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NAS KEY WEST  
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STATEMENT OF BASIS FOR BOCA CHICA TEMPORARY HAZARDOUS WASTE STORAGE  
AREA BUILDING A-824 SOLID WASTE MANAGEMENT UNIT 7 NAS KEY WEST FL  
2/28/1999  
U S EPA REGION IV



# STATEMENT OF BASIS



## Naval Air Station Key West, Florida

Facility/Unit Type: Military Installation/Boca Chica Temporary Hazardous Waste Storage Area, Building A-824 (SWMU 7)  
 Contaminants: Arsenic and Aroclor-1260  
 Media: Soil and Sediment  
 Remedy: Monitoring with Land Use Controls

### INTRODUCTION

The United States Environmental Protection Agency (EPA) issued the Hazardous and Solid Waste Amendments (HSWA) Corrective Action portion of the Resource Conservation and Recovery Act (RCRA) Permit (hereafter referred to as the "HSWA permit") to Naval Air Station Key West, Florida (NAS Key West) pursuant to Section 3004 (u) and 3004 (v) of RCRA. The permit was issued on July 31, 1990 and required NAS Key West to complete a further investigation to determine the nature and extent of contamination from a Solid Waste Management Unit (SWMU), the Boca Chica Temporary Hazardous Waste Storage Area, Building A-824, known as SWMU 7.

The purpose of this Statement of Basis is several-fold. The Statement of Basis identifies the proposed remedy for SWMU 7 at NAS Key West and explains the rationale for the preference; describes all remedies evaluated as part of the Corrective Measures Study (CMS); solicits public review and comment on all remedial alternatives, including those not previously studied; and provides information as to how the public can be involved in the remedy selection process. The Statement of Basis provides a summary of past work at NAS Key West, of both the investigation and of the evaluation of remedies. The document provides key highlights of the RCRA Facility Investigation (RFI) and CMS Report, but should not be used as a substitute for these documents. Additional details regarding the facility, the investigation conducted under the RFI, and the evaluation of

the remedial alternatives may be found in the RFI and CMS Reports. These documents are kept as part of the information repository. Refer to the Public Participation section for their location.

The public is encouraged to comment on the remedial alternatives in the CMS Report or on additional remedies as appropriate. EPA wishes to emphasize that the final remedy selection will be made at the time of the HSWA permit re-issuance in the year 2000. Changes to the proposed remedy, or a change from the proposed remedy to another alternative, may be made if public comments or additional data indicate that such a change would result in a more appropriate solution.

### PROPOSED REMEDY

The proposed remedy is "monitoring with land use controls," which includes limited site access, and annual groundwater, surface water, and sediment sampling to determine the effectiveness of the soil interim remedial action (IRA) performed at the site.

The total capital cost is estimated to be \$13,400 while the operation and maintenance costs are estimated to be \$11,500 to \$46,000 per year. The total costs for the life of the project is estimated at \$151,000.

### FACILITY BACKGROUND

The U.S. Navy owns 4,670 acres on Boca Chica Key in Monroe County, Florida as part of NAS Key West. Currently, Boca Chica Key is the location of an active military airstrip and the facilities that support the airstrip. Some of the properties located adjacent to Navy property are zoned for residential use.

In 1988, a RCRA Facility Assessment (RFA) was conducted at NAS Key West. Based on the results of the RFA, an RFI was recommended at SWMU 7, Former Boca Chica Temporary Hazardous Waste Storage Area.

SWMU 7 is located on the northern portion of Boca Chica Key, just north of US 1 (Figure 1). The site consists of Building A-824, a grassy area enclosed by a chain-link fence that surrounds the building, and two small ponds (Figure 2). Building A-824 was previously used to store supplies and small electrical transformers, and served as a temporary staging area for 55-gallon drums of hazardous waste. The list of possible wastes it received includes diesel fuel and transformer oil.

In March 1991, a series of clean-up activities of the structure and surrounding area were performed at SWMU 7. In addition, media sampling was conducted at SWMU 7 to

characterize constituent types and distributions. Sampling was performed in 1991, 1995, and 1996 during a series of remedial investigations. The sampling activities in each investigation were tailored to SWMU 7 based on known site activities and existing data. In 1995, an Interim Remedial Action (IRA) was performed to remove possible hazardous materials including polychlorinated biphenyls (PCBs) detected in the soils north of Building A-824. The remediation was performed to prevent the further migration of PCBs into other media (i.e., sediment, surface water, and groundwater) and the biota at the site. Approximately 26 cubic yards of soil were removed and disposed of. The excavation was backfilled with crushed stone to match the existing grade. Confirmation sampling of soil was performed to determine the effectiveness of the removal.

Analytical results obtained from soil that was not removed during the IRA indicate that inorganics and one polychlorinated biphenyl (PCB) were found in surface soil in excess of the most restrictive applicable or relevant and appropriate requirements (ARARs) screening action levels (SALs). The inorganics found in soil are antimony, arsenic, beryllium, chromium, lead, mercury, and zinc. One PCB, Aroclor-1260, was detected in excess of action levels in surface soil at SWMU 7.

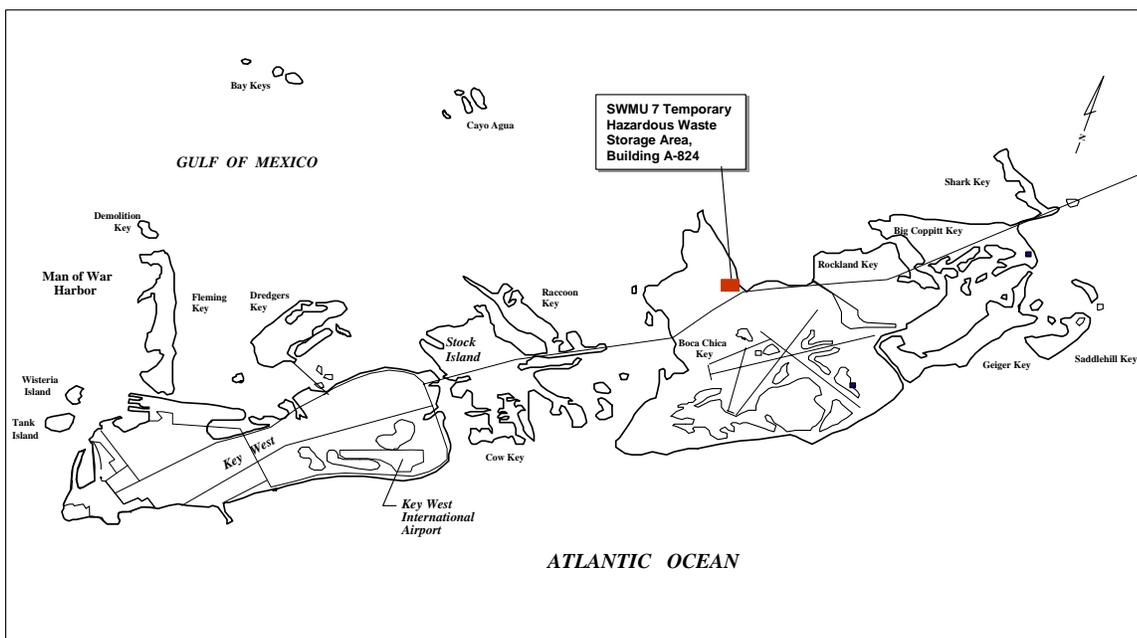
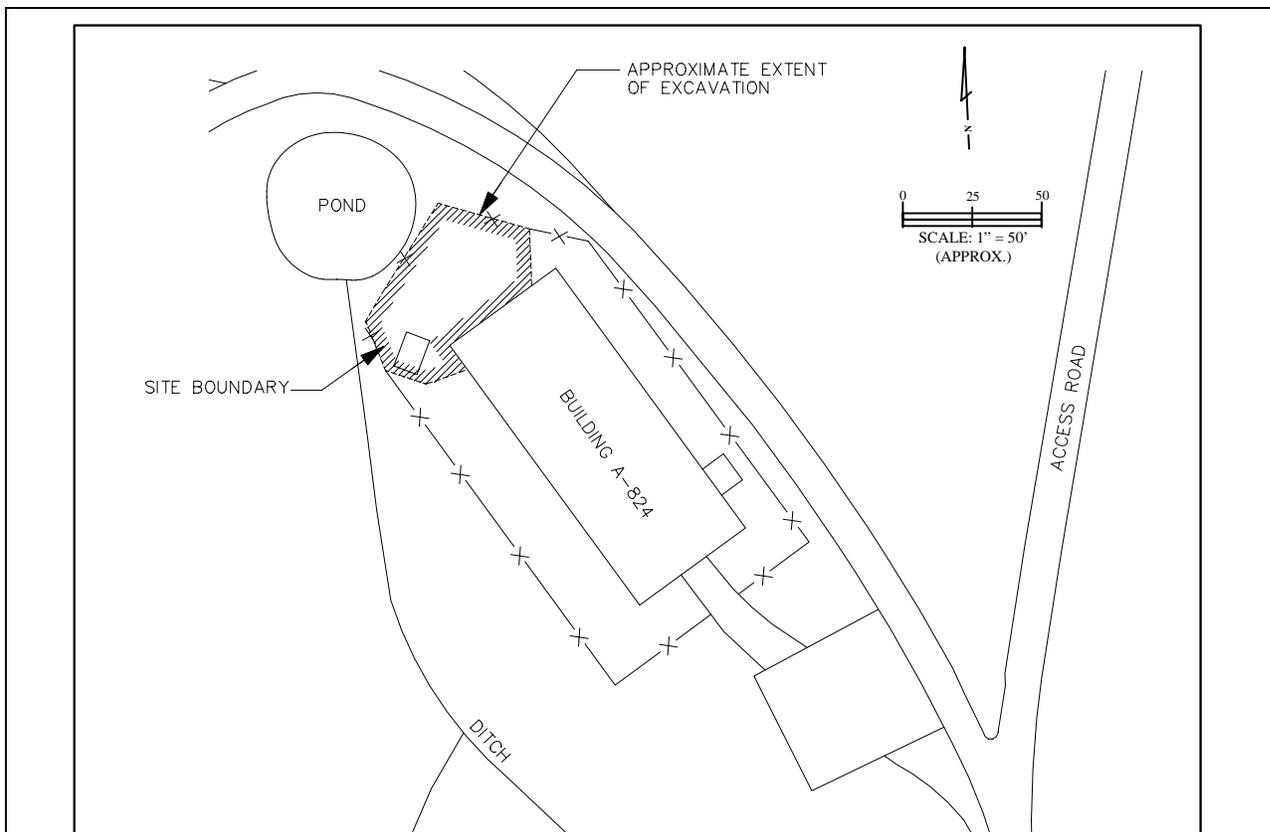


Figure 1. NAS Key West SWMU 7 Boca Chica Temporary Hazardous Waste Storage Area, Building A-824.



**Figure 2. Site Location Map of the SWMU 7 Boca Chica Temporary Hazardous Waste Storage Area, Building A-824**

Inorganics, SVOCs, pesticides, one VOC, and one PCB were detected in excess of action levels in sediment at SWMU 7. Inorganics found above action levels include arsenic, barium, beryllium, cadmium, chromium, copper, cyanide, lead, mercury, silver, and zinc. SVOCs above action levels include benzo(a)anthracene, benzo(b)fluoranthene, benzo(g,h,i)perylene, bis(2-ethylhexyl)phthalate, chrysene, fluoranthene, phenanthrene, and pyrene. A number of pesticides were detected in excess of action levels including 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, dieldrin, delta-BHC, gamma-BHC (lindane), and gamma-chlordane. A single VOC, acetone, was detected in excess of screening criteria in sediment. Also, a single PCB, Aroclor 1260, was detected above its action level in sediment at SWMU 7.

Inorganics were the only contaminants detected in surface water samples above action levels. No SVOCs, pesticides, or PCBs were detected. Antimony, beryllium, cyanide, manganese, tin, and zinc were detected above action levels.

Several inorganics were detected in groundwater at SWMU 7. However, only antimony was detected above its action level.

#### **SUMMARY OF FACILITY RISKS**

A human health Baseline Risk Assessment (BRA) and an Ecological Risk Assessment (ERA) were performed as part of the RFI report. The risk assessments for the RFI/RI activities at NAS Key West were conducted in accordance with guidance under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The RCRA sites at NAS Key West were evaluated for risk following CERCLA guidance at the request of EPA Region IV and Florida Department of Environmental Protection (FDEP).

In the BRA, human health risk associated with the exposure to detected contaminants in soil, sediment, and surface water were estimated for each potential receptor. Although groundwater was sampled and

## Statement of Basis – SWMU 7

analyzed, it was not considered a pathway of concern since the groundwater at this site has been classified by FDEP as a Class G-III nonpotable aquifer.

The potential receptors were based on current and future land uses. The current potential receptors identified for SWMU 7 include adolescent/adult trespasser, occupational worker, and site maintenance worker. Under the future land use scenario, the most likely potential receptor is an excavation worker. Also considered under the future land use scenario are a residential child and adult, although residential development of SWMU 7 is considered extremely unlikely. Under the Master Plan for land use on NAS Key West, the future land use for the area where SWMU 7 is located is as a restricted-access military base, with future zoning to limit access at the site because it is near an active airstrip. The full BRA is in the Supplemental RFI/RI Report.

Within each medium, contaminants of concern (COCs) were selected, based on comparison of the detected concentrations to risk-based screening levels. The selected COCs represent those chemicals at SWMU 7 that are expected to contribute to one or more of the exposure pathways selected for risk estimation. In addition, the BRA considered only those constituents that remain in media after performing the IRA. The BRA identified several SVOCs [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene], a PCB (Aroclor-1260) and metals (arsenic, antimony, beryllium, and iron) as COCs in soil at SWMU 7. The COCs for sediment were Aroclor-1260, arsenic, and benzo(b)fluoranthene. The surface water COCs were the metals antimony and beryllium.

The SWMU 7 BRA identified four risk scenarios exceeding the one in one million excess cancer threshold. Of these, the excess cancer risk for the hypothetical future resident exceeds the upper boundary of one in ten thousand. The constituents contributing to these cancer risks are Aroclor-1260 in surface soil and arsenic in surface soil and sediment. The estimated carcinogenic risks for trespasser adults, trespasser, maintenance workers, and occupational workers are within the EPA target risk range but exceed the FDEP target risk.

The BRA identified a noncarcinogenic risk for the hypothetical future resident three

times greater than the acceptable hazard index value of 1.0. The principal COCs contributing to this risk are metals (antimony, arsenic, and iron in surface soil and antimony in surface water). The noncarcinogenic risk for all other receptors at SWMU 7 are less than or equal to 1.0.

The ERA was conducted to evaluate the possibility that aquatic and terrestrial ecological receptors may be at risk from site-related contaminants. The ERA was based on laboratory analyses of groundwater, surface water, sediment, soil, fish, and vegetation.

The ERA concluded that the detected contaminants do not pose significant environmental risks at SWMU 7. The aquatic habitat at the site is limited, resulting in minimal use of the site and the vicinity by aquatic receptors. Overall potential risk to aquatic and terrestrial receptors appears to be low. Therefore, there were no ecological COCs established in the ecological assessment.

### SCOPE OF THE CORRECTIVE ACTION

For SWMU 7 at NAS Key West, the RFI Report data indicate that the IRA performed at the site may not have reduced the threat to human health and the environment to acceptable levels in accordance with the NAS Key West HSWA permit. Therefore, a CMS was recommended for SWMU 7.

EPA considers the HSWA Corrective Action Program to contain various options for implementing remedies based on site conditions. Regardless of the site conditions, media cleanup standards for unrestricted use are set (i.e., ARARs/SALs and industrial or residential health-based concentrations). However, although EPA recognizes that such media cleanup standards might be the ultimate goal of a corrective action, actual real-time cleanup objectives should consider actual site conditions and reasonably anticipated future use. Considering these, EPA acknowledged that a corrective action could be implemented with the Navy addressing risks of the current and reasonably anticipated future exposure. This corrective action would be qualified to indicate that unrestricted use of the environmental media in question should not occur. Such an option is being implemented at other sites within NAS Key West.

## SUMMARY OF ALTERNATIVES

The evaluation of the corrective measures alternatives was conducted in accordance with the EPA Final RCRA Corrective Action Plan Guidance.

1. **No Action.** By law this alternative must be considered to provide a baseline to compare to the other alternatives. This alternative would not address the remaining soil, sediment, surface water, and groundwater contamination at SWMU 7. This action would involve no cost.

2. **Monitoring with Land Use Controls.** This alternative would rely on land use controls to limit site access, thereby eliminating or reducing exposure pathways, and on monitoring the effectiveness of the IRA. This alternative is based on the assumption that SWMU 7 would continue to be owned by the Navy. NAS Key West would continue to be a secured Federal facility with perimeter fencing and access restrictions. Land use controls would consist of maintaining records of the SWMU 7 contamination in the NAS Key West Master Plan and execution of a memorandum of agreement (MOA) for land use control. FDEP, EPA, and the Navy have signed the MOA. Groundwater, surface water, and sediment samples would be collected and analyzed for PCBs and inorganics quarterly for the first year and annually for the next nine years to assess the effectiveness of the IRA and determine the need for any future actions. In addition, warning signs would be posted to indicate to trespassers that a potential health threat was present. A site review would be performed at least every five years to determine if any change to land use controls or further actions would be required. This alternative would not reduce the volume, mobility, or toxicity of the contaminants, but would reduce human exposure to the contaminated area. Total cost for this alternative is \$151,000, including 10 years of monitoring.

3. **Remove, Treat, and Dispose of Soil that Contains Chemical Concentrations Greater than Industrial Remedial Goals Options (RGOs); Land Use Controls.** This alternative would consist of three major components: (1) removal of contaminated soil, (2) transport of contaminated soils offsite for treatment and disposal, and (3) land use controls. Approximately 70 cubic yards of soil contaminated in excess of the FDEP Industrial

RGOs would be removed from the site, based on current estimates. The soil would be transported off-site to an approved RCRA treatment, storage, and disposal facility (TSDF). Land use controls (limited site access, site development restrictions, and educational programs) would be established to eliminate or reduce pathways of exposure from the remaining soil and sediment at the site to human and ecological receptors. In addition, annual groundwater, sediment, and surface water monitoring and biennial biomonitoring of ecological receptors would be conducted to reassess the nature and extent of site contaminants. Alternative 3 is estimated to cost \$239,000, including 10 years of monitoring.

## EVALUATION OF THE PROPOSED REMEDY AND ALTERNATIVES

The proposed remedy is Alternative 2 – Monitoring with Land Use Controls. Four criteria and five other factors are used to evaluate this and the other remedial alternatives. These criteria and factors are:

- Protection of Human Health and the Environment
- Media Clean-up Standards
- Source Control
- Waste Management Standards
- Long-term Reliability and Effectiveness
- Reduction in Toxicity, Mobility, or Volume
- Short-term Effectiveness
- Implementability
- Cost

The following table depicts the evaluation of the remedial alternatives in the CMS Report.

The preferred remedy for SWMU 7 is Alternative 2 – Monitoring with Land Use Controls. The major components of the alternative are land use controls (i.e., limited site access, site development restrictions, and educational programs) and monitoring of media and biota. SWMU 7 is within the boundary of an active airstrip on the military base. No change in site usage is planned for the foreseeable future. The IRA conducted in the spring of 1996 removed the majority of the contaminated soil and sediment. This alternative would include sediment, surface water and groundwater sampling and biomonitoring to determine the

**Statement of Basis – SWMU 7**

<b>EVALUATION OF REMEDIAL ALTERNATIVES FOR SWMU 7</b>		
<b>Alternative 1</b>	<b>Alternative 2</b>	<b>Alternative 3</b>
<b>Protection of Human Health and the Environment</b>		
Would not be protective of human health. Would not monitor the risks to the environment.	Would be protective of human health by restricting site access and would monitor the extent of contamination in the environment.	Would be protective of human health and the environment by removing soil in excess of the industrial RGOs.
<b>Media Clean-up Standards</b>		
Would not comply with media clean-up standards.	Same as alternative 1.	Would achieve industrial soil RGOs.
<b>Source Control</b>		
No new source control would be implemented.	Same as Alternative 1.	The contaminated soil in excess of the FDEP Industrial RGOs would be removed, treated, and disposed off site.
<b>Waste Management Standards</b>		
No standards applicable as no waste would be generated.	Same as Alternative 1.	Would comply with all applicable waste management standards during implementation.
<b>Long-term Reliability and Effectiveness</b>		
No controls would be in place; residual contamination and existing risks would remain.	Limited site access would provide control. The site contamination would be measured with long-term monitoring with 5-year reviews to determine need for further action.	Long-term effectiveness of this alternative, which removes some of the primary source, would be easily measured with long-term monitoring to assess the decrease of contaminant concentrations in the environment.
<b>Reduction in Toxicity, Mobility, or Volume through Treatment</b>		
This alternative would involve no treatment to reduce toxicity, mobility, or volume of the contaminated media.	This alternative would involve no treatment to reduce toxicity, mobility, or volume of the contaminated media.	This alternative would involve possible treatment of soil to reduce toxicity and mobility of the waste. Depending on the treatment technology used, waste volume would be decreased or increased.
<b>Short-term Effectiveness</b>		
Not applicable.	This alternative would reduce risk of exposure through land use controls and would pose only minimal risk during long-term monitoring.	Short-term risks would be present during the removal, potential treatment, and disposal of contaminated soil. Community risk would only be during transport of the contaminated media.
<b>Implementability</b>		
Readily implementable since no action would occur.	Easily implementable because site is located within an active military base where rules can be strictly enforced.	No difficulties are anticipated. Excavation contractors and TSDFs are readily available and the remediation technologies are well proven.
<b>Cost (Total Present Worth)</b>		
\$0.00	\$151,000	\$239,000
Alternative 1 - No Action. Alternative 2 - Monitoring with Land Use Controls. Alternative 3 - Remove, Treat, and/or Dispose of Soil that Contains Chemical Concentrations Greater than Industrial RGOs; Land Use Controls with Monitoring.		

effectiveness of the IRA and would provide for a minimum of a five-year review of the monitoring data. The monitoring data will be evaluated in accordance with the long-term monitoring plan, which will be developed under NAS Key West Master Plan and the MOA signed by the FDEP, EPA and the Navy. If the planned usage of the site changes to a residential-use scenario, a new CMS would be conducted. If the IRA is not found to be protective of the environment, then Alternative 3 would be reconsidered.

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### **PUBLIC PARTICIPATION**

At this time, the Navy and EPA are soliciting public review and comment on the proposed remedy for SWMU 7 at NAS Key West. The comment period will begin on Sunday, February 28, 1999, which is the date of publication of the public notice in *The Citizen* newspaper, and will end on Friday, April 30, 1999.

The Statement of Basis and the associated documents, including the RFI and CMS Reports, may be viewed and copied at the EPA Regional Office in Atlanta, Georgia between the hours of 8:00 am and 4:30 pm, Monday through Friday, except legal holidays. Additional copies of the RFI and CMS Report, and Statement of Basis will be available for public review at the information repository in the Local and State History Department at the Monroe County Library, 700 Fleming Street, Key West, Florida (Phone 305-292-3595).

In order to obtain sufficient public comment, the NAS Key West Partnering Team decided to hold a public meeting. The NAS Key West Partnering Team is composed of decision-making representatives from the Navy, EPA, and FDEP. The public meeting will occur at 7:00 PM on Monday, March 29, 1999, at the Holiday Inn Beachside, N. Roosevelt Blvd., Key West, Florida. For directions to the public meeting call Phillip Williams, NAS Key West, at 305-293-2061. At the meeting, the proposed remedy will be discussed and questions answered. The public meeting also will address the proposed remedies for SWMU 5 at NAS Key West. To request information about the public meeting or comment period, to obtain more information

concerning this Statement of Basis, or to submit written comments contact Phillip Williams at the address given under the heading "Contact Person." If desired, the public may also contact: Martha Berry, Remedial Project Manager, U.S. Environmental Protection Agency, 61 Forsyth Street, SW, Atlanta, GA 30303-3104 (Phone: 404-562-8533; Fax: 404-562-8518). All comments must be postmarked no later than Friday, April 30, 1999.

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### **NEXT STEPS**

When the HSWA permit is updated in the year 2000, EPA will issue a final decision on the remedy for SWMU 7. The HSWA permit update will detail the remedy chosen for SWMU 7 and will include responses to oral and written comments received during the public comment period in the Responsiveness Summary. The regulations under 40 CFR 270.42(c)(2) require a 60-day comment period for a permit modification request made by the permittee under HSWA.

When EPA makes a final decision to modify the permit, notice will be given to the Navy and each person who has submitted written comments or requested notice of the final decision. The final permit decision shall become effective 30 days after the service of notice of the decision unless a later date is specified or review is requested under 40 CFR 124.19. If no comments are received requesting a change in the draft permit, the final permit modification shall become effective immediately upon issuance.

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### **CONTACT PERSON**

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**Comments on Statement of Basis  
Boca Chica Temporary Hazardous Waste Storage  
Area (SWMU 7)**

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Place  
Stamp  
Here

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