

Department of
Environmental Protection

32501.032
09.01.32.0034

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

N00204.AR.001034

November 14, 1995

NAS PENSACOLA
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CERTIFIED MAIL
RETURN RECEIPT REQUESTED

RECEIVED
NOV 20 1995

Mr. Bill Hill
Code 1851
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
P.O. Box 190010
North Charleston, South Carolina 29419-9010

RE: Draft Proposed Plan for Operable Unit 10, NAS Pensacola

Dear Mr. Hill:

I have completed the technical review of the above referenced document dated October 25, 1995 (received October 26, 1995). As discussed at our last partnering meeting, the document is close to meeting the intent of a Record of Decision with some modification needed. Most of the needed information for a proposed plan is incorporated in the document. In the future, we recommend any future proposed plans be similar to the attached proposed plan for a site at Homestead Air Force Base. Specific comments are:

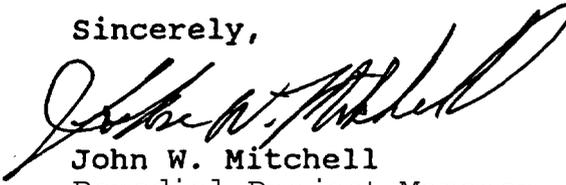
1. Under Section 2.1 (General Site History), page 2-2, the last sentence of the last paragraph of the section should read "Extracted groundwater is treated at the IWTP," since the groundwater recovery system is still in operation.
2. Under Section 2.2 (Remedial Investigation Summary), the third sentence of the second paragraph should read, "...groundwater contamination is downgradient of the existing groundwater recovery system."
3. Since the groundwater recovery system is indicated throughout the document, the location of the recovery wells should be shown on Figure 3-1.
4. We suggest, although it is not required, that a table be included that outlines the comparison of the alternatives.
5. Under Section 6.0 (Community Participation), the point of contact for written public comments should be only one of

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the following: the local base representative (Ron Joyner), the base commander, or the community relations representative (Michelle Harrison). Also, a time and place for a public meeting needs to be included.

If I can be of any further assistance with this matter, please contact me at (904) 921-9989.

Sincerely,



John W. Mitchell
Remedial Project Manager

cc: Ron Joyner, NAS Pensacola
Jay Bassett, USEPA Region IV
Henry Beiro/Brian Caldwell, Ensafe, Pensacola
Steve Cowan, Bechtel, Knoxville
Tom Moody, FDEP Northwest District
Pat Kingcade, OGC/Trustee File

Attachment

TJB TJB JJC JJC ESN ESN

Installation Restoration Program

Homestead Air Reserve Base



Operable Unit 6 Site SS-3 Proposed Plan

SYNOPSIS

This Fact Sheet outlines the U.S. Air Force's (USAF) Proposed Plan for the Homestead Air Reserve Base (ARB) (formerly Homestead Air Force Base) Aircraft Washrack Area (Site SS-3/Operable Unit 6). The purpose of the Proposed Plan is to provide information to the public about the proposed remedial action for Operable Unit 6 (OU-6), to provide the rationale for its selection, and to seek public input prior to making a final decision. Comments received regarding Site SS-3 (OU-6) will be given serious consideration by the parties of the Federal Facilities Agreement (FFA), which are the USAF, the U.S. Environmental Protection Agency (EPA), and the Florida Department of Environmental Protection (FDEP). A Public Meeting will be held to solicit comments on the Proposed Alternative.

EPA provides Technical Assistance Grants (TAGs) to enable community groups to hire advisors to help them comment on the USAF actions or EPA oversight at Federal Facility sites. One grant of up to \$50,000 may be awarded per site. For more information on TAGs, please contact the Homestead Air Force Base Environmental Coordinator (see page 7).

According to recent Remedial Investigation (RI) studies, OU-6's present use does not pose a threat to human health but does represent a localized potential for degradation to groundwater quality. Should site usage change to residential or should the site be within the capture zone of a potable water well, the site may represent a potential for adverse impact to human health and the environment. Based on these studies, the USAF is proposing Soil Excavation and Off-Site Disposal for remediation of OU-6 [Alternative 4 of the Feasibility Study (FS)]. The site poses no adverse impact to human health in its present capacity.

ENVIRONMENTAL STUDIES

The Aircraft Washrack Area (Site SS-3/OU-6) is one of several areas at Homestead ARB that are being investigated to determine whether past disposal practices have resulted in environmental contamination. The investigations are being conducted through the Department of Defense's (DOD) Installation Restoration Program (IRP). The goal of the program is to identify, study, and cleanup, if necessary,

A C R O N Y M S

AFB	Air Force Base
ARB	Air Reserve Base
BNA	Base/Neutral Acid Extractable Compound
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)
CFR	Code of Federal Regulations
COC	Chemical of Concern
COPC	Chemical of Potential Concern
DOD	Department of Defense
ELCR	Excess Lifetime Cancer Risk
EPA	U.S. Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
FFA	Federal Facilities Agreement
FS	Feasibility Study
HI	Hazard Index
HQ	Hazard Quotient
IRP	Installation Restoration Program
LNAPL	Light Non-Aqueous Phase Liquid
NCP	National Oil and Hazardous Substance Pollution Contingency Plan
NPL	National Priorities List
OSWER	Office of Solid Waste and Emergency Response
OU	Operable Unit
POTW	Publicly Owned Treatment Works
PP	Proposed Plan
RCRA	Resource Conservation and Recovery Act
RFD	Reference Dose
RI/BRA	Remedial Investigation/Baseline Risk Assessment
SARA	Superfund Amendment and Reauthorization Act
SQC	Sediment Quality Criteria
USAF	U.S. Air Force
VOC	Volatile Organic Compound

County and the remaining 1/3 (cantonment area) occupied by the 482nd Air Force Reserve Fighter Wing.

In August 1990, Homestead ARB was placed on the National Priorities List (NPL) of hazardous waste sites. The NPL EPA's list of the most contaminated sites in the country. Confirmed contamination of several of the Base's former waste disposal sites prompted the entire Base to be placed on the National Priorities List. Homestead ARB has been actively involved with environmental restoration of the Base since 1983 and has identified 27 potential sources of contamination. Nine sites are being investigated under the Remedial Investigation/Feasibility Study stage of CERCLA; ten sites are being investigated in the Preliminary Assessment Site Investigation stage of CERCLA; one site has been closed out under the Resource Conservation and Recovery Act (RCRA) guidelines; and seven sites are being investigated under the FDEP petroleum contaminated site's criteria (Florida Administrative Code 17-770). This Proposed Plan is prepared in accordance with Section 117(a) of CERCLA, which requires opportunity for public input in the Superfund decision-making process.

OPERABLE UNIT 6 PROFILE

The Aircraft Washrack Area, Site SS-3, includes approximately three acres with dimensions of 320 feet by 400 feet. The site is bordered on the northwest by a drainage ditch, on the southwest by a low grassy swale, on the northeast by a ditch, and on the southeast by the asphalt Flight Apron 40447. The OU-6 area lies in a portion of the Base scheduled

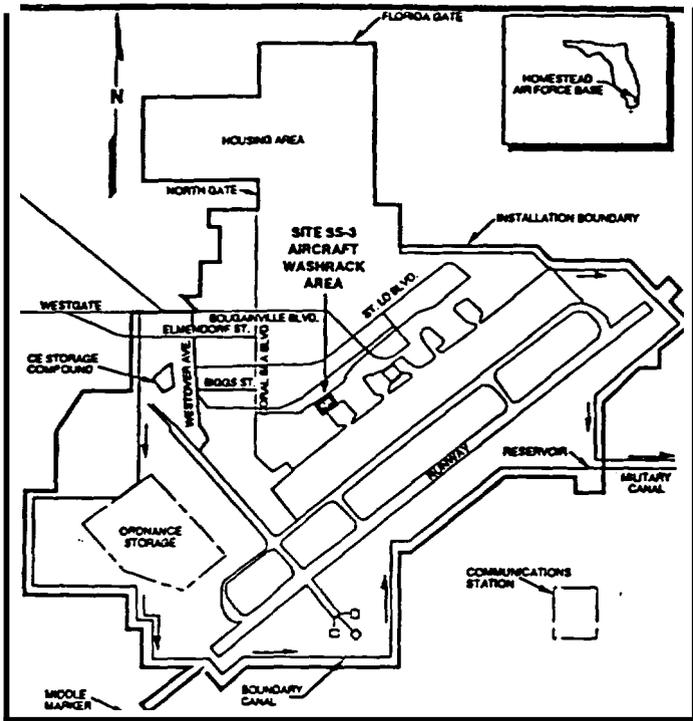


Figure 1
Homestead Air Reserve Base Site Map

potential sources of contamination which may have resulted from a variety of operations taking place at Homestead ARB. The IRP is being conducted under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as "Superfund", as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). The IRP study process is outlined on Page 3 and the acronyms used in this fact sheet are listed on Page 1.

HOMESTEAD AIR RESERVE BASE PROFILE

Homestead ARB lies approximately two miles west of Biscayne Bay in Southern Florida. Homestead ARB is located in Dade County in southeast Florida and covers an area of approximately 2,916 acres (Figure 1). The surrounding area is semi-rural, with the majority of the Base bordered by agricultural land. The Base is surrounded by a canal that discharges into Military Canal and ultimately into Biscayne Bay. An estimated 1,600 people obtain drinking water from the Biscayne Aquifer and 18,000 acres of farm land within three miles of the Base are irrigated from wells. The aquifer, which underlies the Base, is the sole source of potable water in the area.

Homestead ARB has been in operation since 1942 with the exception of a brief period from 1945 to 1953 when it was used for commercial operations. In August 1992, Hurricane Andrew struck south Florida causing extensive damage to the Base and surrounding area. The Base is presently slated for realignment with 2/3 of the Base being turned over to Dade

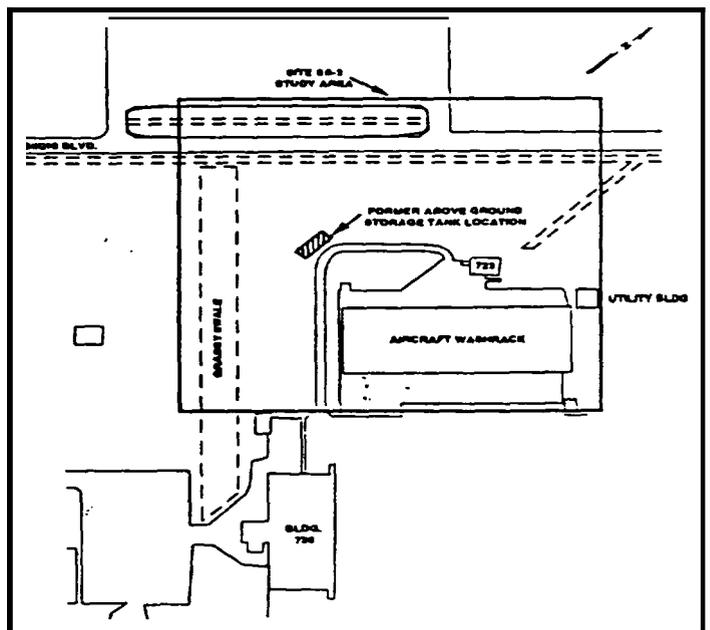
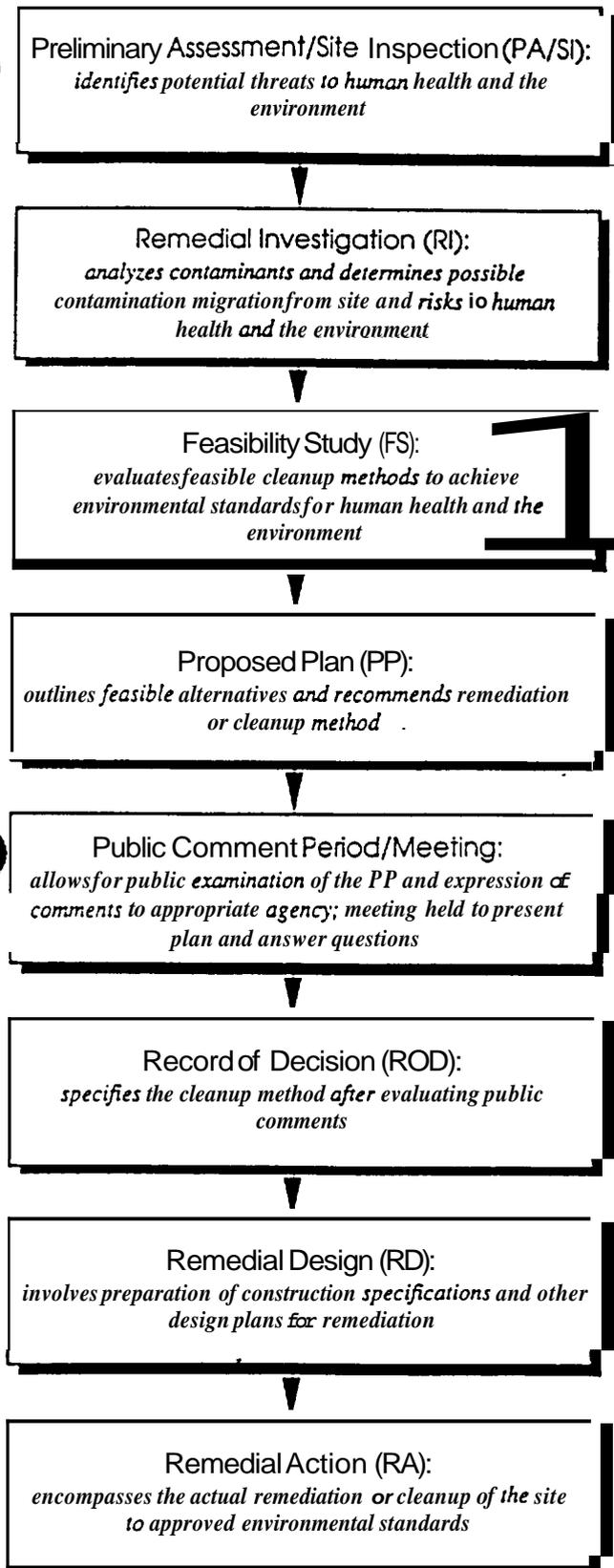


Figure 2
Aircraft Washrack Area, Site SS-3/OU-6 Location

INSTALLATION RESTORATION PROGRAM PROCESS



to be turned over to Dade County. Stormwater runoff from Site SS-3 (OU-6) and the surrounding area is collected in the drainage ditch and swale located northwest and southeast of the site (Figure 2). The stormwater then discharges into the drainage ditch parallel to Bikini Blvd., where it flows from southwest to northeast for approximately 1 mile before entering the Boundary Canal.

Aboveground storage tanks with capacities of 750 and 1,500 gallons were previously used to store used oils and hydraulic fluids, spent solvents, and other liquid wastes from the flightline shops. During storage and removal operations conducted from 1970 to 1980, spills and overflows occurred. The total quantity of organic fluids released is unknown. Dumping of liquid wastes in the area of Site SS-3 was also reported during this time. Liquid waste disposal operations were discontinued in 1980; off-site disposal practices were enacted and the storage tanks were removed. Soils in the former tank area, which were reportedly discolored at the time of tank removal, have either been removed from the site or covered, leaving no visual evidence of waste residue.

REMEDIAL INVESTIGATIONS

Remedial Investigations (RI) began at Homestead ARB in 1983 when the Air Force performed a records search to identify possible contaminated sites and potential problems which may have resulted from contaminant migration at these sites. Five field investigations were performed at Site SS-3/OU-6 from 1984 to 1993. Numerous soil borings were drilled and samples collected during these investigations. Groundwater monitoring wells were installed and sampled. Sediment and surface water samples were collected from the nearby drainage ditch. The drainage ditches around OU-6 will be further addressed in the Operable Unit 9 site-wide canal assessment ongoing at Homestead ARB. The results of the RI activities at Site SS-3 have been presented in the "Remedial Investigation Report Addendum/Baseline Risk Assessment Phase II Report for SS-3, Aircraft Washrack Area". These documents may be reviewed at the public repository listed on Page 7 of this plan.

Study Results: Elevated concentrations of VOCs (benzene, ethylbenzene, xylenes) and BNAs (2-methylnaphthalene and naphthalene) were found in the subsurface soil around the suspected source of contamination, the former aboveground storage tanks. The data indicate that the concentrations of organic compounds in the soils are decreasing with time. Based on 1990, 1991, and 1993 data, the maximum area of the organic contaminated soil and the associated groundwater plume is approximately 125 feet by 75 feet.

Light nonaqueous phase liquid (LNAPL) was observed in one monitoring well (I-9) located approximately 75 feet north of the former storage tank location during the 1989, 1990, and 1991 investigations. In the 1993 investigation, LNAPL was not observed in well I-9 during the groundwater level measuring event. However, LNAPL was observed in 1993 in well SP7-MW-0016, located approximately 25 feet northeast of the storage tank location at an apparent thickness of 0.5 feet. It is likely that this LNAPL is the source of the VOCs found in the subsurface soil. The areal extent of the LNAPL plume is conservatively estimated at 7,500 sq ft. Assuming a uniform thickness of LNAPL in the subsurface of 0.2 feet, an effective porosity of 20 percent, the volume of LNAPL in the subsurface at OU-6 is not likely to exceed 5,600 gallons.

Drainage ditch sediments and surface water samples contained concentrations of PAHs, metals, and pesticides. Contaminants detected in the drainage ditch sediments may be related to runoff from Bikini Blvd. and not associated with OU-6 activities. The significant and potential human health and environmental impacts of constituents detected in the drainage ditch sediments and surface water will be fully evaluated in the RI/BRA for OU-9 (Site SD-27), Boundary and Military Canal.

Baseline Risk Assessment: The Baseline Risk Assessment (BRA) is an evaluation of whether existing or future exposure to contaminated media at the site could pose a risk to human health or the environment. In estimating potential site risks, USAF and EPA assume no further action would be taken to address contamination at the site. This evaluation then serves as a baseline for determining whether cleanup of site media is necessary. In the BRA, site risks for groundwater, surface soil/bedrock and subsurface soil/bedrock were evaluated. The BRA included the five components summarized below:

Chemicals of Potential Concern (COPCs) were identified based on toxicity of chemicals, comparison with screening levels, comparison with background levels, frequency of detection and past disposal practices. COPCs were carried through the quantitative risk assessment for each of the environmental media (soil/bedrock, groundwater, surface water, sediment, air). The single COPC for the site was n-hexane. Hexane was used as a surrogate compound to obtain toxicity values for the non-target aliphatic petroleum hydrocarbons at the site. The use of surrogates in this way is a common practice in EPA risk assessments when specific chronic toxicity data is not available for all substances detected. Hexane is more toxic than the chemicals for which its toxicity values serve as surrogates; thus, this practice adds conservatism to the risk assessment.

In the Exposure Assessment, the USAF considered ways in which people could come in contact with contaminated media under both current and future conditions. The current population at risk consisted of site workers (i.e. grass cutters, etc.) who could ingest soil, have skin contact with soil or inhale dust from soil. Workers may also be exposed to sediments and surface water while removing debris from drainage ditches.

Future populations at risk consisted of hypothetical adults and children. Exposure to contaminated groundwater and soil was evaluated for a hypothetical adult resident. Exposure to soil, sediments and surface water was evaluated for a hypothetical child resident.

The Toxicity Assessment evaluated possible harmful effects of exposure to each COPC. Hexane was considered a conservative surrogate because it is more toxic than the longer chain aliphatic hydrocarbons in fuel. Hexane is toxic to the nervous system and male reproductive system. Longer chain aliphatic hydrocarbons are also neurotoxic but are much less potent than hexane.

The Risk Characterization combines the other components of the evaluation to estimate the overall risk from exposure to site contamination. For cancer-causing substances, risk is a probability that is expressed in scientific notation. For example, an excess lifetime cancer risk of 1×10^{-6} means that an individual has an additional 1 in 1,000,000 chance of developing cancer as a result of site-related exposure over an estimated 70 year lifetime. EPA has established a target risk range for Federal Facility cleanups of between 1×10^{-4} (1 in 10,000) and 1×10^{-6} . However, the State of Florida's target risk range is 1×10^{-6} .

For chemicals that cause toxic effects other than cancer, EPA compares the dose of chemical a human being would receive from the site contact with a Reference Dose (RfD). The RfD represents the maximum amount of chemical a person could be exposed to daily without harmful effects. RfDs are derived from human and/or animal studies. The Hazard Quotient (HQ) for a given chemical is the ratio of the dose due to site contact and the RfD. An HQ of 1 or greater indicates the possibility of humans experiencing toxic effects other than cancer. The sum of all HQs at a site is termed the Hazard Index (HI).

If any COPCs at the site are shown to be present at levels that would pose a risk above these EPA benchmarks, they become Chemicals of Concern (COCs). For current receptors, all carcinogenic risks are below the USEPA acceptable range of

to 10⁻⁶, however, they exceed the State of Florida's target cancer risk of 1x10⁻⁶. All non-carcinogenic risks are well below the USEPA HQ benchmark of 1.0.

For hypothetical future adult residents, both ingestion of contaminated soil and groundwater posed risks of 3x10⁻⁶ and 1x10⁻⁶ respectively. These were within the target risk range considered protective of human health by the EPA; however, the State of Florida's target risk of 1x10⁻⁶ is exceeded. For hypothetical future child residents, ingestion of soil posed a cancer risk of 3x10⁻⁶ and contact with surface water and sediments posed a risk of 2x10⁻⁷.

The only non-carcinogenic risk to future residents greater than the EPA benchmark Hazard Index of 1 was posed by ingestion of groundwater. The HI for this pathway was 10, and the sole COC or contributor to the risk was petroleum hydrocarbons with hexane providing surrogate toxicity values.

Total Site Risk to Human Health: The total site risks are estimated below the USEPA health-based levels of concern for the current site worker. For the future resident, ingestion of contaminated groundwater is the only pathway the risk of which is above levels deemed protective of human health.

Environmental Risk: There is no clear indication that concentrations of COCs detected in Site SS-3 sediment could adversely affect an aquatic ecosystem. Additional study of the site drainage canals is being performed under the Basewide canal investigation.

The general site area has not been identified as a critical habitat for any species, although two threatened species, the American alligator and eastern indigo snake, have been sighted on Homestead ARB in the past. The lack of suitable habitats, related to the developed status of the Site SS-3 limits the attractiveness of this Site for use by wildlife.

DESCRIPTION OF ALTERNATIVES

USAF evaluated four alternatives as identified in the Feasibility Study (FS) for Site SS-3. These alternatives are summarized below and are discussed in greater detail in the FS in the information repository. The alternatives for site cleanup are the following:

Alternative 1: No Action with Groundwater Monitoring

Alternative 2: LNAPL Recovery and Institutional Controls

Alternative 3: LNAPL Recovery and Bioremediation/Soil Sparging

Alternative 4: Excavation and Off-Site Thermal Treatment and Disposal of Contaminated Soils

Except for Alternative 1 all alternatives have the potential to meet USEPA remedial action objectives and potentially meet the clean-up goals. It is the time, cost, and certainty in reaching these standards that differentiates the alternatives. The complete FS is available for review at the Public Repository.

Alternative 1 - No Action with Groundwater Monitoring

The No-Action alternative serves as a "baseline" against which other alternatives are compared. The No-Action Alternative is evaluated as required by the NCP, the regulation implementing CERCLA. No additional monitoring wells would be required with this alternative. The existing monitoring wells would be sampled semi-annually for 30 years to monitor groundwater contamination.

Per CERCLA, site reviews would be conducted every 5 years as part of this Alternative which allows COCs exceeding EPA Target Risk Ranges to remain on site. The No-Action alternative is readily implementable; however, the alternative fails to satisfy all of the requirements evaluated except for short-term effectiveness. The estimated present worth cost of this alternative is \$700,000 and assumes a duration of 30 years.

Alternative 2 - Passive LNAPL Recovery and Institutional Controls

This alternative consists of:

- Installation of a new monitoring/recovery well with an oleophilic bailer approximately 25 feet northeast of SP7-MW-0016.
- Passive LNAPL recovery at an existing monitoring well (SP7-MW-0016) using an oleophilic bailer.
- Groundwater monitoring program as described in Alternative 1.

There is an estimated maximum volume of 5,600 gallons of LNAPL at the site. The LNAPL is the likely source of soil and groundwater contamination. Of specific concern is the

concentration of benzene, 38 $\mu\text{g/L}$, in the one well where LNAPL was observed in 1993. Because this alternative removes the mobile portion of the potential source of groundwater contamination (i.e., LNAPL), the concentration of benzene is expected to decrease with time more rapidly than with the No-Action alternative. The recovered LNAPL will be evaluated for possible recycling or disposal alternatives.

The estimated present worth cost of this alternative is \$740,000 and assumes a duration of 20 years.

Alternative 3 - Passive LNAPL Recovery and Bioremediation/Air Sparging

This alternative consists of:

- Passive LNAPL recovery as described in Alternative 2.
- A recommended pilot-test of the innovative sparging technology.
- Groundwater monitoring as described in Alternative 1 with additional sampling to evaluate the effectiveness of the air sparging system.
- Installation of 10 air sparging wells within the contaminated groundwater plume.

Air sparging and enhanced bioremediation technologies would be implemented after LNAPL recovery is no longer practicable. Air sparging is a relatively new technology gaining increased acceptance and application. It simply involves injecting air below the contaminant plume to "strip off" volatile contaminants from groundwater and soil and enhance natural bioremediation processes by supplying oxygen to the subsurface. Nutrients and/or special biological cultures may be added to enhance the natural bioremediation of nonvolatile compounds.

This Alternative was included in the review to meet CERCLA requirements for evaluation of innovative technologies. The estimated present worth cost of this alternative is \$590,000 with a 5 year duration.

ALTERNATIVE 4 - Excavation and Off-Site Thermal Treatment and Disposal of Contaminated Soils

This alternative consists of:

- Excavation of approximately 2,100 cubic yards of soil/rock and replacement with equal volume of fill material.
- Off-site thermal treatment of excavated soil.
- LNAPL recovery during soil excavation using a skimmer pump.
- Sending LNAPL to off-site disposal through energy recovery.
- Disposal of water collected during excavation at a POTW.
- Groundwater monitoring program, as described in Alternative 1.

Soil would be excavated to a depth of 6 feet over the inferred areal extent of soil contamination (approximately 125 feet by 75 feet). Field screenings supported by laboratory analyses would be conducted to verify that soil meeting the performance standards is encountered at the bottom and extent of excavation.

An oil skimmer would be employed during the excavation to collect the estimated 5,600 gallons of LNAPL.

The soil would then be sent to an approved thermal treatment facility. The LNAPL would be removed to an energy recovery facility and any water generated during removal operations disposed of through a POTW.

The estimated present worth cost of this alternative is \$690,000 with a 5 year duration.

PREFERRED ALTERNATIVE

The proposed remedial alternative for Site SS-3 is Alternative 4 - Soil Excavation and Off-Site Disposal. It is the most reliable and expedient solution identified. It offers a permanent solution that is protective of human health and the environment. It will serve to remediate the contaminated soil and to protect the groundwater from further contamination. The NCP (40 CFR 300) views groundwater

as a valuable resource to be protected and restored to beneficial use wherever possible. In addition, the Biscayne Aquifer is a sole source aquifer serving Dade County, Florida. The major components of the selected remedy include:

- Excavation of soil/rock from a 125 ft by 75 ft by 6 ft (2,100 cubic yards). The soil is slated for disposal at a RCRA permitted facility. The facility will use thermal desorption technology to treat the waste. Fill material will be brought to the site to return the area to grade.
- During the excavation a maximum of 5,600 gallons of LNAPL is expected to be recovered. The LNAPL is slated for energy recovery (i.e., recycling) at a facility to be determined.
- Groundwater monitoring will be performed at the site for 5 years to show that natural attenuation will meet performance standards (clean-up levels) applicable to contaminated groundwater.
- If after the five year review, health-based levels are still being exceeded, EPA, FDEP, and the Air Force will evaluate the need for further action.

PUBLIC INVOLVEMENT IN SELECTING ALTERNATIVES

The public is **encouraged** to participate in the decision making process.

Information Repository: The Proposed Plan is available for review along with the Administrative Record at the Information Repository at Miami-Dade County Community College Library. The Administrative Record is a compilation of all the information evaluated to develop the Proposed Plan including the Remedial Investigation/Baseline Risk Assessment. The Library hours of operation and addresses are included at the end of this fact sheet.

Public Meeting: Additionally, a Public Meeting will be held to present the information and solicit comments.

The Public Meeting will be held on Tuesday, November 29, 1994 at 7:00 p.m. at South Dade High School. At this meeting, USAF, in coordination with EPA Region IV and FDEP, will discuss the investigation, results of the Baseline Risk Assessment, and the Remedial Alternative described in this Proposed Plan. Upon completion of the presentation all public questions will be addressed. Comments received at the public meeting will be considered as formal comments and included in the Administrative Record.

Transcripts of the meeting will be included in the Information Repository Library.

Public Comment Period: The public comment period will begin on November 8, 1994 and will run through December 22, 1994. Comments should be sent to Mr. Humberto Rivero, BRAC Environmental Coordinator (address provided below).

Verbal comments received at the public meeting and written comments received during the comment period will be considered in the selection of the remedial alternative. Public comments will be addressed in the Record of Decision which describes the final decision for remedial action.

INFORMATION REPOSITORIES

Miami-Dade Community College Library
500 Terrace
Homestead, Florida 33030

Hours: Mon. 8:00 - 4:30
Tues. 10:00 - 7:00
Wed. 10:00 - 7:00
Thur. 8:00 - 4:30
Fri. 8:00 - 12:00
Closed Sat. & Sun.

PUBLIC MEETING

The public is invited to attend the public meeting to be held on Tuesday, November 29, 1994 at 7:00 p.m. at the South Dade High School.

CONTACT FOR MORE INFORMATION

Mr. Humberto Rivero
BRAC Environmental Coordinator
Air Force Base Conversion Agency, OL-Y
360 Coral Sea Boulevard, Room 131
Homestead, Florida 33039-1299

Telephone: (305) 224-7163
Fax: (305) 224-7347