3.13 HAZARDOUS MATERIALS, HAZARDOUS WASTES, AND NON-HAZARDOUS WASTES

3.13.1 Introduction

3.13.1.1 Definition of Resource

Hazardous materials addressed in this EIS/OEIS are chemical substances that pose a substantial hazard to human health or the environment. The definition of "hazardous materials" includes extremely hazardous substances, hazardous chemicals, hazardous substances, and toxic chemicals. In general, these materials pose hazards because of their quantity, concentration, physical, chemical, or infectious characteristics. Hazardous materials are often used in high technology missiles, munitions, and targets because they are strong, lightweight, reliable, long-lasting, or low cost. When missiles, munitions, and targets are used for their intended purpose, component hazardous materials are considered hazardous constituents.

A hazardous waste may be a solid, liquid, semi-solid, or contained gaseous material that alone or in combination may: 1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or 2) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed. Hazardous wastes are controlled by the Resource Conservation and Recovery Act (RCRA; 42 U.S.C. § 6901 et seq.).

This section provides a review of the affected environment for hazardous constituents that enter the environment from missiles, aerial targets, surface targets, ships and boats, and other ordnance used in the Sea Range and hazardous wastes at NAS Point Mugu and San Nicolas Island. Since hazardous constituents comprise only a portion of materials entering the Sea Range, this section also addresses the amounts and types of non-hazardous materials used in the Sea Range.

3.13.1.2 Regional Setting

Hazardous materials and wastes are a regional issue in the SCB. Hazardous constituents from missiles, bombs, ships, aircraft, and targets have the potential to affect the water quality of this area and to be transported over a lengthy portion of the southern California coastline and islands. Hazardous wastes generated at NAS Point Mugu or San Nicolas Island have the potential to threaten human health in their vicinity.

3.13.1.3 Region of Influence

The region of influence (ROI) for hazardous materials, hazardous wastes, and non-hazardous wastes is the 36,000 square mile (93,200 km^2) Point Mugu Sea Range, NAS Point Mugu, and San Nicolas, San Miguel, Santa Rosa, and Santa Cruz islands.

3.13.2 Point Mugu Sea Range

3.13.2.1 Hazardous Materials Transport

To the extent possible, maintenance of weapon systems is performed at NAS Point Mugu instead of on San Nicolas Island to avoid the transport of hazardous materials on the Sea Range. However, fuel and gasoline must be transported from Point Mugu to San Nicolas Island by barge. The largest volume of hazardous material transported over the Sea Range is in the form of aviation jet fuel and unleaded

gasoline. In the baseline year, San Nicolas Island received 490,785 gallons (1.87 million liters) of jet fuel and 53,000 gallons (201,400 liters) of unleaded fuel.

3.13.2.2 Hazardous Constituents Disposition in the Sea Range

A - Missiles

Missiles fired on the Sea Range contain hazardous constituents as normal parts of their functional components. In general, the largest single hazardous constituent type is solid propellant, but there are numerous hazardous constituents used in igniters, explosive bolts, batteries, and warheads. Most of the missiles fired on the Sea Range carry inert warheads with no hazardous constituents. Approximately 5 percent of the missiles carry live warheads. Table 3.13-1 shows typical missiles fired on the Sea Range and their hazardous constituents.

B - Aerial Targets

Aerial targets are used on the Sea Range for testing and training purposes. Most air targets contain jet fuel, oils, hydraulic fluid, batteries, and explosive cartridges as part of their operating systems. Following a test or training operation, targets are generally flown (using remote controls) to pre-determined recovery points on the Sea Range (either 10 NM [19 km] south of Anacapa Island or 6 NM [11 km] north of San Nicolas Island). Fuel is shut off by an electronic signal, the engine stops, and the target begins to descend. A parachute is activated and the target descends to ocean surface where it is retrieved by range personnel using helicopters or range support boats. However, some targets are physically hit by missiles, and these targets fall into the Sea Range. Table 3.13-2 shows hazardous constituents associated with airborne targets used on the Sea Range.

C - Surface Targets

Surface targets are used on the Sea Range during missile and bombing exercises. Surface targets are stripped of unnecessary hazardous constituents and other augmentation and made environmentally clean; therefore, only minimal amounts of hazardous constituents are on board. Table 3.13-3 shows hazardous constituents associated with surface targets.

D - Ships and Boats

Test and training operations involve numerous combatant ships, target retrieval aviation rescue boats, and other support craft. These vessels are manned and do not intentionally expend any hazardous constituents into the water. However, small amounts of diesel fuel and engine oil may leak and be deposited on the Sea Range.

E - Other Ordnance

Other ordnance includes bombs, mine shapes, gunnery rounds, flares, and chaff used regularly on the Sea Range. Table 3.13-4 summarizes the types and amounts of ordnance used on the Sea Range and expended into the ocean in the baseline year. Most of this ordnance is inert (nonexplosive) and consists of non-hazardous constituents. Inert ordnance includes steel shapes or replicas containing concrete, vermiculite (a clay), or other non-hazardous constituents similar in appearance, size, and weight to explosive ordnance used in wartime.

Table 3.13-1. Hazardous Constituents in Typical Missiles Fired on the Sea Range, Baseline Year

Type	Description	Hazardous Constituents	# Missiles
AIM-7 Sparrow	Fired by F-14, F/A-18, F-15, and F-16 aircraft. Medium range (approximately 30 miles [48 km]), maneuverable, radar-guided missile with annular blast fragmented warhead.	Depending on the model, the propulsion system contains up to 99 lbs (45 kg) of solid propellant. Approximately 17 lbs (7.7 kg) of explosives in warhead.	82
AIM-9 Sidewinder	Fired by F-14, F/A-18, F-15, and F-16 aircraft. Short range (approximately 13 miles [21 km]), infrared heat-seeking missile with blast fragmentation warhead.	Depending on the model, the prolusion system contains up to 44 lbs (20 kg) of solid double-base propellant. The warhead contains approximately 10 lbs (4.5 kg) of PBX-N high-explosive components.	46
SM-1 and SM-2 Standard Missile	Fired from Navy surface ships. Long range (approximately 100+ miles [160+ km]), passive/semi-active radar guided anti-air missile, with a proximity fuse, high-explosive warhead.	The propulsion system contains 1,550 lbs (703 kg) of aluminum and ammonia propellant grain in the booster and 386 lbs (175 kg) of arcite propellant grain in the sustainer. The warhead contains between 75.2 lbs (34.1 kg) and 80 lbs (36.3 kg) depending on the missile version. Potassium hydroxide battery.	56
AIM-54 Phoenix	Fired by F-14 aircraft. Long range (approximately 65 miles [105 km]), semi-active and active radar homing missile with a proximity fused high-explosive warhead.	The propulsion system contains 366 lbs (166 kg) of solid propellant. The warhead contains 71 lbs (32 kg) of PBXN-106 explosive. Potassium hydroxide battery.	30
AGM-84 Harpoon	Fired from F/A-18, A-6, P-3, and B-52 aircraft. Long range (approximately 65+ miles [105+ km]), low-level flight, anti-ship, active radar guided missile with a penetration high-explosive warhead.	The propulsion system is a J402-CA-404 turbojet burning up to 128 lbs (58 kg) of JP-10 jet fuel. Warhead contains 215 lbs (98 kg) of Destex explosive components. Potassium hydroxide battery.	12
AIM-120 AMRAAM	Fired by F-14, F/A-18, F-15, and F-16 aircraft. Medium range (approximately 30 miles [48 km]), all weather beyond-visual range, semi-active and active radar homing missile with blast fragmented high-explosive warhead.	The propulsion system contains 101 lbs (46 kg) of solid propellant. The warhead contains 15 lbs (6.8 kg) of PBX (AF)-108 explosive. Lithium chloride batteries.	10

Source: 60 Series weapons publications.

Flares consist of powdered or pelleted magnesium imbedded in a matrix. They are incendiary and burn at high temperatures. There are two types: small flares are ejected from aircraft to act as decoys for enemy missiles, and larger ones are deployed under parachutes to provide illumination in support of other operations. Chaff is a thin polymer with a metallic (aluminum) coating used to decoy enemy radars.

Table 3.13-2. Hazardous Constituents in Air Targets on the Sea Range, Baseline Year

Type	Description	Hazardous Constituents	# Not Recovered
BQM-74	Surface- or air-launched target propelled by a JP-8 powered turbojet engine. Recovered in 57% of its launches in the baseline year.	Oils, hydraulic fluids, a nicad battery, and 16 gal (48 kg) of JP-8 fuel.	60
AQM-37	Supersonic, air-launched target (launched from a QF-4). An expendable target and is not recovered.	Hypergolic fuel of inhibited red fuming nitric acid as an oxidizer and mixed amine as a fuel. In addition, nitrogen is used to pressure fuels out of the tank and into the booster and sustainer chambers. The AQM-37 contains oils, hydraulic fluids, and a nicad battery.	29
QF-4	A twin engine, supersonic jet aircraft capable of speeds of Mach 2.1. Capable of being flown by remote control or with a pilot in the aircraft.	2,077 gal (6,117 kg) internal JP-8 fuel, various oils, and hydraulic fluids (3.8 lbs [1.7 kg] of thorium-232 in the 96 lbs [43.6 kg] of magnesium thorium in three gear boxes located in each engine).	3
BQM-34	Surface or air-launched target propelled by a JP-8 powered turbojet engine. Recovered in most tests.	Oils, hydraulic fluid, a lead-acid battery, and 111 gal (326 kg) JP-8 fuel.	3
MQM-8	Supersonic, surface-launched target that uses an initial solid propellant booster which burns for 2.7 seconds for initial launch. The main ramjet engine is powered by JP-10 fuel. An expendable target and is not recovered.	2,800 lb (1,270 kg) solid propellant, 140 gal (796 kg) JP-10 fuel oils, and hydraulic fluids. Also contains 129 lbs (58.5 kg) of magnesium thorium.	9
QUH-1	A single-engine, twin-rotor helicopter powered by JP-8 fuel. Recovered in the majority of tests.	227 gal (668 kg) JP-8 fuel, oil, and hydraulic fluid.	0
Tow Targets	The tow targets are not powered and do not contain hazardous constituents/materials. The tow aircraft uses a Ramair powered tow reel using the same fuel as the aircraft. The tow reels are reusable and return to base with the aircraft.	None	0
MA-31	A converted air-to-ground, supersonic missile now used as an expendable target. It is not recovered.	Carries up to 121 lbs (55 kg) of JP-8 fuel to power the ramjet engine.	None used in the baseline year.

Source: NAWCWPNS Point Mugu 1996o.

Table 3.13-3. Hazardous Constituents in Surface Targets on the Sea Range, Baseline Year

Target	Description	Hazardous Constituents	# Not Recovered
Mobile Ship Target (MST)	A 50-foot (15-m) steel hulk that has been stripped of excess hazardous constituents. Operates under its own power using diesel engines with only the necessary fuel on board to perform the test requirements. The MST can be hit by missiles and remain afloat.	Diesel fuel, engine oil, and batteries	None
SEPTAR (QST-33 and QST-35)	An 18-foot (5-m) (QST-33) or 60-foot (18-m) (QST-35) fiberglass boat that is loaded with floatation foam to prevent sinking. Operates under its own power with gasoline engines and a 12-volt battery for starting. Both targets are augmented with specialized equipment to prevent being struck by a missile, and no SEPTARs have been sunk.	Gasoline, engine oil, and batteries	None
Improved Surface Test Target (ISTT)	A towed, polygon shaped, fiberglass target. It is often the target of gunnery practice.	None	The ISTT is a non-hazardous, low-cost target and is usually sunk during tests at a rate of two to three per year.
Floating at Sea Target (FAST)	A towed, polygon shaped, fiberglass target.	None	Similar to the ISTT; approximately two targets are expended per year.
Williams Sled	A 28-foot (8-m) steel and aluminum towed target similar to a catamaran.	None	Generally used for gunnery practice with approximately two to three expended per year.
Trimaran	A 16-foot (5-m) fiberglass trimaran towed target.	None	Approximately two to three are expended per year.

Source: NAWCWPNS Point Mugu 1996o.

Table 3.13-4. Other Ordnance Expended on the Sea Range, Baseline Year

Category	Ordnance Type	# Expended in Sea Range
Flares	MJU-8, LUU-2	262
General Purpose Bombs - Inert	MK-82, MK-76, GBU	405
Practice Bombs - Inert	BDU-45, BDU-48, Other	180
Mine Shapes - Inert	MK-36, MK-52, MK-55, Others	49
Aircraft gunnery rounds	20 mm	7,310
Naval gunfire rounds	7.62 mm, 20 mm, 76 mm, 5-inch/54-caliber	2,688
Chaff	N/A	114

Source: NAWCWPNS Point Mugu 1997a.

3.13.2.3 Shipboard Hazardous Materials Management

Environmental compliance policies and procedures applicable to shipboard operations on the Sea Range are defined in OPNAVINST 5090.1B (1998), Chapter 19. These instructions reinforce the Clean Water Act's prohibition against discharge of harmful quantities of hazardous substances into or upon U.S. waters out to 200 NM. Navy ships are required to conduct operations at sea in such a manner as to minimize or eliminate any adverse impacts on the marine environment. This includes stringent hazardous waste discharge, storage, dumping, and pollution prevention requirements. Refer to Table 3.4-1 for a description of discharge restrictions for Navy vessels at sea.

3.13.3 Point Mugu

3.13.3.1 Hazardous Materials Management

NAS Point Mugu has a *Hazardous Waste Management Plan* (October 1997) that provides guidance and direction for the use, storage, and compliance activities for hazardous materials and wastes at the base. The plan contains major sections on the following areas:

- Specific responsibilities for functional areas;
- A summary of applicable federal/state laws and regulations and DoD policies;
- Requirements for hazardous waste generators;
- Storage, transportation, disposal requirements;
- Personnel training requirements;
- Reporting and record keeping;
- Contingency and Emergency Plans;
- Emergency Planning and Community Right-to-Know Act (EPCRA);
- Explosive ordnance derived wastes; and
- Hazardous wastes inventories and site specific maps.

The Hazardous Waste Management Plan is a comprehensive compilation of procedures and requirements that are mandated by law, directive, or regulation. The plan has a compliance orientation to ensure safe and efficient control, use, transport, and disposal of hazardous waste.

A - Hazardous Materials Storage

The majority of hazardous materials used at NAS Point Mugu are stored by the Environmental Materials Management Division (EMMD) in the Hazardous Material Minimization Center (HAZMINCEN). Individual shops are also authorized to store hazardous materials in small quantities. Generally, shops are limited to storing one week's worth of hazardous materials for tasks that are performed on a routine basis. There are approximately 40 storage lockers on NAS Point Mugu.

Fuel products comprise the greatest amount of hazardous materials on the base. The most hazardous fuel is the hypergolic fuel used in the AQM-37 target. Other types of hazardous materials are stored at NAS Point Mugu in varying quantities throughout the year. Table 3.13-5 presents a summary of the types and amounts of fuel stored onbase.

Table 3.13-5. Fuel Type and Quantity Stored at NAS Point Mugu

Fuel Type	Supply (gallons)
JP-8 (jet fuel)	800,000 to 1,100,000
Unleaded Gasoline	up to 50,000
Aviation Gasoline	up to 52,000
Diesel	up to 24,000

Source: NAS Point Mugu 1998b.

B - Ordnance Transportation

Ordnance, including the solid rocket motor boosters and safe arming devices, arrive at Gate 3. Base security notifies the Receiving Office in the Supply Department. All ground shipments of ordnance are escorted by security personnel over predetermined routes. Shipments of ordnance to San Nicolas Island are via aircraft with security providing escort during the ground phase of the delivery. For a discussion of the transportation of ordnance through civilian areas see Section 3.14, Public Safety.

3.13.3.2 Hazardous Waste Management

The *Hazardous Waste Annual Report* indicates that NAS Point Mugu produced approximately 826,000 pounds (375,000 kg) of hazardous waste in 1996. With the addition of the four E-2 squadrons as a result of realignment from NAS Miramar, this amount is expected to increase to 835,573 pounds (379,245 kg) annually (Southwest Division 1998). These wastes consist primarily of contaminated jet fuel, waste rags, paint, solvent, spill residues and absorbent materials, corrosion prevention compound in aerosol cans, ethylene glycol, batteries, antifreeze, hydraulic fluid, photo processing waste materials, waste cleaning compounds, and debris materials.

Hazardous wastes are generated at most of the industrial shops at NAS Point Mugu. There are approximately 41 satellite accumulation areas and three "less-than-90-day" accumulation areas at the base. Hazardous waste is collected at the satellite accumulation areas by the EMMD and transported back to the EMMD "less-than-90-day" accumulation area. The EMMD vehicle is equipped with a spill containment system and an emergency spill kit. The Environmental Project Office hazardous waste contractor collects the hazardous waste from the EMMD and transports it to the Environmental Project Office "less-than-90-day" accumulation area. All hazardous waste is removed from the waste yard and off base by a Defense Reutilization and Marketing Office (DRMO) contractor to an approved treatment, storage, and disposal (TSD) facility.

Waste fuels, oils, and hydraulic fluids are temporarily stored in fuel tanks at the fuel farm. A contractor periodically drains the contents from the tanks and recycles the fluids.

3.13.3.3 Installation Restoration Program

The DoD has established the Installation Restoration Program (IRP) as a means to identify, investigate, and remediate or control hazardous waste sites located at military installations. The IRP is intended to be a tool for the identification and clean-up of any contaminant releases that could endanger public health, welfare, or the environment. There are three phases in the IRP process: Phase I, the Site Inspection Phase, includes the identification of potential hazardous waste sites through interviews, record searches, and minimal sampling; Phase II, the Remedial Investigation/Feasibility Study Phase, includes exhaustive

sampling and remediation design planning; and Phase III, the Remedial Design/Remedial Action Phase, within which the site is remediated or secured.

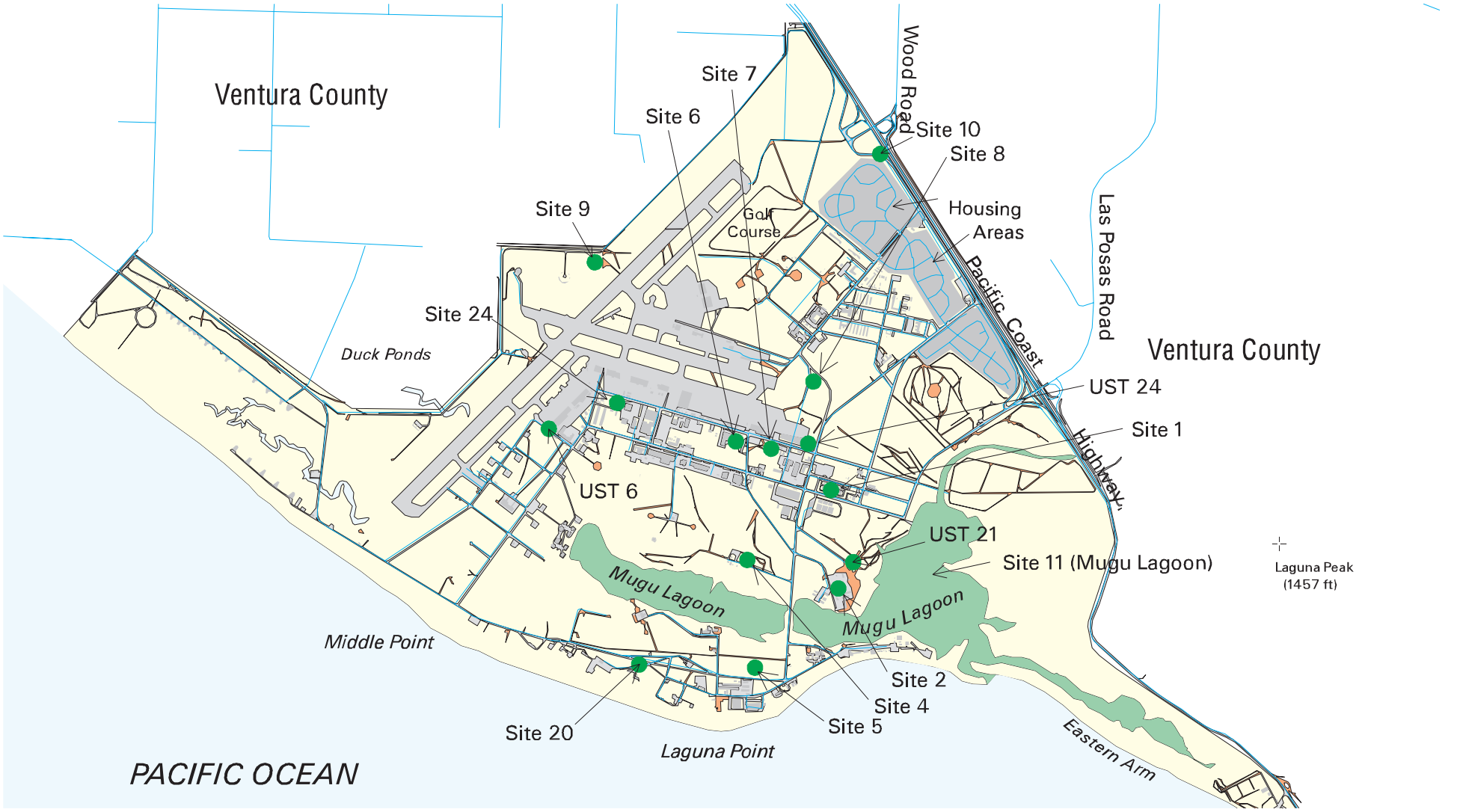
There are 15 active IRP sites which have been identified at NAS Point Mugu. Other sites have been identified in the past but have been closed after remediation or are in long-term monitoring status. Table 3.13-6 presents a summary of the 15 active IRP sites at NAS Point Mugu; Figure 3.13-1 shows the locations of these IRP sites.

Table 3.13-6. Active IRP Sites at NAS Point Mugu

No.	Site	Description	Status
1	Lagoon Landfill	A 35-acre site operated from 1952 to 1975.	Feasibility study being performed.
2	Old Shops Area	General Public Works vehicle maintenance area.	Remedial investigation ongoing.
4	Public Works Storage Yard	Electrical transformer maintenance area and hazardous material storage area.	Removal action complete. Awaiting official site closure.
5	Old Area 6 Shops	An all purpose shop area including: machine shop, plating shop, chemical laboratory, sandblasting, and photography shop.	Pilot test being performed during feasibility study.
6	Building 311 Yard	A disposal location for plating shop wastes.	Remedial investigation ongoing.
7	Electrical Substation 688	An electrical substation where a small PCB spill occurred.	Site investigation complete.
8	Runway Landfill	A 4-acre site where disposal of demolition debris occurred.	Remedial investigation ongoing.
9	Main Base Fire Training Area	Former fire fighting training area which used an unlined pit to burn jet fuel.	Remedial investigation ongoing.
10	California Edison Transformer	A pole-mounted, PCB-containing transformer involved in a fire caused a release of transformer fluid.	Remedial action complete. Awaiting official site closure.
11	Lagoon and Drainage Ditches	This site was used for disposal of battery waste, waste oil, fuel, detergents, hydrazine, metals, and acids. It also receives rain runoff from Sites 1,2,4,5,8, and 9.	Remedial investigation complete.
20	Missile Testing Area (Saltwater Well)	The site is a closed saltwater well into which mercury was released from an unknown source.	Site investigation ongoing.
24	Former Ground Support Equipment Area	Formerly known as UST Sites 23 and 55. A former OWS where oil and solvents were disposed of.	Remedial investigation ongoing.
None	UST Site #21	A former 500-gallon UST removed in 1989. Solvents and petroleum products present.	Site investigation ongoing.
None	UST Site #24	A former OWS removed in 1989. Solvents and petroleum products present.	Site investigation ongoing.
None	UST Site #6	A UST where used oil and waste solvents were stored.	Remedial investigation ongoing.

OWS - oil/water separator
PCB - polychlorinated biphenyl
UST - underground storage tank
Source: NAWS Point Mugu 1998c.

IRP Sites at NAS Point Mugu



Legend

- NAS Point Mugu
- Surface Water
- Airfield
- Structures
- Roads
- IRP Sites

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Projection: Universal Transverse Mercator, Zone 11
North American Datum of 1927
Scale shown is 1:40,000
Source: Western Division 1993b.

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Figure 3.13-1

3.13.3.4 Storage Tanks and Oil/Water Separators

Both underground storage tanks (USTs) and aboveground storage tanks (ASTs) are used to store hazardous substances and petroleum products throughout the base. Many USTs have been taken out of service and removed from the ground. There are 18 USTs and 115 ASTs on the main base, San Nicolas Island, and Santa Cruz Island. All 18 USTs and 83 of the ASTs are located at NAS Point Mugu. Sixty-six UST facilities have had releases; 49 of the facilities have been closed. Cleanup has been completed at one site with its closure pending. One site is undergoing cleanup, and six have been transferred to the IRP. The remaining nine sites have been assessed and are awaiting closure (NAWS Point Mugu 1997i).

JP-8 is transported to NAS Point Mugu by bulk fuel transport trucks from the Defense Fuel Supply Point in San Pedro, California. The fuel is stored at the fuel farm in three ASTs with a capacity of 334,500 gallons (1,271,100 liters) each and three ASTs with a capacity of 121,800 gallons (462,840 liters) each, providing a total capacity of 1,368,900 gallons (5,201,820 liters) (NAWS Point Mugu 1997j). Current throughput is approximately 1,285,300 gallons (4,865,300 liters) per month, including fuel used in support of the four E-2 squadrons (NAWS Point Mugu 1997i; Southwest Division 1998). The fuel storage tanks are presently being upgraded to meet environmental requirements, and modern control systems (e.g., high level alarms) are being installed.

Aircraft fueling occurs on the aircraft parking apron and in the ammunition loading revetment. The fuel is transported from the fuel storage facility by designated trucks identified as airplane side refueling vehicles. There are three refueling vehicles and one fueler/defueler presently in operation.

An Oil and Hazardous Substance Spill Prevention, Control, and Countermeasure Plan (SPCC) plan is implemented for the base (NAWS Point Mugu 1995b). Spill response equipment is stored at each fuel storage area, and the Fire Department responds to any spills over 5 gallons (19 liters) on pavement and any spills to soil or water.

There are 17 active oil/water separators located in the operations area of the base that receive jet fuel and oily wastewater from the wash racks and other activities (NAWS Point Mugu 1997i). The wastewater from the oil/water separators is discharged to the NAS wastewater treatment plant for pretreatment prior to its discharge to the public water treatment facility.

3.13.4 San Nicolas Island

3.13.4.1 Hazardous Materials

Hazardous materials used on San Nicolas Island are ordered through the NAS Point Mugu EMMD and shipped to the island via barge or aircraft. Seven storage lockers are located on the island. The largest quantity of hazardous materials stored is in the form of fuel. About 680,000 gallons (2.6 million liters) of jet fuel are shipped to the island by tanker barge per year. Unleaded gasoline is also shipped for use by ground vehicles. About 1,000 gallons (3,800 liters) of unleaded gasoline per week are shipped by freight barge. A total of 53,000 gallons (201,400 liters) of unleaded gasoline was used on the island in the baseline year.

Various hazardous materials, oils, and hydraulic fuels are used to support aircraft, target, and vehicle maintenance that is performed on the island. Hazardous materials are used in a similar manner as at NAS Point Mugu. Only the minimum amount of a hazardous material is obtained for a task in order to prevent disposing excess material as hazardous waste.

3.13.4.2 San Nicolas Island Hazardous Waste Management

There are eight satellite hazardous waste storage areas on San Nicolas Island. Hazardous wastes are stored at these satellite accumulation areas prior to being transported to the less-than-90-day accumulation area on the island. From the less-than-90-day accumulation area, the waste is shipped via freight barge to Port Hueneme. In the baseline year, there were 65,689 pounds (29,813 kg) of hazardous wastes shipped from San Nicolas Island. After arrival at Port Hueneme, the waste is transported by a DRMO contractor to an approved TSD facility.

3.13.4.3 Installation Restoration Program

There are two active IRP sites located on San Nicolas Island. Other sites have been identified in the past but have been closed after remediation or are in long-term monitoring status. Table 3.13-7 summarizes the active IRP sites on San Nicolas Island; Figure 3.13-2 shows their location.

Table 3.13-7. IRP Sites on San Nicolas Island

No.	Name	Description	Status
18	West End Range	Presence of unexploded ordnance.	Preliminary assessment completed.
26	Building 182	Release of caustic materials.	Site investigation completed.

Source: NAWS Point Mugu 1998c.

3.13.4.4 Underground Storage Tanks

There are several UST remediation projects taking place on San Nicolas Island. None of the leaking USTs have contaminated drinking water sources, and contamination does not extend beyond the island boundaries.

3.13.5 Other Channel Islands

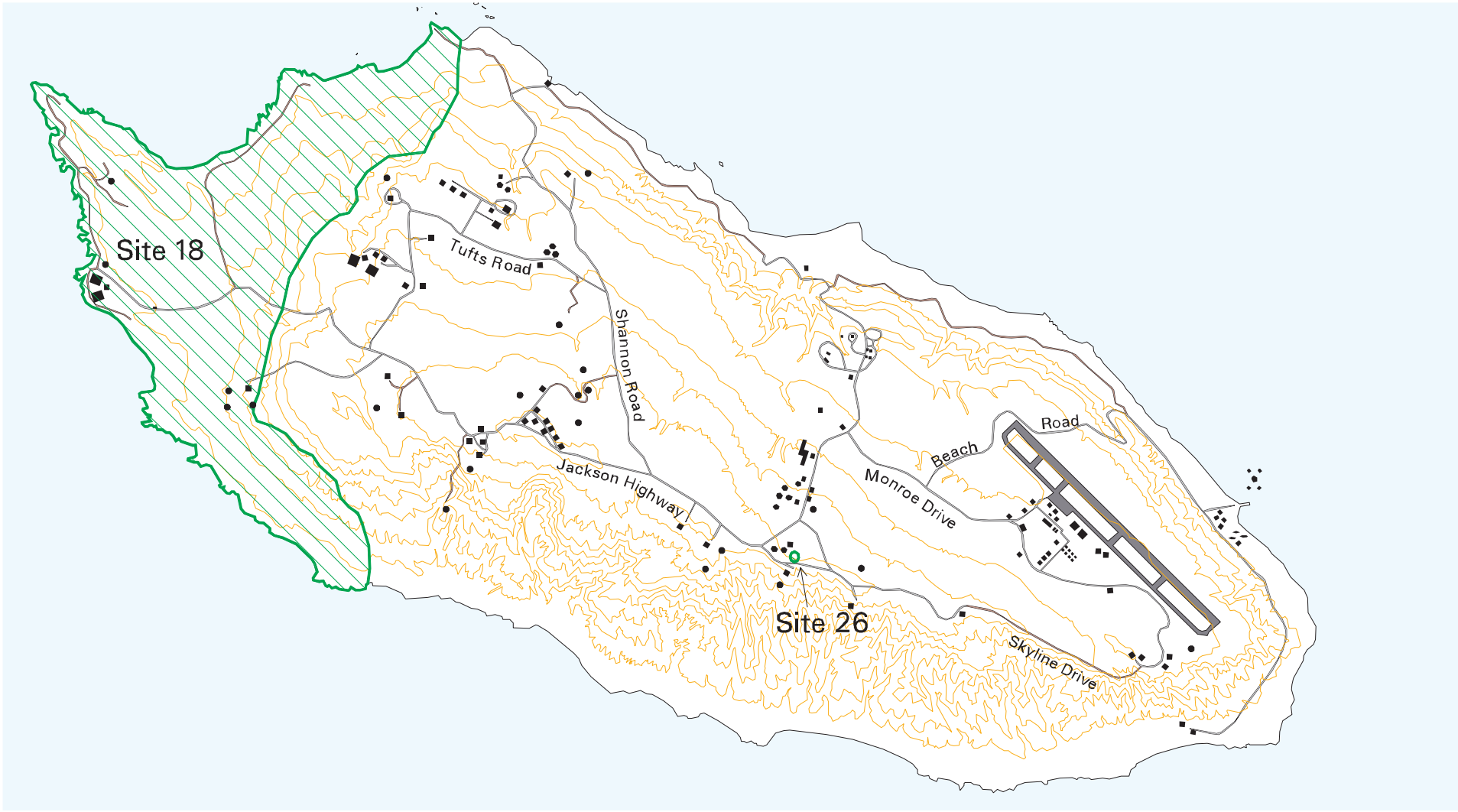
Sea Range facilities are located on San Miguel, Santa Rosa, and Santa Cruz islands (refer to Section 3.0.1.3). Hazardous materials used on these islands are ordered through the NAS Point Mugu EMMD and shipped to the islands via boat, barge, or aircraft. The largest quantity of hazardous materials stored is in the form of fuel on Santa Cruz Island. A photovoltaic power generation system recently was installed on the island to reduce annual fuel consumption. In FY98, approximately 1,626 gallons (6,155 liters) of gasoline and 21,141 gallons (80,027 liters) of JP-8 were shipped to Santa Cruz Island by barge.

Various hazardous materials are used to support maintenance of facilities on these islands. Only the minimum amount of hazardous material is obtained for a task in order to prevent disposing excess material as hazardous waste.

3.13.6 Pollution Prevention

The Navy has an active Pollution Prevention Program which applies to all aspects of its activities. It is Navy policy to conduct its facility management and acquisition programs to reduce to the maximum extent possible the quantity of toxic chemicals entering the environment. Pollution prevention is not

IRP Sites at San Nicolas Island



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- Airfield
- Structures
- IRP Sites
- Roads
- 100′ Contour Lines

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Projection: Universal Transverse Mercator, Zone 11
North American Datum of 1927
Scale shown is 1:60,000
Source: Western Division 1993a.

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Figure 3.13-2

pollution control but a comprehensive set of practices which result in less volume of wastes to be treated or transferred to the environment. The fundamental tenet of the Navy's Pollution Prevention Program is the reduction of hazardous materials and wastes at their source. This results in less hazardous wastes for all waste streams. Examples of the types of practices or techniques used in pollution prevention programs include many of the following:

- Raw material input substitution
- Product reformulation
- Process redesign or modification
- Improved operation and maintenance
- Aggressive recycling programs

Since many of the activities which occur at NAS Point Mugu are Research and Development in the weapons systems acquisition process, these activities must be compliant with the overall DoD guidance on pollution prevention during weapons acquisition. DoD Instruction 5000.2-R mandates specific weapons acquisition policies and procedures. Pollution prevention requirements are covered by this regulation and are directive in nature to the military services. The regulation's major pollution prevention requirements are:

> In designing, manufacturing, testing, operation, maintaining, and disposing of systems, all forms of pollution shall be prevented or reduced at the source whenever feasible. Pollution that cannot be prevented shall be recycled. Pollution that cannot be prevented or recycled shall be treated in an environmentally safe manner. Disposal or other releases to the environment shall be employed only as the last resort.

NAS Point Mugu has an active Pollution Prevention Program to reduce the amount of hazardous and solid wastes generated on base. The guidance for the program is the December 1995 Pollution Prevention Plan.

3.13.7 Recycling

Recycling is the reuse or reclamation of previously used materials which would become wastes and require disposal if not recycled. An aggressive recycling program is an important part of the NAS Point Mugu Pollution Prevention Program. Table 3.13-8 shows some of the pollution prevention recycling statistics for NAS Point Mugu.

Table 3.13-8. Recycling Statistics for NAS Point Mugu, Baseline Year

Waste	Weight (lbs)	Revenue (dollars)	Landfill Reduction (tons)
Aluminum	2,084	$ 2,002.30	1.042
Batteries	23,270	612.05	11.635
Books	20,166	210.36	10.083
Cardboard	254,520	28,288.10	127.260
Christmas trees	14,040	0	7.020
Colored paper	7,526	497.58	3.763
Computer paper	64,514	9,403.19	32.257
Glass	66,638	2,264.45	33.319
Newspaper	199,690	4,153.65	99.845
Oil	337,800	4,776.17	N/A
Plastics	10,859	1,051.80	5.430
Scrap metal	403,870	24,209.55	201.935
Toner cartridges	1,654	3,576.00	0.827
White ledger	59,769	4,106.02	29.884
Wood	N/A	102.50	N/A
Totals	**1,466,400**	**$85,253.72**	**564.300**

Source: NAWS Point Mugu 1996d.