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NAS KEY WEST
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STATEMENT OF BASIS FOR BOCA CHICA AIRCRAFT INTERMEDIATE MAINTENANCE
DEPARTMENT SAND BLASTING BUILDING A-990 SOLID WASTE MANAGEMENT UNIT 5
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 AIMD Sand Blasting Building A-990 (SWMU 5)
 Contaminants: Arsenic, Beryllium, and Chromium
 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 Aircraft Intermediate Maintenance Department (AIMD) Sand Blasting Building A-990 (SWMU 5).

The purpose of this Statement of Basis is several-fold. The Statement of Basis identifies the proposed remedy for SWMU 5 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.

The total capital cost is estimated to be \$4,500, while the operation and maintenance costs are estimated to be \$9,800 to \$39,200 per year. The total costs for the life of the project is estimated at \$125,000.

Statement of Basis – SWMU 5

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 5, Boca Chica AIMD Sand Blasting Building A-990.

SWMU 5 is located at the western end of the airfield on Boca Chica Key (Figure 1) adjacent to Building A-990 (Figure 2). The site was used from the early 1970s until 1995 to remove paint from surfaces of ground-handling and ground-support vehicles and equipment, aircraft parts, and other metal objects and pieces of equipment. Paints and other materials resulting from the sandblasting of equipment, parts, and vehicles are potential sources of contamination. Consistent with these activities, inorganics were the most common contaminants detected at SWMU 5.

In June 1984, the Navy collected soil and groundwater samples at SWMU 5. Analyses of these samples indicated the

presence of phenol in the soil. Subsequently, in April 1988 the Navy requested Geraghty and Miller to coordinate analysis of two samples of the substances used as blasting material. No metals were present above EPA toxicity threshold values. In 1993, IT Corporation conducted soil, sediment, surface-water, and groundwater sampling during the RFI/RI at this site. Characterization of contamination at the site indicated that cyanide exceeded the drinking water standard for groundwater and that surface water and sediment appeared to be impacted by metals. The Final RFI/RI report prepared by IT Corporation recommended resampling of the groundwater monitoring well to confirm cyanide levels, performing additional surface-water and sediment sampling to delineate contamination, conducting an IRA to reduce migration of contamination, and performing a baseline human health risk assessment based on post-IRA sampling data. NAS Key West, however, performs sediment removal from the ditch as part of its ongoing operations. Thus, the Navy has subsequently determined that an IRA is not necessary at SWMU 5.

In 1996, additional sampling was conducted at SWMU 5 to provide more information to perform appropriate risk assessments. Supplemental field activities at SWMU 5 included surface soil sampling to further delineate the contaminants detected in

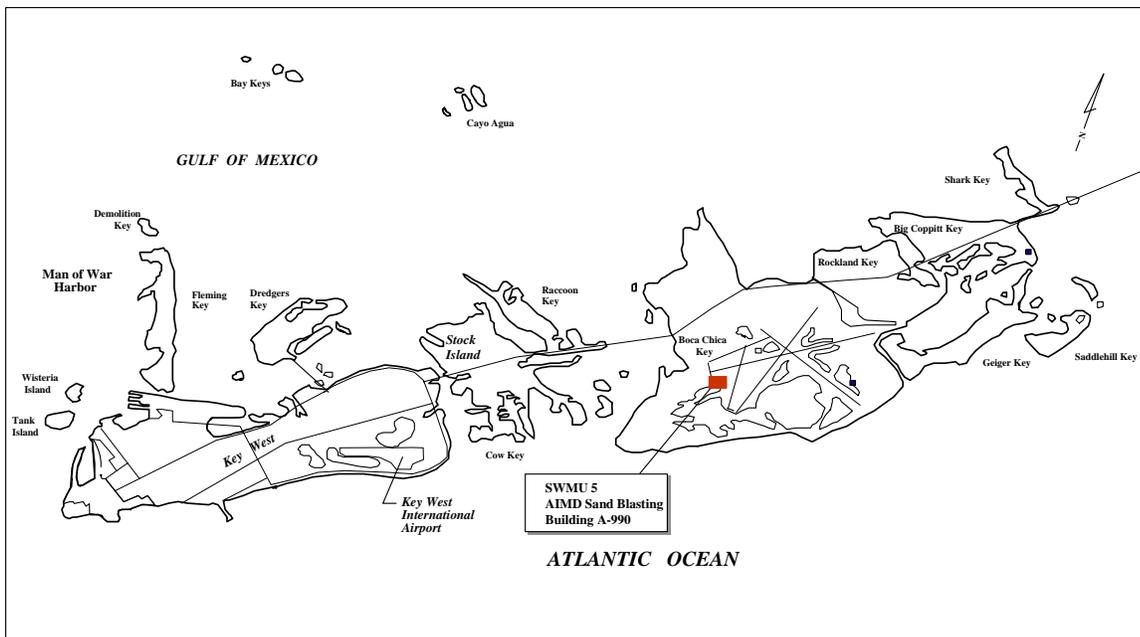


Figure 1. NAS Key West SWMU 5 Boca Chica AIMD Sand Blasting Building A-990.

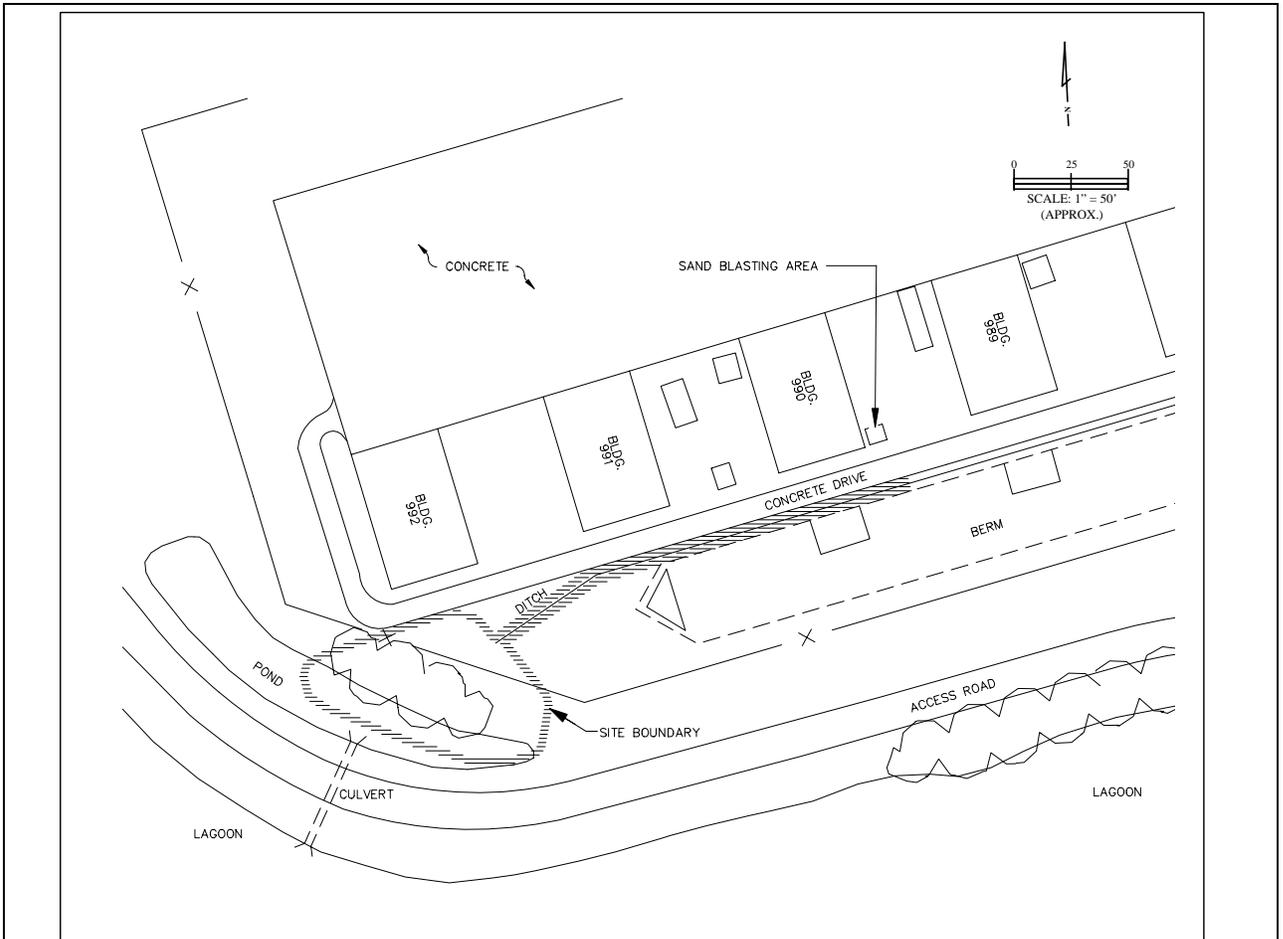


Figure 2. Site Location Map of the SWMU 5 AIMD Sand Blasting Building A-990.

earlier activities, and monitoring well installation and groundwater sampling to verify previously detected contamination.

The multiple sampling efforts revealed inorganics in soil and sediment in excess of the most restrictive applicable or relevant and appropriate requirements (ARARs) and screening action levels (SALs). The inorganics found in soil in excess of action levels are antimony, arsenic, beryllium, cadmium, lead, nickel, sulfide, tin, and zinc. Metals that exceeded action levels in sediment are arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, and nickel. One volatile organic compound (VOC), acetone, was found in sediment in excess of action levels. Two semivolatile organic compounds (SVOCs) also were detected in the sediment at SWMU 5 in excess of action levels, bis(2-ethylhexyl) phthalate and butyl benzyl phthalate.

In addition, cadmium, chromium, copper, lead, and zinc were detected in surface water at two sampling locations.

Antimony, beryllium, cyanide, lead, and mercury were detected at levels greater than the screening criteria in groundwater at SWMU 5.

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

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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 analyzed, it was not considered a pathway of concern since the groundwater at this site has been classified by the 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 5 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 is a residential child and adult, although residential development of SWMU 5 is considered extremely unlikely. Under the Master Plan for land use on NAS Key West, the future land use for the area where SWMU 5 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 5 that are expected to contribute most significantly to one or more of the exposure pathways selected for risk estimation. The COCs for soil include arsenic and beryllium. The COCs for sediment include arsenic, beryllium, and chromium. No COCs were retained for surface water.

The SWMU 5 BRA identified five risk scenarios that exceed the one in one million excess cancer risk threshold. Of these, excess cancer risk for the hypothetical future resident exceeds the upper boundary of one in ten thousand for arsenic in soil.

The BRA identified a noncarcinogenic risk for the hypothetical future resident three times greater than the acceptable hazard index value of 1.0. Arsenic in soil and sediment was the primary source for this noncarcinogenic risk.

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 potential risks to terrestrial and aquatic receptors at SWMU 5 are low. Soil, water, and sediment contaminants do not appear to have bioaccumulated in vegetation or fish to any significant extent. In addition, terrestrial habitat at the site is of minimal areal extent and quality, resulting in minimal use of the site and vicinity by terrestrial receptors.

SCOPE OF THE CORRECTIVE ACTION

For SWMU 5 at NAS Key West, the RFI Report data indicate that there are potential risks posed by metal contaminants to hypothetical future residents, trespassers and occupational workers. Therefore, a CMS was recommended for SWMU 5.

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, EPA recognizes that, although 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 5. 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 groundwater, sediment, and surface water. This alternative is based on the assumption that SWMU 5 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 5 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 quarterly during the first year and annually for the next nine years to determine the need for any future actions. If, after the first year, inorganics are not detected at or above the action levels agreed to by the NAS Key West Partnering Team in a given medium, that medium would cease to be sampled in subsequent sampling events. Warning signs would be posted to indicate to trespassers that a potential health threat was present. A site review would be conducted 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 \$125,000, including 10 years of monitoring.

3. Remove, Treat, and Dispose of Soil from a Hot Spot above Modified Remedial Goal Options (RGOs) and Land Use Controls. This alternative would consist of three major components: (1) removal of contaminated soil, (2) transport of contaminated soil for offsite treatment and disposal, and (3) land use controls. Approximately 100 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 \$233,000, 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 5 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. SWMU 5 is within the boundary of an active airstrip on the military base. No change in site usage is planned for the foreseeable future. This alternative would include sediment, surface water and groundwater monitoring. 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

Statement of Basis – SWMU 5

EVALUATION OF REMEDIAL ALTERNATIVES FOR SWMU 5

Alternative 1	Alternative 2	Alternative 3
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Protection of Human Health and the Environment

Would not be protective of human health. Would not monitor the risks to the environment. Risk could increase in the case of residential development.	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 by removing most highly-contaminated soil and restricting site access.
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Media Clean-up Standards

Would not comply with media clean-up standards.	Same as Alternative 1.	Would achieve modified industrial soil RGOs. Would not achieve other media clean-up standards.
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Source Control

No new source control would be implemented.	Same as Alternative 1.	The contaminated soil in excess of the modified industrial RGOs would be removed, treated as required, and disposed off site.
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Waste Management Standards

No standards applicable as no waste would be generated.	Same as Alternative 1.	Would comply with all applicable waste management standards during implementation.
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Long-Term Reliability and Effectiveness

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, is easily measured with long-term monitoring to assess the decrease of contaminant concentrations in the environment.
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Reduction in Toxicity, Mobility, or Volume through Treatment

Would involve no treatment to reduce toxicity, mobility, or volume of the contaminated media.	Same as Alternative 1.	This alternative involves possible off site treatment of soil. This treatment would reduce contaminant mobility, and to a lesser extent, toxicity. Waste volume would be increased.
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Short-Term Effectiveness

Would not reduce risk of exposure to contamination and would not pose any new risk during implementation.	Would reduce risk of exposure through land use controls and would pose only minimal risk during long-term monitoring.	There would be some manageable short-term risks during the removal, treatment, and disposal of contaminated soil. Community risk would only occur during transport of the contaminated media.
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Implementability

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 permitted TSDFs are readily available and the remediation technologies are well proven.
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Cost (Total Present Worth)

\$0.00	\$125,000	\$232,788
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Alternative 1 - No Action.

Alternative 2 - Monitoring with Land Use Controls.

Alternative 3 - Remove, Treat, and Dispose of Soil from a Hot Spot above Modified Industrial RGOs; Land Use Controls.

be conducted. If the monitoring data indicate that this remedy is not protective of the environment, then alternative 3 would be reconsidered.

PUBLIC PARTICIPATION

At this time, the Navy and EPA are soliciting public review and comment on the proposed remedy for SWMU 5 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 7 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.

NEXT STEPS

When the HSWA permit is updated in the year 2000, EPA will issue a final decision on the remedy for SWMU 5. The HSWA permit update will detail the remedy chosen for SWMU 5 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 this type of permit modification request made by the permittee under HSWA.

When the 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.

CONTACT PERSON

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**Comments on Statement of Basis
Boca Chica AIMD Sand Blasting Building A-990
(SWMU 5)**

Place
Stamp
Here

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