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NSA MID SOUTH
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STATEMENT OF BASIS SOLID WASTE MANAGEMENT UNIT 43 HAZARDOUS WASTE
ACCUMULATION POINT AT BUILDING S 176 MILLINGTON SUPPACT TN
12/1/2005
STATE OF TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION

**SWMU 43 – Hazardous Waste Accumulation Point
at Building S-176
Naval Support Activity Mid-South
Millington, Tennessee**

Purpose of the Statement of Basis

This Statement of Basis (SB) has been prepared to inform the public and provide an opportunity to comment on a proposed remedy at solid waste management unit (SWMU) 43 — Hazardous Waste Accumulation Point at Building S-176, at Naval Support Activity (NSA) Mid-South, Millington, Tennessee. NSA Mid-South is responsible for corrective action at SWMU 43, as required by a Resource Conservation and Recovery Act (RCRA) permit. The Tennessee Department of Environment and Conservation (TDEC) has determined that the proposed remedy of institutional controls, that restrict residential reuse of the property, is protective of human health and the environment.

Before the remedy is finalized, TDEC would like to give the public an opportunity to comment on the proposed remedy. At any time during the comment period, the public may comment as described in the following section "How Can You Participate?"

Site Description
 Located on the western side of former Building S-176 on the NSA Mid South Southside, SWMU 43 reportedly operated from an unknown date until 1986, when Building S-176 was demolished (Figure 1). S-176 reportedly stored drummed waste paint and solvents. Site drawings from 1951 and 1970 show Building S-176 as a cement shed as well as family housing storage, respectively. A 1990 site inspection notes Building S-176 as demolished and the accumulation point no longer in use.

Upon closure of the public comment period TDEC will evaluate all comments and determine if there is a need to modify the proposed remedy.

How Can You Participate?

TDEC solicits public review and comment on this SB prior to implementation of the proposed remedy as the final one. The final remedy for SWMU 43 will be incorporated into the Hazardous and Solid Waste Amendments Permit TNHW-094 for NSA Mid-South, scheduled to be updated in 2006.

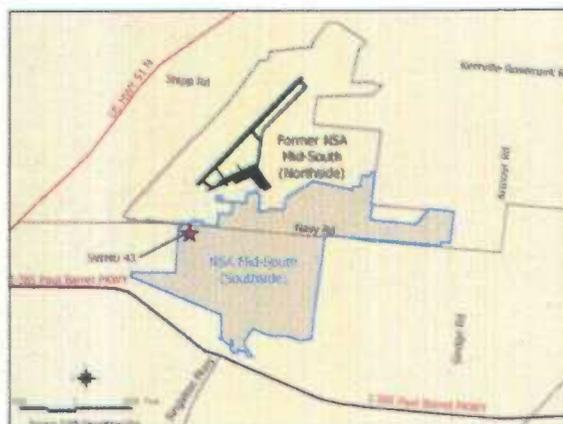


Figure 1 SWMU 43 at NSA Mid-South in Millington, Tennessee

Public comment on this SB and the proposed remedy will begin on the date that a notice of the SB's availability is published in *The Millington Star* and *The Commercial Appeal*, local daily newspapers. Since community input could affect selection of a final remedy for SWMU 43, a public comment period has been established for 45 days from **(insert date)**. If requested during the comment period, TDEC will hold a public meeting to respond to any oral comments or questions regarding the proposed remedy. To request a hearing or to provide comments, contact the following person in writing within the 45-day comment period:



SWMU 43
Statement of Basis



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Management
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Investigative reports and documents related to SWMU 43 are referenced at the end of this SB and are included in the Administrative Record, which can be reviewed in the Information Repository that was established to provide public access to documents pertaining to the Navy's environmental program. The Information Repository is maintained at:

Millington Civic Center
8077 Wilkinsville Road
Millington, Tennessee 38053
(901) 873-5770

Background Summary

Past operations at the former Naval Air Station (NAS) Memphis included metal plating, manufacturing, and other operations that involved the use of toxic and hazardous materials. Land use changed as a result of the 1990 Base Closure and Realignment (BRAC) Act, and the name of the facility was changed from NAS Memphis to NSA Mid-South.

A significant portion of NSA Mid-South's Northside was transferred to the City of Millington, and the remaining property, including SWMU 43, was realigned (i.e., an operation was reassigned from NSA Mid-South to another facility, and/or an operation from another facility was reassigned to NSA Mid-South). Three facility operations changed: (1) Navy airfield operations ceased in October 1995, (2) training operations were realigned to NAS Pensacola in 1996, and (3) administrative operations for the Navy Bureau of Personnel were realigned from Washington, D.C., to NSA Mid-South in 1997.

SWMU 43 is part of the remaining NSA Mid-South property. A hazardous waste accumulation point on the western side of former Building S-176 is identified as SWMU 43. Currently, the area where Building S-176 once stood is covered with gravel and is used as parking or for storage.

Following the 1990 *Resource Conservation and Recovery Act (RCRA) Facility Assessment Report* (RFA; ERC/EDGE, 1990), the former hazardous waste accumulation point was designated as a SWMU. As required by the Navy's RCRA Permit, NSA Mid-South is required to evaluate and assess all SWMUs for potential environmental impacts. Therefore, SWMU 43 was designated as a site warranting further evaluation to determine its potential risk to human health and the environment.

Subsequent investigations of SWMU 43 include the *Confirmatory Sampling Investigation* (CSI; EnSafe, 2000), a *Voluntary Corrective Action* (VCA; EnSafe 2001a) and the *RCRA Facility Investigation* (RFI; EnSafe, 2001b). Analytical results from these investigations resulted in the remedy recommendation of an institutional control that restricts residential development. The basis for the remedy selection is provided under the "Summary of Contaminant Evaluation" and "Summary of Site Risk" sections of the SB.

Summary of Contaminant Evaluation

Soil and groundwater sample locations for the CSI and RFI are provided in Figure 2 (Attachment 1). Soil characterization consisted of three surface and three subsurface soil samples, collected during the CSI (locations 043X0001 through 043X0003) from the area surrounding the former hazardous waste accumulation point. This was followed with four additional subsurface soil samples (locations 043X0004 through 043X0007). Groundwater characterization involved collecting groundwater samples from the same four locations (i.e., locations 043X0004 through

043X0007). The groundwater samples were collected from the fluvial deposits (i.e., sand and gravel) at approximately 50 to 60 feet below land surface.

Soil

The CSI identified several contaminants in soil including the petroleum constituents benzene and ethylbenzene and the solvent trichloroethylene. However, a comparison to the United States Environmental Protection Agency's (USEPA) risk-based concentration (RBC) screening values indicated the contaminants were below their respective screening values. The metal arsenic and the semi-volatile compound benzo(a)pyrene were the only two contaminants above the RBC screening values. Total petroleum hydrocarbons (TPH) were also detected; however, since there is no RBC screening value for TPH, detections were compared to TDEC's petroleum cleanup level: at a single location, in one surface and one subsurface sample, TPH was detected above TDEC's most stringent 100 parts per million (ppm) petroleum cleanup level. Table 1 lists the maximum contaminant detections and their respective locations and comparative screening values.

Table 1
Soil Contaminants Exceeding
Risk-Based Screening Criteria
(maximum detections in ppm)^a

Sample Location (depth)	Analyte	Result	RBC Res.	RBC Ind.	TDEC Cleanup Level
043X0001 (1')	Arsenic	32.9	0.43	3.8	NA
043X0003 (1')	Benzo(a)pyrene	91 ^a	87 ^a	780 ^a	NA
043X0002 (1')	TPH	408	NA	NA	100
043X0002 (4')	TPH	110	NA	NA	100

Notes:

- ppb — Parts per billion
- RBC — Risk-based concentration
- NA — Denotes comparison is not applicable
- ^a — Benzo(a)pyrene concentrations are in units of ppb

The contaminants listed in Table 1 were not identified in subsurface soil during subsequent RFI sampling, indicating they were isolated to the area of the former hazardous waste accumulation area (EnSafe, 2001b).

Groundwater

The four groundwater samples collected during the RFI were collected to help determine whether the VOCs detected in soil had migrated into the groundwater. Analytical results from the four groundwater samples indicated no VOCs were present in the site's groundwater (EnSafe, 2001b).

Summary of Site Risk

Risks to human health and the environment from the contaminants identified at SWMU 43 were evaluated using human health and ecological risk assessments, which were developed in accordance with existing USEPA and TDEC methods as part of the RFI.

Human Health Risk

Risk assessments use estimated intake as part of the calculations. Intake is affected by the land-use scenarios, where one scenario may account for lifetime exposure to groundwater and soil, and another scenario may only include occasional exposure to soil, with no groundwater exposure.

Human health risk at SWMU 43 was initially screened in the CSI, which concluded that a potential health risk would be posed by the site's soil under a residential scenario but not under an industrial one. The risk was again assessed during the RFI assuming site worker, construction worker, trespasser, and site resident scenarios. The RFI concluded the following risk posed by chemicals in soil and groundwater under the hypothetical scenarios:

- **Soil**
Arsenic was identified as a chemical of concern under a residential scenario due primarily to the detection of arsenic in surface soil at 043X0001. No chemicals of concern were identified for the other three scenarios.
- **Groundwater**
No chemicals of concern were identified in groundwater for a residential scenario. The construction worker, trespasser, and site worker scenarios were excluded from evaluation since exposure points do not exist for these receptors (EnSafe, 2001).

Ecological Risk

The ecological risk assessment identified several chemicals that contribute to a potential ecological risk, but detections were confined to a small isolated area. Assuming that the maximum detections represent chemical concentrations across the entire site, coupled with the extensive human development of the site and surrounding area, the ecological risk assessment concluded that ecological receptors are not expected to be impacted by residual soil contamination (EnSafe, 2001b).

Removal Action

TPH contamination identified in the CSI was removed through a voluntary corrective action (VCA) in May 2000. An area 5 feet square by 4 feet deep was excavated around location 043X0002 (shown on Figure 2, Attachment 1) where TPH exceeded the 100 ppm TPH cleanup level. Confirmation samples collected at the conclusion of excavation activities were analyzed for TPH and metals.

The VCA concluded that metals did not exceed both respective background reference concentrations and the respective residential and industrial RBCs, with the exception of arsenic. The presence of arsenic could not be established due to elevated laboratory detection

limits (above both the reference concentration and the RBCs for arsenic). TPH concentrations were below applicable TPH screening values in the excavation floor, indicating all residual contamination had been removed from the location (EnSafe, 2001a).

Selected Remedy

The RFI report recommended a No Further Action remedy for SWMU 43, approved by TDEC in January 2003. Though the VCA removal action addressed the elevated TPH concentrations at location 043X0002, arsenic at location 043X0001 was left in place. Therefore, to ensure that a future site resident is not exposed, the remedy for the site is a land-use control that restricts residential reuse of the property. A land-use control implementation plan (LUCIP) will be developed to establish the remedy requirements and will be incorporated into the NSA Mid-South's Regional Shore Infrastructure Plan (RSIP). As a minimum, the LUCIP will include the following:

- Location of land subject to land use control
- Explanation of the land use control (e.g., signage and fencing requirements, restrictions, etc.)
- Duration of the LUC
- Requirements and frequency of LUC inspections, including documentation requirements.

Since TDEC's goals for human health and ecological risks have been met, no alternative remedies were evaluated. The Navy's proposed remedy is considered protective of human health and the environment. The remedy meets the four general standards of corrective measures, which are:

- Overall protection of human health and the environment



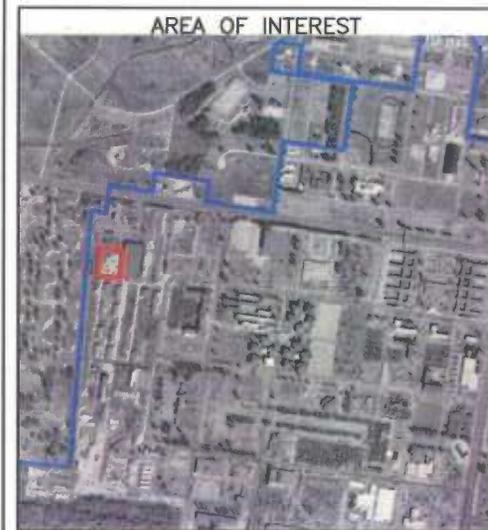
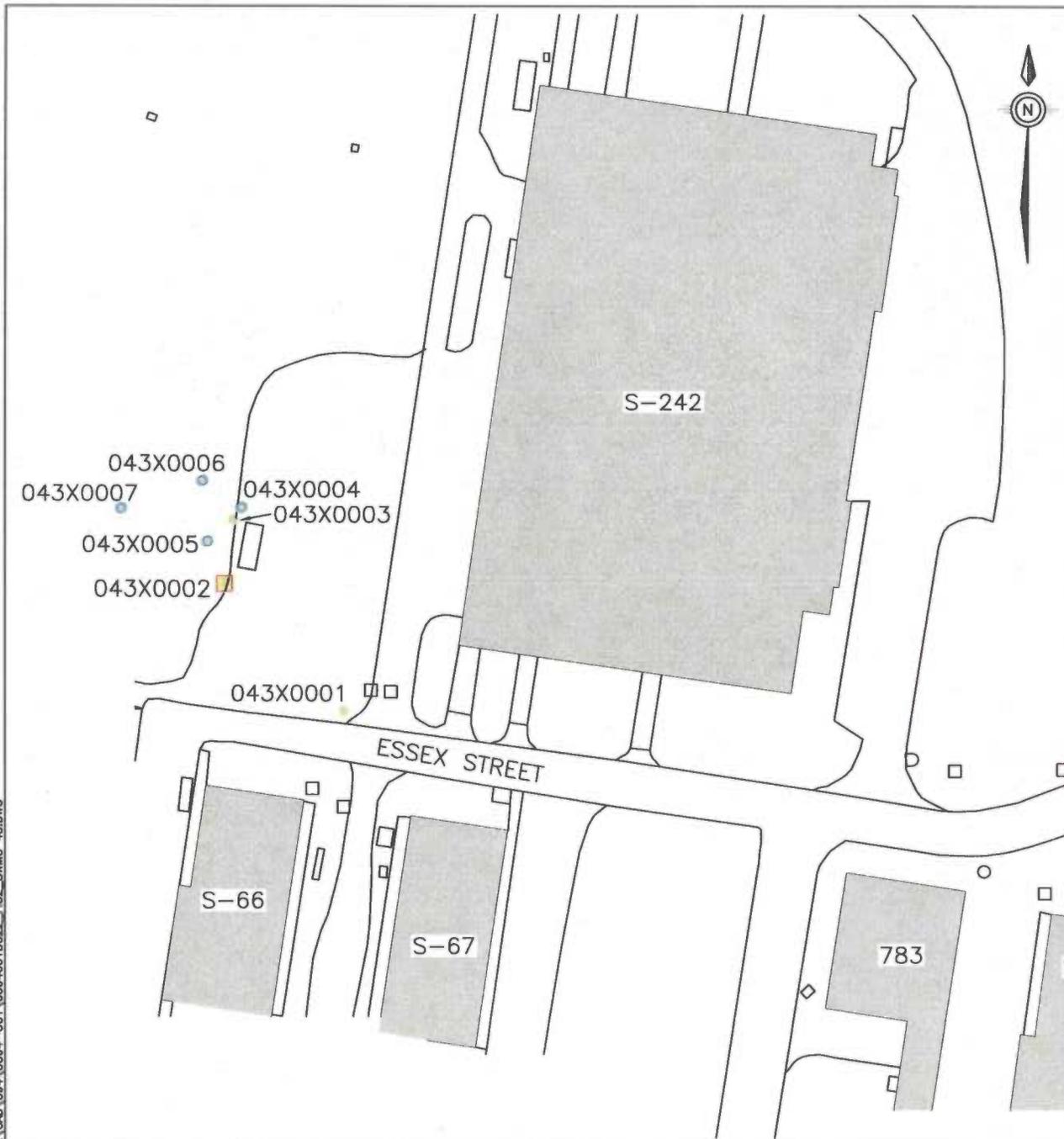
- Attainment of media cleanup standards
- Controlling the sources of release
- Compliance with standards for management

References

- EnSafe Inc. (2000, April 28). *Confirmatory Sampling Investigation — Revision 2*. Memphis, Tennessee.
- EnSafe Inc. (2001a, June 29). *VCA Report — Petroleum-Contaminated Soil Removal; Naval Support Activity Mid-South (Revision 1)*. Memphis, Tennessee.
- EnSafe Inc. (2001b, November). *Assemblies G and H RCRA Facility Investigation Report (Revision 1), Naval Support Activity Memphis, Millington, Tennessee*. Memphis, Tennessee.
- ERC/EDGE. (1990, September). *RCRA Facility Assessment (RFA), NAS Memphis*. Nashville, Tennessee.
- U.S. Environmental Protection Agency. (1996, October). *Drinking Water Regulations and Health Advisories*, USEPA Office of Water: Washington, D.C.
- U.S. Environmental Protection Agency. (1999, October). *Risk-Based Concentration Table*. USEPA Region 3.

Attachment 1
Figure

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- LEGEND**
-  - SOIL SAMPLE LOCATION
 -  - SOIL AND GROUNDWATER SAMPLE LOCATION
 -  - AREA REMOVED DURING VCA
 -  - BUILDING
 -  - NSA MID-SOUTH BOUNDARY
 -  - AREA OF INVESTIGATION

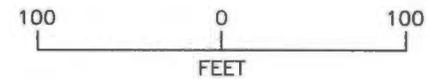


FIGURE 2
SWMU 43 STATEMENT OF BASIS
SOIL AND GROUNDWATER
SAMPLE LOCATIONS