would be clear from 20 minutes prior to launch until the Range Safety Officer gives clearance to reenter the area. People traveling to and from the state park would be stopped at the control points at the easement boundary during the time that area would be closed. Overall, the establishment of a restrictive easement is compatible with the use of the area as a state park because it preserves the natural, scenic, historic, and wildlife value and recreational nature of the property. Launch-related activities within the ground hazard area would not impact recreation. No significant impacts would occur.

COMPATIBILITY WITH LAND USE PLANS AND POLICIES AND LISTING OF PERMITS OR APPROVALS

The proposed project is generally compatible with the applicable Hawaii State Plan and various State Functional Plans, State Land Use Laws, the Kauai General Plan, the Waimea-Kekaha Regional Development Plan, the Hawaii Coastal Zone Management Program, and Kauai County Special Management Areas.

The only necessary approval for the proposed action is the acceptance of the Final EIS by the Hawaii Department of Land and Natural Resources and the Board of Land and Natural Resources.

UNRESOLVED ISSUES

There are no unresolved issues related to the proposed action.

Appendix G
Terms and Conditions for Use of Niihau Island Facilities and Helicopter Services (Protocol)

APPENDIX G
TERMS AND CONDITIONS FOR USE OF NIIHAU ISLAND FACILITIES AND HELICOPTER SERVICES (PROTOCOL)

NIIHAU RANCH
P.O. Box 229
Makaweli, Kauai, HI, 96769

11 September 1995

Terms and Conditions for:
Use of Niihau Island Facilities
Helicopter Services

GENERAL:

1. Acceptance of the accompanying quote by the government shall infer agreement with the Terms and Conditions stated herein.

2. All occasions for entry to Niihau Island by government or contractor personnel of the Pacific Missile Range Facility (PMRF) or other government agencies including supporting contract personnel, shall be coordinated with the Niihau Ranch Government Point of Contact (NGPOC), without exception. In the absence of the NGPOC, the Niihau Ranch Manager shall be contacted. Government or contractor personnel entering Niihau Island shall do so with no risk assigned to Niihau Ranch, its owners or representatives. The government shall assume all liability for personnel injury, equipment damage, injury to livestock or property damage resulting from or incurred during any ground operations conducted on Niihau Island.

3. No services shall be requested for Sundays, without exception. There shall be no smoking, consumption of alcohol, or firearms permitted on Niihau Island. Government or contractor personnel shall not remove any object(s) from Niihau Island, and shall be responsible for the proper disposal of any trash/waste generated during any visitation.

4. All government or contractor personnel shall be escorted by a Niihau Ranch representative for the duration of each visitation or exercise. The exception to this is government or contract personnel may conduct maintenance or exercises from the APS 134 Radar Site at Paniau Ridge, Niihau Island, without an escort. All personnel shall be subject to the terms and conditions stated herein, where applicable. This exception is maintained from its origin as a verbal authorization of the Niihau Ranch Manager, Mr. Bruce Robinson.

5. The government shall utilize Niihau Ranch and Niihau Helicopters surface and air transportation services for all personnel/equipment transportation requirements involving Niihau Island facilities or operations of the PMRF conducted on Niihau Island. The exception to this is government or contract personnel and equipment may be transported by PMRF helicopter to the APS 134 Radar Site at Paniau Ridge, Niihau Island for the purpose of performing maintenance on installed radar and supporting equipment. This exception is maintained from its origin as a verbal authorization of the Niihau Ranch Manager, Mr. Bruce Robinson.

UTILIZATION OF NIIHAU SITES:

6. The government and its assigned representatives including supporting contract personnel shall be allowed to enter and or utilize certain areas of Niihau Island, as agreed to on a case basis by the Niihau Ranch Manager via the NGPOC, for purposes of planning for, or conducting operations in support of the PMRF or other government agencies which utilize PMRF for training or as a project support site. In the utilization of such areas, the following, where applicable, shall apply in addition to the General Provisions stated above:

a. The government may furnish government or contracted engineering and technical support personnel where required to install, test or operate technical systems. Where non-technical labor is required to support any site, operation or project, available Niihau Ranch labor shall be utilized.

b. The government shall be responsible for proper compliance with existing County, State or Federal Regulations, Statutes or Laws which may affect operations conducted on Niihau Island in support of the PMRF or other government agencies which utilize PMRF.

c. The site(s) utilized shall not be altered in any way unless approved by the NGPOC or the Niihau Ranch Manager.

d. The program shall take precautions not to introduce foreign pests onto Niihau Island. Specific examples include (but are not limited to) the mongoose or the Brown Tree Snake.

e. The government shall include the NGPOC in planning for projects or operations involving Niihau Island.

f. The government (at its own risk) shall be allowed to place equipment at selected sites subject to coordination with the NGPOC and approval by the Niihau Ranch Manager. Niihau Ranch assumes no liability for government equipment placed at any site. The government should be aware that there is a constant risk to equipment on Niihau due to the harsh environment (salt spray, dust, wind & rain), from animal or insect encroachment, and very rarely from rockslides which occur on the island's cliffsides. There is also the remote risk of vandalism caused by unauthorized trespassers.

HELICOPTER SERVICES:

7. All Helicopter Services supporting this proposal shall be furnished by Niihau Helicopters. All services supporting this proposal shall be furnished by Niihau Helicopters. All services provided shall be billed directly from Niihau Helicopters to the appropriate government agency. All invoices shall include a PMRF edition of the attached form, which shall be authorized by PMRF Code 7020, filled out by the pilot and verified by the government operations conductor or the contractor representative.

8. This proposal is based on passenger/equipment pickup and drop off at PMRF or Burns Field.

9. Flight time shall be recorded by installed Hobbs meter which activates only when the aircraft is airborne. There shall be no minimum flight time requirements on individual missions. Invoiced time shall not include initial flight from operating base to the pickup point and final flight from dropoff point to the helicopter operating base. To account for this, 0.2 hrs flight time will be subtracted from the meter reading for the entire flight.

10. A maximum of six passengers with up to 300 lbs of cargo (subject to cargo compartment size limitations) can be accommodated, with total pax and cargo weight not to exceed 1260 lbs (including pilot). With no cargo, seven passengers can be accommodated subject to cabin size and maximum weight limitations. Niihau Helicopters reserves the option of utilizing available space/seats on any flight on a not to interfere with government operations basis.

11. Refueling of the Niihau Helicopter with Jet-A fuel, where necessary, shall be performed at PMRF by PMRF authorized contractor personnel with costs, at the appropriate prevailing government/contract fuel rate including appropriate surcharges, to be reimbursed through an account established separately with PMRF.

12. Requests for helicopter services shall be made as early as possible, but no later than 24 hours prior to desired takeoff time. Every attempt will be made to accommodate emergency services where notification occurs less than 24 hours prior to flight. Niihau Helicopters routinely provides priority scheduling for government operations or requirements. In order to facilitate effective aircraft utilization, cancellations should be avoided where possible. The government will be invoiced for a nominal amount for the scheduled flight in the event of a cancellation which occurs after the aircraft is airborne from the base of operations. All requests for services shall be made through the NGPOC. In the absence of the NGPOC, requests shall be made directly to Niihau Helicopters business office, 335-3500, or the Niihau Ranch office, 338-9869, in that order of contact.

13. No services shall be requested for Sundays.

14. Niihau Helicopters shall be responsible for maintaining an Aviation Facility Use Permit for PMRF, and Federal Aviation Regulations Part 135 Certification for the aircraft and pilots.

15. Niihau Helicopters shall require occasional use of PMRF airfield facilities and other helipads under the control of PMRF for pilot training as necessary.

16. Niihau Helicopters reserves the right to refuse services to any individual, who in the estimation of the pilot, would jeopardize the overall safety of the flight by virtue of that individuals mental or physical condition. Other grounds for refusal of service include the observed or perceived intent of an individual to violate the accepted terms of entry to the Island of Niihau as set forth herein and by the Niihau Ranch Manager.

OTHER CONDITIONS OR MODIFICATION OF EXISTING TERMS:

17. Additional conditions or modifications to terms stated herein may be stipulated in writing upon agreement of both parties.

NO OTHER CONDITIONS FOLLOW.

Addendum

to

Terms and Conditions for Use of Niihau Island Facilities and Helicopter Services

PROTECTION OF HISTORICAL/CULTURAL RESOURCES:

1. In planning for PMRF operations support, the proposed Niihau land areas required for support of any particular operation shall be identified by PMRF representatives to the NGPOC, who will forward and discuss the plan with the property owner and Niihau elders. Historically/culturally sensitive areas shall be avoided whenever possible, or measures shall be employed to prevent or minimize damage to those sites. Where threat of fire exists in any operation, PMRF shall schedule and provide for a Niihau Ranch fire suppression team to be on standby on Niihau during operations. PMRF shall provide adequate fire suppression equipment for use by the team.

2. Prior to any activity which will require known disturbance of the ground (i.e., construction) the site shall be surveyed by a professional archaeologist, if not previously surveyed. Prior to start of ground disturbance activity, construction crews shall be briefed on the sensitivity of cultural resources and the procedures to be followed if sensitive items are uncovered during work at the site. During site preparation and construction, the site shall be monitored by a representative of the Niihau Ranch. A qualified archaeologist, agreeable to the landowner, would assist the island elders in monitoring the siting areas during construction and all ground disturbing activities. If sensitive items are uncovered during surveys or construction, as confirmed by the landowner and Niihau elders, with assistance of the qualified archaeologist (including artifacts or human remains), work shall stop, the area protected and followup action initiated. The property owner and elders from the Niihau community will employ action consistent with local custom. Work may recommence upon the advice of the property owner. Survey reports will be reviewed by representatives of the Niihau Ranch. Private or commercial publishing of any information pertaining to Niihau is prohibited without permission of the landowner.

3. Should there be unexpected property damage resulting from any PMRF operations, the property owner and elders from the Niihau community will be consulted on appropriate measures to protect, stabilize, or restore the property. The Navy will pay for cost of stabilization/restoration if desired by the landowner.

4. PMRF shall be responsible for funding and scheduling all required surveys in consultation with the NGPOC who will obtain all required approvals by the property owner.

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Appendix H
Potential Permits, Licenses, and Entitlements Required

APPENDIX H
POTENTIAL PERMITS, LICENSES, AND ENTITLEMENTS REQUIRED

PMRF/MAIN BASE

Proposed Action Alternative
Airspace. Memorandum of Understanding with the Honolulu Combined Center/Radar Approach Control and the Oakland Air Route Traffic Control Center for the re-routing of aircraft on the V15 airway that passes through Warning Area W-188.

Health and Safety. A waiver of the Department of Transportation prohibition of the transportation of target missile propellant oxidizer, inhibited red fuming nitric acid, by air.

RESTRICTIVE EASEMENT (GROUND HAZARD AREA)

Proposed Action Alternative

Land Use. Revision of existing restrictive easement with the State of Hawaii to expand the types of missiles launched and extend the easement term until 31 December 2030.

KAMOKALA MAGAZINES

Proposed Action Alternative

Land Use. Revise existing lease agreement with the State of Hawaii to add approximately 2 ~~20~~ hectares (5 ~~50~~ acres) of land, and generate a supporting restrictive easement of approximately 50 ~~6~~ hectares (125 ~~1,250~~ acres) for the explosive safety quantity-distance arcs out to 19 August 2029.

NIIHAU

No-action Alternative

Cultural Resources. Section 106 (Advisory Council on Historic Preservation) Consultation and Review with the Hawaii State Historic Preservation Officer.

Proposed Action Alternative

Airspace. A Federal Aviation Administration (FAA) rule-making action for a 5.6 km (3 nmi) radius Restricted Area from the surface to 5,182 m (17,000 ft) over the proposed Aerostat site, plus authorization of a stationary altitude reservation (ALTRV) by the FAA's Central Altitude Reservation Function (CARF).

Cultural Resources. Section 106 (Advisory Council on Historic Preservation) Consultation and Review with the Hawaii State Historic Preservation Officer.

Water Resources. A general National Pollutant Discharge Elimination System permit, under Section 402 of the Clean Water Act for non-point sources from construction activities may be needed.

TERN ISLAND

Proposed Action

Biological Resources. Section 7 (Endangered Species Act) consultation with the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS).

Section 10(a) incidental take permit under the Endangered Species Act.

Section 101(a)(5) incidental take permit under the Marine Mammal Protection Act.

JOHNSTON ATOLL

Proposed Action

Biological Resources. Section 7 (Endangered Species Act) consultation with the USFWS and the NMFS.

Section 10(a) incidental take permit under the Endangered Species Act.

Section 101(a)(5) incidental take permit under the Marine Mammal Protection Act.

Cultural Resources. Section 106 (Advisory Council on Historic Preservation) Consultation and Review may be required.

OCEAN AREA

Proposed Action

Airspace. Authorization of a stationary altitude reservation ALTRV by the FAA's CARF.

Appendix I
Cooperating Agencies Acceptance Letters

DEPARTMENT OF THE AIR FORCE
WASHINGTON DC

Office of the Assistant Secretary

14 AUG 1997

SAF/MIQ
1660 Air Force Pentagon
Washington DC 20330-1660

Captain J.A. Bowlin
Commanding Officer
Pacific Missile
Range Facility
P.O. Box 128
Kekaha, HI 96752-0129

Dear Captain Bowlin

Thank you for your letter (Atch 1) requesting the Air Force act as a cooperating agency in the ongoing Environmental Impact Statement (EIS) for the enhancement of Theater Ballistic Missile Defense testing at the Pacific Missile Range Facility (PMRF). We agree the Air Force should be a cooperating agency in this EIS due to the potential impacts at Johnson Atoll and other HQ PACAF concerns.

We also recommend the Army and the Defense Special Weapons Agency be formally invited to act as a cooperating agency and understand from your staff that an invitation is now being worked. The AF has not had operations on Johnson Atoll for several years. Dr. Bob Landis, HQ PACAF/CEVP, DSN 315-448-0473 will serve as the local point of contact for the PMRF EIS. My point of contact is Ms Jean Reynolds, SAF/MIQ, DSN 223-7706. We look forward to working together on this important interservice issue.

Sincerely

THOMAS W.L. MCCALL, JR.
Deputy Assistant Secretary
of the Air Force
(Environment, Safety and
Occupational Health)

Attachment:
PMRF EIS Ltr 18 Jul 97

cc:
SAF/AQR
SAF/MII
ASN/I&E
ASA/ILE-ESOH
BMDO/TOT
AF/ILE
HQ PACAF/CE

Department of Energy
Washington, DC 20585
November 14, 1997

J.A. Bowlin, Captain
U.S. Navy
Commanding Officer
Pacific Missile Range Facility
P.O. Box 128
Kekaha, Hawaii 96752-0128

Dear Captain Bowlin:

Your request of July 18, 1997, for the Department of Energy (DOE) to be a cooperating agency in the preparation of an Environmental Impact Statement (EIS) for the Navy's Theater Ballistic Missile Defense program involving DOE's Kauai Test Facility, has been approved.

I have delegated the authority to review and comment on the EIS for the DOE to Mr. Bruce Twining, Manager, Albuquerque Operations Office. However, should adoption of the Navy's EIS or preparation of a DOE Record of Decision become necessary, the Office of Defense Programs will seek approval/concurrence, as appropriate, from the Assistant Secretary for Environment, Safety and Health. Your staff should coordinate their work with Ms. Susan Lacy, NEPA Compliance Officer, Kirtland Area Office. Ms. Lacy can be reached at (505) 845-5542.

Sincerely,

Peter N. Brush
Acting Assistant Secretary
Environment, Safety and Health

cc:
Manager, Albuquerque Operations Office
Assistant Secretary for Defense Programs

Defense Special Weapons Agency
6801 Telegraph Road
Alexandria, Virginia 22310-3398

PMRF ADMIN
97 OCT 16 PM 2:55

8 October 1997

CAPT J.A. Bowlin
Commanding Officer (7300)
Pacific Missile Range Facility
P.O. Box 128
Kekaha, HI 96752-0128

Dear CAPT Bowlin:

The Defense Special Weapons Agency (DSWA) will participate formally as a cooperating agency in the preparation of the Environmental Impact Statement for testing and training associated with the U.S. Navy's Theater Ballistic Missile Defense program. Our point of contact at Headquarters, DSWA, is Mr. Harry Stumpf, this office, who can be contacted at (703) 325-7174, DSN 221-7174, fax (703) 325-6206, or e-mail at stumpf@hq.dswa.mil.

Sincerely,

John R. Eddy
Director, Office of Logistics
and Engineering

DEPARTMENT OF DEFENSE
BALLISTIC MISSILE DEFENSE ORGANIZATION
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

August 28, 1997

TOT

MEMORANDUM FOR COMMANDING OFFICER, PACIFIC MISSILE RANGE FACILITY

SUBJECT: Pacific Missile Range Facility Environmental Impact Statement, Cooperating Agency

In response to your Memorandum 5090 Ser 7332/0676 dated July 18, 1997, the Ballistic Missile Defense Organization (BMDO) agrees to participate as a Cooperating Agency in the preparation of an Environmental Impact Statement (EIS) for the Pacific Missile Range Facility (PMRF). We will continue our support of the planning and analysis of the alternatives to upgrade capabilities of the PMRF.

The BMDO will review and comment on the draft documents and provide program planning information that may be useful for upgrade decisions and the EIS effort. My point of contact for this action is Mr. Crate J. Spears, Environmental Coordinator, at (703) 604-3893, DSN 664-3893.

LESTER L. LYLES
Lieutenant General, USAF
Director

cc:
DASN, Environment and Safety (E&S)
CNO N45
PEO/TAD, OASN(RDA) (RADM Rempt)
CINCPACFLT
COMNAVBASE Pearl Harbor

DEPARTMENT OF THE ARMY
U.S. ARMY SPACE AND MISSILE DEFENSE COMMAND
POST OFFICE BOX 1500
HUNTSVILLE, ALABAMA 35807-3801

REPLY TO ATTENTION OF

SMDC-EN-V (200)

0 9 APR 1998

MEMORANDUM FOR Commander, Pacific Missile Range Facility, ATTN: CAPT J.A. Bowlin, P.O. Box 128, Kekaha, HI 96752

SUBJECT: Environmental Impact Statement (EIS) for the Pacific Missile Range Facility (PMRF) Enhancement

1. Thank you for your letter requesting the Army to act as a cooperating agency in the ongoing EIS for the PMRF Enhancement. Since the U.S. Army Space and Missile Defense Command provides the target missile for development and testing of the Ballistic Missile Defense Organization programs executed by the various services, we agree that the U.S. Army should be the cooperating agency in this EIS.

2. Mr. D.R. Gallien, DSN 645-5027, will serve as the point of contact for the PMRF EIS. We look forward to working together on this important interservice issue.

Larry D. McCallister

LARRY D. McCALLISTER
LTC, EN
Acting Deputy Chief of Staff,
Installations, Logistics,
and Environment

CF:
Office of Assistant Secretary of the Army (I,L&E), ATTN: Mr. Phil Huber, Room 3E613, 104 Army Pentagon, Washington, DC 20310-0104

Appendix J
Laws and Regulations Considered

APPENDIX J
LAWS AND REGULATIONS CONSIDERED

Air Quality Regulations

Federal, State, and sometimes local government agencies have promulgated air quality standards. These standards establish concentration limits for specific pollutants. There are generally two sets of standards that are addressed. Primary standards are established to protect public health with an adequate margin of safety. Secondary standards are established to protect public welfare (visibility, personal comfort, harm to property, etc.) from adverse effects of pollutants.

For pollutants not specifically addressed by Federal, State, or local standards, other health-based guidelines were used to establish the potential effects of the pollutants on the public health and welfare. These guidelines, though not binding, establish concentration limits to protect the health and welfare of workers and the general populace.

40 CFR 50-100—Federal ambient air quality standards have been established by the U.S. Environmental Protection Agency (USEPA), and are termed the National Ambient Air Quality Standards (NAAQS). The NAAQS were established to protect public health and welfare. These standards establish maximum concentrations for seven criteria pollutants: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, and particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM-10), and particulate matter with an aerodynamic diameter less than or equal to 2.5 microns (PM-2.5). The PM-2.5 standard is new. The date this standard will be implemented during the time considered for the proposed action. As such, the analysis must address potential for exceedances of this new standard. Federal and State ambient air quality standards are provided in table J-1.

These concentrations are measured at State-controlled monitoring stations throughout Hawaii. As a generalized rule, monitoring stations are only established in areas with suspected or confirmed air quality problems. Additionally, each station is established to monitor a specific set of pollutants. That is, not all stations monitor all pollutants.

Clean Air Act—is used in USEPA as a tool to aid states in achieving and maintaining the ambient air concentrations of criteria pollutants stipulated by the NAAQS.

It is important to note that all Federal actions are required to not cause or contribute to any new violations of the NAAQS, to not increase the severity or frequency of an existing violation, and to not delay the timely attainment of any air quality standard or milestone. While missiles are not considered stationary sources (and need not adhere to the stationary source emission thresholds), missile launch activities, including missile emissions, must still meet this requirement.

Table J–1: State and Federal Ambient Air Quality Standards

Pollutants	Averaging Time	Hawaii Standards[a]	National Standards Primary	National Standards Secondary
Carbon monoxide	8-hour	5 mg/m^3 4.5 ppm	~~10~~ 5 mg/m^3) (9 ppm)	–
	1-hour	10 mg/m^3 (9 ppm)	40 mg/m^3 (35 ppm)	–
Lead	Quarterly	1.5 µg/m^3	1.5 µg/m^3	Same as primary standard
Nitrogen dioxide	Annual	70 µg/m^3 (0.035 ppm)	100 µg/m^3 (0.053 ppm)	Same as primary standard
Hydrogen Sulfide	1-hour	35 µg/m^3	-	-
Ozone	1-hour	100 µg/m^3 (0.05 ppm)	235 µg/m^3 (0.12 ppm)	Same as primary standard
	8-hour	-	157 µg/m^3 (0.08 ppm)	Same as primary standard
Sulfur dioxide	Annual	80 µg/m^3 (0.03 ppm)	80 µg/m^3 (0.03 ppm)	–
	24-hour	365 µg/m^3 (0.14 ppm)	365 mg/m^3 (0.14 ppm)	–
	3-hour	1,300 µg/m^3 (0.5 ppm)	–	1,300 µg/m^3 (0.5 ppm)
PM–10	Annual	50 µg/m^3	50 µg/m$^{3(e)}$	Same as primary standard
	24-hour	150 µg/m^3	150 µg/m^3	Same as primary standard
PM-2.5	Annual	-	15 µg/m^3	
	24-hour	-	65 µg/m^3	

[a]Hawaii standards (other than quarterly and annual) not to be exceeded more than once in any 12-month period.

In addition to the pollutants addressed by the NAAQS, other hazardous air pollutants that present the threat of adverse effects to human health or to the environment are covered by Title III of the Clean Air Act. The list of hazardous air pollutants incorporates, but is not limited to, the pollutants controlled by the National Emissions Standards for Hazardous Air Pollutants (NESHAP) program. Table J-2 lists the guidance levels for major hazardous air pollutants associated with the proposed action.

Ozone Layer Protection (Hawaii Revised Statute [HRS] 19-342C)—defines prohibited acts and penalties regarding use of CFCs. Its purpose is to limit the degradation of the ozone layer.

Hawaii Air Pollution Control Act (HRS 19-342B)—defines related terms, administration duties and powers, permit program details, exemptions, enforcement procedures and penalties, emergency powers, and Small Business Assistance Program participation.

Table J–2: Health-based Exposure Guidance for Potential Rocket Motor-related Hazardous Air Pollutants

Pollutant	Duration of Exposure	Exposure Guidance	Primary Application	Establishing Organization
Aluminum Oxide (as aluminum dust)	8-hour Time-weighted Average (Threshold Limit)	~~10~~ 5 mg/m^3	Workplace	~~American Conference of Governmental Industrial Hygienists~~OSHA and NIOSH
Hydrogen Chloride	1-hour Short-term Emergency Guidance Level (SPEGL)	1.5 mg/m^3	Public	NRC
Inhibited Red Fuming Nitric Acid (IRFNA)	15-minute Short-term Exposure Limit (STEL)	10 mg/m^3	Workplace	OSHA
Unsymmetrical Dimethyl Hydrazine (UDMH)	2-hour Time-weighted Average Ceiling Value	0.15 mg/m^3	Workplace	OSHA

Source: ~~National Research Council, 1987, p.17; American Conference of Government Industrial Hygienists, 1997, p.15~~U.S. Department of Health and Human Services, 1994, p.12.

Ambient Air Quality Standards (Hawaii Administrative Rule [HAR] Chapter 11-59)—is based substantially on Public Health Regulations, Chapter 42, Ambient Air Quality Standards, Department of Health, State of Hawaii. This Rule specifies the Ambient Air Quality Standards for the State of Hawaii.

Air Pollution Control (HAR 11-60)—is the regulation promulgated in accordance with HRS 19-342B. It covers the same information, but does so in a regulatory fashion.

Airspace Use Regulations

Overland Airspace

The Federal Aviation Act (49 United States Code [USC] 1347, et seq.)—gives the FAA sole responsibility for the safe and efficient management of all airspace within the continental United States, a responsibility that must be executed in a manner that meets the needs of all airspace users, both civil and military.

FAA Order 1001.1A, as stated in FAA Order 7400.2D, *Procedures for Handling Airspace Matters*—implements the FAA's policy on airspace as follows:

> "The navigable airspace is a limited national resource, the use of which Congress has charged the FAA to administer in the public interest as necessary to insure the safety of aircraft and the efficient utilization of such airspace. Full consideration shall be given to the requirements of national defense and of commercial and general aviation and to the public right of freedom or transit through airspace." Accordingly, Section 1006 states that "while a sincere effort shall be made to negotiate equitable solutions to conflicts over its use for non-aviation purposes, preservation of the navigable airspace for aviation must receive primary emphasis."

FAA Order 7400.2D and FAA Handbook 7610.4H, *Special Military Operations* —regulate military operations in the NAS. The latter was jointly developed by the Department of Defense (DOD) and the FAA to establish policy, criteria, and specific procedures for air traffic control planning, coordination, and services during defense activities and special military operations.

DOD policy on the management of special use airspace is essentially an extension of FAA policy, with additional provisions for planning, coordinating, managing, and controlling those areas set aside for military use. Airspace policy issues or inter-service problems that must be addressed at the DOD level are handled by the DOD Policy Board on Federal Aviation, a committee composed of senior representatives from each Service. However, airspace actions within the DOD are decentralized, with each Service having its own central office to set policy and oversee airspace matters.

FAA Order 7400.2D stipulates that prior to submission for approval, military proponents of special use airspace must coordinate proposals with locally affected air traffic control facilities and military units, local FAA representatives/liaison offices where assigned, and the ARTCC having jurisdiction over the affected airspace prior to submission of the proposal for approval. In addition, with the exception of controlled firing areas and an optional requirement for temporary Military Operations Areas and temporary restricted areas, special use airspace must be reflected in aeronautical publications and depicted in aeronautical charts. New and revised areas normally become effective on the FAA 56-day cycle publication dates.

The handling of special use airspace matters (for example, the establishment of, modification to, or changes in special use airspace) falls into two categories:

- Non-rulemaking actions include alert areas, controlled firing areas, and Military Operations Areas where the FAA has the authority to make the final decision but does not express that decision by issuing a rule, regulation, or order. Also included in the non-rule category are offshore warning areas where the FAA has an interest, but the final approval is shared by other agencies.

- Rulemaking actions include restricted areas and prohibited areas. These relate to the assignment, review, modification, or revocation of airspace by a rule, regulation, or order.

Rulemaking actions are published in the Federal Register, and review requirements are according to FAA minimum prescribed timelines.

Navy OPNAV Instruction 3770.2H, *Airspace Procedures Manual* (1994)—prescribes the Navy's airspace management procedures and delineates responsibilities for airspace planning and administration.

Air Force Instruction (AFI) 13-201, *Air Force Airspace Management* (1994)—prescribes Air Force airspace management and applies to all active duty, reserve, and Air National Guard units having operational and/or administrative responsibilities for using airspace and navigational aids. This policy applies to each major command functioning as the Air Force

component of a unified command and to specified commands as outlined in unified or specified command directives.

Overwater Airspace

International Civil Aviation Organization (ICAO), Document 444*, Rules of the Air and Air Traffic Services*, 1985 and 1994—outlines the procedures followed over international waters. ICAO Document 444 is the equivalent air traffic control manual to the FAA Handbook 7110.65, Air Traffic Control.

Executive Order 10854—extends the responsibility of the FAA to the overlying airspace of those areas of land or water outside the jurisdictional limit of the Untied States. Under this order, airspace actions must be consistent with the requirements of national defense, must not be in conflict with any international treaties or agreements made by the United States, nor be inconsistent with the successful conduct of the foreign relations of the United States. Accordingly, FAA Order 7400.2D states that actions concerning airspace beyond the jurisdictional limit (22.2 kilometers [12 nautical miles]) require coordination with the DOD and the Department of State, both of whom have preemptive authority over the FAA.

FAA Order 7400.2, *Procedures for Handling Airspace Matters*, Part 7 (1991)—contains the policy, procedures, and criteria for the assignment, review, modification, and revocation of special use airspace overlying water (i.e., Warning Areas). A Warning Area is airspace of defined dimensions over international waters, which contains activity that may be hazardous to non-participating aircraft. Because international agreements do not provide for prohibition of flight in international airspace, no restriction of flight is imposed. The term Warning Area is synonymous with the ICAO term Danger Area.

Executive Order No. 12114*, Environmental Effects Abroad of Major Federal Actions*, 1979—provides for three types of environmental reviews: environmental impact statements; international bilateral or multilateral environmental studies; and concise reviews of the environmental issues involved, including environmental assessments, summary environmental analyses, or other appropriate documents. Major Federal actions significantly affecting the environment of the global commons outside the jurisdiction of any nation (such as the oceans or Antarctica) require the preparation of an environmental impact statement.

Navy OPNAV Instruction 3770.2H, *Airspace Procedures Manual* (1994)—prescribes the Navy's airspace management procedures and delineates responsibilities for airspace planning and administration.

Chapter 6 of OPNAVINST 3770.2H addresses flight operations and firings over the High Seas. (U.S. Department of the Navy, 1994, Section 604, Chapter 6, p.6-5)

Air Force Instruction (AFI) 13-20, *Air Force Airspace Management*, 1994—identifies Air Force airspace management policy for international overwater areas. DOD Directive (DODDIR) 4540.1 stipulates the DOD aircraft, when operating in international airspace, will comply with ICAO procedures.

Biological Resources Regulations

Endangered Species Act (ESA) of 1973, Section 7 as amended (16 USC 1531)—details the requirements for Federal projects. The Endangered Species Act declares that it is the policy of Congress that all Federal departments and agencies shall seek to conserve endangered and threatened species. The act also directs Federal agencies to use their authorities in furtherance of the purposes of the act. Under the Endangered Species Act, the Secretary of the Interior maintains lists of endangered and threatened species. Plants and animals that are candidates for listing are not formally protected under the Endangered Species Act, but are recommended for consideration in all impact statements.

A key provision of the Endangered Species Act for Federal activities is Section 7 consultation. Under Section 7 of the act, every Federal agency must consult with the Secretary of the Interior, the USFWS, and/or the National Marine Fisheries Service (NMFS) to ensure that any agency action (authorization, funding, or execution) is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of the habitat of such species.

National Wildlife Refuge System Improvement Act of 1997 defines clearly a unifying mission for the refuges calls for enhanced consideration of certain wildlife-dependent public uses when compatible, and outlines a specific process by which compatibility determinations should be made. The act comes on the cusp of the 100th anniversary of the Refuge System, just in time to guide its management and public uses into the next century.

Key Provisions of the National Wildlife Refuge System Improvement Act

This act defines the mission of the National Wildlife Refuge System, which is, "to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans."

The act requires the Secretary of the Interior to ensure the biological integrity, diversity, and environmental health of the National Wildlife Refuge System are maintained.

The act defines compatible wildlife-dependent recreation as "legitimate and appropriate general public use of the [National Wildlife Refuge] System."

It establishes hunting, fishing, wildlife observation and photography, and environmental education and interpretation as "priority public uses" where compatible with the mission and purpose of individual national wildlife refuges.

The act retains refuge managers' authority to use sound professional judgment in determining compatible public uses on national wildlife refuges and whether they will be allowed. It established a formal process for determining "compatible use."

The act requires public involvement in decisions to allow new uses of national wildlife refuges and renew existing ones, as well as in the development of "comprehensive

conservation plans" for national wildlife refuges. In addition, refuges that do not already have such plans are required to develop them.

Marine Mammal Protection Act (MMPA) (16 USC 1361, et seq.)—gives the USFWS and NMFS co-authority and outlines prohibitions for the taking of marine mammals. ~~The act also provides for penalties for the use of fishing methods in contravention of any regulations or limitations enacted by governmental agencies to achieve the purposes of the MMPA~~. Subject to certain exceptions, the act establishes a moratorium on the taking and importation of marine mammals. Exceptions to the taking prohibition that may come into play include section 101(a)(5), which allows NMFS and USFWS to authorize the incidental taking of small members of marine mammals in certain instances, or section 104(c)(3), which governs the taking of marine mammals for purposes of scientific research. The Marine Mammal Commission, which was established under the act, reviews laws and international conventions, studies world-wide populations, and makes recommendations of Federal officials concerning marine mammals.

Fish and Wildlife Coordination Act (16 USC 2901, et seq.)—encourages all Federal departments and agencies to utilize their statutory and administrative authority, to the maximum extent practicable and consistent with each agency's statutory responsibilities, to conserve and promote conservation of nongame fish and wildlife and their habitats. Further, the act encourages each state to develop a conservation plan.

Migratory Bird Treaty Act (16 USC 703-712)—protects many species of migratory birds. Specifically, the act prohibits the pursuit, hunting, taking, capture, possession, or killing of such species or their nests and eggs.

Marine Protection, Research, and Sanctuaries Act (16 USC 1431 et. seq.)—regulates the ocean dumping of waste, provides for research on ocean dumping, and provides designation and regulation of marine sanctuaries.

Sikes Act (PL 86-797)—requires each military installation to manage natural resources so as to provide for multipurpose uses and to provide public access appropriate for those uses, unless access is inconsistent with the military mission. The act also requires each military department to ensure professional services are provided which are necessary for management of fish and wildlife resources on each installation.

Conservation of Aquatic Life, Wildlife, and Land Plants Act (HRS 12-195D)—serves as the Hawaii Endangered Species Act. It controls the activities relating to or affecting endangered species and also establishes conservation programs. The Conservation Act incorporates the listing of endangered or threatened species under the federal Endangered Species Act into its own listing (Goodsill Anderson Quinn and Stifel, 1993, p.214).

Wildlife (HRS 12-183D)—is the primary Hawaiian legislation enforcing all laws relating to the protecting, taking, hunting, killing, propagating, or increasing the wildlife within the State and the waters subject to its jurisdiction.

Aquatic Resources (HRS 12-187A)—is the primary Hawaiian legislation enforcing all laws relating to the protecting, taking, killing, propagating, or increasing of aquatic life within the State and the waters subject to its jurisdiction. The Aquatic Resources Law also

establishes, manages, and regulates public fishing areas, artificial reefs, marine life conservation districts, shoreline fishery management areas, refuges, and other areas.

Natural Area Reserves System (HRS 12-195)—establishes a statewide natural area reserves system to preserve in perpetuity specific land and water areas which support communities of flora and fauna and geological sites of Hawaii.

Marine Life Conservation Program (HRS 12-190)—establishes that all marine waters of the State constitute a marine life conservation area. The Marine Life Conservation Program states that no person shall fish for or take any fish, crustacean, mollusk, live coral, algae or other marine life, or take or alter any rock, coral, sand, or other geological feature within any established conservation area.

Executive Order No. 13089, *Coral Reef Protection* (1998)—All Federal agencies whose actions may affect U.S. coral reef ecosystems shall: (a) identify their actions that may affect U.S. coral reef ecosystems; (b) utilize their programs and authorities to protect and enhance the conditions of such ecosystems; and (c) to the extent permitted by law, ensure that any actions they authorize, fund, or carry out will not degrade the conditions of such ecosystems.

Executive Order 1019, *Hawaiian Islands Reservation* (1909) – The islets and reefs of the extreme western extension of the Hawaiian archipelago are reserved and set apart for the use as a preserve and breeding ground for native birds. It is unlawful to hunt, trap, capture, willfully disturb, or kill any bird of any kind whatever, or take the eggs of such birds within the limits of the reservation except under the rule and regulations prescribed by the Secretary of Agriculture.

Cultural Resources Regulations

Federal law [16 U.S.C. 470w (5)]—defines Historic Properties as "any prehistoric or historic district, site, building ,structure, or object included in or eligible for inclusion in, the National Register of Historic Places**."**

The current U.S. Navy's *Historic and Archaeological Resource Protection Planning Guidelines* define historic and archaeological resources as pieces of real or personal property whose management, protection, and consideration in planning is mandated by Federal Laws, international agreements, executive orders, regulations due to their significance in the history of the United States, its communities and diverse cultural groups, and other nations.

Archaeological Resources include parcels of real property (sites) as well as items of personal property (artifacts) on Federal land or lands subject of effect by the Navy or Marine Corps.

Historic Properties are defined as real property such as sites, buildings, structures, works of engineering, industrial facilities, fortifications and landscapes, that are eligible for the National register of Historic Places or of a host country's equivalent of the National Register. Personal property such as ships (or other watercraft), aircraft, and spacecraft may also be considered historic property.

Native American Cultural Items and Places (Traditional Cultural Resources) include human remains, associated funerary objects, sacred objects, and objects of cultural patrimony. Native American cultural items must be managed in accordance with Federal Law. Consideration must also be given to places of importance to the continuing practice of a Native American group's traditional religion. Such places and the impacts on them, and impacts on access to them must be managed in accordance with Federal Law (U.S. Department of the Navy, 1997, Jan p.5, p.6).

American Indian Religious Freedom Act of 1978 (PL 95-341; 92 STAT. 469; 42 USC 1996)—states that it is the policy of the United States to protect and preserve for Native Americans their inherent right of freedom to believe, express, and exercise the traditional religions of Native Americans, including access to sites, use and possession of sacred objects, and the freedom to worship through ceremonial and traditional rites.

Archaeological Resources Protection Act of 1979 (PL 96-95; 93 STAT. 722; 16 USC 470aa-47011)—provides guidelines for dealing with archaeological resources on public and Native American land. It details the permit procedures necessary for excavation and outlines the criminal and civil penalties for the illegal removal of archaeological materials from Federal land.

Historic Sites Act of 1935 (PL 74-292; 49 STAT. 666; 16 USC 461-467)—declares that it be a "national policy to preserve for public use historic sites, buildings, and objects of national significance for the inspiration and benefit of the people of the United States." It establishes the National Park Service (through the Secretary of the Interior) as the caretaker of the Nation's cultural resources and empowers them to execute the act's policies, including criminal sanctions. It also establishes a general advisory board, known as the "Advisory Board on National Parks, Historic Sites, Buildings, and Monuments," to advise on any matter relating to national parks, historic and archaeological sites, buildings, and properties.

National Historic Preservation Act (NHPA) of 1966, as amended (PL 89-665; 80 STAT. 915; 16 USC 470; 36 CFR 800)—establishes a program for the preservation of historic properties throughout the nation. The act authorizes the Secretary of the Interior to "expand and maintain a national register of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, and culture, hereinafter referred to as the National Register…" This Act also establishes an independent Agency of the U.S. Government, The Advisory Council on Historic Preservation, to "advise the President and the Congress on matters relating to historic preservation" and to implement and monitor the Historic Preservation Act. The most commonly cited sections of this Act are Section 106 and Section 110.

Section 106 of the NHPA—is implemented and directed under the authority of the Advisory Council on Historic Preservations regulations, **"Protection of Historic Properties" (36 CFR Part 800).** It requires that the head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking take into account the effect of that undertaking on any historic properties,

prior to the approval of the expenditure of any Federal funds and prior to the issuance of any license or permits.

Section 106 also requires that Federal agencies afford the Advisory Council on Historic Preservation an opportunity to comment on any undertaking which has the potential to effect these resources.

The Section 106 review/compliance process is comprised of five phases:

The identification and evaluation of historic properties within the area where an agency proposes to undertake an activity.

An assessment of the effects on cultural resources as a result of the proposed undertaking. A determination of effect is made by the Agency based on criteria established in the ACHP's regulations. These determinations can be: No effect (the undertaking will not affect historic properties; No Adverse effect (the undertaking will affect one or more historic properties, but the effect will not be harmful), and/or; Adverse effect (the undertaking will harm one or more historic properties).

Consultation with the State Historic Preservation Officer (SHPO) for the purpose of resolving issues regarding adverse effects that might be incurred on historic properties. The SHPO coordinates a States participation in the implementation of the NHPA and consults with and assists the Agency Official when identifying and assessing effects on historic properties, and considering alternatives to mitigate those effects. The SHPO represents the interests of the State and its citizens in the preservation of their cultural heritage. The SHPO also assists the Agency Official in identifying persons interested in an undertaking and its effects upon historic properties. Consultation is designed to result in a Memorandum of Agreement (MOA) whereby the Agency outlines measures agreed upon that will reduce, avoid, or mitigate adverse effects. In certain cases the consulting parties may agree that no such measures are available and that adverse effects must be accepted in the public interest. If consultation proves unproductive, the agency, the SHPO, or the Council, may terminate consultation. The Agency must submit appropriate documentation to the Council and request the Council's written comments.

Advisory Council comments on the proposed undertaking. The Council may comment during the Agency/SHPO consultation and participate by signing the resulting MOA. The Agency may also obtain Council comment by submitting the MOA to the Council for review and acceptance. The Council can accept the MOA, request changes, or opt to issue written comments. Should Consultation be terminated, the Council issues its written comments directly to the Agency head, as requested by the Agency

Finalization of the Section 106 Compliance/Review process. If the MOA is executed, the Agency proceeds with the its undertaking under the terms of the MOA. In the absence of an MOA, the Agency head must take in account the Councils written comments in deciding whether and how to proceed"

Section 106 regulations also provide alternative means of compliance with Section 106. These are through: Programmatic Agreements among the Agency, the Council, one or more SHPO's and/or others; Counterpart regulations developed by an Agency and

approved by the Council, and/or; an Agreement between the Council and a State, which substitutes a State review system for the standard Section 106 review process.

Section 110 of the NHPA—directs Federal agencies to assume responsibility for the preservation of historic properties which are owned or controlled by the Agency; and, consistent with the Agency's mission and mandates, carry out Agency programs and projects in accordance with the purposes of the NHPA, and give consideration to programs and projects which will further the purposes of the NHPA. Section 110 of the NHPA prescribes general and specific responsibilities of Federal agencies in the identification, evaluation, registration, and protection of properties of historic, archaeological, architectural, engineering, or cultural significance. Section 110 requires that Federal agencies designate historic preservation officers, identify and preserve historic properties under their ownership, and minimize harm to National Natural Landmarks.

In accordance with Section 110 of the NHPA, the Navy is responsible for the stewardship of historic properties under its jurisdiction and for preservation of such properties to the extent feasible, although no absolute requirement to preserve these properties exists. A Section 106 review may result in conclusion that alteration or destruction of an historic property is in the general public interest (Naval Air Facility Adak, 199c, Oct, p.i).

Native American Graves Protection and Repatriation Act (1990) (PL 101-601; 25 USC 3001 et seq.)—has two main objectives. The first objective is to require any person who wishes to excavate Native American remains and grave goods on Federal land to obtain a permit and to give the Native American group most closely associated with those goods the opportunity to reclaim them. The act also addresses the incidental discovery of such items on Federal land by persons engaged in other activities, such as mining or construction. When one or more of these items are found in this manner, the activity must cease and a reasonable effort made to protect the items. Written notification must be made to the Federal land manager in charge and the appropriate tribe or organization, who is allowed 30 days in which to make a determination as to the appropriate disposition for these remains. The second objective requires that collections of Native American human remains and grave goods that are currently controlled by Federal agencies and museums inventory such items, attempt to identify them as to geographical and cultural affiliation, notify the appropriate Native American organization, and return the items, if the tribe or organization so desires.

As a department of the Federal government, the Navy has certain statutory and regulatory obligations under the NHPA and its implementing regulations and guidelines (36 CFR 60 and 800) as well as other archaeological laws. Within the DOD, policies for the management of archaeological and historic resources are established by DODDIR 4710.1 (Archaeological and Historic Resources Management). For the Navy, these policies are implemented by instructions in Chapter 23 of OPNAVINST 5090.1B Historic and Archaeological Resources Protection, Environmental and Natural Resources Program Manual, (November 1994); Naval Facility Instruction (NAVFACINST) 11010.70A (1990), *Guidance for Preparing Historic and Archaeological Resources Protection Plans at United States Navy Installations* (Greenhorne & O'Mara, Inc., June 1990). Since the inception of this EIS, the latter document referenced above has been superseded by *Historic and*

Archaeological Resources Protection Planning Guidelines (U.S. Department of the Navy, 1997 Jan).

Department of Defense (DOD) Instruction 4715.3 (May 3, 1996)—provides standards for "Integrated Cultural Resource Management Plans (ICRMPs). As Navy and Marine Corps installations and activities begin to develop ICRMPs, it will become necessary to coordinate such development with pre-existing Historic and Archaeological Resources Protection (HARP) plans, and with most recent guidelines provided by the Navy. It is anticipated that ICRMPs will eventually subsume and replace HARP plans. (U.S. Department of the Navy, 1997 Jan p.4-5).

In compliance with NHPA and the ACHP's regulations (36 CFR 800) implementing the Section 106 review and comment process, PMRF would consult with SHPO Hawaii and the ACHP to establish and/or implement measures ensuring proper mitigation of potential adverse effects to cultural resources that could result form either current or proposed activities at PMRF.

Because activities described in this EIS have the potential to affect land owned or regulated by the State of Hawaii, State and County laws and guidelines are also applicable and include HRS chapters 343, 344, and 6E (amended); Hawaii Act 306 (State Burials Law); the Hawaii State Functional Plan for Historic Preservation; and Chapter 8 of the Kauai County Code.

Executive Order 11593, *Protection and Enhancement of the Cultural Environment* (1971)—The Federal Government shall provide leadership in preserving, restoring and maintaining the historic and cultural environment of the Nation. Federal agencies shall:

(1) administer the cultural properties under their control in a spirit of stewardship and trusteeship for future generations,

(2) initiate measures necessary to direct their policies, plans and programs in such a way that federally owned sites, structures, and objects of historical, architectural or archaeological significance are preserved, restored and maintained for the inspiration and benefit of the people, and

(3) in consultation with the Advisory Council on Historic Preservation (16 U.S.C. 470i), institute procedures to assure that Federal plans and programs contribute to the preservation and enhancement of non-federally owned sites, structures and objects of historical, architectural or archaeological significance.

Environmental Justice Regulations

Executive Order 12898, *Environmental Justice* (1994) – Each Federal agency shall conduct its programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under, such programs, policies, and activities, because of their race, color, or national origin.

Geology and Soils Regulations

The pertinent regulations related to geology and soils for PMRF activities are as follows:

Article XI, Section 3, of the Hawaii Constitution states that "the state shall conserve and protect agricultural lands, promote diversified agriculture, increase agriculture self sufficiency, and assure the availability of agriculturally suitable lands. Lands identified by the state as important agricultural lands needed to fulfill the purposes above shall not be reclassified …"

Hazardous Materials and Hazardous Waste Regulations

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (Public Law [PL] 96-510, 42 USC 9601, et seq.)—authorizes the United States Environmental Protection Agency (USEPA) to enforce remediation of past contamination. The law authorized Federal agencies to respond to the release or imminent release of hazardous substances into the environment through emergency response procedures coordinated with State governments. PCBs are designated a hazardous substance by CERCLA (not RCRA) due to the Clean Water Act (CWA). Therefore, any person identified as a responsible party in a release or threatened release of PCBs is liable for any and all costs incurred for the cleanup. Under Title III of SARA, the reportable quantity is one pound.

Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986 (PL 99-499, 42 USC 11001, et seq.) as part of the Superfund Amendments and Reauthorization Act (SARA) of 1986 Title III (PL 99-499, 42 USC 9611, et seq.) which is part of CERCLA—establishes the emergency planning efforts at State and local levels and provides the public with potential chemical hazards information.

Executive Order 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements—directs Federal agencies to comply with EPCRA. Also establishes a goal to reduce the release and off-site transfer of toxic chemicals by 50 percent over a 5-year period, using 1994 as the baseline.

Federal Insecticide, Fungicide, and Rodenticide Act of 1972 (PL 92-516, 7 USC 136, et seq.)—regulates the labeling requirement and disposal practices of pesticide usage.

Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977 (PL 92-500, 33 USC 1251, et seq.)—has special enforcement provisions for oil and hazardous substances. For example, Spill Prevention Control and Countermeasures Plans (SPCCs) cover the release of hazardous substances as identified by the USEPA, which could reasonably be expected to discharge into navigable waters.

Hawaii Hazardous Waste Management Act, (HRS Title 19, Health, Chapter 342J)—The Hawaii state hazardous waste management program is a preventive as well as a regulatory program that gives priority to providing technical assistance to generators of hazardous waste to ensure the safe and proper handling. The hazardous waste management program includes public education to promote awareness of what constitutes hazardous waste and

the dangers of improper disposal of hazardous waste. The hazardous waste management program promotes hazardous waste minimization, reduction, recycling, exchange, and treatment as the preferred methods of managing hazardous waste, with disposal used only as a last resort when all other hazardous waste management methods are ineffective or unavailable. The State program is coordinated with each county, taking into consideration the unique differences and needs of each county.

Hawaii Solid Waste Management Control Regulations (Hawaii Code of Rules and Regulations, Title 11, Department of Health, Chapter 58)—The purpose of this chapter is to establish minimum standards governing the design, construction, installation, operation, and maintenance of solid waste disposal, recycling, reclamation, and transfer systems. Such standards are intended to:

(1) Prevent pollution of the drinking water supply or waters of the State
(2) Prevent air pollution
(3) Prevent the spread of disease and the creation of nuisances
(4) Protect the public health and safety
(5) Conserve natural resources
(6) Preserve and enhance the beauty and quality of the environment

Hazardous Materials Transportation Act (HMTA) of 1975 (PL 93-633, 49 USC 1801, et seq.)—gives the DOT authority to regulate shipments of hazardous substances by air, sea, highway, or rail. These regulations, found at 49 CFR 171–180, may govern any safety aspect of transporting hazardous materials, including packing, repacking, handling, labeling, marking, placarding, and routing (other than with respect to pipelines).

Medical Waste Tracking Act (PL 100-582, 42 USC 6912, 6992, et seq.) under RCRA—establishes the Standards for Tracking and Managing Medical Waste. This act is strictly a demonstration program to track the disposition and transportation of medical wastes.

Hawaii Management and Disposal of Medical Waste (Hawaii Code of Rules and Regulations, Title 11, Department of Health, Chapter 104)—implements Hawaii Revised Statutes Section 321-21 and provides for the management, treatment, transport, storage, and disposal of medical and infectious wastes and treated infectious wastes to ensure practices which will protect the health and safety of persons living in Hawaii.

Military Munitions Rule (62 FR 6621, 40 CFR 260, et seq.)—identifies when conventional and chemical military munitions become a hazardous waste under RCRA, and provides safe storage and transport of such waste. It amends existing regulations regarding emergency responses involving both military and non-military munitions and hazardous waste and explosives. The rule also exempts hazardous waste generators and transporters from needing RCRA manifests when traveling through or close to adjacent properties under the control of the same person. This revision, effective 12 August 1997, is expected to reduce the paperwork burden on hazardous waste generators whose property is divided by right-of-ways.

Nuclear Regulatory Commission (NRC) (PL 93-438, 42 USC 5801, et seq.)—regulates Radioactive Wastes, including depleted uranium; enforcement of this statute is conducted under 10 CFR 19, 20, 21, 30, and 40, NRC Standards for Protection Against Radiation. These health and safety standards were established as protection against ionizing radiation

resulting from activities conducted under the licenses issued by the NRC. The handling, storage, establishing radiation protection programs, recordkeeping, transport, and disposal of Radioactive Wastes are subject to NRC standards.

Pollution Prevention Act of 1990 (PL 101-508, 42 USC 13101, et seq.)—requires the USEPA to develop standards for measuring waste reduction, serve as an information clearinghouse, and provide matching grants to State agencies to promote pollution prevention. Facilities with more than 10 employees that manufacture, import, process, or otherwise use any chemical listed in and meeting threshold requirements of EPCRA must file a toxic chemical source reduction and recycling report.

Resource Conservation and Recovery Act (RCRA) of 1976, as amended 1984 (PL 94-580, PL 98-616 [1984], and 42 USC 6901, et seq.)—authorizes the USEPA to regulate the generation, storage, and disposal of hazardous wastes. The RCRA also manages underground storage tanks.

Toxic Substances Control Act (TSCA) of 1976 (PL 94-469, 15 USC 2601, et seq.)—establishes that the USEPA has the authority to require the testing of new and existing chemical substances entering the environment, and, subsequently, has the authority to regulate these substances. Many of the materials contained in the missiles and drones which PMRF tests in the overwater areas contain substances that are considered toxic under the TSCA. However, TSCA regulations may be waived for national security reasons under Section 22 of this act. The TSCA also regulates polychlorinated biphenyls (PCBs), whose manufacture was banned in 1978. Title III of TSCA addresses indoor radon abatement. TSCA and the Asbestos Hazard Emergency Act (AHERA) provide the regulatory basis for handling and removing asbestos containing materials in kindergarten through 12th grade school buildings.

Health and Safety Regulations

The regulatory environment for health and safety issues consists of those regional and local elements that have been established to minimize or eliminate potential risk to the general public and on-site personnel as a result of operations. Because of ongoing operations at PMRF considerable health and safety related requirements are already in place.

29 CFR 1910 and 1926—Regulatory requirements related to the Occupational Safety and Health Act of 1970 have been codified in 29 CFR 1910, General Industry Standards, and 29 CFR 1926, Construction Industry Standards. The regulations contained in these sections specify equipment, performance, and administrative requirements necessary for compliance with Federal occupational safety and health standards, and apply to all occupational (workplace) situations in the United States. Requirements specified in these regulations are monitored and enforced by OSHA, which is a part of the U.S. Department of Labor.

With respect to ongoing work activities at the proposed PMRF operating locations, the primary driver is the requirements found in 29 CFR 1910. These regulations address such items as electrical/mechanical safety and work procedures, sanitation requirements, life safety requirements (fire/evacuation safety, emergency preparedness, etc.), design

requirements for certain types of facility equipment (e.g., ladders/stairs, lifting devices), mandated training programs (employee Hazard Communication training, use of powered industrial equipment, etc.), and recordkeeping and program documentation requirements. For any construction or construction-related activities, additional requirements specified in 29 CFR 1926 also apply.

EM 385-1-1, U.S. Army Corps of Engineers Safety and Health Requirements Manual—All work activities undertaken or managed by the U.S. Army Corps of Engineers (USACE), which can include many types of Federal construction projects, must comply with the requirements of EM 385-1-1. In many respects the requirements in this Manual reflect those in 29 CFR 1910 and 1926, but also include USACE-specific reporting and documentation requirements.

Range Commanders Council Standard 321-97, Common Risk Criteria for National Test Ranges—sets requirements for minimally-acceptable risk criteria to occupational and non-occupational personnel, test facilities, and non-military assets during range operations. Methodologies for determining risk are also set forth. Requirements specified in this standard are followed for all operations at PMRF test ranges. Under RCC 321-97, individuals of the general public shall not be exposed to a probability of fatality greater than 1 in 10 million for any single mission and 1 in 1 million on an annual basis. This standard maximum risks to the general public is less on an annual basis than the risks from accidents occurring in the home or in public. (Range Commander Council, 1997, February, p.3-7)

Range Commanders Council Standard 319-92, Flight Termination System Commonality Standards—specifies performance requirements for flight termination systems used on various flying weapons systems. Requirements specified in this standard are followed for all operations at PMRF test ranges.

Department of Transportation (DOT) regulations 49 CFR 100-109—address the interstate shipment of hazardous substances. This document also specifies the proper shipping name, hazard class, and identification number to be used for each material shipped. This information is necessary to ensure proper handling by shipping personnel and identification by emergency personnel if an accident involving hazardous materials should occur. In addition, this document sets guidelines specifying containers suitable for the quantity and chemical characteristics of the hazardous materials that are used. The State of Hawaii incorporates the DOT regulations under Hawaii Revised Statute Section 286 Part XI (Motor Carrier Safety Law), and Section 286 Part XII (Transportation of Hazardous Materials, Hazardous Waste and Etiologic Agents). Public sea shipments in the region of Hawaii must be in accordance with Hawaii Revised Statute Harbor & Tariffs Title 19, Subtitle 3, para. 42-133, Loading & Unloading Hazardous Materials. (U.S. Army Strategic Defense Command, 1992, Feb, p.3-47)

Land Use Regulations

Hawaii Land Use Law, HRS Chapter 205 and Title 15, Subtitle 3, Chapter 15, Hawaii Administrative Rules—classifies State land into four categories: urban, rural, agricultural, and conservation. Urban districts include activities or uses as provided by ordinances or regulations of the county within which the urban district is situated. Rural districts include

activities or uses as characterized by low density residential lots of not more than one dwelling house per one-half acre, except as provided by county ordinance. The agricultural district includes lands for the cultivation of crops, aquaculture, raising livestock, wind farming, forestry, agriculture support activities, and land with significant potential for agriculture uses. Golf courses and golf-related activities may also be included in the district, provided the land is not in the highest productivity categories (A or B) of the Land Study Bureau's detailed classification system. Conservation lands include areas necessary for protecting watersheds, scenic and historic areas, parks, wilderness, forest reserves, open space, recreational areas, habitats of endemic plants, fish and wildlife, and all submerged lands seaward of the shoreline. The conservation district also includes lands subject to flooding and soil erosion.

The Hawaii State Plan (HRS Chapter 226)—serves as a guide for future long-term development of the State. It includes: goals, objectives, policies, and priorities for the State; a basis for determining priorities and allocating limited resources; improvement of coordination between Federal, State, and county plans, policies, programs, projects, and regulatory activities; and a process of coordination of State and county activities. In addition, the Hawaii State Plan directs appropriate State agencies to prepare functional plans for their respective program areas. Fourteen State Functional Plans serve as the primary implementing vehicle for the goals, objectives, and policies of the Hawaii State Plan. The major theme of the functional plans focuses on the promotion of a balanced growth approach in the use of the State's limited resources. This recognizes the need for economic development while preserving the environment and multi-cultural lifestyle throughout the State. (U.S. Army Space and Strategic Defense Command, 1993, Oct, p.5-4)

Coastal Zone Management Act of 1972, as amended (16 USC 1451, et seq)—The Federal Coastal Zone Management Act excludes Federal lands from the coastal zone. However, Federal agencies that conduct activities directly affecting the zone must ensure that the activity is consistent with the State's Coastal Zone Management Program. The Hawaii Coastal Zone Management Program (HRS Chapter 205A), which is administered by the DLNR, regulates public and private uses in the coastal zone. The objectives and policies of the program consist of providing recreational resources; protecting historic and scenic resources and the coastal ecosystem; providing economic uses; reducing coastal hazards; and managing development in the coastal zone. (U.S. Army Space and Strategic Defense Command, 1993, Oct, p.5-8)

The Hawaii Coastal Zone Management Program designates special management areas in the coastal zone which are subject to special controls on development. These areas extend inland from the shoreline and are established by the county planning commission or by the county council. The special management area is a designated area inland to the extent necessary to control shorelands, the uses of which have a direct and significant impact on the coastal waters. The County of Kauai has established guidelines (U.S. Army Space and Strategic Defense Command, 1993, Oct, p.5-8) for the review of developments on non-Federal lands proposed for the special management areas (figure 3.1.1.8-1). Any development within the special management area requires a special management area permit.

Upon annexation to the United States in 1898, the Republic of Hawaii ceded approximately 708,225 hectares (1,750,000 acres) of government lands (lands set aside by Kamehameha III for the benefit of the chiefs and people) and Crown lands (lands personally reserved by Kamehameha III) to the United States. In 1959, title to the majority of these lands was transferred back to the State under Section 5 of the Admission Act, to be held in a public trust for specifically identified purposes. Subsequently, a public trust fund was created for the receipt of funds derived for the sale, lease, or other disposition of the ceded lands. In 1978, the State Constitution was amended to specify that the ceded lands were to be held by the State in a public trust for Native Hawaiians and the general public and to create the Office of Hawaiian Affairs (OHA), which was given the responsibility for management of the public trust funds covering the ceded lands. (U.S. Department of Transportation, 1992, July, p.3-26) Appendix E provides an overview of land title for DOD property addressed in this EIS.

Noise Regulations

Noise Control Act (PL 92-574, 42 USC 4901, et seq.)—directs all Federal agencies to the fullest extent within their authority to carry out programs within their control in a manner that promotes an environment free from noise that jeopardizes the health or welfare of any American. The act requires a Federal department or agency engaged in any activity resulting in the emission of noise to comply with Federal, State, interstate, and local requirements respecting control and abatement of environmental noise. Workplace noise is under the jurisdiction of the OSHA, and is thus addressed primarily in sections addressing Health and Safety, rather than Noise.

Department of Defense Noise–Land Use Compatibility Guidelines—state that sensitive land use, such as residential areas, are incompatible with annual day-night average sound levels (DNL) greater than 65 A-weighted decibels (dBA) (62 C-weighted decibels [dBC]).

Noise Pollution (HRS 19-342F)—directs the State to prevent, control, and abate noise pollution. The statute is directed to continual long-term noise event.

Socioeconomics Regulations

A number of regulatory compliance requirements, discussed in other resource areas, have an indirect effect on socioeconomics. Examples include the Coastal Zone Management Act, the Hawaii State Planning Act, Hawaii Land Use Law, and Hawaii State Environmental Policy Law. These regulations attempt to promote economic development, foster life-styles compatible with the environment, and preserve the variety of life-styles traditional to Hawaii through design and maintenance of neighborhoods that reflect the culture and mores of the community.

Transportation Regulations

Highways for the National Defense Act (23 USC 210)—addresses the special use of public highways for military purposes; sets policies, procedures, and funding protocols for specific military use of public highways; and establishes a National Strategic Highway Corridor Network. This network is coordinated with civil highway authorities to ensure the Nation's highway system meets defense needs.

Ports and Waterways Safety Act, as amended—seeks to enhance navigation and vessel safety; protect the marine environment; and protect life, property, and structures in, on, or immediately adjacent to the navigable waters of the United States. This act implements many International Maritime Organization standards concerning maritime safety.

Utilities Regulations

Clean Water Act of 1972 (PL 92-500, 33 USC 1251, et seq.)—authorizes the USEPA to regulate wastewater discharge to surface waters. Implementation includes the NPDES permitting process (40 CFR 122), pretreatment programs (40 CFR 403), and categorical effluent limitations (40 CFR 405, et seq.). States must certify that discharges will not violate State water quality standards.

Safe Drinking Water Act of 1979 (PL 93-523, 42 USC 300f, et seq.)—sets primary drinking water standards for owners and operators of public water systems and seeks to prevent underground injection that can contaminate drinking water sources.

Water Quality Act of 1987—requires that the USEPA issue or deny permits for industrial and certain municipal stormwater discharges. The USEPA is also required to establish rules to deal with this permitting responsibility.

Water Pollution Law, Hawaii Revised Statutes, Chapter 342D—provides a regulatory program for discharges of pollutants into the waters of Hawaii. It establishes the NPDES permit program required under the Federal CWA.

Safe Drinking Water Law, Hawaii Revised Statutes, Chapter 340E—provides standards and procedures to maintain an adequate supply of safe drinking water for the State.

Solid Waste Management Law, Hawaii Revised Statutes, Chapter 342G and H—establishes standards for solid waste management facilities and permitting programs; requires integrated solid waste management plans with source reduction as the primary practice; and promotes the use of recycled materials.

Visual and Aesthetic Resources Regulations

Hawaii State Plan (HRS Chapter 226)—serves as a guide for future long-term development of the State. It includes goals, objectives, policies, and priorities for the State; a basis for determining priorities and allocating limited resources; improvement of coordination between Federal, State, and county plans, policies, programs, projects, and regulatory activities; and a process of coordination of State and county activities. Section 226-12 of the State Plan, Objectives and Policy for the Physical Environment, Scenic, Natural Beauty, and Historic Resources provides State objectives regarding visual resources. These objectives include preservation of views to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscape, and other natural features.

Water Resources Regulations

Clean Water Act (CWA) of 1972 as amended through 1987 (PL 92-500, 33 USC 1251, et seq.)—prohibits discharges of pollutants into any public waterway unless authorized by a

permit. The NPDES permit establishes requirements for water pollution control. The USEPA is the principal permitting and enforcement agency for NPDES permits. This authority may be delegated to the States. The CWA requires all branches of the Federal government whose activity results in a point-source discharge or runoff or pollution into United States waters to comply with applicable Federal, intrastate, State, and local regulations.

Coastal Barriers Resources Act (CBRA) (16 USC 3501, et seq.)—protects undeveloped coastal barriers from damage associated with development activities as well as the associated fish, wildlife, and other resources in coastal wetlands, marshes, estuaries, and inlets. This act exempts military activities essential to national security and aeronautical scientific research.

Coastal Zone Management Act of 1972, as amended (16 USC 1451, et seq.)—provides incentives for coastal States to develop and implement coastal area management programs. State coastal zone management programs frequently incorporate flood control, sediment control, grading control, and storm water runoff control statues. Consistency with the State Coastal Zone Management Act is addressed under land use.

Rivers and Harbors Appropriation Act of 1899—regulates the disposal of refuse and debris into the rivers and harbors of the United States and makes it illegal to create any obstruction to navigable waters without the approval of USACE.

Safe Drinking Water Act of 1979 (PL. 93-523, 42 USC 300f, et seq.)—requires the USEPA to adopt National Primary Drinking Water Regulations that define maximum contaminant levels in public water systems. The USEPA may delegate primary enforcement responsibility for public water systems to the State. The SDWA seeks to prevent underground injection that can contaminate drinking water sources.

Water Pollution Control Act (33 USC 1251, et seq.), as amended by the Clean Water Act of 1977—is the major Federal legislation addressing water pollution control. The act establishes the NPDES permitting program to control the discharge of pollutants from point sources into the surface waters. It also establishes the Dredge and Fill Permit Program to control the discharge of dredged or fill material into navigable waters. The act requires projects with State nonpoint source pollution control programs. Under the act, the USEPA is the principal permitting agency for NPDES and the USACE and State's environmental agencies are the principal permitting agencies for dredge and fill permits.

Executive Order 11988, Floodplain Management—is intended to avoid, to the extent possible, adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative.

Water Pollution (HRS 19-342D)—provides a comprehensive regulatory program for discharges of pollutants to the waters of Hawaii. It establishes a permitting program, provides for water quality testing by the Hawaii Department of Health, provides enforcement mechanisms to the Department of Health and to the Attorney General. Finally, the Water Pollution Law establishes penalties for violations of its administrative rules and permits (Goodsill Anderson Quinn and Stifel, 1993, p.37).

Safe Drinking Water (HRS 19-340E)—provides standards and procedures designed to maintain an adequate supply of safe drinking water for the State. It establishes state standards for drinking water contaminant levels, procedures for the provision of drinking water in emergency situations and public notification in the event of drinking water contamination. Underground injection activities likely to cause drinking water contamination are also regulated. Finally, the Safe Drinking Water Law provides a system of penalties and remedies applicable in the event of violation of any of its rules (Goodsill Anderson Quinn and Stifel, 1993, p.73).

State Water Code (HRS 12-174C)—provides a comprehensive water resources planning program to address the problems of water supply and conservation in the State. The State Water Code Law enforces the policy that the waters of the State are held for the benefit of the citizens of the State. It declares that the people of the State are beneficiaries and have a right to have the waters protected for their use.

Conservation of Aquatic Life, Wildlife, and Land Plants Act (HRS 12-195D)—serves as the Hawaii Endangered Species Act. It controls the activities relating to or affecting endangered species and also establishes conservation programs. The Conservation Act incorporates the listing of endangered or threatened species under the federal Endangered Species Act into its own listing (Goodsill Anderson Quinn and Stifel, 1993, p.214).

Biological Resources Regulations—Open Ocean

National Marine Sanctuaries Act (1972) (Title III of the Marine Protection, Research, and Sanctuaries Act)—It is the only Federal program specifically designed to protect biological diversity in the ocean and was passed because Congress, in establishing the National Marine Sanctuaries Program, recognized that certain areas of the marine environment possess "conservation, recreational, ecological, historical, research, educational, or aesthetic qualities which give them special national significance." Although the sanctuary program is not a strict wilderness program in the traditional sense and calls for multiple use, the overriding consideration is the protection of the natural resource values of the particular area. The law does not specifically prohibit any activity within a marine sanctuary, but does give NOAA broad authority to regulate any activities that are not compatible with resource protection.

Marine Mammal Protection Act (1972) (16 USC 1361 et. seq.)—prohibits the taking (harassing, hunting, capturing or killing) on the high seas, of any marine mammal by persons or vessels subject to the jurisdiction of the United States. Of particular concern is the protection of whales, porpoises, seals, and sea lions by NOAA. The goal of the act is to maintain marine mammal population levels at or above the "optimum sustainable population," which is defined as the range of population levels from the largest supportable within the ecosystem to the population level that results in maximum net productivity. If the population levels fall below the optimum sustainable population, it is declared "depleted." When depleted, intentional takings are permitted only for research purposes or for subsistence and handicraft purposes, and a species recovery plan must be developed. Species designated as endangered or threatened are automatically designated "depleted."

Ocean Dumping Act (1972) (Title I of the Marine Protection, Research, and Sanctuaries Act)—governs the disposal of all materials into the ocean, including sewage sludge,

industrial waste, and dredged materials. Amendments in 1980 also prohibited the ocean dumping of radiological, chemical, or biological warfare agents or high-level radioactive wastes. Further amendments in 1983 prohibited the issuance of permits authorizing the ocean dumping of any low-level radioactive wastes or radioactive waste materials, unless certain requirements were met.

Endangered Species Act (1973) (16 USC 1536 et. seq.)—gives to the Secretary of Commerce, through the National Marine Fisheries Service, responsibility for the recovery of most marine species. The act authorizes the Secretary to identify endangered or threatened species, designate habitats critical to their survival, establish and conduct programs for their recovery, enter into agreements with States, and assist other countries to conserve endangered and threatened species. The Federal government is also authorized to enforce prohibitions against or issue permits controlling the taking of or trading in endangered or threatened species. Federal agencies are prohibited from funding, authorizing, or carrying out projects any projects that jeopardize the existence of or modify the habitats of endangered species.

Clean Water Act (1977) (33 USC 1344)—is the principal Federal legislation governing water pollution control, with the objective of maintaining and restoring the chemical, physical, and biological integrity of U.S. waters. The act provides protection from direct discharges into marine waters through the application of the Ocean Discharge Criteria of section 403 (c). Prior to issuing any National Pollutant Discharge Elimination System permit for discharge into marine waters, the EPA must determine that the discharge will not "unreasonably degrade the marine environment."

Act to Prevent Pollution from Ships (1980) (Sections 1901 to 1911 of Title 33 of U.S. Code)—applies to ships of U.S. registry or nationality, or ships operated under authority of the United States, wherever located, in addition to ships registered in a country that is a member of the International Convention for the Prevention of Pollution from Ships (the MARPOL Protocol) and ships in the navigable waters of the United States, and is aimed at reducing pollution from ocean-going vessels. Pollution reception facilities at a port or terminal must be "adequate" to receive "the residues and mixtures containing oil or noxious liquid substances from seagoing ships."

Marine Plastics Pollution Research and Control Act (1987)—bans the dumping of plastics within the U.S. EEZ and by U.S. vessels anywhere in the ocean. The act also requires several studies to be conducted by the EPA and NOAA to determine the extent of the impacts of plastics pollution on fisheries and wildlife and to explore methods to reduce such waste in the marine environment.

Executive Order No. 12114*, Environmental Effects Abroad of Major Federal Actions* (1979)—provides for three types of environmental reviews: environmental impact statements; international bilateral or multilateral environmental studies; and concise reviews of the environmental issues involved, including environmental assessments, summary environmental analyses, or other appropriate documents. Major Federal actions significantly affecting the environment of the global commons outside the jurisdiction of any nation (e.g., the oceans or Antarctica) require the preparation of an environmental impact.

Appendix K
Consultation Request and Response Letters

DEPARTMENT OF THE NAVY
PACIFIC MISSILE RANGE FACILITY
P.O. BOX 128
KEKAHA, HAWAII 96752-0128

IN REPLY REFER TO:
5090
Ser 00/0175
11 March 1998

Mr Brooks Harper
U.S. Department of Interior
Fish and Wildlife Service
Pacific Islands Ecoregion
300 Ala Moana Boulevard, Room 3108
Box 50088
Honolulu, Hawaii 96850

Dear Mr. Harper:

We would like to initiate the Section 7 consultation process under the Endangered Species Act for the Pacific Missile Range Facility Enhanced Capability program. The analysis of biological impacts contained in the attached Draft Environmental Impact Statement have been provided for your concurrence.

Two endangered plant species and 17 endangered or threatened species of wildlife occur in the region of influence of the proposed action and the alternatives including the no action alternative (Table 1). The known locations and distributions of these species relative to the project components are discussed briefly under the Affected Environment chapter of the EIS in Sections 3.1.1.3, 3.1.2.2, 3.1.3.3, 3.1.4.3, 3.1.5.3, 3.2.1.3, 3.2.2.2, 3.3.1.3, 3.3.2.3, 3.4.2.

The potential impacts of the proposed action and alternatives, including the no action alternative, on the listed species are presented in the EIS chapter on Environmental Consequences and Mitigation Measures. Section 4.1.1.3.1 No-action Alternative--Biological Resources, PMRF/Main Base indicates, with the continued implementation of mitigations outlined in the Strategic Target System EIS (U.S. Army Strategic Defense Command, 1992, Feb; Biological Assessment for Strategic Target System, 1991, no significant impacts to threatened or endangered plant or wildlife species is expected and no jeopardy would apply to any of the sensitive species. The USFWS and NMFS concurred with the findings of no jeopardy related to that program. In addition the probability of direct impacts to marine mammals due to ongoing activities under the no-action alternative, is low and in the event an impact occurs it is expected to be negligible. With no take of, or jeopardy to, the species involved.

Section 4.1.1.3.2 Proposed Action--Biological Resources, PMRF/Main Base indicates that with the implementation of the appropriate mitigation measures outlined in the earlier NEPA and ESA documentation, no adverse impacts to threatened and endangered species are expected as a result of construction, or range training and operation.

Sections 4.1.2.2, 4.1.3.3, 4.1.4.3, and 4.1.5.2 Proposed Action--Biological Resources; Restrictive Easement, Makaha Ridge, Kokee, and Kamokala Magazines respectively indicates that with the implementation of the appropriate mitigation measures outlined in the earlier NEPA and ESA documentation, no adverse impacts to threatened and endangered species are expected as a result of construction, or range training and operation.

Table 1: Threatened and Endangered Terrestrial Species in the PMRF/Main Base Region of Influence

Scientific Name	Common Name	Status	
		Federal	State of Hawaii
Plants			
Panicum niihausense	Lau'ehu	E	E
Sesbania tomentosa	Ohai	E	E
Birds			
Anas wyvilliana	Koloa-maoli (Hawaiian duck)	E	E
Asio flammeus sandwicense	Pueo (Hawaiian short-eared owl)	N/A	E
Fulica americana alai	'Alae-ke'oke'o (American/ Hawaiian Coot)	E	E
Gallinula chloropus sandvicensis	'Alae-'ula (Hawaiian Gallinule/common moorhen)	E	E
Himantopus mexicanus knudseni	Ae'o (Hawaiian black-necked stilt)	E	E
Pterodroma phaeopygia sandwicense	Hawaiian dark-rumped petrel	E	E
Puffinus auricularis newelli	A'o (Newell's shearwater)	T	T
Mammal			
Lasiurus cinereus semotus	Hawaiian hoary bat	E	E

Source: U.S. Army Space and Strategic Defense Command, 1993, Oct, p.3-13.

Legend:

E = Endangered
P = Protected
N/A = Not applicable
T = Threatened

Section 4.2.1.3.1 No-action Alternative-- Biological Resources, Niihau indicates there have been no known impacts on sensitive species due to ongoing operations and with the implementation of appropriate, and minor, mitigation impacts to threatened and endangered species, specifically to monk seals and green sea turtles, would be negligible and would not constitute take and would not result in increased jeopardy to the species.

Section 4.2.1.3.2 Proposed Action --Biological Resources, Niihau indicates implementation of the mitigations outlined no jeopardy would apply to the species of concern.

Section 4.3.1.3.1 No-action Alternative--Biological Resources, Tern Island indicates that there are no adverse impacts due to ongoing USFWS and NMFS activities on the Island or in adjacent waters.

Section 4.3.1.3.2 Proposed Action--Biological Resources, Tern Island indicates that with the implementation of the mitigation measures outlined impacts to green sea turtles would be minimal (or negligible) and would not jeopardize the species. Noise impacts to Hawaiian monk seals may result in significant impacts but because of the short term effects and the limited number of launch events the species is not expected to be jeopardized.

Sections 4.3.2.3.1 and 4.3.2.3.2 No-action and Proposed Action respective at Johnston Atoll indicate that no threatened or endangered species would be adversely affected by ongoing or proposed activities at the Atoll.

Section 4.4.1.2 No-Action --Biological Resources--Ocean Area (Outside U.S. Territory) indicates that although there may be some significant impacts on marine mammals, including threatened and endangered species, due to noise generated by sonar activity, such impacts are not expected to jeopardize the continued existence of the species. Other impacts are expected to be minimal and not to result in any jeopardy to the species. (Suggest a list of endangered marine mammals) Endangered marine mammal species potentially effected but not jeopardized include: Hawaiian monk seal, humpback whale, sperm whale, blue whale, fin whale, sei whale (Table 2).

Section 4.4.2.2 Proposed Action--Biological Resources--Ocean Area (Outside U.S. Territory) indicates that based on the current available scientific knowledge, probability of impacts on biological organisms in the open ocean due to the proposed action is minimal. Therefore there the proposed action would not jeopardize the continued existence of any threatened or endangered species present in the Ocean Area outside of the U.S. territory.

In summary, although some threatened and endangered species may be affected by both the No-action and Proposed Actions presented in the EIS, with the implementation of mitigation measures where appropriate and feasible, no jeopardy to the continued existence of any of the species is anticipated as a result of either alternative.

We would appreciate your timely review of the appropriate EIS sections. A Biological Assessment will be provided following the public comment period to support your preparation of a Biological Opinion. We look forward to continued consultation with USFWS on this important project.

Table 2: Summary of Marine Mammals and Sea Turtle Species within the Hawaiian Coastal Area (page 1 of 2)

Common Name of Marine Animal	Name of Species	Federal (State) Status	Range Species Occur	Time Period Within Range	Potential Population in Range Vicinity	Number in Pods	Mating/ Calving Period	Bottom Feeding Habits
Minke Whale	*Balaenoptera acutorostrata*	NL	1,2,3	Year Round mostly Summer/Fall	P	1 - 2	February/ August	No
Sei Whale	*Balaenoptera borealis*	E (E)	1,2,3	Fall & Winter	P	2 - 5	October/ March	No
Blue Whale	*Balaenoptera musculus*	E (E)	1,2,3	Year Round	P	1 - 2	Winter/ Winter	No
Fin Whale	*Balaenoptera physolus*	E (E)	1,2,3	Year Round	P	3 - 7	November/ February	No
Humpback Whale	*Megaptera novaeangliae*	E (E)	1,2,3	December to April	P	1 - 8	Winter/ Winter	No
Byrde's Whale	*Balaenoptera edeni*	NL	1,2,3	Year Round, only in $\geq$ 68°F (20° C) Water	P	5 - 6	Year Round/ Year Round	No
Pygmy Killer Whale	*Feresa attenuata*	NL	1,2,3	Year Round	P	10 - 50	U/Spring	No
Short Finned Pilot Whale	*Globicephala macrorhynchus*	NL	1,2,3	Year Round, mostly in < 100 m (328.1 ft) Deep Water	P	10 - 200	Year Round/ Year Round	No
Pygmy Sperm Whale	*Kogia breviceps*	NL	1,2,3	Year Round	P	3 - 5	Summer/ Spring	Yes
Dwarf Sperm Whale	*Kogia simus*	NL	1,2,3	Year Round	P	3 - 5	Summer/ Spring	No
Arch Beaked Whale	*Mesoplodon carlhubbsi*	NL	1,2,3	Year Round	P	U	U/U	Yes
Blainville's Beaked Whale	*Mesoplodon dersirostris*	NL	1,2,3	Year Round Along Edge of Continental Shelf or Continental Slope	P	3 - 10	Year Round/ Year Round	Yes
Japanese Beaked Whale	*Mesoplodon ginkgodens*	NL	1,2,3	Year Round	P	U	U/U	Yes
Killer Whale	*Orinus orca*	NL	1,2,3	Year Round	P	5 - 20	Year Round/ Year Round	No
Melon-Headed Whale	*Peponocephala electra*	NL	1,2,3	Year Round	P	20 - 500 75 - 100 consistently	Year Round/ Year Round	Possible
Sperm Whale	*Physeter macrocephalus*	E (E)	1,2,3	Year Round	P	1 - 15	April/August	No
False Killer Whale	*Pseudorca crassidens*	NL	1,2,3	Year Round	470+	4 - 6	Year Round/ Year Round	No
Cuvier's Beaked Whale	*Ziphius carvirastris*	NL	1,2,3	Year Round Cosmopolitan	P	1 - 15	Year Round/ Year Round	Yes
Short-Beaked Common Dolphin	*Delphinrus delphis*	NL	1,2,3	Year Round mostly Winter/Spring	P	100 - 2,000	Summer/ Summer	Yes
Risso's Dolphin	*Grampus griseus*	NL	1,2,3	Year Round in Deep Warm Water 15°-25° C	P 59-77	3 - 30	U/Winter	No

Table 2: Summary of Marine Mammals and Sea Turtle Species within the Hawaiian Coastal Area (page 2 of 2)

Common Name of Marine Animal	Name of Species	Federal (State) Status	Range Species Occur	Time Period Within Range	Potential Population in Range Vicinity	Number in Pods	Mating/ Calving Period	Bottom Feeding Habits
Fraser's Dolphin	*Lagenodelphis hosei*	NL	1	Year Round mostly in > 900 m Deep Water	P 2,952.8 ft	up to 500	U/U	Possible
Northern Right Whale Dolphin	*Lissodelphis borealis*	NL	1,2,3	Year Round mostly Winter/Spring	P	U	U/U	Yes
Pantropical Spotted Dolphin	*Stenella attenuata*	NL	1,2,3	Year Round mostly in 100 - 1,000 m Water	P -328.1 3,281 ft	37 - 1,381	Year Round/ Year Round	No
Spinner Dolphin	*Stenella logirostris*	NL	1,2,3	Year Round	677	10 - 300	Year Round/ Year Round	No
Rough-Toothed Dolphin	*Steno bredanensis*	NL	1,2,3	Year Round mostly in 100 - 1,000 m Water	P -328.1 3,281 test	3 - 4 and up to 50	U/mid-Summer	No
Bottlenose Dolphin	*Tursiops truncatus*	NL	1,2,3	Year Round	P	15 - 1,000	Spring-Summer/ Spring-Summer	Yes
Northern Elephant Seal	*Mirounga angustirostris*	NL	2,3	Year Round	Rarely [1(a,b)]	1 - 2	December/ March	Possible
Hawaiian Monk Seal	*Monochus schauinslandi*	E (E)	3	Year Round Nonmigratory	1,406	U	June-July/ April-May	Yes
Loggerhead Sea Turtle	*Caretta caretta*	T (T)	1,2,3	Year Round, only in Water $\geq$ 22.2° C, Visitor	Rarely 172°F	1	Late Winter/ Early Spring	Yes
Green Sea Turtle	*Chelonia mydas*	T (E)	1,2,3	Year Round only in Water > 30°C	2,900 86°F	1	Early Spring/ Fall	Yes
Hawksbill Sea Turtle	*Eretmochelys imbricata*	E (E)	1,2,3	Year Round	P	1	Early Spring/ Fall	Yes

E - Endangered
T - Threatened
NL - Not Listed
U - Unknown
[1] - Summer/Fall
[2] - Winter/Spring
P - indicates that the species is present within the region but no information is available to estimate the population.

1 - HATS
2 - BSURE
3 - BARSTUR

Source: Mobley, 1997, 4 Dec.

Should you have any questions, please call Mr. Averiet Soto at (808) 375-4775.

Sincerely,

J.A. Bowlin
Captain, U.S. Navy
Commanding Officer

Copy to:
CINCPACFLT
COMNAVBASE Pearl Harbor

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Ecoregion
300 Ala Moana Boulevard, Room 3-122
Box 50088
Honolulu, Hawaii 96850

MAY 21 1998

Captain J.A. Bowlin
Commanding Officer
Pacific Missile Range Facility
P.O. Box 128
Kekaha, HI 96752-0128

Reference: *Section 7 Consultation for Pacific Missile Range Facility Enhanced Capability Program*

Dear Captain Bowlin:

The U.S. Fish and Wildlife Service (Service) has reviewed your letter, dated March 11, 1998, requesting a section 7 consultation under the Endangered Species Act. We received the letter in our office on April 23, 1998. Your letter stated that the April 3, 1998, *Draft Environmental Impact Statement* (DEIS) *for Pacific Missile Range Enhanced Capability* contained the analysis of biological impacts to threatened and endangered species that you will use to prepare a Biological Assessment (BA), following the public comment period. As you are probably already aware, the BA should focus on determining whether or not the Department of the Navy believes that the Proposed Action Alternative is likely to adversely affect listed species. Guidance for preparing the BA can be found in 50 CFR Part 402.

When preparing the BA, please bear in mind the following points:

1. The Service has conducted a separate review of the DEIS and has identified several deficiencies that will be described in detail in a separate letter. One problem is that the DEIS does not identify what proportions of missile launches will be conducted from each of the three potential types of missile launch platforms (*i.e.*, land-based platforms, ocean platforms such as ships or barges, and air platforms). Therefore, it is impossible to fully assess impacts to listed species. The Final EIS and the BA must clearly specify how and where target missiles will be launched before the Service can determine whether the project is likely to affect listed species.

2. In addition, the DEIS is deficient in several other respects. Many major environmental issues and impacts were not identified and evaluated. The document fails to provide an adequate analysis of potential biological effects associated with launching missiles from National Wildlife Refuges at Tern Island and Johnston Atoll and does not offer measures to avoid, minimize or mitigate many of the potential project impacts. The Final EIS must correct these deficiencies before it can be used as a supporting document for the BA.

3. Although the species list included with your letter appears complete, please be aware that the Service can only consult under section 7 for listed species under its jurisdiction, *e.g.*, plants, birds, and sea turtles (when they are on land). A separate section 7 consultation should be initiated with the National Marine Fisheries Service for the species under their jurisdiction (*i.e.*, sea turtles in the water and marine mammals).

In summary, we will initiate section 7 consultation on this project upon receipt of an adequate BA. We appreciate your concern for threatened and endangered species. If you have any questions, please contact Interagency Consultation Program Lead Margo Stahl or Fish and Wildlife Biologist Chris Swenson at (808) 541-3441.

Sincerely,

Brooks Harper

Brooks Harper
Field Supervisor
Ecological Services

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Ecoregion
300 Ala Moana Boulevard, Room 3-122
Box 50088
Honolulu, Hawaii 96850

JUL 2 1998

Vida Mossman
Pacific Missile Range Facility
P.O. Box 128
Kekaha, Kauai, 96752-0128

Reference: *U.S. Fish and Wildlife Service Comments on Draft Biological Assessment for Pacific Missile Range Facility Enhanced Capability*

Dear Ms. Mossman:

The U.S. Fish and Wildlife Service (Service) has reviewed the *Draft Biological Assessment* (BA) *for the Pacific Missile Range Facility* (PMRF) *Enhanced Capability*, dated May 22, 1998. The document was hand-delivered to our office on June 4, 1998, without a cover letter. Our assumption is that the Service's response should be directed to your office.

As stated in the implementing regulations, 50 CFR 402.12, the purpose of the BA is to evaluate the potential effects of a project on listed and proposed species and designated and proposed critical habitats, and to determine whether such species or habitats are likely to be adversely affected. At a minimum, the BA should include a list of all listed, proposed and candidate species in the project area and an analysis of effects of the project on these species and their habitats. The Service uses this information to determine whether or not a formal section 7 consultation or a conference is necessary. The National Marine Fisheries Service (NMFS) is responsible for making a similar determination for marine species under its jurisdiction.

The threatened and endangered species list in Table 1-1 on page 1-3 is complete. However, the analysis of potential project effects on listed species is inadequate. The Service reached this determination because the information in the BA is taken from the April 1998 *Draft Environmental Impact Statement* (DEIS) *for PMRF Enhanced Capability*. As discussed in detail in the Department of Interior (DOI) Office of Environmental Policy and Compliance's May 22, 1998, letter to you, the DEIS does not provide an adequate assessment of project impacts to listed species. Therefore, the Service cannot determine whether a formal section 7 consultation or a conference is necessary until we receive additional information that addresses the DOI concerns in their May 22, 1998, letter.

Thank you for providing the opportunity to review the BA. Please refer any questions to Chris Swenson, Fish and Wildlife Biologist, at (808) 541-3441.

Sincerely,

Karen W Rosa

for/ Brooks Harper
Field Supervisor
Ecological Services

cc: Jerry Leinecke, USFWS, Honolulu
Gene Nitta, NMFS, Honolulu

DEPARTMENT OF THE NAVY
PACIFIC MISSILE RANGE FACILITY
P.O. BOX 128
KEKAHA, HAWAII 96752-0128

IN REPLY REFER TO:

5090
Ser 7332/ 0785
06 OCT 1998

Mr. Robert Smith
U.S. Department of the Interior
Fish and Wildlife Service
Pacific Island Ecoregion
300 Ala Moana Blvd., Room 3-122
Honolulu, HI 96850

Dear Mr. Smith:

This letter formally transmits the Draft Biological Assessment (BA) for the Pacific Missile Range Facility's (PMRF) Enhanced Capability Environmental Impact Statement (EIS). You requested this transmittal and acknowledged in your letter of 2 July 1998 that the list of threatened and endangered species is complete. As discussed with my representatives on 19 June 1998, we have determined that no formal Section 7 Consultation with the U.S. Fish and Wildlife Service is required.

The Navy has fully considered your comments on Tern Island and Johnston Atoll and, agree that prior to decisions which would include activities at these alternatives, further environmental analyses would be necessary. For this reason and because of our confidence in air and mobile sea platform launch capabilities, the Navy is no longer actively considering the use of Tern Island and Johnston Atoll as a part of the proposed action. No activities are proposed to occur within refuge boundaries.

We believe any potential impacts to monk seals and green turtles at Niihau can be avoided entirely by operational considerations and that no adverse effects will occur. The region of influence identified on Niihau does not include any endangered birds; therefore, no adverse effects are anticipated.

Your staff has contributed greatly to this analysis effort. We look forward to a close and productive relationship as we implement this and other Department of Defense programs at the Pacific Missile Range Facility.

J. A. BOWLIN
Captain, U.S. Navy
Commanding Officer

Enclosure: 1. PMRF Enhanced Capability Draft Biological Assessment

5090
Ser 7332/

Copy to: (w/o encl)
Mr. Chris Swenson, USFWS Honolulu

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Ecoregion
300 Ala Moana Boulevard, Room 3-122
Box 50088
Honolulu, Hawaii 96850

In Reply Refer To: PMRF (kwr)

OCT 22 1998

Captain J.A. Bowlin
Commanding Officer
U.S. Navy
Pacific Missile Range Facility
P.O. Box 128
Kekaha, Hawaii 96752-0128

Dear Captain Bowlin:

This responds to your October 6, 1998, letter transmitting the draft biological assessment (BA) for the Pacific Missile Range Facility's (PMRF) Enhanced Capability Environmental Impact Statement (EIS). In your letter, you stated that the U.S. Navy is no longer considering the use of Tern Island and Johnston Atoll as areas of action. In your letter and supporting draft BA you further clarified that the areas of action on the island of Niihau will not include endangered waterbird habitats, mitigation measures to avoid potential impacts to endangered and threatened seabirds on the islands of Kauai and, if needed, Niihau would be implemented as suggested by the U.S. Fish and Wildlife Service (Service), and all beach-related construction and operations on Niihau will be undertaken only after surveys have verified the absence of nesting or basking green sea turtles.

Based on the information provided in your letter and accompanying draft BA, in accordance with section 7 of the U.S. Endangered Species Act of 1973, as amended, the Service concurs with your determination that the proposed PMRF's enhanced capability is not likely to adversely affect endangered or threatened species. However, obligations under section 7 of the Act will need to be reconsidered if (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered, (2) this action is subsequently modified in a manner that was not considered in this assessment, or (3) a new species is listed or critical habitat determined that may be affected by the identified action.

We appreciate your concern for endangered and threatened species and your continued support for endangered species recovery efforts in the Pacific. If you have any questions, please contact biologist Chris Swenson of my staff (phone: 808/541-3441, fax: 808/541-3470).

Sincerely

Donald Palaske

Robert P. Smith
Pacific Islands Manager

cc: Gene Nitta, NMFS Honolulu
Jerry Leinecke, USFWS Refuges, Honolulu

DEPARTMENT OF THE NAVY
PACIFIC MISSILE RANGE FACILITY
P.O. BOX 128
KEKAHA, HAWAII 96752-0128

IN REPLY REFER TO:
5090
Ser 00/0178
11 March 1998

Mr. Eugene Nitta
Pacific Islands Protected Species Program Manager
National Marine Fisheries Service
2570 Dole Street
Honolulu, Hawaii 96822-2396

Dear Mr. Nitta:

We would like to initiate the Section 7 consultation process under the Endangered Species Act for the Pacific Missile Range Facility Enhanced Capability program. The analysis of biological impacts contained in the attached Draft Environmental Impact Statement have been provided for your concurrence.

Two endangered plant species and 17 endangered or threatened species of wildlife occur in the region of influence of the proposed action and the alternatives including the no action alternative (Table 1). The known locations and distributions of these species relative to the project components are discussed briefly under the Affected Environment chapter of the EIS in Sections 3.1.1.3, 3.1.2.2, 3.1.3.3, 3.1.4.3, 3.1.5.3, 3.2.1.3, 3.2.2.2, 3.3.1.3, 3.3.2.3, 3.4.2.

The potential impacts of the proposed action and alternatives, including the no action alternative, on the listed species are presented in the EIS chapter on Environmental Consequences and Mitigation Measures. Section 4.1.1.3.1 No-action Alternative--Biological Resources, PMRF/Main Base indicates, with the continued implementation of mitigations outlined in the Strategic Target System EIS (U.S. Army Strategic Defense Command, 1992, Feb; Biological Assessment for Strategic Target System, 1991, no significant impacts to threatened or endangered plant or wildlife species is expected and no jeopardy would apply to any of the sensitive species. The USFWS and NMFS concurred with the findings of no jeopardy related to that program. In addition the probability of direct impacts to marine mammals due to ongoing activities under the no-action alternative, is low and in the event an impact occurs it is expected to be negligible. With no take of, or jeopardy to, the species involved.

Section 4.1.1.3.2 Proposed Action--Biological Resources, PMRF/Main Base indicates that with the implementation of the appropriate mitigation measures outlined in the earlier NEPA and ESA documentation, no adverse impacts to threatened and endangered species are expected as a result of construction, or range training and operation.

Sections 4.1.2.2, 4.1.3.3, 4.1.4.3, and 4.1.5.2 Proposed Action--Biological Resources; Restrictive Easement, Makaha Ridge, Kokee, and Kamokala Magazines respectively indicates that with the implementation of the appropriate mitigation measures outlined in the earlier NEPA and ESA documentation, no adverse impacts to threatened and endangered species are expected as a result of construction, or range training and operation.

Section 4.2.1.3.1 No-action Alternative-- Biological Resources, Niihau indicates there have been no known impacts on sensitive species due to ongoing operations and with the implementation of

Table 1: Threatened and Endangered Terrestrial Species in the PMRF/Main Base Region of Influence

Scientific Name	Common Name	Status	
		Federal	State of Hawaii
Plants			
Panicum niihausense	Lau'ehu	E	E
Sesbania tomentosa	Ohai	E	E
Birds			
Anas wyvilliana	Koloa-maoli (Hawaiian duck)	E	E
Asio flammeus sandwicense	Pueo (Hawaiian short-eared owl)	N/A	E
Fulica americana alai	'Alae-ke'oke'o (American/ Hawaiian Coot)	E	E
Gallinula chloropus sandvicensis	'Alae-'ula (Hawaiian Gallinule/common moorhen)	E	E
Himantopus mexicanus knudseni	Ae'o (Hawaiian black-necked stilt)	E	E
Pterodroma phaeopygia sandwicense	Hawaiian dark-rumped petrel	E	E
Puffinus auricularis newelli	A'o (Newell's shearwater)	T	T
Mammal			
Lasiurus cinereus semotus	Hawaiian hoary bat	E	E

Source: U.S. Army Space and Strategic Defense Command, 1993, Oct, p.3-13.

Legend:

E = Endangered
N/A = Not applicable
P = Protected
T = Threatened

appropriate, and minor, mitigation impacts to threatened and endangered species, specifically to monk seals and green sea turtles, would be negligible and would not constitute take and would not result in increased jeopardy to the species.

Section 4.2.1.3.2 Proposed Action --Biological Resources, Niihau indicates implementation of the mitigations outlined no jeopardy would apply to the species of concern.

Section 4.3.1.3.1 No-action Alternative--Biological Resources, Tern Island indicates that there are no adverse impacts due to ongoing USFWS and NMFS activities on the Island or in adjacent waters.

Section 4.3.1.3.2 Proposed Action--Biological Resources, Tern Island indicates that with the implementation of the mitigation measures outlined impacts to green sea turtles would be minimal (or negligible) and would not jeopardize the species. Noise impacts to Hawaiian monk seals may result in significant impacts but because of the short term effects and the limited number of launch events the species is not expected to be jeopardized.

Sections 4.3.2.3.1 and 4.3.2.3.2 No-action and Proposed Action respective at Johnston Atoll indicate that no threatened or endangered species would be adversely affected by ongoing or proposed activities at the Atoll.

Section 4.4.1.2 No-Action --Biological Resources--Ocean Area (Outside U.S. Territory) indicates that although there may be some significant impacts on marine mammals, including threatened and endangered species, due to noise generated by sonar activity, such impacts are not expected to jeopardize the continued existence of the species. Other impacts are expected to be minimal and not to result in any jeopardy to the species. (Suggest a list of endangered marine mammals) Endangered marine mammal species potentially effected but not jeopardized include: Hawaiian monk seal, humpback whale, sperm whale, blue whale, fin whale, sei whale (Table 2).

Section 4.4.2.2 Proposed Action--Biological Resources--Ocean Area (Outside U.S. Territory) indicates that based on the current available scientific knowledge, probability of impacts on biological organisms in the open ocean due to the proposed action is minimal. Therefore there the proposed action would not jeopardize the continued existence of any threatened or endangered species present in the Ocean Area outside of the U.S. territory.

In summary, although some threatened and endangered species may be affected by both the No-action and Proposed Actions presented in the EIS, with the implementation of mitigation measures where appropriate and feasible, no jeopardy to the continued existence of any of the species is anticipated as a result of either alternative.

We would appreciate your timely review of the appropriate EIS sections. A Biological Assessment will be provided following the public comment period to support your preparation of a Biological Opinion. We look forward to continued consultation with NMFS on this important project.

Table 2: Summary of Marine Mammals and Sea Turtle Species within the Hawaiian Coastal Area (page 1 of 2)

Common Name of Marine Animal	Name of Species	Federal (State) Status	Range Species Occur	Time Period Within Range	Potential Population in Range Vicinity	Number in Pods	Mating/ Calving Period	Bottom Feeding Habits
Minke Whale	*Balaenoptera acutorostrata*	NL	1,2,3	Year Round mostly Summer/Fall	P	1 - 2	February/ August	No
Sei Whale	*Balaenoptera borealis*	E (E)	1,2,3	Fall & Winter	P	2 - 5	October/ March	No
Blue Whale	*Balaenoptera musculus*	E (E)	1,2,3	Year Round	P	1 - 2	Winter/ Winter	No
Fin Whale	*Balaenoptera physolus*	E (E)	1,2,3	Year Round	P	3 - 7	November/ February	No
Humpback Whale	*Megaptera novaeangliae*	E (E)	1,2,3	December to April	P	1 - 8	Winter/ Winter	No
Byrde's Whale	*Balaenoptera edeni*	NL	1,2,3	Year Round, only in $\geq$ 68°F (20° C) Water	P	5 - 6	Year Round/ Year Round	No
Pygmy Killer Whale	*Feresa attenuata*	NL	1,2,3	Year Round	P	10 - 50	U/Spring	No
Short Finned Pilot Whale	*Globicephala macrorhynchus*	NL	1,2,3	Year Round, mostly in < 100 m (328.1 ft) Deep Water	P	10 - 200	Year Round/ Year Round	No
Pygmy Sperm Whale	*Kogia breviceps*	NL	1,2,3	Year Round	P	3 - 5	Summer/ Spring	Yes
Dwarf Sperm Whale	*Kogia simus*	NL	1,2,3	Year Round	P	3 - 5	Summer/ Spring	No
Arch Beaked Whale	*Mesoplodon carlhubbsi*	NL	1,2,3	Year Round	P	U	U/U	Yes
Blainville's Beaked Whale	*Mesoplodon dersirostris*	NL	1,2,3	Year Round Along Edge of Continental Shelf or Continental Slope	P	3 - 10	Year Round/ Year Round	Yes
Japanese Beaked Whale	*Mesoplodon ginkgodens*	NL	1,2,3	Year Round	P	U	U/U	Yes
Killer Whale	*Orinus orca*	NL	1,2,3	Year Round	P	5 - 20	Year Round/ Year Round	No
Melon-Headed Whale	*Peponocephala electra*	NL	1,2,3	Year Round	P	20 - 500 75 - 100 consistently	Year Round/ Year Round	Possible
Sperm Whale	*Physeter macrocephalus*	E (E)	1,2,3	Year Round	P	1 - 15	April/August	No
False Killer Whale	*Pseudorca crassidens*	NL	1,2,3	Year Round	470+	4 - 6	Year Round/ Year Round	No
Cuvier's Beaked Whale	*Ziphius carvirastris*	NL	1,2,3	Year Round Cosmopolitan	P	1 - 15	Year Round/ Year Round	Yes
Short-Beaked Common Dolphin	*Delphinrus delphis*	NL	1,2,3	Year Round mostly Winter/Spring	P	100 - 2,000	Summer/ Summer	Yes
Risso's Dolphin	*Grampus griseus*	NL	1,2,3	Year Round in Deep Warm Water 15°-25° C	P 59-77	3 - 30	U/Winter	No

Table 2: Summary of Marine Mammals and Sea Turtle Species within the Hawaiian Coastal Area (page 2 of 2)

Common Name of Marine Animal	Name of Species	Federal (State) Status	Range Species Occur	Time Period Within Range	Potential Population in Range Vicinity	Number in Pods	Mating/ Calving Period	Bottom Feeding Habits
Fraser's Dolphin	*Lagenodelphis hosei*	NL	1	Year Round mostly in > 900 m Deep Water	P 2,952.8 ft	up to 500	U/U	Possible
Northern Right Whale Dolphin	*Lissodelphis borealis*	NL	1,2,3	Year Round mostly Winter/Spring	P	U	U/U	Yes
Pantropical Spotted Dolphin	*Stenella attenuata*	NL	1,2,3	Year Round mostly in 100 - 1,000 m Water	P -328.1 3,281 ft	37 - 1,381	Year Round/ Year Round	No
Spinner Dolphin	*Stenella logirostris*	NL	1,2,3	Year Round	677	10 - 300	Year Round/ Year Round	No
Rough-Toothed Dolphin	*Steno bredanensis*	NL	1,2,3	Year Round mostly in 100 - 1,000 m Water	P -328.1 3,281 test	3 - 4 and up to 50	U/mid-Summer	No
Bottlenose Dolphin	*Tursiops truncatus*	NL	1,2,3	Year Round	P	15 - 1,000	Spring-Summer/ Spring-Summer	Yes
Northern Elephant Seal	*Mirounga angustirostris*	NL	2,3	Year Round	Rarely [1(a,b)]	1 - 2	December/ March	Possible
Hawaiian Monk Seal	*Monochus schauinslandi*	E (E)	3	Year Round Nonmigratory	1,406	U	June-July/ April-May	Yes
Loggerhead Sea Turtle	*Caretta caretta*	T (T)	1,2,3	Year Round, only in Water $\geq$ 22.2° C, Visitor	Rarely 172°F	1	Late Winter/ Early Spring	Yes
Green Sea Turtle	*Chelonia mydas*	T (E)	1,2,3	Year Round only in Water > 30°C	2,900 86°F	1	Early Spring/ Fall	Yes
Hawksbill Sea Turtle	*Eretmochelys imbricata*	E (E)	1,2,3	Year Round	P	1	Early Spring/ Fall	Yes

E - Endangered
T - Threatened
NL - Not Listed
U - Unknown
[1] - Summer/Fall
[2] - Winter/Spring
P - indicates that the species is present within the region but no information is available to estimate the population.

1 - HATS
2 - BSURE
3 - BARSTUR

Source: Mobley, 1997, 4 Dec.

Should you have any questions, please call Mr. Averiet Soto at (808) 375-4775.

Sincerely,

J.A. Bowlin
Captain, U.S. Navy
Commanding Officer

Copy to:
CINCPACFLT
COMNAVBASE Pearl Harbor

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

14 MAY 1998 F/SWRx1:ETN

Captain J.A. Bowlin
Commanding Officer
Pacific Missile Range Facility
P.O. Box 128
Kekaha, Hawaii 96752-0128

Dear Captain Bowlin:

Thank you for your letter requesting consultation under Section 7 of the Endangered Species Act of 1973, as amended, regarding the effects of the proposed Pacific Missile Range Facility Enhanced Capability Program. We concur that consultation should include the species listed in your letter. However, because the leatherback turtle (*Dermochelys coriacea*) may be affected, this species should also be included. Both listed and non-listed marine mammals may also require an incidental take authorization under the Marine Mammal Protection Act of 1972, as amended, if any of these species are taken during the course of the proposed Program.

Critical habitat for the Hawaiian monk seal (*Monachus schauinslandi)* has been designated in the Northwestern Hawaiian Islands which is within the proposed activity area. Critical habitat for other listed species under the jurisdiction of the National Marine Fisheries Service (NMFS) has not been designated or proposed in or near the activity area.

The nature and scope of the preferred alternative as described in the Draft Environmental Impact Statement for Pacific Missile Range Facility Enhanced Capability may affect the listed species identified in your letter. Accordingly, the NMFS will consider formal consultation for this activity to be initiated when we receive the Biological Assessment.

Mr. Eugene T. Nitta at the Pacific Islands Area Office will be conducting this consultation. He may be reached at (808) 973-2987 should there be any questions or requirements for further information.

Sincerely,

William Hogarth, Ph.D.
Regional Administrator

cc: F/SWRx1 - Nitta
F/PR2 - Payne, Hollingshead

DEPARTMENT OF THE NAVY
PACIFIC MISSILE RANGE FACILITY
P.O. BOX 128
KEKAHA, HAWAII 96752-0128

IN REPLY REFER TO:
5090
Ser 7332/ 0786
06 OCT 1998

Mr. Eugene T. Nitta
Pacific Islands Protected Species Program Manager
National Marine Fisheries Services
Southwest Region
Pacific Area Office
2570 Dole Street
Honolulu, HI 96822-2396

Dear Mr. Nitta:

The Navy has fully considered comments received on Tern Island and Johnston Atoll and agree that prior to decisions, which would include activities at these alternative sites, further environmental analyses would be necessary. For this reason and because of our confidence in air and mobile sea platform launch capabilities, the Navy is no longer actively considering the use of Tern Island and Johnston Atoll as a part of the proposed action. No activities are proposed to occur within refuge boundaries.

We believe any potential impacts to monk seals and green turtles at Niihau can be avoided entirely by operational considerations and that no adverse effects will occur. The region of influence identified on Niihau does not include any endangered birds; therefore, no adverse effects are anticipated.

We would like to continue informal consultation with the National Marine Fisheries to ensure that all possible effects and appropriate mitigations are identified. Your staff has contributed greatly to this analysis effort. We look forward to a close and productive relationship as we implement this and other Department of Defense programs at the Pacific Missile Range Facility.

J. A. BOWLIN
Captain, U. S. Navy
Commanding Officer

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
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PACIFIC ISLANDS AREA OFFICE
2570 Dole St., Room 106
HONOLULU, HAWAII 96822-2396

October 21, 1998

Captain J.A. Bowlin
Commanding Officer
Pacific Missile Range Facility
P.O. Box 128
Kekaha, Hawaii 96752-0128

Dear Capt. Bowlin:

This letter provides the results of the Section 7 consultation on the potential effects of construction, modification, enhancement, and maintenance of support facilities, and of instrumentation, launch, and flight activities associated with the enhancement of Pacific Missile Range Facility (PMRF) capabilities on green turtles, Hawaiian monk seals, and humpback whales. The results of this informal consultation are based on our review of the existing operations and proposed enhanced capabilities of PMRF, in particular, on information provided in the Biological Assessment, the Draft Environmental Impact Statement for the Pacific Missile Range Enhanced Capability, visits to the proposed additional launch and instrumentation sites, and coordination meetings with the U.S. Navy and preparers of the Environmental Impact Statement.

The first project coordination and site evaluation meeting was held on November 14, 1996 at PMRF. From that date until the Preparation Notice for the DEIS was published on May 23, 1997, a number of coordination meetings and on-site evaluations were conducted by the U.S. Navy. The DEIS was published on April 3, 1998. The request for consultation was received on March 15, 1998. The NMFS response indicated that consultation would be considered initiated with the receipt of the Biological Assessment (BA) which was received in late April. In September 1998, the U.S. Navy requested that Tern Island and Johnston Atoll be removed from consideration in the consultation.

The U.S. Navy proposes to continue operations and enhance the capability of PMRF on Kauai to support various test, evaluation and training missions for the Department of Defense and other users of the Facility, including the developmental and operational testing and training associated with the Navy Theater Ballistic Missile Defense (TBMD) program. The TBMD program is a layered defense system that consists of an upper tier (Theater-wide) and a lower tier (Area). Area defense systems would

intercept missiles that penetrate the upper tier and those short-range, low altitude ballistic missiles that can underfly the upper tier. The Theaterwide system would be designed to engage missiles at long-range and high altitude (outside the atmosphere) and to protect a very large area (theater). This concept of multiple tiers or layers of interceptors is based on having the upper tier intercepts occurring at altitudes greater than 100 kilometers (km) (62 miles [mi]), while the lower tier component intercepts targets at altitudes of less than 100 km (62 mi).

For the purposes of this consultation, potential impacts are related to PMRF needs for enhanced launch capabilities and instrumentation. Three target launch scenarios may be used as components of the enhanced capabilities of the Proposed Action: (1) mobile sea-based (floating) launch platforms such as the Mobile Aerial Target Support System (MATSS) or the Sea Launch Platform (SLP); (2) aerial platform-based launches from specially configured aircraft; and (3) land-based target missile launch facilities. Interceptor missile launches may take place from land-based facilities at PMRF, Niihau, and from sea-based systems such as the MATSS, SLP, or active AEGIS ships of the fleet. Although described in the BA and DEIS, no activities are contemplated at this time for Tern Island, French Frigate Shoals, or Johnston Atoll.

Instrumentation upgrades or enhancement requires adding to, or installing new instrumentation components in existing facilities on Kauai, Maui, and Oahu, and placement of mobile or temporary instrumentation packages, or construction of new facilities for instrumentation, at Niihau. Target and interceptor missile launch capability enhancement may require the construction of new launch facilities at PMRF/Main Base and Niihau.

The U.S. Navy determined and NMFS concurs that except for any potential instrumentation-related construction activity at Niihau the enhancement of instrumentation capability and the use of that instrumentation will not adversely affect any listed threatened or endangered species under the jurisdiction of the NMFS.

The potential target and interceptor launches from land-based facilities at PMRF/Main Base and Niihau are evaluated for potential effects on listed species. Air-based drop launches are addressed only insofar as the potential for launch termination debris, booster drop, and intercept debris may affect the open ocean area marine organisms, as with any other launch.

Ongoing activities at PMRF have been reviewed in previous consultations for other proposals and projects. NMFS concluded that these activities would not likely adversely affect listed species provided that certain operational conditions and conservation recommendations were implemented. Any additional

launch capabilities that might be required or constructed would not significantly add to the effects previously evaluated.

Listed species considered in this consultation include endangered humpback whales (*Megaptera novaeangliae*), endangered Hawaiian0 monk seals (*Monachus schauinslandi*), and threatened green turtles (*Chelonia mydas*).

Critical habitat for humpback whales and green turtles has not been designated or proposed within or near the proposed activity areas.

The following areas have been designated as critical habitat for the Hawaiian monk seal in the NWHI (53 FR 18990, May 26, 1988): All beach areas, sand spits and islets, including all beach crest vegetation to its deepest extent inland, lagoon waters, inner reef waters, and ocean waters out to a depth of 20 fathoms around the islands and atolls of the NWHI including Nihoa, Necker, French Frigate Shoals, Gardner Pinnacles, Maro Reef, Laysan, Lisianski, Pearl and Hermes Reef, Midway (except for Sand Island and its harbor), and Kure.

The continued operation of PMRF will not adversely affect designated critical habitat for the Hawaiian monk seal under the revised proposed action.

Although blue whales, fin whales, sei whales, and sperm whales, and loggerhead, leatherback, and olive ridley turtles are found in the broad ocean area around the Hawaiian Archipelago, NMFS has determined that the proposed action is not likely to adversely affect these species.

Four stocks of humpback whales have been recognized in the North Pacific basin based on genetic and photo-identification studies: two eastern North Pacific, one central North Pacific and one western Pacific. The central North Pacific stock of humpback whales winters in the waters of the Main Hawaiian Islands and feeds on the summer grounds of Southeast Alaska and Prince William Sound. In Hawaiian waters, their distribution is almost exclusively within the 1,000 fm isobath and usually within 100 fm.

The Hawaiian monk seal is currently found throughout the Northwestern Hawaiian Islands (NWHI), specifically: Kure Atoll, Midway Islands, Pearl and Hermes Reef, Lisianski Island, Laysan Island, French Frigate Shoals, Necker Island, and Nihoa Island Monk seals are less frequently observed at Gardner Pinnacles and Maro Reef and are also seen in the waters and on beaches in the main Hawaiian Islands. Although counts are unavailable, based on opportunistic sightings, there may be a significant population of monk seals using the Kauai - Niihau - Kaula complex of islands.

Scattered but consistent sightings of monk seals around the remainder of the main Hawaiian Islands and a low but consistent occurrence of pupping on Kauai, Oahu, Maui and Molokai indicate that breeding age females and males are present. However, the relatively isolated atolls and islands of the NWHI still comprise the known primary terrestrial habitat of the Hawaiian monk seal.

The only species of sea turtles that may potentially be affected by the proposed activities is the Hawaiian population of green turtles given their proximity and distribution around Kauai, and Niihau. Green turtles are found throughout the Hawaiian Archipelago, and are considered to be a separate stock from other North Pacific basin nesting populations based on genetic analysis. There are known green turtle foraging areas in proximity to PMRF on the south shore of Kauai, and likely around Niihau and Kaula.

Low levels of green turtle nesting have been reported from Kauai (D. Heacock, pers. comm.) and Niihau (B. Robinson, pers. comm.). In 1985 one green turtle nest was reported near base housing at PMRF.

There are no reliable reports of hawksbill turtles from Kauai and Niihau.

Potential Effects on listed species:

The potential effects of ongoing activities at PMRF have been evaluated in previous reviews and consultations. NMFS determined that these activities would not likely adversely affect humpbacks whales.

These previous analyses indicated that the probability of spent boosters or terminated launch debris striking a whale is less than 4.6 chances in 1 million (4.6×10^{-6}).

The launch noise or any possible explosion may have the potential to startle but is unlikely and would not be expected to physically harm any whales offshore.

Sonic booms would be expected to affect the open ocean marine environment beyond the bathymetric contours where larger numbers of whales might occur, and would be expected to have minimal impact on the species because the numbers of whales per square mile are low and effects on individual whales are not expected to be significant.

Green turtles near PMRF main base and Niihau are the most likely to be affected by PMRF activities and development of enhanced capability. Hawaiian green turtles commonly forage off Kauai and

PMRF, and in 1985 one turtle nest was observed near base housing at the southern end of PMRF/Main Base. However, no other use of the PMRF/Main Base area by sea turtles has been documented. Green turtles occasionally nest on selected beaches on Niihau and also forage around the island.

Construction that would reduce any green turtle foraging habitat is not contemplated, and any construction on or adjacent to beaches at Niihau will be minimized so as to not disturb any areas of basking or nesting habitat.

The probability of spent boosters or terminated launch debris striking a sea turtle is expected to be at least as small as that of striking a whale. The launch noise or any possible explosion would not be expected to affect any turtles offshore. As with large cetaceans in the broad ocean area, any effects of sonic booms on green turtles are likely to be insignificant given the expected very low density of turtles per square mile of open ocean.

A few individual monk seals may potentially be affected by the proposed action on Niihau and Kauai during construction activities in proximity to the shoreline. Other launch activities conducted inland from the beaches are not likely to affect monk seals.

The revised Proposed Action is expected to have no significant effect on the Hawaiian monk seal in the area of the PMRF/Main Base region of influence because monk seal use of PMRF is rare. The mitigation measures already in place for ongoing operations are expected to be implemented for any increased activity under the Proposed Action. For instance, if monk seals are observed during safety clearance activities for a Strategic Target System launch, the launch would be delayed until the seals have cleared the area. The potential for debris from a spent booster or a terminated launch striking a monk seal or other marine mammal was evaluated for the Strategic Target System EIS and found to be remote. Potential noise impacts on biological resources due to missile launch and related activities at the PMRF/Main Base complex were addressed in the Strategic Target System EIS and were found to be negligible.

On Niihau, the use of landing craft to bring supplies and personnel ashore or dredging activities at Ki'i Landing could potentially disturb monk seals hauled out in proximity to the landing sites. Personnel would be informed of restrictions limiting their activities to project facilities where their specific responsibilities would be carried out. This would also minimize or eliminate disturbance of the seals. Overall the enhanced capabilities of the Proposed Action on Niihau is likely to have a minimal effect on Hawaiian monk seals using the island.

Based on the best available information, NMFS concludes that the proposed enhancement of capabilities for PMRF on Kauai and Niihau is not likely to adversely affect any threatened or endangered species under NMFS jurisdiction or critical habitat designated for the Hawaiian monk seal provided that certain conservation recommendations are implemented by the U.S. Navy. This conclusion is based on information provided in the Biological Assessment, the DEIS for the proposed action, site inspections, existing published and unpublished literature, and anecdotal reports from biologists, managers, and land owners from these areas.

A marine mammal species or population stock which is listed as threatened or endangered under the ESA is, by definition, also considered depleted under the Marine Mammal Protection Act of 1972 (MMPA). The ESA allows takings of threatened and endangered marine mammals only if authorized by Section 101(a)(5) of the MMPA. However, no listed marine mammals are expected to be taken. Accordingly no takings of listed marine mammals during construction or operations are authorized.

The following conservation recommendations should be implemented by the U.S. Navy in order to reduce the potential for incidental harassment of green turtles and Hawaiian monk seals during the conduct of the proposed activities for PMRF. These recommendations also encourage the development of management policies and practices for PMRF to collect data for sea turtles and Hawaiian monk seals at Niihau pursuant to Section 7(a)(1) of the ESA.

1) If whales or monk seals are observed during prelaunch safety clearance activities, the launch should be delayed until monk seals and whales are clear of the launch safety zones.

2) Surveys should be conducted of beach areas on PMRF/Main Base and on Niihau for turtle nests prior to amphibious landings or other activities that may impact sandy beaches. This will allow locational shifts in the landings to reduce the potential for impacts to Hawaiian monk seals and green turtles.

3) There is a paucity of data on monk seal abundance and distribution at Niihau. PMRF should work with the owners of Niihau Ranch to develop Hawaiian monk seal and green turtle monitoring programs so that appropriate management measures could be implemented by the owners and residents if necessary. Training on census techniques and provision of data forms for participants could be provided by the NMFS. Contingent upon approval from the land owners NMFS could

also provide analyses and interpretations of the census and observational data for the owners and residents.

4) Studies to investigate the behavioral and physiological responses of large whales and listed sea turtles to high intensity sound of all frequencies should be sponsored and/or funded by the Navy, possibly through the Office of Naval Research. This will provide better information on which to evaluate this and future projects.

This concludes the informal consultation on the action outlined in your request. As provided in 50 CFR 402.16, reinitiation of consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) incidental take of listed species occurs; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this evaluation; or (4) a new species is listed or critical habitat designated that may be affected by the action.

Please contact Mr. Eugene T. Nitta at (808) 973-2987 should you have any further questions concerning this Section 7 consultation.

Sincerely,

William T. Hogarth, Ph.D.
Regional Administrator

cc: F/SWRx1 - Karnella, Nitta
F/SWR - Hogarth
GCSW

DEPARTMENT OF THE NAVY
PACIFIC MISSILE RANGE FACILITY
P.O. BOX 128
KEKAHA, HAWAII 96752-0128

IN REPLY REFER TO:
5090
Ser 00/0176
11 March 1998

Mr. Michael D. Wilson
Chairman and State Historic Preservation Officer
State of Hawaii
Department of Land and Natural Resources
Historic Preservation Division
33 South King Street, 6th Floor
Honolulu, Hawaii 96813

Dear Mr. Wilson:

We would like to initiate Section 106 consultation and review for actions related to cultural resources aspects of the Pacific Missile Range Facility (PMRF) Enhanced Capabilities Environmental Impact Statement (EIS).

For the purposes of this EIS, information on cultural resources has been compiled from previous environmental documentation conducted at PMRF, it's ancillary facilities, and in the western portion of Kauai by the U.S. Navy, the U.S. Army, the U.S. Department of Energy, and Hawaii State Department of Parks and Recreation.

The areas of cultural resources concern where potential activities and construction may occur as a result enhancing PMRF's mission have been previously addressed and reviewed by SHPO Hawaii in the following environmental documents and supporting materials:

Makaha Ridge and the Kokee areas—

U.S. Army Program Executive Office, Missile defense and U.S. Army Space and Strategic defense Command, 1995. *Final Environmental Assessment Army Mountain Top Experiment, May.*

U.S. Department of the Navy, Pacific Division, Naval Facilities Engineering Command, Environmental Planning Division, 1993. *Environmental Assessment Mountaintop Sensor Integration and Test Program, Kauai, Hawaii,* December.

PMRF, Kauaii Test Facility Area (KTF), and the Restrictive Easement Area—

State of Hawaii, Department of Land and Natural Resources, Division of State Parks, 1994. *Archaeological Reconnaissance Survey: Polihale State Park and Adjacent Lands, Waimea District, Island of Kaua'i,* October.

U.S. Army Space and Strategic Defense Command, 1993. *Final Environmental Impact Statement for the Restrictive Easement, Kauai, Hawaii,* October.

U.S. Army Strategic Defense Command, 1991, Revised 1993. Flores, E. Kalani, and Aletha G. Kaohi, *Hawai'i Cultural and Historical Survey of Nohili, Mana, Kona District, Island of Kaua'i, State of Hawai'i,* July.

U.S. Army Strategic Defense Command, 1992. *Draft Environmental Impact Statement For the Strategic Target System,* February.

U.S. Army Strategic Defense Command, 1990. *Strategic Target Systems (STARS) Preliminary Final Environmental Assessment*, July.

U.S. Army Strategic Defense Command, 1990. Gonzalez, Tirzo, Judy Berryman, and David J. Welch, *Archaeological Survey and Testing Report of the proposed Exoatmospheric Discrimination Experiment (EDX)*, July.

U.S. Army Strategic Defense Command, 1990. *Exoatmospheric Discrimination Experiment (EDX) Environmental Assessment*, September.

U.S. Department of Energy, Albuquerque Operation, 1992, *Kauai Test* Facility *(KTF) Environmental Assessment,* July.

U.S. Department of Energy, Albuquerque Operation, 1990. Gonzalez, Tirzo, Judy Berryman, and David J. Welch, *Archaeological Survey and Testing, Department of Energy, Kauai Test Facility (KTF), Barking Sands, Kauai, Hawaii*, Aug.

Section 106 determinations of "no effect" were made for the above referenced projects as no historic sites were identified within the parameters of the project area(s) or mitigation measures were undertaken or put in place in order to attain a determination of "no effect" to identified cultural resources which may have otherwise been effected by project activities.

The U.S. Department of the Navy, Pacific Division, Naval Facilities Engineering Command, has recently finalized a complete inventory of archaeological and historical resources at PMRF for the purpose of providing information to develop a document for the long-term management of historic resources at this installation. A Phase I archaeological survey of previously unsurveyed areas, as well as a historic resources survey (which includes Cold War properties), has also been conducted. An Integrated Cultural Resources Management Plan for PMRF is currently being prepared.

With the exception of the Kamokala Ordnance Magazines locale all of the proposed activity areas within the PMRF, the Makaha Ridge and Kokee complexes addressed in the current Draft EIS have had previous cultural resource documentation and determinations of "no effect" have been made.

In compliance with Section 106, the Navy has conducted cultural resources surveys of the area south of the Kamokala Magazine area as well as twelve potential facility siting areas on the island of Niihau which were under consideration for PMRF Enhanced Capabilities activities. Potential facility siting areas on Niihau were inspected for cultural resources. Most of these areas were found to be overgrown by dense stands of kiawe. Areas where ground visibility was not obscured by vegetation were inspected whenever possible. No traditional cultural resources or areas associated with traditional values or beliefs were identified in eleven of the twelve potential facility siting areas.

The proposed facility siting location which was found to contain significant cultural resources has been eliminated from future consideration as a potential facility siting area. Avoidance of cultural resources was paramount in the selection of all the potential facilities sites. Niihau's elders were consulted with regards to selection of these area in order to avoid cultural resource areas and to ensure that traditional cultural values and beliefs would not be compromised by any of the proposed actions at these locations. Since no cultural resources were found to exist within the proposed facility siting locations, it is expected that the Navy's proposed actions will have no effect on the island's historic resources. However, the

consideration of any siting locations on Niihau would be preceded by a complete field inspection of those locations and their surroundings.

Should cultural resources be discovered as a result of future field surveys related to this project, they would be investigated and evaluated in terms of National Register of Historic Places eligibility criteria. When these evaluations have been made, all appropriate measures would be taken to mitigate impacts to resources or properties considered to be eligible. Avoidance of cultural resources by relocating a potential facility siting area to another locale (where these resources are absent) would be the primary mitigation measure.

Through the implementation of the appropriate pre-construction studies, monitoring, consultation with SHPO Hawaii, and by following U.S. Navy and PMRF guidelines for protection of historic resources, potential adverse effects to cultural resources will be reduced or eliminated.

Should you have any questions, please call Mr. Averiet Soto at (808) 375-4775.

Sincerely,

J.A. Bowlin
Captain, U.S. Navy
Commanding Officer

Copy to:
CINCPACFLT
COMNAVBASE Pearl Harbor

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

REF:HP-AMK

MAY 2 1 1998

J.A. Bowlin, Captain, U.S. Navy
Department of the Navy
Pacific Missile Range Facility
P.O. Box 128
Kekaha, Hawaii 96752-0128

LOG NO: 21458
DOC NO: 9805NM02

Dear Captain Bowlin:

SUBJECT: **National Historic Preservation Section 106 Compliance - Enhancing the Capabilities of the Pacific Missile Range Facility (PMRF) Barking Sands, Waimea, Kauai**

Thank you for the opportunity to review this project.

We can agree that impacts at Makaha Ridge and Kokee area will have "no effect" on significant historic sites.

In the past, PMRF, Kaua'i Test Facility and the Restrictive Easement Area have been given "no effect" determinations with the condition that archaeological monitoring occur to cover the possibility of inadvertent discoveries of historic sites. However, it is unclear in this Draft EIS what mitigation will occur in these areas. The Draft EIS references a ICRMP implementation plan. We have not seen this plan. Until we are able to review it, we cannot evaluate impacts and mitigation proposals in these project areas.

For the Ni'ihau areas covered in the Draft EIS, several reports are mentioned in the Draft EIS (Gonzalez 1997 and Meyer 1998). However, these reports have not been received and reviewed by our office. We need to receive the reports in able to determine if historic sites are in the project areas, and if so, if mitigation proposals are acceptable. Thus, we cannot yet evaluate impacts for these project areas. We assume that these reports cover archaeological work and cover oral historical work for the possible presence of traditional cultural properties.

Kamokala Ordnance Magazines has not undergone an archaeological inventory survey and the Draft EIS indicates that there are possibly historic sites in the area. Thus, an archaeological

inventory survey seems to be needed, before we can evaluate whether historic sites are present in this area, possible impacts on significant sites, and proposed mitigation.

Also, for project areas which are likely to have traditional cultural properties (e.g., burials, gathering areas, etc.), PMRF needs to consult with native Hawaiians on impacts and proposed mitigation. We need to see evidence of such consultation before we can finalize our evaluations of your effect determinations.

If you have any questions, please call Nancy McMahon 742-7033.

Aloha,

MICHAEL D. WILSON, Chairperson and
State Historic Preservation Officer

NM:amk

c. Advisory Council , Western Region

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

REF:HP-AMK

AUG 19 1998

LOG NO: 21897
DOC NO: 9808HM01

J.A. Bowlin, Captain, U.S. Navy
Department of the Navy
Pacific Missile Range Facility
P.O. Box 128
Kekaha, Hawaii 96752-0128

Dear Captain Bowlin:

SUBJECT: **National Historic Preservation Act - Section 106 Consultation Pacific Missile Range Facility Enhanced Capability and Review of Draft Cultural Resources Survey Report (Gonzales and Peyton, 1998) Barking Sands, Waimea, Kauai and Island of Ni`ihau**

Thank you for your letter of March 11, 1998, in which you ask to initiate Section 106 consultation with the Hawaii State Historic Preservation Office on the proposed Pacific Missile Range Facility (PMRF) Enhanced Capabilities Project. This proposed undertaking is described in the Draft Environmental Impact Statement (EIS). Our response to your letter was delayed because we had not received the archaeological survey report conducted for this project on the Island of Ni`ihau and at the Kamokala Caves Ordnance Magazine Area on Kauai. As we have now received this report, the following letter includes both our response to the request for consultation and a review of the archaeological survey report entitled *Draft Cultural Resources Survey Report in support of the Pacific Missile Range Facility Enhanced Capability* (Gonzales and Peyton, 1998). We are still reviewing the proposed Memorandum of Agreement (MOA) submitted to our office for this project.

Kauai Test Facility and the Restrictive Easement Area, PMRF

As stated in your letter, all the proposed activity and construction areas within the Makaha Ridge and Kokee area and within the Kauai Test Facility and the Restrictive Easement Area, PMRF, have been reviewed by our office for previous projects. For the Makaha Ridge and Kokee project areas, we concur with a "no effect" determination. In the Test Facility and Restrictive Easement Area, most of the project areas have been heavily disturbed in the past but, based on past experiences, we are concerned that remnants of subsurface burial sites or temporary habitation deposits could be exposed by project elements involving subsurface excavation. Given the degree to which these project areas have been previously disturbed

and the relatively low frequency with which such deposits are found, we believe these "adverse effects" can be justifiably mitigated by an archaeological monitoring plan. The monitoring plan can be stipulated in the MOA for this project and can conform with inadvertent discovery procedures recommended by the Integrated Cultural Resources Management Plan.

Ni`ihau

As for the draft cultural resources survey prepared for activity areas on Ni`ihau, we feel that additional work is needed before we can enter into discussions concerning effect. Our first concern is that the report include a thorough synthesis of the known and probable distribution of historic properties on Ni`ihau, including traditional cultural properties. While the archaeological survey adequately inspected seven of the 12 locations where specific activities will take place, the EIS identifies a number of other activities which will occur well beyond the identified 12 locations and commits to evaluating the significance of any historic properties potentially affected by these activities. The EIS clearly describes an "area of potential effect" that is much greater than that portrayed in the archaeological inspection of 12 locations. Neither the report nor the EIS presents sufficient information to determine the effect of the project on historic properties on Ni`ihau or to reasonably devise measures to mitigate any adverse effects on the yet-to-be identified properties.

In the EIS activities identified as having a potential affect on historic properties and as being subject to the historic preservation review process include road construction; increases in vehicular traffic; greater numbers of personnel on the island; a greater probability of accidental fires and need for firebreaks; amphibious landing exercises; the accidental distribution and clean-up of debris; and downed-pilot training exercises. None of these are addressed in the current survey report. Mitigation measures proposed to deal with these potential adverse effects include conducting orientation sessions for personnel working or training on the island; restricting specific areas; establishing protocol for activities in some areas; and preparing guidelines for personnel and specified activities. We do not believe, however, that these probably valid and appropriate mitigation measures can be effectively implemented without a solid understanding of the distribution of historic properties, including traditional cultural properties, over a much broader expanse of the island.

For archaeological properties, we believe additional field work is needed before an adequate syntheses of site types and distribution patterns can be prepared for those potentially impacted areas which should be subject to MOA stipulations. Such syntheses are generally based on information recorded in previous archaeological work, a review of historic documents pertaining to past land use, and information from long-time residents of the area. As so little archaeological work has been conducted on Ni`ihau, there is probably not sufficient information available to define the needed distribution patterns. At a minimum, we believe that further archaeological work should include a sampling of representative areas on the island in order to defined the needed site distribution patterns. This process could be aided by the long-term residents of Ni`ihau who know the island well.

To address the probable presence of traditional cultural properties, we feel an ethnographic study should be conducted to identify, evaluate, and determine the treatment of these properties. As you may be aware, traditional cultural properties are a type of historic property that is eligible for listing on the National Register because of a property's association with the customs, traditions and beliefs of a living community and the property's importance in

maintaining the continuing cultural identity of that community (National Register Bulletin No. 38). The information needed to identify and evaluate this type of historic property can only be gathered from members of the community who have knowledge of these customs, traditions or beliefs. Identification of this site type can not rely solely on conventional archaeological surveys because it often includes features (e.g., places, stones, hills, water sources, etc.) that are not modified by humans and are not, therefore, necessarily recognized or understood by outsiders. The information needed is collected by interviewing knowledgeable community members, generally elders. Federal procedures and policies encourage a level of confidentiality and privacy in the collection and reporting of this information when appropriate.

One reason we believe an ethnographic study is so important is that the probability of traditional cultural properties on Ni`ihau is very high. The number, diversity and integrity of traditional cultural properties is the highest in areas where communities have a strong ethnic identity, have lengthy and stable historical ties to the lands being studied, and have an economic base conducive to maintaining a knowledge of the landscape. It would be harder to find a community in Hawaii that more strongly exemplifies these factors than Ni`ihau. They are the last community of native Hawaiian speakers and their history of relative isolation and remoteness has strengthened their cultural identity. Most community members descend from families that have lived on the island for multiple generations, giving a time-depth and continuity to those kinds of traditions, beliefs, and customs most often associated with particular places or features. Ranching and subsistence activities have kept community members familiar with their landscape and have done relatively little to change that landscape.

We also ask that the ethnographic study, if possible, be conducted for the entire island instead of collecting this information in fragments or on a project by project basis. This is not only appropriate for the kind of overview needed for this particular undertaking, but it could be more cost effective in the long-run. Conducting a comprehensive study initially would reduce the need to approach the same individuals repeatedly for subsequent projects and to continually reiterate background summaries and information required of all reports. A broad approach is also better suited to the nature of ethnographic studies because individuals naturally, over the course of interviews, tend to discuss a wide range of experiences and places that may have little direct bearing on relatively small, distinct project areas. Of greater importance, perhaps, is the advantage of recording information on traditional cultural properties before the lifestyle of the community, inevitably, undergoes even more changes.

Our specific comments on the archaeological survey report (*Draft Cultural Resources Survey)* are presented in Attachment 1. If it is agreed that further work is necessary, this report could be revised and included as an appendix to the broader overview.

Kamokala Ordnance Magazine

We concur that an inventory survey of the Kamokala Ordnance Magazine should not be conducted until the area has undergone a Environmental Site Assessment for hazardous waste materials. An historic property inventory of this waste site can be conducted according to a plan appropriate to the conditions found and any clean-up plans prepared for the waste site. Such a plan should probably be included in the MOA.

If you have any questions, please call Nancy McMahon, our archaeologist on Kauai (742-7033) or Nathan Napoka, History and Culture Branch, in Honolulu (587-0040).

Aloha,

MICHAEL D. WILSON, Chairperson and
State Historic Preservation Officer

HM:amk

c. Advisory Council , Western Region

Attachment 1

Specific Comments
Draft Cultural Resources Survey Report
In support of
Pacific Missile Facility Enhanced Capability Environmental Impact Statement
Proposed Facility Siting Areas, Island of Niʻihau (TMK 1-1-01)
Kamokala Caves Ordnance Magazine Area, Kauai (TMK: 1-2-02)
Tirzo Gonzalez and Paige Peyton, December 1998

If this report will be included as a supplement or appendix to a larger report, we recommend that some revisions be made so that it will conform with what we routinely expect of inventory survey reports. Our general comments are discussed below followed by comments on specific sections of the report.

General Comments

This inventory survey report inspects 12 locations on the island of Niʻihau and the Kamokala Ordnance Magazines. On Niʻihau, we agree that seven (A, B, Q, E, F, G and J) of the 12 TBMD locations were adequately surveyed for historic properties (with the exception of potential traditional cultural properties) and that none are present. An inventory survey of the remaining five areas needs to be completed before we can concur that no historic properties are present at those project locations. If adequately planned, we agree that some of these assessments may be completed under stipulations set out in an MOA because dense vegetation covers some of the locations and the selection of all the activity locations is not final. Optic Sites H and I were not completely surveyed because they are covered in dense lantana and proposed Launch Site K and Airstrip Site M were only partially surveyed because portions of these areas were covered by thick vegetation (Sites K and M). The exact location of Aerostat Site C has yet to be determined. As stated in our letter, we do not believe there is sufficient information to reliably predict the likelihood of historic properties in these areas nor would any mitigation measures preclude the need for the overview of historic property distribution patterns discussed in our letter.

Sections of the report claim that no "sensitive resources" are in particular areas or that "sensitive areas" were avoided. The island's owner and elders of the Hawaiian community were apparently consulted to ensure that "sensitive resources were either avoided completely or any potential impacts minimized." The report does not, however, state whether or not the phrase "sensitive resources" includes any traditional cultural properties which it should in order to comply with Section 106 regulations (CFR) Part 800. We do not doubt that consultation with the Niʻihau community and the land owner was conducted in good faith to avoid places of importance at or near the 12 locations considered, but we can not concur with a determination of "no effect" unless the report specifically discusses whether any of the "sensitive resources" identified qualify as traditional cultural properties. In order to make this assessment, the report should also discuss, more systematically, the process by which consultation took place, the individuals involved, the concerns raised during consultation, and how these concerns could be mitigated.

We concur with the report's recommendation that the Kamokala Ordnance Magazine should not be conducted until the area has undergone an Environmental Site Assessment for hazardous waste materials. An historic property inventory should be conducted according to a plan appropriate to the conditions found at this waste site and any clean-up procedures undertaken. The need for this plan can probably be included in a stipulation of the MOA.

Specific Comments

Page 7-9 (3.1) The historical background section covers the appropriate kinds of information, but the sources from which this information was drawn should be referenced. Citations should be added to the discussions.

Page 8, para. 3. In discussing the Mahele, it should be stated specifically that, as a result of Mahele, most of Niʻihau became government lands. According to the Indices of Land Commission Awards, an individual named Koakanu was awarded two *ahupuaʻa* on Niʻihau. What became of these lands?

Page 8, para. 4. Use of the terms *ili kupono* and *koa* system of land tenure within this context should be explained because it does not conform with the more commonly used meanings of these terms.

Page 9, para. 3 and Page 11, para. 2. Is the specific location of the ordnance magazine within an area considered a *leina* or is this paragraph implying that all cliffs in this region may be *leina?* Is there ethnographic information suggesting that there is some relationship between a choice of burial sites and the presence of *leina*?

Page 9, para. 4. Is there a reference or particular reason for suggesting that the wet conditions of the Mana Plain encouraged the independent invention of aquaculture on Kauai? We agree that these kinds of environmental conditions could be opportune for the development of acquaculture, but we know of no specific evidence that this was the case on Kauai.

Page 9, para. 6. If the magazines were constructed during World War II, their age is greater than 50 years and they are potentially eligible for listing on the National Register. This possibility should be addressed in the report.

Page 9-10 (Section 4.1). The report should include a section on the known or expected distribution of historic properties in the general areas in which the proposed activities will occur. We routinely ask that survey reports contain an assessment of past land use patterns and the kind of archaeological record that would be expected from these past practices. For archaeological properties, we agree that the relative lack of archaeological information for Niʻihau makes this difficult, but these patterns can also be deduced from a review of historical documents pertaining to past land use or from long-time residents of the island. The report does present some generalizations based on Kikuchi's 1987 observations, but these may apply only to a relatively limited portion of the island. Is some pattern apparent in the distribution of *heiau* and shrines described by Stokes? Does the information collected by Handy in 1931 and cited in the report indicate which areas of the island were cultivated and which are therefore more likely to have remnant features associated with cultivation. Several times the author says that historic properties area

unlikely in a particular area because the area lacks water. A correlation, however, between known water sources and the distribution of historic properties is never argued in terms of documented distributional patterns other than Kikuchi's hypothesis that sites are absent in one area because there are no water sources nearby. Are sites only found near known water sources?

Page 11, para. 3. The text says that Ms. Paige Payton is a "Registered Professional Archaeologist (RPA), Honolulu, Hawaii." We are not sure what this means as there is no official register for archaeologist in Hawaii. Is she registered elsewhere? This should be explained.

Page 11, para. 6, Page 15, 1. The two rock features found at Site M should be evaluated more explicitly according to National Register criteria. It should stated that the ring of stones surrounding the *wiliwili* tree is less than fifty years old and therefore not eligible for listing. The origin and function of the mound, however, is conjecture and should be described as an historic property and its significance evaluated according to National Register criteria.

DEPARTMENT OF THE NAVY
PACIFIC MISSILE RANGE FACILITY
P.O. BOX 128
KEKAHA, HAWAII 96752-0128

IN REPLY REFER TO:
5090
SER 00/ 1 2 3 8
1 3 NOV 1998

Michael D. Wilson
Chairperson and State Historic Preservation Officer
State of Hawaii
Department of Land and Natural Resources
State Historic Preservation Division
33 South King Street, 6th Floor
Honolulu, HI 96613

Dear Mr. Wilson:

Thank you for your letter of August 19, 1998, in which you responded to our request for consultation and commented on our Draft Cultural Resources Survey Report (Gonzales and Peyton, June 1998) in support of the Pacific Missile Range Facility (PMRF) Enhanced Capability Environmental Impact Statement (EIS).

This letter responds to the issues raised in your letter and during subsequent communication and meetings with your staff. You stated your concurrence with a "no effect" determination for the Makaha Ridge and Kokee project areas. You expressed your concern that, within the Kauai Test Facility and the Restrictive Easement Area, remnants of subsurface burial sites or temporary habitation deposits could be exposed by project elements involving subsurface excavation; however, you indicated that, due to the previous disturbance of these areas and the relatively low frequency with which such deposits are found, any "adverse effects" could be mitigated by an archeological monitoring plan. You further noted your agreement with our conclusion that a thorough inventory survey of the Kamokala Ordnance Magazine area should not be conducted prior to an Environmental Site Assessment for hazardous waste materials.

With respect to Ni'ihau, you indicated that the archeological survey adequately inspected seven of the twelve locations where specific activities may take place. Dense vegetation at the remaining sites permitted only limited inspection at the time, and they will require additional surveys prior to clearing or ground disturbing activities if any of these sites are selected. We are prepared to conduct these additional surveys and to have a professional archeologist and members of the Ni'ihau community monitor clearing and construction activities at the proposed action sites. You stated your belief that an ethnographic survey, preferably of the entire island, was necessary to identify traditional cultural properties that could be affected by the proposed activities and before appropriate mitigation measures could be devised. Your staff has reiterated this position, except that they have since agreed that the ethnographic survey could be confined to areas in the northern and southern portions of the island where the proposed action sites are located.

Throughout the process of selecting potential sites for various activities to support the Navy's proposed actions, we have closely coordinated with the owners of the island of

Ni'ihau. They, in turn, have facilitated meetings with members of the Ni'ihau community, who were involved in the scoping process and public hearings for the PMRF Enhanced Capability EIS. Elders from the Ni'ihau community were also involved, along with the landowner, in all of the on-island surveys to identify acceptable, potential activity sites, as well as areas that should be avoided due to the existence of archeological or traditional cultural resources. The Navy's approach has been to avoid sites where historic properties (including traditional cultural properties) could be affected by its proposed activities. We have interacted in a sensitive, respectful and non-disruptive manner with the island's owners and residents to ensure that areas of religious, or traditional cultural importance were completely avoided, as well as physical archeological resources that could be more readily identified by professional archeologists.

The Navy has consulted extensively with the owners of Ni'ihau and has advised them of the SHPO's desire that an ethnographic survey be conducted for Ni'ihau. We have also assured the landowners that provisions protecting the confidentiality of information that would be collected as part of the survey would be followed. However, the property owners continue to be reluctant to have an ethnographic survey conducted on Ni'ihau out of concern for confidentiality and unnecessary disruption of the Ni'ihau community. The process we have used to involve the island's owners and residents has been effective in identifying areas that should be avoided as well as areas that could be used without affecting historic properties. This process is consistent with the recognition in the National Historic Preservation Act that the desires of property owners should be respected in listing properties on the National Register of Historic Places, as well as with the guidance at 36 CFR 800.3(b) that the Agency Official may implement the procedures under Section 106 in a flexible manner. Additionally, in accordance with 36 CFR 800.4(b), the Navy has made a reasonable and good faith effort to identify and/or avoid historic properties on the island of Ni'ihau and that the process we have followed is wholly consistent with that which was cited favorably in National Register Bulletin 38 "Guidelines for Evaluating and Documenting Traditional Cultural Properties", relating to involvement of the Lakota Indian tribe in the siting of an MX missile system in Wyoming.

In a teleconference call between you, your staff and my staff on 9 Nov 1998, an agreement in principle was reached to conduct a limited scope ethnographic survey of Ni'ihau provided the landowners agree. This agreement is reflected in the enclosed updated Memorandum of Agreement (MOA) between the Navy and the SHPO which was provided to your staff on 7 October 1998.

The MOA also defines stipulations for mitigating potential effects on historic properties for PMRF mainbase, the Kauai Test Facility, the Restrictive Easement area, and Kamokala Caves Ordnance Magazine Area. We are anxiously awaiting SHPO comments on the draft MOA as well as on the information provided on 18 September regarding on-going activities. Since there are no outstanding issues with respect to areas of potential effect on Kauai, and we are in agreement in principle regarding Ni'ihau, we hope to conclude the MOA as soon as possible.

We have carefully reviewed on-going Navy activities on Ni'ihau and have concluded that they are not undertakings requiring consultation under Section 106 because they do not have the potential to affect eligible properties. They do not involve digging or other ground disturbing activities in areas where historic properties may be located, nor is there otherwise the potential for them to result in changes in the character or use of historic properties. We have provided your staff detailed descriptions of these on-going activities, which we discussed in the PMRF Enhanced Capability EIS under the No-Action alternative in order to establish the baseline against which the Proposed Action would be evaluated.

The enhanced capabilities upgrade at PMRF that will support testing of the Theater Missile Defense programs is extremely important to the Navy, the country and the State of Hawaii. Resolving the Ni'ihau issue is a critical step in keeping this important program on track.

I appreciate your commitment and support in attempting to complete the MOA prior to the Thanksgiving holiday. This will enable us to support timely decisions by the Navy. We look forward to continuing a productive working relationship.

Sincerely,

J.A. Bowlin
Captain, U.S. Navy
Commanding Officer

Enclosure (1)
Copy to: COMNAVBASE PH (N00L)

DEPARTMENT OF THE NAVY
PACIFIC MISSILE RANGE FACILITY
P.O. BOX 128
KEKAHA, HAWAII 96752-0128

IN REPLY REFER TO:

5090
Ser 00/1298
23 November, 1998

Mr. Michael D. Wilson
Chairman, Department of Land and Natural Resources
State Historic Preservation Officer
1151 Punchbowl Street
Honolulu, Hi 96813

Dear Mr. Wilson:

As a part of continued consultation under Section 106 of the National Historic Preservation Act (NHPA), members of my staff met with your Historic Preservation Division on November 20, 1998, to discuss and resolve the State Historic Preservation Office's (SHPO) concerns with a draft Memorandum of Agreement (MOA) regarding activities proposed within the Pacific Missile Range Facility (PMRF) Enhanced Capability Environmental Impact Statement (EIS). Agreements, in principle, were reached to resolve these concerns. As well, we reached agreement on a process for finalization of the MOA and completion of the subsequent ethnographic survey for Navy activities on Niihau. The following confirms our understanding of the agreements reached at this meeting.

- Prior to conducting activities on Niihau proposed in the PMRF Enhanced Capability EIS, an ethnographic survey limited to potentially affected areas will be conducted.
- Sites used for ongoing activities would be included within the scope of this survey.
- Ongoing activities would continue for a finite period of time prior to the survey being conducted. Activities mutually agreeable to the State and the Navy may be exempted.
- Prior to the ethnographic survey being conducted, the Navy and the SHPO will agree to specific guidance as to how the ethnographic survey will be conducted.
- Concurrent with the ethnographic survey, additional documentation would be provided to facilitate conclusions on potential effects of these ongoing activities on archeological resources. This may include additonal archeological field work.
- Specific provisions for protection of historic properties would be included within the body of the MOA in lieu of referencing attachments (e.g. additional stipulations).
- Wording of the MOA would be revised to more accurately reflect precise requirements of the NHPA process.
- The Navy would provide documentation of consultation with Office of Hawaiian Affairs, the Kauai/Niihau Burial Council, and Hui Malama I Na Kupuna O Hawaii Nei. MOA signing will occur after documentation of consultation with OHA.
- Attachment H would be revised to include best estimates of the number and approximate frequency of personnel involved in the ongoing activities on Niihau.

5090
Ser 00/

- Minor language modifications were agreed upon in the meeting and will be incorporated into the MOA.
- Include the Advisory Council as a participating signatory to the MOA.
- Provide revision to the supporting cultural resources survey report.

My staff is proceeding with changes to the MOA based on this understanding and will provide a revised copy to your staff as soon as possible. I appreciate your support in resolving issues related to completion of the MOA and I am dedicated to the successful conclusion of this consultation.

Sincerely,

J. A. BOWLIN
Captain, U.S. Navy
Commanding Officer

Concurrence: _____ Date 11/23/98

Michael D. Wilson
State Historic Preservation Officer
Hawaii

DEPARTMENT OF THE NAVY
PACIFIC MISSILE RANGE FA[illegible]
P.O. BOX 128
KEKAHA, HAWAII 96752-0128

IN REPLY REFER TO:
5090
Ser 00/0177
11 March 1998

Mr. Rick Egged
Director
State of Hawaii
Office of Planning
Department of Business, Economic Development and Tourism
P.O. Box 2359
Honolulu, Hawaii 96804

Dear Mr. Egged:

The Department of the Navy has prepared a Draft Environmental Impact Statement (EIS) for the enhancement of capabilities at the Pacific Missile Range Facility, Kauai, Hawaii (attached). Portions of the action include the coastal zone as defined by the Hawaii Coastal Zone Management Program (HRS Chapter 205A). In compliance with Section 930.4, et seq. of the National Oceanic and Atmospheric Administration federal consistency regulations (15 CFR 930), the Navy has reviewed the proposed program activities in light of the Coastal Zone Management Act and the Hawaii Coastal Zone Management Program and have found them to be consistent to the maximum extent practicable.

A description of the proposed program activities can be found in the attached Draft EIS. In addition, under the Land Use section of each proposed location where activities may occur within the coastal zone, an analysis of potential impacts to the coastal zone in compliance with the Hawaii Coastal Zone Management Program was performed. The sections of the EIS that include a consistency determination are as follows: 4.1.1.8, Land Use - PMRF/Main Base; 4.1.2.7, Land Use - Restrictive Easement; 4.1.3.8, Land Use - Makaha Ridge; 4.4.1.8, Land Use - Kokee; 4.1.5.7, Land Use - Kamokala Magazines; 4.1.6.4, Land Use - Port Allen; 4.2.1.8, Land Use - Niihau; 4.2.2.6, Land Use - Kaula; 4.3.1.8, Land Use - Tern Island; and Appendix D, sections D1.2.3 - Mount Haleakala Tracking Facilities, D1.2.4 - Kaena Point, and D1.2.5 - Wheeler Network Segment Control/PMRF Communication and Computer Sites.

If you have any questions please contact Mr. Averiet Soto, (808) 335-4775.

Sincerely,

J. A. BOWLIN
Captain, U.S. Navy
Commanding Officer

Copy to:
CINCPACFLT
COMNAVBASE Pearl Harbor

DEPARTMENT OF THE NAVY
PACIFIC MISSILE RANGE FACILITY
P.O. BOX 128
KEKAHA, HAWAII 96752-0128

IN REPLY REFER TO:
5090
Ser 7000/ 0386
23 APR 1998

Mr. Rick Egged
Director
State of Hawaii
Office of Planning
Department of Business, Economic Development and Tourism
P.O. Box 2359
Honolulu, Hawaii 96804

Dear Mr. Egged:

The Department of the Navy initiated a consistency determination with the mailing of our letter to you dated 11 March 1998 and delivery of the two volume set of the Pacific Missile Range Facility Enhanced Capability Draft Environmental Impact Statement dated 3 April 1998. The announcement of the publication of this document was in the Environmental Notice, 8 April 1998.

Although the regulatory time limit exists for your consistency determination within 45 days of our initiating consultation, we would like to take this opportunity to waive that time requirement through mutual agreement. Instead, we request that close consultation continue through issuance of the Final EIS and that determination be made during the waiting period following the publication of the Final EIS. This will allow for incorporation of your recommendations during consultation as well as provide for your basing your determination on our final analysis.

If you have any questions please contact Mr. Averiet Soto, (808) 335-4775.

Sincerely,

J. A. BOWLIN
Captain, U.S. Navy
Commanding Officer

5090
Ser 7332/ 1183
03 NOV 1998

Mr. Bradley J. Mossman, Director
State of Hawaii
Office of Planning
Department of Business, Economic Development and Tourism
P.O. Box 2359
Honolulu, HI 96804

Dear Mr. Mossman:

This letter formally informs you that the Department of the Navy is no longer actively considering the use of Tern Island as a reasonable alternative in the Pacific Missile Range Facility (PMRF) Enhanced Capability Final Environmental Impact Statement (EIS). This has been concluded even though the Navy has reviewed the proposed program activities in light of the Coastal Zone Management Act and the Hawaii Coastal Zone Management and found it to be consistent to the maximum extent practicable. Thus EIS Section "4.3.1.8, Land Use – Tern Island" no longer needs to be analyzed for potential impacts.

The Navy has fully considered comments received on Tern Island and agrees that, prior to decisions which would include activities at this alternative, further environmental analyses would be necessary. For this reason and because of our confidence in air and mobile sea platform launch capabilities, the Navy is no longer actively considering the use of Tern Island as a reasonable alternative of the proposed action.

If you have any questions, please contact Mr. Averiet Soto, (808) 335-4775.

Sincerely,

J.A. BOWLIN
Captain, U.S. Navy
Commanding Officer

Copy to:
CINCPACFLT
COMNAVBASE Pearl Harbor
Mr. John Nakagawa, State of Hawaii, Office of Planning

Prepared by:
A.Soto/332/x4775
21October98/lnh

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Appendix L
Mitigations Tables

Table L-1: Environmental Controls and Potential Mitigations for the Proposed Action

Note: EJ = Environmental Justice

SECTION NUMBER	SECTION TITLE	POTENTIAL MITIGATION
4.1.1.1.2	Air Quality, Main Base	(1)make sure that no missile proposed for launch would emit greater exhaust components than those used for the analysis of air quality impacts for the three primary ground hazard area distances; (2)allow sufficient time between launches so that no exhaust from one launch would impact the ambient air quality during the next
4.1.1.2.2.1	Main Base Controlled and Uncontrolled Airspace	(1)implement stationary ALTRV for airspace utilization to provide for separation between IFR traffic and missile launches
4.1.1.2.2.3	En Route Airways and Jet Routes	(1)implement ALTRV procedures to have minimal impact on the en route low altitude airways (2)Honolulu ARTCC would reroute IFR aircraft using the V-15 low altitude airway when hazardous activities take place within W-188
4.1.1.3.2.3	Bio, Main Base, Base Ops/Maint.	(1)continue efforts to discourage albatross from nesting on base (2)use protective light shields, monitor beach for turtle nesting before amphibious landing
4.1.1.4.2	Cultural, Main Base,	(1)formulate mitigations with ICRMP when completed (2)continue monitoring, consult with SHPO Hawaii, follow ICRMP when completed
4.1.1.5.2	Geology, Main Base	(1)keep proposed sites located in modern alluvial and dune sands unsuitable for agricultural development (2)limit soil disturbance to immediate vicinity of launch pad and service road (3)keep new construction to short duration (4)use BMPs to reduce soil erosion (5)do not launch solid propellant missiles during rain (6)do not use water deluge system for cooling and noise suppression (7)collect remaining fuel from test failure or fire and properly dispose of as hazardous waste (8)water excavated material frequently (9)use soil additives to bond exposed surface soils
4.1.1.6.2	HazMat, Main Base	(1)closely monitor hazmat through PMRF pharmacy system
4.1.1.6.2.1	Facility Construction	(1)construct new facilities in accordance with COE protocols (2)survey for asbestos and lead paint before modifications, remove before modifications (3)handle hazmats/wastes properly (4)all construction activities follow PMRF spill control plan
4.1.1.6.2.2	Target/Defensive Missile Launches	(1)use hazmats similar to current materials to avoid changes current plans (2)modify existing spill, emergency response and hazmat/hazwaste plans to include new compounds (3)PMRF fire and emergency response team would be appropriately trained to handle these materials should a mishap occur (4)update liquid propellant accident response plan as required (5)propellant transfers would take place on concrete pads with spill containment (6) all personnel would wear protective gear and have special training (7)storage facilities would have spill containment in case of a leak (8) remediate all liquid propellant fuel spills (9)dispose of hazwaste properly (10)hazmats resulting from flight termination would be properly cleaned and remediated, waste disposed of in accordance with appropriate regulations (11)make sure PMRF programs would have no cumulative hazmat/waste impacts
4.1.1.7.2.1	Health/Safety, Main Base, Facility Construction	(1)construct new facilities in accordance with COE safety/health requirements (2)siting of launch, ordnance, and instrumentation facilities in accordance with DOD standards (3)survey for asbestos and lead paint prior to facility modifications, remove per regulations to minimize potential for exposure during modifications
4.1.1.7.2.2	Health/Safety, Main Base, Land-Based Target Launch	(1)launch systems would use existing ground hazard areas at PMRF, no new GHAs/clearance procedures would be required

Table L-1: Environmental Controls and Potential Mitigations for the Proposed Action (Continued)

SECTION NUMBER	SECTION TITLE	POTENTIAL MITIGATION
	Pre-Launch Ops	(1)verify launch areas clear, issue NOTAMs, NOTMARs prior to launch (2)use solid propellant boosters similar to those currently used (3)targets would make use of existing launch systems for which previous handling procedures and safety issues have been addressed (4)ship all liquid propellants to PMRF in single-use containers (5)put containers in hazmat storage while awaiting shipping to PMRF (6)store any new propellants proposed in separated storage facilities with appropriate safety features (sun shades, containment) and safety distances (7)have safety procedures developed/approved by PMRF before bringing new liquid propellants (8)keep all unprotected personnel and public excluded from propellant transfer operations (9)store fuels only temporarily at PMRF when required for launch/no permanent storage; transport propellants per DOT regs; put IRFNA drums inside second drum for added shipping protection (10)make sure personnel handling propellants/fuels wear appropriate safety clothing (11)brief personnel regarding health hazards, proof-test all lifting hardware, have annual inspections, personnel certification, vapor concentration detectors; put launch control van upwind, have propellant ops support trailer available, monitor during transfer operations, check all equipment prior to use (12)have propellant draining kit with appropriate crew in case of accident (13)ship target missile liquid propellant oxidizer components by air; make sure flight is over open ocean areas, inspect to detect containment leaks before and during flight (14)if ship by marine vessel, ship on non-passenger vessels with material placement per DOT regs (15)have trained spill response teams on standby; provide trained escorts with truck shipments (16)ship materials to avoid peak road and harbor traffic times (17)notify local fire, police and transportation officials prior to shipments (17)notify state and local officials of shipment (18)conduct vapor leak check and container inspection prior to off-loading from ship and after loading into trucks (19)check propellant containers in storage area for leaks on a weekly basis and anytime debris falls into storage area (20)have trained spill response teams on standby for all liquid missile propellant transportation; make sure all drums pass DOT POP tests; have hazmat emergency response teams follow trucks carrying liquid propellants
	Launch Ops	(1)launches would occur from existing locations or new pads on the northern portion of PMRF (2)launch site is physically isolated before launch; public exposure not to exceed that already mentioned above (3)only existing PMRF GHAs would be used (4)exclude public and non-essential personnel from GHA/LHA; personnel in GHA in bunkers or behind berms (5)remove hazardous debris and dispose of properly after launch anomaly/termination (6)have PMRF fire and hazmat teams on standby during launches for quick response (7)remediate petroleum spills on water (8)terminate target booster flights after missile has left launcher over open water in cleared LHA
	Sea-based Target Launches	(1)launches would occur in open ocean away from populated areas; clear area of unauthorized ships/aircraft; clear LHA and debris impact areas before launch
	Air-based Target Launches	(1)establish safety zones, missile debris impact zones, transportation of components, explosive safety, and hazardous booster emission drops (2)pre-launch activities would be in accordance with DOD and PMRF safety procedures (3)target booster launch would occur over open ocean, which would be cleared prior; LHA/target/intercept debris impact locations verified clear prior to booster release
4.1.1.7.2.3	Defensive missile systems	(1)launch systems would make use of existing GHAs at PMRF (2)clear areas and issue NOTAMs/NOTMARs before launch
4.1.1.7.2.4	Land-based defensive missile system launches; pre-launch ops	(1)determine affected areas clear and issue NOTAMs/NOTMARs prior to launch (2)load liquid propellants into sealed system within missile before shipment to PMRF (3)use existing safety protocols to reduce chances of accidents
	Launch ops	(1)physically isolate area around launch site (2)use only PMRF existing GHAs (3)exclude non-essential personnel and public from area; protect those necessary with bunkers/berms (4)recover hazardous debris from GHA and dispose of properly (5) terminate target booster flights after missile has left launcher over open water in cleared LHA
	Sea-based defensive missile system launches	(1)none of defensive missile assembly for sea-based launches would occur at PMRF (2)clear necessary area of ships/planes before launch; clear LHA before launch; LHA and debris impact locations would be over open ocean
4.1.1.7.2.5	Sensor systems	(1)conduct EMR hazard review before installation of new units (2)establish safety zones before operation; ensure warning lights on units operate properly (3)control ground-level power densities to values that don't exceed human general-population exposure values; ensure same for shipboard radars (4)clear area of exclusion zone before system operation; locate units near ocean with beam directed out over open water (5)conduct EMR emission survey before using aerostat; establish safety zone; have transponder/beacon to warn aircraft

Table L-1: Environmental Controls and Potential Mitigations for the Proposed Action (Continued)

SECTION NUMBER	SECTION TITLE	POTENTIAL MITIGATION
4.1.1.7.2.7	Base Ops/Maint.	(1)implement PMRF SOPs (2)ensure public not exposed to fatality risk as mentioned above (3)ensure public not exposed to EMR emission, HAPs, hazmat/waste from PMRF; workers follow strict controls; use all safety protocols; conduct tests in unpopulated areas (4)construct all launch pads and storage devices with containment or sump system to contain any spill and required remediation efforts
4.1.1.8.2	Land use, Main Base	(1)keep operations compatible with surrounding land uses and zoning designations; site/use new facilities in accordance with DOD, Navy regs, esp. safety criteria (2)use existing GHAs; don't create new GHAs; do not increase activation time of restrictive easement beyond current agreement (3)keep activities consistent to maximum extent with Hawaii Coastal Zone Mgt Program (4)consult with SHPO, make sure no cultural resources are affected by project activities; don't impact local water quality
4.1.1.8.2.1	Recreation	(1)number of times GHA would be activated would not exceed 30 (up to 15 hours) currently allowed under the existing restrictive easement; pre-launch activities would not affect rec area 3 (2)maintain 24-hour hotline to inform public which beaches would be closed; keep other beaches available during rec area 2 closures
4.1.1.9.2	Noise, Main Base	(1)construction would be temporary in nature/similar to commercial construction site; keep less than 50 additional aircraft ops at PMRF, to not affect current PMRF AICUZ levels (2)make sure noise levels outside GHA where public is excluded would exceed DOD/OSHA safety requirements; personnel in GHA wear protection devices (3)make sure launches from PMRF don't affect residential areas in Kekaha (4)make sure sonic booms generated during launch activities would occur over the Pacific Ocean and would not affect the public on Kauai or Niihau
4.1.1.10.2.1	Population and income	(1)keep pre-launch/launch personnel mainly in local hotels/lodging facilities
4.1.1.10.2.2	Housing	(1)vast majority of visiting personnel will stay in local hotels
4.1.1.10.2.3	Employment	(1)construction labor during pre-launch phase should come from local labor
4.1.1.10.2.5	Tourism/Commerc Fishing	(1)continue to carefully plan exclusion of fishing vessels and give advance warning/operate hotline to allow fishermen to visit alternative waters; keep closure activities of short duration
4.1.1.11.2	Transportation, Main Base	(1)use existing transportation facilities; don't create additional road construction (2)make maximum use of shared vehicle travel for project personnel; plan for off-peak hour travel schedules
4.1.1.12.2.1	Electricity	(1)make sure generators at PMRF can supply power needed for proposed action
4.1.1.12.2.4	Water	(1)make sure amount of water needed would be within capacity of current water system
4.1.1.13.2	Visual, Main Base	(1)new development would occur in the KTF area or just south of this area on land that already contains operational facilities; most of the area proposed for use would consist of existing launch pads; new facilities would be near existing facilities and would present and out-of-character element; new facilities would not be visible to public east of the base; facilities would only affect the viewshed immediately along the coast of PMRF in front of the facilities, and would be located along rec areas 1 & 2; (2)the permanent or temporary liquid fuel storage facilities would not be visible to the public and would not obstruct and vistas; military vehicles, aircraft, and ships used to support TBMD/TMD would be similar to existing equipment and would not be generally visible to the public except for the occasional aircraft operation; (3)PMRF could try to maintain as much natural vegetation around launch pads as safety will allow; vegetation could be maintained along the ocean side of the launch pads if possible
4.1.1.14.2	Water, Main Base	(1)building modifications and new construction would follow standard methods to control erosion during construction; all activities would follow SPCC plans and transportation safety measures
4.1.3.1.2	Air Quality, Makaha	(1)standard construction measures to reduce fugitive dust could be implemented, to include periodic wetting of the disturbed soils at the construction site
4.1.3.2.2.3	Airspace, Makaha, en route airways/jet routes	(1) aircraft would be notified by NOTAMs to advise avoidance of the tracking radar area during program activities; the tracking radar area is likely to be contained within the restricted area R-3101 and the warning area W-188
4.1.3.3.2	Biological, Makaha	(1)locations selected for construction are in already disturbed or in non-native vegetation within the complex (2)could use protective shielding for any outdoor lighting
4.1.3.4.2	Cultural, Makaha	(1)follow ICRMP when it is finished
4.1.3.5.2	Geology, Makaha	(1)soil disturbance will be limited to the immediate vicinity of the proposed sites; new construction will be of short duration; base will use best management practices to reduce potential for soil erosion, could include use of soil stabilizers, use of sandbags for diverting flow, adding protective covering to slopes, and revegetating slopes and open areas as soon as possible

Table L-1: Environmental Controls and Potential Mitigations for the Proposed Action (Continued)

SECTION NUMBER	SECTION TITLE	POTENTIAL MITIGATION
4.1.3.6.2	Hazmat/waste, Makaha	(1)construction activities would be handled under existing PMRF spill plans, hazmat/waste handled per state/federal regs (2)overall, no new hazmats/wastes generated, would follow appropriate plans
4.1.3.7.2	Health/safety, Makaha	(1)construction of new facilities per COE safety/health requirements; siting of facilities per DOD standards (2)conduct EMR hazard review before installing new radar/telemetry; proposed systems would have appropriate exclusion zones, warning lights (3)all hazmats/wastes handled per state/federal guides; operations conducted per OSHA regs (4)conduct safety analysis before laser installation (5)keep personnel outside of EMR exposure areas
4.1.3.8.2.1	Land Use, Makaha	(1)new facilities would be sited per DOD/Navy regs and safety guides; surrounding areas are compatible; new facilities would be located within complex and wouldn't affect off-site land uses; operations would be compatible with surrounding land uses and zoning; EMR generated would not affect adjacent land uses (2)activities kept consistent with HCZMP; ground disturbance would occur in previously disturbed areas, would not affect biological/cultural resources; facility modifications reviewed by PMRF and SHPO
4.1.3.9.2	Noise, Makaha	(1)access to construction site would be limited; public wouldn't be exposed to construction noise because of site's location
4.1.3.10.2	Transportation, Makaha	(1)equipment would be kept onsite during use and wouldn't have to travel road on daily basis; traffic generated by construction personnel would be temporary, only minor additional traffic
4.1.3.11.2.1	Utilities, Makaha, Electricity	(1)keep recent electrical upgrades maintained
4.1.3.11.2.4	Utilities, Makaha, Water	(1)continue installing new water well (2)implement water conservation program
4.1.3.12.2	Visual, Makaha	(1)addition of new facilities would be consistent with current developed nature of the facility; Proposed Action would not change the already limited view of Makaha Ridge (2)no other development occurs along this section of NaPali Coast; no other development is planned
4.1.3.13.2	Water, Makaha	(1)construction of new facilities/road upgrades would be accomplished using standard engineering techniques to control potential erosion; surface drainages would not be modified
4.1.4.1.2	Air Quality, Kokee	(1)elevated levels of air pollutants would be temporary and would tend to dissipate rapidly at the conclusion of any active disturbance; standard construction practices would be followed to control fugitive dust emissions, may include periodic wetting of disturbed soils
4.1.4.2.2.3	Airspace, Kokee, en route airways/jet routes	(1)aircraft would be notified by NOTAMs to advise avoidance of radar area during program activities; the tracking radar area is likely to be contained within the restricted area R-3101 and the warning area W-188
4.1.4.4.2	Cultural, Kokee	(1)follow ICRMP when it is completed
4.1.4.5.2	Geology, Kokee	(1)soil disturbance would be limited to potential site areas; new construction will be of short duration (2)minimize area exposed during grubbing; use soil stabilizers; use sandbags; add covering to slopes, revegetate slopes
4.1.4.6.2	Hazmat/waste, Kokee	(1)construction activities handled per PMRF spill plans; all hazmats/wastes handled per state/federal regs (2)overall would be no new types of hazmats used/wastes generated; have appropriate plans to handle wastes
4.1.4.7.2	Health/Safety, Kokee	(1)construction of new facilities follow COE guides; site facilities per DOD regs (2)conduct EMR hazard review before unit installation; have appropriate safety zones around each unit; have warning lights on units (3)all hazmats/wastes used/generated handled per state/federal regs; operations follow OSHA regs
4.1.4.8.2.1	Land Use, Kokee	(1)new facilities sited per DOD, Navy safety regs; new facilities located within complex, would not affect the off-site land uses; operations at Kokee would be compatible with the surrounding land uses and zoning; EMR generated by the proposed and existing site radar units would not affect adjacent land uses (2)activities would be consistent to maximum extent with HCZMP; ground disturbance would occur in previously disturbed areas, would not affect biological/cultural resources (3)facility modification would be reviewed by PMRF and SHPO
4.1.4.8.2.2	Recreation	(1)new facilities would be located within the existing developed Kokee site and would not change any existing land uses
4.1.4.9.2	Noise, Kokee	(1)access to construction site will be limited; noise levels the public may be exposed to would be limited to temporary construction activities
4.1.4.10.2	Transportation, Kokee	(1)equipment would be kept onsite during use and would not be required to travel the road on a daily basis; traffic generated by the construction personnel would be temporary and would result in minor additional traffic during the morning/afternoon time periods
4.1.4.11.2.4	Utilities, Kokee, Water	(1)new well would reduce significance of any water demand impacts

Table L-1: Environmental Controls and Potential Mitigations for the Proposed Action (Continued)

SECTION NUMBER	SECTION TITLE	POTENTIAL MITIGATION
4.1.4.12.2	Visual, Kokee	(1)proposed radar would replace existing units and be similar size and shape, not visible to the public using highway through state park; proposed antenna/facilities no higher than current facilities; no site additions higher than vegetation around site, so wouldn't be visible to public
4.1.4.13.2	Water, Kokee	(1)construction of new facilities would be per standard engineering techniques to control potential erosion; surfaces drainages would not be modified
4.1.5.1.1	Air Quality, Kamokala	(1)standard mitigation of fugitive dust, wetting of construction site to minimize dust generation
4.1.5.2.2	Biological, Kamokala	(1)if site is lighted at night, shields could be installed to reduce effects on shearwater; best engineering practices employed to minimize runoff into drainage
4.1.5.3.2	Cultural, Kamokala	(1)perform hazwaste characterization (2)perform comprehensive ground survey (3)follow ICRMP when completed
4.1.5.4.2	Geology, Kamokala	(1)new construction would be of short duration, base implements best management practices to reduce soil erosion during construction (2)minimize area exposed during grubbing; use soil stabilizers; use sandbags; add covering to slopes, revegetate slopes
4.1.5.5.2	Hazmat/waste, Kamokala	(1)construction activities would be handled per PMRF spill plans; hazmats/wastes handled per state/federal regs; proposed construction would take place in illegal dump site, Navy would remove solid/hazwaste and remediate contamination before construction, would coordinate with state of Hawaii (2)activities at storage magazines don't generate hazwaste; ordnance is managed per state/federal regs
4.1.5.6.2	Health/safety, Kamokala	(1)new facilities sited per DOD, Navy criteria; siting for new facilities would be obtained from DOD explosive safety board; transportation of ordnance per DOT guides; no public facilities or routine activities occur within the ESQD area
4.1.5.7.2.1	Land Use, Kamokala	(1)existing use of adjacent land and within ESQD would be compatible; proposed ESQD for new storage facilities would mostly fall within the existing ESQD for the current storage area; state and county land designations would be compatible (2)Navy would need to revise lease agreement with Hawaii to add about 20 ha of land; PMRF would require a restrictive easement for the ESQD arcs, which would be compatible with land use designations (3)use of proposed storage magazines and ESQD would be compatible with Hawaii state plan and state functional plans; ESQD arcs and land required for new magazines would not include Hawaiian home lands (4)activities at the storage magazines would be compatible to maximum extent practicable with HCZMP; PMRF will consult with SHPO before any construction
4.1.5.7.2.2	Recreation	(1)proposed fencing would only be located adjacent to the facilities and would only minimally reduce the available hunting area within the region
4.1.5.9.2	Visual, Kamokala	(1)storage magazines would be covered with earth material except for entrance door which would face the cliffs outside of public view; vegetation would be cleared from facilities for security purposes; proposed fence would be no larger than necessary to enclose the facilities (2)facility would be effectively blocked from public view by vegetation that lines the public roads near the proposed facilities; proposed site would not obstruct any prominent vistas (3)some vegetation could be allowed to grow on dirt covering magazines; grass and other limited height vegetation is currently used on storage magazines to help reduce erosion
4.1.5.10.2	Water, Kamokala	(1)standard engineering techniques would be employed to control potential surface water erosion; surface drainage would not be modified
4.1.6.8.2	Visual, Port Allen	(1)no development is planned as part of the NA alternative that would further change the visual environment
4.2.1.1.2	Air Quality, Niihau	(1)implement standard construction measures to reduce fugitive dust emissions, including periodic wetting of disturbed soils at construction sites; monitor dust levels prior to launch operations
4.2.1.2.2.1	Airspace, Niihau, Controlled/uncontrolled airspace	(1)implement stationary ALTRV for airspace utilization to provide for separation between IFR traffic and missile launches
4.2.1.2.2.4	Airspace, Niihau, en route airways/jet routes	(1)conduct missile launches within ALTRV airspace; issue NOTAMs to describe the area to be used and the duration of the ALTRV; proposed flight tests would also use warning area w-188, when it is used Honolulu ARTCC would reroute aircraft using the v-15 low altitude airway
4.2.1.3.2.1	Bio, Niihau, Construction	(1)no construction is proposed near the lakes in the southern part of Niihau (2)use appropriate mitigation measures to eliminate import of exotic wildlife species (3)reduce impact on monk seals using landing areas, none of proposed actions would be expected to jeopardize the species
4.2.13.2.2	Operations	(1)monitor beaches for monk seals and conduct landings elsewhere if possible (2)monitor beaches for presence of green sea turtles and conduct landings elsewhere if possible (3)provide fire suppression equipment at launch sites (4)restrict project personnel to facilities where their responsibilities will be carried out (4)obtain prior approval for all site alterations (5)check equipment and personnel for inadvertent pest transportation to the island (6)prior to construction of airstrip develop hazing plan to avoid bird impacts to aircraft.

Table L-1: Environmental Controls and Potential Mitigations for the Proposed Action (Continued)

SECTION NUMBER	SECTION TITLE	POTENTIAL MITIGATION
4.2.1.4.2	Cultural, Niihau	(1)PMRF would consult with the island's proprietors, the community of Niihau, SHPO, and ACHP to establish/implement mitigation of impacts to cultural resources resulting from PMRF's proposed actions on Niihau (2)all activities on Niihau would avoid any potential sites (3)PMRF will implement appropriate pre-construction studies, monitoring, consultation with SHPO, following Navy/PMRF guides for protection of historic resources (3)complete field inspections would be conducted prior to any siting considerations; any sites discovered would be investigated for NRHP eligibility; appropriate measures taken to mitigate impacts if considered eligible; qualified archaeologist would assist island elders in monitoring during construction and ground disturbing activities (4)construction and flight personnel would receive orientation concerning cultural resources and applicable federal, state, and local regs; construction personnel would be restricted to non-sensitive areas during their stay to protect cultural resources
4.2.1.5.2	Geology, Niihau	(1)soil disturbance limited to vicinity of potential launch pads/associated structures, potential airstrip, potential aerostat, and potential telemetry/instrumentation sites; new construction will be of short duration; base will use best management practices to reduce the potential for soil erosion during construction (2)no launches will occur during rain; launch system will not use water deluge system for cooling/noise suppression; remaining fuel after on-pad fire or over-land failure would be collected and properly disposed of as hazwaste (3)remediate contaminated soils if propellant/oxidizer concentrations great enough to warrant (4) minimize area exposed during grubbing; use soil stabilizers; use sandbags; add covering to slopes, revegetate slopes
4.2.1.6.2	Hazmat/waste, Niihau	(1)construction of new facilities per COE safety regs (2)construction activities handled per PMRF spill plans; hazmats/wastes handled per state/federal regs (3)hazmats used/wastes generated handled per PMRF hazwaste mgt plans; hazmats brought onto island only when required, not permanently stored onsite; all hazwaste shipped from island for proper disposal, not permanently stored onsite; all diesel fuel stored in aboveground tanks (4)prepackaged liquid propellant missiles only brought to Niihau when required, not permanently stored on island; liquid propellant missiles only used on north end of island, not transported through village; fueled target missiles handled per approved SOPs; transfer of propellants per standard transfer procedures (5)will have spill containment kits and hazmat response team on Niihau; any contaminated areas would be remediated; launches of liquid propellant systems would occur on concrete pads or cleared area with spill containment berms (6)all hazardous debris from accident on pad or early flight termination would be contained within ESQD/GHA; will have teams for fire suppression/hazmat emergency; all hazmats/wastes generated during missile mishap would be cleaned up/disposed of per state/federal regs (7)PMRF would have mgt plans in place to minimize potential for hazmat/waste to impact environment; will not leave any hazmat/waste on island; will quickly remediate any spill (8)expand SPCC to address proposed activities on Niihau and application of PMRF waste mgt procedures to Niihau activities
4.2.1.7.2	Health/safety, Niihau	(1) construction of new facilities per COE safety regs (2)siting of launch, ordnance, instrumentation per DOD standards; policy of minimizing contact with islanders and site workers would be followed (3)Navy conduct would EMR hazard review before installation of new units; systems would have proper safety zones prior to operation, units would have warning lights; (4)vegetation around airstrip would be cleared to prevent fire potential; transportation of hazmats conducted per DOT regs, generations of hazwaste per state/federal regs (5)fueled target missiles handled per approved SOPs (6)personnel in hazard zone must wear skin/respiratory protection; thorough decontamination after each transfer operation; spill containment kits and qualified accident response team would be available; any contaminated areas would be remediated (7)missile/launch prep activities conducted per PMRF safety procedures (8)liquid missiles would only be used from the proposed north launch site on the island, avoiding transportation near the village (9)hazardous debris resulting from accident on launcher would be contained within ESQD, which would be clear of personnel; teams would be available for fire suppression, hazmat emergency response, and emergency medical response during launches (10)a GHA and LHA would be established before any missile launch from Niihau (11)non-essential personnel would be excluded from GHA during launch; working personnel protected in bunkers or behind berms (12)missile intercept, debris, and stage impact zones would be determined clear of public and non-essential personnel before launch (13)fire breaks would be cleared around launch site, and fire fighting equipment would be present during launches (14)after a flight termination or anomaly, hazardous debris would be recovered and disposed of per state/federal regs (15)termination of flight after target/defensive missile has left launcher would occur over open water previously determined clear (16)PMRF would conduct appropriate surveys prior to using aerostat, including development of exclusion zones; during ground testing the EMR zone would be contained within a security fence constructed around the site (17)would be a 3-mile exclusion zone around the aerostat system; would have transponder/beacon to warn aircraft (18)one member of team could be trained medical technician to provide initial treatment until person could be moved to medical facility if an injury occurs (19)areas near the flight termination could be monitored for potential contamination levels above health-based standards, to measure specific constituents of the hazard

Table L-1: Environmental Controls and Potential Mitigations for the Proposed Action (Continued)

SECTION NUMBER	SECTION TITLE	POTENTIAL MITIGATION
4.2.1.8.2	Land Use, Niihau	(1)establishment of facilities under the Proposed Action would occur within the open grazing land on Niihau; construction of these facilities would not occur near the village (2)ESQDs would only include land used for grazing; livestock would be allowed to continue to graze within the ESQD arc; current land use activities would continue even during launch operations with the only restriction being to the island within the 381-m ESQD arc (3)GHA would be cleared for about 30 minutes prior to launch for up to 8 launches/year; residents would be warned of these closure times 1 week in advance of launch time (4)Proposed Action activities would be consistent to maximum extent practicable with the Hawaii Coastal Zone Management Program; Proposed Action activities would only temporarily affect recreational opportunities for residents for up to 4 hours/year; development would alter the visual undeveloped nature of the island but represents less than 1% of the total island area (5)PMRF would consult with SHPO Hawaii prior to any ground-disturbing activities to avoid cultural resource impacts
4.2.1.8.2.1	Recreation	(1)grazing would be allowed to continue around facilities (2)PMRF could work with island residents to avoid conducting operations that would exclude residents from their fishing areas during the best time of day
4.2.1.9.2	Noise, Niihau	(1)construction-related noise would be temporary in nature and occur mostly at the northern and southern ends of the island; construction-related noise would occur during the daytime hours and should not affect island residents; most of major construction noise would only last a couple of months during ground-disturbing activities (2)Proposed Action aircraft operations combined with NA helicopter operations would not exceed 50 per year and would not occur near the village on the island (3)non-essential personnel, public excluded from GHA; personnel within GHA wear hearing protection (4)PMRF operations would be infrequent on the island
4.2.1.10.2.2	Socioecon, Niihau, Subsistence	(1)Niihau's shoreline subsistence fishing, shellfishing, and shell gathering activities will not be reduced over the long term by the proposed action, and the salt ponds at the southern end of the island would not be impacted by launch debris in the event of a flight termination; Navy has established flight corridors which ensure no debris or hazmat would be deposited in these areas from flight termination; short-term closures of adjacent shoreline may be required during test firing activities (2)if cultural protection program is continued and strengthened as necessary, Niihau residents should be able to maintain and practice their culture over the 31-year time frame of this proposed program (3)review and strengthen protection protocol to help reduce construction and operational impacts; provide cultural sensitivity training to off-island personnel who may come into contact with Niihau residents (4)number of Niihau residents employed in construction work could be maximized by technical skill training; training would increase the number of income-earners on the island and reduce the potential for cultural disruption by gradually reducing the non-indigenous workforce
4.2.1.12.2	Utilities, Niihau	(1)newly constructed facilities would be self-contained using generator power and portable toilets; no sewage would be disposed of or left on the island; solid waste would be collected and removed from the island
4.2.1.13.2	Visual, Niihau	(1)none of proposed new facilities except aerostat would be visible from the village on Niihau; aerostat should not block any prominent vistas of the ocean while on the ground (2)aesthetic effects could be minimized by using earth-toned paint on all structures
4.2.1.14.2	Water, Niihau	(1)water for consumption related to Proposed Action activities would be barged to Niihau with no impacts on island resources; are no plans to depend on island water resources (2)proposed airstrip could serve as catchment system depending on how it is built; catchment water could be treated for drinking water as well as for other uses
4.2.1.14.2.1	Construction Activities	(1)operations would follow standard engineering techniques to control erosion; surface drainage would not be substantially modified (2)airstrip would be located so as to minimize cut and fill and changes to the existing surface drainage
4.2.1.14.2.2	Flight Test Activities, Groundwater	(1)standard spill prevention, containment, and transportation safety plans would be implemented (2)airstrip with concrete or metal surface with neoprene liners could provide significant water catchment system
4.2.2.2.2	Bio, Kaula	(1)use area seasonally when marine mammals are not present; survey waters off island to make sure marine mammals are not present; have impact area on south end of the island only
4.3.1.1.2	Air Quality, Tern	(1)access to area controlled by PMRF range safety procedures, public would not have access in any case
4.3.1.3.2.1	Bio, Tern, Construction	(1)dredging activity would be localized (2)perform geological studies before any dredging activity (3)consult with FWS to develop and implement mitigation

Table L-1: Environmental Controls and Potential Mitigations for the Proposed Action (Continued)

SECTION NUMBER	SECTION TITLE	POTENTIAL MITIGATION
4.3.1.3.2.2	Operations	(1)restrict beach access by personnel to reduce impacts to green sea turtles and monk seals (2)have adequate fire suppression available; keep personnel restricted to staying within sites to which they are assigned (3)no additional plane landings and takeoffs as a result of Proposed Action would occur at Tern, over and above USFWS flights; program personnel would be brought in on the MATSS (4)possible mitigations to help reduce noise and disturbance to monk seal would be developed in consultation with NMFS and USFWS (5)schedule launch activities during period with fewest pups and juveniles present when possible (6)provide light shields to reduce potential effects on birds (7)minimize use of heavy equipment in construction activities on island (8)use MATSS for all support activities (9)follow USFWS established procedures for presenting the introduction of alien species (10)use mobile launchers rather than building a concrete pad (11)compatible use determination must be completed by USFWS before decision to use Tern; an incidental take permit would be applied for before any launches
4.3.1.4.2	Cultural, Tern	(1)program implementation would not involve any kind of extensive ground disturbances (2)PMRF would consult with SHPO Hawaii, ACHP, USFWS to address any cultural resource issues that could compromise the island's potential historic significance as a result of PMRF PA
4.3.1.5.2	Geology, Tern	(1)soil disturbance will be limited to the immediate vicinity of the potential launch pad; new construction will be of short duration; best mgt practices will be implemented to reduce potential for erosion during construction; various measures may be recommended to reduce potential for storm wave erosion as well as surface water erosion (2)no launches will occur during rain; launch system will not use a water deluge system for cooling and noise suppression (3)any remaining fuel would be collected/disposed of properly as hazwaste (4)could use rip-rap, sandbags, soil stabilizers, minimize area exposed during grubbing
4.3.1.6.2	Hazmat/waste, Tern	(1)construction of new facilities per COE requirements; construction activities could generate hazwaste which would be crated and removed from the island for proper disposal; only very small amounts of hazmats would be needed; all diesel storage tanks used on Tern would be above ground with proper containment; hazmats used would only be brought on the island when required for activities and would not be permanently stored on site; any hazwaste generated would be removed after activities are completed and disposed of per state/federal regs; PMRF would develop hazmat mgt and spill plans for Tern which would be submitted to USFWS for approval before program initiation (2)fire suppression/hazmat emergency response teams would be available during operations; all hazmats generated during a missile mishap would be cleaned/remediated by PMRF and disposed of properly per state/federal regs (3)PMRF would have proper mgt plans in place to minimize potential for hazmat/waste to impact environment; PMRF would not leave any hazmats/wastes on the island and would quickly remediate any spill
4.3.1.7.2	Health/Safety, Tern	(1)construction of new facilities would be conducted per COE requirements; before construction, workers would be briefed on hazard of coral sand; any open cuts would be quickly cleaned (2)siting of launch, ordnance, and instrumentation facilities would be per DOD standards; during missile prep activities from east end launches, the ESQD from the launch pad would not encompass the USFWS facilities requiring temp. evacuation of these buildings (3)proper GHA would be established before any launch from Tern or nearby waters; non-mission-essential personnel would be excluded from the GHA during launch operations; GHA from launches on east side would not include FWS facilities on west end, and would not require evacuation, but all personnel would be encouraged to be on MATSS during launch (4)coordination would be made with FWS to minimize impacts to their activities (5)before launch all missile intercept, debris, and stage impact areas would be determined clear of the public and non-essential personnel (6)non-participating personnel would be moved to the MATSS (7)Navy would conduct EMR hazard review before installation of any new unit; units would have proper safety exclusion zones and warning lights (8)survey would be conducted to address potential EMR emission to the ship personnel during aerostat activities; would be 3-mi aircraft exclusion zone around aerostat system; aerostat system would have transponder and beacon (9)one member should be trained medical technician (10)program would also adopt USFWS's emergency planning guides (11)launches would not be conducted during heavy rain or if detect lightning potential gradient of more than 2000V/m
4.3.1.8.2.1	Land Use, Tern	(1)the ESQDs and GHA for missile launch activities would occur over open land; open undeveloped nature of land would be compatible with the GHAs and ESQDs; ESQD land would be controlled for up to 14 days per launch for 4 launches/year; during launch periods, PMRF would coordinate with FWS personnel to minimize impacts to their activities (2)land uses within GHA would continue except during launch ops, when area would be determined clear; current land uses would only be altered temporarily from FWS activities (3)proposed radar/communication sites would be located so not to impact FWS administrative facilities and would be compatible with surrounding open nature of island (4)Navy would request compatibility determination from FWS before any Proposed Action activities could take place on Tern (5)Proposed Action activities on Tern would be consistent to maximum extent practicable with HCZMP (6)Navy would implement mitigation measures in consultation with USFWS and NMFS to minimize impacts

Table L-1: Environmental Controls and Potential Mitigations for the Proposed Action (Continued)

SECTION NUMBER	SECTION TITLE	POTENTIAL MITIGATION
4.3.1.9.2	Noise, Tern	(1)construction-related noise would be temporary in nature and occur during the day (2)most construction would consist of adding dredge material to the island and erecting either a rail launcher or a radar/telemetry facility; overall construction activities should be less than 6 months; portable generators would only be operated during range operations (3)it is expected that no more than 4 target launches would occur from Tern per year; none of the noise levels outside the GHA where non-essential personnel are excluded would exceed DOD/OSHA safety standards (4)sonic booms generated from launches on Tern would occur over the open water and would not impact the island
4.3.1.12.2	Visual, Tern	(1)proposed facilities at Tern would not contrast with the developed man-made nature of the island (2)proposed facilities would not be out of character with the existing visual environment; no prominent vistas obstructed since island access is restricted
4.3.1.13.2.1	Water, Tern, Construction activities	(1)construction ops would follow standard engineering techniques to control erosion/ surface drainage would not be substantially modified
4.3.1.13.2.2	Flight test activities, surface water	(1)gray/black water waste will be stored onboard the MATSS for duration of an operation; provision has been made to be able to pump the waste water to a standard fitting on the hull of the vessel for offloading to a sewage barge at the Naval Inactive Ship Maintenance Facility in Pearl Harbor following the operation
	Groundwater	(1)standard spill prevention, containment, and transportation safety plans would be implemented; portable filtration equipment and chemical treatment systems could be brought in to treat any catchment system water that was affected by launch emissions
4.3.2.1.2	Air Quality, Johnston	(1)no exceedances of NAAQS or health-based guidance levels would be anticipated beyond the GHA (2)launch emissions would be only intermittent (3)implement measures to reduce fugitive dust from construction activities, such as periodic wetting of disturbed soils at construction sites
4.3.2.3.2.1	Bio, Johnston, Construction	(1)geological studies would be conducted before dredging operations are initiated in coordination with USFWS and NMFS to identify any necessary mitigation measures
4.3.2.3.2.2	Operations	(1)adequate fire suppression would be available (2)restrict construction and launch team personnel to the immediate area necessary for completion of their work (3)use best engineering practices to minimize impacts to bio resources at sites for Proposed Action (4)conduct geological surveys before starting dredging operations
4.3.2.4.2	Cultural, Johnston	(1)PMRF would consult with SHPO, ACHP, and DSWA to establish/implement measures to ensure mitigation of any adverse impacts to potential historic resources that could result from Proposed Action activities
4.3.2.5.2	Geology, Johnston	(1)soil disturbance will be limited to the immediate vicinity of two potential launch pads (2)no launches will occur during rain; launch system will not use a water deluge system for cooling and noise suppression (3)any remaining fuel would be collected and disposed of properly as a hazwaste in event of on-pad fire or early flight failure over land of a solid propellant missile
4.3.2.6.2	Hazmat/waste, Johnston	(1)no new facilities would be constructed on Johnston (2)construction activities would be handled per existing Johnston Atoll hazmat mgt plans (3)any hazwastes generated would be crated and removed from the island for proper permitted disposal per federal regs (4)if construction occurs in old munitions range, site would be remediated prior to activities (5)all diesel storage tanks used would be above ground with proper containment; hazmats used would only be brought in when required for activities and would not be permanently stored on site; any hazwaste generated would be removed after activities are completed and disposed of properly per federal regs; PMRF would coordinate with JA officials to develop proper hazmat mgt and spill plans (6)teams would be available for fire suppression and hazmat emergency; all hazmats generated during a missile mishap would be cleaned/remediated by PMRF and disposed as hazwaste per state/federal regs and in coordination with USFWS (7)proper mgt plans would be in place to minimize potential for hazmat/waste to impact the environment; PMRF would not leave any hazmats/wastes on JA and would quickly remediate any spill

Table L-1: Environmental Controls and Potential Mitigations for the Proposed Action (Continued)

SECTION NUMBER	SECTION TITLE	POTENTIAL MITIGATION
4.3.2.7.2	Health/safety, Johnston	(1)no new facilities would be constructed at Johnston island; no liquid propellants would be required; construction of new facilities would be conducted per COE requirements (2)workers would be briefed beforehand on hazards of coral sand; any open cuts would be quickly cleaned to prevent infection (3)siting of launch, ordnance, and instrumentation facilities on north, east, and sand islands would be per DOD standards (4)proper GHA would be established before any missile launch from north or east island; non-mission-essential personnel would be excluded from the GHA during launch ops and encouraged to be on the MATSS; the GHA would be no greater than 8000 ft for north island and 10,000 ft for east island (5)the GHA or LHA would not encompass Johnston or other inhabited islands; before launch all missile intercept, debris, and stage impact areas would be cleared of public and non-essential personnel (6)launches would not be conducted during heavy rain or if detected lightning potential gradient of more than 2000 V/m (7)Navy would conduct EMR hazard review before installation of any new radar unit; proposed systems would have proper safety exclusion zones established prior to operation, and would have proper warning lights (8)all hazmats used/wastes generated at the site under the Proposed Action would continue to be handled per state/federal regs; operations conducted per OSHA guidelines
4.3.2.8.2.1	Land Use, Johnston, land use	(1)no new facilities would be required for Johnston island (2)development of facilities and required safety ESQD arcs would be compatible with the open uninhabited land uses of these islands; the open uninhabited land uses associated with this island would be compatible with the required safety areas
4.3.2.8.2.2	Recreation	(1)activation of GHA/LHA restriction areas would be temporary, other areas would be available for use (2)access to JA is restricted for government operations, the Proposed Action would not change this status
4.3.2.9.2	Noise, Johnston	(1)no launches would occur from Johnston island (2)construction-related noise would be temporary in nature and occur during the day (3)construction activities should be less than 6 months; portable generators would only be operated during range operations (4)none of the noise levels outside the GHA would exceed DOD/OSHA standards; personnel in GHA would wear hearing protection; personnel on Johnston island would be warned beforehand of the launch time
4.3.2.11.2	Utilities, Johnston	(1)proposed facilities required for sand, north, and east islands would be self-contained using generator power and portable toilets; solid waste would be collected and removed from the island
4.3.2.12.2	Visual, Johnston	(1)no new facilities would be required for Johnston island (2)proposed new facilities at north, east, and sand islands would not contrast with the developed man-made nature of JA; proposed facilities would not be out of character with the existing military nature of the visual environment; no prominent vistas would be obstructed since island access is restricted
4.3.2.13.2.1	Water, Johnston, Construction activities	(1)construction operations would follow standard engineering techniques to control erosion; surface drainage would not be substantially modified
4.3.2.13.2.2	Flight test activities, surface water	(1)gray and black water waste will be stored onboard MATSS for duration of an operation; provision has been made to be able to pump the waste water to a standard fitting on the hull of the vessel for offloading to a sewage barge at the Naval Inactive Ship Maintenance Facility in Pearl Harbor following the operation
	Groundwater	(1)standard spill prevention, containment, and transportation safety plans would be implemented
4.4	Ocean Area (outside US territory)	(1)exercises take place largely in the deep ocean environment with no known cultural resources; no potential for impacts to geology/soils (2)all activities associated with use of hazmats would be performed prior to putting to sea; no conflicts with land use plans, policies, and controls would exist with activities in the broad ocean area (3)waterborne transportation would not be impacted by ongoing activities; ocean area would be verified clear of any surface ships before exercises begin

Table L-1: Environmental Controls and Potential Mitigations for the Proposed Action (Continued)

SECTION NUMBER	SECTION TITLE	POTENTIAL MITIGATION
4.4.2.1	Airspace Use, Ocean Area	(1) Missile intercepts conducted within either existing Special Use Airspace in W-188 and W-186 or within the Temporary Operations Area. (2)Target and defensive missile launches and missile intercepts conducted in compliance with DOD Directive 4540.1. (3) Before conducting a missile launch and/or intercept test, NOTAMs sent in accordance with the conditions of the directive OPNAVINST 3721.20. (4) Responsible commander obtain approval from the Administrator FAA, through the appropriate US Navy airspace representative. (5) Hazardous operations would be suspended when any known non-participating aircraft enters any part of the danger zone. (6) All intercept activities takes place in existing special use airspace that has been in existence and is cleared of non-participating aircraft, or within new ALTREV airspace. (2) The well defined special use airspace dimensions and scheduled time of use on aeronautical charts, in addition to the positive air traffic control obviate the need for mitigation measures. Indirect impacts mitigated by implementation of procedures to decrease the disturbance from flight operation, and that stress the importance of effective community relations an the need to keep the public informed. An annual evaluation of flight activities, including missile launch activities to ensure that every effort is made to reduce any averse indirect impacts, including a review of mission changes in regard to supersonic operations.
4.4.2.2	Bio, Ocean Area	No mitigation measures are proposed because standard range warning and checking procedures would check for visible large concentrations of marine mammals in the area of the target launch, trajectory, and landing by dispatched patrol and surveillance aircraft, using surface radar to search the water surface. If contacts are made, the Flight Safety Officer would determine whether to continue, delay or postpone the operations. Parachutes would be weighted and would sink, therefore, not causing a problem to marine mammals.
4.4.2.3	Health/Safety, Ocean Area	No mitigation measures are proposed because the Navy takes every reasonable precaution during the planning and execution of the test and development activities to prevent injury to human life or property. All activities must be in compliance with DOD Directive 4540.1
4.4.2.4	Transportation, Ocean Area	No mitigation measures are proposed because of the rigorous safety procedures employed to determine that the operating areas are clear of surface vessels.
4.4.2.5	Water, Ocean Area	No mitigation measures are proposed
4.5.1.1	Environmental Justice(EJ), Kauai, Air Quality	No change to the current attainment status and no health based air quality standards would be exceeded.
4.5.1.2	EJ, Kauai, Bio	Vegetation and wildlife are not expected to be affected by PMRF operations
4.5.1.3	EJ, Kauai, Cultural	PMRF will consult with the SHPO and Office of Hawaiian Affairs prior to any construction project
4.5.1.4	EJ, Kauai, Geology	Any spill that occurs would be quickly remediated to prevent any soil contamination
4.5.1.5	EJ, Kauai, Hazmat/hazwaste	All hazardous materials used and hazardous waste generated by PMRF on Kauai would be conducted in accordance with Federal and State regulations. Any hazardous materials that would result from an early flight termination would be cleared from the ground hazard area and any contamination would be remediated.
4.5.1.6	EJ, Kauai, Health and Safety	If materials transported on SH 50, PMRF would implement safety procedures to minimize the chance of a mishap and would quickly remediate the problem if one should occur. PMRF may bring hazardous materials directly into PMRF by either barge or aircraft depending on DOT requirements and sea conditions.
4.5.1.7	EJ, Kauai, Land Use	PMRF would continue to allow access to beaches except during hazardous operations. PMRF gives advance notification through a 24-hour hotline. Closure of the southern end of Polihale State Park would occur no more than 30 minutes per launch and no more than 30 times per year.
4.5.1.8	EJ, Kauai, Noise	(1)construction-related noise at various island sites would be temporary in nature and would only affect very limited area; none of noise levels outside of the GHA would exceed DOD/OSHA requirements; personnel within GHA would wear hearing protection (2)number of launches from southern PMRF would be infrequent with most occurring on the northern end of the island
4.5.1.11	EJ, Kauai, Water	(1)any spill that would occur would be quickly remediated to prevent any water contamination
4.5.2.2	EJ, Bio, Niihau	(1)provide fire equipment on the island during hazardous operations to minimize the potential for a catastrophic fire
4.5.2.3	EJ, Cultural, Niihau	(1)continue to consult Niihau elders on any Proposed Action issues involving traditional cultural values and beliefs
4.5.2.4	EJ, Geology, Niihau	(1)soil disturbance from construction would be temporary and would not result in any soil impacts; no significant changes to soil chemistry would occur as a result of missile launching activity; any mishap or spill of hazmats would be quickly remediated to prevent any soil contamination

Table L-1: Environmental Controls and Potential Mitigations for the Proposed Action (Continued)

SECTION NUMBER	SECTION TITLE	POTENTIAL MITIGATION
4.5.2.5	EJ, Hazmat/waste, Niihau	(1)use/generation of hazmats/wastes would be conducted per state/federal regs; any spill of these materials would be quickly remediated; PMRF would keep proper spill containment devices on the island for the types of hazmats expected to be used; any hazmats resulting from early flight termination would be cleared from GHA and any contamination would be remediated
4.5.2.6	EJ, Health/safety, Niihau	(1)during all operations on the island PMRF would take every precaution to protect the island inhabitants and environment; during launch operations all personnel would be excluded from those areas where there would be the potential for hazardous debris from a missile mishap to fall; at no time would the village area on the island be included within the GHA or ESQD required for missile launch activities (2)EMR generated under both the NA and Proposed Action alternatives would have appropriate exclusion zones to eliminate health hazards to island residents
4.5.2.7	EJ, Land Use, Niihau	(1)PMRF activities are compatible with the open/grazing uses of the island; PMRF activities on Niihau would occur adjacent to compatible open/grazing land uses (2)none of the proposed activities would impact the village on Niihau (3)grazing would be allowed to continue within the GHA during launch activities; the remainder of the island would be available for fishing and gathering activities during launch activities
4.5.2.8	EJ, Noise, Niihau	(1)none of the noise levels outside the GHA would exceed DOD/OSHA safety requirements; personnel with the GHA would wear hearing protection
4.5.2.10	EJ, Visual, Niihau	(1)most of the new facilities would not be visible from the island village and would only block prominent vistas if island residents are in the vicinity of the facility
4.5.2.11	EJ, Water, Niihau	(1)any spill would be quickly remediated to prevent any water contamination
4.6	Conflicts with federal, regional, state/local land use plans/policies	(1)a determination of compatibility on the use of Tern will be made by the USFWS, which will be based on the intended purpose of the refuge and the activities planned for that site (2)PMRF would revise the current restrictive easement with the state of Hawaii for the continued use of lands for safety purposes adjacent to the facility for missile launching activities (3)PMRF would obtain a lease and restrictive easement for the construction and use of two new ordnance storage magazines on Kauai
4.7	Energy requirements and conservation potential	(1)PMRF would continue to implement energy conservation programs

Table L-2: Environmental Controls and Potential Mitigations for the No-action Alternative

Note: EJ = Environmental Justice

SECTION NUMBER	SECTION TITLE	POTENTIAL MITIGATION
4.1.1.2.1.1	Main Base, Land-Based Training and Operations	(1)make sure mission activities would be in compliance with DOD Directive 4540.1 (2)issue NOTAMs before conducting an operation hazardous to aircraft
4.1.1.2.1.2	Base Ops and Maint.	(1)use required scheduling process for airspace usage
4.1.1.3.1.1	Bio., Main Base, Land-Based Train. and Ops	(1)continue to recover MINEX and SLMMEX mines after exercises so there is no residual effect of the exercise on bio. resources. (2)continue program to discourage Laysan albatross from nesting on PMRF (3)conduct surveys of affected beach areas for turtle nesting prior to amphibious landings
4.1.1.3.1.2	Bio., Main Base, , Base Ops and Maint.	(1)relocate plants to protected locations during construction (2)have new lighting designed to minimize reflection to minimize impacts to Newell's shearwater (3)if whales or monk seals are sighted in safety zone or LHA, delay launch until they are clear (4)transport liquid propellant by landing craft to avoid interference with green sea turtle nests on the beach (5)properly shield outdoor lighting (6)survey beach areas where transport vehicles may be used for sea turtle nests in the appropriate season to note and avoid nests during transport (7)install portable blast deflector on launch pad (8)clear dry vegetation from around launch pad (9)spray vegetation around launch pad with water before launch (10)have emergency fire crews available during all launches (11)use open (spray) nozzle to avoid dune erosion/cultural damage
4.1.1.3.1.3	Bio, Main Base, , Offshore Ops	(1)incorporate noise studies results in documents and consider potential for effects on ongoing activities
4.1.1.3.1.4	Bio, Main Base, Sub Mines, Amphibious Warfare Ops	(1)ships conduct operations at low speeds or at anchor (2)landing craft shuttle from ship to shore over short distances to limit area of concern (3)keep close lookout to avoid whales/mammals if they enter the area (4)keep operations localized to small area (5)follow protocols on approaching whales, planning/notices on whale arrival
	Insertion/Extraction of Special Forces from Helicopters	(1)helicopters should avoid overflight of a marine mammal if one is detected (2)avoid mammals at night if detected, clear landing zone visually and with night vision goggles
	EOD and Demolition	(1)clear range before explosive operations (2)divers check for mammals visibly or audibly if animals are vocalizing (3)stop exercise if marine mammals are in vicinity
4.1.1.3.1.5	Bio, Main Base, , Sub Op Exercises, Sub Warfare Exercises	(1)immediately report any significant marine mammal contact to deck officer for appropriate avoidance action (2)proceed at slow speed in shallow waters to allow for navigational corrections (3)continue efforts to recover drones and other aerial/towed targets (4)provide light shields for shearwater, monitor beaches for turtles/seals
4.1.1.4.1	Cultural, Main Base,	(1)continue surveying potential landing areas and avoid those with potentially significant sites, esp. in Major's Bay and Nohili areas
4.1.1.5.1.2	Geology, Base Ops/Maint	(1)keep construction disturbance short-lived (2)implement best management practices to reduce soil erosion
4.1.1.6.1.1	HazMat, Main Base, Land-Based Training/Ops	(1)follow PMRF hazmat usage and waste plans (2)follow state and federal hazmat/waste requirements (3)continue to use hazmat pharmacy system (4)shipped hazmats/wastes according to DOT guides (5)follow appropriate contingency plans in case of emergency
4.1.1.6.1.2	Base Ops/Maint.	(1)continue remediating ground contamination at PMRF
4.1.1.7.1	Health/Safety, Main Base,	(1)continue taking precautions during planning/execution of operations, training, test/development to prevent injury to human life or property
4.1.1.7.1.1	Land-Based train/ops, Pre-launch Ops	(1)follow appropriate safety regs when transporting/handling hazmats (2)maintain appropriate ESQDs around ordnance facilities (3)use shipping containers sufficient to protect solid rocket motors from receiving shock required for explosion (4)follow appropriate regs when transporting missile components (5)follow DOT regs when transporting, handling, storing liquid propellants (5)exclude unprotected personnel during liquid fuel transfers (6)clear ESQD of unprotected personnel (7)have teams for fire, hazmat, medical response during launch ops

Table L-2: Environmental Controls and Potential Mitigations for the No-action Alternative (Continued)

SECTION NUMBER	SECTION TITLE	POTENTIAL MITIGATION
	Launch Ops	(1)isolate area surrounding launch site before launch (2)make sure public will not be exposed to fatality probability greater than 1/10,000,000 for single mission and 1/1,000,000 on annual basis (3)establish ground and launch hazard areas to contain debris (4)exclude nonessential personnel from GHA during launch (5)make sure GHA personnel adequately protected in bunkers/behind berms (6)make sure safety officer always has capability to terminate missile flight if necessary (7)establish overwater LHAs for each type of test (8)verify LHA clear before launch, publish NOTAMs/NOTMARs, coordinate with agencies (9)verify area clear with PMRF aircraft and vessels (10)have missile accident emergency team assembled for all KTF launches (11)recover haz. debris from GHA and dispose of properly (12)terminate flight over open water if necessary
	Electronic Warfare Ops and Sensor Instrumen. Ops	(1)conduct EMR hazard review before installing new radar or modifications (2)continue to conduct radiation hazard surveys of PMRF equipment, implement safety precautions (3)maintain warning lights on radar units (4)verify areas of EMR are clear of the public (5)protect ship personnel with safety areas and computer programs
	Land-based training	(1)clear area of public prior to start of any exercise (2)keep helicopter flight training over unpopulated portions of Kauai and Niihau
4.1.1.7.1.3	Other support facilities	(1)continue to conduct activities with Navy/OSHA regs (2)follow state/Federal guides with hazmats/wastes from operations (3)maintain safety zones around range to prevent risks if range is reactivated
4.1.1.7.1.4	PMRF Tenant Orgs	(1)follow state/Federal guides to manage hazmats/wastes (2)maintain warning lights on EMR units (3)clear EMR hazard area when unit is operating (3)make sure EMR unit does not affect personnel in guard compound (4)keep area blocked with fences and EMR warning signs
4.1.1.7.1.5	Ongoing Maint/Ops	(1)manage hazmats with OSHA/Navy regs to minimize potential for mishap (2)maintain spill response plan and trained personnel to respond if mishap occurs (3)manage hazwaste with state/Federal regs (4)follow PMRF SOPs (5)make sure public not exposed to fatality probability greater than 1/10,000,000 for single mission and 1/1,000,000 on annual basis (6)make sure PMRF workers adhere to strict regulatory control when operating with EMR, HAPs, or hazmats/waste
4.1.1.8.1.1	Land use, Main Base, Land use	(1)keep land uses compatible with the operations and safety requirements of PMRF; keep state and county designations compatible with base activities
4.1.1.8.1.3	Base Ops/Maint	(1)manage land in accordance with PMRF master plan, navy, DOD guidance; adhere to safety guidelines; keep activities consistent with Hawaii Coastal Zone Mgt Program to maximum extent possible; continue to provide recreation areas for public; manage/preserve historic/prehistoric resources in coastal zone; continue to not affect local water quality; continue to aid Kauai economy
4.1.1.8.1.4	Recreation	(1)continue to provide recreational opportunities to public and base personnel; allow access to beaches by public during non-hazardous operations; try to keep PMRF ops during times when beaches are normally posted closed; try to maintain rec area 3 open 24 hours; maintain telephone hotline to inform public which beaches would be closed
4.1.1.9.1	Noise, , Main Base	(1)maintain current hearing protection program; personnel working in noise hazard areas required to wear appropriate hearing protection
4.1.1.9.1.2	Base Ops/Maint	(1)keep most of high noise levels on PMRF contained within base boundary; make sure base aircraft ops don't affect off-base residential areas/sensitive receptors; use noise-reduction abatement in buildings in high noise areas (2)personnel working in noise hazard areas required to wear appropriate hearing protection
4.1.1.10.1	Socioecon, , Main Base	(1)continue advance warning to allow residents, tourists, fisherman to visit alternative locations while closures take place
4.1.1.11.1	Transportation, , Main Base	(1)continue to transport ordnance in accordance with DOT/DOD/Navy safety procedures
4.1.1.12.1	Utilities, Main Base	(1)no additional demands would be made on utilities; current utilities would continue to meet demands
4.1.1.13.1	Visual, Main Base	(1)make sure PMRF does not obstruct any views of the cliffs or the Nohili Dunes; maintain beaches on the installation in a natural setting; make sure visual environment would continue in current setting; no other projects planned for the area that would change the visual environment
4.1.1.14.1	Water, Main Base	(1)continue to follow pollution prevention and SPCC plans during each exercise to reduce potential for impacts from hazmats
4.1.1.14.1.2	Base Ops/Maint	(1)continue to follow pollution prevention and SPCC plans during each exercise
4.1.2.2	Biological, Restrictive Ease (RE), GHA	(1)make sure implementation of restrictive easement would not cause any impacts to the wetlands present in the ROI, which are man-made, artificial wetlands

Table L-2: Environmental Controls and Potential Mitigations for the No-action Alternative (Continued)

SECTION NUMBER	SECTION TITLE	POTENTIAL MITIGATION
4.1.2.3	Cultural, RE, GHA	(1)PMRF would consult with SHPO Hawaii for issues regarding cultural resources within the RE ROI; land uses within the ROI would remain unchanged from current practices; no new construction is planned under the proposed action (2)no ground-disturbing activities or other activities that could have potential to adversely affect significant cultural resources sites or burials would take place; any concerns expressed by native groups related to program activities would be addressed through consultation with the DLNR SHPO, OHA, and the Hui Malama I Na Kupuna 'O Hawai'I Nei, and any mitigation measures would be determined through that process
4.1.2.4	Geology, RE, GHA	(1)continued use of RE would limit new development which would maintain current physiographic conditions; no other ground-disturbing activities are planned within the ROI
4.1.2.5	Hazmat/hazwaste, RE, GHA	(1)hazwaste resulting from an early flight termination would be cleared and cleaned up in accordance with procedures described in STARS draft and final EISs
4.1.2.6	Health/Safety, RE, GHA	(1)safety measures would be taken to ensure that land within GHA would be clear of public during launches; clearing would include establishing road control points 3 hours before launch, clearing using vehicles, boats, and helicopters if necessary; safety procedures identified in STARS draft EIS would also be implemented
4.1.2.7	Land Use, RE, GHA	(1)no development is proposed within the RE
4.1.2.7.1	Recreation	(1)area of state park in GHA would be reopened after launch as soon as range safety officer declares the area safe; people within RE boundary would be notified 3 hours prior to launch that they would need to move to north end of park; people traveling to and from park would be stopped at control points at RE boundary during time area is closed (2)no cumulative land use changes would be expected (3)state park expansion and RE would maintain current existing land uses in the area and would be compatible; no other activities in the ROI would contribute to recreational closure of state park
4.1.2.8	Noise, RE, GHA	(1)noise levels would be intermittent and of short duration
4.1.2.9	Socioecon, RE, GHA	(1)restricted access to state park during launch activities would neither impact Kauai's tourism industry nor any park revenues associated with camping activities (2)fishermen would be given notice through issuance of NOTMARs and have opportunity to fish adjacent waters outside the surface water hazard area during launch activities
4.1.2.10	Transportation, RE, GHA	(1)activities that could affect transportation access would occur primarily during the time the RE would be cleared during the launch activities at PMRF; area of state park closed during launch activities would be reopened as soon as the range safety officer declares the area safe
4.1.2.11	Utilities, RE, GHA	(1)only direct mission activity that would occur over the RE would be intermittent helicopter flights to ensure clearance prior to missile launches, with no additional requirement of utilities
4.1.2.12	Visual, RE, GHA	(1)under proposed action, continued use of RE would limit new development and allow the current visual character of the area to be maintained; there would be no change in the visual environment from implementation of the RE
4.1.2.13	Water, RE, GHA	(1)no new development is planned that would affect water resources within the RE
4.1.3.1.1	Air Quality, Makaha	(1)current activities would continue at projected levels; no portion of proposed action would be implemented
4.1.3.2.1.3	Airspace, Makaha, en route airways/jet routes	(1)aircraft would be notified by NOTAMs to advise avoidance of the tracking radar area during program activities; the tracking radar area is likely to be contained within the restricted area R-3101 and the warning area W-188
4.1.3.4.1	Cultural, Makaha	(1)follow ICRMP when it is finished
4.1.3.5.1	Geology, Makaha	(1)keep construction projects temporary; implement best management practices to reduce soil erosion
4.1.3.6.1	Hazmat/waste, Makaha	(1)all hazmats/wastes would be handled/disposed of in accordance with PMRF, state, and federal regulations
4.1.3.7.1	Health/safety, Makaha	(1)survey site regularly for hazardous radiation, make sure warning lights on units operate properly; all hazmats/hazwastes are handled per state/federal regs; operations conducted per OSHA regs (2)personnel do not enter radar operation areas when facilities are in use; keep personnel outside of EMR exposure areas
4.1.3.8.1.1	Land Use, Makaha	(1)EMR generated by site radar units would not affect adjacent land uses (2)continuation of activities would be consistent to maximum practicable with Hawaii Coastal Zone Mgt Program
4.1.3.8.1.2	Recreation	(1)no other development is planned for this area
4.1.3.11.1	Utilities, Makaha	(1)continue installing new water well

Table L-2: Environmental Controls and Potential Mitigations for the No-action Alternative (Continued)

SECTION NUMBER	SECTION TITLE	POTENTIAL MITIGATION
4.1.3.12.1	Visual, Makaha	(1)no other development occurs along this section of NaPali Coast; no other development is planned
4.1.4.2.1.4	Airspace, Kokee, en route airways/jet routes	(1)aircraft would be notified by NOTAMs to advise avoidance of radar area during program activities; the tracking radar area is likely to be contained within the restricted area R-3101 and the warning area W-188
4.1.4.4.1	Cultural, Kokee	(1)no new activities at Kokee instrumentation support site would be implemented (2)follow ICRMP when it is completed
4.1.4.5.1	Geology, Kokee	(1)construction projects are temporary; base implements best management practices to reduce soil erosion
4.1.4.6.1	Hazmat/waste, Kokee	(1)continue to handle materials per PMRF and state/federal regs (2)continue to use pharmacy system at PMRF; continue shipping hazwaste generated at site directly for disposal
4.1.4.7.1	Health/Safety, Kokee	(1)continue surveying regularly for radiation hazards; make sure warning lights on units operate properly; public is not exposed to any unsafe EMR levels; all hazmats/wastes used/generated at site handled per state/federal regs; operations follow OSHA regs
4.1.4.8.1	Land Use, Kokee	(1)facility does not conflict with management of state park; use of Kokee is compatible with state conservation use district; EMR generated would not affect adjacent land uses (2)continuing activities would be consistent to maximum extent with HCZMP
4.1.4.8.1.1	Recreation	(1)no other development is planned for this area under the No Action alternative
4.1.4.11.1	Utilities, Kokee	(1)continue construction of new water well
4.1.4.12.1	Visual, Kokee	(1)no views of Waimea Canyon are obstructed by PMRF facilities; no other developments are planned that would further change visual environment
4.1.5.3.1	Cultural, Kamokala	(1)follow guides, mitigations in ICRMP plan when completed
4.1.5.4.1	Geology, Kamokala	(1)construction projects are temporary; base implements best management practices to reduce soil erosion
4.1.5.5.1	Hazmat/waste, Kamokala	(1)storage/transportation conducted per DOT, DOD, Navy procedures; no hazmats used at site, no hazwastes generated (2)no other ordnance or type of hazmats would be stored within Kamokala that would cumulatively add hazmats/wastes impacts
4.1.5.6.1	Health/safety, Kamokala	(1)existing uses around the magazine and within ESQD arcs are considered compatible; hazard from explosion from a mishap would be contained within the ESQD arcs
4.1.5.7.1.1	Land Use, Kamokala	(1)continuation of activities would be consistent to maximum extent with HCZMP; operation of site doesn't affect any rec opportunities, historic/prehistoric, or bio resources; site does not affect any prominent vistas and is isolated from public view
4.1.5.9.1	Visual, Kamokala	(1)no other development is planned for the area under the No Action alternative that would further change the visual environment
4.1.6.2.1	Hazmat/waste, Port Allen	(1)materials would be handled per PMRF plans (2)activities would follow PMRF procedures to reduce potential for spills
4.1.6.3.1	Health/safety, Port Allen	(1)transfer of torpedoes would continue per PMRF instruction 8020.7A; torpedoes are considered inert except for the fuel used to propel the system; torpedoes loaded at the site contain no ordnance and are fueled before delivery to Port Allen; torpedo fuel has a low volatility and is non-explosive (2)use/generation of hazmats/wastes would follow state/federal guides
4.1.6.4.1.1	Land Use, Port Allen	(1)state urban classification and county industrial zoning are compatible (2)continuation of activities would be consistent to maximum extent practicable with HCZMP; operation of site does not affect any rec opportunities, historic/prehistoric, or bio resources; site doesn't affect any prominent vista
4.1.6.4.1.2	Recreation	(1)continue to make sure use of Port Allen by Navy does not affect any recreational uses
4.1.6.8.1	Visual, Port Allen	(1)no development is planned as part of the No Action alternative that would further change the visual environment
4.2.1.3.1.1	Biological, Niihau, land-based training	(1)survey training exercise landing areas for seals and turtles before; consult with Niihau elders to avoid known turtle nesting areas; modify landing location if either species is present
4.2.1.4.1	Cultural, Niihau	(1)conduct section 106 consultation and review as part of EIS process (2)mitigations would be based on nature and extent of cultural resource materials identified; evaluations of cultural resources based on NRHP eligibility
4.2.1.6.1	Hazmat/waste, Niihau	(1)materials handled per PMRF plans (2)PMRF only brings hazmats onto island when required for maintenance (3)PMRF hazmat spill response team would be dispatched to site of any mishap to remove hazmat/waste (4)PMRF uses minimal amounts of hazmats/wastes on Niihau; PMRF does not leave any hazmats/wastes on the island

Table L-2: Environmental Controls and Potential Mitigations for the No-action Alternative (Continued)

SECTION NUMBER	SECTION TITLE	POTENTIAL MITIGATION
4.2.1.8.1.1	Land Use, Niihau	(1)use of Paniau radar and Perch sites and associated EMR safety zones are compatible with the undeveloped and grazing uses next to the site; site is compatible with state/county designations; training exercises are compatible with open undeveloped uses of the island; PMRF's lease on northern end of island allows for continued use by Niihau Ranch and does not affect existing open nature of current land uses
4.2.1.8.1.2	Recreation	(1)develop and follow a fire suppression plan
4.2.1.8.2	PA, Land Use, Niihau	(1)establishment of facilities under the PA would occur within the open grazing land on Niihau; construction of these facilities would not occur near the village (2)ESQDs would only include land used for grazing; livestock would be allowed to continue to graze within the ESQD arc; current land use activities would continue even during launch operations with the only restriction being to the island within the 381-m ESQD arc (3)GHA would be cleared for about 30 minutes prior to launch for up to 8 launches/year; residents would be warned of these closure times 1 week in advance of launch time (4)PA activities would be consistent to maximum extent practicable with the HCZMP; PA activities would only temporarily affect recreational opportunities for residents for up to 4 hours/year; development would alter the visual undeveloped nature of the island but represents less than 1% of the total island area (5)PMRF would consult with SHPO Hawaii prior to any ground-disturbing activities to avoid cultural resource impacts
4.2.1.8.2.1	Recreation	(1)grazing would be allowed to continue around facilities (2)PMRF could work with island residents to avoid conducting operations that would exclude residents from their fishing areas during the best time of day
4.2.1.9.1	Noise, Niihau	(1)overflights are discrete events, relatively few in number, and restricted as to the actual geographic locations in which they are allowed to occur; land-based training generates relatively low levels of noise in isolated areas
4.2.1.10.1	Socioecon, Niihau	(1)protection protocol in place between Navy and Niihau to ensure Niihau lifestyle, language, culture not adversely affected by Naval activities (2)protocol could be strengthened if necessary to maintain assurance of cultural protection for the island (3)continue review of protection protocol annually and make adjustments as necessary
4.2.1.13.1	Visual, Niihau	(1)aesthetic effects could be minimized by using earth-toned paint on all structures
4.2.2.2.1.1	Bio, Kaula, Gunnery Training	(1)use area seasonally when marine mammals are not present; survey waters off island to make sure marine mammals are not present; have impact area on south end of the island only
4.2.2.3.1	Cultural, Kaula	(1)keep gunnery practice confined to the southern tip of the island
4.2.2.4.1	Geology, Kaula	(1)continue to minimize impacts by managing the targeting to the distal southeast tip of the island
4.2.2.5.1	Health/safety, Kaula	(1)continue to use surface danger zone around the island and close island and surrounding tidal zone to unauthorized personnel; continue to use aircraft to fly over island to determine if safe to conduct mission before any gunnery operation
4.2.2.6.1.1	Land Use, Kaula	(1)open undeveloped use of the island is compatible with the Navy gunnery practice activities; use of a portion of the island for gunnery practice is compatible with the state conservation designation (2)continuation of activities under No Action alternative would be consistent to maximum extent practicable with the HCZMP; operation of site does not affect any recreational opportunities, historic/prehistoric resources; continue to consult with USFWS to minimize impacts to biological resources; public access to Kaula is restricted, so no visual resources are affected
4.2.2.6.1.2	Recreation	(1)continue to allow fishing within the danger zone on weekends; no other recreational opportunities affected
4.3.1.12.1	Visual, Tern	(1)no prominent public viewpoints are obstructed since access to the island is restricted; no development is planned as part of the No Action alternative that would further change the visual environment
4.3.2.12.1	Visual, Johnston	(1)no prominent public viewpoints are obstructed since island access is restricted
4.4	Ocean Area (outside US territory)	(1)exercises take place largely in the deep ocean environment with no known cultural resources; no potential for impacts to geology/soils (2)all activities associated with use of hazmats would be performed prior to putting to sea; no conflicts with land use plans, policies, and controls would exist with activities in the broad ocean area (3)waterborne transportation would not be impacted by ongoing activities; ocean area would be verified clear of any surface ships before exercises begin
4.4.1.1.1	Ocean Area, controlled/uncontrolled airspace	(1)no new special use airspace proposal or modification to the existing special use airspace is contemplated to accommodate continuing mission activities
4.4.1.1.2	Ocean Area, Airspace, Special Use Airspace	Continue to utilize the existing overwater special use airspace

Table L-2: Environmental Controls and Potential Mitigations for the No-action Alternative (Continued)

SECTION NUMBER	SECTION TITLE	POTENTIAL MITIGATION
4.4.1.1.3	Ocean Area Airspace, En Route Airways and Jet Routes	(1) Safety regulations dictate that hazardous operations would be suspended when it is know that any non-participating aircraft have entered any part of the Danger Zone until the non-participating entrant has left the area or a thorough check of the suspected area has been performed. (2) continuing activities would be in compliance with DOD Directive 5450.1, as directed by OPNAVINST 3770.4A. (3) Before conducting an operation that is hazardous to non-participating aircraft, NOTAMs would be sent in accordance with the conditions of the directive specified in OPNAVINST 3721.20. (4) continuing mission activities would continue to utilize the existing overwater special use airspace and would not require either (a) a change to an existing or planned IFR minimum flight altitude, a published or special instrument procedure, or an IFR departure procedure; or (b) a VFR operation to change from a regular flight course or altitude.
4.4.1.1.4	Ocean Area, Airspace, Airports and Airfields	the well defined special use airspace dimensions and scheduled time of use on aeronautical charts, in addition to the positive air traffic control by the Honolulu and Oakland ARTCCs, obviate the need for mitigation measures.
4.4.1.2	Bio, Ocean Area	Once ONR studies are completed, the Navy, in consultation with NMFS, will incorporate the results in relevant future NEPA analyses and documents as well as consider the potential for effects on ongoing activities.
4.4.1.2.1.1	Bio, Ocean Area, Missile Training Exercises, Launches of Target Drones and Missiles from Shore	(1) Upon completion of the exercise, recoverable drones are flown back toward PMRF/Main Base, where they land in the water for retrieval by a recovery vessel. (2) Drones are used under very controlled range clearance procedures to ensure that unauthorized vessels, aircraft, and marine mammals, particularly whales, are not present. This involves, at a minimum, a detailed radar and visual search of the range by recovery vessels and range controllers, supplemented by the passive hydrophone array. Range clearance includes air reconnaissance flown by helicopter or fixed wing aircraft when available.(3) No drones or missiles are fired until the range is clear. (4) All observers are in continuous communications and have capability to immediately stop the operations. (5) An exercise is immediately halted if the range is "fouled" by a whale or a vessel.
4.4.1.2.1.2	Bio, Ocean Area, Missile Training Exercises, Launches of Target Drones and Missiles from MATSS	Same as above.
4.4.1.2.1.3	Bio, Ocean Area, Missile Training Exercises, Live Missile Firings by Aircraft Versus Target Drones	(1) PMRF Range Clearance procedures are used to determine that no marine mammals, vessels, or aircraft are on the range and involve, at a minimum, a detailed visual search of the range from recovery vessels, and range controllers supplemented by reconnaissance flown by helicopter and fixed-wing aircraft when available. Targets and missiles are not fired until the range is determined clear, and an exercise is immediately halted if the range is "fouled" by a whale or a vessel. The aircraft, the target and all observers are in continuous communications and have the capability to immediately stop operations. (2) PMRF strictly controls weapons firings and does not permit an exercise to proceed until the range is declared clear after consideration of inputs from visual surveillance of the range from aircraft and range safety boats, radar data, acoustic information from a comprehensive system of sensors and surveillance from shore. The exercise can be modified as necessary to obtain a clear down range or it is canceled. (3) Many surface ships have electrically-enhanced optics that permit search and identification beyond normal visual ranges. Embarked helicopters are also frequently use to further examine the range to determine that no other surface craft or marine mammals are present. (4) Each surface ship has a safety observer who determines that the range is clear before and during the exercise and who can halt the exercise if whales are observed.
4.4.1.2.1.4	Bio, Ocean Area, Missile Training Exercises, Anti-Air Warfare Exercises	(1) Subsonic target drones are flown by remote control back to the waters near PMRF, runs out of fuel, glides onto the water, and floats until retrieved for reuse. (2) No missile firing is permitted until after it is determined that the range is clear.
4.4.1.2.2	Bio, Ocean Area, Air Operations Exercises	
4.4.1.2.2.1	Bio, Ocean Area, Air Operations Exercises, Air Combat Maneuvering	No mitigations required because no harm or effect is expected on marine mammals since maneuvering is at high altitudes.

Table L-2: Environmental Controls and Potential Mitigations for the No-action Alternative (Continued)

SECTION NUMBER	SECTION TITLE	POTENTIAL MITIGATION
4.4.1.2.3	Bio, Ocean Area, Gunnery Exercises	As part of the required clearance before a gunnery exercise, aircrews determine that the area to be gunned is clear, visually and with their sensors, whether at Kaula or far out to sea. The lack of an explosive charge, the required clearance, and conducting the majority of gunnery runs at either Kaula or the controlled ranges at PMRF keeps the risk to marine mammals very remote. Ordnance cannot be released until the range is determined clear and operations are immediately halted if the range is "fouled" by a whale, other marine mammals or a vessel.
4.4.1.2.4	Bio, Ocean Area, Bombing Exercises	As part of the required clearance before bombing, must determine that the area to be bombed is clear, visually and with their sensors. The lack of an explosive charge, the required clearance, and conducting the majority of bombing runs at the controlled ranges at PMRF keeps risk to marine mammals very remote.
4.4.1.2.5	Bio, Ocean Area, Mining Exercises	Weapons cannot be released until the range is determined clear. Operations are immediately halted if the range if "fouled" by a marine mammal or a vessel. Aerial mining exercises can be modified as necessary to obtain a clear range or it is canceled. Most aircraft weapons operations occur outside the 100-fathom isobath, within which the greatest concentration of marine mammals are observed.
4.4.1.2.6	Bio, Ocean Area, Electronic Warfare Exercises	Studies on potential impacts of Navy activities to marine species are underway. As these additional Navy studies are competed and consultation with the NMFS is developed, Navy activities at PMRF will comply with the results of the consultation process with NMFS.
4.4.1.2.7	Bio, Ocean Area, Undersea Warfare Exercises	Once the range is determined cleared in accordance with PMRF procedures, aircraft are permitted to engage the target.
4.4.1.2.8	Bio, Ocean Area, Submarine Operations Exercises	Low vessel speeds. Torpedoes fired under controlled circumstance to ensure that marine mammals are not present.
4.4.1.2.9	Bio, Ocean Area, Fleet Training Exercises	Avoid overflying marine mammals if detected. Special sea and anchors details posted to ensure adequate lookouts are in position and most experienced crews maneuver the ship until reaching the operating area or the open ocean.
4.4.1.2.10	Bio, Ocean Area, Testing and Evaluation Exercises	Follow current operating procedures.
4.4.1.3	Health/Safety, Ocean Area	Range Safety officials ensure operational safety; range is determined to be clear; operations conducted within the boundaries of the safety areas; Warning Areas continually monitored; specific safety plans developed for each hazardous operation; activities in compliance with DOD Directive 4540.1
4.4.1.4	Transportation, Ocean Area	(1)fleet training exercises not conducted in waters that coincide with the busiest shipping routes. (2)Notify commercial shipping prior to fleet training exercises. (3) overwater range is determined cleared before any operation is allowed to proceed. (4) Operation must obtain PMRF safety approval before proceeding. (5) Operations conducted within the boundaries of the safety areas. (6) Warning Area continually monitored during range operations to ensure that no unauthorized ships enter the area.
4.4.1.5	Water, Ocean Area	No mitigation measures proposed
4.5.1.1	Environmental Justice(EJ), Kauai, Air Quality	No change to the current attainment status and no health based air quality standards would be exceeded.
4.5.1.2	EJ, Kauai, Bio	Vegetation and wildlife are not expected to be affected by PMRF operations
4.5.1.3	EJ, Kauai, Cultural	PMRF will consult with the SHPO and Office of Hawaiian Affairs prior to any construction project
4.5.1.4	EJ, Kauai, Geology	Any spill that occurs would be quickly remediated to prevent any soil contamination
4.5.1.5	EJ, Kauai, Hazmat/hazwaste	All hazardous materials used and hazardous waste generated by PMRF on Kauai would be conducted in accordance with Federal and State regulations. Any hazardous materials that would result from an early flight termination would be cleared from the ground hazard area and any contamination would be remediated.
4.5.1.6	EJ, Kauai, Health and Safety	If materials transported on SH 50, PMRF would implement safety procedures to minimize the chance of a mishap and would quickly remediate the problem if one should occur. PMRF may bring hazardous materials directly into PMRF by either barge or aircraft depending on DOT requirements and sea conditions.

Table L-2: Environmental Controls and Potential Mitigations for the No-action Alternative (Continued)

SECTION NUMBER	SECTION TITLE	POTENTIAL MITIGATION
4.5.1.7	EJ, Kauai, Land Use	PMRF would continue to allow access to beaches except during hazardous operations. PMRF gives advance notification through a 24-hour hotline. Closure of the southern end of Polihale State Park would occur no more than 30 minutes per launch and no more than 30 times per year.
4.5.1.8	EJ, Kauai, Noise	(1)construction-related noise at various island sites would be temporary in nature and would only affect very limited area; none of noise levels outside of the GHA would exceed DOD/OSHA requirements; personnel within GHA would wear hearing protection (2)number of launches from southern PMRF would be infrequent with most occurring on the northern end of the island
4.5.1.11	EJ, Kauai, Water	(1)any spill that would occur would be quickly remediated to prevent any water contamination
4.5.2.2	EJ, Bio, Niihau	(1)provide fire equipment on the island during hazardous operations to minimize the potential for a catastrophic fire
4.5.2.3	EJ, Cultural, Niihau	(1)continue to consult Niihau elders on any PA issues involving traditional cultural values and beliefs
4.5.2.4	EJ, Geology, Niihau	(1)soil disturbance from construction would be temporary and would not result in any soil impacts; no significant changes to soil chemistry would occur as a result of missile launching activity; any mishap or spill of hazmats would be quickly remediated to prevent any soil contamination
4.5.2.5	EJ, Hazmat/waste, Niihau	(1)use/generation of hazmats/wastes would be conducted per state/federal regs; any spill of these materials would be quickly remediated; PMRF would keep proper spill containment devices on the island for the types of hazmats expected to be used; any hazmats resulting from early flight termination would be cleared from GHA and any contamination would be remediated
4.5.2.6	EJ, Health/safety, Niihau	(1)during all operations on the island PMRF would take every precaution to protect the island inhabitants and environment; during launch operations all personnel would be excluded from those areas where there would be the potential for hazardous debris from a missile mishap to fall; at no time would the village area on the island be included within the GHA or ESQD required for missile launch activities (2)EMR generated under both the NA and PA alternatives would have appropriate exclusion zones to eliminate health hazards to island residents
4.5.2.7	EJ, Land Use, Niihau	(1)PMRF activities are compatible with the open/grazing uses of the island; PMRF activities on Niihau would occur adjacent to compatible open/grazing land uses (2)none of the proposed activities would impact the village on Niihau (3)grazing would be allowed to continue within the GHA during launch activities; the remainder of the island would be available for fishing and gathering activities during launch activities
4.5.2.8	EJ, Noise, Niihau	(1)none of the noise levels outside the GHA would exceed DOD/OSHA safety requirements; personnel with the GHA would wear hearing protection
4.5.2.10	EJ, Visual, Niihau	(1)most of the new facilities would not be visible from the island village and would only block prominent vistas if island residents are in the vicinity of the facility
4.5.2.11	EJ, Water, Niihau	(1)any spill would be quickly remediated to prevent any water contamination
4.6	Conflicts with federal, regional, state/local land use plans/policies	(1)a determination of compatibility on the use of Tern will be made by the USFWS, which will be based on the intended purpose of the refuge and the activities planned for that site (2)PMRF would revise the current restrictive easement with the state of Hawaii for the continued use of lands for safety purposes adjacent to the facility for missile launching activities (3)PMRF would obtain a lease and restrictive easement for the construction and use of two new ordnance storage magazines on Kauai
4.7	Energy requirements and conservation potential	(1)PMRF would continue to implement energy conservation programs

Appendix M
Proposed Mitigations Based on U.S. Fish and Wildlife Service Analysis Provided in the Draft Environmental Assessment for the Proposed Tern Island Shore Protection Project

V. ENVIRONMENTAL CONSEQUENCES

A. No Action Alternative Consequences

The no-action alternative would leave the existing shoreline protection condition unchanged. No new shore protection structures will be constructed at Tern Island and the shoreline would remain vulnerable to storm wave damage.

1. Physical Environment

Continued corrosion and deterioration of the steel sheet pile bulkhead would permit accelerated erosion resulting in continued loss of fill material. The eventual alteration and reduction in the island's configuration and size is forecast. Exact final outcome is not known and can not be accurately predicted, in part, due to the artificial nature of the island's shape and presence of the dredged boat channel. It is feared that the eventual loss of the south sand beach, which provides important terrestrial habitat for green turtles, and monk seals, could occur.

The exposure of unknown quantities of debris buried within the island fill would increasingly expose the marine environment to entanglement and potentially toxic materials. Progressive erosion would eventually compromise the integrity of the runway making continued aircraft operations unsafe. The refuge buildings and support facilities would become increasingly at risk to damage from storm waves. The eventual loss of buildings would contribute to the debris problem if removal opportunities do not exist when the island must be abandoned. Continued hazardous and toxic material clean-up of French Frigate Shoals would become impaired with the loss of docking facilities.

There would be an expected increase in turbidity and siltation of nearshore waters as coralline fines are washed from the island.

2. Social Environment

Once aircraft support is unsafe, access would be limited to sea-going vessels. The Service could be forced to discontinue using Tern Island as a permanently staffed field station. The presence of a permanently staffed refuge administrative site located mid-way in the Northwestern Hawaiian Islands is very important to accomplishing Service mandates and objectives. Year-round monitoring of monk seal, green sea turtle, and seabird populations has been invaluable in identifying population trends and being able to react quickly to harmful situations to those populations. Research and educational opportunities would diminish as facilities are compromised. The loss of the station would diminish the Service's ability to monitor and control illegal entry in refuge waters.

Abandoning Tern Island would not imply total elimination of costs associated with activities that Tern Island currently supports. Land use directives and Service mandates would remain unchanged. The Service would need to fall back to some basic level of monitoring and research that would, at a minimum prevent extinction of threatened and endangered species, and permit administration of Refuge lands. These costs have not been calculated as many unknown circumstances exist: the time of actual abandonment, the extent of debris contamination and remediation, and the status of threatened and endangered species recovery efforts. However, if charter vessels and extended field camps were used to provide the minimum level of research and monitoring required to achieve refuge objectives, the costs for transportation and supply would take a larger portion of the funds available for wildlife management. Decisions on how to handle deteriorating sheet pile and related issues would be made on a case-by-case basis as problems arise.

Aesthetic impacts of the deteriorating island and facilities within the refuge would be visually negative and not project an image of concern or proper stewardship of the environment.

3. Biological Environment

Reef habitat could be negatively affected by siltation and debris contaminants with undeterminable effects upon benthic communities. The potential impacts of this consequence are difficult to determine without knowledge of what is buried in the island or the future rate of erosion. The information that would be required to assess this consequence is not available or readily attainable. The event of a major winter storm, hurricane, or tsunami and resultant dramatic erosion of shoreline would immensely influence the extent of this consequence.

The loss of existing island habitat would be the inevitable outcome of this alternative. The terrestrial habitat provided by Tern Island has become increasingly important as evidenced by increased monk seal use, and green turtle and seabird nesting. The extent species can compensate for the loss of Tern Island habitat by movement to other islands is unknown. Tern Island presently represents approximately half of the emergent land mass and nearly all of the shrub habitat found in French Frigate Shoals, so the terrestrial habitat loss would be significant.

No threatened or endangered plant species are known to occur on Tern Island so the consequences of vegetation losses would be important primarily as components of wildlife habitat. There have been significant losses of vegetation on the other islets within the shoals as evidenced by photos taken in the 1960's (Amerson 1971). East, Whale-Skate, and Trig Islands all supported dense vegetation cover providing nesting structure for shrub and cover nesting seabirds. The loss of this vegetation has probably been a

product of island inundation by storm waves, periodic drought conditions, disturbance by nesting turtles, and possibly other unknown factors. Suitable displacement habitat for shrub nesting seabirds does not exist, within French Frigate Shoals, if the loss of Tern Island habitat occurred. Significant local impacts to those seabird nesting populations would occur. Monk seals also use the vegetation as resting cover.

The known presence of Service personnel serves as a deterrent to illegal entry into the refuge and reduces the likelihood of exotic plant or animal introductions, disturbance of breeding monk seals, and poaching of green turtles and seabirds. The introduction of alien species could have severe consequences for these fragile insular ecosystems. Vermin transported in ships and released onto islands either by ship wrecks or intentional landings have been the primary source of infestations on remote islands throughout the world. Ship groundings pose further hazards associated with the release of fuel or other toxic chemicals into the marine environment.

4. Threatened and Endangered Species

The argument can be made that reduced human activity within the shoals resulting from abandonment of the Tern Island station would have beneficial effects on fish and wildlife populations. This is evidenced by the dramatic increase in use of Tern Island by monk seals and repopulation of nesting green turtles and seabirds since the Coast Guard left in 1979 (table 3 and 5). It can only be speculated whether this repopulation would have been even greater without the Service presence. Management actions and research studies designed to assist in recovery of listed species or to maintain populations of other species are, in themselves potentially disturbing to wildlife and habitat. The fact that these Tern Island wildlife population increases did occur with the presence of Service personnel and research activities lends credence to the effectiveness of Service actions to minimize disturbance.

The impacts to monk seals and green sea turtles by the actual physical loss of all or some of the habitat provided by Tern Island is not known. Both species have exhibited some ability to relocate to other nearby habitats. This is evident by the immediate increase in animals using Tern Island once the disruptive effects of the presence of the Coast Guard were removed. Tern Island is principally used as a haul-out site for monk seals although the incidence of births has been increasing. Green turtles exhibit a high degree of site fidelity but individuals have been documented moving between and nesting on more than one French Frigate Shoals island. The population of green turtles appears to be responding to protection and recovery efforts and is stable or slightly increasing. The situation with monk seal populations is more precarious. Losses to the

population throughout the Northwestern Hawaiian Islands, since 1990, point to the increased need for close monitoring and rescue intervention. The importance of the Tern Island field station becomes more critical as populations decline.

Support provided by Tern Island facilities and staff to recovery efforts for green sea turtles and monk seals could end prior to the accomplishment of recovery tasks dependent upon this station. Ongoing monk seal recovery efforts, such as airlifting emaciated monk seal pups from French Frigate Shoals to other sites for rehabilitation and subsequent release, would end with the loss of the runway. The extent of this rescue effort can be seen in table 12.

Table 12

Monk Seal Pups Removed From French Frigate Shoals
Tern Island 1984 - 1993

1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
3	2	6	0	8	3	12	6	24	18

(from NMFS summary reports for USFWS Special Use Permits)

Significant impacts to recovery efforts for these species could result from the loss of the field facilities and ability to conveniently and economically conduct research, monitoring, and recovery efforts. The need for these recovery efforts would continue and may necessitate the establishment of a field camp on one of the other French Frigate Shoals islets. It is believed that this would create greater disruption to monk seals than the current situation with the permanent field station at Tern Island (Ragen 1994).

Entrapment and injury hazards for wildlife resulting from the degradation of the island would continue to occur. The presence of Service personnel would be required to release entrapped green turtles and monk seals until the hazards are eliminated or recovery efforts are determined to be successful enough that the populations can accept the entrapment losses under this alternative. A situation could develop where Service personnel are no longer able to occupy Tern Island full time to rescue these animals. Since these are federal lands and this action is that of a federal agency, a "take" situation of threatened and endangered species could result, adversely impacting the populations.

The importance of the island habitat as a bristle-thighed curlew wintering and over-summering grounds is not well understood. The birds are present in small numbers and probably move the short distances between islands within the atoll. Occasional movements between Northwestern Hawaiian Islands have been documented for third-year over-summering birds and during initial autumn migration periods as birds locate their preferred wintering grounds (Marks 1991). However, adult bristle-thighed curlews are known to exhibit site fidelity to wintering grounds and may not displace beyond French Frigate Shoals.

Vegetated island interiors are the preferred wintering habitat where bristle-thighed curlews forage for invertebrates. Adequate information does not exist to assess impacts, related to this alternative, to invertebrate populations which provide food sources for curlews. Tern Island supports the majority of the vegetated habitat in French Frigate Shoals. Other historically vegetated islets (Trig, East, Whale-Skate), currently support far less vegetation than was present 10 to 20 years ago. The predicted reduction in island size with this alternative would be expected to reduce the available wintering habitat and potential carrying capacity. Population limiting factors are not known for these wintering grounds, therefore, it is not possible to quantify all impacts to bristle-thighed curlews related to this alternative. Obviously, any pollution of the marine environment would be adverse and could contribute to further population declines.

Vegetational losses associated with this alternative would also reduce available habitat for the French Frigate Shoals seed bug. The population dynamics of the seed bug on other islets within the shoals is not known, however, it is logical to assume that as vegetational cover became reduced on these other islets that available habitat and probably populations also declined. Sufficient information is not known or readily available to be able to adequately assess impacts this alternative would have on French Frigate Shoals seed bug population viability.

It is determined that implementing the No Action alternative would result in a loss of important terrestrial habitat for green turtles and seabirds and the loss of designated critical habitat for monk seals. This loss of vegetated habitat could also have a negative impact upon resident populations of bristle-thighed curlews and the French Frigate Shoals seed bug. An increased occurrence of entrapment hazards for these species, with the likelihood that personnel would not be permanently on the island to rescue the animals, would occur. The ability for the Service to deter illegal entry into the refuge would diminish, with potential for increased pollution of the marine environment from ship groundings. The risk of exotic species introductions resulting in habitat modifications would increase. The likelihood for direct and indirect take of threatened, endangered, candidate

species and seabirds would increase when it is no longer possible for the Service to occupy Tern Island. Based on this analysis it is concluded that implementation of the No Action alternative could have an adverse impact upon the viability of present threatened, endangered and candidate species or their critical habitats.

B. Proposed Action Alternative Consequences

The proposed action is to replace portions of the deteriorated steel sheet pile with either a rock revetment or a concrete-capped steel sheet pile dock. This was determined, by the Corps Study, to provide the most effective, most environmentally sound and least costly shore protection measure while most closely meeting established planning objectives. Primary results of this action would be to protect the marine environment from exposure to hazardous and potentially toxic debris associated with past human activities on Tern Island and to protect important existing terrestrial habitat. The option for the Service to maintain a full-time field station on the island would be retained.

1. Physical Environment

Long-term effects, under this alternative, would result from placement of structures which displace existing reef flat habitat and substitute it with other materials. The spaces between the structures would create an artificial reef and the rock used in the sloping revetment would provide a site conducive to colonization by invertebrates. Negative consequences are not foreseen as a result of this artificial reef creation, although some increased risk for ciguatera blooms may result, with unknown impacts upon resident wildlife. The existing reef flat, that would be covered by the revetment, has been substantially impacted by past dredging and bulkhead construction. Constructing an artificial rock reef should create a more natural environment than the existing highly reflective vertical bulkhead.

Shoreline structures can influence water quality by altering circulation patterns. Modification in circulation can result in differences in the flushing rates, and changes in scour patterns and deposition of sediments. The proposed structure would closely adhere to the alignment of the existing steel sheet pile to minimize changes in existing circulation patterns. The reduced scouring effect of waves, on the uneven surface of the rock revetment compared to the vertical bulkhead, should contribute to the accretion of sand along the revetment. The Corps Study did not find that this would result in appreciable losses of sand from the south beach area. The elimination of the north shore groin and extension of rock revetment through this area could result in the loss or alteration of Crab and Shell beaches.

Some short-term degradation of water quality, with increased turbidity and suspended solids, would occur due to excavation and dredging efforts associated with the project. This would have some effect on the immediate benthic community but is not foreseen to be long lasting or significant. These impacts would be localized at the point of active construction and mitigated in the following manner: work shall be contractually controlled to progress in segments; with each segment being substantially completed and protected before work on the next segment is allowed. This would ensure that extensive lengths of shoreline are not exposed to wave action an inordinate amount of time. There is some concern that this dredging and construction activity in nearshore waters may increase the likelihood of a ciguatera bloom, but conclusive evidence supporting this concern or impacts to wildlife populations is not available. Monitoring for ciguatera before, during, and after construction activities would be conducted. These mitigation measures are expected to reduce negative impacts caused by construction related turbidity. The completed structure would prevent continued erosion of the island fill and resultant loss of water quality.

Some short-term degradation of air quality would occur during construction attributed to construction equipment exhaust and airborne dust generated by vehicles and aircraft used in support of this project. Localized severe noise and vibration impacts would occur during pile driving operations to construct the 425 feet of sheet pile dock.

Temporary physical alteration of the environment would occur due to the presence of the construction crew and actual construction. Some additional facilities are expected to be required by the contractor. The location of these facilities would be determined by the Service. The construction contractor would need to provide adequate fresh water supplies for their workers. Surface disruption of soil and coralline fill would be necessary during transport of materials and construction activities. Excavation for the bulkhead anchorwall and revetment underlayment would be necessary. All disturbed sites would be restored to design grades as work progresses.

2. Social Environment

Visually, Tern Island appears to be an artificial island within the shoals and resembles a large aircraft carrier. Nevertheless, development of this alternative considered the visual impacts of shoreline armoring. The use of natural rock, rather than concrete tribar, was considered to be less obtrusive visually. In addition, protecting the buildings from degradation, until such time that they can be properly removed, would contribute positively to the visual aesthetics. Preventing further erosion and suspended solids in nearshore waters would also be a visually positive consequence of this action.

The number of persons required to construct the project is estimated at 12 people. This increase (more than doubling) in the human population of the island would have some impacts upon the social environment of the island for all occupants and visitors. The extreme isolation of the site, restricted use areas, and duration of this project (15+ months) would require that recreational activity be provided and consumption of alcoholic beverages strictly controlled within refuge boundaries. The contractor's activities can be regulated with construction contract provisions and through the authority of the Service Special-Use Permit that the contractor would be required to acquire and adhere to. Existing field station rules and regulations imposed upon Service employees and visitors would continue to be enforced. A typical example of Special-Use Permit restrictions is shown in appendix A. Briefing of construction workers on the wildlife values of the island and restricted zones would occur prior to their arrival on Tern Island.

Construction staff salaries would contribute to the Hawaiian economy and state tax base. The estimated cost of the project in 1995 dollars is approximately 10 million dollars. Additional work added and an estimated 1996-1997 construction period would increase this total cost estimate. Supplies and materials would be sourced and operations based from the main islands. Transportation of workers and materials from Hawaii to Tern Island would provide employment for ship transport and flight service operations.

Refuge management cost implications are more difficult to ascertain. The contribution to the economy of funds spent on research through the purchase of supplies, hiring of personnel, and contracting of vessels and aircraft would continue. Service maintenance needs would be reduced with implementation of this project. Once the shore protection measures are complete the need to closely monitor for entrapped animals would cease. Continued attempts at remedial stop-gap erosion protection measures would not be necessary. Debris would be contained and future efforts can be made to identify and clean-up problem areas. The rock revetment would have a longer design life than the existing steel sheet pile and would not require periodic maintenance. The revetment would eventually be able to be abandoned in place without the severe consequences presented with the existing structure.

3. Biological Environment

Subsurface geotechnical investigations would be required along the Tern Island shoreline to provide information necessary for the Corps to finalize the design of the shore protection structure. Bore samples would be taken by the Corps to determine reef structural characteristics. The work would consist of drilling bore holes for core sampling and topographic and

bathymetric surveys. This work will occur in the summer or fall of 1994 and will result in the potential for some minor disturbance of wildlife species. The Corps is responsible for consulting with the Service and National Marine Fisheries Service to coordinate and minimize any impacts to resident wildlife. These impacts are foreseen to be relatively inconsequential and easily mitigated.

Long-term positive effects, to the marine environment, would result with the implementation of this alternative. The rock used in the sloping revetment would provide a site conducive to colonization by invertebrates. Reef corals tend to be among the slowest of recolonizers. Spaces created by the structures create an artificial reef that may attract large numbers of fish which find the vertical relief a change from the uniformity of the reef flat. Species from marine bottom communities in high-energy areas are adapted to periodic changes in natural erosion and accretion cycles and tolerate agitation better than those in more stable offshore environments. The productivity of the reef flat is not expected to be compromised by placement of shoreline armoring and would probably be enhanced. Any increase in reef fish populations would contribute positively to available prey species and food sources for monk seals and seabirds.

No significant impacts to cetaceans is anticipated. Some minor disturbance to these marine mammals may result as a consequence of the increased tug and barge traffic, to and from French Frigate Shoals. However, suitable ocean habitat exists, for these animals to displace to. French Frigate Shoals is not known to provide any significant habitat component for any of these species and any physical habitat changes, as a result of this alternative, will be relatively insignificant.

The disadvantage of any structural plan which replaces the proposed length of sheet pile wall is that it is too difficult to construct within the brief time frame determined to be least disruptive to wildlife. Since lights have been found to disorient seabirds and green turtle hatchlings, all work would be conducted during daylight hours and all exterior lighting must be minimized at camp facilities and on marine vessels. This means that if disturbance is to be minimized, the contractor would either have to work multiple crews thus taxing the space, water and waste resources of the island or remobilize every year until the project is completed in order to work within a preferred biological window.

The Interagency Working Group determined that the least long-term impact to the wildlife of Tern Island would occur if the contractor mobilized once and continued work until completed. It was felt that the disruption of one breeding cycle for the long-lived seabirds would be less of an impact than disrupting the animals at a lesser level over several seasons. Disruptive

impacts to monk seals and green turtles spread over a several year period would have a greater probability of inducing long-term behavioral shifts in patterns of use. The Corps Study determined that the recommended alternative would require 15 months to complete. Additional work has been added to the Corps Study recommended action so it is reasonable to assume some additional time would also be required unless the contractor uses a larger crew. It has not yet been determined by the Corps what impact the increased revetment length, ingress barrier, small boat dock facility, and dredging for backfill material would have on the completion time for the project.

The potential for temporary disturbance of wildlife during the construction period is seen as the most adverse consequence of implementing this alternative. As construction activity progresses, measures would be taken to prepare successive construction areas to reduce impacts on wildlife. The construction progression shall be regulated contractually. Project activities shall be broken into segments based upon construction type, location, and wildlife species sensitivity timing (figure 13). A project segment would be completed before construction is allowed on the next segment. This would eliminate recurring wildlife disturbance and allow vegetation reclamation efforts and wildlife use to begin on completed segments.

The least disruptive time frame to island wildlife begins in mid-August and extends into early November when the albatross begin to arrive and start nesting. Most green turtle nesting is completed by this time and fewer adults would be present in the shoals. Monk seal pupping would generally be completed. The contractor would be scheduled to mobilize and begin construction of the steel sheet pile dock face at this time. The noise and vibration created by the pile driving activity should be completed during this period of relatively low wildlife activity. The ship docking facility would be completed first so that it may be used by the contractor for offloading materials and onloading debris to be disposed of at approved facilities on the main Hawaiian islands.

Construction activity would proceed counter clockwise around the island. The rock revetment would be placed on the southwest and southeast ends of the island during the non-critical winter use periods for green turtles and monk seals. Construction in these segments would be completed by April, when green turtles show up to nest and monk seal pupping begins. This construction timing would not require any construction activity along the northern shoreline during the stormy winter months. This would reduce hazards for workers and the likelihood of further damage to the environment or facilities due to high wave action on exposed island fill at construction sites.

Construction of the revetment would continue westerly along the north shore through segments 4, 5, & 6 so that all earthwork is completed before the next winter storm season. As work progresses down the north shoreline, completed segments would generally be upwind of remaining construction and noise, dust, and smoke disturbance to wildlife recolonizing completed segments would be minimized. Some additional time may be necessary to complete minor details on the large and small boat docks, tide gauges, and for demobilization but the island perimeter would be protected within this timeframe.

A primary consequence of this alternative would be to preserve and enhance the available terrestrial habitat on Tern Island. Some loss of island vegetation during construction is expected. At a minimum, vegetation along the existing bulkhead, inland to the extent of backfilling, and along construction equipment access ways, would be impacted. This vegetation would either be buried by backfill material or removed in attempts to discourage seabird nesting prior to construction activities along that segment. In much of the north shore area this would be approximately 50 feet inland from the existing sheet pile and would impact a total area of 3 to 4 acres. Few large shrubs would be affected by this clearing as most of the area to be disturbed is recently eroded, or subjected to salt spray, which has prevented the formation of a shrub component,

Vegetation would be able to more successfully survive on the newly elevated land due to reduced wave overtopping and exposure to sea spray. Shrub habitat takes several years to return to existing conditions whereas open habitat plants grow back more quickly. Restoration of the impacted areas can be expedited by transplanting some plants from other locations on the island. These efforts should be designed to serve as the nucleus for revegetation and not be considered complete restoration, due to the lack of fresh water available for nurturing plants. Some seabird species that are dependant upon large shrubs for nesting and roosting habitat could be negatively impacted but no populations would be significantly harmed. The temporary loss of some vegetation is determined to be acceptable given that the beneficial consequence of this action is that nesting habitat for these bird populations would be protected for a minimum of 25 years.

The site prep work would include attempts to discourage seabird nesting in work areas. This would require the removal of vegetation and, if necessary, the placement of ground covers such as Typar or other woven fabrics, removal of eggs and nests, and harassment. The objective is to discourage adult birds from nesting in these locations, and to relocate to other sites on the island where they would have some chance of success. It is accepted that there would be some loss of production by individual birds, during the year of construction, due to these

actions. No seabird species depends on Tern Island to provide critical worldwide nesting habitat (table 3). Given the fact that these are long-lived species and that no adults should be harmed, the populations, including those at French Frigate Shoals, should be able to absorb the losses and lowered reproductive success for one year.

Transportation of materials to the site and stockpiling of construction materials would temporarily encroach upon seabird nesting habitat. Disturbance of terrestrial habitat can be minimized if material is transported, stockpiled, and placed from barges as much as practicable. Timely transportation of materials, closely coordinated with construction progress, would minimize the use of land area for stockpiled materials and reduce the on island vehicular traffic required to transport materials. These construction practices would minimize noise, smoke and dust generation, and reduce wildlife disturbance. Necessary access routes, to transport materials on land, shall be designated by the Service and cleared of vegetation and nesting birds.

All construction materials, rock, and equipment should be free of organic material and soil to prevent the accidental introduction of exotic organisms. Efforts would be made to ensure that ships, barges, and living quarters transported to Tern Island are free of rats, insects, plant seeds and sprouts, and other vermin. This would be accomplished by thorough cleaning of equipment, fumigation of structures, the placement of rodenticides on ships and barges, and inspections, prior to landing at Tern Island.

4. Threatened and Endangered Species

The proposed action to eliminate the groin on the north shore would possibly eliminate Crab and Shell beaches which have been retained as a result of the groin's local alteration of littoral drift. The future existence of these beaches cannot be guaranteed. These beaches are used as haul-out sites by monk seals. The revetment, at a 2' horizontal to 1' vertical slope, would be accessible to monk seals for haul-out providing a net gain in haul-out area. These beaches are seldom successfully used for nesting by green sea turtles. However, a loss of basking area on the island would be the result of losing these beaches. The revetment slope and rough surface are not anticipated to contribute suitable basking habitat for green turtles. The Interagency Working Group felt that the potential loss of Crab and Shell beaches was a reasonable trade-off to ensure protection of the island and would not have a significant impact on either species.

The interstices created by a carefully placed rock revetment of 900 to 1500 lb. armor stones would measure approximately 6 to 8 inches in diameter. Green sea turtle hatchlings, from nests located above the revetment, would probably become entrapped in

these interstices when moving from nest to sea. A suitable ingress barrier shall be incorporated in the revetment design to prevent island access and nesting inland of the revetment. Present use of the north shore for turtle nesting is minor and a result of the dilapidated bulkhead allowing ingress to the island. The exclusion of turtle nesting there is not seen to be significant to the population as it is felt that the animals would search out suitable areas elsewhere and not result in a loss of production. Permanent barriers would need to be installed inland from the terminus of the southwest and southeast revetments to prevent green turtles from gaining access to nesting sites above the revetment. This would eliminate some traditional nesting area along the south beach. Sufficient nesting habitat currently exists in the immediate area to accommodate displaced turtles. Some loss of habitat is accepted to ensure protection of the remaining habitat and reduce entrapment and injury hazards.

Foraging green sea turtles in the boat channel and along the bulkhead would most likely be impacted by work in the waters along the north and west sides of the island. These impacts should be primarily due to disturbance and displacement. Work sites would be monitored for the presence of green turtles and construction activities modified or temporarily halted if any animals enter the area and are at risk of injury. Algae growing on the existing bulkhead contributes some feeding opportunities for sub-adult green turtles. The National Marine Fisheries Service recommends that a survey of the algal species growing along the bulkhead and the numbers of green turtles using the dredged boat channel be undertaken prior to construction. Some additional disturbance of green turtles present during dredging operations could occur and cause temporary displacement.

The steel sheet pile driving operations for the dock face would create severe local noise and vibration. This disturbance is unavoidable and can be best minimized by conducting the activity during the least critical time period for the wildlife using the area. This has been determined to be mid-August through mid-December for most species. Under this alternative, construction mobilization and sheet pile driving operations would be contractually directed to occur within this time frame. This activity would coincide with some green turtle hatching, but since the hatchlings only emerge at night and construction work at night would not be allowed, impacts should be minimal.

The increase in activity and noise could create some temporary disturbance for monk seals. Allowing construction activities on only one segment at a time should provide ample opportunity for monk seals to displace to other locations to avoid disturbance. Some especially sensitive monk seals may temporarily abandon Tern Island for other islands in the shoals during the construction period. Important haul-out areas along the south beach would be

off limits to the contractor except for the actual construction of segments of revetment along the eastern and western ends of that beach.

The incorporation of an ingress barrier into the revetment would prevent the monk seals from gaining access to the island along the revetment. The objective is to prevent monk seals from getting onto the runway surface and creating hazards for themselves and aircraft. If a suitable ingress barrier can not be designed for monk seals then the runway boundary should be fenced or barricaded to exclude monk seals which would have increased access to the island and runway. Egress from the island by adult green turtles and monk seals would always be possible along the revetment length. Curious monk seals are likely to enter areas under construction. The contractor is to install temporary fences to exclude these seals if this becomes a problem.

In coral reef ecosystems, blooms of the toxic dinofagellate, Gambierdiscus toxicus sporadically appear as toxic planktonic "red tides." This dinoflagellate synthesizes toxins which are apparently accumulated through the food web into many species of tropical and subtropical fish and mollusks, resulting in occasional "ciguatera fish outbreaks" harmful to humans that eat these fishes (Withers 1983). Ciguatera poisoning has been a concern ever since it was suspected to be linked to the deaths of monk seals at Laysan Island in 1978 (Gilmartin, et. al. 1980). Data proving the link was inconclusive but the concern warrants caution and close monitoring. Although no conclusive evidence exists to link marine construction activities to increased ciguatera blooms, anecdotal information suggests the possibility.

To better understand the normal ciguatera cycle, both the level of Gambierdiscus toxicus and the percentage of select fish, including eels, containing elevated levels of ciguatoxin should be monitored before, during and after construction of the shore protection structures and monitoring should be initiated as much as a year in advance of construction. A final sample should be taken approximately 6 months after completion of the project. The purpose for this monitoring is to increase knowledge of the effects of marine construction projects upon ciguatera outbreaks and to be able to quickly react to an outbreak with increased monitoring and possible medical treatment of affected monk seals.

Bristle-thighed curlews should benefit from the protection of terrestrial habitat afforded by the proposed alternative. Important vegetated habitat would only be disturbed in the immediate construction areas. The minor disruption created by construction activities is seen to have minimal impacts upon the birds. As work progresses in segments, sufficient habitat and seclusion opportunities should exist at all times to meet foreseen habitat requirements of the few birds present on Tern Island.

Impacts upon the French Frigate Shoals seed bug, under this alternative, cannot be conclusively determined because so little information is available on the ecology of this insect. Interspecific competition with the recently discovered, non-endemic, plant bug may be imposing stresses upon the population through competition for available preferred habitat. Obviously, any action that would ensure the long term viability of the island vegetation would be beneficial for seed bug populations. Activities associated with this project would affect approximately 3 acres of vegetated land area for short periods of time. This insect has evolved on these low islets which undergo periodic inundation and loss of vegetation. This temporary disturbance of habitat should not adversely impact the viability of this species.

It is determined that the proposed alternative could have some temporary negative impacts, primarily related to disturbance of threatened and endangered species. Some loss of available nesting and basking habitat for green turtles would result. These losses are expected to be less than if the No Action alternative is selected and loss of island habitat continued. Monk seal habitat will not be significantly altered and may be enhanced through the addition of new haul-out areas along the rock revetment slope and the potential for increased food fish productivity. All above stated mitigation measures, designed to minimize species disturbance, shall be incorporated into the construction contract and Special Use Permit. Under this alternative, terrestrial habitat would be preserved, the marine environment would be protected, and research and recovery efforts could continue, contributing to the survival of threatened and endangered species.

Based on this analysis, it is concluded that proceeding with activities associated with this proposed alternative would not jeopardize Hawaiian monk seal, Hawaiian green sea turtle, bristle-thighed curlew, or French Frigate Shoals seed bug populations nor adversely modify their critical habitats, if all mitigation measures and contract provisions are implemented and monitored.

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Appendix N
Memorandum of Agreement Between the United States Department of the Navy, Pacific Missile Range Facility and the Hawaii State Historic Preservation Officer

MEMORANDUM OF AGREEMENT BETWEEN THE UNITED STATES DEPARTMENT OF THE NAVY, PACIFIC MISSILE RANGE FACILITY AND THE HAWAII STATE HISTORIC PRESERVATION OFFICER SUBMITTED TO THE ADVISORY COUNCIL ON HISTORIC PRESERVATION REGARDING ACTIVITIES PROPOSED WITHIN THE PACIFIC MISSILE RANGE FACILITY ENHANCED CAPABILITY ENVIRONMENTAL IMPACT STATEMENT, BARKING SANDS, KAUAI, HAWAII PURSUANT TO 36 CODE OF FEDERAL REGULATIONS 800.6(a)

November 1998

WHEREAS, the United States (U.S.) Department of the Navy, under Section 106 of the National Historic Preservation Act, is responsible for taking into account the effects of its undertakings on properties included in, or eligible for listing in, the National Register of Historic Places (National Register), herein after referred to as historic properties, and, prior to approval of an undertaking, to afford the Advisory Council on Historic Preservation (Council) an opportunity to comment on the undertaking; and

WHEREAS, the Navy has conducted records searches and field investigations to determine if historic properties are present within the area of potential effects proposed by the undertaking, also known as activities proposed within the Pacific Missile Range Facility (PMRF) Enhanced Capability Environmental Impact Statement (EIS), and determined that the following areas are devoid of them and require no further study: areas A, B, Q, E, F, G, and J on the Island of Niihau, and the entirety of Kaula Island, PMRF site Makaha Ridge, and PMRF site Kokee, which are shown on Attachments A and B of this Memorandum of Agreement; and

WHEREAS, the Navy has conducted environmental impact analysis of the proposed undertaking and found the potential for adverse effects to occur to historic properties within the areas defined in Stipulations I and II and shown on Attachments A, C, and D of this Memorandum of Agreement; and

WHEREAS, the Navy is responsible for ensuring that any mitigation measures developed for the protection of identified historic properties and set forth during the environmental impact analysis process are carried out; and

WHEREAS, interested agencies and members of the public, including the Hawaii State Historic Preservation Officer (Hawaii SHPO), potentially affected Native Hawaiian organizations, and affected land owners, have been provided the opportunity to comment

on the possible effects that this undertaking may have on historic properties at the locations defined in Stipulations I and II and shown on Attachments A through D, through public hearings, consultation meetings, or other means; and

WHEREAS, the PMRF restrictive easement (ground hazard area) associated with the undertaking, as well as any activities therein, remains unchanged and previous consultation has determined that there is no effect on historic properties from on-going activities (Attachment E); and

WHEREAS, the Navy has prepared a Cultural Resources Management Plan (CRMP) (Attachment F); for the entirety of the installation and associated remote locations under its jurisdiction, in accordance with the Environmental and Natural Resources Program Manual, (OPNAVINST 5090.1B), and appropriate elements of the CRMP have been incorporated into this Memorandum of Agreement; and

WHEREAS, the PMRF and the Niihau Ranch have an established protocol for the use of Niihau Island facilities and helicopter services (Attachment G), which takes into account potential effects on historic properties from Navy activities and outlines mitigation measures for historical and cultural resources protection and preservation; and

WHEREAS, the Navy, in consultation with the Hawaii SHPO, has agreed that, unless the Hawaii SHPO later determines no such survey is necessary, proposed activities will not begin on the island of Niihau prior to: (a) completion of a limited ethnographic survey, subject to the landowner's concurrence, of proposed activity locations on the island, in order to identify any traditional cultural properties that may be eligible for inclusion in the National Register; and (b) the implementation, in accordance with Attachment G, of any mitigation measures required to protect historic properties on the island of Niihau; and

WHEREAS, the Navy and the Hawaii SHPO agree that because of their nature, the Navy exercises described in Attachment H have no effect on historic properties and, therefore, these types of exercises require no further consultation; and

WHEREAS, pursuant to Section 101(d)(6)(B) of the National Historic Preservation Act and 43 CFR 10, regulations implementing Section 3 of the Native American Graves Protection and Repatriation Act (25 U. S. C. 3002(a)(2)(B)), Na Ohana Papa O Mana, the closest culturally affiliated Native Hawaiian Organization with respect to undertakings at PMRF Main Base or the Kamokala Magazines, participated in the consultation and has been invited to concur in this Memorandum of Agreement; and

WHEREAS, the Kauai/Niihau Island Burial Council, the Hui Malama I Na Kupuna O Hawaii Nei, and the Office of Hawaiian Affairs, have participated in the consultation and have reviewed the Navy's determination that Na Ohana Papa O Mana is the closest culturally affiliated Native Hawaiian Organization; and

WHEREAS, the acronyms, abbreviations, and definitions given in Attachment I are applicable throughout this Memorandum of Agreement and its attachments;

NOW THEREFORE, the Navy and the Hawaii SHPO agree that the proposed undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

STIPULATIONS

I. Pacific Missile Range Facility, Main Base

Potential effects on historic properties within, or in the vicinity of, PMRF Main Base locations (Attachment C) from facility construction (including ground clearing and subsurface excavation), instrument siting, operational activities (including amphibious, RIMPAC, and National Guard activities), a launch pad mishap, an accidental launch vehicle ground strike, construction or launch vibration, ignition of vegetation from missile exhaust or debris and subsequent fire suppression activities, and/or increased personnel or off-road traffic within, or in the vicinity of, proposed locations, shall be mitigated in the following manner:

A. Avoidance of known sensitive areas, as practicable;
B. When avoidance is not possible, monitoring of all ground disturbing activities within known sensitive areas, in a manner consistent with the proposed Draft Archaeological Monitoring Plan provided in Attachment J of this Memorandum of Agreement;
C. Survey by a professional archaeologist, qualified by standards established by the Department of the Interior, National Park Service and described in 36 Code of Federal Regulations (CFR), Part 61, Appendix A, of potential construction areas and relocation of those areas, as practicable, prior to any construction or exercises to ensure the avoidance of sensitive areas, particularly in the Major's Bay and Nohili Dune and Nohili ditch areas;
D. Spraying of water on vegetation surrounding launch sites prior to launches to prevent ignition;
E. Use of open sprays rather than directed streams of water to suppress unexpected fires and avoid dune erosion or damage to sensitive sites;
F. Survey by a professional archaeologist (as described in Stipulation I.C) subsequent to unexpected fires, launch pad mishaps, or accidental launch vehicle ground strikes; historic buildings and/or structures inspections subsequent to unexpected fires, launch pad mishaps, accidental launch vehicle ground strikes, or excessive construction or launch vibration;
H. Treatment of inadvertent discoveries of cultural resources (other than grave or ceremonial objects/human remains) during the course of routine training, operations, and/or maintenance in accordance with Section 3.5 of the PMRF CRMP (Attachment F);

I. In all cases where grave or ceremonial objects and/or human remains are inadvertently discovered or disturbed, all activity in the immediate area will cease and the following individuals or organizations notified:

1. PMRF Environmental Engineer or Cultural Resources Point of Contact
2. U.S. Navy Archaeologist
3. Hawaii State Historic Preservation Officer
4. Na Ohana Papa O Mana
5. Hui Malama I Na Kupuna O Hawaii Nei
6. Office of Hawaiian Affairs.

Subsequent actions taken will be in accordance with Sections 3(d) and 7 of the Native American Graves Protection and Repatriation Act (NAGPRA) and 36 CFR, Part 800.11, and will include those stipulations provided in Section 3.5.1 of the PMRF CRMP, (Attachment F) as well as the Draft Burial Plan provided in Attachment K;

J. Briefings to construction and operational personnel regarding the sensitivity of cultural resources sites and the civil penalties associated with their intentional disturbance by personnel or off-road vehicular traffic.

II. Pacific Missile Range Facility, Kamokala Magazines

Potential effects on historic properties within, or in the vicinity of, the Kamokala Magazines from facility construction (including ground clearing and subsurface excavation) and operational activities, shall be mitigated in the following manner:

A. As described in Stipulations I.A, I.B, I.H, I.I, and I.J of this Memorandum of Agreement;
B. Survey by a professional archaeologist (as described in Stipulation I.C) prior to any construction or ground disturbance in the area of the two proposed missile storage buildings and any required mitigation measures developed in consultation with the Hawaii SHPO and other signatories to this Memorandum of Agreement, as appropriate;
C. Historic buildings and/or structures inspections subsequent to unexpected fires or excessive construction vibration.

Execution of this Memorandum of Agreement and implementation of its terms evidence that the U.S. Navy, PMRF has afforded the Council an opportunity to comment on the actions proposed within the PMRF Enhanced Capabilities EIS and its potential effects on historic properties, and that the PMRF has taken into account the effects of the undertaking on historic properties.

UNITED STATES DEPARTMENT OF THE NAVY,
PACIFIC MISSILE RANGE FACILITY

By:_____ **Date:**_____
J.A. Bowlin,, Captain, U.S. Navy,
Commanding Officer, Pacific Missile Range Facility

HAWAII STATE HISTORIC PRESERVATION OFFICER

By:_____ **Date:**_____
Michael D. Wilson,
Chairperson and State Historic Preservation Officer

CONCURRING PARTIES

By:_____ **Date:**_____
Clission K. Aipoalani
Na Ohana Papa O Mana

ACCEPTED FOR THE ADVISORY COUNCIL ON HISTORIC PRESERVATION

By:_____ **Date:**_____
John M. Fowler,
Executive Director

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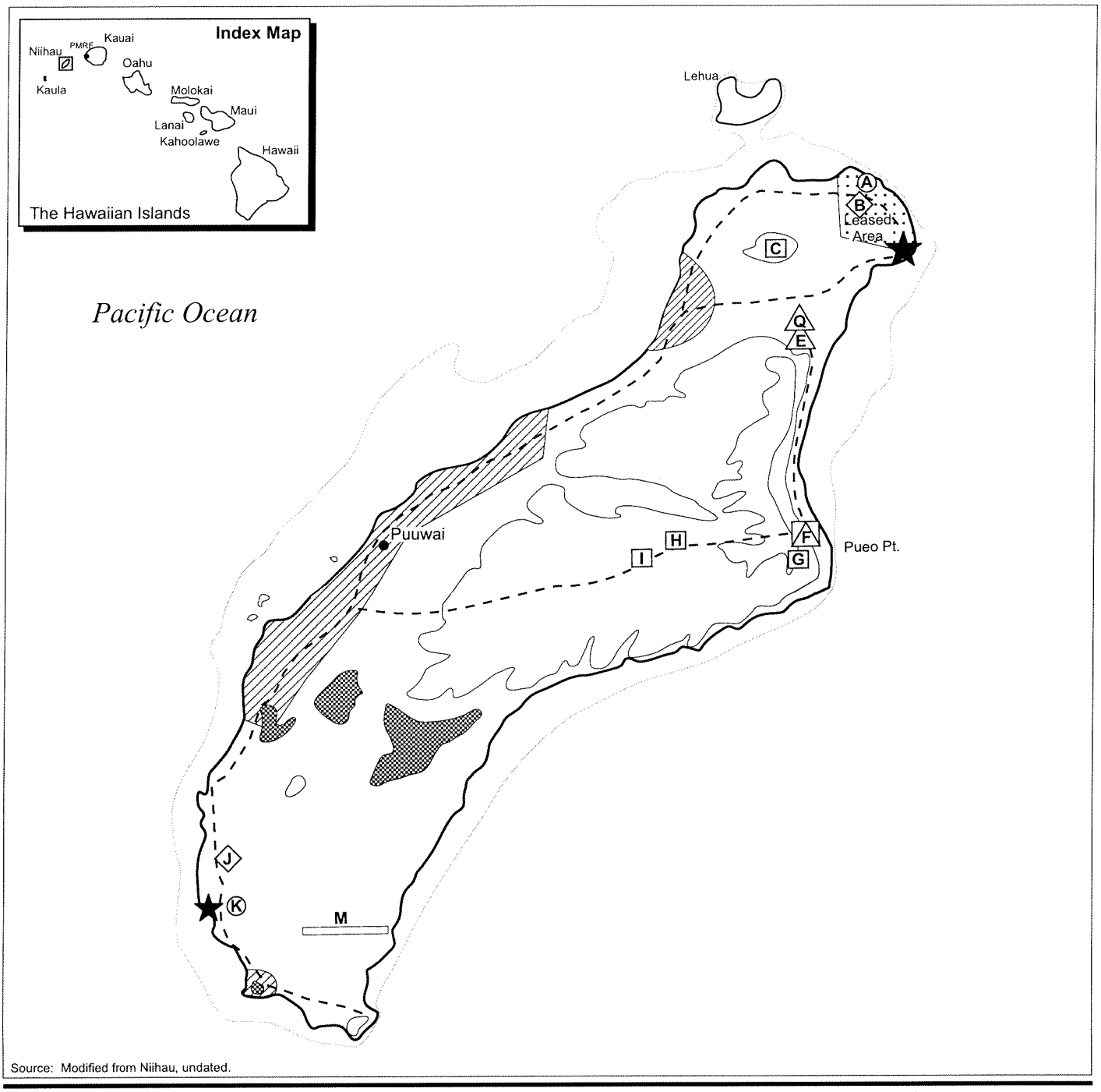

EXPLANATION

- Joint Use Approved Areas
- Keep-Out Zone
- Lakes (Playa)
- Contour Lines
- Dirt Roads

Potential New Facility Locations

- Aerostat Site
- Communications (Telemetry/Instrumentation) Optics Site
- Launch Site
- Launch Control Area
- Aerostat and Communication Optics Site
- Existing Logistics Landing Site
- Airstrip

NORTH

Scale
0 2.1 4.2 Kilometers
0 1.3 2.6 Miles

Potential Sites

Niihau, Hawaii

ATTACHMENT A

niihau_01

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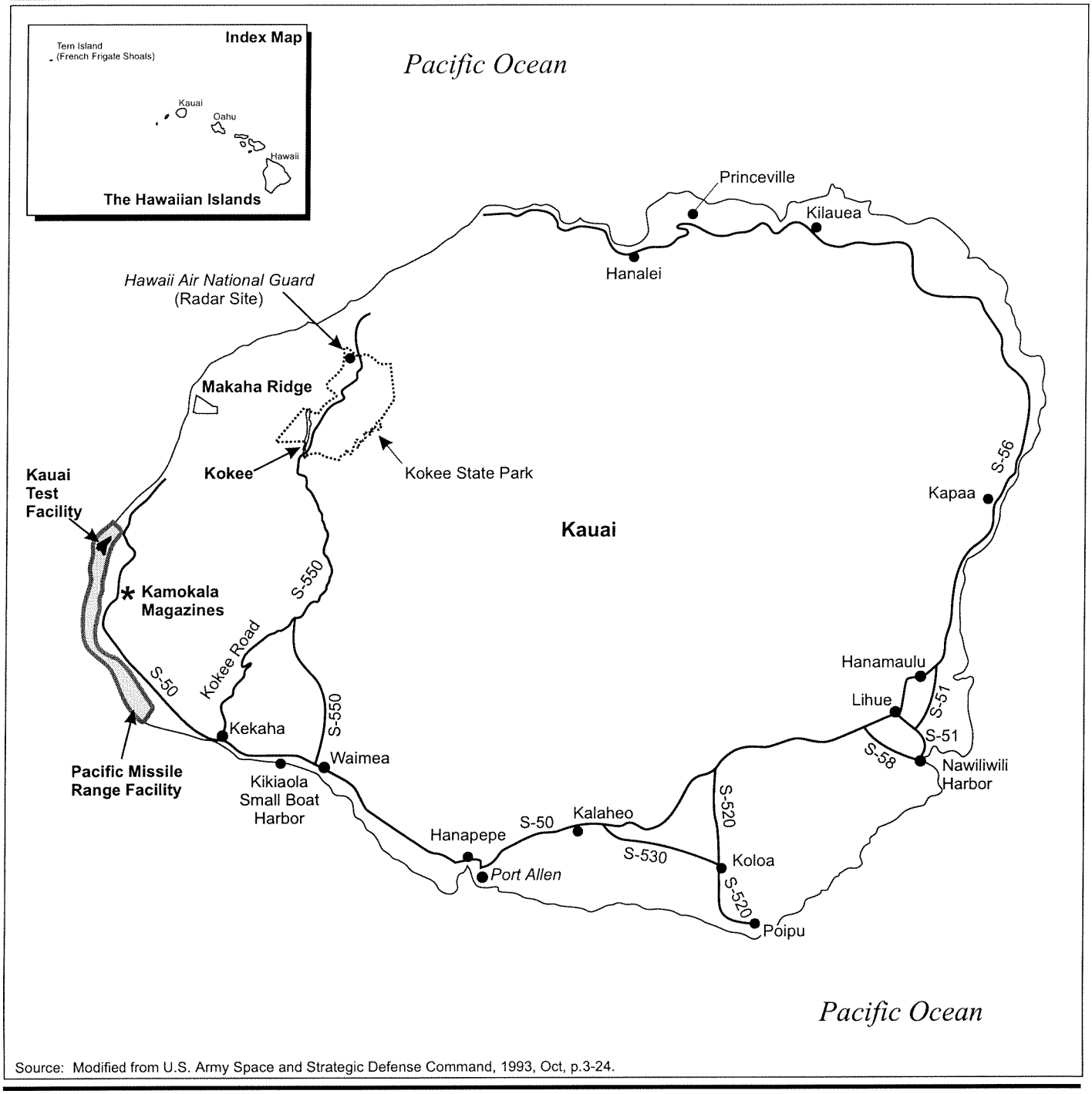

Source: Modified from U.S. Army Space and Strategic Defense Command, 1993, Oct, p.3-24.

EXPLANATION

S-50 = State Highway

..... Kokee State Park Boundary

Location of Pacific Missile Range Facility and Related Sites

Scale

0 4.1 8.1 Kilometers

0 2.5 5 Miles

NORTH

Hawaii

ATTACHMENT B

naa_kauai_01

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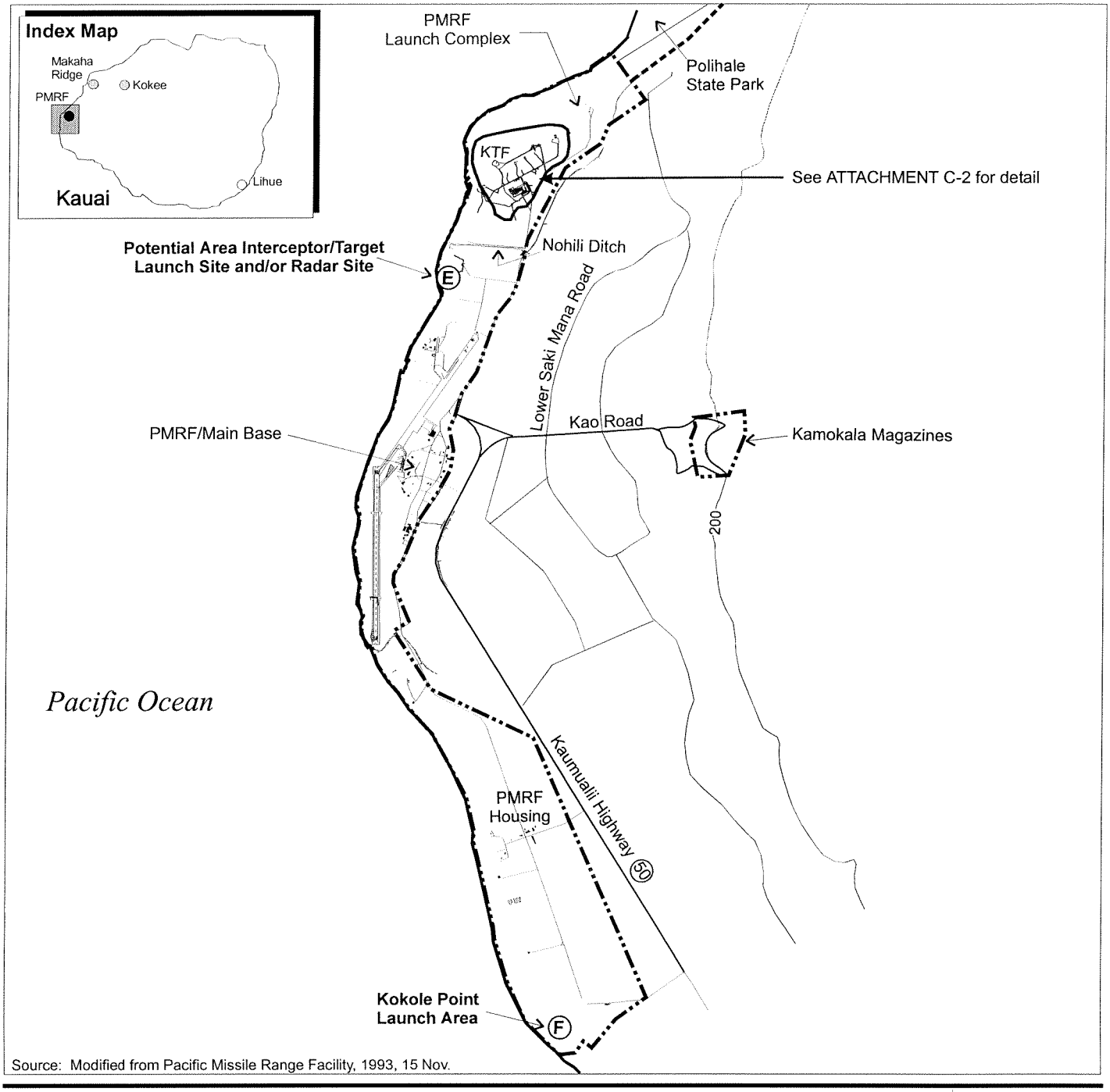


EXPLANATION

- Existing Facilities/Landmarks
- Boundary of PMRF
- Boundary of Polihale State Park
- (A) Potential New Facility Locations
- Kauai Test Facility
- 200 Contour Lines (ft)

Note: All locations are approximate.

PMRF = Pacific Missile Range Facility
KTF = Kauai Test Facility

NORTH

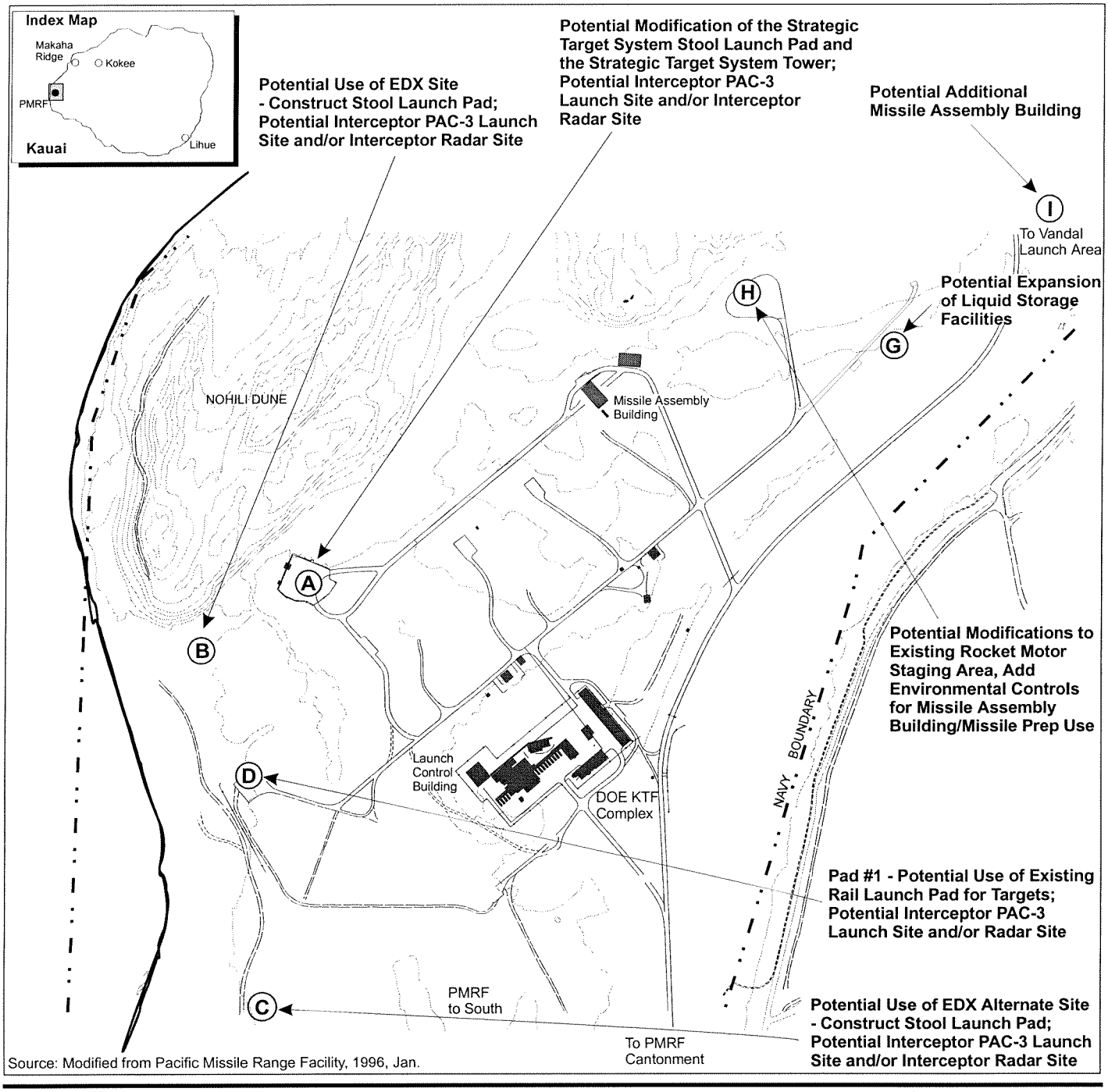
Scale
0 792 1,585 Meters
0 2,600 5,200 Feet

Potential Sites

PMRF/Main Base, Kauai, Hawaii

ATTACHMENT C-1

paa_main_01



Source: Modified from Pacific Missile Range Facility, 1996, Jan.

EXPLANATION

- Existing Facilities/Landmarks
- (A) Potential New Facility Locations
- Contour Lines

DOE = Department of Energy
EDX = Exoatmospheric Discrimination Experiment
PAC-3 = PATRIOT Advanced Capability-3
PMRF = Pacific Missile Range Facility
KTF = Kauai Test Facility
Note: All locations are approximate

NORTH

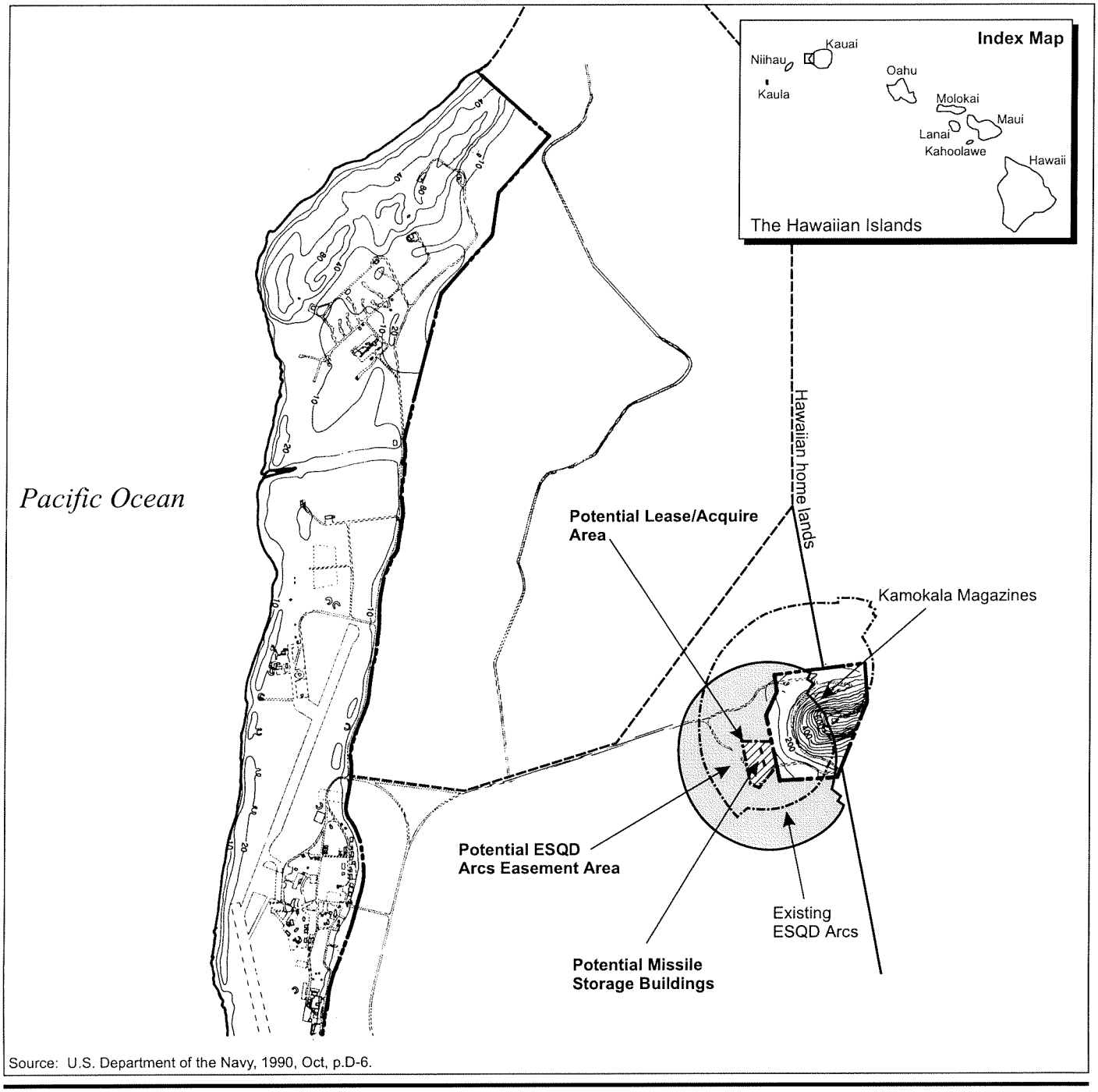
Scale
0 96 192 Meters
0 314 628 Feet

paa_ktf_01

Potential Sites

PMRF/Main Base - Kauai Test Facility, Kauai, Hawaii

ATTACHMENT C-2



Source: U.S. Department of the Navy, 1990, Oct, p.D-6.

EXPLANATION

- Pacific Missile Range Facility
- Existing Explosive Safety Quantity Distance(ESQD) Arcs
- Potential Explosive Safety Quantity Distance Arcs
- Restrictive Easement Boundary
- Potential Missile Storage Buildings
- 200 Contour Lines (ft)
- Potential ESQD Arcs Easement Area
- Potential Lease/Acquire Area

NORTH

Scale
0 442 884 Meters
0 1,450 2,900 Feet

paa_kamokala_01

Potential Missile Storage Buildings

Kamokala Magazines,
Kauai, Hawaii

ATTACHMENT D

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COPY

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

REF:HP-AMK

SEP 10

LOG NO 9118
DOC NO 9308NM69

MEMORANDUM

TO Brian Choy, Director
Office of Environmental Quality Control

FROM Keith Ahue, Chairperson and
State Historic Preservation Officer

SUBJECT **Draft EIS for the PMRF Easement over State Land for Safety and Ground Hazzard Areas for STARS and Navy Vandal Missile Launches Historic Preservation Review & National Historic Preservation Act Compliance**
TMK: 1-2-02: por. 1, 15 and por. 24
Mana, Waimea, Kaua'i

We have reviewed the above document. It should be clearly stated in the document that no 100 % archaeological inventory survey has been conducted in the ROI (2110 acres). Small portions of the area have been recently surveyed by DLNR- State Parks (Carpenter and Yent, pers . com August 1993) However, it is presumed that no physical action will occur in this area Therefore, since it is an easement, we concur that the ROI will have " no effect" on significant historic sites

We do have some minor comments and concerns with this document. We do have concerns with the permanent signs No map was provided on the location of these signs. Since they will be permanent, we need to know what type of construction will take place, along with information on the design of this signs

The summary on the archaeological research conducted to date, should be updated and include the following: Cleeland 1974, Bordner 1976, Sinoto 1978, Kikuchi 1970, Kennedy/Jenks 1982, Yent 1982, McMahon 1988a & b, Gonsalez et. al. 1990, Walker, Kalima & Rosendahl 1990, Welch 1990a & b, U S Navy (n d), draft Flores and Kaohi 1992 and O' Hare & Rosendahl 1993. Appendix D-1 should be updated to include current State of Hawaii inventory sites numbers: 6017, 6018, 6019, 6020, 6021, 6024 and 724 We are unsure of the correlation of the temporary numbers listed in the table with these numbers

If you have any questions please call Nancy McMahon at 587-0006

NM:amk

c: Linda Ninh, U S Army Space and SDC

ATTACHMENT E

E-1

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ATTACHMENT F

Pacific Missile Range Facility
Cultural Resources Management Plan

Provided under separate cover.

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ATTACHMENT G

NIIHAU RANCH
P.O. Box 229
Makaweli, Kauai, HI 96769

PMRF Expanded Capabilities
Support and
Land Use Agreement

Proposed Addendum
to
Terms and Conditions for Use of Niihau Island Facilities and Helicopter Services

PROTECTION OF HISTORICAL/CULTURAL RESOURCES:

1. In planning for PMRF operations support, the proposed Niihau land areas required for support of any particular operation shall be identified by PMRF representatives to the NGPOC, who will forward and discuss the plan with the property owner and Niihau elders. Historically/culturally sensitive areas shall be avoided whenever possible, or measures shall be employed to prevent or minimize damage to those sites. Where threat of fire exists in any operation, PMRF shall schedule and provide for a Niihau Ranch fire suppression team to be on standby on Niihau during operations. PMRF shall provide adequate fire suppression equipment for use by the team.

2. Prior to any activity which will require known disturbance of the ground (i.e., construction) the site shall be surveyed by a professional archaeologist, if not previously surveyed. Prior to start of ground disturbance activity, construction crews shall be briefed on the sensitivity of cultural resources and the procedures to be followed if sensitive items are uncovered during work at the site. During site preparation and construction, the site shall be monitored by a representative of the Niihau Ranch. A qualified archaeologist, agreeable to the landowner, would assist the island elders in monitoring the siting areas during construction and all ground disturbing activities. If sensitive items are uncovered during surveys or construction, as confirmed by the landowner and Niihau elders, with assistance of the qualified archaeologist (including artifacts or human remains), work shall stop, the area protected and followup action initiated. The property owner and elders from the Niihau community will employ action consistent with local custom. Work may recommence upon the advice of the property owner. Survey reports will be reviewed by representatives of the Niihau Ranch. Private or commercial publishing of any information pertaining to Niihau is prohibited without permission of the landowner.

3. Should there be unexpected property damage resulting from any PMRF operations, the property owner and elders from the Niihau community will be consulted on

appropriate measures to protect, stabilize, or restore the property. The Navy will pay for cost of stabilization/restoration if desired by the landowner.

4. PMRF shall be responsible for funding and scheduling all required surveys in consultation with the NGPOC who will obtain all required approvals by the property owner.

ATTACHMENT H

Niihau Island
Ongoing Activities

Downed Pilot Training:

These exercises are called TRAP (Tactical Recovery of Aircrew Personnel) missions, and provide coordination training for downed crew and recovery force personnel. The mission starts with coordination planning between PMRF program manager and Niihau Ranch Government Point of Contact (NRGPOC), D. Nekomoto). Exercise provides training for downed aircrew in escape and evasion and coordination of recovery helicopter assets. Niihau Ranch personnel are hired to locate downed aircrew, who are trying to remain hidden, and the Niihau Helicopter is contracted to provide exercise support and medevac standby. The standby exercise is scheduled and a briefing session is included, where aircrew and recovery force personnel are briefed on conducting operations on Niihau Island. Included in the pre exercise briefing, typically, is the NRGPOC, Mr. Robinson, the aircrew personnel who will be on the ground, and the recovery force team. Personnel are briefed on general rules, boundaries, hazards, and safety procedures. Personnel are also given tips by Mr. Robinson on evasion and detection avoidance. The exercise starts when the aircrew personnel are inserted at approximately 0730 by Niihau Helicopter, usually at Kaunuopou, then flies to Nanina where it remains on medevac/safety standby until the operation is complete. Aircrew execute escape and evasion plans and coordinate their rescue by helicopter at about 1600. Following the exercise, a debriefing session is held, bringing out strong and weak points of the mission. See figure 1 attached.

Impact assessment: Minimum to no impact. Personnel are taking all measures to prevent discovery, and do not overturn rocks or dig any soil. Helicopter landing areas are designated for their suitability and absence of any cultural resources.

Special Warfare Operations:

These are very similar in nature to the TRAP missions described above, and usually involve Special Warfare reconnaissance forces, whose objective is to come ashore clandestinely, remain undetected (Niihau Ranch personnel are contracted to perform island defender roles), proceed to a pre-designated reconnaissance objective, and from concealment, record activities and features at the objective site. The Niihau Helicopter provides transportation for the PMRF Operations Conductor, Special Warfare Exercise Coordinator, communications crew, and medical emergency corpsman. The medical emergency corpsman sets up a command post on island to monitor the exercise safety/conduct and performs on scene coordinator functions. Prior to the exercise, extensive briefings are conducted with Special Warfare personnel with Mr. Robinson. Following the exercise, a debriefing session is held on the island with Niihau personnel and again at PMRF with special warfare exercise personnel. See figure 1 attached.

Impact assessment: Minimum to no impact. Personnel are taking all measures to prevent discovery, and do not overturn rocks or dig any soil. Reconnaissance objectives are ranch buildings, and approaches to these objectives are roads or animal trails. Alternatives to using established animal trails or roads is transit through thorny Kiawe and Lantana plants. Helicopter landing areas are designated for their suitability and absence of any cultural resources. The Command Post is established at a ranch constructed facility at Nanina Beach

Amphibious Landings:

No large scale amphibious exercises are anticipated on Niihau Island. Amphibious operations conducted to date include those which are associated with Special Warfare exercises and Mr. Robinson's own logistics efforts. Landings which are associated with Special Warfare ops are very small scale, usually a single rubber boat and a squad size element of reconnaissance personnel, whose mission is to evade detection. In these exercises, landing on the beach also includes swimming ashore from support boats or submarines offshore. Mr. Robinson's own logistics efforts includes landing with the Ranch's leased LCM-8 landing craft, which includes bringing fuel and supplies to support the ranch and Navy facilities on the island. See large Niihau map.

Impact assessment: Minimum to no impact. Personnel who participate in small scale amphibious landings are taking all measures to prevent discovery, and do not overturn rocks or dig any soil. Landings by the Ranch are conducted at several sites which have been utilized for generations.

Helicopter Terrain Flight (TERF) Operations:

USMC Helicopters use Niihau for TERF training, which is basically low level flight and navigation exercising cockpit coordination, lookout doctrine, and TERF specific pilot techniques and procedures. A route was established in about 1992 with Mr. Robinson, and tested for sound impacts to Puuwai Village (no impact). The Niihau Helicopter transports the PMRF Operations Conductor to Kaeo mountain to observe and communicate with USMC aircraft, as the on scene coordinator. USMC aircraft fly the route, report eleven checkpoints on the route to the operations conductor. The operations conductor visually establishes individual crew performance. A debrief is conducted following the exercise. TERF is occasionally combined with Electronic Warfare (EW) exercises. See figure 2 attached.

Impact assessment: Minimum to no impact. Marine Corps helicopters are involved in overflight activity. Emergency landing requirements are prebriefed and provide suitable landing zones which are routinely used by the Niihau helicopter in ranch and company operations. Operations Conductor observation site at Kaeo is a landing site used by the Niihau Ranch.

Electronic Warfare (EW) Exercises:

Electronic Warfare Exercises are conducted from various positions on Niihau for USMC helicopters as well as for surface combatants on the range. Electronic signals

replicating those which may be found in a battle area are emitted from fixed (Perch Site) hardware or from mobile equipment. The Niihau Helicopter transports personnel to the Perch Site for operations which vary from single to multiple day operations. Equipment (Electronic Threat Simulators and Jammers) installed at the Perch Site are used to provide the desired signals. The Perch Site equipment is usually used for sending signals to ships in the range operations area. In the mobile EW operations, used mostly to support USMC helicopter operations, an EW team and electronic equipment are transported to the selected site by the Niihau Helicopter, and the team establishes a temporary EW position with portable Electronic Threat Simulators and Jammers. Signals are sent to helicopters for exercising Threat Warning System operation and interpretation, evasive maneuvering, and countermeasure procedures. See large Niihau map.

Impact assessment: Minimum to no impact. Marine Corps helicopters are involved in offshore flight activity. Emergency landing requirements are prebriefed and provide suitable landing zones which are routinely used by the Niihau helicopter in ranch and company operations. On island operations sites coincides with helicopter landing sites used by the Niihau Ranch. A fire extinguisher is included as part of the standard equipment taken by the EW team.

Unmanned Aerial Vehicle (UAV) Contingency Landing Support:

Several sites on Niihau have been designated for contingency landing by UAV aircraft, in the event an approach to PMRF cannot be executed for any reason such as unforecast winds, mechanical problem, etc. These sites are designated on the accompanying map, and were selected for prevailing wind conditions, and for being relatively flat and open without obstructions. The northern site is Kaunuopou, and the site east of Puuwai is Kamoilii. Both are pasture areas, and well suited for this activity. When UAV operations are in progress, Niihau Ranch is contracted to provide contingency landing support with a standby ground handling support crew. The Niihau Helicopter is contracted to transport a mobile flight control unit and personnel to the selected contingency landing site if a contingency landing is required. Niihau Ranch personnel are trained by the program requiring their support in ground handling and procedures, and supported all three world record flights by Pathfinder and Pathfinder Plus UAVs. See large Niihau map. Kaunuopou is located just north of the Minex Marker.

Impact assessment: Minimum to no impact. Landing sites are to be used in emergency only situation, so occasion for use of the site is already remote. Selected landing sites are located in pasture land, and wide open areas void of cultural resources.

Instrumentation/Test Sites:

To support a variety of programs and projects, requirements for instrumentation sites arise from time to time. Sites are selected based on geometry, and project requirement, and are usually temporary in nature. Equipment proposed for these sites could be small, compact units up to trailered units. All proposed sites are reviewed by Mr. Robinson for approval. A good example of this is the Moving Target Simulator instrumentation requirement. Three sites were selected, and instrumentation placed at those sites, consisting of a small weatherproof box about 2'x2'x1', a solar panel and a towered

antenna. Niihau Ranch was contracted to support these sites with labor and transportation. Temporary fences were built around the sites to protect the instruments from intrusion and destruction by animals. Upon project completion, sites were dismantled and instrumentation removed. Another example is the Inertial Navigation Marker used for Mine Warfare Training. An orange pyramid shaped structure was surveyed and placed at Kaunuopou for use by P-3 aircraft as an inertial navigation checkpoint in executing simulated mining exercises over the range. A similar Initial Point (IP) is established on the Kauai side of the channel, however, in the event drone launch activities from PMRF launch pad conflicts with requirements for conducting Mine exercises, the Niihau IP would be used. The Niihau IP was contracted for use in RIMPAC '94, and was to be removed after the exercise. Mr. Robinson elected to leave the structure in place to allow PMRF the use of it, as it was not bothering anyone by being there. See large Niihau map.

Impact assessment: Minimum to no impact. Sites are selected in consultation with Mr. Robinson and Niihau elders to reduce the possibilities of any cultural impacts. Towered antennas are usually very small (usually less than 10' high, and tower is usually an aluminum or steel pipe. A higher antenna was used, for one project, and was mounted on a trailer. Fences are usually Kiawe wood posts, and animal control wire constructed around the immediate perimeter of the selected site.

Cruise Missile Defense/Near Land Overland AEGIS support:

The AEGIS Program, in executing tests in the littoral (nearshore) environment performs tests where BQM-74 drones or manned aircraft conduct overflight of Niihau's northern land area . This is to provide test scenarios replicating hostile missiles fired towards an AEGIS ship from a land mass which features a mountainous backdrop and a land to sea transition. Program personnel indicates that there aren't any other locations adjacent to an instrumented range which provides the desired geography. The program contracts Niihau Ranch personnel to support operations by keeping land area below the intended flight track clear of unauthorized personnel and to perform contingency support (drone recovery or fire suppression) functions should they be required. The Niihau Helicopter is contracted to provide transportation to Niihau for an AEGIS program representative and a PMRF representative to function as on site observers of the overflight operations. See figure 1 attached.

Impact assessment: Minimum or no impact. Drones are remotely piloted and manned aircraft are involved in overflight activity only. The drones fly specific profiles and are monitored visually and by radar . Departure from the established profile or loss of command link will result in the drone entering a recovery mode (proceed to a recovery point and parachute descent into the recovery area.) The actual time the aircraft flies over Niihau is less then one minute per pass. The probability of a catastrophic incident occurring is extremely low since the vehicle is under the control of an experienced pilot and the short amount of time the aircraft is actually over the island.

ATTACHMENT I

ACRONYMS, ABBREVIATIONS, AND DEFINITIONS

ACRONYMS AND ABBREVIATIONS

CFR	Code of Federal Regulations
Council	Advisory Council on Historic Preservation
CRMP	Cultural Resources Management Plan
EIS	Environmental Impact Statement
National Register	National Register of Historic Places
OPNAVINST 5090.1B	Environmental and Natural Resources Program Manual
PMRF	Pacific Missile Range Facility
SHPO	State Historic Preservation Officer
U.S.	United States

DEFINITIONS

Grave or Ceremonial Objects. As defined by the Native American Graves Protection and Repatriation Act, these cultural items include:

1. Associated funerary objects, which shall mean objects that, as a part of the death rite or ceremony of a culture, are placed with individual human remains either at the time of death or later.
2. Unassociated funerary objects, which shall mean objects that, as a part of the death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later.
3. Sacred objects, which shall mean specific ceremonial objects that are needed by traditional Native Hawaiian religious leaders for the practice of traditional Native Hawaiian religions by their present day adherent.
4. Items of cultural patrimony, which shall mean an object having ongoing historical, traditional, or cultural importance central to the Native Hawaiian group or culture itself, rather than property owned by an individual Native Hawaiian, and which, therefore, cannot be alienated, appropriated, or conveyed by any individual regardless of whether or not the individual is a member of the Native Hawaiian organization.

Hui Malama I Na Kupuna O Hawaii Nei. As defined in Public Law 101-601 (Native American Graves Protection Repatriation Act), the nonprofit, Native Hawaiian organization incorporated under the laws of the State of Hawaii by that name on April 17, 1989, for the purpose of providing guidance and expertise in decisions dealing with Native Hawaiian cultural issues, particularly burial issues.

Native Hawaiian Organization. Any organization which (a) serves and represents the interests of Native Hawaiians, (b) has a primary and stated purpose the provision of services to Native Hawaiians, and (c) has expertise in Native Hawaiian affairs, and shall include the Office of Hawaiian Affairs and the Hui Malama I Na Kupuna O Hawaii Nei.

Office of Hawaiian Affairs. Established by the constitution of the State of Hawaii, the Office of Hawaiian Affairs (OHA) is a state agency, independent from the executive and all other branches of government. OHA is a trust entity for all individuals whose ancestors were natives of the Hawaiian Islands prior to 1778. The agency was established, in 1979, to manage and administer the resources held for the benefit of Hawaiians, and to formulate policy for them; it is governed through a board of trustees.

Professional Archaeologist. An archaeologist qualified by standards established by the Department of the Interior, National Park Service and described in 36 CFR, Part 61, Appendix A.

Restrictive Easement (Ground Hazard Area). The land area within which all debris from a terminated missile launch will fall. At the PMRF, this area encompasses a 3,048-meter (10,000-foot) arc (maximum) radiating out from centerpoint which is the STARS launch pad.

Undertaking. As defined by Section 106 of the National Historic Preservation Act, a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a federal agency, including (a) those carried out by or on behalf of such agency, (b) those carried out with federal financial assistance, (c) those requiring a federal permit, license, or approval, and (d) those subject to state or local regulation administered pursuant to a delegation or approval by a federal agency.

ATTACHMENT J

Draft Archaeological Monitoring Plan

Proposed activities associated with the U.S. Navy's Pacific Missile Range Facility (PMRF) Enhanced Capability Environmental Impact Statement (EIS) include ground disturbance from construction, military exercises, and military operations. Inasmuch as several of the locations encompassed by the proposed action and alternatives (including the No Action Alternative) are known to encompass areas with potential archaeological sensitivity, an Archaeological Monitoring Plan has been developed to deal with the possible unexpected discovery of archaeological materials (prehistoric, historic, or traditional) and burials.

1. All monitoring activities will be undertaken by a qualified archaeologist familiar with the range of cultural resources likely to be found within the project area. In the event that monitoring activities are to take place within a known contaminated site, the archaeologist will be OSHA 40-hour trained.

2. Archaeological monitoring will consist of identification, evaluation, collection, recording, analysis, and reporting of archaeological remains during ground disturbing activities. The data retrieved shall be sufficient to characterize the nature of all major deposits and strata, regardless of the cultural content, and discuss their known extent through time and space.

3. A coordination meeting shall take place between the archaeological monitor and the construction team, prior to any ground-disturbing activities taking place. The meeting shall outline the duties and responsibilities of both the archaeologists and the construction team.

4. Arrangements for the services of a physical anthropologist (or other scientists as appropriate) with a background in human osteology will be made prior to any ground disturbing activities. In the event that osteological analysis of skeletal remains is required, this work will conform with the provisions of the Draft Burial Plan, provided as Attachment K to this Memorandum of Agreement.

5. The archaeological monitor will be present while all ground disturbing activities are occurring. The monitor will inspect the backdirt removed from construction areas as well as exposed soil profiles.

6. The archaeological monitor will be authorized to halt ground disturbing operations in order to evaluate, assess, and determine what course of action should be taken for the protection of any identified cultural materials.

7. If archaeological materials are encountered, the monitor will record and collect data sufficient to determine the significance of the site. If the site is determined to be not significant, the monitor will perform appropriate procedures, including plotting the location on the project topographic map, taking samples (as appropriate), preparing site maps, and photography. If the site is determined to be significant, the monitor will notify the following individuals in order to formulate the most appropriate mitigation measures:

   - PMRF Environmental Engineer or cultural resources point-of-contact
   - U.S. Navy Archaeologist
   - Hawaii State Historic Preservation Officer

   If the site contains grave or ceremonial objects or human remains, the monitor will secure the site and notify the following individuals. Subsequent actions will follow the guidance provided in the Native American Graves Protection and Repatriation Act (NAGPRA) and the Draft Burial Plan provided as Attachment K to this Memorandum of Agreement.

   - PMRF Environmental Engineer or Cultural Resources Point of Contact
   - U.S. Navy Archaeologist
   - Hawaii State Historic Preservation Officer
   - Hui Malama I Na Kupuna O Hawaii Nei
   - Office of Hawaiian Affairs

8. Stratigraphic profiles of excavated areas containing cultural materials will be made and photographs taken. A sampling of stratigraphic profiles will be drawn of excavated areas, regardless of the presence of cultural materials, in order to provide useful information regarding the lack of cultural materials in a given area.

9. A report addressing any findings or subsequent mitigation resulting from the monitoring will be submitted to the Hawaii State Historic Preservation Officer for review.

10. With the exception of grave or ceremonial objects, or humans remains, any cultural materials discovered during the conduct of this monitoring plan will remain the property of the PMRF and will be curated in accordance with current PMRF policy. Grave or ceremonial objects and/or human remains will be treated in accordance with the Draft Burial Plan, provided as Attachment K to this Memorandum of Agreement.

ATTACHMENT K

DRAFT BURIAL TREATMENT PLAN

This burial treatment plan has been developed by the Commanding Officer, Pacific Missile Range Facility (PACMISRANFAC) in compliance with the Native American Graves Protection and Repatriation Act (NAGPRA) and Section 106 of the National Historic Preservation Act and provides detailed procedures to be followed when Native Hawaiian remains are inadvertently encountered during construction activities, erosion or any other natural or human activity.

The plan reflects understandings between PACMISRANFAC, SHPO, KIBC, Na Ohana Papa O Mana, Hui Malama I Na Kupuna O Hawaii Nei, and OHA regarding the inadvertent discovery, disinterment, reinterment, temporarily curate and preservation of native Hawaiian human remains. It is noted that the general policy of the signatories shall be for burials not to be moved when at all possible.

Each party will observe the following understandings. Each party may terminate this agreement upon notice to the other, and each party will give prompt consideration to any changes proposed by the other.

COSTS

1. The U.S. Navy shall pay for all preservation in-place costs, as arranged in individual cases, in compliance with the National Historic Preservation Act.

2. The U.S. Navy shall pay for all archaeological costs (field, laboratory and report) in compliance with the National Historic Preservation Act.

3. PACMISRANFAC shall pay for disinterment and reinterment ceremonies provided for by this agreement. The amount of payment shall be agreed upon from time to time between PACMISRANFAC, OHA and KIBC representatives. Payments in any given Federal Government fiscal year shall not exceed $1,000 without specific approval of the Commanding Officer, PACMISRANFAC.

PREVIOUSLY IDENTIFIED HAWAIIAN BURIALS

1. Whenever a project is proposed within an area which contains previously identified Hawaiian burial sites, including burial sites identified during archaeological survey for projects under Section 106 compliance, the project proposal shall be submitted to the KIBC for its review. Within thirty days of the submittal the SHPO shall determine whether the burial sites within the project area shall be preserved in place or relocated.

2. If the remains are to be preserved in-place, they shall be preserved in-place in accordance with the preservation part of this agreement.

3. If the remains are to be relocated, they shall be disinterred in accordance with the disinterment part of this agreement.

INADVERTENT DISCOVERY OF HUMAN REMAINS

When human remains are inadvertently discovered on base, the following steps shall occur:

1. Work shall stop in the immediate area and the U.S. Navy's archaeologist at PACNAVFACENGCOM, Hui Malama I Na Kùpuna O Hawaii Nei, Na Ohana Papa O Mana, OHA and SHPO, shall be notified.

2. The remains shall not be moved until the U.S. Navy's archaeologist has the opportunity to determine whether they are recent remains under the jurisdiction of police authorities or whether they are historic remains, older than 50 years in age. If they are recent remains, the remains are not considered under this agreement.

3. If the remains are historic, the U.S. Navy archaeologist, or a designated professional archaeologist, shall document the context of the remains, burial features, grave goods, and attempt to establish the ethnic
identity of the remains with minimal disturbance.

4. If the remains appear likely to be native Hawaiian, the SHPO, KIBC and OHA's Kauai office shall be notified. If the remains appear unlikely to be native Hawaiian, the SHPO shall be notified, and arrangements other than those covered in this agreement shall be followed.

5. If the remains are in no danger and can be preserved in-place, they shall be preserved in-place in accordance with the preservation part of this agreement.

6. If the remains are threatened by construction or erosion and cannot be preserved in-place, they shall be disinterred in accordance with the disinterment part of this agreement.

7. Steps 1-4, above, shall be executed within 5 working days of discovery.

PRESERVATION IN-PLACE

When human remains are discovered and can be preserved in-place, the following steps shall occur:

1. The remains shall be covered up in their original manner as indicated by the archaeological findings (e.g., with sand, with stone platform, etc.).

2. The remains shall be marked on PACMISRANFAC maps to ensure protection in the face of future base planning and activities.

3. The remains shall be protected by appropriate means (e.g., sign, low fence, etc.) as determined appropriate by the KIBC and OHA's Kauai field representative

4. An appropriate ceremony shall occur, as considered necessary by the KIBC and OHA's Kauai field representative.

DISINTERMENT & REINTERMENT

When human remains must be disinterred, the following steps shall occur:

1. When remains are established to be native Hawaiian or are considered likely to be native Hawaiian, OHA's Kauai field representative and the KIBC shall determine if a ceremony is needed prior to disinterment. This determination shall be made within 48 hours of notification of these agencies of the decision for disinterment. If a ceremony is desired, a Federal employee acceptable to these agencies shall conduct the ceremony. If an acceptable Federal employee is not available, then a ceremony may be conducted by a nonfederal person designated by OHA's Kauai field representative and the KIBC. This ceremony may include the main elements of: ho'oponopono: mihi - an explanation and apology for the disturbance; hala - a forgiveness for the offending action; and oki - an emotional resolution that the offense of disturbing will not have future harmful consequences. This ceremony is regarded by native Hawaiians as a healing between living individuals and souls associated with burial. The ceremony will ordinarily involve one to four persons and take approximately one hour.

2. The U.S. Navy's archaeologist, in consultation with the SHPO, shall see that the remains are removed by archaeologists employed or engaged by the Federal Government. Minimal osteological analyses shall be performed within 5 days to determine or verify whether the remains are native Hawaiians (when uncertain) and to establish the number of individuals, age and sex. The proper standards of professional conduct, respect, and sensitivity shall be observed during the removal and treatment of the remains, and the integrity of each individual's remains and of any ho'omoe pu (associated grave goods) will be maintained. All osteological analyses shall be done with due recognition of native Hawaiian beliefs and respect for ancestral bones. No analyses shall be conducted which result in a destruction of bone material.

3. During the time prior to reburial, the remains shall stay on the island of Kaua'i and adequate securing for the integrity of disinterred individuals shall be assured. Further, OHA, SHPO, and KIBC shall be notified of the likely duration of time prior to reburial.

4. Human remains and their associated grave goods shall be reinterred in an underground concrete shelter at PACMISRANFAC (Facility No. 443) for permanent interment in individual casings of concrete. The shelter will have a lockable gate as the only entrance to prevent unauthorized access. The Government will maintain records for the location of the remains within the shelter.

REPORTS

Archaeological reports, whether for remains preserved in-place of for remains which are disinterred/reinterred, shall be prepared. Copies shall be filed with each signatory.

ACCESS TO PACMISRANFAC

All access by SHPO, KIBC and OHA representatives to PACMISRANFAC under this memorandum shall be subject to reasonable PACMISRANFAC requirements for identification, escort and other administrative and security procedures. Individuals who are not State or Federal employees may be required to sign liability waivers as a condition of entry to PACMISRANFAC.

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