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NSA MID SOUTH
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STATEMENT OF BASIS SOLID WASTE MANAGEMENT UNIT 20 FORMER UNDERGROUND WASTE TANK 1594 MILLINGTON SUPPACT TN

12/1/2005

STATE OF TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION

STATEMENT OF BASIS

SWMU 20 – Former Underground Waste Tank 1594
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 the proposed remedy at solid waste management unit (SWMU) 20 — former underground waste tank 1594 (UWT 1594), at Naval Support Activity (NSA) Mid-South, Millington, Tennessee. NSA Mid-South is responsible for corrective action at SWMU 20, 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 an institutional control that restricts use of the site's groundwater is protective of human health and the environment.

Before the remedy is finalized, TDEC would like to give the public an opportunity to comment. At any time during the comment period, the public may comment as described in the following section "How Can You Participate?" Upon closure of the public comment period TDEC will evaluate all comments and determine if there is a need to modify the proposed remedy.

Site Description

The former tank 1594 site is approximately 200 feet west of Hornet Avenue and Commitment Loop on NSA Mid-South's Southside (Figure 1). The immediate area around SWMU 20 is covered by asphalt, repaved as part of the base realignment. The former tank held an estimated 100 gallons, reportedly storing waste oil and hydraulic fluid generated by the Air Traffic Control School. During its 1992 removal, soil contamination left behind in the tank excavation warranted further site evaluation.

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 20 will be incorporated into the Hazardous and Solid Waste Amendments Permit TNHW-094 for NSA Mid-South, scheduled to be updated in 2006.

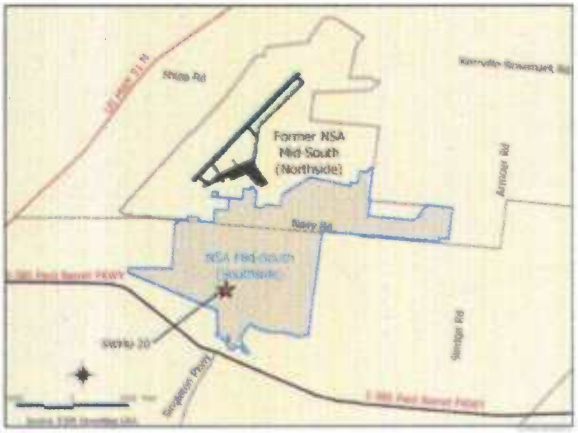

Figure 1 SWMU 20 at NSA Mid-South in Millington, Tennessee

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, 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:

Mr. Roger Donovan
TDEC — Division of Solid Waste Management
5th Floor, L&C Annex
401 Church Street
Nashville, TN 37243-1538
Telephone: (615) 532-0864
E-mail: roger.donovan@state.tn.us

Investigative reports and documents related to SWMU 20 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 Naval Support Activity (NSA) Mid-South.

A significant portion of NSA Mid-South's Northside was transferred to the City of Millington, and the remaining property 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 20 is part of the remaining NSA Mid-South property. Waste oil and waste hydraulic fluid generated by the Air Traffic Control School were stored in UWT 1594, which was later identified as having impacted subsurface soil during its 1992 removal (National Salvage, 1992).

As required by the Navy's Resource Conservation and Recovery (RCRA) Permit, NSA Mid-South is required to evaluate and assess all SWMUs for potential environmental impacts. Due to the former operations at the site, UWT 1594 was designated as a site warranting further evaluation to determine its potential risk to human health and the environment.

Previous investigations at SWMU 20 include the *RCRA Facility Assessment* (RFA; ERC/EDGe, 1990). A subsequent *Confirmatory Sampling Investigation* was conducted in 1997 to assess potential soil and groundwater impacts (CSI; EnSafe, May 1999). As a result of the detection of volatile organic compounds (VOCs) in both soil and groundwater, the site underwent further evaluation through a *RCRA Facility Investigation (*RFI; EnSafe, 2000). Analytical results from these investigations resulted in the institutional control remedy, restricting use of the site's groundwater. 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 from the CSI and RFI are provided in Figures 2 and 3 (Attachment 1), respectively. The soil characterization consisted of four surface and 12 subsurface soil samples collected during the CSI (locations 020SGB01 through 020SGB06), followed with four additional subsurface soil

samples collected as part of the RFI (locations 020S0010 and 020S0011). The groundwater characterization consisted of initially sampling three locations adjacent to the former UWT (020SGB01, 020SGB02, and 020SGB04) followed with four RFI locations (020G0007, 020G0008, 020G0009, and 020G01LF) where groundwater was collected from three depth intervals. Typically, two groundwater units are assessed at NSA Mid-South – the uppermost loess (clay silt deposits) and the deeper sand and gravel fluvial deposits. Due to the absence of groundwater in the loess at SWMU 20, the groundwater characterization focused only on the fluvial sands and gravels, which range in depth between 40 and 77 feet below ground surface at the site.

Soil

Sixteen VOCs, including solvents and petroleum constituents, were identified in surface and subsurface soil, indicating a release from the UWT. However, when compared to the U.S. Environmental Protection Agency's (USEPA) risk-based concentration (RBC) screening values, concentrations of all detected chemicals at the site were below the risk-based screening thresholds.

Groundwater

Several of the chemicals that were detected in soil were also detected in groundwater (from the upper section of sand and gravel fluvial deposits) at concentrations exceeding risk- and regulatory-based drinking water criteria. Location 020SGB01, collected during the CSI from the upper section of the aquifer (47 feet below land surface), contained concentrations of benzene, 1,1-dichloroethylene (1,1-DCE), and 1,2-dichloroethane (1,2-DCA). Since the chlorinated solvents 1,1-DCE and 1,2-DCA are heavier than water, this type of contaminant will commonly pool at the base of an aquifer. Therefore, an RFI objective was to characterize the extent of contamination, both horizontally and vertically.

The subsequent groundwater samples were collected during the RFI to characterize three depth intervals (40', 50', and 60' below land surface) at locations 020G007 through 020G0009. Groundwater data from these sample locations, and from a monitoring well (020G01LF) that was screened across the entire aquifer, did not contain the elevated VOCs similar to subsequent samples. The only VOCs detected in the subsequent samples were acetone and methyl ethyl ketone, both of which were below the risk- and regulatory-based screening criteria.

Table 1 is a summary of the chemicals detected in groundwater above risk- and/or regulatory-based screening criteria during both the RFI and CSI. The table also lists the target groundwater concentrations that correspond to potential indoor air quality concerns. None of the target groundwater concentrations for indoor air quality were exceeded, indicating that potential indoor air quality risk associated with the groundwater contaminants is not likely.

Table 1
Groundwater Contaminants Exceeding Risk or Regulatory Based Screening Criteria
(maximum detections in ppb) [a]

Sample Location	Analyte	Result	Tap Water RBC	MCL	Target Groundwater Concentration for IAQ [b]
020SGB01	Benzene	7	0.36	5	140
020SGB01	1,1-DCE [c]	77	0.044	7	190
020SGB01	1,2-DCA [d]	5	0.12	5	230

Notes:

[a] — parts per billion (ppb)

[b] — Indoor Air Quality (IAQ) screening values from Table 2a of *OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils* (USEPA, 2002).

[c] — 1,1-Dichloroethylene

[d] — 1,2-Dichloroethane

Summary of Site Risk

As part of the RFI, risks to human health and the environment from the contaminants identified at SWMU 20 were evaluated using human health and ecological risk assessments, which were developed in accordance with existing USEPA and TDEC methods.

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 20 was initially screened in the CSI, which concluded that site groundwater would pose a potential health risk under a residential or industrial site reuse scenario in which site groundwater was consumed. The risk was again assessed during the RFI, assuming site worker, maintenance worker, construction worker, trespasser, and site resident land-use scenarios. The RFI concluded the following risk posed by chemicals in soil and groundwater under the hypothetical land-use scenarios:

- ***Soil***
  No chemicals of concern were identified in soil for the five land-use scenarios.

- ***Groundwater***
  Chemicals of concern in groundwater to a hypothetical site resident include 1,1,2-trichloroethane, 1,1-dichloroethane, 1,1-dichloroethene, 1,2-dichloroethane, 2-butanone, acetone, and benzene. The single chemical of concern to a hypothetical maintenance worker is 1,1-dichloroethene. No groundwater chemicals of concern were identified under a site worker land-use scenario; trespasser and construction worker land-use scenarios were considered incomplete exposure pathways for groundwater and, therefore, were not evaluated (EnSafe, 2000).

Ecological Risk

Since the site is covered with asphalt and there are no habitats/ecological receptors, the RFI concluded that no complete exposure pathway exists for SWMU 20. Therefore, an ecological risk assessment was not recommended in the RFI (EnSafe, 2000).

Selected Remedy

The RFI recommended No Further Action since the groundwater impacts were isolated to a single location near the former UWT and there were no current receptors to the contamination (EnSafe, 2000). The RFI report was approved by TDEC and USEPA in March and April of 2001, respectively.

Municipal water serves the area and local ordnances prohibit use of the site's groundwater; therefore, current and any future occupants of the site would not be exposed to the isolated area of the aquifer impacted by VOCs. However, to ensure protections remain in place, the selected remedy for the site is an institutional control that restricts use of the site's groundwater for drinking water. Exclusive of groundwater, the site is eligible for unrestricted reuse, both residential and commercial.

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 LUC
- Explanation of LUC (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 and
- Compliance with standards for management

References

EnSafe Inc. (1999, May). *Confirmation Sampling Investigation Report, Assembly F — SWMUs 20, 22, 63, 30, and 39, NSA Memphis — Millington, Tennessee, (Rev. 2).* Memphis, Tennessee.

EnSafe Inc. (2000, September). *RCRA Facility Investigation Report Assembly F — SWMUs 17, 19, 20, 22, 39, and 63; Naval| Support Activity Mid-South — Millington, Tennessee. (Revision 1).* Memphis, Tennessee.

ERC/EDGe. (1990, September*). RCRA Facility Assessment (RFA), NAS Memphis.* Nashville, Tennessee.

National Salvage & Service Corporation. (1992, September). *Underground Storage Tank Closure Report, Tank No. 1594.* Bloomington, Indiana.

U.S. Environmental Protection Agency. (2005). *OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance).* November, 2002 and updates, downloaded September 2005 from http://www.epa.gov/epaoswer/hazwaste/ca/eis/vapor.htm. EPA530-D-02-004.

Attachment 1

Figures

FIGURE 2
SWMU 20 STATEMENT OF BASIS
SOIL SAMPLE LOCATIONS

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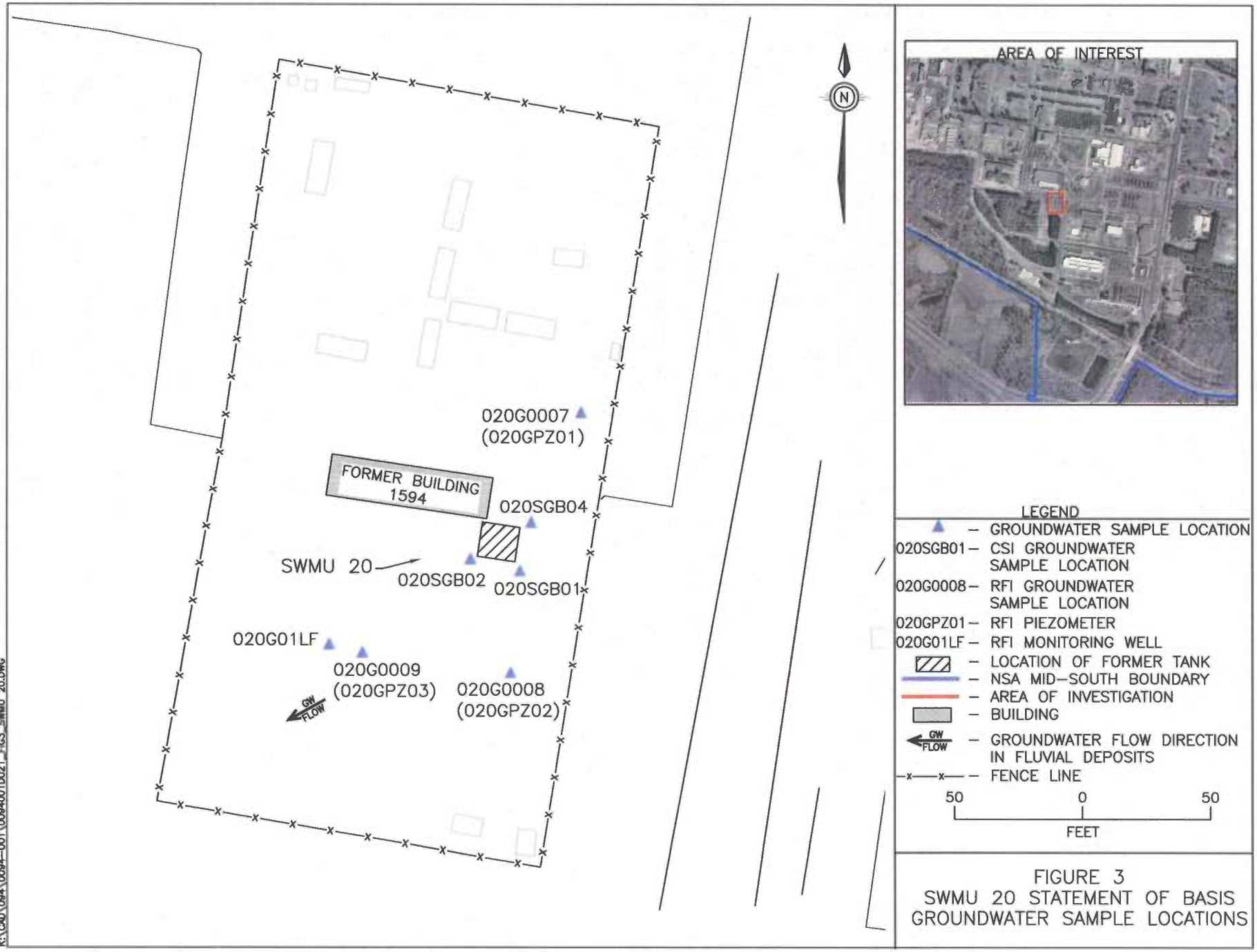

FIGURE 3
SWMU 20 STATEMENT OF BASIS
GROUNDWATER SAMPLE LOCATIONS

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