5.16 SWMU 26: SANITARY LANDFILL (ACTIVE AND INACTIVE)

5.16.1 Site Description and Waste Generation

The SWMU 26 sanitary landfill is located in the northeastern portion of the installation, southeast of the administrative and maintenance buildings (Figure 5.16-1). The landfill has been in use since 1956. Currently, one open trench is in use. The landfill, including closed areas west and east of the present working area, covers 44 acres (USAEHA 1986). The present sanitary landfill receives approximately 1 ton of solid waste per day. The active trench measures approximately 175 ft long, 25 ft wide, and 10 ft deep (NUS 1987). Some rubbish, including paper and building debris, was observed in the trench. The landfill is unlined and has no vents.

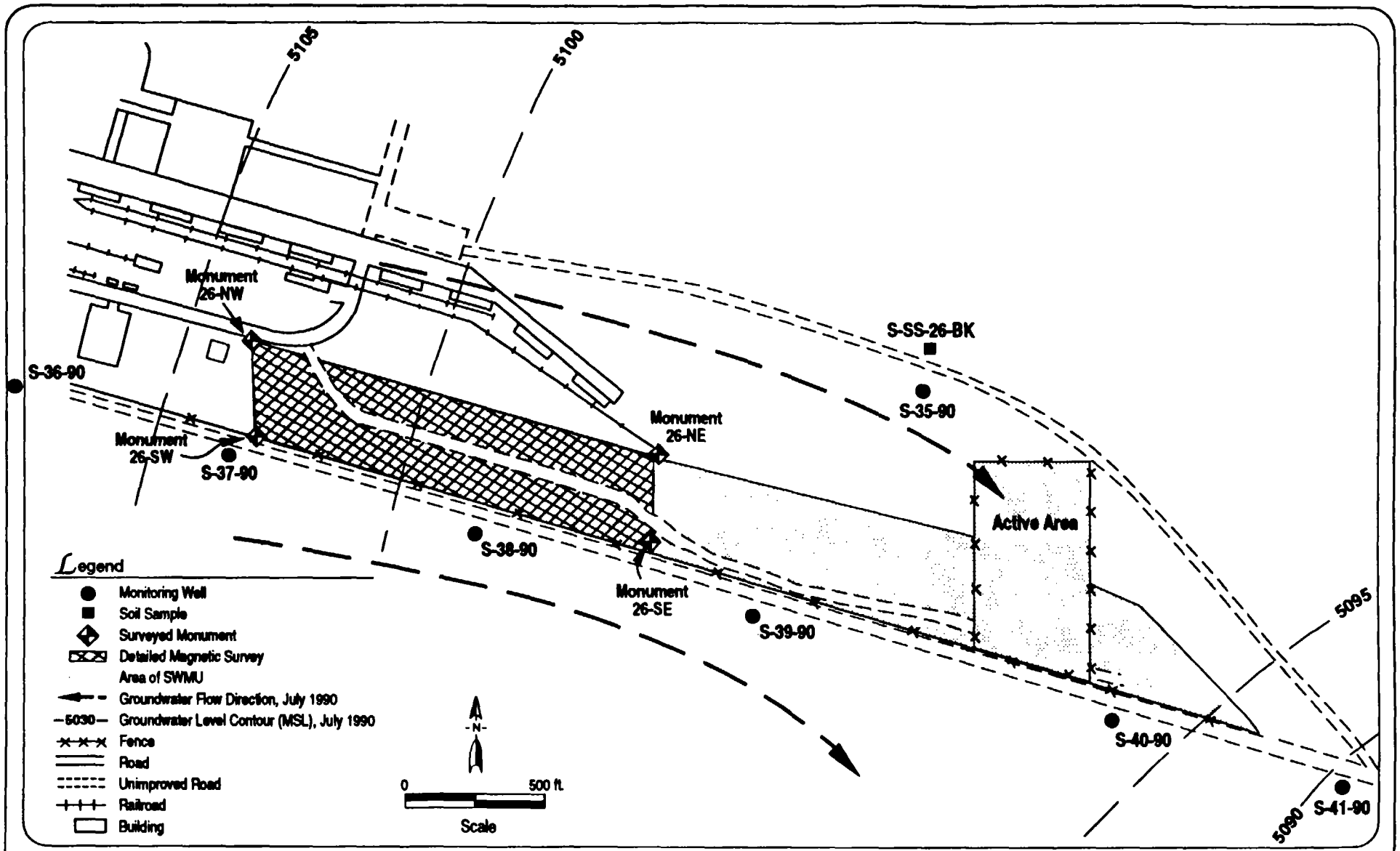
According to USAEHA (1986), wastes disposed of in SWMU 26 include solid waste, paper, and building debris (potentially contaminated with asbestos containing materials). USAEHA does not define solid waste, but states that no noxious or hazardous materials have been disposed of here. However, USAEHA also reports that packing material for white phosphorus munitions, rocket parts, and projectiles were disposed of in the older parts of the landfill.

SWMU 26 includes Sites 22 and 23 in the 1982 EPIC study. In both 1974 and 1981, a large ground stain was visible at Site 22, the western portion of the landfill. This may have been caused by stored material, liquid, or sludge disposal. In 1981, Site 23, in the eastern portion of SWMU 26, apparently was being used for solid and possibly liquid wastes. In addition, a dark ground stain was visible on the site access road.

In 1987, a former TEAD-S employee informed the Salt Lake Tribune that he had removed approximately 300 to 400 55-gallon drums filled with transformer oil and trichloroethylene from Buildings 637, 619, and 691 in the TEAD-N, and that he had dumped them in the TEAD-S landfill during the period he worked at TEAD-S (ending in 1980). The dumping reportedly took place just inside a fence surrounding SWMU 26, approximately 500 yards east of the main facility road. This location is at the outer edge of the sanitary landfill. The former employee reported that the drummed wastes were disposed of in an excavation created by a bulldozer and that the bulldozer crushed the drums by driving over them. This employee also stated that other employees were involved in the transport and disposal of these wastes, so that the quantity of these wastes was even greater than that for which he was responsible (Woolf June 29, 1987). However, another former employee familiar with the landfill refuted that this disposal of oil and solvent drums ever occurred (Painter 1989).

5.16.2 Site Hydrogeology

SWMU 26 is located on southwest-sloping topography in the northeastern part of TEAD-S. It is underlain by coarse alluvial gravels of Quaternary age. Data on the subsurface lithology at SWMU 26 was obtained from field boring logs of each monitoring well installed during the RFI-Phase I at this SWMU (S-35-90, S-36-90, S-37-90, S-38-90, S-39-90, S-40-90, S-41-90) (Figure 5.16-1), and from the sieve analyses of representative samples from the borings.



Source:

EBASCO Field Measurement
Basic Information Maps 1985

Figure 5.16-1

Site Map
SWMU 26 - Sanitary Landfill
(Active and Inactive)

Tooele Army Depot - South Area
Prepared by: Ebasco Services Incorporated

EBASCO

Surficial soil at the edge of the landfill is composed of pale brown gravelly silt (ML). The unsaturated zone is approximately 200 ft thick and is composed of pale brown to grayish brown, silty gravel (GM, GP, GC). Beds of gravelly sand (SW) are also present, as shown in the sieve analyses. The saturated zone, which was characterized from approximately 205 to 307 ft below the ground surface, is composed of pale brown to yellowish brown, silty sand, clayey sand, gravelly silt, and sandy gravel (SM, SC, ML, GP).

During the RFI-Phase I, one monitoring well was installed northeast of SWMU 26 in what was believed an upgradient position (S-35-90), and six monitoring wells were installed south of SWMU 26 in what was believed to be downgradient positions (S-36-90, S-37-90, S-38-90, S-39-90, S-40-90, S-41-90). The screened interval was 10 ft in well S-35-90, from 267 to 277 ft, and was 20 ft in wells S-36-90 (206 to 226 ft), S-37-90 (204 to 224 ft), S-38-90 (210 to 230 ft), S-39-90 (235 to 255 ft), S-40-90 (251 to 271 ft), and S-41-90 (287 to 307 ft). The larger screened intervals were used in wells in which the water bearing zone was not confidently known, or in which recovery rates were relatively low.

The depth to groundwater measured in July 1990 was 270 ft in well S-35-90, 203 ft in well S-36-90, 204 ft in well S-37-90, 219 ft in well S-38-90, 233 ft in well S-39-90, 252 ft in well S-40-90, and 287 ft in well S-41-90. Groundwater elevations at SWMU 26 varied from approximately 5,105 ft msl at wells S-36-90 and S-37-90, to approximately 5,099 ft msl at wells S-35-90, S-38-90, S-39-90, and S-40-90, to 5,090 ft msl at well S-41-90. According to water levels measured in July 1990, groundwater flows southeast at SWMU 26 (Plate 3) rather than southwest, as previously thought. SWMU 26 is located just east of a possible groundwater high that may extend south-southwest beneath a w . main paralleling Montgomery Road. Contaminants from SWMU 26 flow directly toward eastern boundary of TEAD-S.

5.16.3 Previous Sampling and RFI-Phase I Sampling Results

No soil, fill, or groundwater sampling was performed at SWMU 26 prior to the RFI-Phase I investigation. The RFI-Phase I program at SWMU 26 included a magnetic survey, the collection of 10 soil or fill samples from exploratory trenches located using results from the magnetic surveys (Sections 3.10.2 and 3.10.3, respectively), and the collection of groundwater samples at seven wells installed to monitor possible releases to groundwater from the landfill. The geophysical survey and excavation data did not confirm the presence of the 55-gallon drums reportedly buried in the western portion of SWMU 26. Table 5.16-1 lists the detections in soil and groundwater samples from SWMU 26. As shown in the table, the 10 soil or fill samples analyzed were S-SS-26-01 and -03 through -011. Sample -02 was not analyzed because this sample showed less evidence of contamination than the samples that were selected for analysis.

A detailed magnetic survey was conducted in the western portion of SWMU 26 to locate the waste drums. A 450,000-square-ft area (Figure 5.16-1) was selected for the magnetic survey because a site employee stated that this part of the landfill was in use at the time of the reported waste oil and solvent disposal (Painter 1989). No large accumulation of metal was detected. However, the magnetic survey indicated four areas of anomalous readings south of and along the road to the Sanitary Landfill. Each anomalous area was excavated during exploratory trenching in an attempt to locate the waste drums, but none were found. Figure 5.16-2 depicts the

TABLE 5.16-1 **Summary of RFI-Phase I Investigations for SWMU 26: Sanitary Landfill (Active and Inactive)**

SOIL (µg/g)

Analytical Groups and Analytes Detected	S-SS-26-01	S-SS-26-03	S-SS-26-04	S-SS-26-05	S-SS-26-06	S-SS-26-07
Volatile Organics:						
Acetone (ACET)	LT 0.010	0.015	LT 0.010	LT 0.010	LT 0.010	LT 0.010
Unknowns	0.018	0.0023	0.016	0.011	0.011	0.059
Semivolatile Organics:						
Unknowns	42*	57*	39*	20*	40*	108*
Explosives: None detected						
Metals:						
Arsenic (As)	12	11	23	23	34	19
Beryllium (Be)	1.1	0.69	0.57	0.56	0.75	1.1
Chromium (Cr)	26*	21*	32*	16*	23*	24*
Copper (Cu)	42	21	18	11	12	27
Lead (Pb)	48	51	110	21	130	87
Mercury (Hg)	LT 0.25	0.51	LT 0.25	LT 0.24	LT 0.25	LT 0.22
Nickel (Ni)	15	14	19	12	11	17
Silver (Ag)	0.22	0.23	0.20	0.20	0.22	0.49
Sodium (Na)	2900*	790*	700*	1700*	1100*	960*
Zinc (Zn)	120	120	360	67	78	120

* Detected in associated method blank
LT Less than
µg/g Microgram per gram

SOIL (µg/g)

Analytical Group and Analytes Detected	S-SS-26-08	S-SS-26-09	S-SS-26-10	S-SS-26-11	S-SS-26-BK[1]
Volatile Organics:					
1,4-Dichlorobenzene (14DCLB)	LT 0.00090	0.78	LT 0.00090	LT 0.00090	
Acetone (ACET)	LT 0.01	LT 0.01	6.7	LT 0.01	
Unknowns	0.022	0.014	0.0034	0.0080	
Semivolatile Organics:					
2,2-Bis(para-chlorophenyl)-1,1,1-trichloroethane (PPDDT)	LT 0.41	2.6	LT 0.41	LT 0.41	
2,2-Bis(para-chlorophenyl)-1,1-dichloroethane (PPDDD)	LT 0.18	5.4	LT 0.18	LT 0.18	
2,2-Bis(para-chlorophenyl)-1,1-dichloroethene (PPDDE)	LT 0.22	2.5	LT 0.22	LT 0.22	
Butylbenzyl phthalate (BBZP)	LT 0.33	LT 0.33	LT 0.33	0.80	
Dimethylnaphthalenes (ME2NAP)	NA	NA	2.2	2.3	
Unknowns	50*	130*	25*	31*	
Explosives: None detected					
Metals:					
Arsenic (As)	47	33	22	23	16
Beryllium (Be)	0.54	0.54	0.68	0.91	0.29
Chromium (Cr)	17*	35*	21*	22*	18
Copper (Cu)	6.1	31	13	20	18*
Lead (Pb)	4.9	140	22	85	9.4
Mercury (Hg)	LT 0.25	0.61	LT 0.24	LT 0.25	LT 0.026
Nickel (Ni)	13	13	12	13	LT 4.9
Silver (Ag)	0.063	0.39	0.14	0.18	0.11
Sodium (Na)	3400*	1000*	1200*	2200*	190
Zinc (Zn)	55	380	93	370	48

1 Metals analysis only
* Detected in associated method blank
NA Not analyzesd
LT Less than

TABLE 5.16-1 **Summary of RFI-Phase I Investigations for SWMU 26: Sanitary Landfill (Active and Inactive)**

GROUNDWATER (µg/l)

Analytical Group and Analytes Detected	S-35-90 Phase I	S-36-90 Phase I	S-36-90 June 92	S-37-90 Phase I	S-37-90 June 92	S-38-90 Phase I	S-38-90 June 92	S-39-90 Phase I	S-39-90 June 92	S-40-90 Phase I	S-40-90 June 92	S-41-90 Phase I	S-41-90 June 92	S-RB-26-01
Volatile Organics:			NA		NA		NA		NA		NA		NA	
Methylene chloride (CH2CL2)	LT 5.4	7.6		LT 5.4		LT 5.4		LT 5.4		LT 5.4		6.5		LT 5.4
Unknowns				21				20						34
Semivolatile Organics:														
Cyclohexanone (CHONE)	ND	ND	ND	ND	ND	ND	ND	90	ND	20	ND	10	ND	ND
Unknowns				6.0			57	17					38	100
Metals:			NA		NA		NA		NA		NA		NA	
Copper (Cu)	LT 8.1	LT 8.1		LT 8.1		LT 8.1		LT 8.1		19		LT 8.1		120
Lead (Pb)	LT 1.3	1.4		2.2		2.1		1.5		2.1		LT 1.3		7.2
Sodium (Na)	47,000	52,000		50,000		90,000		94,000		32,000		57,000		21,000
Zinc (Zn)	36	29		26		35		68		33		LT 21		460
Anions:			NA		NA		NA		NA		NA		NA	
Bromide (Br)	LT 10,000	220		140		150		280		250		LT 1,000		NA
Chloride (Cl)	1,700,000	240,000		190,000		210,000		430,000		340,000		520,000		NA
Radionuclides (pCi/l):			NA		NA		NA		NA		NA		NA	
Gross alpha (ALPHAG)	130*	310*		3.7		9.5		LT 0.10		97		38*		NA
Gross beta (BETAG)	LT 0.30	LT 0.30		30		LT 0.30		82		67		LT 0.30		NA
Uranium (U)	10*	25		14		4.4		1.2		4.5		3.3*		NA

* Detected in associated method blank
NA Not analyzed
ND Not detected
LT Less than
pCi/l Picocurie per liter
µg/l Microgram per liter

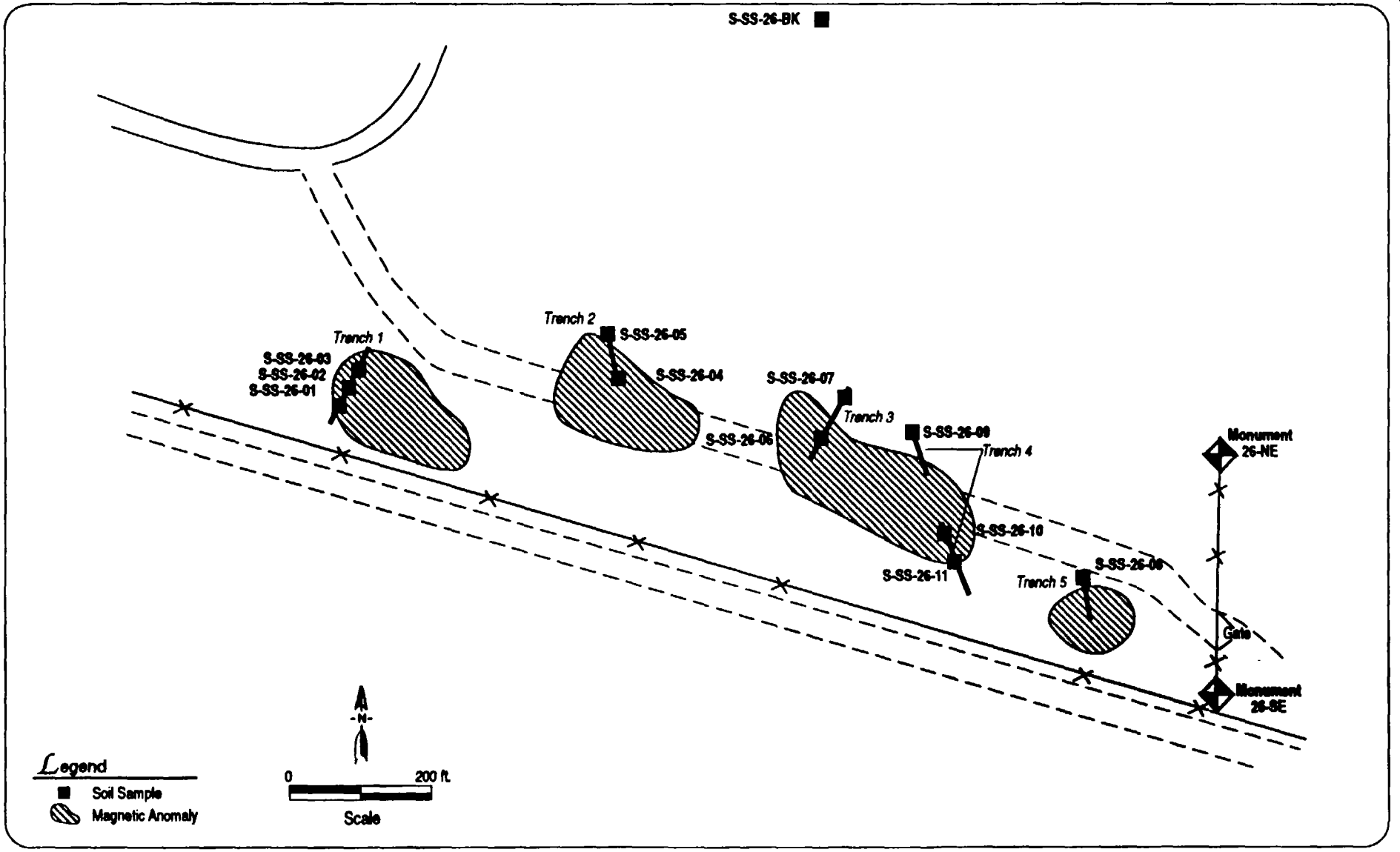


Figure 5.16-2
SWMU 26 - Sanitary Landfill Trenches
Magnetic Anamolies

Tooele Army Depot - South Area
Prepared by: Ebasco Services Incorporated

EBASCO

geophysical survey results and the corresponding anomalies. Sampling locations, detected compounds, and their concentrations are presented in Figures 5.16-2 through 5.16-8.

Five exploratory trenches were excavated and the contents were described. Two samples from each trench were analyzed on-site using a portable gas chromatograph to locate traces of solvent contamination. Two additional samples of the soil or fill in each trench were collected according to the on-site analysis results, and the additional samples were shipped for laboratory analysis. These fill samples were analyzed for volatile organics, semivolatile organics, and metals. The trench samples were analyzed for arsenic and mercury after the holding times for the samples had expired. For comparison to the trench samples, a background soil sample was collected from the area north of SWMU 26 and analyzed for metals.

One upgradient and six downgradient monitoring wells were installed during the RFI-Phase I in the vicinity of SWMU 26. July 1990 groundwater levels in these wells indicate that groundwater in the SWMU 26 area flows southeast and not southwest. Therefore, monitoring wells S-38-90, S-39-90, S-40-90, and S-41-90 are downgradient of SWMU 26, and wells S-36-90 and S-37-90 are probably downgradient of the area to the west of SWMU 26. Groundwater samples collected from these wells during the RFI-Phase I were analyzed for the full suite of analytes presented in Section 3.10. Groundwater samples were collected from wells S-36-90 through S-41-90 as part of the interim sampling program in June 1990. These samples were analyzed for semivolatile organics to verify detections of the semivolatile organic cyclohexanone.

5.16.4 Contamination Assessment

Excavation of test pits over each significant magnetic anomaly located by the geophysical survey uncovered no waste drums. Therefore, the report of a large number of solvent and waste oil drums having been buried in SWMU 26 is believed to be incorrect.

Methylene chloride and cyclohexanone were the only organic compounds detected in wells downgradient of SWMU 26. No organic compounds were detected in the upgradient well. The detections of methylene chloride can be attributed to laboratory contamination because of their low concentrations. Cyclohexanone may also be a laboratory contaminant since it is commonly used as a stabilizer in methylene chloride. Cyclohexanone was not detected in any of the groundwater samples collected during the interim sampling program.

All wells in SWMU 26 are included in water quality zone I. Inorganic groundwater quality data from each well were compared to concentrations typical of this zone to determine whether any analytes were detected at elevated concentrations. Groundwater in zone I generally has lower concentrations of inorganic analytes and a smaller range of concentrations than zones II and III. Chloride was detected at elevated concentrations in upgradient well S-35-90 and downgradient well S-41-90. However, the highest chloride concentration was in upgradient well S-35-90, indicating that SWMU 26 probably is not a source of chloride contamination. Elevated gross alpha radioactivity was reported in a sample from well S-36-90 which is located west of the

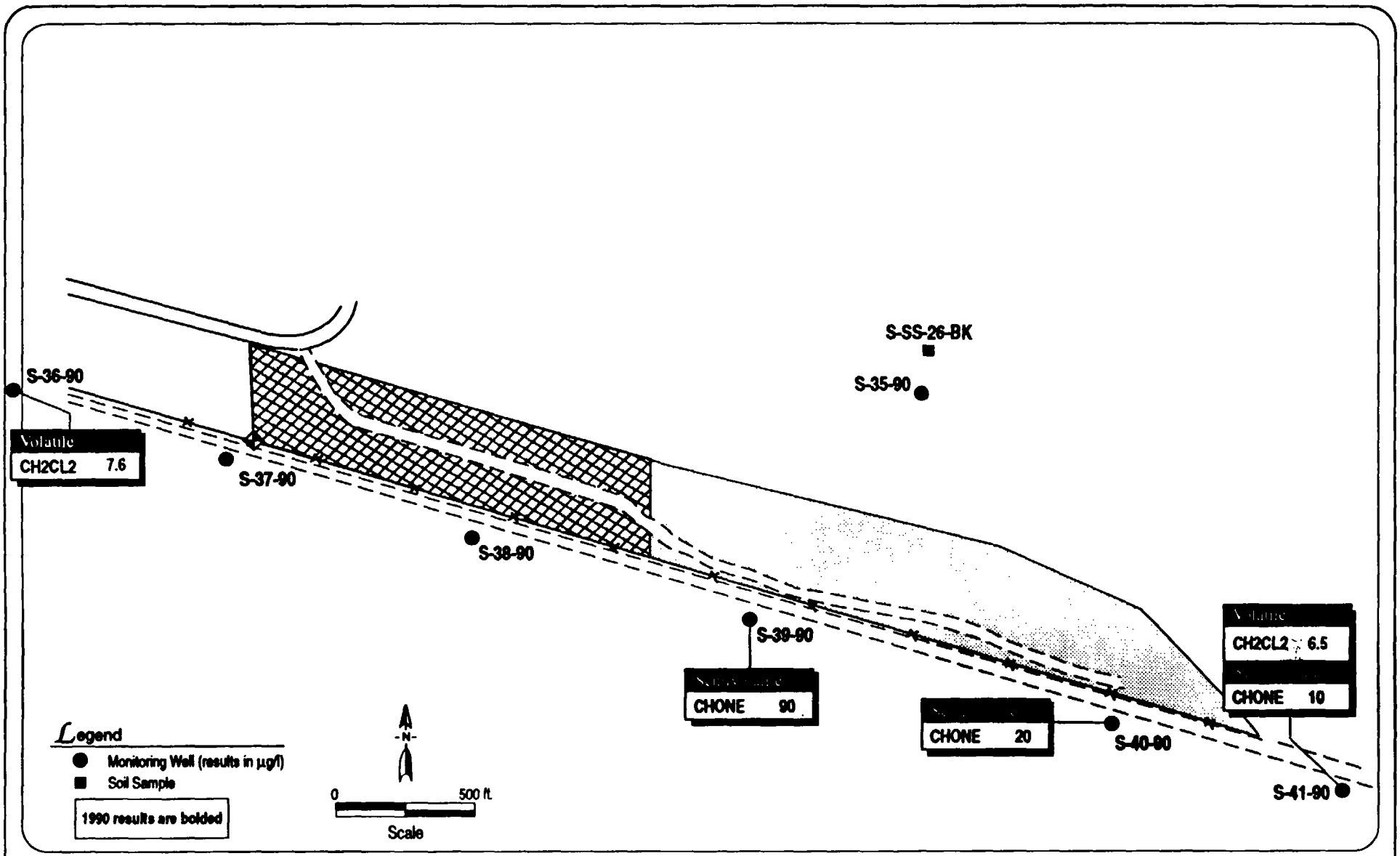


Figure 5.16-3
SWMU 26 - Sanitary Landfill
Organics

Tooele Army Depot - South Area
Prepared by: Ebasco Services Incorporated

EBASCO

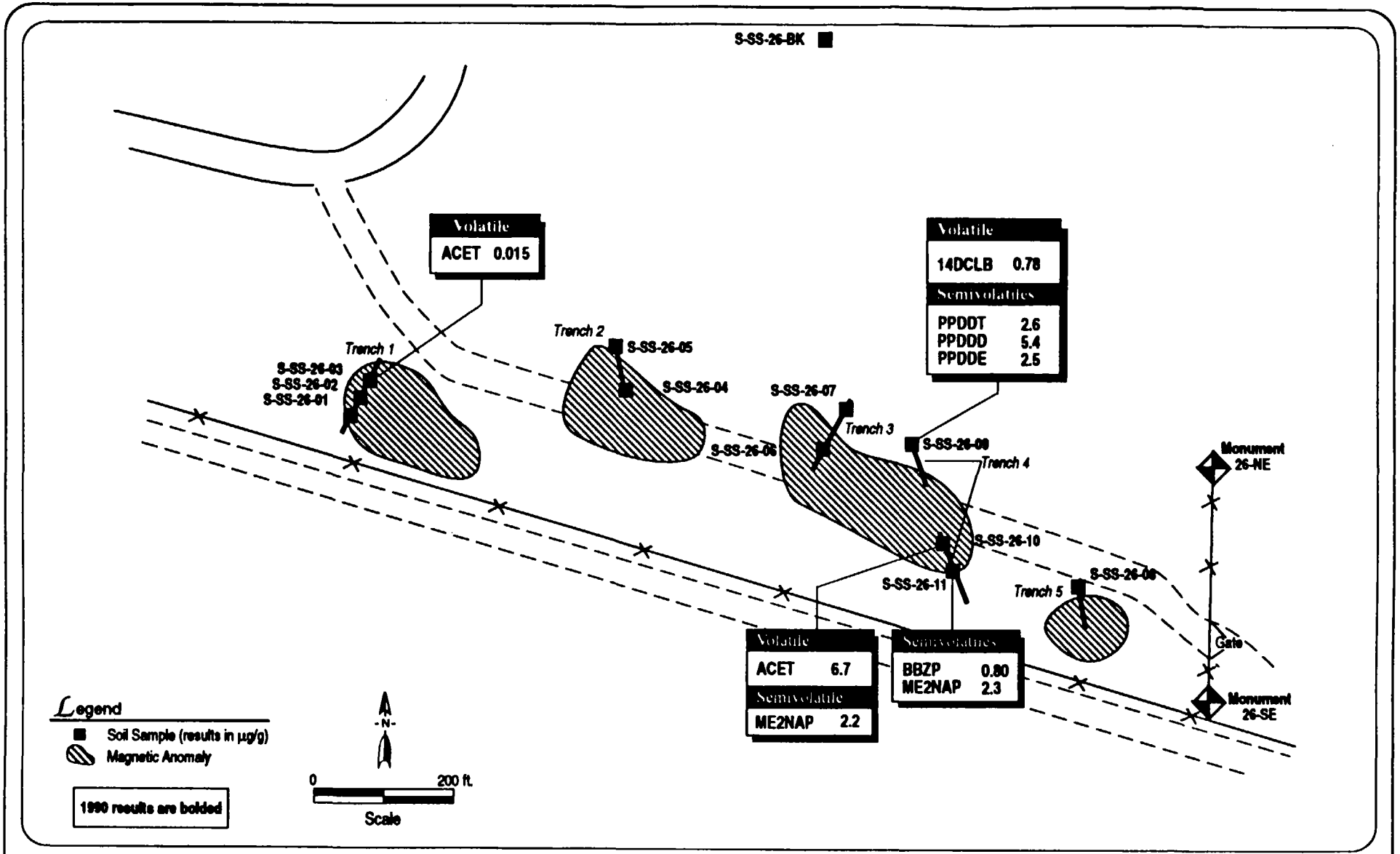


Figure 5.16-4
SWMU 26 - Sanitary Landfill Trenches
Organics

Tooele Army Depot - South Area
Prepared by: Ebasco Services Incorporated

EBASCO

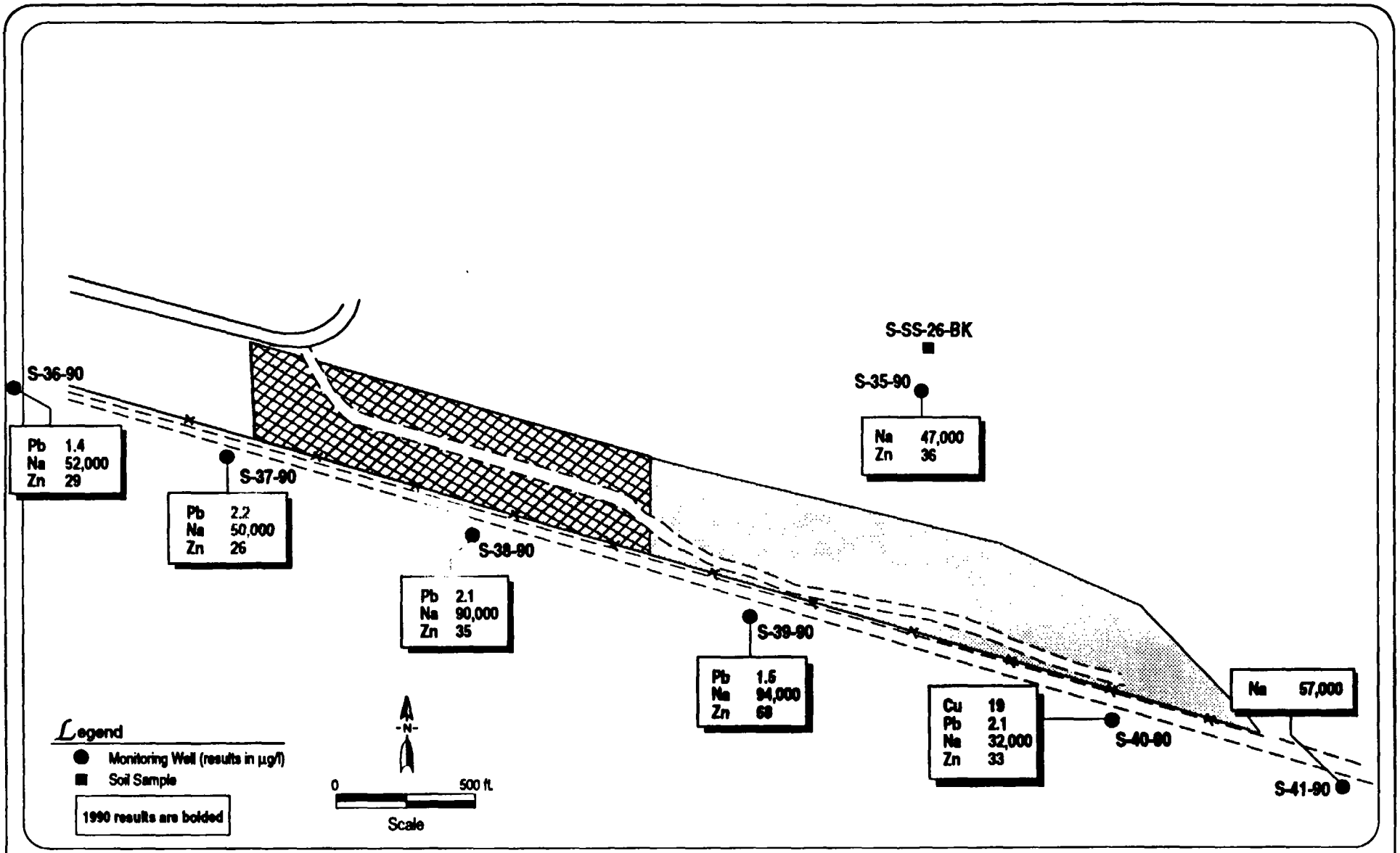


Figure 5.16-5
SWMU 26 - Sanitary Landfill
Metals

Tooele Army Depot - South Area
Prepared by: Ebasco Services Incorporated

EBASCO

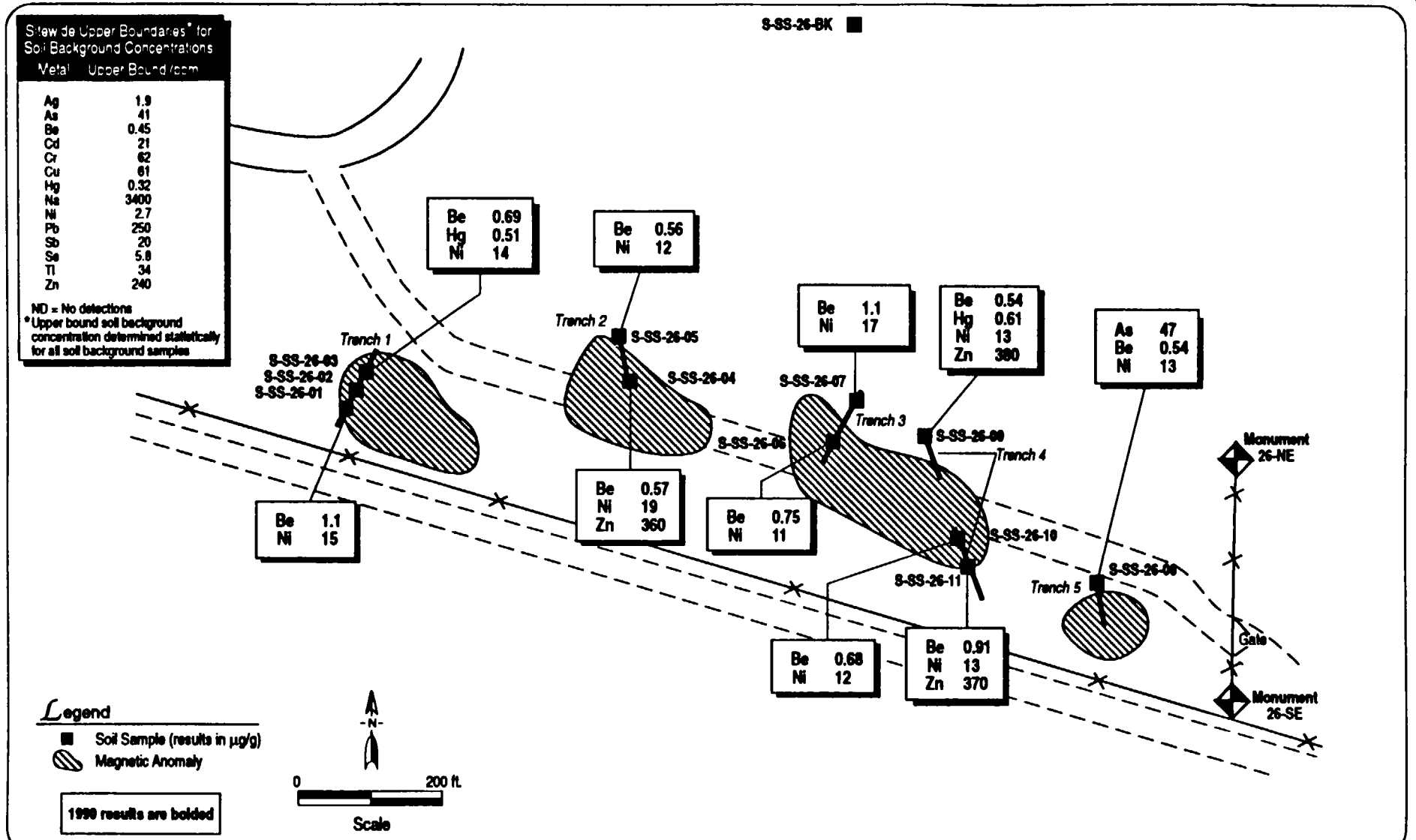


Figure 5.16-6
SWMU 26 - Sanitary Landfill Trenches
Metals

Tooele Army Depot - South Area
Prepared by: Ebasco Services Incorporated

EBASCO

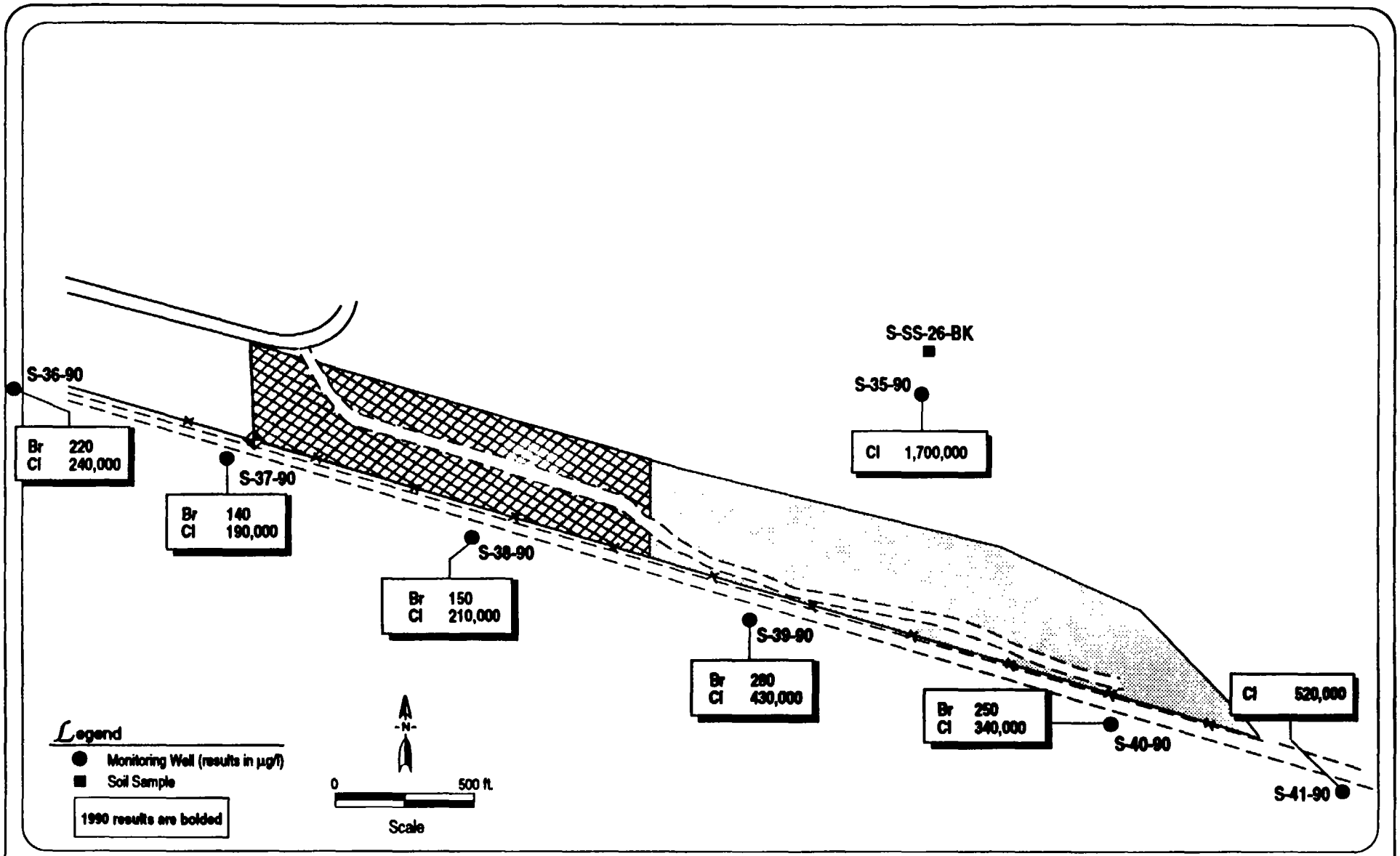


Figure 5.16-7
SWMU 26 - Sanitary Landfill
Anions

Tooele Army Depot - South Area
Prepared by: Ebasco Services Incorporated

EBASCO

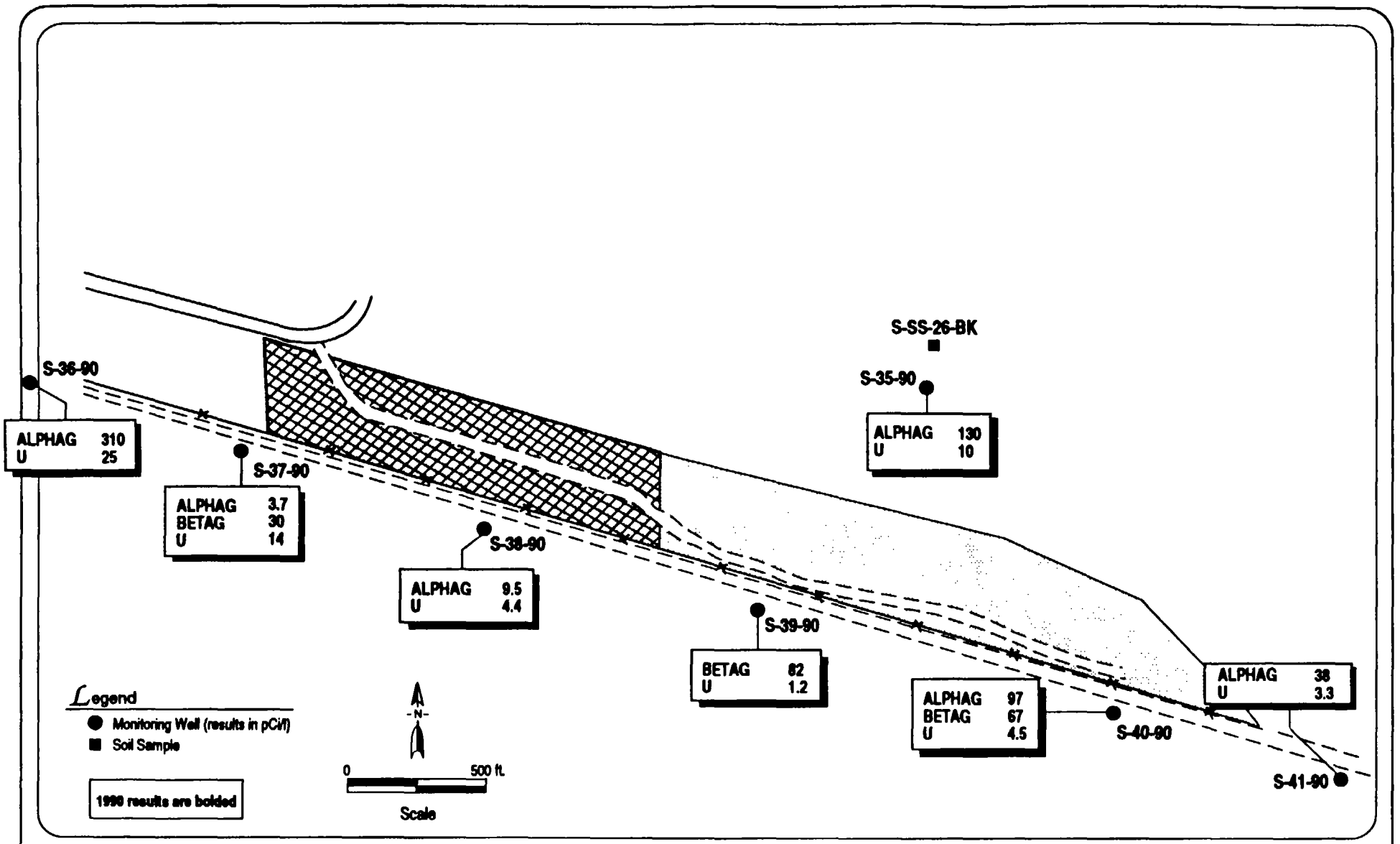


Figure 5.16-8
SWMU 26 - Sanitary Landfill
Radionuclides

Tooele Army Depot - South Area
Prepared by: Ebasco Services Incorporated

EBASCO

landfill. Since no source of gross alpha radioactivity contamination is known in that area, this high value may also indicate natural variation.

Acetone was detected in soil or fill samples from trenches 1 and 4. Acetone was measured at low concentrations that may indicate either natural occurrence as a product of organic material degradation or dispersed contamination from waste disposal. Trench 4 samples also contained 1,4-dichlorobenzene, 2-methylnapthalene, butylbenzyl phthalate, and the pesticide DDT and its breakdown products DDD and DDE. Groundwater samples collected downgradient of the landfill indicate that these compounds have not migrated to the water table, which is approximately 200 ft deep in this part of the site.

Most metals in trench samples were below background concentrations (Section 4.0). However, beryllium, mercury, nickel, and zinc exceeded background concentrations in two or more trenches. Samples from trench 4 contained the highest levels of beryllium, nickel, and zinc. Arsenic was detected in one trench sample at a concentration slightly above background. These elevated concentrations are probably related to waste disposal in the landfill. Arsenic and mercury samples were analyzed after holding times elapsed. Therefore the actual concentrations of these metals may be higher than reported.

5.16.5 Recommendations

Organic and inorganic contaminants detected in trench samples were not detected in groundwater downgradient of the landfill. Since detected contamination occurred where geophysical investigation and excavation located the most likely areas of contamination, no further soil or trench sampling is warranted by the low levels of detected contaminants.

The SWMU 26 groundwater monitoring wells should be resampled annually since wastes will remain buried at SWMU 26.

5.17 SWMU 27: SEWAGE TREATMENT PLANT

5.17.1 Site Description and Waste Generation

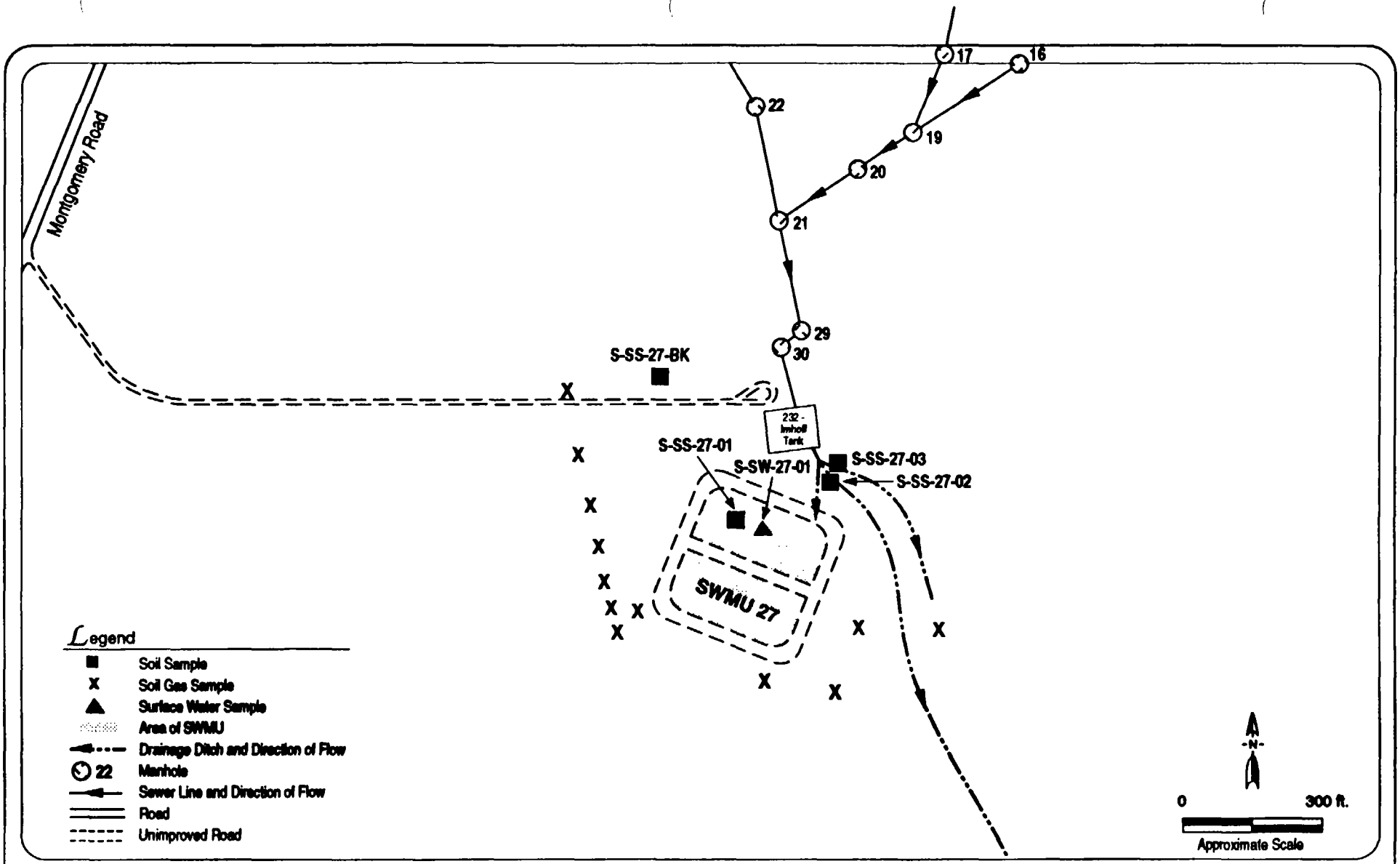
SWMU 27 consists of an Imhoff tank and two unlined sewage lagoons (Figure 5.17-1). This sewage treatment plant is located in the northeastern portion of installation, approximately 2,000 ft south of the administration area (Figure 5.0-1). The Imhoff tank and sewer lines leading to it were probably installed in 1942, during the original installation construction. The tank and disturbed area over the buried line are visible in aerial photographs dated 1952 (EPIC 1986). The tank and lines served the barracks, commissary, and support facilities located in the northeastern part of TEAD-S. The lagoons were built in 1980. The northern lagoon was to receive Imhoff tank effluent and then overflow into the southern lagoon, which is open at its southwest corner (NUS 1987). Before the construction of the sewage lagoons, discharge from the Imhoff tank flowed into ditches adjacent to the lagoon on the east (USATHAMA 1979). The Imhoff tank and denser vegetation along the ditch carrying the tank discharge were noted in 1974 aerial photographs (EPIC 1986).

During a site inspection, NUS (1987) noted that the area around the Imhoff tank was swampy and ditches running southeast of the tank contained sewage and sewage sludge indicating that sewage was not reaching the lagoons. During the RFI-Phase I, the lagoons appeared dry except for a small patch of cattails in the northern lagoon and effluent from the Imhoff tank was still evident in the ditches. It is unclear whether wastes other than domestic sewage have reached the Imhoff tank. Floor drains in the maintenance area may be connected to the sanitary sewers (NUS 1987). Sludge from the Imhoff tank is reportedly buried at the SWMU 26 sanitary landfill (USAEHA 1986).

5.17.2 Site Hydrogeology

The area around SWMU 27 slopes gently to the southwest at an elevation of approximately 5,285 ft above msl. Coarse Quaternary alluvial gravel deposits underlie the site. Details on subsurface lithology were extrapolated from the two closest monitoring wells (S-37-90, S-38-90), from sieve analyses of representative samples, and from soil samples S-SS-27-01 and S-SS-27-BK.

Surface soil is light olive to light brownish gray silt with some sand and a trace of gravel (ML). The unsaturated zone is approximately 200 ft thick and is composed of pale brown to grayish-brown, silty gravel (GM). Beds of gravelly sand (SW) are also present, as shown in the sieve analysis. The saturated zone at depths of 205 to 231 ft is composed of silty sand, gravelly silt, and gravelly clay (SM, ML, CL). The depth to groundwater estimated from the July 1990 potentiometric surface map (Plate 3), is 185 ft below ground surface. The groundwater elevation is approximately 5,100 ft msl. This SWMU is located to the east of the groundwater high that appears to underlie a water main paralleling Montgomery Road, and groundwater flows to the southeast in this area.



Source:
EBASCO Field Measurement
Basic Information Maps 1985
EPIC 1981

Figure 5.17-1
Site Map
SWMU 27 - Sewage Treatment Plant

Tooele Army Depot - South Area
Prepared by: Ebasco Services Incorporated

EBASCO

5.17.3 Previous Sampling and RFI-Phase I Sampling Results

No groundwater or soil sampling was conducted at SWMU 27 prior to the RFI-Phase I. During the RFI-Phase I, a soil gas survey was conducted, a sediment sample was collected from the northern lagoon, and a background soil sample was collected from the area northwest of the lagoons. These samples were collected to detect possible contamination from laboratory and maintenance building wastes that may have been disposed of in the sanitary sewer system. The soil gas survey consisted of sampling at 12 locations across the area where discharge from the Imhoff tank is documented. Analyses of soil gas samples included dichloroethylene, benzene, trichloroethylene, toluene, tetrachloroethylene, and xylene. The sediment sample was analyzed for volatile organics, semivolatile organics, agent breakdown products, explosives, and metals. The trichloroethylene and 2,4,6-trinitrotoluene recoveries in the MS/MSD samples were outside the 95 percent confidence limit. During the June 1992 interim sampling program, two soil borings were collected in the streambed to the east of the lagoons, since the Imhoff tank discharge has apparently predominantly been into these ditches to the southeast rather than into the lagoons (Figure 5.17-1). A water sample was collected from the northern lagoon during the interim sampling program since none could be collected during Phase I of the RFI. These samples were analyzed for volatile and semivolatile organics and metals.

Table 5.17-1 summarizes detections in the soil and soil gas samples. Figures 5.17-2 and 5.17-4 illustrate the results of the soil and surface water investigation. Figure 5.17-3 illustrates soil gas sampling locations and detected analyte concentrations.

5.17.4 Contamination Assessment

The soil gas survey indicated very low concentrations of toluene, xylene, and trichloroethylene in the area west of the Imhoff tank. Because the soil gas detections were low, no soil samples were collected in the areas outside the lagoon. The sediment sample collected from the northern lagoon had only a low level detection of acetone, which was probably introduced into the sample by laboratory contamination. Methylene chloride, acetone, and methyl ethyl ketone detected at low concentrations in soil samples from the ditches are probably laboratory contaminants. The 1,4-dichlorobenzene in these samples may result from the use of sanitary deodorizers in toilets that drain to this system. The only semivolatile contaminant, butyl benzyl phthalate, is a common plasticizer. No elevated levels of inorganics were found. However, observations during the RFI-Phase I field program indicated that the sewage lagoon may still not be in use, and that the ditches to the east of the lagoon may, therefore, receive the Imhoff tank discharge.

5.17.5 Recommendations

No significant contaminant release is indicated by the Phase I sampling program. Therefore, no Phase II action is recommended at SWMU 27.

TABLE 5.17-1 **Summary of RFI-Phase I Investigations for SWMU 27: Sewage Treatment Plant**

SOIL (µg/g)

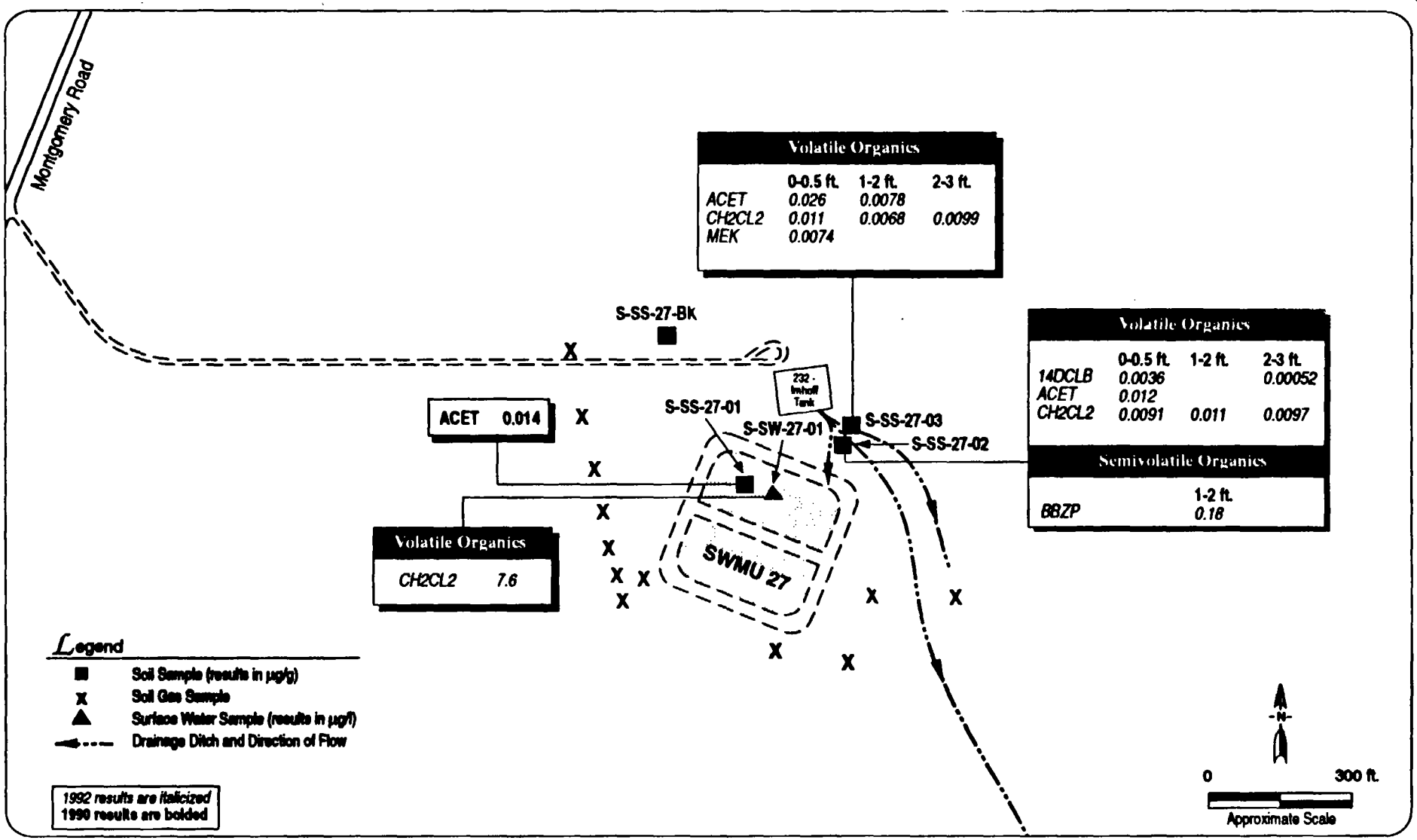
Analytical Groups and Analytes Detected	PHASE I			ADDITIONAL SAMPLING JUNE 1992						Surface Water (µg/l)
	S-SS-27-01	S-FD-27-01	S-SS-27-BK[1]	S-SS-27-02			S-SS-27-03			S-SW-27-01
				0 - 0.5 ft	1 - 2 ft	2 - 3 ft	0 - 0.5 ft	1 - 2 ft	2 - 3 ft	
Volatile Organics:										
1,4-Dichlorobenzene (14DCLB)	LT 0.0009	LT 0.0009		0.0036	LT 0.0009	0.00052	LT 0.0009	LT 0.0009	LT 0.0009	LT 8.1
Acetone (ACET)	0.014	0.013		0.012	ND	ND	0.026	0.0078	ND	ND
Methylene chloride (CH2CL2)	LT 0.057	LT 0.0057		0.0091*	0.011*	0.0097*	0.011*	0.0068*	0.0099*	76*
Methylethyl ketone (MEK)							0.0074			
Semivolatile Organics:										
Unknowns	10*	24		0.32	1.5		3.8	0.34	0.69	5.5
Butylbenzyl phthalate (BBZP)					0.18					
Agent Breakdown Products:										
None detected										
Explosives: None detected				NA	NA	NA	NA	NA	NA	NA
Metals:				NA	NA	NA	NA	NA	NA	NA
Arsenic (As)	12	22	13	12	13	14	9.3	12	11	5.7
Beryllium (Be)	LT 0.16	LT 0.16	0.31	LT 0.78	LT 0.78	LT 0.78	LT 0.78	LT 0.78	LT 0.78	LT 0.34
Chromium (Cr)	14	16	17	LT 39	LT 39	LT 39	LT 39	LT 39	LT 39	5.6
Copper (Cu)	8.5	9.2	11*	LT 20	29	LT 20	LT 20	LT 20	LT 20	130
Lead (Pb)	10	11	13	22	34	14	17	11	13	17
Mercury (Hg)	LT 0.026	0.030	LT 0.026	0.046	0.13	LT 0.026	0.071	LT 0.026	LT 0.026	LT 0.57
Silver (Ag)	0.14	0.11	0.14	0.24	0.33	0.095	0.026	0.047	0.052	LT 0.32
Sodium (Na)	LT 100	LT 100	1100							33,000
Zinc (Zn)	35	37	46	LT 80	130	LT 80	110	LT 80	LT 80	410

1 Metals analysis only
* Detected in associated method blank
LT Less than
mg/l Microgram per liter
µg/g Microgram per gram

SOIL GAS (ppb)

Sample Number	11DCE	TCLEE	TRCLE	Toluene	Xylene	Benzene	Remarks
27-01	LT 5	LT 5	14	44	95	LT 5	
27-01[d]	LT 5	LT 5	LT 5	5.6	6.6	6.2	
27-02	LT 5	LT 5	LT 5	27	24	LT 5	
27-03	LT 5	LT 5	LT 5	42	61	LT 5	**
27-04	LT 5	LT 5	LT 5	LT 5	38	LT 5	
27-06	LT 5	LT 5	26	14	14	LT 5	
27-06[d]	LT 5	LT 5	26	13	33	LT 5	
27-08	LT 5	LT 5	LT 5	10	7.4	LT 5	
27-10	LT 5	LT 5	LT 5	14	28	LT 5	**
27-11	LT 5	LT 5	LT 5	LT 5	LT 5	LT 5	
27-12	LT 5	LT 5	LT 5	LT 5	LT 5	LT 5	
27-13	LT 5	LT 5	LT 5	LT 5	LT 5	LT 5	
27-14	LT 5	LT 5	LT 5	LT 5	LT 5	LT 5	
27-14[d]	LT 5	LT 5	LT 5	LT 5	LT 5	LT 5	

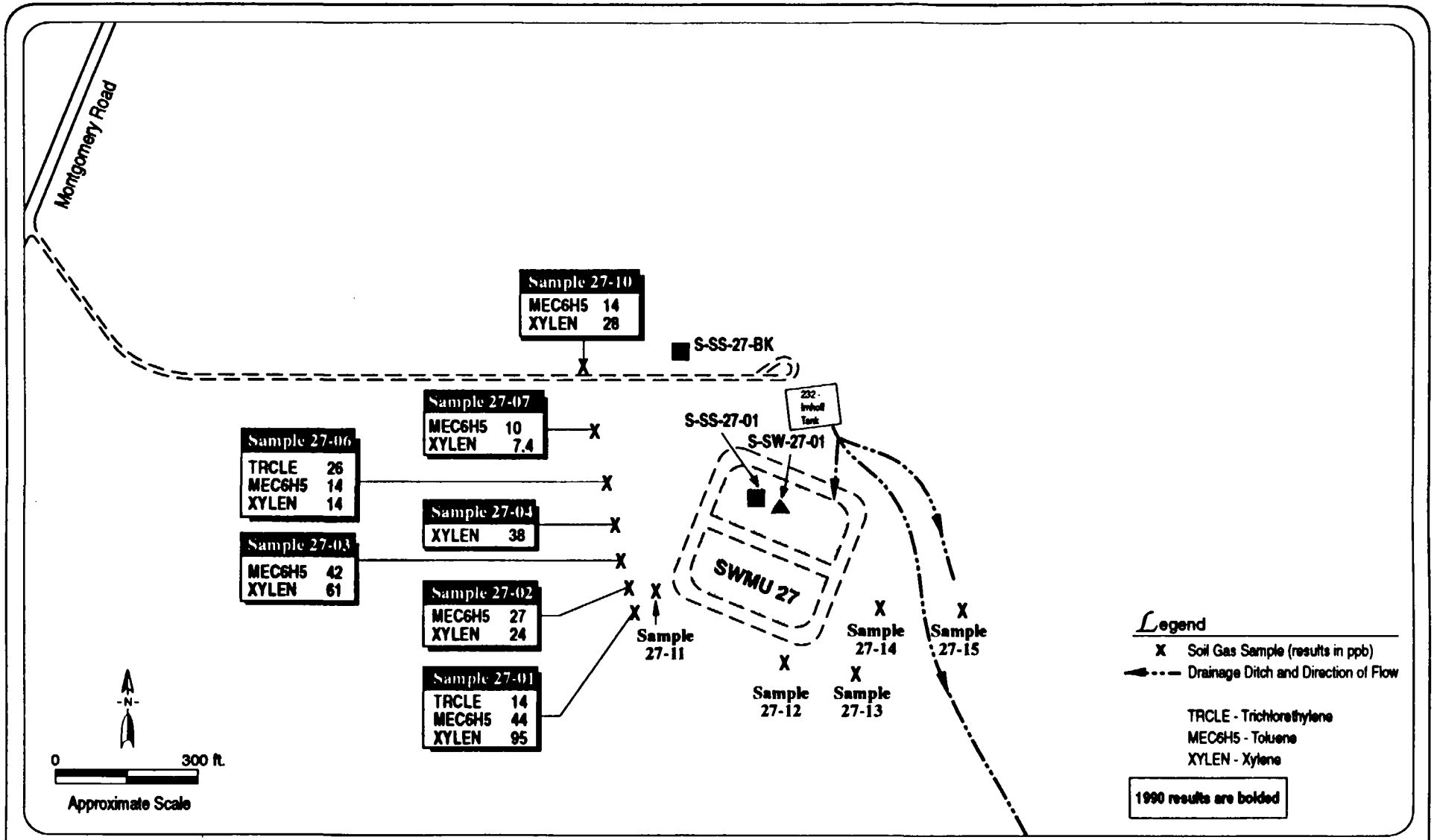
d Duplicate sample
ppb Parts per billion
11DCE 1,1 - Dichloroethane
TCLEE 1,1 - Tetrachloroethylene/tetrachloroethene
TRCLE Trichloroethylene
** Detection was a multipeak response indicative of a fuel product
LT Less than



Tooele Army Depot - South Area
Prepared by: Ebasco Services Incorporated

Figure 5.17-2
SWMU 27 - Sewage Treatment Plant Organics

EBASCO



Tooele Army Depot - South Area
Prepared by: Ebasco Services Incorporated

Figure 5.17-3
SWMU 27 - Sewage Treatment Plant
Soil Gas Detections

EBASCO