

N00639.AR.002405  
NSA MID SOUTH  
5090.3a

STATEMENT OF BASIS SOLID WASTE MANAGEMENT UNIT 41 (SWMU 41) SALVAGE  
YARD 2 MILLINGTON SUPPACT TN  
12/01/2005  
TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION



STATEMENT OF BASIS



**SWMU 41 – Salvage Yard No. 2  
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) 41 — Salvage Yard No. 2 at Naval Support Activity (NSA) Mid-South, Millington, Tennessee. NSA Mid-South is responsible for corrective action at SWMU 41, 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.

However, before the remedy is finalized, TDEC would like to give the public an opportunity to comment on the proposed remedy.

**Site Description**  
SWMU 41 is a 1.2-acre, asphalt-covered storage yard located near the southwest corner of NSA Mid-South's Southside (Figure 1). The area was used by the Defense Reutilization and Management Office to store scrap metal, abandoned equipment (planes, helicopters, etc.), tires, furniture, and batteries. Operation of SWMU 41 dates back to 1944. Though the area was designated for non-hazardous storage, it may have also received hazardous materials.

At any time during the public 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 prior to finalizing it.

**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 41 — Salvage Yard No. 2 will be

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



Figure 1 SWMU 41 at NSA Mid-South, 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 41, 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](mailto:roger.donovan@state.tn.us)



## SWMU 41 Statement of Basis



Investigative reports and documents related to SWMU 41 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 41, 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 41 is part of the remaining NSA Mid-South property. The 1.2-acre salvage yard stored scrap metal, abandoned planes and helicopters, tires, furniture, and batteries. Although the 1990 Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA; ERC/EDGe, 1990) did not identify any staining or evidence of releases, the site was designated a SWMU because of its former use as a scrap storage yard. 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 41 was designated as a site warranting further evaluation to determine its potential risk to human health and the environment.

Subsequent investigations of SWMU 41 include the *Confirmatory Sampling Investigation* (CSI; EnSafe, 2000) and the *RCRA Facility Investigation* (RFI; EnSafe, 2001), which led to a soil removal through a *Voluntary Corrective Action* (VCA; EnSafe 2001). Analytical results from these investigations resulted in the remedy recommendation of a land-use control that restricts 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. Soil characterization consisted of four surface soil samples (locations 041S0004, 041S0007, 041S0011, and 041S0012). Groundwater characterization initially consisted of eight samples – four shallow groundwater samples (041G0002, 041G0005, 041G0008, 041G0010) from the upper alluvial clays/silts (approximately 27 feet below land surface) and four deeper samples (041G0001, 041G0003, 041G0006, 041G0009) from the deeper alluvial sands and gravels (50 feet below land surface). As a result of a volatile organic compound (VOC) detected in the CSI, four monitoring wells (041G01DA through 041G04DA) were constructed during the RFI to screen the deeper alluvial sands and gravels.

### **Soil**

The polychlorinated biphenyl (PCB) Aroclor-1260 was detected in two surface soil samples at concentrations above the U.S. Environmental Protection Agency's (USEPA) residential risk-based concentration (RBC) of 320 parts per billion (ppb). Locations 41X0007 and 41X0012 contained 1,200 ppb and 710 ppb Aroclor-1260, respectively.

The metals cadmium, copper, and chromium were also detected above the background reference concentrations (RC) and USEPA's residential RBC screening criteria. Cadmium exceeded its RC and residential RBC at three locations; chromium exceeded its RC and RBC at two locations, and copper exceeded its RC and residential RBC at one location. TPH exceeded TDEC's most stringent cleanup criteria (100 ppm) in one sample location (EnSafe, 2000). A summary of the maximum detections that exceeded USEPA's soil screening values are provided in Table 1.

**Table 1**  
**Soil Contaminants Exceeding Screening Criteria**  
**Maximum Concentrations (units in ppm)**

Sample Location	Parameter	Detection	RC	Res. RBC	Ind. RBC
041X0007	Aroclor-1260	1,200 <sup>a</sup>	NA	320 <sup>a</sup>	2,900 <sup>a</sup>
041X0011	Copper	483	24.2	310	8,200
	Chromium	57.4	24.0	23	610
041X0012	Cadmium	53	1.54	3.9	100
	TPH	140	NA	100 <sup>b</sup>	NA

**Notes:**

- ppm = Parts per million in soil
- RC = Reference concentration for unaffected background groundwater
- <sup>a</sup> = Units of parts per billion (ppb)
- <sup>b</sup> = TDEC's most stringent cleanup level for TPH-contaminated soil
- <sup>c</sup> = Residential risk-based concentration from EPA Region III Risk-Based Concentration Table (1999)
- <sup>d</sup> = Industrial risk-based concentration from EPA Region II Risk-Based Concentration Table (1999)
- NA = Not Applicable. RC established only for metals

**Groundwater**

The only contaminant detected in groundwater was 1,2-dichloroethane (1,2 DCA). Location 041G0008, sampled in the upper alluvial clays and silts, contained 1,2-DCA at 59 ppb, above the drinking water maximum contaminant level (MCL) of 5 ppb and USEPA's tap-water RBC of 0.12 ppb.

The four RFI monitoring wells that were constructed to delineate the extent of contamination contained low detections of acetone and methyl ethyl ketone; however, all concentrations were below the MCLs and RBCs (EnSafe, 2001). Additional post-RFI monitoring found that 1,2-DCA was absent in deeper alluvial groundwater (EnSafe, 2005).

**Summary of Site Risk**

As part of the RFI, risks to human health and the environment from the contaminants identified at SWMU 41 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 41 was assessed using four land-use scenarios: hypothetical resident, construction worker, site worker, and trespasser. Chemicals of concern identified through the risk assessment include the following.

- **Soil**  
No chemicals of concern were identified in soil for the four land-use scenarios. Therefore, soil poses no risk to future users of the property (EnSafe, 2001).
- **Groundwater**  
1,2-DCA is a chemical of concern that would pose a risk to a hypothetical resident using the site's groundwater. The trespasser, and construction and maintenance worker land-use scenarios were not considered applicable exposure pathways; therefore, these land-use scenarios were not evaluated with respect to groundwater (EnSafe, 2001).

- **Air**

The VOC 1,2-DCA is below its respective USEPA target groundwater threshold (USEPA, 2005) used to gauge whether the contaminants could pose an indoor air quality/inhalation hazard to future site occupants.

### **Ecological Risk**

The ecological risk assessment concluded that although several chemicals of potential ecological concern were present at the site, exceedances of ecological screening values were not thought to be significant given (1) the location of the detections (confinement to small isolated hot spots), (2) the conservative assumptions utilized to calculate the risk (such as use of maximum concentrations instead of averages, and continuous occupation of the site by receptor species), and (3) the extensive human development of the site and surrounding area. Wildlife that may utilize SWMU 41 and immediately adjacent areas are not expected to be impacted by residual soil contaminants (EnSafe, 2001).

### **Removal Action**

TPH-contaminated soil was removed from the site through a VCA removal action in 2001. An area measuring 5 feet square, with a depth of 2 feet, was removed. Confirmation samples collected from the excavation bottom and side walls contained TPH concentrations below the TDEC cleanup standard of 100 ppm; metal concentrations were also below the applicable risk-based screening levels (EnSafe, 2001).

### **Selected Remedy**

The RFI was approved by the USEPA and TDEC in October 2002 and January 2003, respectively. And as a result of the VCA and the absence of 1,2-DCA in post-RFI groundwater monitoring, No Further Action was recommended for the site in a Technical Memorandum submitted to TDEC (EnSafe, 2005). TDEC concurred with the recommendation on June 21, 2005.

The presence of 1,2-DCA in the shallow groundwater unit would pose a risk to a resident that consumed site groundwater. Therefore, the remedy for the site is a land-use control that prohibits use of site groundwater. Consumption of groundwater from this unit is impractical, given that the unit has extremely low yield, naturally poor water quality, and there are local ordinances that prohibit use of this groundwater while municipal supplies are available. The added land-use control will ensure protections remain in place for future site users. Exclusive of the groundwater restriction, the site is eligible for unrestricted reuse.

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.



**SWMU 41**  
**Statement of Basis**

---



**References**

EnSafe Inc. (2000, April 28). *Confirmatory Sampling Investigation Report; Assemblies G & H – SWMUs 23, 24, 41, 43, 47, 48, 49, and 61. NSA Mid-South – Millington, TN.* Revision 02. Memphis, Tennessee.

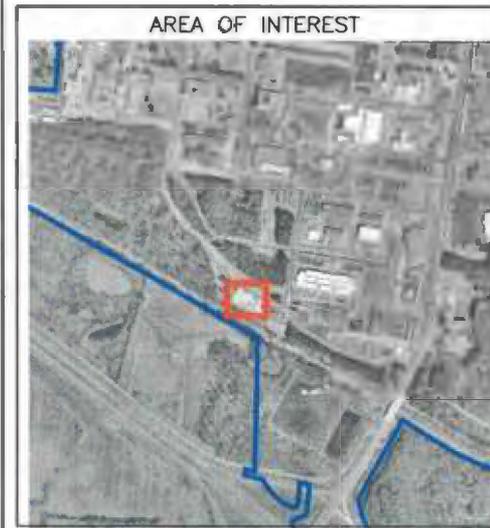
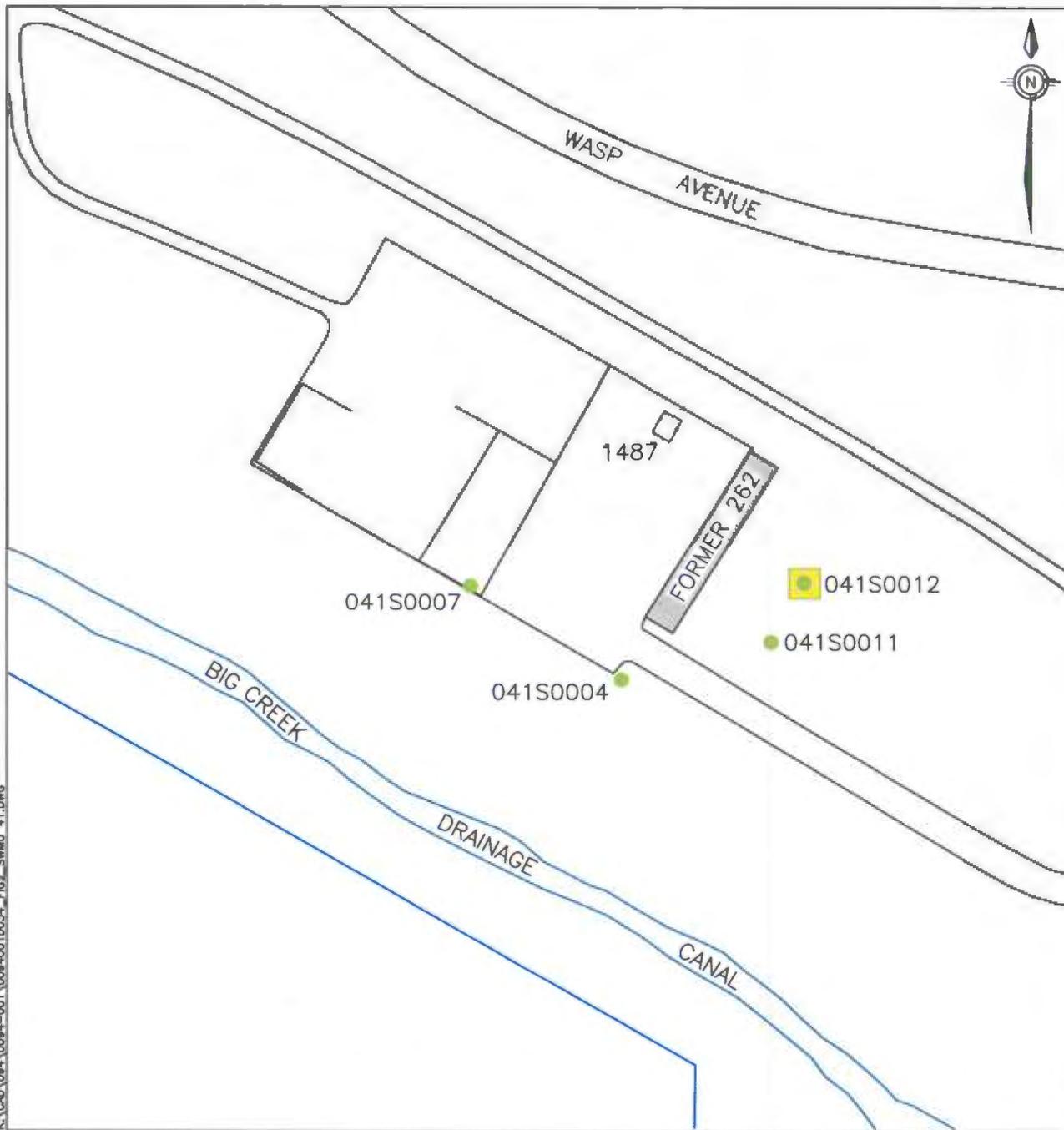
EnSafe Inc. (2001, June 29). *Voluntary Corrective Action Report, RCRA Facility Investigation, NSA Mid-South, Petroleum-Contaminated Soil Removal, Buildings S-362/SWMU 65, S-235, S394, N-114/SWMU 24, N-1211, N-105, N-108, S-203, SWMU 41, SWMU 43, SWMU 47, SWMU 48, and SWMU 49.* Revision 1. Memphis, Tennessee.

EnSafe Inc. (2001, November). *Assemblies G and H RFI Report. NSA Mid-South.* Revision: 1. Memphis, Tennessee.

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).* EPA530-D-02-004. November 2002 and updates. Retrieved September 2005 from <http://www.epa.gov/epaoswer/hazwaste/ca/eis/vapor.htm>.

**Attachment 1**  
**Figures**

K:\CAD\084\0084-001\70\_NSA\_REQUEST\_S0  
K:\CAD\084\0084-001\00840010034\_P102\_SWMU 41.DWG



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

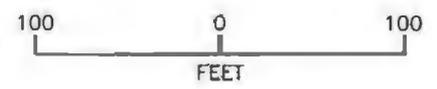
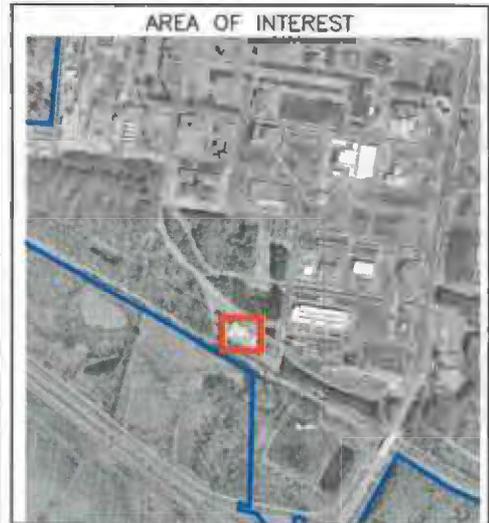
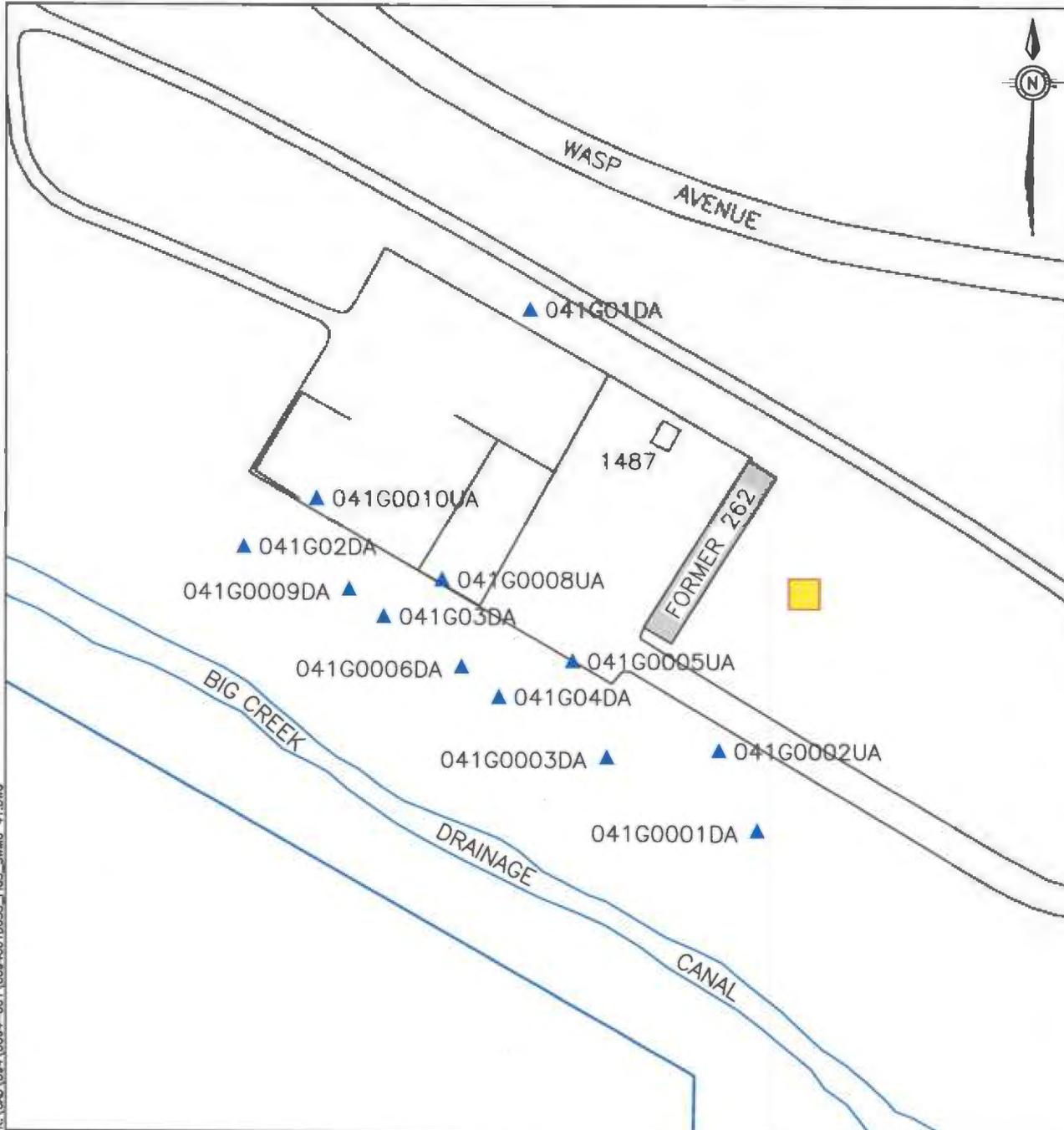


FIGURE 2  
STATEMENT OF BASIS  
SWMU 41  
SOIL SAMPLE LOCATIONS

K:\CAD\084\084-001\78\_NSA\_REQUEST\_S0  
K:\CAD\084\084-001\009-001\0035\_FIG3\_SWMU 41.DWG



- LEGEND**
- ▲ - GROUNDWATER SAMPLE LOCATION
  - (Yellow) - AREA REMOVED DURING VCA
  - (Grey) - BUILDING
  - (Blue) - NSA MID-SOUTH BOUNDARY
  - (Red) - AREA OF INVESTIGATION



**FIGURE 3**  
**STATEMENT OF BASIS**  
**SWMU 41**  
**GROUNDWATER SAMPLE LOCATIONS**