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DEMOLITION KEY RCRA MISCELLANEOUS UNIT FINAL PERMIT APPLICATION NAS KEY  
WEST FL  
6/27/1997  
ENSAFE/ALLEN AND HOSHALL

**DEMOLITION KEY  
RCRA MISCELLANEOUS UNIT  
FINAL PERMIT APPLICATION  
CTO-0120**

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**Prepared for:**

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13. Facility owner's address: P.O. Box 9001 Key West FL 33040-9001  
Street or P.O. Box City State Zip

14. Legal structure:  Corporation  Non-profit Corporation  Partnership  Individual  
 Local Government  State Government  Federal Government  Other

15. If an individual, partnership, or business is operating under an assumed name, specify the county and state where the name is registered.

County: N/A State: \_\_\_\_\_

16. If the legal structure is a corporation, indicate the state of incorporation.

State of incorporation: N/A

17. If the legal structure is an individual or partnership, list the owners.

Name: N/A

Address: \_\_\_\_\_  
Street or P.O. Box City State Zip

Name: N/A

Address: \_\_\_\_\_  
Street or P.O. Box City State Zip

immediate medical attention. If the incident occurs off-base, personnel involved shall immediately call 911 (or unit specific number provided in Table II.B-1) for civilian emergency response.

When releases migrate outside military property and/or may require citizen evacuation, the Emergency Coordinator (or alternate contact) or PWO authorized individual must:

1. Notify the Monroe County Emergency Management Office and the Key West fire and police departments.
2. Notify the National Response Center (1-800-424-8802) of the incident. Incident notification shall include:
  - Name and telephone number of the reporter
  - Name and address of the facility responsible for the incident
  - Time and type of incident
  - Name and quantity of material(s) involved
  - Extent of injuries, if any
  - Possible hazards to human health or the environment outside the facility
3. Notify the USEPA Regional Administrator and the appropriate state and local authorities that closure operations will not be resumed release response procedures are completed and all emergency equipment listed herein is decontaminated and reconditioned for its intended purpose before operations resume.

**Table II.B-1  
 Emergency Organizations**

Emergency	Organization	Telephone
Injury/Chemical Exposure	Station Dispensary	Ext. 2444
	Florida Keys Memorial Hospital	294-5531
	Key West Poison Control Center	294-5531
Fire/Explosion	Station Fire Department	Ext. 2776
	Explosive Ordnance Disposal Team	(904) 270-5412
	City of Key West Police (incident occurs in city)	294-2511 (911)
	City of Key West Fire Dept. (Incident occurs in city)	911
	Florida Department of Environmental Protection	(904) 413-9911
	Monroe County Emergency Management	289-6018

**Table II.B-1  
 Emergency Organizations**

Emergency	Organization	Telephone
Hazardous Material Spill	Station Fire Department	Ext. 2776
	Hazardous Waste Coordinator	Ext. 2304
	City of Key West Police (incident occurs in city)	294-2511 (911)
	City of Key West Fire Dept. (incident occurs in city)	911
	Monroe County Emergency Management	289-6018
Spill in Waterway or Spill in Quantity Exceeding Reportable Quantity (i.e., 1 pound)	National Response Center	1-800-424-8802
	EPA Region IV	(404) 881-4062
	Coast Guard Captain of the Port	294-4760
	Florida Department of Environmental Protection	(904) 413-9911
Natural Disaster	Station Security	Ext. 2515
Hurricane Threat	National Hurricane Center	661-5065

**Note:**

All area codes are 305 unless otherwise specified; and all extensions are for 296-3561, the main NAS Key West telephone number.

***Incident Response***

After being notified of an incident, NAS Key West Security Department Central Dispatch will notify the NAS Key West Fire Department or appropriate response unit. (Notifying the appropriate emergency response unit shall also serve as notification to the Emergency Coordinator.)

Upon arriving at the incident scene, NAS Key West Fire Department and/or other appropriate emergency response personnel, under the direction of the Emergency Coordinator, will establish a command post and response zones, if necessary, while trying to obtain details from those persons involved or familiar with the incident. Once the Emergency Coordinator has collected all information relevant to the incident, he/she will assess, with assistance from the NAS Key West Safety Department personnel, the possible direct and indirect human health and/or environmental hazards that may result, or may have resulted.

## Evacuation Plan

### *General Evacuation Procedures*

Although environmentally impacted media are not expected to be released during closure activities at Demolition, all personnel in the vicinity of an emergency must be evacuated when toxic fumes or gases are released (or a release is imminent), an explosion has occurred (or is imminent), and/or access for emergency responders must be provided.

If the Emergency Coordinator determines it necessary to evacuate nonessential personnel from an incident site, four methods of communicating evacuation orders/procedures exist:

- Voice or hand signals (for incidents at the Demolition Key treatment facility)
- Public announcement (PA) systems (standard equipment on all fire trucks)
- Bullhorns (standard equipment on each fire department and PMO emergency vehicle)
- Knocking on individual doors in areas of concern

In each instance, emergency personnel will alert evacuees of the reason and where to evacuate and will contact the resources in Table II.B-2 for assistance in reporting the evacuation process. Evacuation routes will depend on wind direction and the location of the incident. Maps of the evacuation routes (and alternative evacuation routes) from the treatment facility and areas along the designated transportation route between NAS Key West and Demolition Key are contained within this closure permit as Figure II.B-3. The hazardous waste treatment facility operator (Weapons Department Officer) and the facility Emergency Coordinator are responsible for determining the best evacuation route.

**Table II.B-2  
 Evacuation Alerting**

List of Potential Organizations to Be Alerted If an Evacuation Is Required	Day Phone	24-hr Phone	
Naval Air Station Key West	Disaster Preparedness Officer	(305) 293-2988	(305) 293-2971
	Spill Notification Center	(305) 293-3333	(305) 293-3333
	NAS Key West Security	(305) 293-2531	(305) 293-2531
Local Authorities (law enforcement, fire, emergency planning, etc.)	Monroe County Sheriff's Office	(305) 296-2424	(305) 292-7001
	Florida Highway Patrol	(305) 289-2382	(305) 289-2382
	Florida Marine Patrol	(305) 289-2320	(305) 289-2320
	Key West Fire Department	(305) 292-8186	(305) 292-8145
	Key West Police Department	(305) 292-8143	(305) 292-8143

notification will automatically inform the Emergency Coordinator, or his/her alternate, of the situation. The Emergency Coordinator (or Alternate Contact) will be responsible for ensuring the NAS Key West Emergency Management Department representatives and all other necessary response organizations are properly notified.

For off-base incidents, the initial Emergency Coordinator may be a civilian appointee until the NAS Key West Emergency Coordinator (or Alternate Contact) arrives on scene. The NAS Key West Emergency Coordinator will then assume the responsibility of the response activity. Assigning ultimate emergency coordination responsibilities to the NAS Key West Emergency Coordinator ensures coordination by someone familiar with the contents of this permit application, capable of rallying the necessary resources, cognizant of and having the ability to apply the appropriate regulations, and familiar with the properties of military ordnance. Table II.B-3 lists the Demolition Key Emergency and Alternate Coordinators.

**Table II.B-3  
 Emergency Coordinators**

Primary Contact	Alternate Contact
Patsy McNeill Permitted Hazardous Waste Storage Facility Office (305) 293-2776 Emergency (305) 293-2583	Lt. Tom Poore Weapons Department Office (305) 293-2839 Emergency (305) 293-2653

### **Emergency Response Equipment**

Emergency response to incidents involving closure of the Demolition Key hazardous waste ordnance treatment facility may require the skills of many different units. Each response unit has specific equipment it may use during such an incident. All NAS Key West and Demolition Key emergency response equipment shall be maintained in working condition at all times or immediately replaced with working equipment of identical function.

Tables II.B-4 and II.B-5 list emergency response equipment by equipment item and response unit, respectively, the quantity of the specific item, and phone number of the unit responsible for maintaining and replacing said equipment.

Emergency response equipment includes PPE, monitoring equipment, communication equipment, decontamination equipment, manual use equipment (shovels, rakes, brooms, etc.), absorbent/containment equipment, industrial removal/remediation equipment, and fire fighting equipment.

Spill control equipment consists of nonsparking shovels and a 55-gallon drum. Fire fighting equipment consists of two carbon dioxide fire extinguishers and shovels. Communications equipment consists of a minimum of two, two-way radios. Fire extinguishers, shovels, and radios will be aboard each boat and at the Demolition Key treatment facility during closure operations and at EOD Offices at Truman Annex, Key West, at other times. The first-aid kit includes:

- Burn treatment
- Antiseptic adhesive bandages
- Tape
- Compresses for treating of minor cuts and scrapes

All emergency response teams, including the hospital, will be notified each day prior to conducting closure operations. Navy band 81 is dedicated for EOD personnel and shall be used by all closure operation participants.

Table II.B-6 lists the City of Key West's Fire Department emergency response equipment available to NAS Key West during an emergency.

### **Training**

All emergency response personnel receive training in the proper handling and storage of military ordnance as it applies to their task, according to the Training Plan included in this closure permit.

NAS Key West requires all individuals involved in operations involving hazardous constituents or waste to receive appropriate annual training. Those persons not appropriately trained according to 29 CFR 1910.120(p) are prohibited from participating in closure operations until attending and passing the requisite training requirement.

### **Inspection and Surveillance of Treatment Facility**

As discussed later in this section, the treatment facility will be inspected before and during closure operations to identify hazardous conditions and prevent accidents involving untreated ordnance items from past hazardous waste ordnance treatment operations.

### **Equipment and Power Failure**

Closure activities will not require special precautions due to equipment and/or power failure.

### **Personal Protective Equipment**

Personnel handling impacted environmental media shall be properly dressed in PPE including: latex/nitrile inner gloves, cotton or leather outer gloves, safety glasses with side shields (when required), Tyvek coveralls, Navy-issued combat/safety boots, and full- or half-face air-purifying respirator with combination cartridges (if deemed necessary by the Safety Department).

### **Prevention of Reactions of Ignitable, Reactive, and Incompatible Wastes**

Personnel involved in closure operations at Demolition Key's treatment facility will be properly trained according to 29 CFR 1910.120(p) at a minimum. To the greatest extent practical, personnel shall exercise extreme care in removing impacted environmental media and ordnance scrap materials during facility closure operations to prevent potential reactions which may:

- Generate extreme heat, pressure, fire, explosions, or violent reactions;
- Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment;
- Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosion; or
- Through other like means, threaten human health or the environment.

All hazardous waste formerly treated at Demolition Key's treatment facility were known to be reactive due to their inherent physical characteristics. Although treatment facility maintenance operations included unit clearance of scrap and untreated waste ordnance, personnel must take appropriate measures during closure operations to prevent accidental ignition/detonation of hazardous waste ordnance and munitions if discovered. The most prominent threat arises from external ignition sources such as open flames, sparks, etc. NAVSEA OP-5, along with base-specific standard operating procedures (SOPs), dictate a number of safety guidelines which are strictly enforced to ensure that accidental ignition does not result. These guidelines include, but are not limited to:

- No-smoking signs shall be posted at the entrance(s) to the impact ranges,
- Unauthorized ignition sources shall be prohibited at the artillery impact ranges,

**Generator's Signature:**

The generator of hazardous waste at Demolition Key is NAS Key West. The Commanding Officer (CO) of NAS Key West, or a CO authorized representative, are the only individuals that can sign manifests completed for the transport of hazardous waste from Demolition Key as part of closure activities. In this case, the CO has assigned these responsibilities to the PWO Environmental Department's Director. The signature should be dated, printed, and completed in ink.

**Transporter's Signature:**

Obtain the handwritten signature of the designated transporter.

**Manifest Copy Distribution**

One copy of the manifest must be retained pending receipt of a signed copy from the owner or operator of the designated facility. A copy of the manifest containing the handwritten acceptance signature and date of acceptance by the designated facility must be retained for three years. A copy of all manifests must be submitted to FDEP within 30 days.

**Routing and Out-of-State Manifests**

Many individual states require additional information on the manifest. Out-of-state hazardous waste shipments should be coordinated with FDEP and its counterpart in states to be transversed to ensure compliance in each state.

**Written Exception Reports:**

If a signed copy of the manifest has not been received by NAS Key West from the designated facility within 45 days of the date of acceptance by the transporter, a written report must be made. The exception report must include a cover letter explaining the efforts to locate the shipment of waste and the results of those efforts; a legible copy of the manifest that does not have confirmation must also be included with the exception report. The exception report must be submitted to:

State of Florida  
Department of Environmental Protection  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Copies of all exception reports must be retained for three years.

## **Record-Keeping and Reporting**

The FDEP/USEPA hazardous waste management rules require NAS Key West to keep certain records. Those records and retention periods are as described below. These records must be made available upon request to the USEPA or FDEP.

### **Storage Records**

All hazardous waste storage records become a permanent record at NAS Key West. Tenant activities will turn in their storage logs to Public Works if their operations at NAS Key West are closed.

### **OPNAV Hazardous Waste Annual Report**

OPNAVINST 5090.1B of May 1993 requires that NAS Key West submit an annual report of all hazardous waste generated. The report must be prepared according to instructions provided with OPNAVINST 5090.1B and be submitted by February 1 each year to cover hazardous waste generated during the preceding calendar year.

Public Works will retain, for at least three years, file copies of the Hazardous Waste Annual Report required by OPNAVINST 5090.1B.

### **Biennial Hazardous Waste Report**

This report, which is submitted on USEPA Form 8700-13B must be submitted by March 1 each even numbered year and cover activities for the preceding calendar year. The report is to be prepared according to instructions on the form and submitted to FDEP.

A copy of each annual hazardous waste report (USEPA Form 8700-13B) must be kept for at least three years. Public Works will maintain these records.

### **Incident Reports**

A record of all hazardous waste incidents that require the contingency plan to be implemented must be kept as a permanent record at NAS Key West. These records must include details of the incident and will be maintained by Public Works.

### **Contingency Plan**

A copy of the contingency plan must be kept at each hazardous waste temporary storage area. Additionally, copies of the contingency plan must be submitted to the station security officer, station fire chief, and station dispensary.

### **Training Records**

The training records must include the following information:

- The job title for each position at the NAS related to hazardous waste management and the name of the person filling each position.
- A written job description these positions listed above.
- A written description of the type and amount of both initial and continuing training that will be given to each person filling these positions.
- Documentation that the training or job experience required has been given to, and completed by, these personnel.

Training records for current personnel must be kept as permanent records. Training records on former personnel must be kept for at least three years from the date the personnel last worked at NAS Key West. Personnel training records may accompany personnel transferred with the Navy.

Hazardous waste training records will be maintained by Public Works for all hazardous waste activity, including records of tenant commands.

### **Required Notice**

Any changes of status relating to hazardous waste requires certain notices by Public Works to FDEP. Only one such notice applies to this site. This notice is described below.

### **Transfer Of Ownership Or Operation**

Should ownership or operation of the hazardous waste facility be transferred, Public Works must notify in writing the new owner or operator of the requirements of 40 CFR 270 and 264 and of the FDEP hazardous waste regulations in Chapters 62-730 of the Florida Administrative Code.

**SECTION II.D**  
**CLOSURE PLAN**

## CLOSURE PLAN

### Introduction

This section satisfies the requirements of 40 CFR 270.14(b)(13) and FAC 62-730. This document provides a closure plan for the former Demolition Key OB hazardous waste ordnance treatment unit on the southeast portion of Demolition Key NW which covers approximately 940 square feet with a maximum depth of 3 feet, as shown in Figure II.C-1. The OB unit is at the edge of a range used to train Explosive Ordnance Disposal (EOD) personnel and test developmental ordnance. This unit was used for the OB of waste military ordnance. This area is designated as a Solid Waste Management Unit (SWMU), and has interim status for the treatment of hazardous waste, per the requirements of 40 CFR 265.

Because the OB treatment unit is within an active military range, the closure plan only addresses the unit and its immediate vicinity. Any potential contamination resulting from the intended use of the range will be addressed when it is rendered inactive. At that time, any potential contamination will be addressed under the DOD "Range Rule" being written specifically for those issues.

Other ordnance training and testing areas are on Demolition Key NW. These ordnance training and testing areas provide area Navy EOD and SEAL personnel with a remote, unconfined, and safe area to conduct proficiency training required for these positions. It also provides DOD with an area to test ordnance and perform emergency response operations on unstable and/or civilian explosives. These areas shall remain active as long as the U.S. Navy continues to provide training to local and area Navy personnel, as well as response services for emergency ordnance incidents. At the conclusion of these training and testing areas' operational lives, they will be handled as part of NAS Key West's Installation Restoration (IR) program.

This closure plan was prepared in accordance with 40 CFR 264, Subpart G, and FAC 62.730-180 to ensure clean closure at Demolition Key. Although the unit is subject to the general closure requirements of 40 CFR 264, Subpart G, closure will also meet the specific requirements of Subpart X (miscellaneous unit) under 40 CFR 264.

### Facility Description and Operational Parameters

The facility is open air with no protection from weather (see Figure II.D-1). The topography of the area surrounding the unit is basically flat, sloping slightly in all directions toward the Gulf Coast, and topped with a variable grass cover, pines, and mangroves. Much of the area surrounding the unit is classified as wetlands. A topographic map of the area is included as

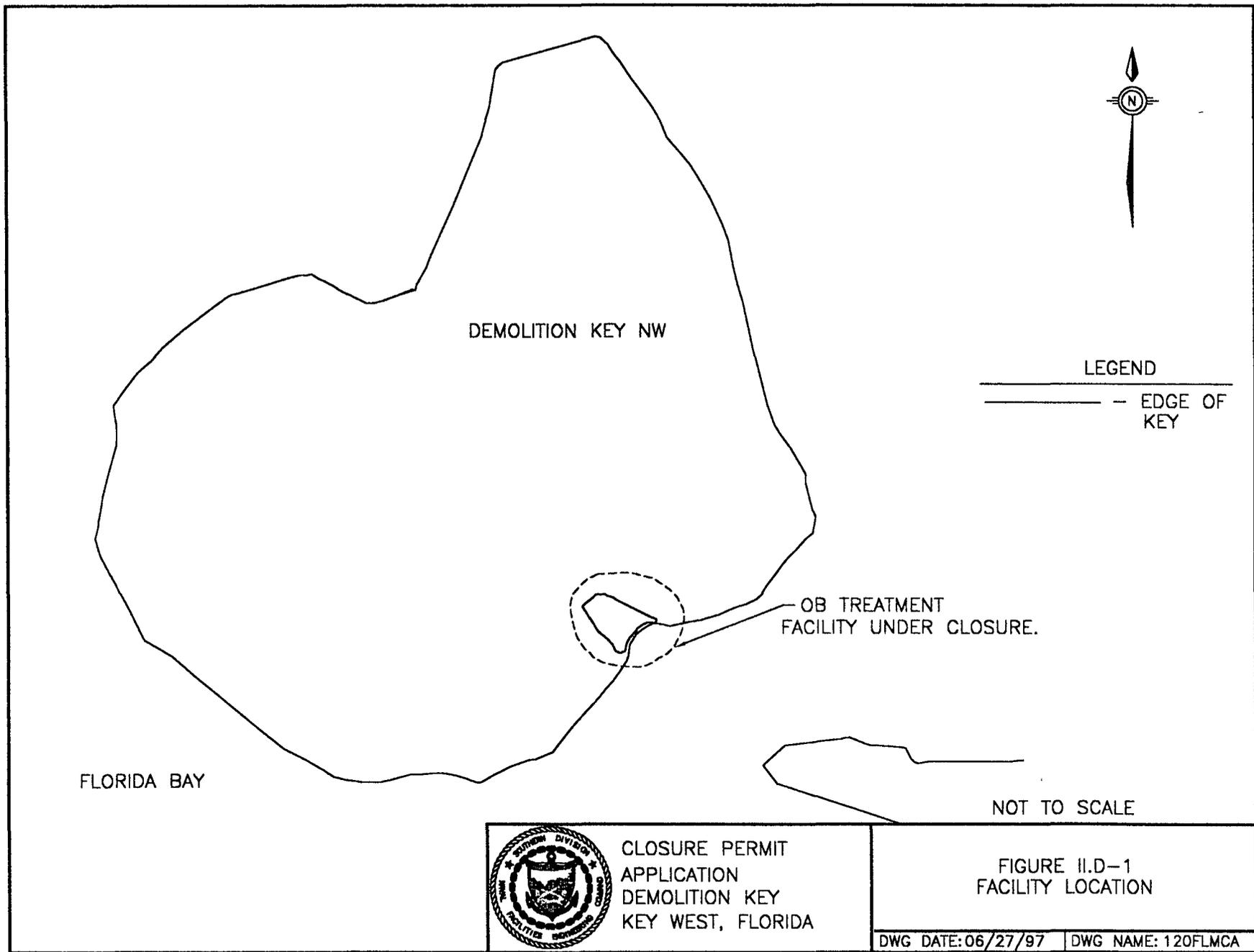


Figure II.B-1. The treatment unit is further described in Section II.C.1 of this closure permit application. NAS Key West generates waste explosives and munitions designated as hazardous waste due to their reactive and potential toxic characteristics (D004 to D011). Between approximately 1965 and the present, the Demolition Key OB unit, which is owned and operated by NAS Key West, was used to train Navy personnel, test ordnance and munitions, and treat various types of munitions and propellants used by the U.S. Navy through OB. Hazardous waste is generated when these munitions are declared waste by the DON.

Following declaration as a hazardous waste, the item is relinquished to the NAS Key West Weapons Department for accumulation and subsequent treatment. The declaration of an ordnance item as hazardous waste may arise as a result of any of the following:

- The age of the item exceeds maximum shelf life.
- The item appears damaged.
- The item shows evidence of deterioration.
- The item has been declared surplus or unserviceable.
- The item can no longer be identified.

The types of ammunition and explosives shown in Table II.D-1 have been authorized for treatment through OB per *Ammunition and Explosives Ashore – Safety Regulations for Handling, Storing, Production, Renovation, and Shipping* (NAVSEA OP-5), and are assumed to have been treated by OB at the subject unit. All OB operations were performed in accordance with NAVSEA OP-5. Due to the restricted nature of this publication, it cannot be attached to this closure permit application. However, the procedures most recently in use are described in Section II.C.1 of the Demolition Key Part B closure permit application for OB activities.

Waste ordnance was burned at the unit on the ground surface. Supplemental materials such as diesel fuel may have used during burning operations in the early stages of unit's life. "Starter" or initiating fluids are not known to have been used at the unit since the late 1980s. Combustion is almost always complete. Following a burn, the area is left unaltered for 24 hours to ensure the waste has completely burned (i.e., been treated). Periodically, ash from the OB treatment process was removed and containerized for transport to the NAS Key West permitted storage facility.

Although OP-5 allows miscellaneous quantities of waste to be burned based upon the type of explosive burned and the areal size of the unit, the operators have restricted this unit to a 5 pounds NEW per burn limit.

**Table II.D-1**  
**Ammunition and Explosives Treated through Open Burning**

Black Powder
Floating Smoke Pots (HC-filled) and Similar Ammunition
High Explosives (Bulk) [TNT]
Cartridge-Actuated Devices (CADs)
Demolition Kits
Primers
Pyrotechnics
Smokeless Powder
TNT Demolition Blocks
Tracer Mix and Other Pyrotechnic Mixtures

## Maximum One-Time Waste Inventory

The operational maximum quantity of hazardous waste treated at the subject OB unit is calculated to be approximately 600 pounds NEW. This amount equates to a (single event) one-time maximum quantity of 5 pounds NEW (i.e., the operational limit per NAVSEA OP-5) as was designed for the unit. The use of the term NEW allows Navy personnel to treat a variety of ordnance items regardless of the gross weight of all items per treatment activity. As such, it is difficult to ascertain the one-time, gross weight maximum of hazardous waste ordnance treated at Demolition Key. This quantity could be estimated from 5 pounds to more than 100 pounds.

## Closure Standards and Summary

### *Closure Performance Standard*

The unit will be closed in a manner that:

- Minimizes the need for further maintenance;
- Controls, minimizes, or eliminates, to the extent necessary to prevent threats to human health or the environment, postclosure escape of hazardous waste, hazardous waste

constituents, leachate, contaminated runoff, or hazardous waste decomposition products to the ground, surface waters, or the atmosphere; and

- Complies with the closure requirements of 40 CFR 264 Subparts G and X and FAC 62.730-180.

The general steps required to accomplish this closure standard are:

- Identification and removal of ordnance debris and ash;
- Collection of samples of appropriate media to determine whether the underlying or surrounding media have been contaminated with hazardous wastes or hazardous constituents;
- Performance of any corrective actions deemed necessary to restore the area to original conditions; and
- Certification closure completion.

A professional engineer certified in the State of Florida will certify that all closure activities are conducted in accordance with this closure permit.

## **Environmental Setting**

### *Physiography*

Demolition Key NW is one of two twin keys approximately a quarter mile north-northwest of Fleming Key separated by Garrison Bight Channel. The twin keys (Demolition Key NW and SE) were formerly one larger key which was separated by a shallow channel formed by past ordnance testing. Florida Bay surrounds both keys. Demolition Key NW comprises approximately 8.14 acres. The topographic features of Demolition Key NW are described in detail in Section II.C.2-Environmental Assessment. Figures II.C-7 and II.C-8 show the topographic features of the key and surrounding areas. As shown in these figures, the key is generally flat with a maximum elevation of 4 to 5 feet above msl.

### *Geologic and Hydrogeologic Information*

Section II.C.2 describes regional and local geologic and hydrogeologic characteristics. Figures II.C-6 through II.C-8 depict regional and key-specific geologic formations. Of principal interest in developing this closure plan are the results of previous surface material and shallow

groundwater characterization studies. The outcome of these studies is discussed in Section II.C.2 and elements pertinent to sampling and analysis plan development are briefly summarized below.

### *Surface and Vadose Materials*

Surface materials across Demolition Key NW consist of dredge spoils excavated from Florida Bay during key construction in the late 1930s to early 1940s. These dredge spoils consist of a mix of white to gray gravel to cobble-sized coral/limestone rubble (60%), fine to coarse sand (10% to 30%), and brown to gray silt/mud (10% to 30%). The depth of fill ranges from 3 to 8 feet across the key. In the immediate vicinity of the unit, the fill depth was estimated to be 2.5 to 3.5 feet. The permeability of the dredge spoil material was estimated to be 2 to 6 inches per hour based on measurements of tidally influenced groundwater fluctuations. Beneath the fill material is the Miami Limestone at an approximate elevation of -3 feet msl.

### *Groundwater*

Groundwater has been studied on Demolition Key NW relative to tidally influenced fluctuations and general water quality parameters. Tide cycle-based measurements indicate direct communication between the surficial aquifer and Florida Bay. Groundwater levels fluctuated consistently with the rise and fall of the tide, although a time lag was noted. Shallow groundwater tidal response was estimated to average approximately 6 inches compared to a 2-foot response in adjacent open water. These measurements indicate that significant shallow aquifer flushing may occur with each tide cycle. Due to the proximity of the unit to the shoreline, it is reasonable to expect that the tidal flushing action would be more pronounced at this location.

Based on salinity measurements made during the groundwater study, it was determined that no identifiable freshwater lens exists on Demolition Key NW. Groundwater salinity in the vicinity of the unit (measured at boring B-7) was 30 ppt at high tide. This salinity concentration is comparable to that recorded in the channel separating Demolition Key NW from SE (35.5 ppt). Figure II.C-9 provides groundwater salinity contours at high tide for Demolition Key NW. Salinity readings for both keys at high and low tide are provided in Section II.C.2 of this closure permit application.

It was estimated from surface material characteristics and groundwater tidal fluctuations that approximately 400,000 gallons of water move into and out of the shallow aquifer at Demolition Key NW during each tide cycle (approximately 800,000 gallons/day). The daily tidal influences were estimated to result in flushing and/or displacement of approximately 35% of the shallow aquifer volume. Groundwater flow is expected to be radial as influenced by tidal conditions. During high tide, water from surrounding Florida Bay moves into the shallow aquifer toward the center of the key, and at low tide the flow reverses with shallow groundwater moving

toward Florida Bay. Figure II.C-11 shows the potentiometric surface of the shallow aquifer during high tide.

The surficial aquifer system in the Florida Keys does not contain water of sufficient quality and quantity to be considered a viable freshwater supply. Desalination would be required if water from this aquifer were to be used for potable purposes. There is currently no potable water supply (or need) on Demolition Key NW, and drinking water for the surrounding area (Key West, Fleming Key, etc.) is provided via an aqueduct system originating in Dade County, Florida.

### *Climatology*

The general climate in the area may be characterized as tropical. Section II.C.2 summarizes average rainfall, temperature, wind patterns, atmospheric stability class, and hurricane frequency.

### **Investigative Strategy**

The proposed investigative approach for the site was developed to assess the nature and extent of any impacts associated with previous unit operations, and to determine what action (if any) will be necessary to prevent detrimental effects to human health and the environment. Wildlife reserves and protected habitats are near the unit, but are not known to have been impacted by its operations. Due to the remote location of the key, the sequence of events has been planned to minimize the number of sampling phases necessary to characterize the unit.

### *Relevant Issues*

As discussed earlier, additional pits on and around Demolition Key NW were created by activities not regulated under RCRA, as discussed earlier. Navy personnel, such as the EOD and SEALs, have used the key for training in detonation procedures. Until the 1990s, the key was also used to test-fire developmental ordnance. In fact, the channel between Demolition Keys SE and NW was formed from testing developmental ordnance items (i.e., mines, etc.).

Active impact areas may have adverse effects on the environment, but are not regulated under RCRA. As a result, certain aspects of the sampling and analysis plan have been developed in an attempt to visually, physically, and/or analytically distinguish between impacts associated with past OB operations at the unit, and the training and testing operations at those pits that are to remain in operation. No effort will be made to delineate the nature or extent of environmental media impacts outside the immediate confines of the unit.

### ***Unit-Specific Investigative Approach***

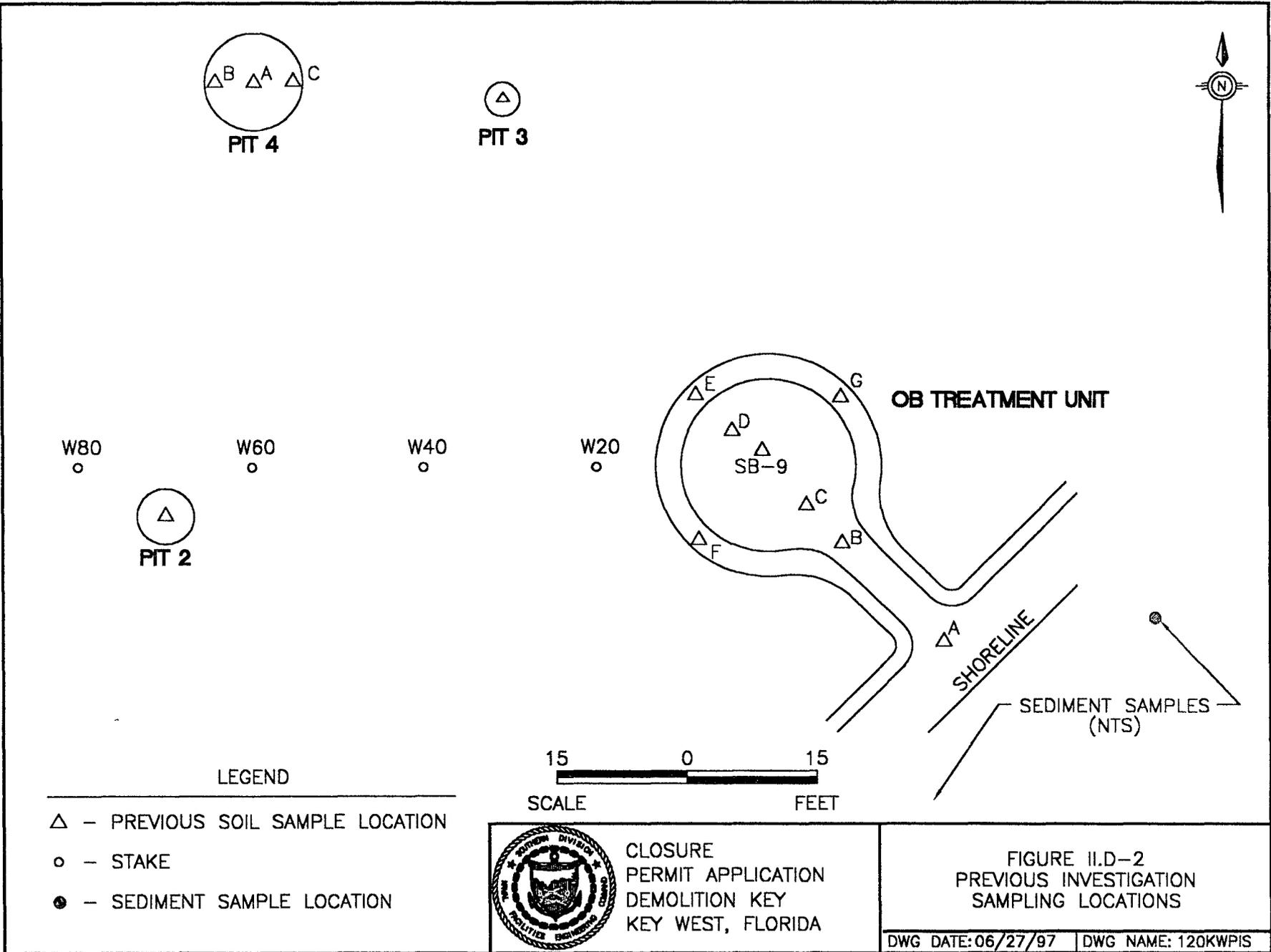
The bottom of the unit is close to the edge of the island and is near surface/groundwater. As described in this closure permit application, the unit was formerly used to treat waste ordnance by OB methods approved by the U.S. Navy. Based on these former uses, the principal chemicals of potential concern consist of metals and semivolatile organic compounds as listed in Section II.B.7, Tables II.B-7, II.B-8, II.B-9, and II.B-10. Although minor quantities of volatile organic compounds could also have been produced during OB operations, they would not be expected to remain in environmental media. Due to the nature of surface soil on Demolition Key NW and local climate (i.e., high average temperature, consistent winds), volatile organic compounds would be expected to rapidly disperse immediately after cessation of the disposal operation. (See Air Dispersion Modeling Section of II.C.3.) Because the pit has been used infrequently over the past five years, there is little chance that residual volatiles are present.

### **Previous Investigations**

Previous sampling and analysis efforts focused chiefly upon metals and semivolatile compounds in environmental media. IT Corporation conducted an investigation of the unit during a comprehensive sampling effort on Demolition Key NW from March through May 1993. Additional sampling was performed as part of a remedial investigation as documented in a report dated May 23, 1995. Figure II.D.2 shows the soil, sediment and groundwater sampling locations for previous studies in relation to the unit. Findings pertinent to the unit are summarized in the following paragraphs.

Numerous inorganic elements were detected in surface material (soil) samples. Semivolatiles were not detected in samples collected near the unit, although low concentrations (less than 1 mg/kg) of semivolatiles were detected in surface material samples collected elsewhere on Demolition Key NW. Table II.D-2 summarizes soil analytical results for the unit area. As shown, arsenic and lead were the only two analytes found to exceed their applicable risk-based soil standards. In most instances, arsenic and lead exceedances were co-located. The arsenic groundwater protection based cleanup goal was exceeded at three locations in the surface interval only. As a result, lead and arsenic are the primary chemicals of concern at the unit.

The 1- to 2-foot depth interval sample from boring SB-9 was also found to contain barium, cadmium, chromium, methylene chloride and nickel above the applicable groundwater protection-based cleanup goals. Lead and arsenic concentrations generally decreased with depth. An exception was identified at location P1D, where the lead concentration at the 1- to 2-foot depth was approximately 60% higher than that reported in the surface sample. A single sample (P1D 0 to 1 foot) was subjected to TCLP lead analysis. The total lead concentration in this sample was 28,900 mg/kg and the TCLP-lead result was 4.08 mg/L. It is important to note that lead slugs



- LEGEND
- △ - PREVIOUS SOIL SAMPLE LOCATION
  - - STAKE
  - - SEDIMENT SAMPLE LOCATION


 CLOSURE  
 PERMIT APPLICATION  
 DEMOLITION KEY  
 KEY WEST, FLORIDA

FIGURE II.D-2  
 PREVIOUS INVESTIGATION  
 SAMPLING LOCATIONS  
 DWG DATE: 06/27/97 | DWG NAME: 120KWPIS

Section II.D — Closure Plan  
Final Demolition Key Closure Permit Application  
Revision: 1  
June 27, 1997

TABLE II.D-2  
Summary of Soil Analytical Results  
NAS-Key West Demolition Key NW OB Pit  
Key West, Florida

Parameter	Screening Criteria			AS1006/	KW02165	KW02166	KW02163	KW02164	KW02161	KW02162	KW02152	KW02153	KW02154	KW02155	KW02159	KW02160	KW02157	KW02158
	Resid. Soil	Industrial Soil	GW Protection	SB-9 (2 ft.)	PIA (0-1 ft)	PIA (1-2 ft)	P1B (0-1 ft)	P1B (1-2 ft)	P1C (0-1 ft)	P1C (1-2 ft)	P1D (0-1 ft)	P1D (1-2 ft)	P1E (0-1 ft)	P1E (1-2 ft)	P1F (0-1 ft)	P1F (1-2 ft)	P1G (0-1 ft)	P1G (1-2 ft)
Acetone	130	20,000	14	0.044	NA													
Aluminum	75,000	100,000+	Not Applicable	20,900	NA													
Antimony	26	820	Not Applicable	43.5	ND	ND	ND	ND	ND	ND	287	512	ND	ND	ND	ND	ND	ND
Arsenic	1, 2	0.7	10(a)	15, 19.3	0.318	0.781	7.54	0.791	73.8	12.1	48.2	10	2.59	1.26	3.31	3.4	1.14	1.05
Barium	2	5,000	140,000	32	52	NA												
Benzene		0.8	200	0.003	0.002	NA												
Beryllium	1	0.1	1.3	180	0.36	NA												
Cadmium	2	37	1,000	6	13.9	NA												
Chromium	2	150	10,000	19	40.3	NA												
Cobalt		4,700	120,000	Not Applicable	10.2	NA												
Copper		2,900	82,000	Not Applicable	1,540	NA												
Lead	1	500	1,000(b)	Not Applicable	2,100	ND	ND	2,250	274	2,290	1,570	28,900	46,800	1,140	144	672	66.1	ND
Magnesium		Not Applicable	Not Applicable	Not Applicable	7,660	NA												
Manganese		10,000	10,000	Not Applicable	1,560	NA												
Mercury		23	610	3	ND	NA												
Methylene chloride	2	9.3	760	0.01	0.078	NA												
Nickel	2	1,500	41,000	21	34.3	NA												
Silver		380	10,000	Not Applicable	9	NA												
Tin		44,000	1,000,000	Not Applicable	93.4	NA												
Vanadium		480	14,000	Not Applicable	5.1	NA												
Zinc		23,000	610,000	42,000	6,240	NA												
TCLP - Lead (mg/l)	5	5 (TCLP Standard)	NA	NA	NA	NA	NA	NA	NA	NA	4.08	NA						

NOTES:  
 ND indicates the parameters was not detected  
 NA indicates analysis did not include the referenced parameter  
 1 indicates the concentration in at least one sample exceeded the residential soil risk-based concentration  
 2 indicates the concentration in at least one sample exceeded the groundwater protection concentration  
 Screening criteria for GW protection set equal to lesser of FL leachability based CG or USEPA SSL, 1996  
 (a) The 10 mg/kg limit for arsenic was discussed with USEPA Region IV and FDEP on May 2, 1995  
 (b) Industrial site cleanup goal per OSWER Directive  
 Risk-based concentrations were derived from USEPA Region III Risk-Based Concentration Table, January-June 1996

are present in pit bottom materials. The limited surface area (compared to fine-grained particles) and oxidized coatings of observed slugs likely limit the solubilization of the metals present in this form, and may account for the apparent disparity between reported total and leachable (TCLP) concentrations. These leachable concentrations were low, therefore, potential risk is perceived as minimal.

The maximum reported lead concentrations were associated with samples collected at the bottom of the pit. Samples collected along the pit perimeter and from its walls contained lead and arsenic concentrations at least one order of magnitude lower than the pit bottom samples. This pattern suggests isolated impacts within the topographic sink defined by the deepest portion of the pit.

Table II.D-3 summarizes the results for a single groundwater sample collected at the unit. This sample was collected as a grab sample from boring SB-9. As shown in Table II.D-3, the groundwater standards for antimony, cadmium, copper, lead, nickel, and zinc were exceeded in this sample. Due to the manner in which this sample was collected, the analytical results are considered suspect. Subsequent studies have documented the presence of heaving sands, and the water table is reported within 1.5 feet of ground surface at the base of the pit. As a result, it is probable that surface and near-surface sediment were entrained in the grab groundwater sample.

The presence of these sediments likely resulted in falsely elevated metals concentrations. The aforementioned soil TCLP-lead results do not suggest excessive leaching would be anticipated. These analyses showed that the TCLP standard was not exceeded in the extract from the maximally impacted surface soil sample. Because all other soil lead results were at least an order of magnitude lower than the maximum, the average lead leaching rate across the area of concern would not be expected to result in groundwater concentrations near the level reported at SB-9. Based on these factors, previous groundwater results should not be considered representative of true groundwater quality near the unit.

It is also worthy of note that methylene chloride was not detected in the groundwater sample. This observation indicates that either the reported soil concentration is in fact protective of shallow groundwater based on site-specific characteristics or possibly that the methylene chloride reported in soil originated from an exogenous source. In either case, volatile organic compounds are not suggested as a significant concern in soil or groundwater.

IT's investigation also included collecting two sediment samples from the channel running between Demolition Key NW and SE. Table II.D-4 summarizes the results of inorganic analyses for these samples. As shown in the table, neither sediment sample had inorganic constituent concentrations in excess of the standards provided in IT's summary. The samples were collected from locations which would be most likely to receive surface water runoff from the unit area. The absence of any impact indications suggests that unit runoff has not adversely affected channel sediments.

**Table II.D-3**  
**Summary of Groundwater Analytical Results**  
**NAS Key West Demolition Key NW OB Pit**  
**Key West, Florida**

Parameter	Florida GW Guidance Concentration (ug/l)	AS1011/ SB-9
Antimony	1	6
Arsenic		50
Beryllium		4
Cadmium	1	5
Chromium		100
Cobalt	1	2,200 (a)
Copper	1	1,000
Lead	1	15
Mercury		2
Nickel	1	100
Silver		100
Zinc	1	5,000

**NOTES:**

ND indicates the parameters was not detected

NA indicates analysis did not include the referenced parameter.

All units are ug/L unless otherwise noted.

(a) Tap water risk-based concentration from USEPA Region III Risk- Based Concentration Table, January-June 1996

**Table II.D-4**  
**Summary of Sediment Analytical Results**  
 NAS Key West Demolition Key NW OB Pit  
 Key West, Florida

Parameter	Sediment Standards (mg/kg)	AS1012/SS-1	AS1013/SS-2
Arsenic	8	4.7	3.6
Barium	Not Applicable	9.4	4.7
Beryllium	4	0.28	0.2
Chromium	33	5.9	3.4
Copper	28	ND	4.5
Lead	21	11.5	5
Vanadium	Not Applicable	ND	1.7
Zinc	68	11.4	ND

**Notes:**

- ND indicates the parameters were not detected.
- All units are mg/kg unless otherwise noted.

**Treatment Alternatives**

Based on previous reports and field observations, it is apparent that a significant amount of debris is in the pit. This debris consists of metal fragments and other material associated with past OB treatment operations as well as general refuse deposited by site trespassers. Weathered lead projectiles resemble coral and are often missed during pit maintenance activities. Elevated lead and arsenic (as well as other metals) concentrations are presumed to be related to the presence of these metals in debris and shallow soil. This hypothesis is supported by the fact that lead fragments have been visible on the ground surface.

Based on the identified metals sources and access restriction on the key, the most feasible and easily implemented treatment alternative is anticipated to be gross removal of debris and shallow surface materials. The removal effort would be restricted to the immediate confines of the unit (pit) and sidewalls/rim. Removal efforts will not involve areas beyond the rim of the pit due to the operational training and testing pits within 40 feet of the unit.

Removal will be accomplished using of a combination of methods. A fine rake and/or manual removal methods (e.g., shovel, pick, etc.) will be used to collect loose metal fragments, dislodged soil and rock, and general refuse. For maximally impacted soil and intact coral/rubble, it may be necessary to employ picks or a Bobcat or backhoe to dislodge the material. Shovels, other

manual methods, and/or small heavy-equipment pieces may be used to containerize these materials. Excavation will be limited to the base of the pit. Due to the shallow groundwater, the removal depth within the pit is expected to be 6 to 18 inches. Details regarding the proposed removal efforts are presented in subsequent sections (Corrective Action).

### **Data Gaps**

The principal data gaps remaining pertain to total and leachable lead and arsenic concentrations in soil. Previous efforts have generally consisted of analyzing samples for total metals or leachable metals by TCLP. In only one instance was the same sample subjected to both types of analyses. As a result, the available data do not adequately support estimation of mean leachable fraction as a function of total metal concentrations across the area of concern. In addition, existing soil data represent a combination of debris-related and residual metals concentrations. It will be important to establish a more accurate estimate of actual soil metals (total and leachable) concentrations through a post-removal sampling effort. In response to FDEP requests and overly conservative interpretations of previous sampling results, additional total and/or leachable analyses will be performed for volatiles, semivolatiles, nitro-aromatics/nitroamines, ammonia, nitrates, and sulfates.

In order to estimate the leachable metals fraction in previous investigations, the TCLP has been used. This method was developed as a means of estimating leachate quality in a landfill setting. As such, the extraction solution was designed to approximate the acidic qualities of domestic waste leachate. The applicability of this method in projecting leachate characteristics at the unit is questionable. A more appropriate method for this land disposal-type unit would simulate the effects of rainwater on contaminant mobility. As a result, USEPA Method 1312 — Synthetic Precipitation Leaching Procedure (SPLP) would be expected to provide results more closely representing in situ conditions.

Existing hydrogeologic and climatological data will be used to estimate annual groundwater flow beneath the pit, tidal influences, and potential leachate volumes. This information will be coupled with the SPLP results for each target analyte to estimate any shallow groundwater impacts. Because shallow groundwater is not a viable potable water source, it is not appropriate to compare these estimates with drinking water criteria. Instead, these projections will be used to predict contaminant mass flux to the adjacent channel separating the two portions of Demolition Key.

### **Potential Receptors**

The potential human receptors at Demolition Key include NAS Key West personnel engaged in training and testing operations and infrequent trespassers gaining access with watercraft. Wildlife reserves and protected habitats nearby contain species that are considered potential receptors.

Impact to these areas by any residual contaminants will be assessed. Current data do not suggest that the unit has adversely affected the benthic deposits in nearby water bodies (Demolition Key channel). Sediment analytical results show metals concentrations at naturally occurring levels. These data support a conclusion that surface runoff-related sediment transport from the unit is not a significant concern. No surface water data have been collected from the channel. As a result, no definitive information exists to support conclusions relative to this medium so potential aquatic biota receptors must be considered.

Research through four governmental organizations (U.S. Fish and Wildlife Service, FGFFC, NAS Key West Natural Resources Department, and Monroe County) found no evidence that threatened or endangered species currently live on the key. The FGFFC indicated that the Least Tern *may* nest on Demolition Key NW. The principal concern for this species would be disruption of nesting by ordnance burning. Because the OB unit no longer operates, no habitat impacts are expected after closure and no formal assessment is warranted.

## **Objectives**

The primary objectives of the tasks set forth in this closure plan are to assess the nature and extent of surface material and potential groundwater/surface water impacts associated with former unit operations and from this determination, provide a means of closure protective of human health and the environment (i.e., clean closure). Contaminant nature and extent information will, in turn, be used to assess the threat to receptors posed by surface material contaminants. Before sampling begins, gross removal of debris and surface and shallow subsurface material will be performed. Based on field observations made during tours of the facility, a significant fraction of the metals' concentrations previously reported in surface materials may be associated with slugs and metal munitions casing fragments. These materials were deposited within the pit confines during treatment activities principally involving munitions of 0.50 caliber or less. The removal effort will focus on collecting slugs and fragments, as well as excavating surface material in the former primary burn point at the base of the pit. These activities are expected to substantially reduce the concentration of metals in surface and subsurface materials.

Sampling activities will be limited in scope based on adjacent training and testing facilities, which are to remain in service. Analytical results will be used to estimate potential receptor exposure to residual surface material contaminants, and the migration potential with respect to leaching to groundwater and subsequent discharge to adjacent surface water bodies. Relative to exposure to surface materials, carcinogenic risk and/or noncarcinogenic hazard posed by residual surface material contamination will be predicted based on standard risk assessment protocol. The potential receptors, as discussed below, will include infrequent recreational trespassers and NAS Key West personnel participating in training and testing exercises. The exposure assessment will be limited

to evaluating direct exposure (incidental ingestion and dermal contact) to surface materials at the unit.

The human health portion of the closure risk assessment will adhere to USEPA Region IV and FDEP guidance. Due to the current and expected future site uses, the risk assessment will incorporate industrial soil screening values as provided in:

- *Risk-Based Concentration Table, January-June 1996*, USEPA Region III (Roy L. Smith); (RBC Screening Tables).
- *Cleanup Goals for the Military Sites in Florida*, FDEP, April 5, 1995 (or latest version)(CG Tables)

Maximum surface material (soil) concentrations will be compared to the lowest of the corresponding residential screening values. Chemicals found to exceed screening values will be retained as chemicals of potential concern (COPCs) in the formal assessment. Residential screening values were selected because the generic scenario established to develop them provides a conservative approximation of current and future uses of the subject site. Background inorganic concentrations have been established for a limited number of parameters (i.e., arsenic) as documented in previous reports. These naturally occurring concentrations will be used as secondary screening values to determine inorganic COPCs.

For those chemicals identified as COPCs, risk will be assessed formally to evaluate the threat to human health posed by residual concentrations. The human health risk assessment will be prepared generally in accordance with the guidelines set forth in:

- *Risk Assessment Guidance for Superfund (RAGS), Volume I – Human Health Evaluation Manual, Part A*, USEPA/Office of Emergency and Remedial Response (OERR), EPA/540/1-89/002, December 1989 (Interim).
- *RAGS, Volume I – Human Health Evaluation Manual, (Part B, Development of Risk-based Preliminary Remediation Goals)*, USEPA/OERR, EPA/540/R92/003, December 1991 (Interim).
- *RAGS, Volume I – Human Health Evaluation Manual, Supplemental Guidance- Standard Default Exposure Factors – Interim Final*, USEPA/OERR, Office of Solid Waste and Emergency Response (OSWER) Directive: 9285.6-03, March 25, 1991.
- *RAGS, Volume I – Human Health Evaluation Manual, Supplemental Guidance-Dermal Risk Assessment – Interim Guidance*, USEPA/OERR, August 18, 1992.

- *Supplemental Guidance to RAGS: Region IV Bulletins Human Health Risk Assessment — Interim*, USEPA Region IV Waste Management Division, Office of Health Assessment, November 1995.
- Supplemental Guidance to RAGS: Region IV Bulletin, *Development of Health-Based Preliminary Remediation Goals, Remedial Goal Options (RGO) and Remediation Levels*.
- Supplemental Guidance to RAGS: Region IV Bulletin, *Provisional Guidance of Quantitative Risk Assessment of PAHs* (USEPA Document EPA/600/R-93-089 July 1993);
- *Exposure Factors Handbook*. USEPA, Office of Health and Environmental Assessment. (USEPA Document EPA/600/8-89/043, July 1989)

The formal human health risk assessment will include the following steps (as appropriate):

- Site characterization: evaluation of data regarding site geography, geology, hydrogeology, climate, and demographics.
- Data collection: analysis of environmental media samples, including background/reference samples.
- Data evaluation: statistical analysis of analytical data to identify the nature and extent of contamination and to establish a preliminary list of COPCs based on risk-based and background screening. This list will subsequently be refined to identify chemicals of concern (COCs).
- Exposure assessment: identification of potential receptors under current and predicted future conditions and potential exposure pathways, and calculation/quantitation of exposure point concentrations and chemical intakes.
- Toxicity assessment: qualitative evaluation of the adverse effects of the COPCs, and quantitative estimate of the relationship between exposure and severity or probability of effect.
- Risk characterization: combination of the outputs of the exposure assessment and the toxicity assessment to quantify the total noncancer and cancer risk to the hypothetical receptors.
- Uncertainty: discussion and evaluation of the areas of recognized uncertainty in human health risk assessments in addition to medium- and exposure pathway-specific influences.

- Risk/hazard summary: presentation and discussion of the results of the quantification of exposure (risk and hazard) for the potential receptors and their exposure pathways identified under the current and future conditions.
- Remedial goal options: computation of exposure concentrations corresponding to risk projections within the target risk range of 1E-6 to 1E-4 for carcinogenic COCs and hazard quotient goals of 0.1, 1, and 3 for noncarcinogenic COCs.

An exception to this approach will have to be made for lead. USEPA and FDEP do not currently sanction any specific methods/approaches for evaluating the potential effects of lead on adults. USEPA has developed the Lead Uptake/Biokinetics Model (Version 0.99d) (Lead Model) to predict mean blood lead concentrations in children based on exposure to impacted environmental media. It is not expected that children would gain access to the unit at a frequency justifying specific assessment of this receptor group. USEPA and FDEP have adopted the OSWER RCRA industrial facility proposed Subpart S cleanup goal of 1,000 mg/kg, based on protection of workers engaged in generic industrial activities that may result in incidental soil contact/ingestion.

Any reasonable modification of standard risk assessment exposure assumptions based on current/reasonably anticipated future use of the unit area can be expected to cause a corresponding change in the applicable remedial goal. For example, standard industrial exposure frequency is 250 days/year. If a recreational trespasser use scenario were applied, which is reasonable although unlawful according to current plans for Demolition Key NW and evidence suggesting civilian use of the key, the frequency would be 52 days/year (maximum) assuming that someone were to spend one day per week in the area. This frequency is a very conservative estimate, and a more realistic assumption would probably be five to 20 days/year. Based on available information, the frequency of training and testing operations would not be expected to approach 52 days/year, and in all likelihood would be between five to 10 days/year. If all other assumptions are retained, the resultant lead CG would be nearly 5,000 mg/kg when considering potential trespasser exposure. Previously collected analytical data indicate that lead concentrations in excess of 1,000 mg/kg are restricted exclusively to the bottom of the OB treatment unit. The probability of focused exposure in the maximally impacted portion of the pit is extremely low, and proposed debris and surface material removal efforts are expected to substantially reduce average lead concentrations throughout the proposed area of investigation.

In addition to supporting assessment of direct exposure potential, the tasks outlined in this closure plan are also intended to supply data necessary to evaluate the potential migration of contaminants from the unit. The shallow aquifer on Demolition Key NW is naturally high in salts and other elements which render it unfit for human consumption. Therefore, FDEP CGs and USEPA Region III RBCs for soil relating to groundwater protection are not appropriate because they assume human consumption of water from the affected aquifer. As a result, fate and transport

assessment will focus on projecting the potential mass flux of surface and subsurface material (soil) contaminants from the unit through rainwater percolation to groundwater with subsequent discharge to adjacent surface waters. To estimate the potential migration of contaminants from the unit, leachability-based analytical data will be used in conjunction with existing hydrogeologic and climatological data.

Groundwater contaminant concentrations will be estimated based on annual percolation/leaching rates, predicted contaminant removal rates, and groundwater flow through the shallow aquifer immediately beneath the unit. Contaminant removal rates will be estimated through comparison of total and SPLP sample results for each sampling location. Projected groundwater concentrations will subsequently be used to estimate contaminant migration through a shoreline discharge point in the net downgradient direction from the unit. Based upon estimates of the delusional capacity of Demolition Key channel, resulting surface water concentrations for each chemical of concern will be computed. These concentrations will be compared to FDEP and/or USEPA Region IV chronic ambient saltwater quality criteria, and/or the expected limit of detection in a saline water sample.

### **Sampling and Analysis Plan**

A sampling and analysis plan is included as Appendix E.

### **Corrective Action**

Corrective action at Demolition Key will consist of ordnance debris identification and removal (i.e., scrap metal, casing, paper, etc.), and soil removal to achieve facility-specific site rehabilitation levels developed using recognized risk assessment methods. The specific approach planned for the facility is outlined in preceding sections.

The OB treatment unit is within an active military range. The closure plan only addresses the unit and its immediate vicinity. Any potential contamination resulting from the intended use of the range will be addressed when it is rendered inactive. At that time, any potential contamination will be addressed under the DOD "Range Rule" currently being written specifically for those issues.

### ***Debris Removal***

Using a metal detector and/or magnetometer to survey the treatment unit and surrounding area (excluding training and testing areas), all metal debris abandoned from past and current treatment activities will be removed and containerized for subsequent characterization, storage, and disposal.

Debris will be removed using conventional hand tools (shovels, picks, rakes, etc.) and the resources and experience of trained military EOD personnel.

### *Soil Excavation and Disposal*

The scope of soil removal will be directed by visible evidence as well as previous analytical results. Based on available information, it is anticipated that soil in the primary burn point within the pit must be removed to the depth of impact. Under closure, soil within the unit area will be removed to mean sea level, approximately 6 to 18 inches.

All excavation will be performed manually (i.e., hand equipment [shovels, picks, etc.]). If, during the sampling and/or excavation stages of closure, this is insufficient, heavy equipment (i.e., small backhoe) will be used. Appropriate decontamination procedures will be incorporated before and after each stage of excavation as discussed in the sampling and analysis plan.

After excavating based on visible evidence and/or previous sample results, verification samples shall be obtained from the bottom of the excavation to ensure that contaminated soil has been removed (see sampling and analysis plan). The soil sampling procedures used in these activities will be the same as those described in the sampling and analysis plan. Should contamination be identified in any samples above acceptable concentrations, additional excavation and resampling shall continue until levels protective of human health and the environment are achieved or until it is determined to be infeasible to continue. The protectiveness (direct exposure and groundwater protection) of residual soil concentrations will be evaluated for the entire unit area, and will not involve fixed point attainment of numerical standards. The methods proposed for use in establishing protective soil remedial action objectives are discussed in preceding sections.

It may be determined that all contaminated soil cannot be removed to acceptable concentrations due to presently unknown factors, such as the excessive depth of soil contamination, subsurface obstructions, endangerment to native species and wildlife, etc. The determination that clean closure cannot be achieved will be made during the corrective measures stage of closure. If such a determination is made, FDEP and USEPA Region IV will be notified. Their concurrence will be required prior to any subsequent corrective or postclosure activities.

All excavated soil will be manually containerized in USDOT and DOD specification 55-gallon, open-head steel drums and transported to the NAS Key West permitted storage facility. Hazardous waste determinations for reactivity and TCLP metals will be performed on all excavated soil. Should any soil meet the definition of a hazardous waste, it shall ultimately be treated and/or disposed in the RCRA-approved/permitted hazardous waste facility. If so, all appropriate sampling, reporting, manifesting, and additional record-keeping requirements will be met. Any

excavated soil that does not meet the definition of a hazardous waste will be transported offsite to a sanitary landfill for disposal upon approval by FDEP and the landfill management.

### ***Groundwater Remediation***

Due to site hydrogeology, the absence of a freshwater source/aquifer, the potential problems encountered when trying to obtain accurate constituent concentrations, fluctuating groundwater levels at Demolition Key, and the infeasibility involved with pump-and-treat technologies in this setting, no groundwater remediation activities are recommended for this site. No groundwater monitoring is currently proposed in conjunction with closure investigations. If groundwater-protective soil concentrations cannot be achieved during the removal process, an addendum to this closure plan may be required to outline appropriate groundwater monitoring requirements.

### ***Equipment Decontamination***

All equipment will be inspected before being brought onsite to ensure cleanliness and to prevent contaminant transport onto the site. All equipment will be left onsite during field activities. Upon completion of field activities, all equipment will be decontaminated to prevent the transport of contaminants offsite according to the procedures outlined above.

### ***Closure Schedule***

Final closure activities will be completed per the schedule shown in Table II.D-5. Closure shall commence upon FDEP approval of the closure plan contingent upon completion of the requisite Navy funding and contract procurement processes. Final closure will be witnessed and certified by an independent Florida-registered professional engineer and geologist, in addition to the owner/operator.

### ***Notification of Closure***

NAS Key West shall notify the USEPA Regional Manager and the State of Florida's Regional Office Director in writing at least 45 days before the date on which it expects to commence final closure operations.

Closure operations will commence no later than 30 days after the date on which Demolition Key receives its known final volume of hazardous waste, or if there is a reasonable possibility that the Demolition Key treatment unit will receive additional hazardous waste ordnance, no later than one year after the date on which the unit received its most recent volume of hazardous waste ordnance.

**Table II.D-5  
 Proposed Closure Schedule**

Phase	Closure Activity	Start Date	Duration
I	Ordnance debris (i.e., metal) survey and removal	Day 0	35 Days
	Containerize ordnance debris for transport to NAS Key West permitted storage facility	Day 0	35 Days
II	Remove impacted soil in and around treatment facility to risk-based limit	Day 35	35 Days
	Containerize impacted soil and IDW for transport to NAS Key West permitted storage facility	Day 70	35 Days
III	Post-removal sampling in and around treatment unit	Day 105	10 Days
	Review analytical results <sup>1</sup>	Day 115	5 days
	Preparation of draft closure report	Day 120	60 Days
IV	Final closure reporting and notification	Day 220	15 Days

**Note:**

<sup>1</sup> = Based on results of postremoval unit and surrounding area sampling, additional removal and sampling may be required. If so, another 40 days will be required to complete both tasks.

All closure operations are contingent upon the Navy's ability to secure funding and contract appropriate assistance. As such, Day 0 must be recognized as 30 days subsequent to resolution of the referenced funding and contract tasks.

***Closure Time Allowed***

NAS Key West will remove all hazardous waste from the Demolition Key treatment unit within 180 days of receiving and treating the final volume of hazardous waste. NAS Key West will also complete closure within 270 days of receiving and treating the final volume of hazardous waste. NAS Key West requests the additional 90 days, respectively, for each phase of closure due to government contractual and procurement requirements and obligations.

***Certification of Closure***

Within 60 days of completing final closure, NAS Key West will submit to the FDEP Director by registered mail the certification by NAS Key West and an independent professional engineer and geologist (registered in the State of Florida) that the hazardous waste management unit has been closed in accordance with specifications in the approved closure plan. The

Certification of Closure will be submitted to the FDEP Director within 60 days of completion of final closure as required by 40 CFR 265.115.

As part of the closure certification process, NAS Key West will submit a survey plat indicating the location and dimensions of the Demolition Key treatment unit to the local zoning authority, the FDEP, and the USEPA Regional Administrator. The plat will be prepared and certified by a professional land surveyor and shall contain, prominently displayed, NAS Key West's obligation to restrict disturbance of the treatment unit.

#### *Closure Cost Estimate*

Demolition Key is owned and operated by the DOD, a federal department. As such, a cost estimate for closure is not required.

#### **Quality Assurance Plan**

The project QAP has been prepared on FDEP Form 62-160.900(1) and is included as Appendix F.

#### **POSTCLOSURE**

Postclosure activities will not be conducted as part of the closure process. Postclosure activities are not warranted for this facility based on the remoteness of the island, its security, and the likelihood that additional emergency treatment operations will continue at Demolition Key following closure. However, if clean closure of the unit cannot be achieved, then a final postclosure plan will be submitted.

## **SOLID WASTE MANAGEMENT UNITS AND POTENTIAL RELEASES**

The following information satisfies the requirements of 40 CFR 270.14(d) and FAC 62-730. The treatment unit is the only solid waste management unit (SWMU) on Demolition Key. This unit is addressed under the closure plan.

The other pits on Demolition Key are part of an active range. Because they are still active and being used for their intended purpose, they are not SWMUs. Further, once the range is inactivated, the range will be managed in accordance with the Range Rule co-written by the DoD and EPA. If remediation of these areas is necessary in the future, remediation activities will be conducted according to the provisions of these regulations or NAS Key West's Installation Restoration Program.

**Appendix E**  
**Sampling and Analysis Plan**

**SAMPLING AND ANALYSIS PLAN  
Demolition Key Northwest Closure  
Naval Air Station Key West  
Key West, Florida**

**Prepared for:**

**The Department of the Navy  
Southern Division Naval Facilities Engineering Command  
North Charleston, South Carolina**

**Prepared by:**

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**June 27, 1997**

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## **1.0 INTRODUCTION**

This Sampling and Analysis Plan (SAP) outlines EnSafe/Allen & Hoshall's project sampling and subsequent analytical specifications to be completed in conjunction with the closure of hazardous waste thermal treatment unit at Demolition Key Northwest (NW) at Naval Air Station (NAS) Key West, Florida. The SAP outlines sample locations, sampling and decontamination procedures, analytical methods for standard and nonstandard analytes, detection limits, sample documentation, and investigation derived wastes (IDW) handling procedures.

These methods are proposed based on available information regarding the characteristics of the subject environmental matrices and site conditions. Where deviations from standard protocol are anticipated, contingencies are discussed. In the following sections, the term *soil* is used as a generic name for all surface and subsurface dredge materials above the water table.

This SAP is intended to be implemented in a single phase to provide confirmatory sampling and analysis subsequent to closure decontamination actions. These analytical results will be used to determine whether chemical constituents of concern are below site-specific, risk-based standards. If they are not, additional actions or engineering/institutional controls may be warranted.

## **2.0 SOIL SAMPLING**

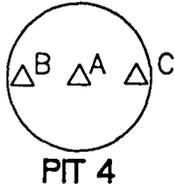
Soil samples will be collected to adequately characterize the matrix within the immediate confines of the unit. Figure 1 shows the five proposed soil sample locations. Each soil sampling team will consist of two members. One person will collect the sample as the other documents information in the field logbook regarding adherence to sampling procedures, difficulties encountered, and other pertinent information/observations.

During the confirmatory sampling activities, surface soil samples will be collected from each location. All soil sampling will adhere to Section 4.11 of the U.S. Environmental Protection Agency (USEPA) Standard Operating Procedures/Quality Assurance Manual (SOP/QAM) and the Florida Department of Environmental Protection (FDEP) SOPs for soil sampling to the extent possible. Surface samples are defined as 0 to 1 foot below ground surface (bgs) exclusive of twigs, leaves, and vegetation. Surface soil samples will be collected manually using a hand auger, geology pick, and/or stainless-steel spoon. All soil at the unit will be removed to mean sea level (msl). Ground/surface water is expected to be encountered routinely during these operations, since Demolition Key's elevation is not more than 3 feet above msl. Samples will be described on a soil boring log by a qualified geologist using the Unified Soil Classifications System. All soil colors will be described wet, therefore, it may be necessary to wet the soil. The American Society for Testing and Materials (ASTM) standards for Description and Identification of Soils (Visual-Manual Procedure) (ASTM D2488-90) will be followed (as appropriate) in describing soil.

### **2.1 Soil Sample Collection Techniques**

#### **Before Soil Sampling:**

- Don personal protective clothing and equipment as required by the site-specific health and safety plan.

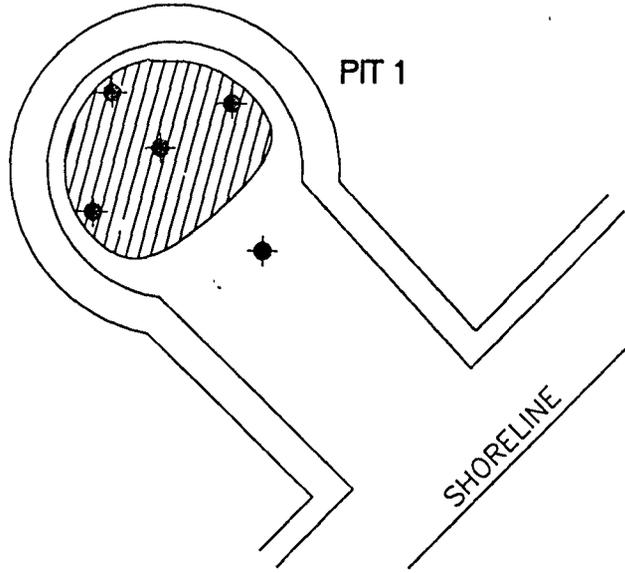


W80  
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W60  
○

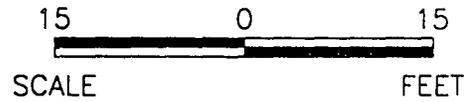
W40  
○

W20  
○



LEGEND

- ★ - PROPOSED SOIL SAMPLE LOCATION
- - STAKE
-  - AREA OF MAXIMALLY IMPACTED SOIL; SLATED GROSS REMOVAL



CLOSURE  
PERMIT APPLICATION  
NAS KEY WEST  
DEMOLITION KEY  
KEY WEST, FLORIDA

FIGURE 1  
PROPOSED SAMPLING LOCATIONS  
SAMPLING AND ANALYSIS PLAN

DWG DATE: 06/24/97 | DWG NAME: 51PSLSAP

- Clear vegetation and other debris from the surface around the boring location.
- Set up a decontamination area for sampling equipment, if required.

**During Soil Sampling:**

- With a stainless-steel device, scrape the surface of the sample collection point to obtain a previously unexposed sample surface.
- Make detailed notes about geologic features of the soil in a field logbook.
- Using a hand auger, geology pick, and/or stainless-steel spoon, collect sample.
- While advancing the auger, it may be necessary to insert a polyvinyl chloride (PVC) surface casing to minimize disturbance of the borehole walls.
- Stop augering at the top of the selected sampling depth.
- Place the entire sample volume into a stainless-steel bowl after removing an aliquot for all required volatile analyses. Mix the sample until thoroughly homogenized and place into the appropriate containers. Label the samples and preserve to 4°C.
- Record the sample identification number, sample collection depth, and analyses required in the field logbook and/or on the appropriate field forms (chain of custody).

**After Soil Sampling:**

- Stake the location with red flagging.
- Decontaminate all equipment in accordance with the procedures outlined in Section 4.

- Complete the field logbook entries for the location.
- Survey the locations sampled. The survey will include horizontal location and elevation relative to msl or other specified reference datum. Horizontal and vertical surveying may occur before or after the sampling event, as appropriate.

### 3.0 ANALYTICAL METHODS

Analyses described in this section apply to each sample collected during confirmatory soil sampling activities. Five soil and quality assurance/quality control (QA/QC) samples are proposed for analysis. Based on previous studies and available information regarding contaminants formed during open burning (OB) activities, soil analyses will focus on inorganic (metals), volatiles, and semivolatile organic compounds (SVOCs). FDEP has also requested that total petroleum hydrocarbon and nitroaromatics/nitroamines analyses be performed. USEPA Method 8015 California Modified (TPH-diesel range organics [DRO]) analysis will be used to determine whether any diesel fuel contamination exists. The nitroaromatic/nitroamines will be analyzed using USEPA Method 8330. Two elements to the analytical scheme have been developed for the unit.

#### 3.1 Determination of Total Chemical Concentrations

The first element involves determining total chemical concentrations in soil. Total concentrations are of primary importance in estimating the potential exposure for site receptors. In addition, total results will be used to correlate with leachability results (discussed below) to estimate long-term migration potential. All analytical methods proposed for this project are provided in *Test Methods for Evaluation of Solid Waste: Physical/Chemical Methods*, SW-846, Third Edition, September 1986 (SW-846).

Based on the results of previous investigations, total metals will be analyzed for aluminum (Al), antimony (Sb), arsenic (As), barium (Ba), beryllium (Be), cadmium (Cd), copper (Cu), lead (Pb), manganese (Mn), nickel (Ni), tin (Sn), vanadium, (V), and zinc (Zn). Mercury (Method 7470) and strontium will also be analyzed per FDEP request. These inorganic elements were selected based on:

- Previous detection in soil or groundwater above risk-based screening value;

- Absence of data for either matrix when present in the others; and/or
- Specific FDEP request

To verify the absence of SVOCs at the unit, USEPA Method 8270 will be employed for sample analysis. Methylene chloride, benzene, and acetone were previously reported in pit soils, so USEPA Method 8240 will be used to confirm/refute their presence. USEPA Method 8015 Modified will be employed to determine high fraction (DRO) concentrations in each soil sample.

FDEP guidance on Resource Conservation and Recovery Act (RCRA) closure plans discusses detection limit, health-based standards, and test methods. Specific mention is made of explosive constituent analyses and special considerations for these parameters outside the typical SW-846 regime. FDEP recognizes that some cyclicization may occur during the OB treatment process. Potential degradation/reaction products from the reaction of trinitrotoluene (TNT), cyclotetramethylene tetranitramine (HMX), cyclonite (RDX), tetryl and ammonium picrate are presented in *Conventional Weapons Demilitarization: Health and Environmental Effects Data Base Assessment: Explosives and Their Co-Contaminants Final Report, Part II*, Lawrence Livermore National Laboratory, December 1987.

Although most of the compounds potentially formed are not standard target analytes for SW-846 semivolatile analysis, their chemical structures indicate that they could, in fact, be detected (Method 8270). To ensure that an adequately detailed reporting system is established, the list of potential reaction products will be supplied to the analytical laboratory. The laboratory will be requested to report tentatively identified compounds (TICs) in accordance with standard mass spectral library search criteria for the method. The reaction products list will be used as a supplement to assist in making informed judgments regarding qualitative determinations for TICs.

Estimated concentrations will be reported for each qualitatively identified TIC, and these values will be compared to available human health-based standards for residential scenarios (USEPA Region III Risk-based concentration tables and/or FDEP cleanup goals (CG) for military sites) or site-specific goals (based on an infrequent recreational trespasser scenario). TICs identified by general category (i.e., aliphatic hydrocarbon, alcohol, etc.) will not be included in the screening process. If the estimated concentration for a TIC is equal to or greater than the corresponding screening value, one of two courses of action may follow:

- If the concentration suggests gross impacts, additional sampling may be required to delineate the extent of contamination possibly using more specialized analytical methods;  
or
- A compound-specific risk evaluation may be performed using existing data and considering frequency of detection and spatial distributions to establish a more accurate exposure point concentration in accordance with standard human health risk assessment protocol.

### **3.2 Determination of Leachability Testing**

The second element of the analytical scheme involves leachability tests to determine the mobility of soil contaminants. Samples will be leached using USEPA Method 1312 Synthetic Precipitation Leaching Procedure (SPLP) and analyzed using USEPA Method 6010 for the elements previously listed and USEPA Methods 8240 and 8330. SPLP samples will also be analyzed for nitrates, ammonia, and sulfates by standard methods. The SPLP was developed to simulate the effects of precipitation on contaminant leaching. No SVOCs previously reported in soil on Demolition Key NW were detected at concentrations exceeding their leachability-based CG provided in FDEP's *Cleanup Goals for the Military Sites in Florida*, April 1995.

Due to the salinity of groundwater, SPLP results will not be directly compared to Florida Groundwater Guidance Concentrations. In accordance with FDEP protocol, groundwater guidance concentrations will be modified by a factor of 100, and SPLP data will be screened using the amended values.

### **3.3 QA/QC Samples**

Consistent with USEPA and FDEP analytical requirements, five QA/QC samples will be collected. The number of QA/QC samples designated is based on the collection of five soil samples for total analysis and five soil samples for SPLP analysis. The number and frequency of QA/QC samples is also outlined in the project-specific Quality Assurance Plan (QAP). Five soil samples will be collected from soil sampling locations. QA/QC samples will consist of the following:

- Equipment rinsate.
- Field duplicate (total and SPLP)
- Matrix spike (MS) (organic analyses only)
- Matrix spike duplicate (MSD) (organic analyses only)
- SPLP blank

#### **4.0 DECONTAMINATION**

Decontamination will be performed in accordance with Appendix B, Section B-8 of the USEPA SOP/QAM and applicable FDEP SOPs for sampling equipment with the following exceptions. The detergent for use on this project will be Liqui-Nox<sup>®</sup> because it contains powerful chelating agents to bind and remove trace metals from sampling equipment. A stainless-steel bowl or bucket will contain the clean wash water solution. Field reagent-grade water and/or distilled water will be used for all final rinses.

#### **4.1 Decontamination Area Setup**

Decontamination will generally be performed prior to arrival onsite. However, field decontamination may also be necessary. The decontamination area will be lined with heavy-duty plastic sheeting and will be designed to promote surface runoff into a catch basin or pit. Isopropyl alcohol (IPA) waste will be collected separately and containerized in its designated drum. NAS Key West is responsible for disposing of all decontamination wastes.

#### **4.2 Cross-Contamination Prevention**

Follow procedures below to reduce cross-contamination risk during decontamination.

- Don a new pair of disposable outer gloves before handling sampling equipment.
- Use only Teflon, glass, or stainless-steel spray bottles/pressurized containers to apply decontamination solutions. Keep each solution in a separate container.
- Transport all necessary decontamination field equipment to each designated location to minimize the need for field cleaning.

### **4.3 Sampling Equipment Decontamination**

Sampling equipment includes any downhole equipment (e.g., augers, PVC boring liners, etc.) and any sampling utensils (e.g., stainless-steel spoons, spatulas, bowls, etc.) not dedicated to the sampling location. Hollow downhole equipment or equipment with holes potentially transmitting water or drilling fluids will be cleaned on the inside and outside.

1. Don protective gloves before decontaminating the equipment.
2. Wash and scrub with a laboratory-grade detergent and clean water wash solution.
3. Rinse with clean water.
4. Rinse with distilled water or ASTM Type III water (as available).
5. Rinse twice with pesticide-grade isopropyl alcohol.
6. Rinse with distilled water or ASTM Type III water (as available).
7. Air dry. If adverse weather prohibits air drying, repeat the isopropyl alcohol rinse twice and final water rinse.
8. Wrap in plastic or aluminum foil for storage or transport.

### **4.4 Personal Decontamination**

Personal decontamination procedures are outlined in the site-specific health and safety plan.

## **5.0 SAMPLE MANAGEMENT**

This section describes SOPs for sample identification and chain of custody to be used for all field activities. These procedures will ensure that the quality of the samples is maintained during their collection, transportation, and storage through analysis. All chain-of-custody requirements comply with SOPs indicated in the USEPA and FDEP sample handling protocol.

### **5.1 Sample Identification**

Sample identification documents must be carefully prepared so that sample tracking and disposition may be maintained and controlled. Sample identification documents include:

- Field notebooks
- Sample label
- Custody seals and
- Chain-of-custody records

### **5.2 Chain-of-Custody**

The primary objective of the chain-of-custody procedures is to provide an accurate record that can be used to trace the possession and handling of a sample from collection to completion of all required analyses. A sample is in custody if it is:

- In someone's physical possession
- In someone's view
- Locked up
- In a secured area restricted to authorized personnel

### 5.3 Sample Designation and Labeling System

The sample identification will be used to track the sample and maintain information about it from the time of collection to the final analytical package.

- Site name
- Sample matrix
- QC sample type
- Sample location number
- Sample interval/depth (when applicable)

Soil boring samples will be labeled by site, media sampled, and sample depth. A unique 10-digit sample designation will be provided for each sample collected. The first three digits signify the site from which the sample was collected. For this project, the site designation will be 120. The fourth digit identifies the matrix sampled. Soil matrix identifiers will be "S" for the standard sample and "C" for duplicate soil samples. The fifth through eighth digit indicate the boring number and the ninth and tenth digits indicate the sample depth. An example is provided below.

Example Designation:        120-S-0002-01

The sample would be a soil sample collected from a depth interval of 0 to 1 foot bgs at site 120. Two additional sample identifiers (MS and MSD) will be used by the laboratory to identify those samples receiving matrix spike and matrix spike duplicate analyses. A detailed description of sample tracking, shipping, and labeling procedures is provided below.

QA samples are used to assess the precision and accuracy of the sampling and analyses. These types of samples will replace the fourth digit (sample location designation) when applicable. Digit 4 will represent the type of QC sample, followed by the month and day it was collected as

digits 5, 6, 7, and 8. Samples required to meet this data quality objective are given below with their appropriate code.

#### **5.4 Quality Assurance Sample Codes**

The following are QA codes to be used during sample collection and subsequent handling during closure of the Demolition Key NW treatment facility.

- |   |   |                   |   |
|---|---|-------------------|---|
| T | — | trip blank        | This will be followed by a four-digit date where the first two digits indicate the month and the second two digits indicate the days, (ex: August 14 would be written as 0814). |
| R | — | equipment rinsate | This would be followed by a four-digit date where the first two digits indicate the month and the second two digits indicate the day.   |

Laboratory method blanks will be coded and reported in accordance with analytical method SOPs.

#### **5.5 Field Custody Procedures**

- As few persons as possible should handle samples.
- Sample bottles must be obtained precleaned from an approved source. Coolers or boxes containing cleaned bottles should be sealed with custody tape during transport to the field or while in storage prior to use. Sample bottles from unsealed coolers or boxes or which appear to have been tampered with will not be used.

- The sample collector is personally responsible for the care and custody of samples collected until they are transferred to another person or dispatched properly under chain of custody rules.
  
- The sample collector will record sample data in the field logbook.
  
- The field project manager and/or the QA manager will determine whether proper custody procedures were followed during the fieldwork and decide if additional samples are required.

### **5.6 Sample Tags**

Sample tags attached to or affixed around the sample container should be used to properly identify all samples collected in the field. The sample tags are to be placed on the bottles so as not to obscure any QA/QC lot numbers. Sample information must be printed in a legible manner using waterproof black ink. For chain-of-custody purposes, all QA/QC samples are subject to exactly the same custodial procedures and documentation as "real" samples.

### **5.7 Chain-of-Custody Record**

The chain-of-custody record must be fully completed at least in triplicate by the field technician who has been designated by the project manager as responsible for sample shipment to the appropriate laboratory for analysis. In addition, if samples are known to require rapid turnaround in the laboratory because of project time constraints or analytical concerns (e.g., extraction time or sample retention period limitations, etc.), the person completing the chain-of-custody record should note these constraints in the "Remarks" section of the chain-of-custody form. The custody record should also indicate any special preservation techniques or whether the samples need to be filtered.

## **5.8 Custody Seals**

Custody seals are preprinted adhesive-backed seals designed to indicate any tampering. A custody seal is placed across the cap of individual sample bottles by the sampling technician. Sample shipping containers (coolers, cardboard boxes, etc., as appropriate) are sealed in as many places as necessary to ensure security. Seals must be signed and dated before use. Upon receipt at the laboratory, the sample custodian must check and record if seals on shipping coolers and/or bottles are not intact.

## **5.9 Transfer of Custody and Shipment**

- The shipping coolers in which the samples are packed must be sealed and accompanied by a chain-of-custody form. When transferring samples, the individuals relinquishing and receiving them must sign, date, and note the time on the chain-of-custody record. This documents the sample custody transfer.
- Samples must be dispatched to the analytical laboratory for analysis with a separate chain-of-custody record accompanying each shipment. Shipping containers must be sealed with custody seals for shipment to the laboratory. The method of shipment, name of courier, and other pertinent information can be entered in the "Remarks" section of the chain of custody form.
- All shipments must be accompanied by the chain-of-custody form identifying their contents. The original record accompanies the shipment. The other copies are distributed appropriately to the project manager and the QA manager.
- If sent by mail, the package is registered with return receipt requested. If sent by common carrier, a bill of lading is used. Freight bills, Postal Service receipts, and bills of lading are retained as part of the permanent documentation.

### **5.10 Laboratory Custody Procedures**

A sample custodian accepts custody of the shipped samples from the carrier and enters preliminary information about the package into a receipt log, including the initials of the person delivering the package and the status of the custody seals on the coolers (i.e., broken vs. unbroken). The laboratory sample custodian is responsible for sample log-in and will open the shipping coolers, check the contents, and verify that the information on the chain-of-custody agrees with samples received. Pertinent information as shipment, pickup, and courier must be entered into the "Remarks" section of the chain-of-custody record. The custodian will also document the temperature of the cooler (by checking the temperature blank) and the general condition of the sample containers.

Sample preservation will be verified by the analyst prior to extraction, digestion, or analysis and the pH recorded. If samples are found improperly preserved, the laboratory QA coordinator will document the improper preservation along with the sample identification and other pertinent information. All other QA/QC discrepancies are followed in a similar manner and must be documented as an out-of-control event with the corrective action taken.

## **6.0 INVESTIGATION-DERIVED WASTE**

All IDW solids and liquids are the sole responsibility of NAS Key West and are to be handled in a manner consistent with all applicable local, state, and federal waste disposal guidelines. These wastes, where appropriate, will be containerized in a U.S. Department of Transportation (USDOT)-approved drum or other collection receptacle (e.g., plastic transport bag). The disposal methods will be selected by the Navy based on waste classification and knowledge. The waste will then be disposed by the Navy in accordance with applicable guidelines for the waste category. All drums will be labeled with the site number, date of generation, and waste category.

### **6.1 Soil Waste**

Soil will be placed back in the area from which it originated. In most instances, auger cuttings will be used to backfill borings. It is not anticipated that any soil IDW will be generated over the course of sampling activities.

### **6.2 Aqueous Waste**

All IDW water (e.g., decontamination fluids) will be returned to the pit. IDW water will only be generated onsite if onsite decontamination is required.

### **6.3 Isopropyl Alcohol Waste**

All investigation-derived IPA waste will be drummed separately. Navy personnel will transport the drums to a waste storage, treatment, or disposal facility, as appropriate.

### **6.4 Personal Protective Equipment and Disposable Sampling Equipment Waste**

Used PPE and disposable sampling equipment will be placed in drums or other collection receptacles for disposal by the Navy. Navy personnel will transport the drums to a waste storage facility until the contents can be disposed properly.

## **6.5 Documentation**

A drum-tracking log will be kept for the convenience of the Navy separate from field logbooks. The log will detail the number of drums, site number, waste type, and date generated.

**Appendix F**  
**DEP Form 62-160.900(1)**

Section 1.0 TITLE AND DEP APPROVAL PAGE

Demolition Key Closure Application  
NAS Key West

Permit Application HF44-290798

Prepared by:  
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(919) 851-1886

Prepared for:  
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\_\_\_\_\_  
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\_\_\_\_\_  
(Date)

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Charlie A. Vernoy, E/A&H  
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(Date)

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Richard Ronan, Southwest Laboratories  
(Laboratory Director)

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(Date)

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Chuck Hoover, Southwest Laboratories  
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DEP Oversight:

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Satish Kastury  
(FDEP Environmental Administrator)

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(Date)

\_\_\_\_\_  
(DEP QA Manager)

\_\_\_\_\_  
(Date)

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Section 3.0 **PROJECT DESCRIPTION**

**3.1 Site Identification and History**

Site Name: NAS Key West Demolition Key NW

Site Address: N/A  
Street  
Key West, Monroe County, FL 33040  
City, County and Zip Code

**3.1.1 Site History**

This site has historically been used by the U.S. Navy to conduct land treatment (OB) of waste ordnance. These activities are suspected to have resulted in soil impacts from metals, semivolatiles, nutrients, nitroaromatics, and nitramines originating in the ordnance or produced as a byproduct of the process. Two previous investigations identified metals & semivolatiles in unit soil.

**3.1.2 Summary of the historical data - See Table 3.1**

**3.2 Project Scope and Purpose**

**3.2.1 Purpose of this Project:**

The purpose of the sampling activities is to assess total and leachable concentrations of constituents present in soil after O&M related soil removal in support of unit closure.

**3.2.2 Intended end use of the data:**

- Permit Compliance
- Feasibility Study
- Consent Order Compliance
- Remedial Action
- Contamination Assessment
- Water Quality Data Base (Specify which Data Base:
- Facility Operating Report
- Other: \_\_\_\_\_

**3.2.3 Projected Schedule and Scope of Work**

Project start date is contingent upon FDEP approval of associated closure documents and the Navy's receipt of funding.

\_\_\_\_\_  
Projected Beginning Date

180 days after initiation of field activities

\_\_\_\_\_  
Projected Ending Date

**Major Project Tasks**

<u>Specific Project Activity</u>	<u>Scheduled Date</u>
1. Initiate/Coordinate Field Activities	
2. Collect soil samples	
3. Prepare summary report - draft	
4. Prepare Summary report - final	

**TABLE 3.1a**  
**Summary of Groundwater Analytical Results**  
**NAS-Key West Demolition Key NW OB Pit**  
**Key West, Florida**

Parameter	Florida	
	GW Guidance	AS1011/ SB-9
	Concentration (ug/l)	
Antimony	1	249
Arsenic		9
Beryllium		1.3
Cadmium	1	52.2
Chromium		65.2
Cobalt	1	68.4
Copper	1	4,070
Lead	1	1,610
Mercury		0.34
Nickel	1	116
Silver		31.6
Zinc	1	23,500

**Notes:**

ND indicates the parameters was not detected

NA indicates analysis did not include the referenced parameter.

All units are ug/L unless otherwise noted.

(a) Tap water risk-based concentration from USEPA Region III Risk-Based Concentration Table, January-June 1996

1 indicates concentration exceeds the groundwater standard and/or RBC.

Groundwater samples were collected directly from soil borings rather than monitoring wells. As a result, metals-rich

Only detected metals are presented. Other TAL metals analyzed were not detected.

TABLE 3.1b  
 Summary of Soil Analytical Results  
 NAS-Key West Demolition Key NW OB Pit  
 Key West, Florida

Parameter	Screening Criteria			AS1006/	KW02165	KW02166	KW02163	KW02164	KW02161	KW02162	KW02152	KW02153	KW02154	KW02155	KW02159	KW02160	KW02157	KW02158
	Resid. Soil	Industrial Soil	GW Protection	SB-9 (2 ft.)	PIA (0-1 ft)	PIA (1-2 ft)	PIB (0-1)	PIB (1-2 ft)	PIC (0-1)	PIC (1-2)	PID (0-1)	PID (1-2)	PIE (0-1)	PIE (1-2 ft)	PIF (0-1 ft)	PIF (1-2 ft)	PIG (0-1 ft)	PIG (1-2)
Acetone	130	20000	1.4	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	75000	100000+	Not	20900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	1 26	820	Not	43.5	ND	ND	ND	ND	ND	ND	287	512	ND	ND	ND	ND	ND	ND
Arsenic	1 2 0.7	10(a)	15	19.3	0.318	0.781	7.54	0.791	73.8	12.1	48.2	10	2.59	1.26	3.31	3.4	1.14	1.05
Barium	2 5000	140000	32	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.8	200	0.003	0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	1 0.1	1.3	180	0.36	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	2 37	1000	6	13.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	2 150	10000	19	40.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	47000	120000	Not	10.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	29000	82000	Not	1540	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1 500	1000(b)	Not	2100	ND	ND	2250	274	2290	1570	28900	46800	1140	144	672	66.1	ND	ND
Magnesium	Not	Not	Not	7660	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	10000	10000	Not	1560	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	23	610	3	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene	2 9.3	760	0.01	0.078	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	2 1500	41000	21	34.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	380	10000	Not	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin	44000	1000000	Not	93.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	480	14000	Not	5.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	23000	610000	42000	6240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TCLP - Lead	5	5	TCLP	NA	NA	NA	NA	NA	NA	NA	4.08	NA	NA	NA	NA	NA	NA	NA

Notes:

ND indicates the parameters was not detected

NA indicates analysis did not include the referenced

1 indicates the concentration in at least one sample exceeded the residential soil

2 indicates the concentration in at least one sample exceeded the groundwater

(a) The 10 mg/kg limit for arsenic was discussed with USEPA Region IV and FDEP on May 2, 1995

(b) Industrial site cleanup goal per OSWER Directive

Risk-based concentrations were derived from USEPA Region III Risk-Based Concentration Table, January-June 1996

### 3.3 Project Organization

#### 3.3.1 Project Organization

Sample collection activities will be conducted by EnSafe/Allen & Hoshall. The Laboratory analytical work will be performed by Southwest Laboratories. Refer to figure 3.1 for the specific organization of this project.

#### 3.3.2 Personnel Modifications or Additions

The following personnel are not included in the CompQAPs of the referenced organizations (include brief descriptions of project responsibilities):

- A. Field Personnel
  - 1. Dave Felter, Geologist
  - 2. Doug Baldwin, Scientist
- B. Laboratory Personnel
  - 1. NA

### 3.4 Project Objectives

#### 3.4.1 Data Quality Objectives

X The data quality objectives for this project are the routine QA targets listed in the laboratory CompQAP.

— The minimum detection limits to be achieved for this study differ from the routine detection limits specified in the laboratory CompQAP and are included as a part of Table 3.2.

— The precision and accuracy requirements differ from the routine targets specified in the laboratory CompQAP and are included as a part of Table 3.2.

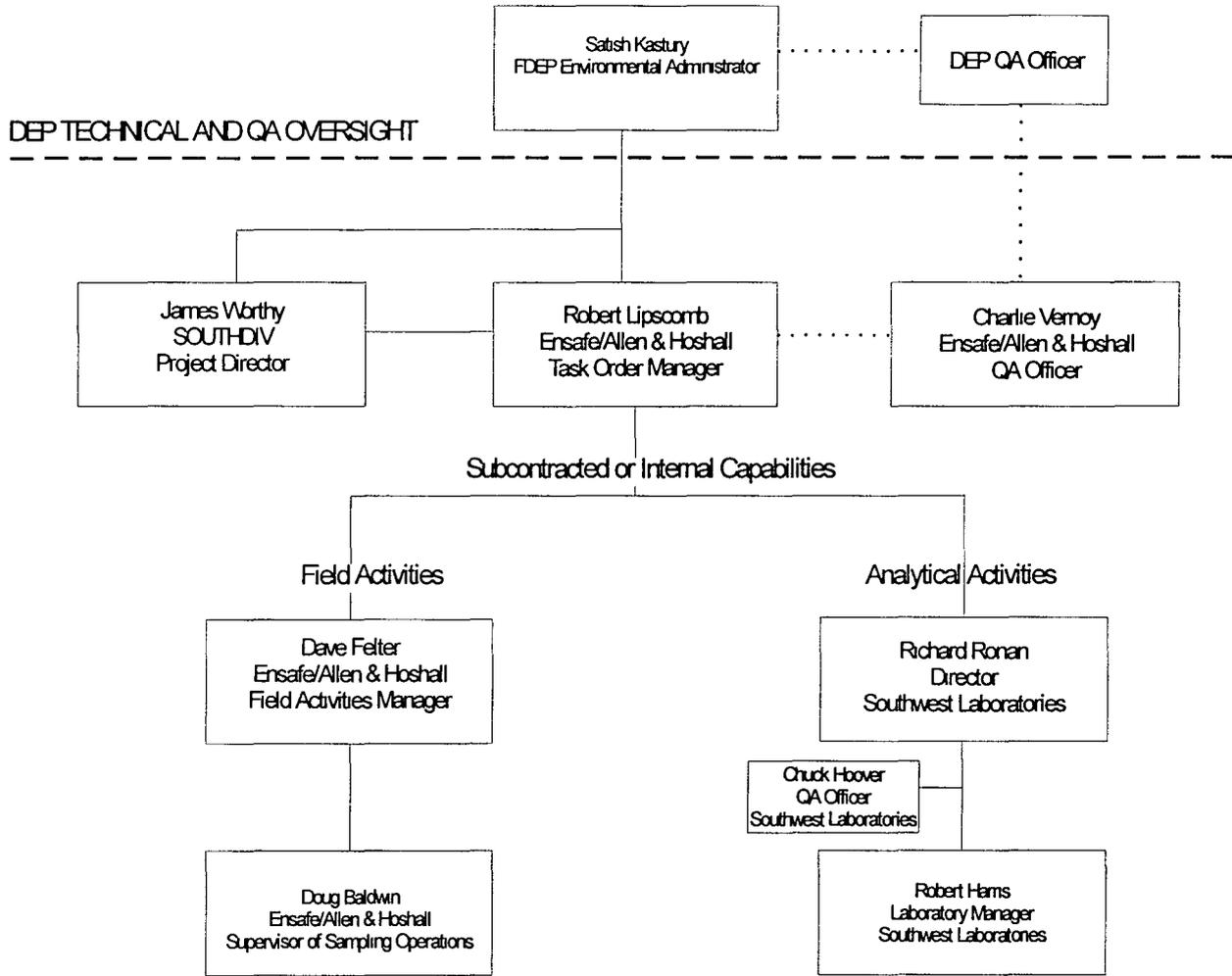
#### 3.4.2 Proposed samples for project

- a. See Figure 3.2 for a map of the project site.
- b. See Table 3.2 of this Section for a summary of the sampling and analysis activities.

#### 3.4.3 Summary of Matrix Types, Analytical Methods and QA Targets

Field and laboratory analytical measurements are presented in Table 3.2.

**FIGURE 3.1**



**Project Organization**

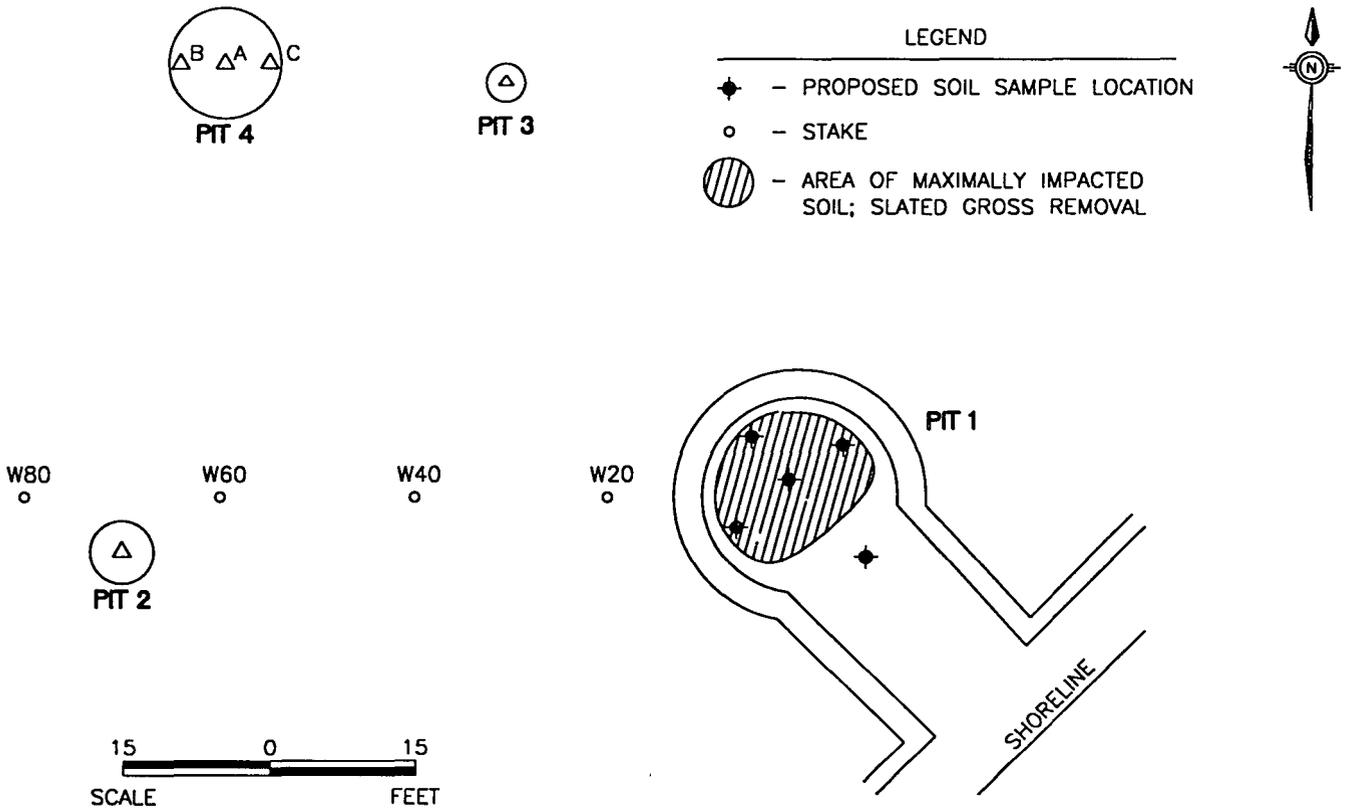


Figure 3.2



## Section 4.0 FIELD PROCEDURES AND QUALITY CONTROL

This section specifies the protocols and procedures to be used by EnSafe/Allen & Hoshall when conducting sampling activities for this project.

### 4.1 Sampling Equipment

See Table 4.1 for a list of the equipment to be used for this project.

### 4.2 Field Activities - See Table 4.2

4.2.1 Sampling protocols for this project that are not specified by the CompQAP specified in Table 4.2 include the following:

4.2.2 Disposal protocols for handling wastes differ from those specified by the CompQAP. Wastes will be handled according to the following protocols:

Auger cuttings will be placed in each boring as backfill. Deionized rinsewater will be allowed to flow into the pit. Isopropyl alcohol rinse residual will be containerized for disposal by the Navy.

### 4.3 Field Measurements

Field measurements are listed in Table 3.2 of this QAPP. Field screening measurements that will be made are:

1. N/A
- 2.
- 3.

**TABLE 4.1  
 PROPOSED SAMPLING EQUIPMENT**

The following equipment will be used by EnSafe/Allen & Hoshall for this project. With the exception of the additional equipment, discussions on use and restrictions are included in CompQAP # 920347G updated with annual amendments which were approved July 19, 1996.

<u>EQUIPMENT DESCRIPTION</u>	<u>CONSTRUCTION MATERIALS</u>	<u>USE</u>
Purging Equipment (include construction of tubing, tail pipes, etc.)		
1. N/A		
2.		
3.		
4.		
5.		
Sampling Equipment		
1. Hand auger	stainless steel	soil sample collecting
2. Stainless steel spoons	stainless steel	soil sample collection/homogenization
3. Mixing bowl	aluminum	sample homogenization
4.		
5.		
6.		
7.		

Additional equipment not addressed in the CompQAP includes<sup>1</sup>:

1. N/A
- 2.
- 3.
- 4.

<sup>1</sup>If the sampling protocols for using this equipment are not included in the cited CompQAP, the sampling protocols must be discussed in Section 4.2.1 of this Quality Assurance Project Plan.

Field Measurement Equipment (construction does not need to be specified)

1. N/A
- 2.
- 3.
- 4.

**TABLE 4.2  
 FIELD ACTIVITIES**

The following field protocols will be used by EnSafe/Allen & Hoshall.

The Comprehensive QA Plan number for this organization is 920347G. The date of the last update approval is July 19, 1996.

All protocols, procedures and policies in the above-mentioned document which are pertinent to this Quality Assurance Project Plan will be followed and are summarized below:

	VOCs	Extr. Org.	Metals	Inorg. Anions	Org.	Phys. Prop.	Micro	Other (specify)
Groundwater								
Groundwater (in-place plumbing)								
Potable Water								
Surface Water								
Soil	8240	8270	6010 7470	SO <sub>4</sub> <sup>=</sup> NO <sub>3</sub> <sup>-</sup>	8330			8015 CA Mod. - DRO, Method 1312 with 8240, 8330, metals, NO <sub>3</sub> <sup>-</sup> , SO <sub>4</sub> <sup>=</sup> , HN <sub>3</sub>
Sediment/Sludges								
Automatic Samplers								
Field Filtration								
Wastewater								
Stormwater runoff								

**SAMPLE CONTAINERS**

Sample containers will be supplied by: Analytical Lab (Southwest Laboratories).

- containers will be prepreserved by the above-referenced organization and additional acid will be provided; OR
- Field organizations will preserve samples on site using protocols outlined in the CompQAP.

**EQUIPMENT DECONTAMINATION**

Equipment decontamination will follow protocols outlined in the above-referenced CompQAP.\*

**EQUIPMENT SHALL BE PRECLEANED PRIOR TO ON-SITE ARRIVAL**

\* If more than one organization is involved with these activities, this QAPP must specifically identify the equipment and/or sample containers to be provided by each organization.

**WASTE DISPOSAL**

- The procedures for handling wastes from equipment cleaning and from sampling are discussed in the above-referenced CompQAP.
- The disposal procedures for handling wastes for this project differ from those outlined in the above referenced CompQAP and are outlined in Section 4 2.2.

Section 5.0 **LABORATORY PROCEDURES AND QUALITY CONTROL**

The laboratory analyses shall be conducted by Southwest Laboratories. The Comprehensive QA Plan number for this organization is 890099G-12. The date of the last update approval is February 27, 1997.

**All protocols, procedures and policies in the above-mentioned document which are pertinent to this Quality Assurance Project Plan shall be followed. The laboratory shall analyze the samples for this project by the methods specified in Table 3.2 of the QAPP.**

5.1 **Quality Control Checks**

The types of laboratory control checks that will be used when analyzing samples for this project are:

**Chemical:**

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Reagent Blanks                     | <input checked="" type="checkbox"/> Matrix Spikes      |
| <input checked="" type="checkbox"/> Duplicate Samples                  | <input checked="" type="checkbox"/> QC Check Samples   |
| <input checked="" type="checkbox"/> Duplicate Matrix Spikes            | <input checked="" type="checkbox"/> QC Check Standards |
| <input checked="" type="checkbox"/> Continuing Calibration Stnds       |  |
| <input checked="" type="checkbox"/> Other: <u>SPLP extractor blank</u> |  |

**Microbiology:**

- |   |  |
|---|--|
| <input type="checkbox"/> Duplicates                   | <input type="checkbox"/> Control Blanks (MF)   |
| <input type="checkbox"/> Carry over blanks (MF)       | <input type="checkbox"/> Dilution Blanks (MPN) |
| <input type="checkbox"/> Positive & Negative Controls |  |
| <input type="checkbox"/> Other: _____                 |  |

Section 6.0 QUALITY ASSURANCE MANAGEMENT

6.1 Corrective Actions

In addition to corrective actions cited in the approved Comprehensive QA Plans, **ALL INVOLVED PARTIES WILL INITIATE ANY CORRECTIVE ACTION DEEMED NECESSARY BY DEP.**

6.2 Performance and Systems Audits

6.2.1 Field Activities

Specific audits planned for this project are:

<u>Audit Type</u>	<u>Frequency/Date</u>	<u>Description</u>
1. SOP review	1 first week	P.M. will observe activities to ensure consistency with SOPs.
2.		
3.		

6.2.2 Laboratory Activities

Specific audits planned for this project are:

<u>Audit Type</u>	<u>Frequency/Date</u>	<u>Description</u>
1. None		
2.		
3.		

**ALL INVOLVED PARTIES WILL CONSENT TO AUDITS BY DEP IF DEEMED NECESSARY.**

6.3 Quality Assurance Reports

Project specific QA Reports will be submitted to FDEP, NAS Key West and SOUTHDIV at a frequency of 1 time at completion.

**Note: Frequency must comply with Table IV, Appendix D of the DEP Manual for Preparing Quality Assurance Plans or Table 6 of Chapter 62-160, F.A.C., Quality Assurance.**

Revision Number	
Date	
Page	of

**4. Professional Engineer Registered in Florida** [Complete when required by Chapter 471, F.S. or not exempted by Rule 62-730.220(7), F.A.C.]

This is to certify that the engineering features of this hazardous waste management facility have been designed/examined by me and found to conform to engineering principles applicable to such facilities. In my professional judgment, this facility, when properly constructed, maintained and operated, or closed, will comply with all applicable statutes of the State of Florida and rules of the Department of Environmental Protection.

Elizabeth Claire Barnett  
 Signature

Elizabeth Claire Barnett  
 Name (please type)

Florida Registration Number: 50413

Mailing Address: 5724 Summer Trees Drive  
 Street or P.O. Box

Memphis, Tennessee 38134  
 City State Zip

Date: 8-1-03 Telephone (901) 372-7962

**[PLEASE AFFIX SEAL]**



DEPARTMENT OF THE NAVY

NAVAL AIR STATION  
PO BOX 9001  
KEY WEST FL 33040-9001

5090  
Ser 1883/0879  
November 22, 1999

David M. Knowles  
Florida Department of  
Environmental Protection  
2295 Victoria Ave Ste. 364  
Fort Myers, FL 33901-3881

Dear Mr. Knowles:

Enclosure (1) is forwarded in response to your letter dated July 14, 1999, concerning Demolition Key, EPA ID No. FL3 170 500 000, Closure Permit No. HF44-290798. Your letter provided three options for NAS Key West. After consideration of the three options, we have decided to pursue the third option of modifying the permit to include post closure care.

In enclosure (1), we are providing the schedule and plan for further closure actions at the NAS Key West OB/OD on Demolition Key. We will continue to keep you informed of the status of funding and obtain your approval prior to performing any further site investigation.

Our point of contact in this matter is Ms. Patsy McNeill, at (305) 293-2583.

Sincerely,

R. A. DEMES  
Engineering Director  
Public Works Department  
By direction of  
the Commanding Officer

Copy to:  
FDEP, Tallahassee (Shelton Graves)  
FDEP, FT Myers (Ghaus Minhaj)  
Commander, Navy Region Southeast (Code N45)  
→ SOUTHNAVFACENCOM (Code 1822)

DEMOLITION KEY SCHEDULE

<u>ACTION</u>	<u>TIME PERIOD</u>
Request funding	Environmental Program Requirements (EPR). Project submittal for funding 10/5/99. (Complete)
Receive funding	When EPR is approved (Estimate FY2000) (3 <sup>rd</sup> Qtr)
Negotiate/Award Contract	60 days after funding received
Prepare/Modify Closure Permit to Include Post Closure Requirements. Study/Investigate/Characterize site during permit preparation. Post-Closure solutions will be proposed based on Site Characterization. Submit to FDEP for approval Modified Post Closure Permit as needed.	120 days
Implement Post Closure Permit	After FDEP approval

Enclosure (1)



Job Bush  
Governor

## Department of Environmental Protection

South District  
P.O. Box 2549  
Fort Myers, Florida 33902-2549

May 12, 2000

**COPY**

received  
5/17/00

David B. Scruton  
Secretary

Captain Scott T. Johnson, Commanding Officer,  
U.S. NAS Key West  
Code 1883RD  
Post Office Box 9007  
Key West, Florida 33040-9001

Re: Monroe County - HW  
Demolition Key F13170500000  
Permit #HF44-290798

Dear Captain Johnson:

On September 9, 1999, members of the State's hazardous waste staff from the South District and Tallahassee met with Naval officials at NAS Key West to discuss the issue regarding the closure certification report dated September 21, 1998, for the RCRA unit at Demolition Key. During this meeting, Navy officials agreed that continued pursuance of clean closure for this unit would not be practical and that a modification of the closure permit for post closure would be necessary, as referenced in a letter to the Department dated November 22, 1999.

As you may be aware, the permit for the above site will expire September 21, 2000. Florida Administrative Code (FAC) Rule 62-730.300(1), and specific condition L.7., of the referenced permit require facilities to submit renewal applications 180 days prior to the expiration of the permit. Accordingly, NAS Key West should have submitted its permit renewal by March 21, 2000. At this point time NAS Key West is in violation of Department and USEPA rules regarding the above reference site and permit.

The Department would like to suggest the following remedies for this problem. First, NAS Key West could submit an official written request to extend the existing permit for three years via (FAC) Rule 62-4.050(r)(3), since the closure permit was issued only for two years. There is a \$50 fee for this request. The second item is for NAS Key West to submit a reasonable time schedule for completion of the work to be done at Demolition Key. As a reminder, the modification for closure and post-closure is a major modification and will require a \$1,000 fee in accordance with FAC Rules 62-4.050(4)(k)(17)(d) and 62-730.290. We have been working with the Navy at this site since early in 1986. We, and I am sure the Navy, would like to put this issue to rest. Please submit a time schedule within 45 days of the date of this letter.

Continued....

"More Protection, Less Process"

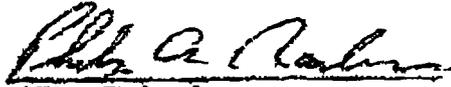
Printed on recycled paper.

Captain Scott T. Johnson, Commanding Officer,  
U.S. NAS Key West  
May 12, 2000  
Page 2

If we can not accomplish the above within a reasonable amount of time the Department will have no alternative but to pursue enforcement action against the Navy for its failure to timely resolve the issues at this site. For assistance in resolving this matter please feel free to contact Martin Russell of our Tallahassee Staff at (850) 921-9239 or Ghans Minhaj of our South District Office at (941) 332-6975.

Thank you for your cooperation in this matter.

Sincerely

  
Philip A. Barbaccia  
Environmental Administrator

PAB/CE/vo

- cc: Martin Russell, Tallahassee FDEP
- Ghans Minhaj, Fort Myers FDEP
- Edward Russell, Marathon FDEP
- Shelton Graves, Tallahassee FDEP
- Mike Stacka, NAS, Key West
- Ron Dames, NAS, Key West



DEPARTMENT OF THE NAVY

NAVAL AIR STATION  
PO BOX 8461  
KEY WEST FL 33040-8001

5090  
Ser 1883/ 0726  
September 15, 1999

David M. Knowles  
Florida Department of  
Environmental Protection (FDEP)  
South District  
2295 Victoria Avenue, Ste 364  
Fort Myers, Fl 33901-3881

Dear Mr. Knowles:

This is in regards to your letter dated July 14, 1999 concerning Demolition Key, EPA ID No. FL3 170 500 000, Closure Permit No. HF44-290798. A review was conducted on September 9, 1999 with various FDEP representatives, our Southern Division Naval Facilities Engineering Command (SOUTHDIV) consultants and Key West personnel to discuss the three options you suggested. At this time we request an extension of 45 days from receipt of this letter to review the feasibility of option three (3) for post closure modification to our closure permit.

Our point of contact for this matter is Patsy McNeill, at extension (305)293-2583.

Sincerely,

R. A. DEMES  
Engineering Director  
Public Works Department  
By direction of  
the Commanding Officer

Copy to:  
FDEP, Tallahassee (Shelton Graves)  
FDEP, Ft. Myers (Ghaus Minhaj)  
Commander, Navy Region Southeast (Code N45)  
SOUTHDIV (James Worthy)

OPTIONAL FORM NO 10 (7-97)

FAX TRANSMITTAL

# of pages 1

TO	FROM
JAMES WORTHY	RAA
DATE/TIME	DATE
583-7465	983-2582
FORM 1043-01-517-722	SEP-101 GENERAL SERVICES ADMINISTRATION

To: CHOUA Mirna, PE II, DEPRF, Myers

Through: Doug Outlaw, PE III  
Morris Russell, PG III  
Hazardous Waste Regulation

From: Shelton Graves, PG II  
John E. Griffin, Eng III  
Hazardous Waste Regulation

Date: June 2, 1999

Subject: Demolition Key, FL3170500000, Closure Permit 290768-001-HF,  
RCRA Miscellaneous Unit Closure Report, dated February 19, 1999.

We have reviewed the subject document, which purports to demonstrate that concentrations of hazardous constituents in the remaining soils at the regulated unit are below the clean closure criteria set forth in the permit and that the unit has been "clean closed". However, the data included with the report indicate that concentrations of several constituents are above soil cleanup criteria. For example, for sample #2, confirmatory soil sample results for arsenic, lead, and cadmium, respectively, are 45.5 mg/kg, 9 mg/kg, and 1990 mg/kg. The clean closure criteria for soils for these constituents are 25 mg/kg, 0.6 mg/kg, and 500 mg/kg. The soil leachate analyses for these constituents were 1900 ug/l, 130 ug/l, and 18400 ug/l. The corresponding maximum concentration limits for leachates for these particular constituents are 8 ug/l, 50 ug/l, and 15 ug/l. Numerous exceedences of permitted criteria for other constituents were detected in other soil and leachate samples collected to demonstrate clean closure (August 24, 1998).

Please inform the facility of our finding that the clean closure requirements of the permit have not been met. The facility has three options. First, it can submit a letter requesting additional time for closure and continue soil removal activities until remaining soils meet the closure criteria of the permit, if possible. The second option is for the facility to provide the Department with a permit modification request to change the closure plan to modify the current closure criteria concentrations in accordance with a human health and ecological risk assessment to be approved by the Department or to include appropriate background concentrations as clean closure criteria. Finally, the facility may modify the permit to include post closure care requirements, in accordance with Specific Condition III.B of the closure permit. Please ask the facility to provide correspondence regarding these options to the Department within sixty (60) days of receipt of your letter, along with appropriate permit modification fees.

Should you have any questions regarding this matter, please call Shelton Graves or John Griffin at 800-278-0300.

JGh/gjm

cc: Charles Emery, DEPRF, Myers

C2-661

Southern Division Naval Facilities  
Engineering Command  
2155 Eagle Drive  
N. Charleston, SC 29464  
Ph (843) 820-5896 Fax (843) 820-7465

FAX

To: Andrya Gough Fax: 901 372-2454

From: Bryan Kizer Date: \_\_\_\_\_

Re: \_\_\_\_\_ Pages: \_\_\_\_\_

CC: \_\_\_\_\_

Urgent     For Review     Please Comment     Please Reply     Please Recycle



FYI - for you & JIM

**CONFIDENTIAL**

9/8/99

**Notes from Key West**

Corps letter has been signed out. A copy is in the Part II OB/OD file.

**Purpose of the meeting**

- See the site
- Discuss the three options
- Range Rule

9/9/99

FDEP – Shelton Graves, Ghaus Minhaj, John Griffin, Charles Emery, Ed Russell

1. levels way above cleanup, What are the levels at the top of the hole? (John's point) What did permit say? Is it below leachability levels? 2 ft below  
More samples?

Background – Data to do option one if clean closure (seawater samples) yes or no??

2. Eco – No
3. Capping and Monitoring Institutional Controls, size of cap, (Future Use??)  
No GW Wells necessary for Monitoring  
Leachability

If the rules are happy, we are happy (FDEP)

What meets our requirements?

Mangroves in hole – remove

Physical barrier up?

Soil stabilization – visibility construction, grouting – construction – salinity

We have to prove the contamination is not moving

Stay there – leaching criteria

Seawater leaching procedure

Modification – Fee for revised closure permit, and post closure permit, conceptual idea for time to close

{Drawing}

Notes To Do:

Original permit – What does it say? Sampling and Removal  
Stability of Concrete in Seawater

Phased approach to Closure – Post Closure

Permit – Post Closure options

Regulations pertaining to Post Closure

Ensafe to send all stuff with final bill

Ask 02 prior to speaking with Jim

Contact Tetrattech – Can they do it?

Ralph Basinski?

Tetra Tech scope?

1. Sample to determine extent of contamination
2. Background samples (Data)
3. Modify Post Closure Permit  
Submit to state for approval  
Whole or part – Regs?
4. Implement Permit
- 5.



# Department of Environmental Protection

Lawton Chiles  
Governor

Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Virginia B. Wetherell  
Secretary

September 14, 1998

OPTIONAL FORM 99 (7-90)

## FAX TRANSMITTAL

# of pages ▸

To <i>Dr. Speaker</i>	From
Dept./Agency	Phone #
Fax # <i>901 372 2454</i>	Fax #

NSN 7540-01-517-7388 5099-101 GENERAL SERVICES ADMINISTRATION

**CERTIFIED MAIL - RETURN RECEIPT**  
Z 333 662 134

Captain Scott T. Johnson, Commanding Officer  
U.S. NAS Key West, Post Office Box 9001  
Key West, Florida 33040-9001

**SUBJECT: U.S. NAS - Demolition Key; FL3 170 500 000**  
Permit #HF44-290798  
Monroe County - Hazardous Waste

Dear Captain Johnson:

Enclosed is Permit Number HF44-290798 to address closure of a Open Burning/Open Detonation Treatment Unit issued pursuant to Section 403.722, Florida Statutes (F.S.), and Rules 62-4.080, 62-730.280, and 62-730.290, Florida Administrative Code (F.A.C.).

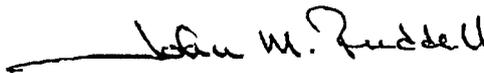
This permit is final and effective on the date filed by the Clerk, unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Rule 17-103.070, F.A.C. Upon timely filing of a petition, or a request for an extension of time, this permit will not be effective until further order of the Department.

When the permit is final, any party to the permit has the right to seek judicial review of the permit pursuant to Section 120.68, F.S., by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, Department of Environmental Protection, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000; and by filing a copy of the

Captain Scott T. Johnson Commanding Officer  
September 14, 1998  
Page Two

Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within thirty (30) days from the date the Final Order is issued.

Sincerely,



John M. Ruddell, Director  
Division of Waste Management

Enclosure

cc w/enc: Kent Williams, EPA/Region 4  
Donna Wilkinson, EPA/Region 4  
Phil Barbaccia, FDEP/South Florida  
Ms. Patsy McNeill, U.S. NAS Key West  
James Worthy, Southern Division, Naval Facilities  
Jack London, Mayor, Monroe County  
Vicky Davis, U.S. Fish & Wildlife Service  
Lt. COL Julie Jones, Florida Game &  
Fresh Water Fish Commission  
Jorge Caspary, FDEP/Tallahassee



# Department of Environmental Protection

Lawton Chiles  
Governor

Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Virginia B. Wetherell  
Secretary

## Permittee:

U.S. Naval Station-  
Demolition Key  
Public Works Office  
Post Office Box 9001  
Key West, Florida 33040-5000

I.D. Number: FL3 170 500 000  
Permit/Cert. No.: HF44-290798  
Date of Issue: September 4, 1998  
Expiration Date: September 4, 2000  
Lat./Long.: 24°35'48"N/81°47'45"W  
Section/Township/Range: 00/T00S/R00E

## Attention:

Captain Scott T. Johnson, Commanding Officer  
Ms. Patsy McNeill, Environmental Branch

Project: Closure of a Open Burning/Open  
Detonation Treatment Unit

This permit is issued under the provisions of Section 403.722, Florida Statutes (F.S.), and Chapters 62-4, 62-25, 62-160, 62-301, 62-522, 62-550, 62-730 and 62-785, Florida Administrative Code (F.A.C.). The above-named permittee is hereby authorized to close the facility shown on the permit application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

The permittee shall close an unconfined Open Burn and Open Detonation (OB/OD) treatment unit on an eight-acre spoil pile in Florida Bay approximately one mile north of Key West, Florida. The unit consists of an open pit that began operation in 1987 to dispose of unserviceable military ordnance. The OB/OD treatment unit is 940 square feet in area. The hazardous wastes treated at the unit have EPA waste numbers D003, D005, D006, D008, and D009. The ordnance ash was collected after each treatment and transported to the permitted RCRA storage facility. The remainder of the spoil pile is used for military training. Currently, the RCRA unit is no longer in operation.

The Department recognized that the OB/OD treatment unit was located on a spoil pile created from past dredging of sands from nearby ocean channels. Because of the uniqueness of the geology and hydrogeology of the site, the Department is approving leaching tests for demonstration of the potential for a release to the groundwater from the unit instead of the conventional groundwater sampling and monitoring under 40 CFR Part 264 Subpart F.

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Demolition Key  
P.O. Box 9001  
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The following documents were used in the preparation of this permit:

1. RCRA Closure Permit Application dated June 7, 1996.
2. Response to FDEP comments dated June 27, 1997.
3. FDEP response letter to the facility regarding groundwater sampling dated March 31, 1997.
4. Quality Assurance Project Plan #970195 approved by the Department on April 27, 1998.

**GENERAL CONDITIONS:**

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "permit conditions" and are binding and enforceable pursuant to Sections 403.141, 403.727, or 403.859 through 403.861, Florida Statutes (F.S.). The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in Sections 403.087(6) and 403.722(5), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed and used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

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7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at reasonable times access to the premises where the permitted activity is located or conducted to:
- Have access to and be allowed to copy any records that must be kept under conditions of the permit;
  - inspect the facility, equipment, practices, or operations regulated or required under this permit; and
  - sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
- A description of and cause of noncompliance; and
  - the period of noncompliance, including dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance. The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or revocation of this permit.
9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Section 403.111 and 403.73, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.
10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules. A reasonable time for compliance with a new or amended surface water quality standard, other than those standards addressed in Rule 62-302.500 F.A.C., shall include a reasonable time to obtain or be denied a mixing zone for the new or amended standard.
11. This permit is transferable only upon Department approval in accordance with Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any noncompliance of the permitted activity until the transfer is approved by the Department.
12. This permit, or a copy thereof, is required to be kept at the work site of the permitted activity.

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13. This permit also constitutes:
- Determination of Best Available Control Technology (BACT)
  - Determination of Prevention of Significant Deterioration (PSD)
  - Certification of Compliance with State Water Quality Standards (Section 401, PL 92-500)
  - Compliance with New Source Performance Standards
14. The permittee shall comply with the following:
- Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
  - The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by this permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule.
  - Records of monitoring information shall include:
    - The date, exact place, and time of sampling or measurements;
    - the person responsible for performing the sampling or measurements;
    - the dates analyses were performed;
    - the person responsible for performing the analyses;
    - the analytical techniques or methods used; and
    - the results of such analyses.
15. When requested by the Department, the permittee shall within a reasonable time, furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.
16. The following conditions shall also apply to a hazardous waste facility permit:
- A biennial report, covering facility activities during the two previous calendar years, pursuant to Chapter 62-730, F.A.C., shall be submitted to the Department.

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- b. Notification of any noncompliance which may endanger health or the environment including the release of any hazardous waste that may endanger public drinking water supplies, or the occurrence of a fire or explosion from the facility which could threaten the environment or human health outside the facility, shall be reported verbally to the Department within 24-hours, and a written report shall be provided within 5 days. The verbal report within 24-hours shall contain the name, address, I.D. number, and telephone number of the facility, its owner or operator, the name and quantity of materials involved, the extent of any injuries, an assessment of actual or potential hazards, and the estimated quantity and disposition of recovered material. The written submission shall contain:
- (1). A description and cause of the noncompliance,
  - (2). if not corrected, the expected time of correction and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.
- c. reports of compliance or noncompliance with, or any progress reports on, requirements contained in any compliance schedule shall be submitted no later than fourteen (14) days after each schedule date, and
- d. all reports or information required by the Department by a hazardous waste permittee shall be signed by a person authorized to sign a permit application.

**SPECIFIC CONDITIONS:****PART I - STANDARD REQUIREMENTS:**

1. Four (4) copies of all submittals in response to all conditions of this Permit shall be submitted as follows:
  - a. One (1) copy to:  
  
Hazardous Waste Supervisor  
Hazardous Waste Section  
Department of Environmental Protection  
2295 Victoria Avenue, Suite 364  
Ft. Myers, Florida 33901
  - b. Two (2) copies to:  
  
Environmental Administrator  
Hazardous Waste Regulation Section  
Bureau of Solid and Hazardous Waste, MS #4560  
Department of Environmental Protection  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400
2. All documents submitted pursuant to the conditions of this permit shall be accompanied by a cover letter stating the name and date of the document submitted, the number(s) of the

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Specific Condition(s) affected, and the FDEP permit number, EPA FLD identification number, and project name of the permit involved.

3. All submittals modifying the approved closure plan shall be certified by the owner and operator and signed, sealed, and certified by a Professional Engineer registered in the State of Florida, in accordance with Section 471, F.S., and Rule 62-730.220(7), F.A.C. All submittals incorporating the interpretation of geological data shall be signed and sealed by a Professional Geologist registered in the State of Florida in accordance with Section 492, F.S., and Rule 62-730.220(8), F.A.C.
4. The Department may modify, revoke, reissue, or terminate for cause this permit in accordance with the provisions of Rule 62-730.290, F.A.C. The filing of a request for a permit modification, revocation, reissuance, or termination, or the notification of planned changes or anticipated noncompliance on the part of the permittee does not stay the applicability or enforceability of any permit condition. The permittee may submit any subsequent revisions of the permit to the Department for approval. These revisions shall meet the requirements of Rules 62-4.050 and 62-730.290, F.A.C., and shall be accompanied by the appropriate fees.
5. The permittee shall revise "Part I - General" of the application for a Hazardous Waste Facility Permit [FDEP Form 62-730.900(2)(a)] and submit it to the Department, along with the appropriate fees, within thirty (30) days of any changes in Part I.
6. Before transferring ownership or operation of this facility during the closure period, the permittee shall notify the new owner or operator, in writing, of the requirements of 40 CFR Part 264 and Chapter 62-730, F.A.C. [40 CFR Part 264.12(c)]. The permittee shall submit the application of transfer to the Department at least 90 days before the effective date of the facility transfer in accordance with Rules 62-730.300(2) and (3), F.A.C.
7. Prior to 180 days before the expiration of this permit, the permittee shall submit a complete application for renewal of the permit on forms and in a manner prescribed by the Department, unless a clean-closure demonstration in accordance with Specific Conditions II.9 and III.5 of this permit has been completed and has been accepted by the Department. [Rule 62-730.300(1), F.A.C.]
8. The permittee shall follow the procedures described in the waste analysis plan described in Section II.B.6 of the permit application provided in accordance with 40 CFR Part 264.13.
9. The permittee shall comply with the security provisions of 40 CFR Part 264.14(b)(2) and (c), and warning sign requirements of Chapter 62-730.181(3) F.A.C. and 40 CFR Part 264.14.
10. The permittee shall visually inspect the facility operating, emergency, and safety equipment in accordance with the schedule approved in the Preparedness and Prevention Plan in Section II.B.6 of the permit application. The permittee shall remedy any deterioration or malfunction discovered by an inspection in accordance with the requirements of 40 CFR Part 264.15(c). The schedule for this inspection shall be submitted within seven (7) calendar days after this permit is issued and shall be maintained as part of the operating record of the facility. Changes, additions, or deletions to the schedule must be approved in writing by the Department. [40 CFR Part 264.15]

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11. The permittee shall ensure that all appropriate facility personnel successfully complete the approved training program described in the Personnel Training Program, Section II.B.6 of the permit application within 6 months of employment or assignment to the facility or to a new position at the facility. Verification of this training must be kept with the personnel training records and maintained on-site. These personnel shall not work unsupervised until training has been completed. The training must be renewed by facility personnel at least annually. The permittee shall maintain an updated list of personnel handling hazardous waste and their respective job titles, at the site. [40 CFR Part 264.16]
12. The permittee shall comply with the general requirements of 40 CFR Part 264.17(a) and (b), and the location requirements for any ignitable wastes, in accordance with 40 CFR Part 264.176. The permittee shall comply with the containment requirements for any incompatible wastes, in accordance with 40 CFR Part 264.177.
13. The permittee shall maintain and operate the facility to minimize the possibility of fire, explosion, or any unplanned, sudden or non-sudden release of hazardous waste or constituents to air, soil, or surface water which could threaten human health or the environment. [40 CFR Part 264.31]
14. The permittee shall comply with the following conditions concerning preparedness and prevention:
  - a. At a minimum, the permittee shall have the equipment available at the facility which are described in the contingency plan, Section II.B.6. of the permit application, as required by 40 CFR Part 264.32.
  - b. The permittee shall test and maintain the equipment described in Specific Condition 14(a) of this part as necessary to assure its proper operation in time of emergency, as required by 40 CFR Part 264.33.
  - c. The permittee shall maintain the communications or alarm system, as required by 40 CFR Part 264.34.
  - d. At a minimum, the permittee shall maintain aisle space for any generated contaminated media from the permitted closure activities as required by 40 CFR Part 264.35.
  - e. The permittee shall maintain arrangements with state and local authorities as required by 40 CFR Part 264.37. If state or local officials refuse to enter into preparedness and prevention arrangements with the permittee, the permittee must document this refusal in the operating record.
15. The permittee shall comply with the following conditions concerning the contingency plan:
  - a. The permittee shall maintain and submit copies of the contingency plan in accordance with 40 CFR Part 264.53.
  - b. Within seven (7) days of meeting any criteria listed in 40 CFR Part 264.54(a), (b) and (c), the permittee shall amend the plan and submit the amended plan for Department

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approval. Any other changes to the plan must be submitted to the Department within seven (7) days of the change. All amended plans must be distributed to the appropriate agencies.

- c. The permittee shall comply with the requirements of 40 CFR Part 264.55, concerning the emergency coordinator.
  - d. The permittee shall immediately carry out the provisions of the contingency plan, Section II.B.6. of the permit application, and follow the emergency procedures described by 40 CFR Part 264.56, whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents which threatens or could threaten human health or the environment. The permittee shall give proper notification if an emergency situation arises and within fifteen (15) days shall submit to the Department a written report which includes all information required in 40 CFR Part 264.56(j).
  - e. The Department of Environmental Protection's 24-hour emergency telephone number is (850) 413-9911. During normal business hours, the Department's South District office may be contacted at (941) 332-6975.
16. The permittee shall comply with the manifest requirements of 40 CFR Parts 264.71, 264.72 and 264.76.
17. The permittee shall maintain a written operating record, as the information becomes available, at the facility, that includes:
- a. the location of each hazardous waste within the facility, and the quantity at each location,
  - b. the results of the waste analyses,
  - c. a summary report and details of incidents that require implementation of the contingency plan,
  - d. identification numbers for offsite disposal of waste from the facility,
  - e. the results of inspections (for 3 years),
  - f. the closure plans,
  - g. biennial reports in accordance with 40 CFR Part 264.75, and
  - h. monitoring, testing, or analytical data when required by 40 CFR Part 264, Subpart G, and 40 CFR Part 264.228 and Part III of this permit.

These records must be maintained at the facility until completion and certification of closure is accepted by the Department. [40 CFR Part 264.73]

18. The permittee shall comply with all applicable portions of 40 CFR Parts 260 through 268 and those conditions required by 40 CFR Parts 270.30 and 270.31. [Rule 62-730.280, F.A.C.]

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**PART II - STANDARD CLOSURE REQUIREMENTS:**

1. The permittee shall submit any amendments, revisions, and modifications to the closure plan of the permit application to the Department for review and any necessary permit modifications.
2. The permittee shall close the OB/OD treatment unit in a manner that minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous waste constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the groundwater, surface waters, or to the atmosphere. [40 CFR Part 264.111]
3. The permittee shall manage all hazardous wastes, residues, sludges, spilled or leaked waste, or contaminated liquids and soils removed during closure of the OB/OD treatment unit in accordance with the applicable provisions of 40 CFR Parts 260 through 268, including the manifest requirements. A copy of each manifest required as a result of closure activities shall be submitted to the Department with the closure certification.
4. Within thirty (30) calendar days of permit issuance, the permittee shall prepare and submit a closure checklist with schedule date and completed column to document the progress of closure. Upon Department approval, the checklist shall be maintained and updated by the permittee throughout the closure period, with copies submitted monthly to the Department. Each report must be submitted to the Department by the tenth (10th) day of each month for the preceding month until the acceptance of the physical closure certification by the Department. Any deviation from schedule or described tasks shall be fully documented on the checklist.
5. In accordance with the requirements of 40 CFR Part 264.112(a), the permittee shall keep a copy of the closure plan, and all revisions to the plan until closure is completed, certified in accordance with 40 CFR Part 264.115, and accepted by the Department.
6. The permittee shall decontaminate or dispose of all equipment, structures, and residues used during or resulting from the closure activities as required by 40 CFR Part 264.114.
7. The permittee shall provide opportunities for site inspections by the Department by informing the Department, via letter, at least ten (10) calendar days in advance of any remaining physical closure activity (e.g., soil sampling, soil removal, etc.).
8. The permittee must complete physical closure activities within one hundred-eighty (180) calendar days after permit issuance. Any changes in the time allowed for closure of the OB/OD treatment unit shall require prior Department approval. [40 CFR Part 264.113]
9. Within sixty (60) calendar days of the completion of closure, the permittee shall submit to the Department, by certified mail or hand delivery, a report signed by the permittee and an independent Professional Engineer registered in the State of Florida stating that the OB/OD treatment unit has been closed in compliance with the closure plan and the specific conditions of this permit [40 CFR Part 264.115]. The closure certification must be based on the Professional Engineer's own observation and knowledge of the closure activities. The certification of closure must include, but not be limited to, the following:

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- a. All sampling data of the soils and its leachate to verify closure;
  - b. decontamination data;
  - c. completed closure activities log approved by the Department; and,
  - d. copies of manifests for removal of all hazardous wastes.
10. The permittee shall notify the Department within ten (10) calendar days of the determination that actions undertaken as part of closure no longer satisfy the requirements set forth in this permit. If the Department determines that a modification of this permit is required, the permittee shall, within sixty (60) calendar days, submit an application for a permit modification, and the appropriate modification fees, in accordance with Rules 62-730.290 and 62-4.050, F.A.C.

**PART III - SPECIFIC CLOSURE REQUIREMENTS:**

1. The permittee shall remove from the OB/OD treatment unit any visible metal debris and surface material (ash from open burning) in accordance with the Closure Plan, Section II.D of the closure application. The debris will be containerized and disposed of according to the Waste Analysis Plan, Section II.B.8, of the permit application.
2. Soil samples shall be collected and analyzed as specified in Section II.D and Appendix E of the closure application. The permittee shall collect soil samples from at least five soil sample locations shown in Attachment A of this Permit. At each sample location, the soil shall be collected at discrete depths below land surface of 0-1 foot and 1-2 feet (or just above water table at mean sea level). The permittee shall analyze the soil samples for the parameters listed in Attachment B of this permit.
3. The permittee shall perform USEPA SW-846 Method 1312 Synthetic Precipitation Leaching Procedure (SPLP) on the soil samples described in Specific Condition III.2 and analyze the resulting leachate for the same constituents listed in Attachment B.
4. All sampling and analytical procedures shall be performed in accordance with the Quality Assurance Project Plan (QAPP) #970195. The permittee shall revise the QAPP in accordance with Rule 62-160.220, F.A.C. for any changes. The revised QAPP must be submitted to the Department within thirty (30) days of such changes for approval.
5. The results of all soil sampling and analyses pursuant to Specific Conditions III.2 and III.3 shall be used to determine if any portion of the OB/OD treatment unit is contaminated, and also to determine the appropriate method of disposal for the excavated materials and soils. The permittee must demonstrate clean closure of the OB/OD treatment unit by showing that the soil and leachate sample results in Specific Conditions III.2 and III.3 do not exceed the screening concentrations of inorganic constituents in Attachment B, or unaffected background, whichever is higher, and that organic hazardous constituents do not exceed the concentrations specified in Attachment B. However, if a leachate sample (Specific

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Condition III.3) must be diluted by the analytical laboratory in order to analyze the sample without interference, then the Department accepts the resulting (higher) screening concentration to determine clean closure for that constituent(s).

- 6. If the permittee cannot demonstrate clean closure of the OB/OD unit in accordance with this permit, the permittee shall, within sixty (60) days of the determination, submit a revised closure/post-closure plan and the appropriate permit modification fee to the Department in accordance with Rule 62-730.290, F.A.C.

Issued

September 4, 1998

STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL PROTECTION

John M. Ruddell

John M. Ruddell, Director  
Division of Waste Management

**FILING AND ACKNOWLEDGMENT**

Filed on this date, pursuant to Section 120.52, Florida Statutes, with the designated Clerk, receipt of which is acknowledged.

Janice McCre  
Clerk

9/21/98  
Date

This is to certify that this Notice of Permit was mailed before the close of business on

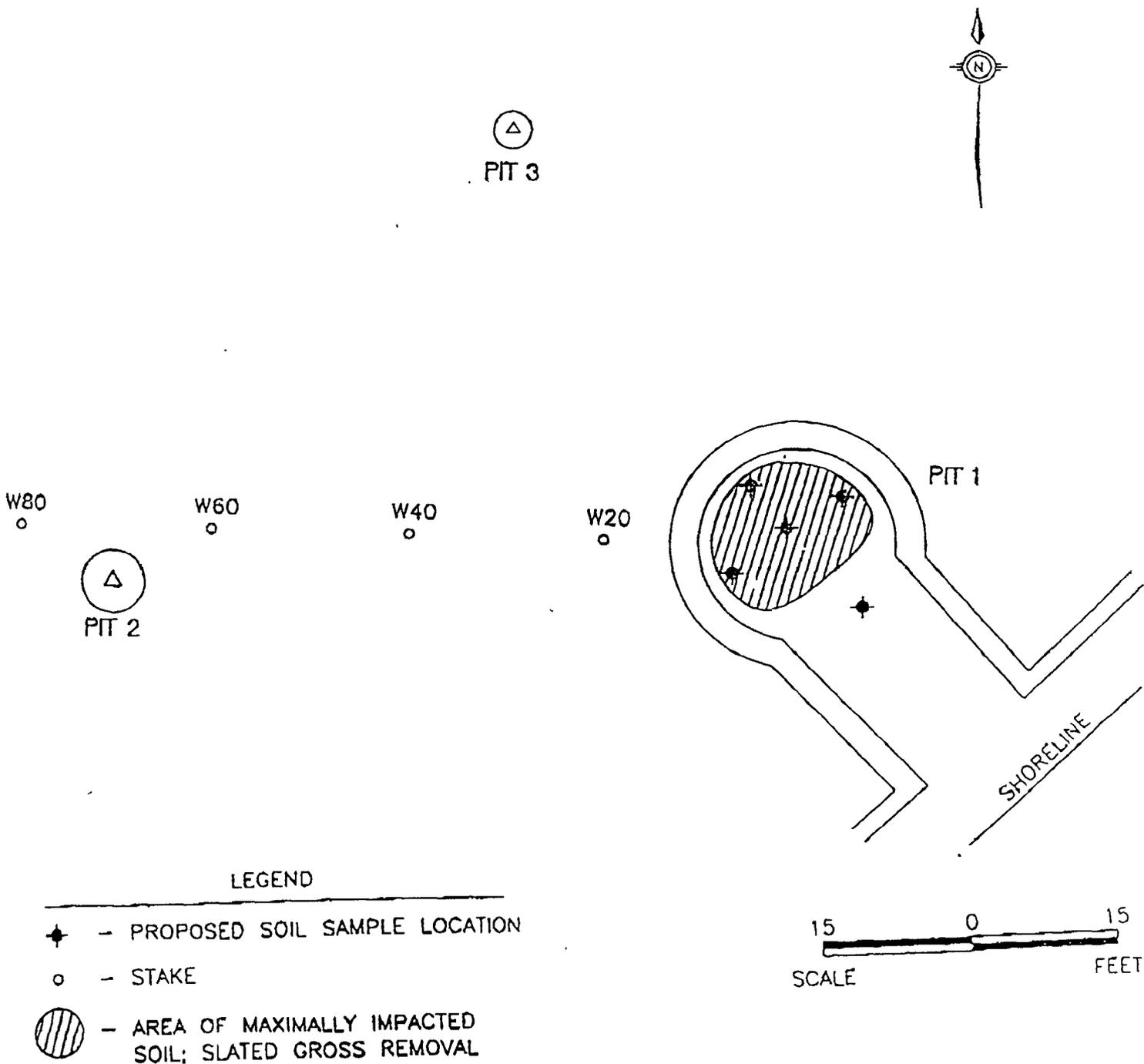
September 21, 1998

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**ATTACHMENT A  
LOCATION OF SOIL BORING SAMPLES AT THE RCRA UNIT**



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**ATTACHMENT B  
SOIL AND LEACHATE CLEAN-UP/SCREENING CONCENTRATIONS**

**Constituent/Parameter****Concentrations**

	<u>Soil (mg/kg)</u>	<u>*Leachate (ug/l)</u>
<b><u>Inorganics</u></b>		
antimony	26	6
barium	105	2,000
cadmium	75	5
copper	+background	1,000
manganese	1600	50
nickel	105	100
tin	44000	4200
zinc	23000	5000

**Organics**

4-amino-2,6-dinitrotoluene	**PQL	**PQL
ammonia	+background	2,800
2-butanone	4,800	4200
chlorobenzene	30	100
cresol (total, 2- and 3-)	**PQL	35
1,2-dichloroethane	0.6	3
1,3-dinitrobenzene	4.3	8
2,6-dinitrotoluene	0.9	0.1
hexachlorobutadiene	6.2	0.5
hexahydro-1,3,5-trinitro-1,3,5-triazine	6.7	1

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**ATTACHMENT B  
SOIL AND LEACHATE CLEAN-UP/SCREENING CONCENTRATIONS (continued)**

<u>Constituent/Parameter</u>	<u>Concentrations</u>	
	<u>Soil (mg/kg)</u>	<u>*Leachate (ug/l)</u>
methyl-2,4,6-trinitrophenylnitramine	**PQL	70
nitrobenzene	16	4
3-nitrotoluene	160	250
octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	**PQL	350
pyridine	15	16
trichloroethene	4.8	3
2,4,6-trichlorophenol	81	5
2,4,6-trinitrotoluene	32	10

\*The Department's Ground Water Guidance Concentrations are applied.

\*\*PQL is the Practical Quantification Limit. The PQL shall be the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. The PQLs must not exceed maximum contaminant levels of Chapter 62-550, F.A.C.

+Background shall be from an area on the spoil pile that has been unaffected by the facility's activities.