DATE: 12 July 01

TO: Greg Powell, U.S. EPA Work Assignment Manager

THROUGH: Steven A. Clapp, REAC Program Manager

FROM: Ken Woodruff, REAC Task Leader

SUBJECT: GEOPROBE CORING RESULTS - MILLS GAP ROAD
W.A. # 0-141, TRIP REPORT

PURPOSE

The purpose of this work assignment was to determine if a source of groundwater contamination, particularly volatile organic compounds (VOCs) and petroleum hydrocarbons, was present beneath the building at the Mills Gap Road Site. A soil boring and sampling program was carried out by staff of the Response Engineering and Analytical Contract (REAC) during the week of May 7, 2001. The work was initiated at the request of the United States Environmental Protection Agency/Environmental Response Team Center (U.S. EPA/ERTC) under Work Assignment No. 0-141.

BACKGROUND

The Mills Gap Road Site is located south of Asheville, North Carolina, just east of State Route 25A, near the town of Skyland. A large one-story building, used for electroplating operations from approximately 1964 to 1986, occupies a portion of the 57 acre site. Previous investigations at the site were conducted by U.S. EPA Region IV and the North Carolina Department of Environment and Natural Resources (NCDENR). The work by NCDENR identified two springs and one domestic well, all located topographically down-gradient from the site, that were contaminated mainly by trichloroethylene (TCE) and petroleum hydrocarbons.

In November 1999, personnel with the Superfund Technical Assessment and Response Team (START) for U.S. EPA Region IV conducted soil sampling at the site and found various concentrations of VOCs and semi-VOCs at some locations. In August 2000, REAC personnel searched for buried sources of contamination at and around the site using magnetic and electromagnetic geophysical techniques. The two springs ("Upper" and "Lower"), previously sampled by NCDENR, were also resampled. This was followed in September 2000 by excavation of several trenches in potential target areas identified both from the geophysical surveys and from observations of surface debris (Lockheed Martin/REAC, 2000). A large, below grade sump, located in the southwesterly corner of the building and nearly filled with water at the time, was also sampled and then pumped out. Laboratory results indicated that water from the Lower Spring contained approximately 11,000 micrograms/liter (µg/L) of TCE, small amounts of benzene and xylenes, and 16,000 µg/L of total petroleum hydrocarbons (TPHs). Water from the Upper Spring contained approximately 200,000 µg/L of TPHs and low amounts of TCE. However, none of the REAC investigations indicated an obvious contamination source outside of the site building. Therefore the emphasis shifted to locating possible sources directly beneath the building.

METHODS

A truck-mounted Geoprobe™, operated by an independent contractor, was used to advance and sample 10 borings through the concrete floor of the building and two borings outside of the building. Locations of the borings (Figure 1) were originally chosen at random, but as the work progressed, boring locations were refined, based on screening results from previous locations. Each location was continuously cored to refusal using four-foot long, two-inch diameter core barrels. A photoionization detector (PID) was used to screen both the hole and each core for organic vapors. Based on the PID readings, portions of selected cores were placed in 8-ounce glass jars, using dedicated stainless steel spoons, and submitted to the REAC Laboratories in Edison, New Jersey for analysis of VOCs, base neutral and acid extractable organic compounds (BNAs), TPHs, and fingerprint analyses of detected TPHs. Core sample BH-3, taken at 32-34 feet below ground surface (bgs) was also submitted to a contract laboratory for toxicity characteristic leaching procedure (TCLP) analysis of the VOCs. Following the completion of each boring, the hole was backfilled using bentonite pellets. Because a global positioning system (GPS) does not work inside buildings, boring locations were referenced to the building walls using a surveyor's tape.

RESULTS

Descriptions of the cores are given in Appendix A. In every case, the material underlying the building floor was weathered granitic gneiss, usually consisting of a heterogenous clayey silt with occasional quartz fragments. Relict structures were generally present and became more distinct with depth. Refusal occurred in most borings between 25 feet and 32 feet bgs. Two borings, BH-11 and BH-12, encountered refusal at 12 feet and 19 feet respectively. Cores were generally dry to depths of at least 20 to 25 feet bgs. Cores taken below 25 to 30 feet bgs were usually moist or saturated which suggests that the top of the water table occurs within the lower portion of the weathered zone or near the top of competent bedrock. Strong odors of organic compounds occurred in borings BH-1, BH-3, and BH-8 (Figure 1 and Appendix A). Odors were also noted in borings BH-4 and BH-9. Elevated PID readings were obtained on cores from all borings except BH-5 and BH-6, located in the northwestern corner of the building. The highest PID readings (350 ppm) were measured on cores from near the bottom of Boring BH-3. In general, the PID screening results reflected the results of the laboratory analyses for VOCs as discussed below.

The analytical results of the Geoporobe cores are summarized in Table 1 and the original analytical reports can be found in Appendix B. Elevated concentrations of both VOCs and BNAs were found in samples from BH-1, BH-2, BH-3, BH-11, and BH-12 (Figure 1). TCE was detected in all samples and generally had the highest concentrations of all the VOCs detected. The highest TCE concentration, 830,000 micrograms/kilogram (µg/kg), was found in the 32 to 34 foot depth sample from borehole BH-3 but concentrations were generally elevated throughout the borehole. The two cores from borehole 12, located outside of the building, exhibited TCE concentrations of 110,000 µg/kg and 140,000 µg/kg at 12 to16 feet bgs and 16 to 19 feet bgs respectively. Benzene compounds were also common, with concentrations generally averaging several thousand µg/kg in cores from boreholes BH-1, BH-3, and BH-12.

Of the BNAs present in the core samples, 2-methylnapthlene generally exhibited the highest concentration. The highest concentration of 2-methylnapthlene, 270,000 µg/kg, occurred in the 20 to 24 foot depth sample from borehole BH-1; elevated concentrations also occurred in boreholes BH-3 and BH-12. A variety of other BNAs, including napthlene and phenanthrene, were also present in boreholes BH-1, BH-3, and BH-12 at concentrations of several thousand µg/kg.

The core sample from borehole BH-3 at 32 to 34 feet bgs also contained the highest TPH concentration (16,000 µg/kg). TPHs were also found at lower concentrations in cores from boreholes BH-1, BH-2, BH-8, BH-11, and BH-12. A fingerprint analysis indicated that the petroleum hydrocarbons present were mainly #2 fuel oil, possibly diesel fuel. The oil was only slightly weathered, with minimal biodegredation. A trace of a heavier oil was also found in the core from BH-12 at 16 to 19 feet bgs.

Cores from borings located on the southern side of the building generally had the greatest number and highest concentrations of contaminants. These included borings BH-1, BH-2, BH-3, BH-8, BH-9, and BH-12 (Figure 1). Boring

BH-11 is also located on the southern side of the building, near borehole BH-1 but probably because of refusal at only 12 feet bgs, did not penetrate contaminated sediment. Boring BH-4 was located in the southwestern portion of the building and borings BH-5, BH-6, and BH-7 were located on the northern half of the building. Cores from these latter borings contained only small amounts of TCE. The data suggest that contaminants from the building originally migrated vertically downward beneath the building and then moved south to southeasterly through bedrock fractures or the overburden/bedrock contact. Boring BH-12, from which cores containing high TCE concentrations were recovered, is located outside of the building near the southeastern corner, between the building and the "Lower Spring".

The TCLP analysis resulted in a TCE value of 7.00 miligrams/liter (mg/L). The regulatory level for TCE is 0.5 mg/L (U.S. EPA, 1993).

CONCLUSIONS

A comparison of analytical results indicates that some of the same compounds are present in the soil cores, the spring water samples collected during the August 2000 site visit, and the soil samples collected from trenches excavated at the site in September 2000. TCE is common to all samples and was present in water samples from the "Lower Spring " at 11,000 µg/L. Xylenes and some benzenes were detected in both the "Upper Spring" and "Lower Spring", in some of the trench soil samples, and in many of the Geoprobe cores. Bis(2-ethylhexyl)phthalate, in relatively low concentrations, was common to both the trench samples and the Geoprobe cores. TPHs found in the "Upper Spring" water samples were also identified as #2 fuel oil during the August 2000 investigation but TPHs in water from the "Lower Spring" did not match standard fingerprint patterns. Because the fuel oil was relatively unweathered, it probably originated from a fairly recent spill. Table 1, from the Trip Report for the 2000 site investigations (Lockheed Martin, 2000), summarizes the previous analytical results and is attached as Appendix C.

Both the field and laboratory data collected during this site visit suggest that a source of VOCs and petroleum hydrocarbons remain in the soil and shallow bedrock beneath the building, probably as a result of previous leaks or spills. VOCs were detected both by field screening and laboratory analyses in soils beneath the building floor that set well above the range of water table fluctuations. Because the site is located on a relative topographic high, contaminants would move away from the site once they reached the water table within the fractured bedrock. The two springs sampled in the previous site visit are discharge points of the local water table.

FUTURE ACTIVITIES

No additional work is anticipated at this time.

REFERENCES

Lockheed Martin. 2000. Trip Report, Mills Gap Road, W.A. # 0-141. December 20, 2000.

United States Environmental Protection Agency. 1993. Technical Assistance Document for Complying with the TC Rule and Implementing the Toxicity Characteristic Leaching Procedure (TCLP). EPA 902-B-93-001, May 1993.

TABLE 1
ANALYTICAL RESULTS OF BORING SAMPLES
MILLS GAP ROAD SITE
SKYLAND, NORTH CAROLINA
JULY 2001
W.A. # 0-141

	SAMPLE LOCATION																	
	BH-1				BH-2	BH-3	BH-4	BH-5		BH-6	BH-7	BH-8		BH-9	BH-10	BH-11	BH-12	
DEPTH (feet bgs)	12-16	20-24	28-32	32-38	20-21	32-34	24-27	20-24	32-34	20-22	32-34	16-20	28-31.5	30-31	28-31	8-12	12-16	16-19
VOCs (ug/kg)																		
Bromomethane	U	U	U	U	U	U	U	U	U	U	U	U	91 J	U	U	U	U	U
Acetone	730 J	3,500 J	U	1000 J	U	U	3.7 J	U	6.1 J	8.3 J	6 J	220 J	170 J	U	1.6 J	8.7 J	U	U
1-1-Dichloroethene	U	U	U	U	U	U	U	U	U	U	U	U	72	U	U	U	U	U
2-Butanone	U	U	U	U	U	U	U	U	U	U	U	130 J	U	130	U	U	U	U
cis-1,2-Dichloroethene	U	U	U	U	U	U	U	1.4	U	U	U	U	U	U	U	U	U	U
1,1,1-Trichloroethane	1,300	4,200	U	1,300	310	11,000	U	U	U	U	U	U	U	87	U	U	9,200	15,000
Carbon Tetrachloride	U	U	U	U	U	1,500	U	U	U	U	U	U	U	U	U	U	1,200	2,300
Trichloroethene	280,000	400,000	170,000	110,000	14,000	830,000	5.8	18	24	52	120	3,000	5,700	900	40	6.1	110,000	140,000
1,1,2-Trichloroethane	U	U	U	U	U	U	U	U	U	U	1.9	U	U	U	U	U	U	U
Toluene	750	3,900	U	710	U	1,700	U	U	U	U	U	U	64	U	U	U	990	2,800
Tetrachloroethene	U	U	U	U	280	U	U	U	U	U	U	U	U	U	U	U	870	U
Ethylbenzene	2,400	6,400	U	1,200	210	2,800	U	U	U	U	U	140	U	47	U	U	1,900	4,200
p&m-xylene	1,100	3,500	5,700	2,100	580	13,000	U	U	U	U	U	430	U	170	U	U	4,800	12,000
o-xylene	3,900	11,000	3,700	2,200	400	12,000	U	U	U	U	U	370	U	97	U	U	3,100	7,400
Isopropylbenzene	1,800	3,800	U	870	300	4,100	U	U	U	U	U	110	U	31	U	U	1,100	2,500
n-propylbenzene	3,700	7,600	2,900	1,700	770	7,100	U	U	U	U	U	300	U	69	U	U	2,200	4,800
1,3,5-Trimethylbenzene	6,600	13,000	4,200	2,900	1,600	11,000	U	U	U	U	U	730	U	160	U	U	4,600	8,600
2-Chlorotoluene	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	540	U
1,2,4-Trimethylbenzene	5,400	8,800	14,000	6,600	4,100	36,000	U	U	U	U	U	1,900	U	430	U	U	9,100	25,000
sec-butylbenzene	2,900	5,900	U	1,400	930	6,200	U	U	U	U	U	250	U	60	U	U	1,900	4,000
p-Isopropyltoluene	1,800	3,500	U	920	660	3,900	U	U	U	U	U	170	U	46	U	U	1,500	2,500
n-Butylbenzene	5,400	10,000	3,700	2,600	2,000	9,900	U	U	U	U	U	670	U	U	U	U	3,400	6,600
Hexachlorobutadiene	U	U	U	U	U	U	U	U	U	U	U	U	280	U	U	U	U	U
Napthalene	6,200	11,000	14,000	8,600	4,800	33,000	U	U	U	U	U	1,500	72	470	U	U	U	20,000
BNAs (ug/kg)																		
Isophorone	U	U	U	620 J	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Napthalene	6,000 J	21,000	120,000	3,400	1,400	26,000	U	U	U	U	U	820 J	U	2,000 J	U	U	2,500 J	17,000 J
2-Methylnaphthalene	69,000	270,000	88,000	38,000	17,000	160,000	U	U	U	U	U	14,000	560	14,000	U	U	20,000	130,000
Acenaphthene	U	U	U	1,600 J	U	6,800	U	U	U	U	U	560 J	U	U	U	U	U	2,200 J
Dibenzofuran	2,500 J	8,900 J	2,800 J	1,500 J	720 J	5,100	U	U	U	U	U	U	U	540 J	U	U	U	4,100 J
Fluorene	U	10,000 J	6,900 J	2,400 J	1,300 J	12,000	U	U	U	U	U	630 J	68 J	1,300 J	U	U	1,800 J	9,600 J
N-nitrosodiphenylamine	3,200	16,000 J	6,800 J	3,800 J	1,700 J	U	U	U	U	U	U	1,000 J	110 J	U	U	U	U	U
Phenanthrene	11,000 J	44,000	15,000 J	8,200	3,700 J	24,000	U	U	U	U	U	3,100 J	330 J	2,300 J	U	U	5,900	22,000
Anthracene	U	3,000 J	U	U	U	1,800 J	U	U	U	U	U	U	U	U	U	U	U	U
Fluoranthene	U	U	U	U	U	470 J	U	U	U	U	U	U	U	U	U	U	U	U
Pyrene	U	2,800 J	U	580 J	U	2,100 J	U	U	U	U	U	U	U	U	U	U	440 J	U
Bis(2-ethylhexyl)phthalate	110 J	2,600 J	U	620 J	630 J	U	490	96 J	65 J	63 J	140 J	U	41 J	U	160 J	53 J	U	U
TPHs (ug/kg)	6,700	NA	NA	NA	4,000	16,000	U	U	U	NA	U	NA	280	2,000	U	420	NA	3,700

ug/kg = micrograms/kilogram
J = below method detection limits
NA = not analyzed
U = not detected
bgs = below ground surface

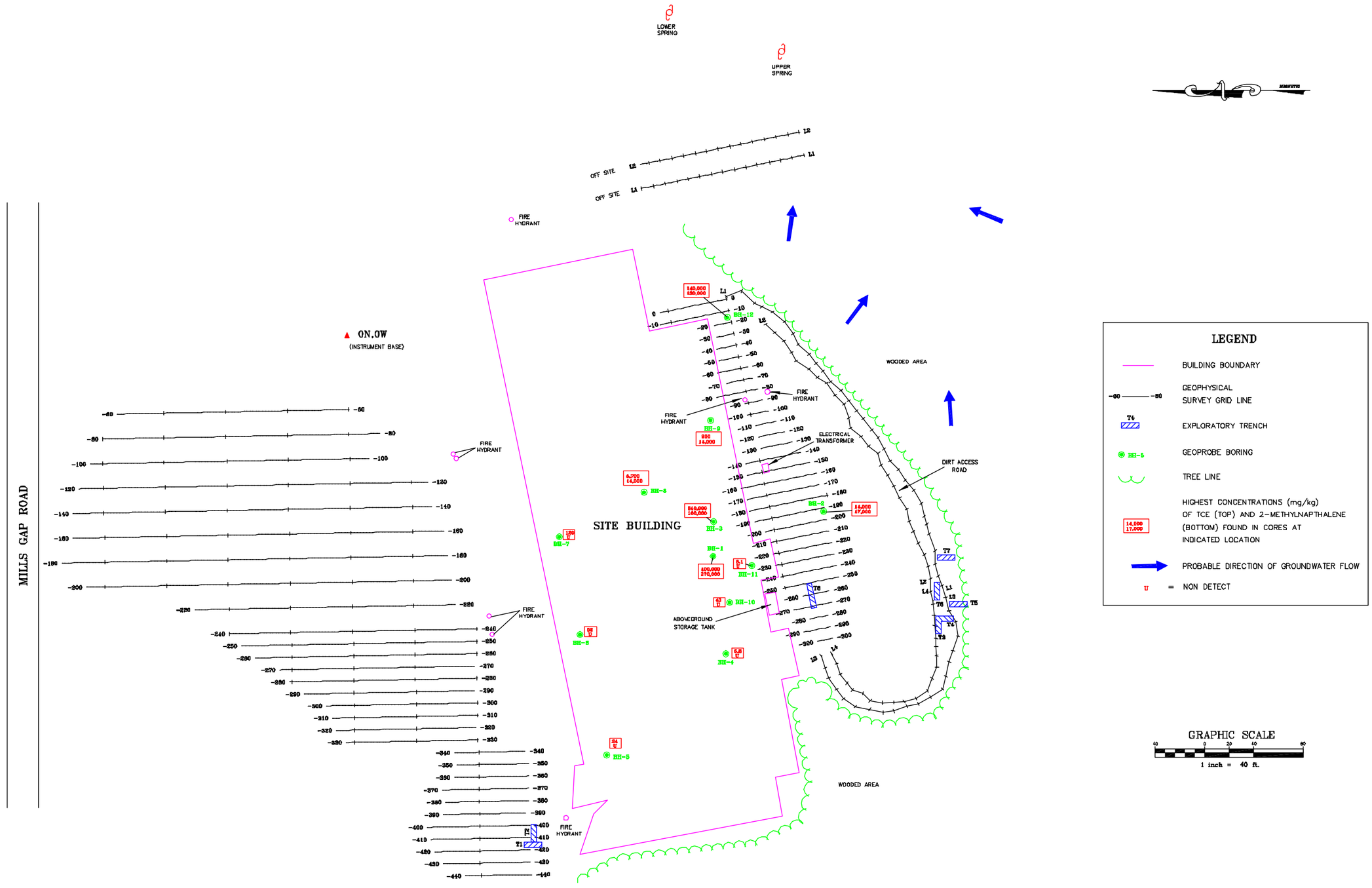

FIGURE 1
SITE MAP SHOWING BORING LOCATIONS AND SELECTED ANALYTICAL RESULTS
MILLS GAP ROAD SITE
SKYLAND, NORTH CAROLINA
JULY 2001

U.S. EPA ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C01-029
WA# 0245

07/05/01

141/141-FIG1.DWG

APPENDIX A
GEOPROBE BORING LOGS
MILLS GAP ROAD SITE
SKYLAND, NORTH CAROLINA
JULY 2001

APPENDIX B

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GEOPROBE BORING LOGS
MILLS GAP ROAD SITE
SKYLAND, NORTH CAROLINA
JULY 2001

Boring BH-1
Depth in feet

0-4: 4-inch thick concrete floor underlain by silt, brown, micaceous, dry (saprolite)

4-8: silt, brown, micaceous, dry

8-12: same as 4-8 feet, dry

12-16: same as 4-8 but with strong odor like paint thinner, becoming clayey near bottom of core

16-20: fine silt, brown, dry, strong odor

20-24: silt, brown, some relict structures, weathered minerals (hornblende?), strong odor. Sampled.

24-28: same as 20-24 feet with banded structure, badly weathered granitic gneiss (?), strong odor, dry.

28-32: Strongly weathered bedrock, brown, wet, sheen, strong odor, silty, micaceous. Sampled
Refusal

Boring BH-2

0-4: 4-inch thick concrete slab underlain by silt, brown, micaceous, dry (saprolite)

4-8: silt, brown, dry, micaceous, HNU = 0 on core

8-12: silt, brown to gray, wet, HNU = 5 ppm on core

12-16: same as 8-12 feet. HNU = 10 ppm on core

16-20: weathered micaceous bedrock, HNU = 6 ppm on core

20-21: same as 16-20 feet.
Refusal

Boring BH-3

0-4: 4 to 6 inches of concrete underlain by silt, brown, dry, micaceous, HNU = 3 ppm on core

4-8: silt, brown to gray interbeds, dry, HNU = 10 ppm on core

8-12: silt, brown, dry. HNU = 40 ppm on core

12-16: same as 8-12 feet, HNU = 60 ppm on core

16-20: same as 8-12 feet, strong odor, HNU = 100 ppm on core

20-24: same as 8-12 feet, wet, strong odor, HNU = 100 ppm on core

24-28: same as 8-`2 feet, strong odor, HNU = 300 ppm on core, slight sheen

28-32: same as 8-12 feet, with angular quartz fragments, wet, HNU = 350 ppm on core
Refusal

Boring BH-4

0-4: 4-inch thick concrete floor, underlain by silt, brown, micaceous, dry, HNU = 10-15 ppm on core

4-8: silt, brown, micaceous, dry, HNU = 20-30 ppm on core

8-12: same as 4-8 feet, HNU = 40 ppm on core

12-16: same as 4-8 feet, but with quartz fragments near bottom of core, some odor, HNU = 30-50 ppm on core

16-20: same as 4-8 feet, relict structure, dry, HNU = 50-60 ppm on core

20-24: same lithology as 4-8 feet with banded relict structures, wet, HNU = 40 ppm on core

24-27: Strongly weathered bedrock (granitic gneiss?), wet, HNU = 2-4 ppm on core
Refusal

Borehole BH-5

0-4: 4-inch thick concrete floor, underlain by silt, brown, micaceous, dry

4-8: silt, reddish-brown, slightly clayey, micaceous, dry

8-12: same as 4-8 feet

12-16: same as 4-8 feet

16-20: same as 4-8 feet

20-24: same as 4-8 feet, with weathered feldspars, dry, no odor, sampled

24-28: same as 4-8 feet, with relict structures, dry, no odor

28-32: same as 4-8 feet, but slightly moist. Rig operator indicates probable water table at about 32 feet bgs

32-34: Silt, reddish brown, clayey, micaceous, with relict structures, moist, sampled
Refusal. No HNU above background on any cores.

Boring BH-6

0-4: 4-inch thick concrete floor, underlain by silt, brown, micaceous, dry

4-8: silt, reddish-brown, slightly clayey, micaceous, dry

8-12: same as 4-8 feet

12-16: same as 4-8 feet

16-20: same as 4-8 feet, dry

20-22: silt, brown, micaceous, clayey, dry, sampled
Refusal. No HNU above background on any cores

Boring BH-7

0-4: 4-inch thick concrete floor, underlain by silt, brown, micaceous, dry

4-8: silt, reddish-brown, micaceous, dry, with a few quartz fragments

8-12: same as 4-8 feet

12-16: same as 4-8 feet

16-20: same as 4-8 feet, dry, HNU = 1-2 ppm on core

20-24: same as 4-8 feet with relict structures, dry

24-28: same as 4-8 feet, slightly more compact, faint relict structures

28-32: same as 24-28 feet, HNU = 7 ppm on core

32-34: silt, reddish-brown, micaceous, faint relict structures, wet, HNU = 18-50 ppm on core, sampled
Refusal

Boring BH-8

0-4: 4-inch thick concrete floor, underlain by silt, brown, micaceous, dry, HNU = 45 ppm in hole

4-8: silt, reddish-brown, micaceous, dry, no odor, HNU = 25-30 ppm on core

8-12: same as 4-8 feet. HNU = 10-40 ppm on core, 5 ppm at top of hole, 0 ppm in breathing zone

12-16: same as 4-8 feet, HNU = 70-80 ppm on core, slight odor

16-20: same as 4-8 feet, dry, HNU = 150 ppm on core, strong odor, sampled

20-24: same as 4-8 feet, dry. HNU = 100 ppm on core, 0 ppm in breathing zone, strong odor

24-28: same as 4-8 feet, moist, some relict structures, HNU = 150 ppm on core

28-31.5: same as 4-8 feet, with relict structures, wet, odor, HNU = 130 ppm on core, sampled
Refusal

Boring BH-9

0-4: 4-inch thick concrete floor, underlain by silt, brown, micaceous, dry

4-8: silt, reddish-brown, dry, with quartz fragments, HNU = 1 ppm on core

8-12: same as 4-8 feet, with weathered feldspars, HNU = 1 ppm on core

12-16: Strongly weathered bedrock (granitic gneiss ?), clayey silt, reddish-brown

16-20: silt, born, micaceous, dry, with relict structures and quartz fragments, HNU = 10 ppm at bottom of core

20-24: weathered bedrock with relict structures, HNU = 30 ppm on core

24-28: same as 20-24 feet, dry, HNU = 5-10 ppm on core

28-30: same as 20-24 feet, HNU = 100 ppm on core, odor

30-31: same as 20 -24 feet, slightly moist, HNU = 40 ppm on core, odor
Refusal

Boring BH-10

0-4: 4-inch thick concrete floor, underlain by silt, brown, micaceous, dry, HNU = 20-30 ppm on core

4-8: silt, brown, micaceous, clayey, dry, HNU = 40 ppm on core

8-12: same as 4-8 feet. HNU = 40 ppm on core, 0 ppm in breathing zone

12-16 same as 4-8 feet, with relict structures, HNU = 40 ppm on core

16-20: same as 4-8, with relict structures, HNU = 40-60 ppm at bottom of core

20-24: silt, brown, micaceous, slightly wet, with some relict stuctures, HNU = 30-50 ppm

24-28: same as 20-24 feet, HNU = 30 ppm on core

28-31: same as 20-24 feet, wet, HNU = 5 ppm on core, sampled
Refusal

Boring BH-11

0-4: 4-inch thick concrete floor, underlain by silt, brown, micaceous, dry, HNU = 60 ppm on core

4-8: silt, brown, micaceous, dry, HNU = 30 ppm on core

8-12: same as 4-8 feet, dry, HNU = 30-70 ppm on core
Refusal (boulder ?)

Boring BH-12

0-4: 2-inch thick blacktop layer underlain by silt, brown, micaceous, dry, HNU = 0 ppm on core

4-8: silt, brown, micaceous, dry, HNU = 0 ppm on core

8-12: same as 4-8 feet, HNU = 7 ppm on core

12-16: same as 4-8 feet, HNU = 50-60 ppm on core, sampled

16-19: weathered bedrock (silt) grading downward to moderately weathered granitic gneiss, odor, HNU = 150-160 ppm at bottom of core.

LABORATORY ANALYTICAL REPORTS
MILLS GAP ROAD SITE
SKYLAND, NORTH CAROLINA
JULY 2001

APPENDIX C
TABLE 1 - DECEMBER 20, 2000 TRIP REPORT
MILLS GAP ROAD SITE
SKYLAND, NORTH CAROLINA

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Lockheed Martin Technology Services
Environmental Services REAC
2890 Woodbridge Avenue Building 209 Annex
Edison, NJ 08837-3679
Telephone 732-321-4200 Facsimile 732-494-4021

LOCKHEED MARTIN

DATE: 11 July 2001

TO: R. Singhvi EPA/ERTC

FROM: D. Miller Analytical Section Leader

SUBJECT: DOCUMENT TRANSMITTAL UNDER WORK ASSIGNMENT # 0-141

Attached please find the following document prepared under this work assignment:

Mills Gap Road - Analytical Report

Central File WA # 0-141	(w/attachment)
G. Powell	Work Assignment Manager (w/attachment)
K. Woodruff	Task Leader (w/attachment)
J. Soroka	Data Validation and Report Writing Group Leader (w/o attachment)

ANALYTICAL REPORT

Prepared by
LOCKHEED MARTIN

Mills Gap Road Site
Skyland, NC

July 2001

EPA Work Assignment No.0-141
LOCKHEED MARTIN Work Order No. R1A00141
EPA Contract No. 68-C99-223

Submitted to
G. Powell
EPA-ERTC

K. Woodruff — 7/10/01
K. Woodruff, Date
Task Leader

D. Miller — 7/10/01
D. Miller, Date
Analytical Section Leader

S. Clapp — 7/11/01
S. Clapp, Date
Program Manager

Analysis by:
REAC
Accutest

Prepared by:
M. Bernick

Reviewed by:
J. Soroka

Table of Contents

Appendices will be furnished on request.

Introduction

REAC in response to WA #0-141, provided analytical support for environmental samples collected from the Mills Gap Road Site, located in Skyland, NC as described in the following table. The support also included QA/QC, data review, and preparation of an analytical report containing a summary of the analytical methods, the results, and the QA/QC results.

The samples were treated with procedures consistent with those described in SOP #1008.

COC #	Number of Samples	Sampling Date	Date Received	Matrix	Analysis	Laboratory	REAC Data Package Number
00472	1	5/8/01	5/22/01	Soil	TCLP Volatiles	Accutest	K149
00453	3	5/7/01	5/9/01		VOC & BNA	REAC	K135 K148 K133
	1				VOC, BNA & TPH		
	5	5/8/01					
	2				VOC & BNA		
00454	3		5/10/01		VOC, BNA & TPH		
	5	5/9/01					
	1				VOC & BNA		

Case Narrative

The data contained in this report has been validated to two significant figures. Any other interpretation of the data is the responsibility of the user. No results less than 25 percent of the MDL are reported.

Data Package K133 - VOC

The relative standard deviation (RSD) exceeded the QC limits in the initial calibration on 05/4/01 for vinyl chloride (80%) and naphthalene (37%). The vinyl chloride results for soil blanks 050901, 051101 and 051401, methanol blanks 050901, 0501001, 051101and 051401, samples 23741 through 23747, 26510, 26511, 27025, 27027, 27028, 27037 through 27044 are considered estimated.

The percent difference exceeded the QC limits in the continuing calibration on 05/14/01 for 1,1-dichloroethene (29). This compound was not detected in the associated samples; the data are not affected.

Data Package K135 - BNA

Soil Blank 050901 contained 110µg/kg bis (2-ethlyhexyl) phthalate. The bis (2-ethlyhexyl) phthalate results for sample 27037A is considered not detected because the concentration in the sample is less than ten times the concentration in the blank.

In the soil initial calibration on 5/04/01, the percent relative standard deviation for hexachlorocyclopentadiene (34%) exceeded the QC limits. This compound was not detected in the associated samples; the data are not affected.

The following samples had 1 base-neutral and/or 1 acid surrogate percent recovery or spectra criteria exceeded QC limits: 27025A, 27043A, 23741A, 23742A, 23741AMSD, 23745A; the data are not affected.

The following samples had 1 acid surrogate percent recovery or spectra criteria exceeded QC limits: 27044A,

27028A, and 23746A; the data are not affected. The following samples had 2 or more base-neutral surrogate percent recovery or spectra criteria exceeded QC limits: 27044A, 27028A, 27039A and 23746A; all base-neutral compounds are considered estimated.

Data Package K148 - TPH

All the samples except the MS/MSD and BS/BSD were extracted using the BNA extraction method, with the extracts being analyzed for TPH after the BNA analysis. The extraction procedure for BNA and oil/TPH are identical, except for the surrogates spiked. No "oil/TPH" surrogates were spiked in the samples to prevent interference with the BNA analysis. The BNA surrogate and internal standards do not interfere with the TPH analysis. After the BNA analysis, the oil internal standards were added to the extract to quantify TPH results.

Sample screening prior to MS/MSD and BS/BSD extraction determined that the oil in the samples was #2 fuel oil or possibly diesel fuel for calibration and spike purposes. As an additional measure of QA, a BS/BSD and a MS/MSD (sample 23744A) were spiked with #2 fuel oil and a surrogate mixture, extracted and analyzed for TPH. In the professional judgement of the data validator the sample data is acceptable without surrogate analysis based on the percent recoveries for the BS/BSD (87%/94%) and MS/MSD (95%/95%) and their surrogate recoveries (ranged from 62 to 101%).

According to the Analyst: "The oil detected in some of the samples was identified as a #2 fuel oil, possibly diesel fuel. The TPH fingerprint indicates that the oil is relatively fresh and mildly weathered. There is minimal loss of the light hydrocarbons from evaporation, and based on observing the C17/Pristane and C18/phytane ratios, the saturated hydrocarbons have undergone minimal biodegredation. The samples that contained oil were contaminated by the same type or source of oil except sample 23746. This sample contained a trace of a heavier oil, such as #6 oil or possibly motor oil; this had no effect on the TPH results and is just an observation reported by the analyst."

Data Package K149 - TCLP-VOC

At the request of the Work Assignment Manager sample 23742 was sent on 5/22/01, 14 days after sampling, to the subcontracted lab for TCLP-VOC analysis. The subcontracted lab received the sample on 5/22/01 and performed the TCLP extraction on 5/24/01 exceeding the holding time criteria by two days. All results are estimated and considered minimal concentrations.

Summary of Abbreviations

AA	Atomic Absorption
B	The analyte was found in the blank
BFB	Bromofluorobenzene
C	Centigrade
cont.	Continued
D	(Surrogate Table) this value is from a diluted sample and was not calculated (Result Table) this result was obtained from a diluted sample
Dioxin	denotes Polychlorinated Dibenzo-p-dioxins and Polychlorinated Dibenzofurans and/or PCDD and PCDF
CLP	Contract Laboratory Protocol
COC	Chain of Custody
CONC	Concentration
CRDL	Contract Required Detection Limit
CRQL	Contract Required Quantitation Limit
DFTPP	Decafluorotriphenylphosphine
DL	Detection Limit
E	The value is greater than the highest linear standard and is estimated
EMPC	Estimated maximum possible concentration
ICAP	Inductively Coupled Argon Plasma
ISTD	Internal Standard
J	The value is below the method detection limit and is estimated
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MDL	Method Detection Limit
MI	Matrix Interference
MS (BS)	Matrix Spike (Blank Spike)
MSD (BSD)	Matrix Spike Duplicate (Blank Spike Duplicate)
MW	Molecular Weight
NA	either Not Applicable or Not Available
NC	Not Calculated
NR	Not Requested
NS	Not Spiked
% D	Percent Difference
% REC	Percent Recovery
PPB	Parts per billion
PPBV	Parts per billion by volume
PPMV	Parts per million by volume
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
QL	Quantitation Limit
RPD	Relative Percent Difference
RSD	Relative Standard Deviation
SIM	Selected Ion Monitoring
TCLP	Toxic Characteristics Leaching Procedure
U	Denotes not detected
W	Weathered analyte; the results should be regarded as estimated

m^3	cubic meter	kg	kilogram	μg	microgram
L	liter	g	gram	pg	picogram
mL	milliliter	mg	milligram	ng	nanogram
μL	microliter				

*	denotes a value that exceeds the acceptable QC limit
	Abbreviations that are specific to a particular table are explained in footnotes on that table

Revision 2/15/00

Analytical Procedure for VOC in Soil

A modified 524.2 method was used for the analysis of Volatile Organic Compounds in soil. Samples were purged, trapped, and desorbed to a GC/MS system. Prior to purging, the samples were spiked with a three component surrogate mixture consisting of toluene-d_8, 4-bromofluorobenzene and 1,2-dichloroethane-d_4 and a three component internal standard mixture consisting of bromochloromethane, 1,4-difluorobenzene, and chlorobenzene-d_5. The following conditions and parameters were utilized:

The purge and trap unit consisted of: A Tekmar concentrator (3000 series) equipped with an Archon autosampler (Dynateck Corp.) and a VOCARB 3000 trap (Supelco).
The purge and trap instrument conditions were:

Purge	10 min at 35° C
Dry Purge	2 min at 35° C
Desorb Preheat	245° C
Desorb	4 min at 250° C
Purge Flow Rate	40 mL/min
Bake	10 min at 260° C

A Hewlett Packard 5973 GC/MSD equipped with an HP Chem Station data system was used to analyze the data.

The instrument conditions were:

Column:	30 meter x 0.25 mm ID, RTx-Volatiles (Restek Corp.) column with 3.0 µm film thickness.
Temperature:	4 min at 40° C 9° C/min to 165° C, hold for 2 min. 12° C/min to 220° C, hold for 7 min.
Flow Rate	Helium at 1.0 mL/min.
GC/MS Interface	Capillary direct with 1 mL/min helium carrier gas at 250° C.
Mass Spectrometer:	Electron Impact Ionization at a nominal electron energy of 70 electron volts, scanning from 35-300 amu at one scan/sec.

Computer: Preprogrammed to plot Extracted Ion Current Profile (EICP); capable of integrating ions and plotting abundances vs time or scan number. A library search (NBS-Wiley) for tentatively identified compounds was performed on samples.

The GC/MS system was calibrated using 6 VOC standards at 5, 20, 50, 100, 150, and 200 µg/L. (Exception was acetone, calibrated using 5 VOC standards-20, 50, 100, 150 and 200 µg/L) Before analysis each day, the system was tuned with 50-ng BFB and passed a continuing calibration check when analyzing a 50 µg/L standard mixture in which the responses were evaluated by comparison to the average responses of the calibration curve.

The results are in Table 1.1; the tentatively identified compounds are listed in Table 1.2.

The concentrations of the analytes analyzed by the low level method of 5.0 g soil in 5.0 mL of water were calculated using the following equation:

$$C_u = \frac{A_x \times I_{is}}{A_{is} \times RF \text{ (or } RF_{ave}) \times D}$$

where:
- C_u = Concentration of target analyte (µg/kg) on a dry weight basis if D is used
- A_x = Area of the target analyte
- I_{is} = Concentration of specific internal standard in the volume purged (ug/L)
- A_{is} = Area of the specific internal standard
- RF = Response Factor
- RF_{ave} = average Response Factor
- D = Decimal percent solids

The concentrations of the analytes analyzed by the medium level method of extracting 5.0 g soil with 5 mL methanol and diluting an aliquot with 5.0 mL prior to analysis, were calculated using the following equation:

$$C_u = \frac{A_x \times I_{is} \times 5.0 \text{ (Nominal Method Mass)}}{A_{is} \times RF \text{ (or } RF_{ave}) \times W_s \times D}$$

where:
- C_u = Concentration of target analyte (µg/kg) on a dry weight basis if D is used
- A_x = Area of the target analyte
- I_{is} = Concentration of specific internal standard in the volume purged (ug/L)
- A_{is} = Area of the specific internal standard
- RF = Response Factor
- RF_{ave} = average Response Factor
- W_s = Mass of sample (g) purged
- D = Decimal percent solids

The average Response Factor is used when a sample is associated with an initial calibration curve. The Response Factor is used when a sample is associated with a continuing calibration curve. Response Factor calculation:

The response factor (RF) for each specific analyte quantitated is based on the area response from the continuing calibration check as follows:

$$RF = \frac{A_c \times I_{is}'}{A_{is}' \times I_c}$$

where,

- RF = Response factor for a specific analyte
- A_c = Area of the analyte in the standard
- I_{is}' = Concentration of the specific internal standard
- A_{is}' = Area of the specific internal standard
- I_c = Concentration of the analyte in the standard

$$RF_{ave} = \frac{RF_1 + \ldots + RF_n}{n}$$ and n = number of Standards

Revision of 06/25/01

Analytical Procedure for BNA in Soil

Extraction Procedure

Prior to extraction each sample was spiked with a six component surrogate mixture consisting of nitrobenzene-d_5, 2-fluorobiphenyl, terphenyl-d_{14}, phenol-d_5, 2-fluorophenol, and 2,4,6-tribromophenol. Thirty grams of sample was mixed with 30 g anhydrous sodium sulfate, and Soxhlet extracted for 16 hours with 300 mL of methylene chloride. The extract was concentrated from 1 to 5 mL, an internal standard mixture consisting of 1,4-dichlorobenzene-d_4, naphthalene-d_8, acenaphthene-d_{10}, phenanthrene-d_{10}, chrysene-d_{12}, and perylene-d_{12} was added, and analyzed.

Analysis Procedure

An HP 6890/5972 Gas Chromatograph/Mass Spectrometer (GC/MS), equipped with a 6890 autosampler and controlled by a PC computer equipped with Enviroquant software was used to analyze the samples.

The instrument conditions were:

Column	Restek Rtx-5 (crossbonded SE-54) 30 meter x 0.25mm ID, 0.50 µm film thickness
Injection Temperature	280° C
Transfer Temperature	280° C
Source Temperature & Analyzer Temperature	Controlled by thermal transfer of heat from transfer line
Temperature Program	50°C for 0.5 min 20° C/min to 295° C, hold for 8.5 min 25° C/min to 310° C, hold for 8 min
Pulsed Split Injection	Split time = 2.00 min @ 8:1 split ratio Pressure pulse = 16 psi for 0.5 min, then normal
Injection Volume	1µL Must use 4 mm ID single gooseneck liners packed with 10 mm plug of silanized & conditioned glass wool.

The GC/MS system was calibrated using 5 BNA standards at 20, 50, 80, 120, and 160 µg/mL. Before analysis each day, the system was tuned with 50 ng decafluorotriphenylphosphine (DFTPP) and passed a continuing calibration check when analysing a 50 µg/mL standard mixture in which the responses were evaluated by comparison to the average response of the calibration curve.

The BNA soil results, based on dry weight, are listed in Table 1.3; the tentatively identified compounds are listed in Table 1.4. The concentration of the detected compounds was calculated using the following equation:

$$C_u = \frac{DF x A_u x I_{is} x V_t}{A_{is} x RF(\ or RF_{ave}) x V_i x W x D}$$

where

C_u	=	Concentration of target analyte (µg/kg)
DF	=	Dilution Factor
A_u	=	Area of target analyte
I_{is}	=	Mass of specific internal standard (ng)
V_t	=	Final volume of extract (µL)
A_{is}	=	Area of specific internal standard
RF	=	Response Factor (unitless)
RF_{ave}	=	average Response Factor
V_i	=	Volume of extract injected (µL)
W	=	Weight of sample (g) extracted
D	=	Decimal per cent solids

The RF_{ave} is used when a sample is associated with an initial calibration curve. The RF is used when a sample is associated with a continuing calibration.

Response Factor calculation:

The RF for each specific analyte is quantitated based on the area response from the continuing calibration check as follows:

$$RF = \frac{A_c\ x\ I_{is}}{A_{is}\ x\ I_c}$$

where

RF	=	Response factor for a specific analyte
A_c	=	Area of the analyte in the standard
I_{is}	=	Mass of the specific internal standard
A_{is}	=	Area of the specific internal standard
I_c	=	Mass of the analyte in the standard

$$RF_{ave} = \frac{RF_1 + \ldots + RF_n}{n}$$

and

n = number of Samples

Revision of 3/9/00

Analytical Procedure for TPH (as #2 Fuel Oil) in Soil

Extraction Procedure

All samples were extracted according to the BNA SOP except for the BS/BSD and MS/MSD pairs. These samples were extracted using the oil in soil extraction procedures; the extraction technique for BNA and oil are identical except for the surrogates spiked. The samples were concentrated to a final volume of 1.0 mL. After the BNA analysis and prior to the TPH analysis, 20µL of a 500 ppm solution of oil internal standard mix is added to the 1 mL BNA extract. The internal standard solution contains: phenanthrene-d_{10}, chrysene-d_{12}, and perylene-d_{12}, tetradecane-d_{30} and tetracosane-d_{50}

Extraction Procedure (BS/BSD and MS/MSD)

Prior to extraction each sample was spiked with 500µL of a 400µg/mL surrogate mixture containing anthracene-d_{10}, 5a-androstane, and triacontane-d62. Thirty grams of sample was mixed with sufficient anhydrous sodium sulfate, and Soxhlet extracted for 16 hours and then concentrated to a final volume of 10 mL. The BS/BSD and MS/MSD samples were spiked with a 1.0 mL of a 10,000 ppm #2 fuel oil mixture before extraction. Prior to analysis, 20µL of a 500 µg/mL solution of internal standard mix is added to a 1.0 mL aliquot used for the analysis. The internal standard solution contains: phenanthrene-d_{10}, chrysene-d_{12}, and perylene-d_{12}, tetradecane-d_{30} and tetracosane-d_{50} .

Analytical Procedure

This method is a modification of SW-846 Method 8015B Non Halogenated Hydrocarbons Using GC/FID. The GC/FID method has been modified so that the analysis can be completed on a GC/MS system. The GC/MS method follows the performance based REAC method outlined in "Procedures for the Extraction and Analysis of Oil as Source Oil, and Oil found in Aqueous and Solid Matrices". The TPH area for each sample is obtained by generating an extracted ion chromatogram of the hydrocarbon ions of m/z 83 and m/z 85 then integrating the area of all the peaks including the oil "hump". The TPH area is calculated as the sum of these two areas. Ion 83 and ion 85 represent two different classes of TPH compounds which account for most of the TPH in oil. The response factor is calculated using the internal standard method, using the area of the sum of two hydrocarbon internal standards tetradecane-d30 and tetracosane-d50.

A HP6890/5972 Gas Chromatograph/Mass Spectrometer (GC/MS), equipped with a 6890 autosampler controlled by a PC Computer equipped with HP Enviroquant Software computer was used to analyze the samples. This is a Selective Ion Monitoring (SIM) analysis run at +250 volts above the tune value.

The instrument conditions were:	
Column	Restek Rtx-5 (crossbonded SE-54) 30 meter x 0.25mm ID, 0.50 µm film thickness
Injection Temperature	290° C
Transfer Temperature	290° C
Temperature Program	50°C for 3 min 10°C/min to 295° C, hold for 10 min 25°C/min to 305° C, hold for 27 min
Splitless Injection	Split time = 0.75 min
Injection Volume	1 µL
Electron Multiplier	+200 EMV above tune

The GC/MS system was calibrated for TPH using five #2 fuel oil standards at 500, 5000, 10000, 25000, and 50000 µg/mL. The oil should be a similar product, or ideally obtained from the site to calculate the proper TPH response factor. In this case, the samples were screened before extraction to determine the contaminating oil. The system is also calibrated with a saturated hydrocarbon standard (SHC) which included the oil surrogates at 1.0, 5.0, 10, 25 and 50 µg/mL. Before analysis each day, the system was tuned with 50 ng decafluorotriphenylphosphine (DFTPP) in the linear scan mode, and then must pass two calibration check standards: One being a TPH standard at 10000 µg/mL and the other a standard mixture of saturated hydrocarbons which contained the surrogate compounds at 10.0 µg/mL each. The responses of each calibration check were evaluated by comparison to the average response of the calibration curve.

The TPH as #2 fuel oil concentration is calculated using the sum of all the peaks in the extracted ion chromatogram using the TPH ions m/z 83 and m/z 85. The TPH as #2 fuel oil results are listed in Table 1.5 and reported as mg/kg in the soil based on dry weight.. The concentration of the TPH was calculated using the following equation:

$$C_u = \frac{DF x A_u x I_{is} x V_t}{A_{is} x RF (or RF_{ave}) x V_i x V_o}$$

where: C_u = Concentration of target analyte (mg/kg)
DF = Dilution Factor
A_u = Area of target analyte: Sum of ion 83 & 85 for TPH
I_{is} = Mass of specific internal standard (ng)
V_t = Volume of extract (µL)
A_{is} = Area of specific internal standard. TPH uses the sum of two internal standards.
RF = Response Factor (unitless)
RF_{ave} = average Response Factor
V_i = Volume of extract injected (µL)
V_o = Volume of sample (mL)

The RF_{ave} is used when a sample is associated with an initial calibration curve. The RF is used when a sample is associated with a continuing calibration curve.

The RF for each specific analyte is quantitated based on the area response from the continuing calibration check as follows:

$$RF = \frac{A_c \; x \; I_{is}}{A_{is} \; x \; I_c}$$

where: RF = Response factor for a specific analyte
A_c = Area of the analyte in the standard
I_{is} = Mass of the specific internal standard
A_{is} = Area of the specific internal standard
I_c = Mass of the analyte in the standard

$$RF_{ave} = \frac{RF_1 + ... + RF_n}{n}$$

and n = number of Samples

The standards and samples are run in the Selective Ion Mode (SIM) with the multiplier set at +250 volts above the tune value. Normally the TPH fraction is part of a more complex scan for the numerous components typical of an oil characterization analysis. Some projects only require a simple TPH results, therefore listed below is each compound with the characteristic/quant ion for a TPH only type of analysis using GC/MS.

Compound	Quant Ion
d30-Tetradecane {is}	66
d50-Tetracosane {is}	66
Total TPH	Sum of ion 83 + 85 areas
d10-Phenanthrene {is}	188
d10-Anthracene {surr}	188
5a Androstane {surr}	260
d12-Perylene {is}	264
C30 17b(H), 21a(H) Hopane and other hopane compounds.	191
d50-Tetracosane {is}	66
d62-Triacontane {surr}	66

Rev. 5/21/01

Analytical Procedure for TCLP VOC (Subcontracted)

The subcontract laboratory determined the TCLP VOC of the sample by TCLP extraction according to SW-846 Method 1311 and analyzing the TCLP Leachate according to Method 8260B. The results are listed in Table 1.6.

Table 1.1 Results of the Analysis for VOC in Soil
WA# 0-141, Mills Gap Road Site
Results Based on Dry Weight

Sample # :	Soil blank 050901		27040, A, B		27041 A, B		27042 A, B	
Location :			BH-5, 20-24		BH-5, 32-34		BH-6, 20-22	
File :	AV3111.D		AV3112.D		AV3113.D		AV3114.D	
Dil. Fact. :	1		1		1		1	
Unit :	µg/kg		µg/kg		µg/kg		µg/kg	
% Solid :	100		80		76		92	

Compound	Conc.	MDL	Conc.	MDL	Conc.		MDL	Conc.		MDL
Dichlorodifluoromethane	U	1.0	U	1.3	U		1.3	U		1.1
Chloromethane	U	1.0	U	1.3	U		1.3	U		1.1
Vinyl Chloride	U	1.0	U	1.3	U		1.3	U		1.1
Bromomethane	U	2.0	U	2.5	U		2.6	U		2.2
Chloroethane	U	1.0	U	1.3	U		1.3	U		1.1
Trichlorofluoromethane	U	1.0	U	1.3	U		1.3	U		1.1
Acetone	U	8.0	U	10	6.1	J	11	8.3	J	8.7
1,1-Dichloroethene	U	1.0	U	1.3	U		1.3	U		1.1
Methylene Chloride	U	1.0	U	1.3	U		1.3	U		1.1
Carbon Disulfide	U	1.0	U	1.3	U		1.3	U		1.1
Methyl-t-butyl Ether	U	1.0	U	1.3	U		1.3	U		1.1
trans-1,2-Dichloroethene	U	1.0	U	1.3	U		1.3	U		1.1
1,1-Dichloroethane	U	1.0	U	1.3	U		1.3	U		1.1
2-Butanone	U	4.0	U	5.0	U		5.3	U		4.3
2,2-Dichloropropane	U	1.0	U	1.3	U		1.3	U		1.1
cis-1,2-Dichloroethene	U	1.0	1.4	1.3	U		1.3	U		1.1
Chloroform	U	1.0	U	1.3	U		1.3	U		1.1
1,1-Dichloropropene	U	1.0	U	1.3	U		1.3	U		1.1
1,2-Dichloroethane	U	1.0	U	1.3	U		1.3	U		1.1
1,1,1-Trichloroethane	U	1.0	U	1.3	U		1.3	U		1.1
Carbon Tetrachloride	U	1.0	U	1.3	U		1.3	U		1.1
Benzene	U	1.0	U	1.3	U		1.3	U		1.1
Trichloroethene	U	1.0	18	1.3	24		1.3	52		1.1
1,2-Dichloropropane	U	1.0	U	1.3	U		1.3	U		1.1
Bromodichloromethane	U	1.0	U	1.3	U		1.3	U		1.1
Dibromomethane	U	1.0	U	1.3	U		1.3	U		1.1
cis-1,3-Dichloropropene	U	1.0	U	1.3	U		1.3	U		1.1
trans-1,3-Dichloropropene	U	1.0	U	1.3	U		1.3	U		1.1
1,1,2-Trichloroethane	U	1.0	U	1.3	U		1.3	U		1.1
1,3-Dichloropropane	U	1.0	U	1.3	U		1.3	U		1.1
Dibromochloromethane	U	1.0	U	1.3	U		1.3	U		1.1
1,2-Dibromoethane	U	1.0	U	1.3	U		1.3	U		1.1
Bromoform	U	1.0	U	1.3	U		1.3	U		1.1
4-Methyl-2-Pentanone	U	2.0	U	2.5	U		2.6	U		2.2
Toluene	U	1.0	U	1.3	U		1.3	U		1.1
2-Hexanone	U	2.0	U	2.5	U		2.6	U		2.2
Tetrachloroethene	U	1.0	U	1.3	U		1.3	U		1.1
Chlorobenzene	U	1.0	U	1.3	U		1.3	U		1.1
1,1,1,2-Tetrachloroethane	U	1.0	U	1.3	U		1.3	U		1.1
Ethylbenzene	U	1.0	U	1.3	U		1.3	U		1.1
p&m-Xylene	U	1.0	U	1.3	U		1.3	U		1.1
o-Xylene	U	1.0	U	1.3	U		1.3	U		1.1
Styrene	U	1.0	U	1.3	U		1.3	U		1.1
Isopropylbenzene	U	1.0	U	1.3	U		1.3	U		1.1
1,1,2,2-Tetrachloroethane	U	1.0	U	1.3	U		1.3	U		1.1
1,2,3-Trichloropropane	U	1.0	U	1.3	U		1.3	U		1.1
n-Propylbenzene	U	1.0	U	1.3	U		1.3	U		1.1
Bromobenzene	U	1.0	U	1.3	U		1.3	U		1.1
1,3,5-Trimethylbenzene	U	1.0	U	1.3	U		1.3	U		1.1
2-Chlorotoluene	U	1.0	U	1.3	U		1.3	U		1.1
4-Chlorotoluene	U	1.0	U	1.3	U		1.3	U		1.1
tert-Butylbenzene	U	1.0	U	1.3	U		1.3	U		1.1
1,2,4-Trimethylbenzene	U	1.0	U	1.3	U		1.3	U		1.1
sec-Butylbenzene	U	1.0	U	1.3	U		1.3	U		1.1
p-Isopropyltoluene	U	1.0	U	1.3	U		1.3	U		1.1
1,3-Dichlorobenzene	U	1.0	U	1.3	U		1.3	U		1.1
1,4-Dichlorobenzene	U	1.0	U	1.3	U		1.3	U		1.1
n-Butylbenzene	U	1.0	U	1.3	U		1.3	U		1.1
1,2-Dichlorobenzene	U	1.0	U	1.3	U		1.3	U		1.1
1,2-Dibromo-3-chloropropane	U	1.0	U	1.3	U		1.3	U		1.1
1,2,4-Trichlorobenzene	U	1.0	U	1.3	U		1.3	U		1.1
Hexachlorobutadiene	U	1.0	U	1.3	U		1.3	U		1.1
Naphthalene	U	1.0	U	1.3	U		1.3	U		1.1
1,2,3-Trichlorobenzene	U	1.0	U	1.3	U		1.3	U		1.1

Table 1.1(cont.) Results of the Analysis for VOC in Soil
WA# 0-141, Mills Gap Road Site
Results Based on Dry Weight

Sample # :	MeOH blank 050901		27038 A, B		27027 A, B		27044 A, B		27025 A, B	
Location :			BH-8, 28-31.5		BH-8, 28-31.5 dup.		H-1, 20-24		BH-1, 12-16	
File :	AV3118.D		AV3119.D		AV3120.D		AV3121.D		AV3123.D	
Dil. Fact. :	50		50		50		1000		200	
Unit :	µg/kg		µg/kg		µg/kg		µg/kg		µg/kg	
% Solid :	N/A		84		82		81		87	

Compound	Conc.	MDL	Conc.		MDL	Conc.	MDL	Conc.		MDL	Conc.		MDL
Dichlorodifluoromethane	U	50	U		60	U	61	U		1200	U		230
Chloromethane	U	50	U		60	U	61	U		1200	U		230
Vinyl Chloride	U	50	U		60	U	61	U		1200	U		230
Bromomethane	U	100	91	J	120	U	120	U		2500	U		460
Chloroethane	U	50	U		60	U	61	U		1200	U		230
Trichlorofluoromethane	U	50	U		60	U	61	U		1200	U		230
Acetone	U	400	170	J	480	340	J 490	3500	J	9900	730	J	1800
1,1-Dichloroethene	U	50	72		60	U	61	U		1200	U		230
Methylene Chloride	U	50	U		60	U	61	U		1200	U		230
Carbon Disulfide	U	50	U		60	U	61	U		1200	U		230
Methyl-t-butyl Ether	U	50	U		60	U	61	U		1200	U		230
trans-1,2-Dichloroethene	U	50	U		60	U	61	U		1200	U		230
1,1-Dichloroethane	U	50	U		60	U	61	U		1200	U		230
2-Butanone	U	200	U		240	U	240	U		4900	U		920
2,2-Dichloropropane	U	50	U		60	U	61	U		1200	U		230
cis-1,2-Dichloroethene	U	50	U		60	U	61	U		1200	U		230
Chloroform	U	50	U		60	U	61	U		1200	U		230
1,1-Dichloropropene	U	50	U		60	U	61	U		1200	U		230
1,2-Dichloroethane	U	50	U		60	U	61	U		1200	U		230
1,1,1-Trichloroethane	U	50	U		60	U	61	4200		1200	1300		230
Carbon Tetrachloride	U	50	U		60	U	61	U		1200	U		230
Benzene	U	50	U		60	U	61	U		1200	U		230
Trichloroethene	U	50	5700		60	5500	61	400000		1200	280000		230
1,2-Dichloropropane	U	50	U		60	U	61	U		1200	U		230
Bromodichloromethane	U	50	U		60	U	61	U		1200	U		230
Dibromomethane	U	50	U		60	U	61	U		1200	U		230
cis-1,3-Dichloropropene	U	50	U		60	U	61	U		1200	U		230
trans-1,3-Dichloropropene	U	50	U		60	U	61	U		1200	U		230
1,1,2-Trichloroethane	U	50	U		60	U	61	U		1200	U		230
1,3-Dichloropropane	U	50	U		60	U	61	U		1200	U		230
Dibromochloromethane	U	50	U		60	U	61	U		1200	U		230
1,2-Dibromoethane	U	50	U		60	U	61	U		1200	U		230
Bromoform	U	50	U		60	U	61	U		1200	U		230
4-Methyl-2-Pentanone	U	100	U		120	U	120	U		2500	U		460
Toluene	U	50	64		60	U	61	3900		1200	750		230
2-Hexanone	U	100	U		120	U	120	U		2500	U		460
Tetrachloroethene	U	50	U		60	U	61	U		1200	U		230
Chlorobenzene	U	50	U		60	U	61	U		1200	U		230
1,1,1,2-Tetrachloroethane	U	50	U		60	U	61	U		1200	U		230
Ethylbenzene	U	50	U		60	87	61	6400		1200	2400		230
p&m-Xylene	U	50	U		60	210	61	3500		1200	1100		230
o-Xylene	U	50	U		60	230	61	11000		1200	3900		230
Styrene	U	50	U		60	U	61	U		1200	U		230
Isopropylbenzene	U	50	U		60	110	61	3800		1200	1800		230
1,1,2,2-Tetrachloroethane	U	50	U		60	U	61	U		1200	U		230
1,2,3-Trichloropropane	U	50	U		60	U	61	U		1200	U		230
n-Propylbenzene	U	50	U		60	270	61	7600		1200	3700		230
Bromobenzene	U	50	U		60	U	61	U		1200	U		230
1,3,5-Trimethylbenzene	U	50	U		60	640	61	13000		1200	6600		230
2-Chlorotoluene	U	50	U		60	U	61	U		1200	U		230
4-Chlorotoluene	U	50	U		60	U	61	U		1200	U		230
tert-Butylbenzene	U	50	U		60	U	61	U		1200	U		230
1,2,4-Trimethylbenzene	U	50	U		60	880	61	8800		1200	5400		230
sec-Butylbenzene	U	50	U		60	250	61	5900		1200	2900		230
p-Isopropyltoluene	U	50	U		60	150	61	3500		1200	1800		230
1,3-Dichlorobenzene	U	50	U		60	U	61	U		1200	U		230
1,4-Dichlorobenzene	U	50	U		60	U	61	U		1200	U		230
n-Butylbenzene	U	50	U		60	610	61	10000		1200	5400		230
1,2-Dichlorobenzene	U	50	U		60	U	61	U		1200	U		230
1,2-Dibromo-3-chloropropane	U	50	U		60	U	61	U		1200	U		230
1,2,4-Trichlorobenzene	U	50	U		60	U	61	U		1200	U		230
Hexachlorobutadiene	U	50	280		60	U	61	U		1200	U		230
Naphthalene	U	50	72		60	820	61	11000		1200	6200		230
1,2,3-Trichlorobenzene	U	50	U		60	U	61	U		1200	U		230

Table 1.1(cont.) Results of the Analysis for VOC in Soil
WA# 0-141, Mills Gap Road Site
Results Based on Dry Weight

Sample # :	MeOH blank 050901	27043 A, B
Location :		BH-1, 32-38
File :	AV3118.D	AV3124.D
Dil. Fact. :	50	200
Unit :	µg/kg	µg/kg
% Solid :	N/A	62

Compound	Conc.	MDL	Conc.		MDL
Dichlorodifluoromethane	U	50	U		320
Chloromethane	U	50	U		320
Vinyl Chloride	U	50	U		320
Bromomethane	U	100	U		650
Chloroethane	U	50	U		320
Trichlorofluoromethane	U	50	U		320
Acetone	U	400	1000	J	2600
1,1-Dichloroethene	U	50	U		320
Methylene Chloride	U	50	U		320
Carbon Disulfide	U	50	U		320
Methyl-t-butyl Ether	U	50	U		320
trans-1,2-Dichloroethene	U	50	U		320
1,1-Dichloroethane	U	50	U		320
2-Butanone	U	200	U		1300
2,2-Dichloropropane	U	50	U		320
cis-1,2-Dichloroethene	U	50	U		320
Chloroform	U	50	U		320
1,1-Dichloropropene	U	50	U		320
1,2-Dichloroethane	U	50	U		320
1,1,1-Trichloroethane	U	50	1300		320
Carbon Tetrachloride	U	50	U		320
Benzene	U	50	U		320
Trichloroethene	U	50	110000		320
1,2-Dichloropropane	U	50	U		320
Bromodichloromethane	U	50	U		320
Dibromomethane	U	50	U		320
cis-1,3-Dichloropropene	U	50	U		320
trans-1,3-Dichloropropene	U	50	U		320
1,1,2-Trichloroethane	U	50	U		320
1,3-Dichloropropane	U	50	U		320
Dibromochloromethane	U	50	U		320
1,2-Dibromoethane	U	50	U		320
Bromoform	U	50	U		320
4-Methyl-2-Pentanone	U	100	U		650
Toluene	U	50	710		320
2-Hexanone	U	100	U		650
Tetrachloroethene	U	50	U		320
Chlorobenzene	U	50	U		320
1,1,1,2-Tetrachloroethane	U	50	U		320
Ethylbenzene	U	50	1200		320
p&m-Xylene	U	50	2100		320
o-Xylene	U	50	2200		320
Styrene	U	50	U		320
Isopropylbenzene	U	50	870		320
1,1,2,2-Tetrachloroethane	U	50	U		320
1,2,3-Trichloropropane	U	50	U		320
n-Propylbenzene	U	50	1700		320
Bromobenzene	U	50	U		320
1,3,5-Trimethylbenzene	U	50	2900		320
2-Chlorotoluene	U	50	U		320
4-Chlorotoluene	U	50	U		320
tert-Butylbenzene	U	50	U		320
1,2,4-Trimethylbenzene	U	50	6600		320
sec-Butylbenzene	U	50	1400		320
p-Isopropyltoluene	U	50	920		320
1,3-Dichlorobenzene	U	50	U		320
1,4-Dichlorobenzene	U	50	U		320
n-Butylbenzene	U	50	2600		320
1,2-Dichlorobenzene	U	50	U		320
1,2-Dibromo-3-chloropropane	U	50	U		320
1,2,4-Trichlorobenzene	U	50	U		320
Hexachlorobutadiene	U	50	U		320
Naphthalene	U	50	8600		320
1,2,3-Trichlorobenzene	U	50	U		320

Table 1.1(cont.) Results of the Analysis for VOC in Soil
WA# 0-141, Mills Gap Road Site
Results Based on Dry Weight

Sample # :	MeOH blank 051001		27039 A, B		27028 A, B		23742 A, B		23745 A, B	
Location :			BH-8, 16-20		BH-1, 28-32		BH-3, 32-34		BH-12, 12-16	
File :	AV3133.D		AV3135.D		AV3138.D		AV3142.D		AV3146.D	
Dil. Fact. :	50		50		2000		1000		200	
Unit :	µg/kg		µg/kg		µg/kg		µg/kg		µg/kg	
% Solid :	N/A		89		70		77		89	

Compound	Conc.	MDL	Conc.		MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL
Dichlorodifluoromethane	U	50	U		56	U	2900	U	1300	U	220
Chloromethane	U	50	U		56	U	2900	U	1300	U	220
Vinyl Chloride	U	50	U		56	U	2900	U	1300	U	220
Bromomethane	U	100	U		110	U	5700	U	2600	U	450
Chloroethane	U	50	U		56	U	2900	U	1300	U	220
Trichlorofluoromethane	U	50	U		56	U	2900	U	1300	U	220
Acetone	U	400	220	J	450	U	23000	U	10000	U	1800
1,1-Dichloroethene	U	50	U		56	U	2900	U	1300	U	220
Methylene Chloride	U	50	U		56	U	2900	U	1300	U	220
Carbon Disulfide	U	50	U		56	U	2900	U	1300	U	220
Methyl-t-butyl Ether	U	50	U		56	U	2900	U	1300	U	220
trans-1,2-Dichloroethene	U	50	U		56	U	2900	U	1300	U	220
1,1-Dichloroethane	U	50	U		56	U	2900	U	1300	U	220
2-Butanone	U	200	130	J	220	U	11000	U	5200	U	900
2,2-Dichloropropane	U	50	U		56	U	2900	U	1300	U	220
cis-1,2-Dichloroethene	U	50	U		56	U	2900	U	1300	U	220
Chloroform	U	50	U		56	U	2900	U	1300	U	220
1,1-Dichloropropene	U	50	U		56	U	2900	U	1300	U	220
1,2-Dichloroethane	U	50	U		56	U	2900	U	1300	U	220
1,1,1-Trichloroethane	U	50	U		56	U	2900	11000	1300	9200	220
Carbon Tetrachloride	U	50	U		56	U	2900	U	1300	U	220
Benzene	U	50	U		56	U	2900	U	1300	U	220
Trichloroethene	U	50	3000		56	170000	2900	830000	1300	110000	220
1,2-Dichloropropane	U	50	U		56	U	2900	U	1300	U	220
Bromodichloromethane	U	50	U		56	U	2900	U	1300	U	220
Dibromomethane	U	50	U		56	U	2900	U	1300	U	220
cis-1,3-Dichloropropene	U	50	U		56	U	2900	U	1300	U	220
trans-1,3-Dichloropropene	U	50	U		56	U	2900	U	1300	U	220
1,1,2-Trichloroethane	U	50	U		56	U	2900	U	1300	U	220
1,3-Dichloropropane	U	50	U		56	U	2900	U	1300	U	220
Dibromochloromethane	U	50	U		56	U	2900	U	1300	U	220
1,2-Dibromoethane	U	50	U		56	U	2900	U	1300	U	220
Bromoform	U	50	U		56	U	2900	U	1300	U	220
4-Methyl-2-Pentanone	U	100	U		110	U	5700	U	2600	U	450
Toluene	U	50	U		56	U	2900	1700	1300	990	220
2-Hexanone	U	100	U		110	U	5700	U	2600	U	450
Tetrachloroethene	U	50	U		56	U	2900	U	1300	870	220
Chlorobenzene	U	50	U		56	U	2900	U	1300	U	220
1,1,1,2-Tetrachloroethane	U	50	U		56	U	2900	U	1300	U	220
Ethylbenzene	U	50	140		56	U	2900	2800	1300	1900	220
p&m-Xylene	U	50	430		56	5700	2900	13000	1300	4800	220
o-Xylene	U	50	370		56	3700	2900	12000	1300	3100	220
Styrene	U	50	U		56	U	2900	U	1300	U	220
Isopropylbenzene	U	50	110		56	U	2900	4100	1300	1100	220
1,1,2,2-Tetrachloroethane	U	50	U		56	U	2900	U	1300	U	220
1,2,3-Trichloropropane	U	50	U		56	U	2900	U	1300	U	220
n-Propylbenzene	U	50	300		56	2900	2900	7100	1300	2200	220
Bromobenzene	U	50	U		56	U	2900	U	1300	U	220
1,3,5-Trimethylbenzene	U	50	730		56	4200	2900	11000	1300	4600	220
2-Chlorotoluene	U	50	U		56	U	2900	U	1300	U	220
4-Chlorotoluene	U	50	U		56	U	2900	U	1300	U	220
tert-Butylbenzene	U	50	U		56	U	2900	U	1300	U	220
1,2,4-Trimethylbenzene	U	50	1900		56	14000	2900	36000	1300	9100	220
sec-Butylbenzene	U	50	250		56	U	2900	6200	1300	1900	220
p-Isopropyltoluene	U	50	170		56	U	2900	3900	1300	1500	220
1,3-Dichlorobenzene	U	50	U		56	U	2900	U	1300	U	220
1,4-Dichlorobenzene	U	50	U		56	U	2900	U	1300	U	220
n-Butylbenzene	U	50	670		56	3700	2900	9900	1300	3400	220
1,2-Dichlorobenzene	U	50	U		56	U	2900	U	1300	U	220
1,2-Dibromo-3-chloropropane	U	50	U		56	U	2900	U	1300	U	220
1,2,4-Trichlorobenzene	U	50	U		56	U	2900	U	1300	U	220
Hexachlorobutadiene	U	50	U		56	U	2900	U	1300	U	220
Naphthalene	U	50	1500		56	14000	2900	33000	1300	U	220
1,2,3-Trichlorobenzene	U	50	U		56	U	2900	U	1300	U	220

Table 1.1(cont.) Results of the Analysis for VOC in Soil
WA# 0-141, Mills Gap Road Site
Results Based on Dry Weight

Sample # :	Soil blank 051101		26511 A, B		23744 A, B		23743 A, B		27037 A, B	
Location :			BH-10, 28-31		BH-10, 28-31 dup.		H-4, 24-27		BH-7,32-34	
File :	AV3157.D		AV3158.D		AV3161.D		AV3162.D		AV3169.D	
Dil. Fact. :	1		1		1		1		1	
Unit :	µg/kg		µg/kg		µg/kg		µg/kg		µg/kg	
% Solid :	100		69		70		81		76	

Compound	Conc.	MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL
Dichlorodifluoromethane	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
Chloromethane	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
Vinyl Chloride	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
Bromomethane	U	2.0	U	2.9	U	2.9	U	2.5	U	2.6
Chloroethane	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
Trichlorofluoromethane	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
Acetone	U	8.0	U	12	11 J	11	U	9.9	6 J	11
1,1-Dichloroethene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
Methylene Chloride	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
Carbon Disulfide	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
Methyl-t-butyl Ether	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
trans-1,2-Dichloroethene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
1,1-Dichloroethane	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
2-Butanone	U	4.0	U	5.8	U	5.7	U	4.9	U	5.3
2,2-Dichloropropane	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
cis-1,2-Dichloroethene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
Chloroform	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
1,1-Dichloropropene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
1,2-Dichloroethane	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
1,1,1-Trichloroethane	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
Carbon Tetrachloride	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
Benzene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
Trichloroethene	U	1.0	40	1.4	25	1.4	5.8	1.2	120	1.3
1,2-Dichloropropane	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
Bromodichloromethane	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
Dibromomethane	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
cis-1,3-Dichloropropene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
trans-1,3-Dichloropropene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
1,1,2-Trichloroethane	U	1.0	U	1.4	U	1.4	U	1.2	1.9	1.3
1,3-Dichloropropane	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
Dibromochloromethane	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
1,2-Dibromoethane	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
Bromoform	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
4-Methyl-2-Pentanone	U	2.0	U	2.9	U	2.9	U	2.5	U	2.6
Toluene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
2-Hexanone	U	2.0	U	2.9	U	2.9	U	2.5	U	2.6
Tetrachloroethene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
Chlorobenzene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
1,1,1,2-Tetrachloroethane	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
Ethylbenzene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
p&m-Xylene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
o-Xylene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
Styrene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
Isopropylbenzene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
1,1,2,2-Tetrachloroethane	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
1,2,3-Trichloropropane	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
n-Propylbenzene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
Bromobenzene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
1,3,5-Trimethylbenzene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
2-Chlorotoluene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
4-Chlorotoluene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
tert-Butylbenzene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
1,2,4-Trimethylbenzene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
sec-Butylbenzene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
p-Isopropyltoluene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
1,3-Dichlorobenzene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
1,4-Dichlorobenzene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
n-Butylbenzene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
1,2-Dichlorobenzene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
1,2-Dibromo-3-chloropropane	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
1,2,4-Trichlorobenzene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
Hexachlorobutadiene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
Naphthalene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3
1,2,3-Trichlorobenzene	U	1.0	U	1.4	U	1.4	U	1.2	U	1.3

Table 1.1(cont.) Results of the Analysis for VOC in Soil
WA# 0-141, Mills Gap Road Site
Results Based on Dry Weight

Sample # :	MeOH blank 051101		23741 A, B		23746 A, B		MeOH blank 051400		26510 A, B	
Location :			BH-2, 20-21		BH-12,16-19				BH-9, 30-31	
File :	AV3156.D		AV3163.D		AV3168.D		AV3176.D		AV3178.D	
Dil. Fact. :	50		100		1000		50		10	
Unit :	µg/kg		µg/kg		µg/kg		µg/kg		µg/kg	
% Solid :	N/A		86		87		N/A		81	

Compound	Conc.	MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL
Dichlorodifluoromethane	U	50	U	120	U	1100	U	50	U	12
Chloromethane	U	50	U	120	U	1100	U	50	U	12
Vinyl Chloride	U	50	U	120	U	1100	U	50	U	12
Bromomethane	U	100	U	230	U	2300	U	100	U	25
Chloroethane	U	50	U	120	U	1100	U	50	U	12
Trichlorofluoromethane	U	50	U	120	U	1100	U	50	U	12
Acetone	U	400	U	930	U	9200	U	400	U	99
1,1-Dichloroethene	U	50	U	120	U	1100	U	50	U	12
Methylene Chloride	U	50	U	120	U	1100	U	50	U	12
Carbon Disulfide	U	50	U	120	U	1100	U	50	U	12
Methyl-t-butyl Ether	U	50	U	120	U	1100	U	50	U	12
trans-1,2-Dichloroethene	U	50	U	120	U	1100	U	50	U	12
1,1-Dichloroethane	U	50	U	120	U	1100	U	50	U	12
2-Butanone	U	200	U	470	U	4600	U	200	130	49
2,2-Dichloropropane	U	50	U	120	U	1100	U	50	U	12
cis-1,2-Dichloroethene	U	50	U	120	U	1100	U	50	U	12
Chloroform	U	50	U	120	U	1100	U	50	U	12
1,1-Dichloropropene	U	50	U	120	U	1100	U	50	U	12
1,2-Dichloroethane	U	50	U	120	U	1100	U	50	U	12
1,1,1-Trichloroethane	U	50	310	120	15000	1100	U	50	87	12
Carbon Tetrachloride	U	50	U	120	2300	1100	U	50	U	12
Benzene	U	50	U	120	U	1100	U	50	U	12
Trichloroethene	U	50	14000	120	140000	1100	U	50	900	12
1,2-Dichloropropane	U	50	U	120	U	1100	U	50	U	12
Bromodichloromethane	U	50	U	120	U	1100	U	50	U	12
Dibromomethane	U	50	U	120	U	1100	U	50	U	12
cis-1,3-Dichloropropene	U	50	U	120	U	1100	U	50	U	12
trans-1,3-Dichloropropene	U	50	U	120	U	1100	U	50	U	12
1,1,2-Trichloroethane	U	50	U	120	U	1100	U	50	U	12
1,3-Dichloropropane	U	50	U	120	U	1100	U	50	U	12
Dibromochloromethane	U	50	U	120	U	1100	U	50	U	12
1,2-Dibromoethane	U	50	U	120	U	1100	U	50	U	12
Bromoform	U	50	U	120	U	1100	U	50	U	12
4-Methyl-2-Pentanone	U	100	U	230	U	2300	U	100	U	25
Toluene	U	50	U	120	2800	1100	U	50	U	12
2-Hexanone	U	100	U	230	U	2300	U	100	U	25
Tetrachloroethene	U	50	280	120	U	1100	U	50	U	12
Chlorobenzene	U	50	U	120	U	1100	U	50	U	12
1,1,1,2-Tetrachloroethane	U	50	U	120	U	1100	U	50	U	12
Ethylbenzene	U	50	210	120	4200	1100	U	50	47	12
p&m-Xylene	U	50	580	120	12000	1100	U	50	170	12
o-Xylene	U	50	400	120	7400	1100	U	50	97	12
Styrene	U	50	U	120	U	1100	U	50	U	12
Isopropylbenzene	U	50	300	120	2500	1100	U	50	31	12
1,1,2,2-Tetrachloroethane	U	50	U	120	U	1100	U	50	U	12
1,2,3-Trichloropropane	U	50	U	120	U	1100	U	50	U	12
n-Propylbenzene	U	50	770	120	4800	1100	U	50	69	12
Bromobenzene	U	50	U	120	U	1100	U	50	U	12
1,3,5-Trimethylbenzene	U	50	1600	120	8600	1100	U	50	160	12
2-Chlorotoluene	U	50	U	120	U	1100	U	50	U	12
4-Chlorotoluene	U	50	U	120	U	1100	U	50	U	12
tert-Butylbenzene	U	50	U	120	U	1100	U	50	U	12
1,2,4-Trimethylbenzene	U	50	4100	120	25000	1100	U	50	430	12
sec-Butylbenzene	U	50	930	120	4000	1100	U	50	60	12
p-Isopropyltoluene	U	50	660	120	2500	1100	U	50	46	12
1,3-Dichlorobenzene	U	50	U	120	U	1100	U	50	U	12
1,4-Dichlorobenzene	U	50	U	120	U	1100	U	50	U	12
n-Butylbenzene	U	50	2000	120	6600	1100	U	50	U	12
1,2-Dichlorobenzene	U	50	U	120	U	1100	U	50	U	12
1,2-Dibromo-3-chloropropane	U	50	U	120	U	1100	U	50	U	12
1,2,4-Trichlorobenzene	U	50	U	120	U	1100	U	50	U	12
Hexachlorobutadiene	U	50	U	120	U	1100	U	50	U	12
Naphthalene	U	50	4800	120	20000	1100	U	50	470	12
1,2,3-Trichlorobenzene	U	50	U	120	U	1100	U	50	U	12

Table 1.1(cont.) Results of the Analysis for VOC in Soil
WA# 0-141, Mills Gap Road Site
Results Based on Dry Weight

Sample #	:	Soil blank 051401		23747 A	
Location	:			BH-11, 8-12	
File	:	AV3177.D		AV3179.D	
Dil. Fact.	:	1		1	
Unit	:	µg/kg		µg/kg	
% Solid	:	100		86	

Compound	Conc.	MDL	Conc.		MDL
Dichlorodifluoromethane	U	1.0	U		1.2
Chloromethane	U	1.0	U		1.2
Vinyl Chloride	U	1.0	U		1.2
Bromomethane	U	2.0	U		2.3
Chloroethane	U	1.0	U		1.2
Trichlorofluoromethane	U	1.0	U		1.2
Acetone	U	8.0	8.7	J	9.3
1,1-Dichloroethene	U	1.0	U		1.2
Methylene Chloride	U	1.0	U		1.2
Carbon Disulfide	U	1.0	U		1.2
Methyl-t-butyl Ether	U	1.0	U		1.2
trans-1,2-Dichloroethene	U	1.0	U		1.2
1,1-Dichloroethane	U	1.0	U		1.2
2-Butanone	U	4.0	U		4.7
2,2-Dichloropropane	U	1.0	U		1.2
cis-1,2-Dichloroethene	U	1.0	U		1.2
Chloroform	U	1.0	U		1.2
1,1-Dichloropropene	U	1.0	U		1.2
1,2-Dichloroethane	U	1.0	U		1.2
1,1,1-Trichloroethane	U	1.0	U		1.2
Carbon Tetrachloride	U	1.0	U		1.2
Benzene	U	1.0	U		1.2
Trichloroethene	U	1.0	6.1		1.2
1,2-Dichloropropane	U	1.0	U		1.2
Bromodichloromethane	U	1.0	U		1.2
Dibromomethane	U	1.0	U		1.2
cis-1,3-Dichloropropene	U	1.0	U		1.2
trans-1,3-Dichloropropene	U	1.0	U		1.2
1,1,2-Trichloroethane	U	1.0	U		1.2
1,3-Dichloropropane	U	1.0	U		1.2
Dibromochloromethane	U	1.0	U		1.2
1,2-Dibromoethane	U	1.0	U		1.2
Bromoform	U	1.0	U		1.2
4-Methyl-2-Pentanone	U	2.0	U		2.3
Toluene	U	1.0	U		1.2
2-Hexanone	U	2.0	U		2.3
Tetrachloroethene	U	1.0	U		1.2
Chlorobenzene	U	1.0	U		1.2
1,1,1,2-Tetrachloroethane	U	1.0	U		1.2
Ethylbenzene	U	1.0	U		1.2
p&m-Xylene	U	1.0	U		1.2
o-Xylene	U	1.0	U		1.2
Styrene	U	1.0	U		1.2
Isopropylbenzene	U	1.0	U		1.2
1,1,2,2-Tetrachloroethane	U	1.0	U		1.2
1,2,3-Trichloropropane	U	1.0	U		1.2
n-Propylbenzene	U	1.0	U		1.2
Bromobenzene	U	1.0	U		1.2
1,3,5-Trimethylbenzene	U	1.0	U		1.2
2-Chlorotoluene	U	1.0	U		1.2
4-Chlorotoluene	U	1.0	U		1.2
tert-Butylbenzene	U	1.0	U		1.2
1,2,4-Trimethylbenzene	U	1.0	U		1.2
sec-Butylbenzene	U	1.0	U		1.2
p-Isopropyltoluene	U	1.0	U		1.2
1,3-Dichlorobenzene	U	1.0	U		1.2
1,4-Dichlorobenzene	U	1.0	U		1.2
n-Butylbenzene	U	1.0	U		1.2
1,2-Dichlorobenzene	U	1.0	U		1.2
1,2-Dibromo-3-chloropropane	U	1.0	U		1.2
1,2,4-Trichlorobenzene	U	1.0	U		1.2
Hexachlorobutadiene	U	1.0	U		1.2
Naphthalene	U	1.0	U		1.2
1,2,3-Trichlorobenzene	U	1.0	U		1.2

Table 1.2 Results of the TIC for VOC in Soil
WA# 0-141, Mills Gap Road Site

Sample #	***Compound***
Soil blank 050901	No Peaks Found
27040, A, B	No Peaks Found
27041 A, B	No Peaks Found
27042 A, B	No Peaks Found
MeOH blank 050901	No Peaks Found
27038 A, B	No Peaks Found
MeOH blank 051001	No Peaks Found
MeOH blank 051101	No Peaks Found
Soil blank 051101	No Peaks Found
26511 A, B	No Peaks Found
23744 A, B	No Peaks Found
23743 A, B	No Peaks Found
27037 A, B	No Peaks Found
MeOH blank 051401	No Peaks Found
Soil blank 051401	No Peaks Found

Table 1.2 (cont.) Results of the TIC for VOC in Soil

WA# 0-141, Mills Gap Road Site

Sample # 27027 A, B — Unit µg/kg

LabFile# AV3120 — Con. Factor 61.0

	CAS#	Compound	Q	RT	Conc
1		Unknown		14.54	770
2		Unknown		16.83	2000
3		Unknown		19.64	1400
4		C_9H_{12} Trimethylbenzene		20.06	860
5		Unknown		20.34	2800
6		$C_{10}H_{14}$ Alkylbenzene		21.30	880
7		Unknown		21.54	1400
8		Unknown		21.85	1000
9		$C_{10}H_{14}$ Alkylbenzenes		22.16	890
10	112-40-3	Dodecane	94	22.39	1300
11		Unknown		22.95	690
12		Tetrahydronaphthalene+unknowns		23.48	990
13	629-50-5	Tridecane	95	24.09	2200
14		Methyltetrahydronaphthalene		25.25	1400
15	629-59-4	Tetradecane	98	25.76	1400
16		Methylnaphthalene Isomer		26.20	1800
17		Methylnaphthalene Isomer		26.73	1100
18	629-62-9	Pentadecane	91	27.80	840
19		Dimethylnaphthalene Isomer		28.65	1200
20		Dimethylnaphthalene Isomer		29.22	860

*Estimated Concentration (Response Factor = 1.0)

Table 1.2 (cont.) Results of the TIC for VOC in Soil

WA# 0-141, Mills Gap Road Site

Sample # 27044 A, B — Unit µg/kg

LabFile# AV3121 — Con. Factor 1234.6

	CAS#	Compound	Q	RT	Conc
1	108-87-2	Methyl Cycloalkane	96	11.53	13000
2		Unknown Cycloalkane		14.54	19000
3		C_9H_{18} Cycloalkane		16.83	28000
4	124-18-5	Decane	95	17.77	12000
5		C_9H_{12} C_3 benzene		18.08	11000
6		C_9H_{12} C_3 benzene		18.73	13000
7		C_9H_{12} C_3 benzene		20.04	16000
8		$C_{10}H_{14}$ C_4 benzene		20.38	36000
9		Decahydronaphthalene		20.73	14000
10		$C_{10}H_{14}$ C_4 benzene		20.91	11000
11		$C_{10}H_{14}$ C_4 benzene		21.30	13000
12		Unknown		21.54	19000
13		$C_{10}H_{14}$ C_4 benzene		22.15	12000
14		Unknown		22.95	12000
15		Unknown		23.11	24000
16		Unknown		23.49	16000
17		Methyltetrahydronaphthalene+unknown		25.25	13000
18		Methylnaphthalene Isomer		26.20	25000
19		Methylnaphthalene Isomer		26.73	14000
20		Dimethylnaphthalene Isomer		28.65	12000

*Estimated Concentration (Response Factor = 1.0)

Table 1.2 (cont.) Results of the TIC for VOC in Soil

WA# 0-141, Mills Gap Road Site

Sample # 27025 A, B | Unit µg/kg

LabFile# AV3123 | Con. Factor 229.9

	CAS#	Compound	Q	RT	Conc
1	108-87-2	Methyl Cycloalkane	96	11.53	4400
2		C_8H_{16} C_2 Cyclohexane		12.97	4500
3		Unknown		14.54	6300
4		Unknown		16.83	8600
5		C_9H_{12} C_3 benzene		18.08	5400
6		C_9H_{12} C_3 benzene		18.73	5900
7		$C_{10}H_{14}$ Alkylbenzene		19.62	4100
8		C_9H_{12} C_3 benzene		20.05	6800
9		$C_{10}H_{14}$ C_4 benzene		20.38	14000
10		$C_{10}H_{14}$ C_4 benzene		20.91	4600
11		$C_{10}H_{14}$ C_4 benzene		21.30	5900
12		$C_{11}H_{16}$ C_5 benzene		21.54	8600
13		$C_{10}H_{14}$ C_4 benzene		22.15	4900
14		Unknown		22.95	5100
15		Unknown		23.11	8300
16		Tetrahydronaphthalene+unknown		23.49	8000
17		Methyltetrahydronaphthalene+unknown		25.25	4500
18		Methylnaphthalene Isomer		26.20	9600
19		Methylnaphthalene Isomer		26.73	5400
20		Dimethylnaphthalene Isomer		28.65	4200

*Estimated Concentration (Response Factor = 1.0)

Table 1.2 (cont.) Results of the TIC for VOC in Soil

WA# 0-141, Mills Gap Road Site

Sample # 27043 A, B — Unit µg/kg

LabFile# AV3124 — Con. Factor 322.6

	CAS#	Compound	Q	RT	Conc
1	108-87-2	Methyl Cycloalkane	96	11.54	4600
2		C_8H_{16} C_2 Cyclohexane		12.97	3400
3		C_8H_{16} C_2 Cyclohexane + Alkenes		14.54	5000
4		C_9H_{18} C_3 Cyclohexane + Alkenes+Alkane		16.83	6700
5	124-18-5	Decane	97	17.78	3300
6		C_9H_{12} C_3 benzene		18.07	4400
7		C_9H_{12} C_3 benzene		18.73	2900
8		C_9H_{12} C_3 benzene		20.05	3300
9		$C_{10}H_{14}$ C_4 benzene		20.38	9000
10		Decahydronaphthalene+unknown		20.74	3100
11		$C_{10}H_{14}$ C_4 benzene		21.31	3300
12		Unknown		21.54	5000
13		Unknown		22.95	3100
14		Unknown		23.11	6700
15		Tetrahydronaphthalene+unknown		23.49	5400
16		Tetrahydronaphthalene+unknown		25.25	4500
17		Methylnaphthalene+unknown		26.20	9300
18		Methylnaphthalene Isomer		26.73	4600
19		Dimethylnaphthalene Isomer		28.65	4100
20		Dimethylnaphthalene Isomer		29.22	2800

*Estimated Concentration (Response Factor = 1.0)

Table 1.2 (cont.) Results of the TIC for VOC in Soil

WA# 0-141, Mills Gap Road Site

Sample # 27039 A, B Unit µg/kg

LabFile# AV3135 Con. Factor 56.2

	CAS#	Compound	Q	RT	Conc
1		C_9H_{18} C_3 Cyclohexane + Alkenes+Alkane		16.83	1500
2		C_9H_{12} C_3 benzene		18.07	1200
3		$C_{10}H_{14}$ C_4 benzene		19.63	1000
4		C_9H_{12} Trimethylbenzene		20.05	1000
5		$C_{10}H_{14}$ C_4 benzene		20.37	2900
6		Decahydronaphthalene+unknowns		20.73	920
7		$C_{10}H_{14}$ C_4 benzene		20.91	720
8		$C_{10}H_{14}$ C_4 benzene		21.31	1000
9		Unknown		21.54	1400
10		$C_{10}H_{14}$ C_4 benzene		22.02	680
11		$C_{10}H_{14}$ C_4 benzene		22.16	950
12		Unknown		22.95	840
13		Unknown		23.11	1800
14		Tetrahydronaphthalene+unknown		23.48	1600
15	629-50-5	Tridecane	95	24.08	840
16		Methyltetrahydronaphthalene+unknown		25.25	1100
17	629-59-4	Tetradecane	96	25.76	750
18		Methylnaphthalene Isomer		26.20	2800
19		Methylnaphthalene Isomer		26.73	1500
20		Methylnaphthalene Isomer		28.65	1200

*Estimated Concentration (Response Factor = 1.0)

Table 1.2 (cont.) Results of the TIC for VOC in Soil

WA# 0-141, Mills Gap Road Site

Sample # 27028 A, B

LabFile# AV3138

Unit µg/kg

Con. Factor 2857.1

	CAS#	Compound	Q	RT	Conc
1		C_9H_{18} C_3 Cyclohexane + Alkenes+Alkane		16.84	22000
2	124-18-5	Decane	94	17.77	19000
3		Unknown		20.34	57000
4	629-50-5	Tridecane	95	24.09	17000
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

*Estimated Concentration (Response Factor = 1.0)

Table 1.2 (cont.) Results of the TIC for VOC in Soil

WA# 0-141, Mills Gap Road Site

Sample # 23742 A, B — Unit µg/kg

LabFile# AV3142 — Con. Factor 1298.7

	CAS#	Compound	Q	RT	Conc
1	108-87-2	Methyl Cycloalkane	96	11.53	14000
2		C_2 Cyclohexane		14.54	14000
3		Unknown		16.27	11000
4		C_3 Cyclohexane		16.83	33000
5	124-18-5	Decane	95	17.76	43000
6		C_3 Cyclohexane		18.06	20000
7		C_3 Cyclohexane		18.71	12000
8		C_4 Cyclohexane		19.62	29000
9		C_9H_{12} Trimethylbenzene		20.04	13000
10	1120-21-4	Undecane	93	20.31	110000
11		C_4 Cyclohexane		21.29	12000
12		$C_{11}H_{16}$ Alkylbenzene		21.52	29000
13		Unknown		21.67	16000
14		Unknown		21.84	21000
15		$C_{10}H_{14}$ C_4 benzene		22.15	12000
16	112-40-3	Dodecane	96	22.38	73000
17	629-50-5	Tridecane	96	24.08	42000
18		Methyltetrahydronaphthalene+unknown		25.24	21000
19	629-59-4	Tetradecane	98	25.75	22000
20		Methylnaphthalene Isomer		26.19	17000

*Estimated Concentration (Response Factor = 1.0)

Table 1.2 (cont.) Results of the TIC for VOC in Soil

WA# 0-141, Mills Gap Road Site

Sample # 23745 A, B Unit µg/kg

LabFile# AV3146 Con. Factor 224.7

	CAS#	Compound	Q	RT	Conc
1	108-87-2	Methyl Cycloalkane	96	11.52	6900
2		C_2 Cyclohexane		12.97	6500
3		C_2 Cyclohexane + Alkene		14.53	7700
4		C_3 Cycloalkane+ Alkene+Alkane		16.82	8800
5		C_9H_{12} C_3 benzene		18.06	6200
6		C_9H_{12} C_3 benzene		18.72	4700
7		C_9H_{12} C_3 benzene		20.04	6200
8		$C_{10}H_{14}$ C_4 benzene		20.36	12000
9		Decahydronaphthalene+unknown		20.72	4700
10		$C_{10}H_{14}$ C_4 benzene		20.91	4200
11		$C_{10}H_{14}$ C_4 benzene		21.29	5400
12		Unknown		21.53	7700
13		$C_{10}H_{14}$ C_4 benzene		22.15	4600
14		Unknown		22.94	4900
15		Unknown PAH		23.10	9100
16		Tetrahydronaphthalene+unknown		23.48	7700
17		Methyltetrahydronaphthalene+unknown		25.24	5600
18		Methylnaphthalene Isomer		26.19	6700
19		Methylnaphthalene Isomer		26.73	4200
20		Dimethylnaphthalene Isomer		28.64	3800

*Estimated Concentration (Response Factor = 1.0)

Table 1.2 (cont.) Results of the TIC for VOC in Soil

WA# 0-141, Mills Gap Road Site

Sample # 23741 A, B — Unit µg/kg

LabFile# AV3163 — Con. Factor 116.3

	CAS#	Compound	Q	RT	Conc
1		C_8H_{16} Cycloalkane+alkene		14.55	2500
2		$C_{10}H_{22}$ Alkane		16.28	1900
3		Cycloalkane+ Alkene+Alkane		16.85	5100
4	124-18-5	Decane	95	17.79	2800
5		C_9H_{12} C_3 benzene		18.09	1900
6		$C_{10}H_{14}$ C_4 benzene		19.65	3700
7		Undecane+Alkylbenzene		20.35	8800
8		$C_{10}H_{14}$ C_4 benzene		20.93	2200
9		$C_{10}H_{14}$ C_4 benzene		21.32	2300
10		$C_{10}H_{14}$ C_4 benzene		21.56	4000
11		$C_{11}H_{20}$ Cyclic alkane		21.86	2300
12		$C_{10}H_{14}$ C_4 benzene		22.17	2000
13	112-40-3	Dodecane	96	22.40	3500
14		$C_{10}H_{14}$ Alkylbenzenes		22.97	2000
15	629-50-5	Tridecane	96	24.10	3400
16		Methyltetrahydronaphthalene+unknowns		25.28	2700
17	629-59-4	Tetradecane	98	25.78	2100
18		Methylnaphthalene Isomer		26.23	5400
19		Methylnaphthalene Isomer		26.75	2500
20		Dimethylnaphthalene Isomer		28.68	2100

*Estimated Concentration (Response Factor = 1.0)

Table 1.2 (cont.) Results of the TIC for VOC in Soil

WA# 0-141, Mills Gap Road Site

Sample # 23746 A, B — Unit µg/kg

LabFile# AV3168 — Con. Factor 1149.4

	CAS#	Compound	Q	RT	Conc
1	108-87-2	Methyl Cycloalkane	96	11.55	9200
2		C_2 Cyclohexane		14.55	14000
3		$C_{10}H_{22}$ Alkane+Alkene		16.28	10000
4		C_9H_{18} Cycloalkane+ Alkene+Alkane		16.85	29000
5	124-18-5	Decane	95	17.79	21000
6		C_9H_{12} C_3 benzene		18.09	14000
7		C_9H_{12} C_3 benzene		18.74	10000
8		$C_{10}H_{14}$ C_4 benzene		19.65	18000
9		C_9H_{12} C_3 benzene		20.07	11000
10		Undecane+ Alkylbenzene		20.34	44000
11		Decahydronaphthalene+unknown		20.75	12000
12		$C_{10}H_{14}$ C_4 benzene		21.32	9700
13		Unknown		21.55	15000
14	112-40-3	Dodecane	96	22.40	18000
15		Tetrahydronaphthalene+unknowns		23.50	11000
16	629-50-5	Tridecane	95	24.10	15000
17		Methyltetrahydronaphthalene+unknowns		25.27	15000
18	629-59-4	Tetradecane	98	25.78	14000
19		Methylnaphthalene Isomer		26.22	19000
20		Methylnaphthalene Isomer		26.75	8900

*Estimated Concentration (Response Factor = 1.0)

Table 1.2 (cont.) Results of the TIC for VOC in Soil

WA# 0-141, Mills Gap Road Site

Sample # 26510 A, B — Unit µg/kg

LabFile# AV3178 — Con. Factor 12.3

	CAS#	Compound	Q	RT	Conc
1		Unknown Cycloalkane+Alkene		14.56	180
2		$C_{10}H_{22}$ Alkane+Alkene		16.31	150
3		C_9H_{18} Cycloalkane+alkene+alkane		16.86	460
4	124-18-5	Decane	95	17.82	350
5		C_9H_{12} C_3 benzene		18.12	200
6		$C_{10}H_{14}$ C_4 benzene		19.67	290
7		C_9H_{12} C_3 benzene		20.10	180
8		Undecane+$C_{10}H_{14}$ Alkylbenzene		20.37	610
9		$C_{10}H_{14}$ Alkylbenzenes		20.57	400
10		Decahydronaphthalene+unknowns		20.77	220
11		$C_{10}H_{14}$ C_4 benzene		21.34	180
12		$C_{10}H_{14}$ C_4 benzene		21.57	140
13		$C_{10}H_{14}$ C_4 benzene		22.20	150
14		$C_{10}H_{12}$ Dihydromethylindene isomer		23.14	380
15		Tetrahydronaphthalene+unknown		23.52	230
16	629-50-5	Tridecane	93	24.12	150
17		Methyltetrahydronaphthalene+unknown		25.29	190
18		Methylnaphthalene Isomer		26.24	300
19		Methylnaphthalene Isomer		26.78	130
20		Dimethylnaphthalene Isomer		28.71	130

*Estimated Concentration (Response Factor = 1.0)

Table 1.2 (cont.) Results of the TIC for VOC in Soil

WA# 0-141, Mills Gap Road Site

Sample # 23747 A | Unit µg/kg

LabFile# AV3179 | Con. Factor 1.2

	CAS#	Compound	Q	RT	Conc
1		Cyclic Alkane		21.86	23
2		Alkane		23.62	11
3		Tridecane + unknown		24.12	12
4	629-59-4	Tetradecane	98	25.80	15
5		Alkane		27.85	12
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

*Estimated Concentration (Response Factor = 1.0)

Table 1.3 Results of the Analysis for BNA in Soil
WA # 0-141, Mills Gap Road Site
(Results are Based on Dry Weight)

Sample No.	SBLK050901		27025A, B		27044A, B		27028A, B		27043A, B	
Sample Location	Lab Blank		BH-1, 12-16		BH-1, 20-24		BH-1, 28-32		BH-1, 32-38	
GC/MS File Name	MIL002		MIL003		MIL004		MIL005		MIL006	
Matrix	Soil		Soil		Soil		Soil		Soil	
Dilution Factor	1		50		50		50		10	
% Solid	100		87		81		70		62	
Compound Name	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg
Phenol	U	330	U	19000	U	21000	U	24000	U	5400
bis(-2-Chloroethyl)Ether	U	330	U	19000	U	21000	U	24000	U	5400
2-Chlorophenol	U	330	U	19000	U	21000	U	24000	U	5400
1,3-Dichlorobenzene	U	330	U	19000	U	21000	U	24000	U	5400
1,4-Dichlorobenzene	U	330	U	19000	U	21000	U	24000	U	5400
Benzyl alcohol	U	330	U	19000	U	21000	U	24000	U	5400
1,2-Dichlorobenzene	U	330	U	19000	U	21000	U	24000	U	5400
2-Methylphenol	U	330	U	19000	U	21000	U	24000	U	5400
bis(2-Chloroisopropyl)ether	U	330	U	19000	U	21000	U	24000	U	5400
4-Methylphenol	U	330	U	19000	U	21000	U	24000	U	5400
N-Nitroso-Di-n-propylamine	U	330	U	19000	U	21000	U	24000	U	5400
Hexachloroethane	U	330	U	19000	U	21000	U	24000	U	5400
Nitrobenzene	U	330	U	19000	U	21000	U	24000	U	5400
Isophorone	U	330	U	19000	U	21000	U	24000	U	5400
2-Nitrophenol	U	330	U	19000	U	21000	U	24000	U	5400
2,4-Dimethylphenol	U	330	U	19000	U	21000	U	24000	U	5400
bis(2-Chloroethoxy)methane	U	330	U	19000	U	21000	U	24000	U	5400
2,4-Dichlorophenol	U	330	U	19000	U	21000	U	24000	U	5400
1,2,4-Trichlorobenzene	U	330	U	19000	U	21000	U	24000	U	5400
Naphthalene	U	330	6000 J	19000	21000	21000	12000 J	24000	3400 J	5400
4-Chloroaniline	U	330	U	19000	U	21000	U	24000	U	5400
Hexachlorobutadiene	U	330	U	19000	U	21000	U	24000	U	5400
4-Chloro-3-methylphenol	U	330	U	19000	U	21000	U	24000	U	5400
2-Methylnaphthalene	U	330	69000	19000	270000	21000	88000	24000	38000	5400
Hexachlorocyclopentadiene	U	330	U	19000	U	21000	U	24000	U	5400
2,4,6-Trichlorophenol	U	330	U	19000	U	21000	U	24000	U	5400
2,4,5-Trichlorophenol	U	330	U	19000	U	21000	U	24000	U	5400
2-Chloronaphthalene	U	330	U	19000	U	21000	U	24000	U	5400
2-Nitroaniline	U	330	U	19000	U	21000	U	24000	U	5400
Dimethylphthalate	U	330	U	19000	U	21000	U	24000	U	5400
Acenaphthylene	U	330	U	19000	U	21000	U	24000	U	5400
2,6-Dinitrotoluene	U	330	U	19000	U	21000	U	24000	U	5400
3-Nitroaniline	U	330	U	19000	U	21000	U	24000	U	5400
Acenaphthene	U	330	U	19000	U	21000	U	24000	1600 J	5400
2,4-Dinitrophenol	U	330	U	19000	U	21000	U	24000	U	5400
4-Nitrophenol	U	330	U	19000	U	21000	U	24000	U	5400
Dibenzofuran	U	330	U	19000	8900 J	21000	U	24000	1500 J	5400
2,4-Dinitrotoluene	U	330	U	19000	U	21000	U	24000	U	5400
Diethylphthalate	U	330	U	19000	U	21000	U	24000	U	5400
4-Chlorophenyl-phenylether	U	330	U	19000	U	21000	U	24000	U	5400
Fluorene	U	330	U	19000	10000 J	21000	6900 J	24000	2400 J	5400
4-Nitroaniline	U	330	U	19000	U	21000	U	24000	U	5400
4,6-Dinitro-2-methylphenol	U	330	U	19000	U	21000	U	24000	U	5400
N-Nitrosodiphenylamine	U	330	U	19000	U	21000	U	24000	U	5400
4-Bromophenyl-phenylether	U	330	U	19000	U	21000	U	24000	U	5400
Hexachlorobenzene	U	330	U	19000	U	21000	U	24000	U	5400
Pentachlorophenol	U	330	U	19000	U	21000	U	24000	U	5400
Phenanthrene	U	330	11000 J	19000	44000	21000	15000 J	24000	8200	5400
Anthracene	U	330	U	19000	U	21000	U	24000	U	5400
Carbazole	U	330	U	19000	U	21000	U	24000	U	5400
Di-n-butylphthalate	U	330	U	19000	U	21000	U	24000	U	5400
Fluoranthene	U	330	U	19000	U	21000	U	24000	U	5400
Pyrene	U	330	U	19000	U	21000	U	24000	U	5400
Butylbenzylphthalate	U	330	U	19000	U	21000	U	24000	U	5400
Benzo(a)anthracene	U	330	U	19000	U	21000	U	24000	U	5400
3,3'-Dichlorobenzidine	U	330	U	19000	U	21000	U	24000	U	5400
Chrysene	U	330	U	19000	U	21000	U	24000	U	5400
Bis(2-Ethylhexyl)phthalate	110 J	330	U	19000	U	21000	U	24000	U	5400
Di-n-octylphthalate	U	330	U	19000	U	21000	U	24000	U	5400
Benzo(b)fluoranthene	U	330	U	19000	U	21000	U	24000	U	5400
Benzo(k)fluoranthene	U	330	U	19000	U	21000	U	24000	U	5400
Benzo(a)pyrene	U	330	U	19000	U	21000	U	24000	U	5400
Indeno(1,2,3-cd)pyrene	U	330	U	19000	U	21000	U	24000	U	5400
Dibenzo(a,h)anthracene	U	330	U	19000	U	21000	U	24000	U	5400
Benzo(g,h,i)perylene	U	330	U	19000	U	21000	U	24000	U	5400

Table 1.3 (cont.) Results of the Analysis for BNA in Soil
WA # 0-141, Mills Gap Road Site
(Results are Based on Dry Weight)

Sample No.	27040, A, B		27041A, B		27042A, B		27037A, B		27038A, B	
Sample Location	BH-5, 20-24		BH-5, 32-34		BH-5, 20-22		BH-7, 32-34		BH-8, 28-31.5	
GC/MS File Name	MIL007		MIL008		MIL009		MIL018		MIL039	
Matrix	Soil		Soil		Soil		Soil		Soil	
Dilution Factor	1		1		1		1		1	
% Solid	80		76		93		76		84	
Compound Name	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg
Phenol	U	420	U	440	U	360	U	440	U	400
bis(-2-Chloroethyl)Ether	U	420	U	440	U	360	U	440	U	400
2-Chlorophenol	U	420	U	440	U	360	U	440	U	400
1,3-Dichlorobenzene	U	420	U	440	U	360	U	440	U	400
1,4-Dichlorobenzene	U	420	U	440	U	360	U	440	U	400
Benzyl alcohol	U	420	U	440	U	360	U	440	U	400
1,2-Dichlorobenzene	U	420	U	440	U	360	U	440	U	400
2-Methylphenol	U	420	U	440	U	360	U	440	U	400
bis(2-Chloroisopropyl)ether	U	420	U	440	U	360	U	440	U	400
4-Methylphenol	U	420	U	440	U	360	U	440	U	400
N-Nitroso-Di-n-propylamine	U	420	U	440	U	360	U	440	U	400
Hexachloroethane	U	420	U	440	U	360	U	440	U	400
Nitrobenzene	U	420	U	440	U	360	U	440	U	400
Isophorone	U	420	U	440	U	360	U	440	U	400
2-Nitrophenol	U	420	U	440	U	360	U	440	U	400
2,4-Dimethylphenol	U	420	U	440	U	360	U	440	U	400
bis(2-Chloroethoxy)methane	U	420	U	440	U	360	U	440	U	400
2,4-Dichlorophenol	U	420	U	440	U	360	U	440	U	400
1,2,4-Trichlorobenzene	U	420	U	440	U	360	U	440	U	400
Naphthalene	U	420	U	440	U	360	U	440	U	400
4-Chloroaniline	U	420	U	440	U	360	U	440	U	400
Hexachlorobutadiene	U	420	U	440	U	360	U	440	U	400
4-Chloro-3-methylphenol	U	420	U	440	U	360	U	440	U	400
2-Methylnaphthalene	U	420	U	440	U	360	U	440	560	400
Hexachlorocyclopentadiene	U	420	U	440	U	360	U	440	U	400
2,4,6-Trichlorophenol	U	420	U	440	U	360	U	440	U	400
2,4,5-Trichlorophenol	U	420	U	440	U	360	U	440	U	400
2-Chloronaphthalene	U	420	U	440	U	360	U	440	U	400
2-Nitroaniline	U	420	U	440	U	360	U	440	U	400
Dimethylphthalate	U	420	U	440	U	360	U	440	U	400
Acenaphthylene	U	420	U	440	U	360	U	440	U	400
2,6-Dinitrotoluene	U	420	U	440	U	360	U	440	U	400
3-Nitroaniline	U	420	U	440	U	360	U	440	U	400
Acenaphthene	U	420	U	440	U	360	U	440	U	400
2,4-Dinitrophenol	U	420	U	440	U	360	U	440	U	400
4-Nitrophenol	U	420	U	440	U	360	U	440	U	400
Dibenzofuran	U	420	U	440	U	360	U	440	U	400
2,4-Dinitrotoluene	U	420	U	440	U	360	U	440	U	400
Diethylphthalate	U	420	U	440	U	360	U	440	U	400
4-Chlorophenyl-phenylether	U	420	U	440	U	360	U	440	U	400
Fluorene	U	420	U	440	U	360	U	440	U	400
4-Nitroaniline	U	420	U	440	U	360	U	440	U	400
4,6-Dinitro-2-methylphenol	U	420	U	440	U	360	U	440	U	400
N-Nitrosodiphenylamine	U	420	U	440	U	360	U	440	U	400
4-Bromophenyl-phenylether	U	420	U	440	U	360	U	440	U	400
Hexachlorobenzene	U	420	U	440	U	360	U	440	U	400
Pentachlorophenol	U	420	U	440	U	360	U	440	U	400
Phenanthrene	U	420	U	440	U	360	U	440	330 J	400
Anthracene	U	420	U	440	U	360	U	440	U	400
Carbazole	U	420	U	440	U	360	U	440	U	400
Di-n-butylphthalate	U	420	U	440	U	360	U	440	U	400
Fluoranthene	U	420	U	440	U	360	U	440	U	400
Pyrene	U	420	U	440	U	360	U	440	U	400
Butylbenzylphthalate	U	420	U	440	U	360	U	440	U	400
Benzo(a)anthracene	U	420	U	440	U	360	U	440	U	400
3,3'-Dichlorobenzidine	U	420	U	440	U	360	U	440	U	400
Chrysene	U	420	U	440	U	360	U	440	U	400
Bis(2-Ethylhexyl)phthalate	U	420	U	440	U	360	140 J	440	U	400
Di-n-octylphthalate	U	420	U	440	U	360	U	440	U	400
Benzo(b)fluoranthene	U	420	U	440	U	360	U	440	U	400
Benzo(k)fluoranthene	U	420	U	440	U	360	U	440	U	400
Benzo(a)pyrene	U	420	U	440	U	360	U	440	U	400
Indeno(1,2,3-cd)pyrene	U	420	U	440	U	360	U	440	U	400
Dibenzo(a,h)anthracene	U	420	U	440	U	360	U	440	U	400
Benzo(g,h,i)perylene	U	420	U	440	U	360	U	440	U	400

Table 1.3 (cont.) Results of the Analysis for BNA in Soil
WA # 0-141, Mills Gap Road Site
(Results are Based on Dry Weight)

Sample No.	27039A, B		27027A, B		SBLK051001		23741A, B		23742A, B	
Sample Location	BH-8, 16-20		BH-8, 21-31.5 Dup		Lab Blank		BH-2, 20-21		BH-3, 32-34	
GC/MS File Name	MIL024		MIL040		MIL026		MIL027		MIL028	
Matrix	Soil		Soil		Soil		Soil		Soil	
Dilution Factor	10		1		1		10		10	
% Solid	89		82		100		86		77	
Compound Name	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg
Phenol	U	3800	U	410	U	330	U	3900	U	4400
bis(-2-Chloroethyl)Ether	U	3800	U	410	U	330	U	3900	U	4400
2-Chlorophenol	U	3800	U	410	U	330	U	3900	U	4400
1,3-Dichlorobenzene	U	3800	U	410	U	330	U	3900	U	4400
1,4-Dichlorobenzene	U	3800	U	410	U	330	U	3900	U	4400
Benzyl alcohol	U	3800	U	410	U	330	U	3900	U	4400
1,2-Dichlorobenzene	U	3800	U	410	U	330	U	3900	U	4400
2-Methylphenol	U	3800	U	410	U	330	U	3900	U	4400
bis(2-Chloroisopropyl)ether	U	3800	U	410	U	330	U	3900	U	4400
4-Methylphenol	U	3800	U	410	U	330	U	3900	U	4400
N-Nitroso-Di-n-propylamine	U	3800	U	410	U	330	U	3900	U	4400
Hexachloroethane	U	3800	U	410	U	330	U	3900	U	4400
Nitrobenzene	U	3800	U	410	U	330	U	3900	U	4400
Isophorone	U	3800	U	410	U	330	U	3900	U	4400
2-Nitrophenol	U	3800	U	410	U	330	U	3900	U	4400
2,4-Dimethylphenol	U	3800	U	410	U	330	U	3900	U	4400
bis(2-Chloroethoxy)methane	U	3800	U	410	U	330	U	3900	U	4400
2,4-Dichlorophenol	U	3800	U	410	U	330	U	3900	U	4400
1,2,4-Trichlorobenzene	U	3800	U	410	U	330	U	3900	U	4400
Naphthalene	U	3800	U	410	U	330	1400 J	3900	26000	4400
4-Chloroaniline	U	3800	U	410	U	330	U	3900	U	4400
Hexachlorobutadiene	U	3800	U	410	U	330	U	3900	U	4400
4-Chloro-3-methylphenol	U	3800	U	410	U	330	U	3900	U	4400
2-Methylnaphthalene	14000	3800	2500	410	U	330	17000	3900	160000	4400
Hexachlorocyclopentadiene	U	3800	U	410	U	330	U	3900	U	4400
2,4,6-Trichlorophenol	U	3800	U	410	U	330	U	3900	U	4400
2,4,5-Trichlorophenol	U	3800	U	410	U	330	U	3900	U	4400
2-Chloronaphthalene	U	3800	U	410	U	330	U	3900	U	4400
2-Nitroaniline	U	3800	U	410	U	330	U	3900	U	4400
Dimethylphthalate	U	3800	U	410	U	330	U	3900	U	4400
Acenaphthylene	U	3800	U	410	U	330	U	3900	U	4400
2,6-Dinitrotoluene	U	3800	U	410	U	330	U	3900	U	4400
3-Nitroaniline	U	3800	U	410	U	330	U	3900	U	4400
Acenaphthene	U	3800	U	410	U	330	U	3900	6800	4400
2,4-Dinitrophenol	U	3800	U	410	U	330	U	3900	U	4400
4-Nitrophenol	U	3800	U	410	U	330	U	3900	U	4400
Dibenzofuran	U	3800	120 J	410	U	330	U	3900	5100	4400
2,4-Dinitrotoluene	U	3800	U	410	U	330	U	3900	U	4400
Diethylphthalate	U	3800	U	410	U	330	U	3900	U	4400
4-Chlorophenyl-phenylether	U	3800	U	410	U	330	U	3900	U	4400
Fluorene	U	3800	170 J	410	U	330	1300 J	3900	12000	4400
4-Nitroaniline	U	3800	U	410	U	330	U	3900	U	4400
4,6-Dinitro-2-methylphenol	U	3800	U	410	U	330	U	3900	U	4400
N-Nitrosodiphenylamine	U	3800	U	410	U	330	U	3900	U	4400
4-Bromophenyl-phenylether	U	3800	U	410	U	330	U	3900	U	4400
Hexachlorobenzene	U	3800	U	410	U	330	U	3900	U	4400
Pentachlorophenol	U	3800	U	410	U	330	U	3900	U	4400
Phenanthrene	3100 J	3800	840	410	U	330	3700 J	3900	24000	4400
Anthracene	U	3800	U	410	U	330	U	3900	1800 J	4400
Carbazole	U	3800	U	410	U	330	U	3900	U	4400
Di-n-butylphthalate	U	3800	U	410	U	330	U	3900	U	4400
Fluoranthene	U	3800	U	410	U	330	U	3900	U	4400
Pyrene	U	3800	U	410	U	330	U	3900	2100 J	4400
Butylbenzylphthalate	U	3800	U	410	U	330	U	3900	U	4400
Benzo(a)anthracene	U	3800	U	410	U	330	U	3900	U	4400
3,3'-Dichlorobenzidine	U	3800	U	410	U	330	U	3900	U	4400
Chrysene	U	3800	U	410	U	330	U	3900	U	4400
Bis(2-Ethylhexyl)phthalate	U	3800	U	410	U	330	U	3900	U	4400
Di-n-octylphthalate	U	3800	U	410	U	330	U	3900	U	4400
Benzo(b)fluoranthene	U	3800	U	410	U	330	U	3900	U	4400
Benzo(k)fluoranthene	U	3800	U	410	U	330	U	3900	U	4400
Benzo(a)pyrene	U	3800	U	410	U	330	U	3900	U	4400
Indeno(1,2,3-cd)pyrene	U	3800	U	410	U	330	U	3900	U	4400
Dibenzo(a,h)anthracene	U	3800	U	410	U	330	U	3900	U	4400
Benzo(g,h,i)perylene	U	3800	U	410	U	330	U	3900	U	4400

Table 1.3 (cont.) Results of the Analysis for BNA in Soil
WA # 0-141, Mills Gap Road Site
(Results are Based on Dry Weight)

Sample No.	23743A, B		26510A, B		26511A, B		23744A		23747A	
Sample Location	BH-4, 24-27		BH-9, 30-31		BH-10, 28-31		BH-10 28-31 Dup		BH-11, 8-12	
GC/MS File Name	MIL029		MIL030		MIL042		MIL047		MIL048	
Matrix	Soil		Soil		Soil		Soil		Soil	
Dilution Factor	1		10		1		1		1	
% Solid	81		81		69		71		86	
Compound Name	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg
Phenol	U	410	U	4100	U	480	U	470	U	390
bis(-2-Chloroethyl)Ether	U	410	U	4100	U	480	U	470	U	390
2-Chlorophenol	U	410	U	4100	U	480	U	470	U	390
1,3-Dichlorobenzene	U	410	U	4100	U	480	U	470	U	390
1,4-Dichlorobenzene	U	410	U	4100	U	480	U	470	U	390
Benzyl alcohol	U	410	U	4100	U	480	U	470	U	390
1,2-Dichlorobenzene	U	410	U	4100	U	480	U	470	U	390
2-Methylphenol	U	410	U	4100	U	480	U	470	U	390
bis(2-Chloroisopropyl)ether	U	410	U	4100	U	480	U	470	U	390
4-Methylphenol	U	410	U	4100	U	480	U	470	U	390
N-Nitroso-Di-n-propylamine	U	410	U	4100	U	480	U	470	U	390
Hexachloroethane	U	410	U	4100	U	480	U	470	U	390
Nitrobenzene	U	410	U	4100	U	480	U	470	U	390
Isophorone	U	410	U	4100	U	480	U	470	U	390
2-Nitrophenol	U	410	U	4100	U	480	U	470	U	390
2,4-Dimethylphenol	U	410	U	4100	U	480	U	470	U	390
bis(2-Chloroethoxy)methane	U	410	U	4100	U	480	U	470	U	390
2,4-Dichlorophenol	U	410	U	4100	U	480	U	470	U	390
1,2,4-Trichlorobenzene	U	410	U	4100	U	480	U	470	U	390
Naphthalene	U	410	2000 J	4100	U	480	U	470	U	390
4-Chloroaniline	U	410	U	4100	U	480	U	470	U	390
Hexachlorobutadiene	U	410	U	4100	U	480	U	470	U	390
4-Chloro-3-methylphenol	U	410	U	4100	U	480	U	470	U	390
2-Methylnaphthalene	U	410	14000	4100	U	480	U	470	U	390
Hexachlorocyclopentadiene	U	410	U	4100	U	480	U	470	U	390
2,4,6-Trichlorophenol	U	410	U	4100	U	480	U	470	U	390
2,4,5-Trichlorophenol	U	410	U	4100	U	480	U	470	U	390
2-Chloronaphthalene	U	410	U	4100	U	480	U	470	U	390
2-Nitroaniline	U	410	U	4100	U	480	U	470	U	390
Dimethylphthalate	U	410	U	4100	U	480	U	470	U	390
Acenaphthylene	U	410	U	4100	U	480	U	470	U	390
2,6-Dinitrotoluene	U	410	U	4100	U	480	U	470	U	390
3-Nitroaniline	U	410	U	4100	U	480	U	470	U	390
Acenaphthene	U	410	U	4100	U	480	U	470	U	390
2,4-Dinitrophenol	U	410	U	4100	U	480	U	470	U	390
4-Nitrophenol	U	410	U	4100	U	480	U	470	U	390
Dibenzofuran	U	410	U	4100	U	480	U	470	U	390
2,4-Dinitrotoluene	U	410	U	4100	U	480	U	470	U	390
Diethylphthalate	U	410	U	4100	U	480	U	470	U	390
4-Chlorophenyl-phenylether	U	410	U	4100	U	480	U	470	U	390
Fluorene	U	410	1300 J	4100	U	480	U	470	U	390
4-Nitroaniline	U	410	U	4100	U	480	U	470	U	390
4,6-Dinitro-2-methylphenol	U	410	U	4100	U	480	U	470	U	390
N-Nitrosodiphenylamine	U	410	U	4100	U	480	U	470	U	390
4-Bromophenyl-phenylether	U	410	U	4100	U	480	U	470	U	390
Hexachlorobenzene	U	410	U	4100	U	480	U	470	U	390
Pentachlorophenol	U	410	U	4100	U	480	U	470	U	390
Phenanthrene	U	410	2300 J	4100	U	480	U	470	U	390
Anthracene	U	410	U	4100	U	480	U	470	U	390
Carbazole	U	410	U	4100	U	480	U	470	U	390
Di-n-butylphthalate	U	410	U	4100	U	480	U	470	U	390
Fluoranthene	U	410	U	4100	U	480	U	470	U	390
Pyrene	U	410	U	4100	U	480	U	470	U	390
Butylbenzylphthalate	U	410	U	4100	U	480	U	470	U	390
Benzo(a)anthracene	U	410	U	4100	U	480	U	470	U	390
3,3'-Dichlorobenzidine	U	410	U	4100	U	480	U	470	U	390
Chrysene	U	410	U	4100	U	480	U	470	U	390
Bis(2-Ethylhexyl)phthalate	490	410	U	4100	160 J	480	200 J	470	U	390
Di-n-octylphthalate	U	410	U	4100	U	480	U	470	U	390
Benzo(b)fluoranthene	U	410	U	4100	U	480	U	470	U	390
Benzo(k)fluoranthene	U	410	U	4100	U	480	U	470	U	390
Benzo(a)pyrene	U	410	U	4100	U	480	U	470	U	390
Indeno(1,2,3-cd)pyrene	U	410	U	4100	U	480	U	470	U	390
Dibenzo(a,h)anthracene	U	410	U	4100	U	480	U	470	U	390
Benzo(g,h,i)perylene	U	410	U	4100	U	480	U	470	U	390

Table 1.3 (cont.) Results of the Analysis for BNA in Soil
WA # 0-141, Mills Gap Road Site
(Results are Based on Dry Weight)

Sample No.	23745A, B		23746A, B	
Sample Location	BH-12, 12-16		BH-12, 16-19	
GC/MS File Name	MIL045		MIL046	
Matrix	Soil		Soil	
Dilution Factor	10		50	
% Solid	89		87	
Compound Name	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg
Phenol	U	3700	U	19000
bis(-2-Chloroethyl)Ether	U	3700	U	19000
2-Chlorophenol	U	3700	U	19000
1,3-Dichlorobenzene	U	3700	U	19000
1,4-Dichlorobenzene	U	3700	U	19000
Benzyl alcohol	U	3700	U	19000
1,2-Dichlorobenzene	U	3700	U	19000
2-Methylphenol	U	3700	U	19000
bis(2-Chloroisopropyl)ether	U	3700	U	19000
4-Methylphenol	U	3700	U	19000
N-Nitroso-Di-n-propylamine	U	3700	U	19000
Hexachloroethane	U	3700	U	19000
Nitrobenzene	U	3700	U	19000
Isophorone	U	3700	U	19000
2-Nitrophenol	U	3700	U	19000
2,4-Dimethylphenol	U	3700	U	19000
bis(2-Chloroethoxy)methane	U	3700	U	19000
2,4-Dichlorophenol	U	3700	U	19000
1,2,4-Trichlorobenzene	U	3700	U	19000
Naphthalene	2500 J	3700	17000 J	19000
4-Chloroaniline	U	3700	U	19000
Hexachlorobutadiene	U	3700	U	19000
4-Chloro-3-methylphenol	U	3700	U	19000
2-Methylnaphthalene	20000	3700	130000	19000
Hexachlorocyclopentadiene	U	3700	U	19000
2,4,6-Trichlorophenol	U	3700	U	19000
2,4,5-Trichlorophenol	U	3700	U	19000
2-Chloronaphthalene	U	3700	U	19000
2-Nitroaniline	U	3700	U	19000
Dimethylphthalate	U	3700	U	19000
Acenaphthylene	U	3700	U	19000
2,6-Dinitrotoluene	U	3700	U	19000
3-Nitroaniline	U	3700	U	19000
Acenaphthene	U	3700	U	19000
2,4-Dinitrophenol	U	3700	U	19000
4-Nitrophenol	U	3700	U	19000
Dibenzofuran	U	3700	U	19000
2,4-Dinitrotoluene	U	3700	U	19000
Diethylphthalate	U	3700	U	19000
4-Chlorophenyl-phenylether	U	3700	U	19000
Fluorene	1800 J	3700	9600 J	19000
4-Nitroaniline	U	3700	U	19000
4,6-Dinitro-2-methylphenol	U	3700	U	19000
N-Nitrosodiphenylamine	U	3700	U	19000
4-Bromophenyl-phenylether	U	3700	U	19000
Hexachlorobenzene	U	3700	U	19000
Pentachlorophenol	U	3700	U	19000
Phenanthrene	5900	3700	22000	19000
Anthracene	U	3700	U	19000
Carbazole	U	3700	U	19000
Di-n-butylphthalate	U	3700	U	19000
Fluoranthene	U	3700	U	19000
Pyrene	U	3700	U	19000
Butylbenzylphthalate	U	3700	U	19000
Benzo(a)anthracene	U	3700	U	19000
3,3'-Dichlorobenzidine	U	3700	U	19000
Chrysene	U	3700	U	19000
Bis(2-Ethylhexyl)phthalate	U	3700	U	19000
Di-n-octylphthalate	U	3700	U	19000
Benzo(b)fluoranthene	U	3700	U	19000
Benzo(k)fluoranthene	U	3700	U	19000
Benzo(a)pyrene	U	3700	U	19000
Indeno(1,2,3-cd)pyrene	U	3700	U	19000
Dibenzo(a,h)anthracene	U	3700	U	19000
Benzo(g,h,i)perylene	U	3700	U	19000

Table 1.4 Results of TIC for BNA in Soil

WA # 0-141, Mills Gap Road Site

Sample # SBLK050901

LabFile# MIL002 Con. Factor 33

	CAS#	Compound	Q	RT	Conc.* µg/kg
1		No TICs were detected			
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

* Estimated Concentration (Response Factor = 1)

Table 1.4 (cont.) Results of TIC for BNA in Soil

WA # 0-141, Mills Gap Road Site

Sample # 27025A, B

LabFile# MIL003 Con. Factor 1911

	CAS#	Compound	Q	RT	Conc.* µg/kg
1		Alkane		6.21	58000
2		Alkane		7.00	53000
3		Alkane		7.53	29000
4		Alkane		7.73	62000
5		Methyl-naphthalene isomer		8.14	53000
6		Dimethyl-naphthalene isomer		8.76	58000
7		Alkane		8.83	41000
8		Dimethyl-naphthalene isomer		8.87	54000
9		Dimethyl-naphthalene isomer		8.90	38000
10		Alkane		9.08	80000
11		Dimethyl-naphthalene isomer + Alkane		9.14	33000
12		Alkane		9.69	92000
13		Alkane		9.98	54000
14		Alkane		10.27	80000
15		Alkane		10.31	63000
16		Alkane		10.83	79000
17		Alkane		10.89	31000
18		Alkane		11.35	54000
19		Alkane		11.85	58000
20		Alkane		12.33	28000

* Estimated Concentration (Response Factor = 1)

Table 1.4 (cont.) Results of TIC for BNA in Soil
WA # 0-141, Mills Gap Road Site

Sample # 27044A, B
LabFile# MIL004 Con. Factor 2050

	CAS#	Compound	Q	RT	Conc.* µg/kg
1		Alkane		6.21	300000
2		Cycloalkane		6.62	110000
3		Alkane		7.00	440000
4		Cycloalkane		7.41	120000
5		Methyl alkane		7.54	250000
6		Alkane		7.74	510000
7		Alkane + alkyl benzene		7.86	97000
8		Tetrahydro-dimethyl-naphthalene isomer + Unknown		8.11	110000
9		Methyl-naphthalene isomer		8.14	400000
10		Alkane		8.24	96000
11		Dimethyl-naphthalene isomer		8.77	150000
12		Alkane		8.84	100000
13		Dimethyl-naphthalene isomer		8.88	150000
14		Dimethyl-naphthalene isomer		8.90	110000
15		Alkane		9.08	200000
16		Alkane		9.70	240000
17		Alkane		10.83	220000
18		Alkane		10.89	95000
19		Alkane		11.36	170000
20		Alkane		11.86	180000

* Estimated Concentration (Response Factor = 1)

Table 1.4 (cont.) Results of TIC for BNA in Soil
WA # 0-141, Mills Gap Road Site

Sample # 27028A, B
LabFile# MIL005 Con. Factor 2378

	CAS#	Compound	Q	RT	Conc.* µg/kg
1		Alkane		6.21	67000
2		Alkane		7.00	67000
3		Alkane		7.54	37000
4		Alkane		7.73	120000
5		Tetrahydro-dimethyl-naphthalene isomer + Unknown		8.11	24000
6		Methyl-naphthalene isomer + Alkane		8.14	67000
7		Alkane		8.27	24000
8		Dimethyl-naphthalene isomer		8.76	89000
9		Alkane		8.84	54000
10		Dimethyl-naphthalene isomer		8.87	75000
11		Dimethyl-naphthalene isomer		8.90	53000
12		Dimethyl-naphthalene isomer		9.02	26000
13		Alkane		9.07	100000
14		Dimethyl-naphthalene isomer + Alkane		9.14	42000
15		Alkane		9.69	120000
16		Alkane		10.82	78000
17		Alkane		10.88	35000
18		Alkane		11.35	65000
19		Alkane		11.85	64000
20		Alkane		12.33	32000

* Estimated Concentration (Response Factor = 1)

Table 1.4 (cont.) Results of TIC for BNA in Soil
WA # 0-141, Mills Gap Road Site

Sample # 27043A, B
LabFile# MIL006 Con. Factor 540

	CAS#	Compound	Q	RT	Conc.* µg/kg
1		Alkane		6.21	30000
2		Alkane		7.00	51000
3		Alkane		7.54	29000
4		Alkane		7.74	71000
5		Alkane + alkyl benzene		7.87	14000
6		Tetrahydro-dimethyl-naphthalene isomer + Unknown		8.11	16000
7		Methyl-naphthalene isomer + Unknown		8.14	50000
8		Alkane		8.18	15000
9		Dimethyl-naphthalene isomer		8.77	36000
10		Alkane		8.84	24000
11		Dimethyl-naphthalene isomer		8.88	29000
12		Dimethyl-naphthalene isomer + Unknown		8.90	23000
13		Alkane		9.08	46000
14		Dimethyl-naphthalene isomer + alkane		9.14	17000
15		Alkane		9.70	55000
16		Alkane		10.83	41000
17		Alkane		10.89	18000
18		Alkane		11.36	34000
19		Alkane		11.85	35000
20		Alkane		12.33	17000

* Estimated Concentration (Response Factor = 1)

Table 1.4 (cont.) Results of TIC for BNA in Soil

WA # 0-141, Mills Gap Road Site

Sample # 27040, A, B

LabFile# MIL007 Con. Factor 42

	CAS#	Compound	Q	RT	Conc.* µg/kg
1		No TICs were detected			
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

* Estimated Concentration (Response Factor = 1)

Table 1.4 (cont.) Results of TIC for BNA in Soil
WA # 0-141, Mills Gap Road Site

Sample # 27041A, B
LabFile# MIL008 Con. Factor 44

	CAS#	Compound	Q	RT	Conc.* µg/kg
1		No TICs were detected			
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

* Estimated Concentration (Response Factor = 1)

Table 1.4 (cont.) Results of TIC for BNA in Soil
WA # 0-141, Mills Gap Road Site

Sample # 27042A, B
LabFile# MIL009 Con. Factor 36

	CAS#	Compound	Q	RT	Conc.* µg/kg
1		No TICs were detected			
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

* Estimated Concentration (Response Factor = 1)

Table 1.4 (cont.) Results of TIC for BNA in Soil
WA # 0-141, Mills Gap Road Site

Sample # 27037A, B
LabFile# MIL018 Con. Factor 44

	CAS#	Compound	Q	RT	Conc.* µg/kg
1		No TICs were detected			
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

* Estimated Concentration (Response Factor = 1)

Table 1.4 (cont.) Results of TIC for BNA in Soil
WA # 0-141, Mills Gap Road Site

Sample # 27038A, B
LabFile# MIL039 Con. Factor 40

	CAS#	Compound	Q	RT	Conc.* µg/kg
1		Alkane		6.99	520
2		Alkane		7.53	470
3		Alkane		7.73	1300
4		Methyl-naphthalene isomer + Alkane		8.13	760
5		Dimethyl-naphthalene isomer		8.75	1100
6		Alkane		8.83	790
7		Dimethyl-naphthalene isomer		8.87	1000
8		Dimethyl-naphthalene isomer		8.90	690
9		Alkane		9.07	1600
10		Dimethyl-naphthalene isomer + Alkane		9.13	540
11		Trimethyl-naphthalene isomer		9.40	470
12		Trimethyl-naphthalene isomer		9.55	490
13		Alkane		9.69	2200
14		Alkane		10.27	2100
15		Alkane		10.82	1800
16		Alkane		10.88	850
17		Alkane		11.35	1500
18		Alkane		11.85	1500
19		Alkane		12.33	730
20		Alkane		12.78	570

* Estimated Concentration (Response Factor = 1)

Table 1.4 (cont.) Results of TIC for BNA in Soil
WA # 0-141, Mills Gap Road Site

Sample # 27039A, B
LabFile# MIL024 Con. Factor 375

	CAS#	Compound	Q	RT	Conc.* µg/kg
1		Alkane		6.21	7200
2		Alkane		7.00	8200
3		Alkane		7.54	5600
4		Alkane		7.73	11000
5		Methyl-naphthalene isomer + Alkane		8.14	11000
6		Dimethyl-naphthalene isomer		8.76	14000
7		Alkane		8.84	8900
8		Dimethyl-naphthalene isomer		8.87	13000
9		Dimethyl-naphthalene isomer		8.90	8900
10		Alkane		9.08	15000
11		Dimethyl-naphthalene isomer + Alkane		9.14	6900
12		Trimethyl-naphthalene isomer		9.55	4800
13		Trimethyl-naphthalene isomer		9.59	4900
14		Alkane		9.69	20000
15		Alkane		10.83	15000
16		Alkane		10.89	7200
17		Alkane		11.35	13000
18		Alkane		11.85	13000
19		Alkane		12.33	6500
20		Alkane		12.79	4500

* Estimated Concentration (Response Factor = 1)

Table 1.4 (cont.) Results of TIC for BNA in Soil
WA # 0-141, Mills Gap Road Site

Sample # 27027A, B
LabFile# MIL040 Con. Factor 41

	CAS#	Compound	Q	RT	Conc.* µg/kg
1		Alkane		6.21	880
2		Alkane		6.99	1200
3		Alkane		7.53	1100
4		Alkane		7.73	2300
5		Methyl-naphthalene isomer		8.14	2000
6		Dimethyl-naphthalene isomer		8.76	2100
7		Alkane		8.84	1300
8		Dimethyl-naphthalene isomer		8.87	2000
9		Dimethyl-naphthalene isomer + Alkane		8.90	1500
10		Dimethyl-naphthalene isomer		9.02	840
11		Alkane		9.08	2800
12		Dimethyl-naphthalene isomer + Alkane		9.13	1100
13		Trimethyl-naphthalene isomer		9.41	820
14		Alkane		9.69	4000
15		Alkane		10.83	3500
16		Alkane		10.88	1700
17		Alkane		11.35	2900
18		Alkane		11.85	3100
19		Alkane		12.33	1500
20		Alkane		12.78	1100

* Estimated Concentration (Response Factor = 1)

Table 1.4 (cont.) Results of TIC for BNA in Soil
WA # 0-141, Mills Gap Road Site

Sample # SBLK051001
LabFile# MIL026 Con. Factor 33

	CAS#	Compound	Q	RT	Conc.* µg/kg
1		No TICs were detected			
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

* Estimated Concentration (Response Factor = 1)

Table 1.4 (cont.) Results of TIC for BNA in Soil
WA # 0-141, Mills Gap Road Site

Sample # 23741A, B
LabFile# MIL027 Con. Factor 386

	CAS#	Compound	Q	RT	Conc.* µg/kg
1		Alkane		6.21	21000
2		Alkane		6.99	32000
3		Alkane		7.53	20000
4		Alkane		7.73	53000
5		Tetrahydro-dimethyl-naphthalene isomer + Unknown		8.11	10000
6		Methyl-naphthalene isomer + Alkane		8.14	26000
7		Dimethyl-naphthalene isomer		8.76	21000
8		Alkane		8.84	18000
9		Dimethyl-naphthalene isomer		8.87	15000
10		Dimethyl-naphthalene isomer + Unknown		8.90	16000
11		Alkane		9.08	34000
12		Dimethyl-naphthalene isomer + Alkane		9.14	13000
13		Alkane		9.70	38000
14		Alkane		10.28	35000
15		Alkane		10.31	26000
16		Alkane		10.83	28000
17		Alkane		10.88	12000
18		Alkane		11.35	23000
19		Alkane		11.85	21000
20		Alkane		12.33	13000

* Estimated Concentration (Response Factor = 1)

Table 1.4 (cont.) Results of TIC for BNA in Soil
WA # 0-141, Mills Gap Road Site

Sample # 23742A, B
LabFile# MIL028 Con. Factor 435

	CAS#	Compound	Q	RT	Conc.* µg/kg
1		Alkane + alkyl benzene isomer		5.98	29000
2		Alkane		6.22	100000
3		Alkane		7.01	80000
4		Alkane		7.54	44000
5		Alkane		7.75	120000
6		Methyl-naphthalene isomer + Alkane		8.15	41000
7		Dimethyl-naphthalene isomer		8.78	49000
8		Alkane		8.85	35000
9		Dimethyl-naphthalene isomer		8.89	42000
10		Dimethyl-naphthalene isomer		8.91	36000
11		Alkane		9.09	60000
12		Alkane		9.71	67000
13		Alkane		10.29	110000
14		Alkane		10.32	72000
15		Alkane		10.84	76000
16		Alkane		10.90	38000
17		Alkane		11.36	72000
18		Alkane		11.86	74000
19		Alkane		12.33	45000
20		Alkane		12.79	30000

* Estimated Concentration (Response Factor = 1)

Table 1.4 (cont.) Results of TIC for BNA in Soil

WA # 0-141, Mills Gap Road Site

Sample # 23743A, B

LabFile# MIL029 Con. Factor 41

	CAS#	Compound	Q	RT	Conc.* µg/kg
1		No TICs were detected			
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

* Estimated Concentration (Response Factor = 1)

Table 1.4 (cont.) Results of TIC for BNA in Soil
WA # 0-141, Mills Gap Road Site

Sample # 26510A, B
LabFile# MIL030 Con. Factor 414

	CAS#	Compound	Q	RT	Conc.* µg/kg
1		Alkane		6.21	8400
2		Alkane		6.99	12000
3		Alkane		7.53	6700
4		Alkane		7.73	17000
5		Methyl-naphthalene isomer		8.14	13000
6		Dimethyl-naphthalene isomer		8.76	13000
7		Alkane		8.84	8500
8		Dimethyl-naphthalene isomer		8.87	11000
9		Dimethyl-naphthalene isomer + Alkane		8.90	9400
10		Dimethyl-naphthalene isomer		9.02	4300
11		Alkane		9.08	17000
12		Dimethyl-naphthalene isomer + Alkane		9.14	6700
13		Trimethyl-naphthalene isomer		9.41	5000
14		Alkane		9.69	21000
15		Alkane + PAH isomer		10.11	6100
16		Alkane		10.83	13000
17		Alkane		10.88	6000
18		Alkane		11.35	11000
19		Alkane		11.85	11000
20		Alkane		12.33	5700

* Estimated Concentration (Response Factor = 1)

Table 1.4 (cont.) Results of TIC for BNA in Soil

WA # 0-141, Mills Gap Road Site

Sample # 26511A, B

LabFile# MIL042 Con. Factor 48

	CAS#	Compound	Q	RT	Conc.* µg/kg
1		No TICs were detected			
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

* Estimated Concentration (Response Factor = 1)

Table 1.4 (cont.) Results of TIC for BNA in Soil
WA # 0-141, Mills Gap Road Site

Sample # 23744A, B
LabFile# MIL047 Con. Factor 47

	CAS#	Compound	Q	RT	Conc.* µg/kg
1		No TICs were detected			
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

* Estimated Concentration (Response Factor = 1)

Table 1.4 (cont.) Results of TIC for BNA in Soil
WA # 0-141, Mills Gap Road Site

Sample # 23747A
LabFile# MIL048 Con. Factor 39

	CAS#	Compound	Q	RT	Conc.* µg/kg
1		Alkane		7.53	600
2		Alkane		7.73	610
3		Alkane + Unknown		8.15	350
4		Alkane		8.27	620
5		Alkane		8.49	340
6		Alkane		8.74	330
7		Alkane		8.84	1500
8		Diene/cycloalkene + PAH isomer		8.91	570
9		Alkane		9.07	2100
10		Cycloalkane		9.52	430
11		Alkane		9.69	3100
12		Alkane		9.98	1900
13		Alkane		10.83	2700
14		Alkane		10.89	2000
15		Alkane		11.32	430
16		Alkane		11.35	2300
17		Alkane		11.85	2200
18		Alkane		12.33	1500
19		Alkane		12.79	1100
20		Alkane		13.25	340

* Estimated Concentration (Response Factor = 1)

Table 1.4 (cont.) Results of TIC for BNA in Soil
WA # 0-141, Mills Gap Road Site

Sample # 23745A, B
LabFile# MIL045 Con. Factor 375

	CAS#	Compound	Q	RT	Conc.* µg/kg
1		Alkane		6.21	34000
2		Alkane		7.00	54000
3		Cycloalkane		7.41	15000
4		Alkane		7.54	36000
5		Alkane		7.74	71000
6		Alkane + alkyl benzene		7.87	15000
7		Tetrahydro-dimethyl-naphthalene isomer + Unknown		8.11	16000
8		Methyl-naphthalene isomer + Alkane		8.14	45000
9		Alkane		8.17	15000
10		Dimethyl-naphthalene isomer		8.76	22000
11		Alkane		8.84	19000
12		Dimethyl-naphthalene isomer		8.87	21000
13		Dimethyl-naphthalene isomer		8.90	17000
14		Alkane		9.08	36000
15		Alkane		9.69	41000
16		Alkane		10.83	32000
17		Alkane		10.89	15000
18		Alkane		11.35	27000
19		Alkane		11.85	27000
20		Alkane		12.33	16000

* Estimated Concentration (Response Factor = 1)

Table 1.4 (cont.) Results of TIC for BNA in Soil
WA # 0-141, Mills Gap Road Site

Sample # 23746A, B
LabFile# MIL046 Con. Factor 1907

	CAS#	Compound	Q	RT	Conc.* µg/kg
1		Alkane		6.21	150000
2		Alkane		7.00	200000
3		Cycloalkane		7.40	66000
4		Alkane		7.53	100000
5		Alkane		7.73	240000
6		Alkane + alkyl benzene isomer		7.86	52000
7		Tetrahydro-dimethyl-naphthalene isomer + Unknown		8.11	59000
8		Methyl-naphthalene isomer		8.14	170000
9		Dimethyl-naphthalene isomer		8.76	120000
10		Alkane		8.83	73000
11		Dimethyl-naphthalene isomer		8.87	94000
12		Dimethyl-naphthalene isomer		8.90	75000
13		Alkane		9.08	140000
14		Dimethyl-naphthalene isomer + Alkane		9.14	53000
15		Alkane		9.69	150000
16		Alkane		10.28	140000
17		Alkane		10.31	110000
18		Alkane		10.83	110000
19		Alkane		11.35	92000
20		Alkane		11.85	92000

* Estimated Concentration (Response Factor = 1)

TABLE 1.5 Results of the Analysis for TPH (as #2 Fuel Oil) in Soil
WA # 0-141, Mills Gap Road Site
Results Based on Dry Weight

Sample No.	Sampling Location	% Solids	Results (mg/kg)	MDL (mg/kg)
SBLK051001	Sand Blank	100	U	17
23741A, B	BH-2, 20-21	86	4200	200
23742A, B	BH-3, 32-34	77	16000	220
23743A, B	BH-4, 24-27	81	U	21
26510A, B	BH-9, 30-31	81	2000	210
26511A, B	BH-10, 28-31	69	U	25
23744A, B	BH-10, 28-31 Dup	71	U	24
23747A, B	BH-11, 8-12	86	430	20
23746A, B	BH-12, 16-19	87	3900	190
SBLK050901	Sand Blank	100	U	17
27043A, B	BH-1, 32-38	62	6700	280
27041A, B	BH-5, 32-34	76	U	22
27042A, B	BH-5, 20-22	93	U	18
27037A, B	BH-7, 32-34	76	U	22
27038A, B	BH-8, 28-31.5	84	330	200
27027A, B	BH-8, 21-31.5 Dup	82	670	210

Table 1.6 Results of the Analysis for VOC in TCLP Extract
WA# 0-141, Mills Gap Road Site

Sample # :	Method Blank 052601-1		Method Blank 052901		Leachate Blank 052401		23742		
Location :							BH-3		
Dil. Fact. :	1		1		5		5		
Unit :	mg/L		mg/L		mg/L		mg/L		
Compound	*Conc.*	*MDL*	*Conc.*	*MDL*	*Conc.*	*MDL*	*Conc.*		*MDL*
Benzene	U	0.0010	U	0.0010	U	0.0050	0.0018	J	0.0050
2-Butanone	U	0.0050	U	0.0050	U	0.025	U		0.025
Carbon Tetrachloride	U	0.0010	U	0.0010	U	0.0050	U		0.0050
Chlorobenzene	U	0.0020	U	0.0020	U	0.010	U		0.010
Chloroform	U	0.0050	U	0.0050	U	0.025	U		0.025
1,4-Dichlorobenzene	U	0.0050	U	0.0050	U	0.025	U		0.025
1,2-Dichloroethane	U	0.0020	U	0.0020	U	0.010	U		0.010
1,1-Dichloroethene	U	0.0020	U	0.0020	U	0.010	0.0045	J	0.010
Tetrachloroethene	U	0.0010	U	0.0010	U	0.0050	U		0.0050
Trichloroethene	U	0.0010	U	0.0010	U	0.0050	7.0		0.0050
Vinyl Chloride	U	0.0010	U	0.0010	U	0.0050	U		0.0050

QA/QC for VOC

Results of the Internal Standard Areas and Surrogate Percent Recoveries for VOC in Soil

Prior to purging, the samples were spiked with a three component surrogate mixture consisting of toluene-d_8, 4-bromofluorobenzene and 1,2-dichloroethane-d_4 and a three component internal standard mixture consisting of bromochloromethane, 1,4-difluorobenzene, and chlorobenzene-d_5.

The internal standard areas are listed in Table 2.1. All 108 internal standard areas were within QC criteria. The surrogate percent recoveries, also listed in Table 2.1, ranged from 79 to 116. All 108 recoveries were within QC limits.

Results of the MS/MSD Analysis for VOC in Soil

Samples 27040, A, B and 26511 A, B were chosen for the matrix spike/matrix spike duplicate (MS/MSD) analysis. The percent recoveries, listed in Table 2.2, ranged from 57 to 116. Nineteen out of 20 recoveries were within QC limits. The relative percent differences (RPDs), also listed in Table 2.4, ranged from zero (0) to 43. Nine out of 10 RPD values were within QC limits.

Table 2.1 Results of the Internal Standard Areas & Surrogate Percent Recoveries for VOC in Soil
Mills Gap Road Site, WA# 0-141

Analysis Date 050901
Matrix Soil

File ID	Sample No.	IS 1	IS 2	IS 3	Surr. 1	Surr. 2	Surr. 3
AV3111.D	Soil blank 050901	296246	2719638	1125685	100	104	93
AV3112.D	27040, A, B	265509	2337910	951065	103	105	90
AV3113.D	27041 A, B	236178	2062324	843918	105	106	86
AV3114.D	27042 A, B	239717	2078865	885677	107	103	88
AV3115.D	27040, A, B ms	221694	2031046	852497	110	102	83
AV3116.D	27040, A, Bmsd	217619	1953240	831302	111	101	82
AV3118.D	MeOH blank 050901	267656	2114923	890345	116	104	79
AV3119.D	27038 A, B/1:50	208916	1890521	824543	110	107	85
AV3120.D	27027 A, B/1:50	219135	1971395	988923	110	97	91
AV3121.D	27044 A, B/1:1,000	330320	2945789	1419274	106	95	92
AV3123.D	27025 A, B/1:200	325737	2884465	1425007	103	93	94
AV3124.D	27043 A, B/1:200	327574	2996221	1440702	104	95	96
Cal Check Area	AV3110.D	309251	2802460	1228850			

				Surrogate Limits
				Soil
IS 1	Bromochloromethane	Surr. 1	1,2-Dichloroethane-d4	70-121
IS 2	1,4-Difluorobenzene	Surr. 2	Toluene-d8	84-138
IS 3	Chlorobenzene-d5	Surr. 3	p-Bromofluorobenzene	59-113

Table 2.1 (cont.) Results of the Internal Standard Areas & Surrogate Percent Recoveries for VOC in Soil
Mills Gap Road, WA# 0-141

Analysis Date 051001
Matrix Soil

File ID	Sample No.	IS 1	IS 2	IS 3	Surr. 1	Surr. 2	Surr. 3
AV3133.D	Me OH blank 051001	368223	2984331	1205345	102	106	90
AV3135.D	27039 A, B/1:50	300023	2677337	1223151	98	101	95
AV3136.D	27044 A, B/1:10,000	329948	2937697	1335619	103	100	98
AV3137.D	27025 A, B/1:2,000	315307	2830235	1273498	102	100	94
AV3138.D	27028 A, B/1:2,000	335828	3018027	1353898	102	101	92
AV3139.D	27043 A, B/1:2,000	335615	2978911	1363051	103	98	97
AV3142.D	23742 A, B/1:1,000	311366	2869023	1339929	104	97	91
AV3146.D	23745 A, B/1:200	320457	2857578	1399749	104	94	92
Cal Check Area	AV3132.D	337114	3014040	1346250			

				Surrogate Limits
				Soil
IS 1	Bromochloromethane	Surr. 1	1,2-Dichloroethane-d4	70-121
IS 2	1,4-Difluorobenzene	Surr. 2	Toluene-d8	84-138
IS 3	Chlorobenzene-d5	Surr. 3	p-Bromofluorobenzene	59-113

Table 2.1 (cont.) Results of the Internal Standard Areas & Surrogate Percent Recoveries for VOC in Soil
Mills Gap Road, WA# 0-141

Analysis Date 051101
Matrix Soil

File ID	Sample No.	IS 1	IS 2	IS 3	Surr. 1	Surr. 2	Surr. 3
AV3156.D	MeOH blank 051101	337179	2762183	1130919	106	104	93
AV3157.D	Soil blank 051101	317380	2709537	1097583	105	106	92
AV3158.D	26511 A, B	285964	2469768	1028307	101	104	92
AV3159.D	26511 A, B ms	240460	2409530	988798	100	105	89
AV3160.D	26511 A, B msd	235239	2322805	929748	101	107	87
AV3161.D	23744 A, B	257368	2243328	898064	104	108	84
AV3162.D	23743 A, B	253473	2219801	914043	106	106	86
AV3163.D	23741 A, B/1:100	247982	2245621	1187600	105	93	88
AV3164.D	23742 A, B/1:10,000	296175	2731900	1228708	105	101	92
AV3167.D	23745 A, B/1:2,000	285665	2592268	1178597	106	100	92
AV3168.D	23746 A, B/1:1,000	306856	2800245	1359205	107	96	93
AV3169.D	27037 A, B	284958	2504034	1102249	107	100	94
Cal Check Area	AV3155.D	310752	2843960	1260550			

				Surrogate Limits
				Soil
IS 1	Bromochloromethane	Surr. 1	1,2-Dichloroethane-d4	70-121
IS 2	1,4-Difluorobenzene	Surr. 2	Toluene-d8	84-138
IS 3	Chlorobenzene-d5	Surr. 3	p-Bromofluorobenzene	59-113

Table 2.1 (cont.) Results of the Internal Standard Areas & Surrogate Percent Recoveries for VOC in Soil
Mills Gap Road, WA# 0-141

Analysis Date 051401
Matrix Soil

File ID	Sample No.	IS 1	IS 2	IS 3	Surr. 1	Surr. 2	Surr. 3
AV3176.D	MeOH blank 051401	337476	2861254	1220739	106	104	94
AV3177.D	Soil blank 051401	336276	2791451	1166707	108	105	91
AV3178.D	26510 A, B/1:10	238258	2383552	1018806	98	111	90
AV3179.D	23747 A	287874	2690726	1153974	106	103	95
Cal Check Area	AV3175.D	308524	2670530	1176150			

				Surrogate Limits
				Soil
IS 1	Bromochloromethane	Surr. 1	1,2-Dichloroethane-d4	70-121
IS 2	1,4-Difluorobenzene	Surr. 2	Toluene-d8	84-138
IS 3	Chlorobenzene-d5	Surr. 3	p-Bromofluorobenzene	59-113

Table 2.2 Results of MS/MSD Analysis for VOC in Soil
WA # 0-141, Mills Gap Road Site
Based on Dry Weight

Sample ID: 27040, A, B

Compound Name	Sample Conc. (µg/kg)	MS Spike Added (µg/kg)	MSD Spike Added (µg/kg)	MS Conc. (µg/kg)	MSD Conc. (µg/kg)	MS % Rec.	MSD % Rec.		RPD	QC Limits RPD	QC Limits % Rec.
1,1-Dichloroethene	U	62.5	62.5	72.7	68.2	116	109		6	22	59 - 172
Benzene	U	62.5	62.5	60.3	61.0	96	98		1	21	66 - 142
Trichloroethene	18.0	62.5	62.5	60.3	53.7	68	57	*	17	24	62 - 137
Toluene	U	62.5	62.5	60.7	60.6	97	97		0	21	59 - 139
Chlorobenzene	U	62.5	62.5	57.3	56.8	92	91		1	21	60 - 133

Table 2.2 (cont.) Results of MS/MSD Analysis for VOC in Soil
WA # 0-141, Mills Gap Road Site
Based on Dry Weight

Sample ID: 26511 A, B

Compound Name	Sample Conc. (µg/kg)	MS Spike Added (µg/kg)	MSD Spike Added (µg/kg)	MS Conc. (µg/kg)	MSD Conc. (µg/kg)	MS % Rec.	MSD % Rec.	RPD	QC Limits RPD	QC Limits % Rec.
1,1-Dichloroethene	U	72.5	72.5	55.2	53.6	76	74	3	22	59 - 172
Benzene	U	72.5	72.5	63.6	61.3	88	85	4	21	66 - 142
Trichloroethene	40.4	72.5	72.5	92.0	120.2	71	110	43 *	24	62 - 137
Toluene	U	72.5	72.5	67.3	65.6	93	91	3	21	59 - 139
Chlorobenzene	U	72.5	72.5	64.2	61.3	89	85	5	21	60 - 133

Results of the Internal Standard Areas and Surrogate Percent Recoveries for BNA in Soil

Prior to extraction, each sample was spiked with a six component surrogate mixture consisting of nitrobenzene-d_5, 2-fluorobiphenyl, terphenyl-d_{14}, phenol-d_5, 2-fluorophenol, and 2,4,6-tribromophenol. After the extracts were combined and concentrated, they were spiked with an internal standards mixture consisting of 1,4-dichlorobenzene-d_4, naphthalene-d_8, acenaphthene-d_{10}, phenanthrene-d_{10}, chrysene-d_{12}, and perylene-d_{12}.

The internal standard areas are listed in Table 2.3. All 174 internal standard areas were within QC criteria. The reported surrogate percent recoveries, also listed in Table 2.3, ranged from 39 to 564. One-hundred and forty-four out of 159 reported recoveries were within QC limits. The percent recoveries were not available for 15 surrogates because six surrogates were diluted out and nine surrogates failed spectra criteria.

Results of the MS/MSD Analysis for BNA in Soil

Samples 27040A, 27042A and 23741A were chosen for the matrix spike/matrix spike duplicate (MS/MSD) analysis. The percent recoveries, listed in Table 2.4, ranged from 50 to 182. Fifty-five out of 66 recoveries were within QC limits. The relative percent differences (RPDs), also listed in Table 2.4, ranged from zero (0) to 17. All 33 RPD values were within QC limits.

Table 2.3 Results of the Internal Standard Areas and Surrogate Percent Recoveries for BNA in Soil
WA # 0-141, Mills Gap Road Site

Analysis Date 05/11/2001
Matrix Soil

Sample No.	File ID	IS 1	IS 2	IS 3	IS 4	IS 5	IS 6
SBLK050901	MIL002.D	84816	312298	167710	320903	360620	339169
27025A, B 10x	MIL003.D	78580	284853	155075	296366	336096	302060
27044A, B 10x	MIL004.D	81090	297932	164639	312849	352753	308786
27028A, B 10x	MIL005.D	81915	301037	164013	312360	352477	323821
27043A, B 10x	MIL006.D	76363	288491	157257	297619	339316	306808
27040, A, B	MIL007.D	86236	313469	167565	316732	353788	334823
27041A, B	MIL008.D	93997	346610	186444	352444	391976	365339
27042A, B	MIL009.D	84230	309543	167032	317411	357794	333737
Cal Check Area	MIL001.D	100978	380193	210669	343610	357954	391041

IS 1 = d4-Dichlorobenzene
IS 2 = d8-Naphthalene
IS 3 = d10-Acenaphthene
IS 4 = d10-Phenanthrene
IS 5 = d12-Chrysene
IS 6 = d12-Perylene

Sample No.	File ID	Surr. 1	Surr. 2	Surr. 3	Surr. 4	Surr. 5	Surr. 6
SBLK050901	MIL002.D	77	84	87	88	76	86
27025A, B 10x	MIL003.D	82	85	213 *	115	167 *	96
27044A, B 10x	MIL004.D	86	100	564 *	151 *	205 *	106
27028A, B 10x	MIL005.D	78	85	203 *	123 *	NA[1] *	96
27043A, B 10x	MIL006.D	72	91	136 *	111	NA[1] *	98
27040, A, B	MIL007.D	72	81	84	84	68	86
27041A, B	MIL008.D	65	75	75	79	63	83
27042A, B	MIL009.D	72	83	84	87	72	88

[1]Surrogate failed spectra criteria, percent recovery not available.

		Surrogate Limits Soil
Surr 1 =	2-Fluorophenol	(25-121)
Surr 2 =	Phenol-d5	(24-113)
Surr 3 =	Nitrobenzene-d5	(23-120)
Surr 4 =	2-Fluorobiphenyl	(30-115)
Surr 5 =	2,4,6-Tribromophenol	(19-122)
Surr 6 =	Terphenyl-d14	(18-137)

Table 2.3 (cont.) Results of the Internal Standard Areas and Surrogate Percent Recoveries for BNA in Soil
WA # 0-141, Mills Gap Road Site

Analysis Date 05/14/2001
Matrix Soil

Sample No.	File ID	IS 1	IS 2	IS 3	IS 4	IS 5	IS 6
27037A, B	MIL018.D	100967	375174	201236	381612	420685	384685
27040, A, B MS	MIL019.D	93031	344728	185423	351684	388231	357482
27040, A, B MSD	MIL020.D	101217	384859	206632	395006	435607	399796
27042A, B MS	MIL021.D	106459	397543	211949	399319	441995	409276
27042A, B MSD	MIL022.D	102891	380747	203143	382988	422285	394954
27039A, B 10x	MIL024.D	91184	339011	181767	327136	393094	352458
SBLK051001	MIL026.D	93611	342562	184880	346751	382601	348919
23741A, B 10x	MIL027.D	85547	310395	170042	325875	363604	325676
23742A, B10x	MIL028.D	85672	307368	169932	314625	359435	330581
23743A, B	MIL029.D	99999	363185	194080	368536	407413	368186
26510A, B 10x	MIL030.D	88532	329039	178134	338548	373012	332528
23741A, B 10x MS	MIL031.D	86691	318775	173568	332572	364680	327406
23741A, B 10x MSD	MIL032.D	82913	299571	163406	311512	341996	301978
Cal Check Area	MIL017.D	97405	368027	198457	323933	339781	367189

IS 1 = d4-Dichlorobenzene
IS 2 = d8-Naphthalene
IS 3 = d10-Acenaphthene
IS 4 = d10-Phenanthrene
IS 5 = d12-Chrysene
IS 6 = d12-Perylene

Sample No.	File ID	Surr. 1	Surr. 2	Surr. 3	Surr. 4	Surr. 5	Surr. 6
27037A, B	MIL018.D	63	73	74	74	71	83
27040, A, B MS	MIL019.D	73	83	83	80	71	82
27040, A, B MSD	MIL020.D	75	86	84	82	72	83
27042A, B MS	MIL021.D	71	81	80	84	75	86
27042A, B MSD	MIL022.D	73	83	83	85	75	87
27039A, B 10x	MIL024.D	90	97	122 *	116 *	101	105
SBLK051001	MIL026.D	74	84	83	85	75	85
23741A, B 10x	MIL027.D	78	91	125 *	111	NA[1] *	96
23742A, B10x	MIL028.D	39	60	NA[1] *	112	NA[1] *	105
23743A, B	MIL029.D	64	77	77	82	69	87
26510A, B 10x	MIL030.D	65	76	101	102	NA[1] *	90
23741A, B 10x M	MIL031.D	76	90	115	104	99	88
23741A, B 10x M	MIL032.D	83	95	123 *	112	106	98

[1]Surrogate failed spectra criteria, percent recovery not available.

Surrogate Limits

		Soil
Surr 1 =	2-Fluorophenol	(25-121)
Surr 2 =	Phenol-d5	(24-113)
Surr 3 =	Nitrobenzene-d5	(23-120)
Surr 4 =	2-Fluorobiphenyl	(30-115)
Surr 5 =	2,4,6-Tribromophenol	(19-122)
Surr 6 =	Terphenyl-d14	(18-137)

Table 2.3 (cont.) Results of the Internal Standard Areas and Surrogate Percent Recoveries for BNA in Soil
WA # 0-141, Mills Gap Road Site

Analysis Date 05/15/2001
Matrix Soil

Sample No.	File ID	IS 1	IS 2	IS 3	IS 4	IS 5	IS 6
27038A, B	MIL039.D	99493	363781	194803	348580	410421	363703
27027A, B	MIL040.D	91038	334336	181675	320614	379431	330985
23742A, B 100x	MIL041.D	84426	310612	170364	297782	345208	311764
26511A, B	MIL042.D	92744	342010	180898	315737	365224	331230
23745A, B 10x	MIL045.D	80966	300043	165440	289553	339185	295169
23746A, B 10x	MIL046.D	83920	309123	170779	301268	350881	317676
23744A, B	MIL047.D	100282	368504	197265	343760	395936	361915
23747A	MIL048.D	101372	366843	200126	359223	413451	345651
Cal Check Area	MIL037.D	105887	396832	210936	343361	360614	386988

IS 1 = d4-Dichlorobenzene
IS 2 = d8-Naphthalene
IS 3 = d10-Acenaphthene
IS 4 = d10-Phenanthrene
IS 5 = d12-Chrysene
IS 6 = d12-Perylene

Sample No.	File ID	Surr. 1	Surr. 2	Surr. 3	Surr. 4	Surr. 5	Surr. 6
27038A, B	MIL039.D	66	77	83	87	76	85
27027A, B	MIL040.D	63	78	88	88	76	88
23742A, B 100x	MIL041.D	D	D	D	D	D	D
26511A, B	MIL042.D	71	83	82	86	77	89
23745A, B 10x	MIL045.D	76	88	162 *	112	NA[1] *	101
23746A, B 10x	MIL046.D	94	95	NA[1] *	144 *	NA[1] *	109
23744A, B	MIL047.D	57	69	69	71	66	77
23747A	MIL048.D	63	74	80	87	79	86

[1]Surrogate failed spectra criteria, percent recovery not available.

	Surrogate Limits Soil
Surr 1 = 2-Fluorophenol	(25-121)
Surr 2 = Phenol-d5	(24-113)
Surr 3 = Nitrobenzene-d5	(23-120)
Surr 4 = 2-Fluorobiphenyl	(30-115)
Surr 5 = 2,4,6-Tribromophenol	(19-122)
Surr 6 = Terphenyl-d14	(18-137)

Table 2.4 Results of MS/MSD Analysis for BNA in Soil
WA # 0-141, Mills Gap Road Site
(Based on Dry Weight)

Sample ID: 27040,A, B

Compound Name	Sample Conc. (µg/kg)	MS Spike Added (µg/kg)	MSD Spike Added (µg/kg)	MS Conc. (µg/kg)	MSD Conc. (µg/kg)	MS % Rec.	MSD % Rec.	RPD	QC Limits RPD	QC Limits % Rec.
Phenol	U	4150	4150	3250	3380	78	81	4	35	26 - 90
2-Chlorophenol	U	4150	4150	3240	3350	78	81	3	50	25 - 102
1,4-Dichlorobenzene	U	2080	2080	1520	1580	73	76	4	27	28 - 104
N-Nitroso-Di-N-Propylamine	U	2080	2080	1670	1800	80	87	8	38	41 - 126
1,2,4-Trichlorobenzene	U	2080	2080	1680	1690	81	81	1	23	38 - 107
4-Chloro-3-Methylphenol	U	4150	4150	3240	3350	78	81	3	33	26 - 103
Acenaphthene	U	2080	2080	1830	1860	88	89	2	19	31 - 137
4-Nitrophenol	U	4150	4150	3670	3740	88	90	2	50	11 - 114
2,4-Dinitrotoluene	U	2080	2080	1940	1960	93 *	94 *	1	47	28 - 89
Pentachlorophenol	U	4150	4150	3040	2990	73	72	2	47	17 - 109
Pyrene	U	2080	2080	1730	1780	83	86	3	36	35 - 142

Table 2.4 (cont.) Results of MS/MSD Analysis for BNA in Soil
WA # 0-141, Mills Gap Road Site
(Based on Dry Weight)

Sample ID: 27042A, B

Compound Name	Sample Conc. (µg/kg)	MS Spike Added (µg/kg)	MSD Spike Added (µg/kg)	MS Conc. (µg/kg)	MSD Conc. (µg/kg)	MS % Rec.	MSD % Rec.	RPD	QC Limits RPD	QC Limits % Rec.
Phenol	U	3600	3600	2780	2830	77	79	2	35	26 - 90
2-Chlorophenol	U	3600	3600	2750	2860	76	79	4	50	25 - 102
1,4-Dichlorobenzene	U	1800	1800	1350	1370	75	76	2	27	28 - 104
N-Nitroso-Di-N-Propylamine	U	1800	1800	1450	1520	81	84	5	38	41 - 126
1,2,4-Trichlorobenzene	U	1800	1800	1460	1510	81	84	3	23	38 - 107
4-Chloro-3-Methylphenol	U	3600	3600	2880	2890	80	80	0	33	26 - 103
Acenaphthene	U	1800	1800	1610	1650	89	92	3	19	31 - 137
4-Nitrophenol	U	3600	3600	3080	3100	86	86	1	50	11 - 114
2,4-Dinitrotoluene	U	1800	1800	1640	1700	91 *	94 *	4	47	28 - 89
Pentachlorophenol	U	3600	3600	2660	2690	74	75	1	47	17 - 109
Pyrene	U	1800	1800	1550	1530	86	85	1	36	35 - 142

Table 2.4 (cont.) Results of MS/MSD Analysis for BNA in Soil
WA # 0-141, Mills Gap Road Site
(Based on Dry Weight)

Sample ID: 23741A, B

Compound Name	Sample Conc. (µg/kg)	MS Spike Added (µg/kg)	MSD Spike Added (µg/kg)	MS Conc. (µg/kg)	MSD Conc. (µg/kg)	MS % Rec.	MSD % Rec.	RPD	QC Limits RPD	QC Limits % Rec.
Phenol	U	3860	3860	3240	3540	84	92 *	9	35	26 - 90
2-Chlorophenol	U	3860	3860	3290	3420	85	89	4	50	25 - 102
1,4-Dichlorobenzene	U	1930	1930	1670	1870	87	97	11	27	28 - 104
N-Nitroso-Di-N-Propylamine	U	1930	1930	2000	1910	104	99	5	38	41 - 126
1,2,4-Trichlorobenzene	U	1930	1930	1880	2090	97	108 *	11	23	38 - 107
4-Chloro-3-Methylphenol	U	3860	3860	3530	4180	92	108 *	17	33	26 - 103
Acenaphthene	U	1930	1930	2760	2960	143 *	153 *	7	19	31 - 137
4-Nitrophenol	U	3860	3860	4040	3870	105	100	4	50	11 - 114
2,4-Dinitrotoluene	U	1930	1930	3510	3350	182 *	174 *	5	47	28 - 89
Pentachlorophenol	U	3860	3860	1920	2110	50	55	9	47	17 - 109
Pyrene	U	1930	1930	2060	2280	107	118	10	36	35 - 142

QA/QC for TPH (as #2 Fuel Oil)

Results of the Surrogate Percent Recoveries for Total Petroleum Hydrocarbons (TPH)(as #2 Fuel Oil) in Soil
Each BS/BSD and MS/MSD sample was spiked with a solution of anthracene-d_{10}, 5a-androstane, and triacontane-d62 as surrogates. The percent recoveries, listed in Table 2.5, ranged from 62 to 101. No QC limits are available for this analysis.

Results of the BS/BSD and MS/MSD Analysis for TPH (as #2 Fuel Oil) in Soil
Sample 23744A, B was chosen for the matrix spike/matrix spike duplicate (MS/MSD) analysis. The percent recoveries, listed in Table 2.6, were both 95 and the relative percent difference (RPD), also listed in Table 2.6, was zero (0). The BS/BSD percent recoveries, listed in Table 2.6, were 87 and 94. The relative percent difference (RPD), also listed in Table 2.6, was 8. No QC limits are available for these analyses.

TABLE 2.5 Results of the Surrogate Percent Recoveries for TPH (as #2 Fuel Oil) in Soil
WA # 0-141, Mills Gap Road Site

Sample Number	d10-Anthracene	5a-Androstane	d62-Triacontane
BS	68	91	99
BSD	67	93	101
23744A, B MS	62	96	98
23744A, B MSD	65	97	99

Table 2.6 Results of the BS/BSD & MS/MSD Analysis for TPH (as #2 Fuel Oil) in Soil
WA # 0-141, Mills Gap Road Site
Results Based on Dry Weight

	Sample Conc. mg/kg	Spike Added mg/kg	Conc. mg/kg	% Rec.	Duplicate Spike Added mg/kg	Duplicate Conc. mg/kg	Duplicate % Rec.	RPD
Soil Blank (BS/BSD)	U	333	291	87	333	314	94	8
23744A, B (MS/MSD)	U	472	450	95	472	450	95	0

QA/QC for TCLP VOC

Results of the Surrogate Percent Recoveries for VOC in TCLP Extract

Prior to purging, the samples were spiked with a four component surrogate mixture consisting of dibromofluoromethane, toluene-d_8, p-bromofluorobenzene and 1,2-dichloroethane-d_{45}.

The surrogate percent recoveries, listed in Table 2.7, ranged from 90 to 109. All 32 recoveries were within QC limits.

Results of the LS/LSD Analysis for VOC in TCLP Extract

The percent recoveries, listed in Table 2.8, ranged from 77 to 115. All 22 recoveries were within QC limits. The relative percent differences (RPDs), also listed in Table 2.8, ranged from zero (0) to 32. Nine out of 11 RPD values were within QC limits.

Results of the BS Analysis for VOC in TCLP Extract

The percent recoveries, listed in Table 2.9, ranged from 100 to 115. All 11 recoveries were within QC limits.

Table 2.7 Results of the Surrogate Percent Recoveries for VOC in TCLP Extract

Sample No.	Surr. 1	Surr. 2	Surr. 3	Surr. 4
Method Blank 052601-1	103	103	98	103
Blank Spike	95	96	98	100
23742	97	102	97	101
Method Blank 052601-2	96	99	97	101
Leachate Spike	95	96	98	100
Leachate Spike Dup	101	100	107	95
Method Blank 052901	102	90	94	109
23742 10X	101	94	94	100

	Surrogate Limits	
Surr. 1	Dibromofluoromethane	81-118
Surr. 2	1,2-Dichloroethane-d4	68-124
Surr. 3	Toluene-d8	85-119
Surr. 4	p-Bromofluorobenzene	75-127

Table 2.8 Results of Leachate Spike/Leachate Spike Duplicate Analysis for VOC in TCLP Extract
WA # 0-141, Mills Gap Road Site

Compound Name	Blank Conc. (µg/L)	LS Spike Added (µg/L)	LSD Spike Added (µg/L)	LS Conc. (µg/L)	LSD Conc. (µg/L)	LS % Rec.	LSD % Rec.	RPD	QC Limits RPD	QC Limits % Rec.
Benzene	U	250	250	246	268	98	107	9	11	61 - 138
2-Butanone	U	250	250	243	261	97	104	7	29	41 - 141
Carbon Tetrachloride	U	250	250	288	258	115	103	11	17	69 - 143
Chlorobenzene	U	250	250	260	262	104	105	1	12	83 - 124
Chloroform	U	250	250	248	263	99	105	6	12	76 - 128
1,4-Dichlorobenzene	U	250	250	260	260	104	104	0	13	75 - 121
1,2-Dichloroethane	U	250	250	245	253	98	101	3	12	67 - 138
1,1-Dichloroethene	U	250	250	203	281	81	112	32 *	17	72 - 134
Tetrachloroethene	U	250	250	265	257	106	103	3	13	55 - 149
Trichloroethene	U	250	250	261	272	104	109	4	13	77 - 132
Vinyl Chloride	U	250	250	193	265	77	106	31 *	18	63 - 138

Table 2.9 Results of Blank Spike Analysis for VOC in TCLP Extract
WA # 0-141, Mills Gap Road Site

Compound Name	BS Spike Added (µg/L)	BS Conc. (µg/L)	BS % Rec.	QC Limits % Rec.
Benzene	50	53.3	107	77 - 126
2-Butanone	50	51.8	104	48 - 138
Carbon Tetrachloride	50	53.3	107	68 - 139
Chlorobenzene	50	54.1	108	76 - 123
Chloroform	50	53.1	106	75 - 125
1,4-Dichlorobenzene	50	52.8	106	78 - 125
1,2-Dichloroethane	50	49.8	100	71 - 133
1,1-Dichloroethene	50	55	110	68 - 132
Tetrachloroethene	50	54.4	109	53 - 166
Trichloroethene	50	57.7	115	79 - 131
Vinyl Chloride	50	56.4	113	62 - 135

Lockheed Martin Technology Services Group
Environmental Services REAC
2890 Woodbridge Avenue, Building 209 Annex Edison, NJ 08837-3679
Telephone 732-321-4200 Facsimile 732-494-4021

Accutest Labs
Fresh Ponds Corp Village, Bldg B
2235 Route 130
Dayton, NJ 08810

LOCKHEED MARTIN

Attn: Matt Cordova

22 May 2001

As per Lockheed Martin / REAC Purchase Order GC59945J73, for Project 0141 please analyze samples according to the following parameters:

Analysis/Method	Matrix	# of samples
TCLP VOA/ SW-846-1311/ 8260B	Soil	1
Data package: Package with Diskette Deliverable		

The sample is expected to arrive at your laboratory on May 22, 2001. **All applicable QA/QC**(eg: MS/MSD, LCS, Duplicates, and Blanks) **analysis as per method, will be performed on our sample matrix.** Preliminary sample and QC result tables plus a signed copy of our Chain of Custody must be faxed to REAC 10 business days after receipt of the samples. The complete data package is due 21 business days after receipt of the samples. The complete data package must include all items on the deliverables checklist. **Expect all samples to be difficult matrix and all raw data must be included in final analytical report.**

All sample and QC results must be summarized in a ExCel diskette deliverable.

Please submit all reports and technical questions concerning this project to **John Johnson at (732) 321-4248 or fax to (732) 494-4020.**

Sincerely,

Joseph Soroka
Data Validation and Report Writing Group Leader
Lockheed Martin / REAC Project

JS:jj Attachments

cc. R. Singhvi
G. Powell
0141\non\mem\0105\sub\0141Con2
D. Miller
Subcontracting File
J. Ingram
R. McCurdy
K. Woodruff
J. Soroka

REAC, Edison, NJ
(732) 321-4200
EPA Contract 68-C99-223

CHAIN OF CUSTODY RECORD

Project Name: Mills Gap Rd
Project Number: 0-141
LM Contact: K. Woodruff Phone: 732-321-4231

No: 00453
Sheet **01** of **01** (Do not copy)
(for addnl. samples use new form)

050901 –

Sample Identification | **Analyses Requested**

REAC#	Sample No	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	VOCs	BNAs	TPH
167	27025 A,B	BH-1, 12-16	S	5/7/01	2	8oz/cool	X	X	
168	27044 A,B	BH-1, 20-24		5/7/01			X	X	
169	27028 A,B	BH-1, 28-32		5/7/01			X	X	
170	27043 A,B	BH-1, 32-38		5/7/01			X	X	X
171	27040 A,B	BH-5, 20-24		5/8/01			X	X	
172	27041 A,B	BH-5, 32-34					X	X	X
173	27042 A,B	BH-5, 30-32					X	X	X
174	27037 A,B	BH-7, 32-34					X	X	X
175	27038 A,B	BH-8, 28-36.5					X	X	X
176	27039 A,B	BH-8, 16-20					X	X	
177	27027 A,B	BH-8, 28-31.5 dup					X	X	X

RW

RW

RW

082

Matrix:

A- Air	PW- Potable Water
AT-Animal Tissue	S- Soil
DL- Drum Liquids	SD- Sediment
DS- Drum Solids	SL- Sludge
GW- Groundwater	SW- Surface Water
O- Oil	TX-TCLP Extract
PR-Product	W- Water
PT-Plant Tissue	X- Other

Special Instructions: 8°C

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #:

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished by	Date	Received by	Date	Time
all Tonalysis	K. Woodruff	5/8/01		05-09-01	0940	VOA/11		050901	M. Meuse	05-09-01	10:00
11/BNA, TPH		050901		05-09-01	10:10 AM						

RW

☆ U.S. GPO: 2000–521-151

REAC, Edison, NJ
(732) 321-4200
EPA Contract 68-C99-223

CHAIN OF CUSTODY RECORD

Project Name: Mills Gap Rd
Project Number: 0-141
LM Contact: N. Woodruff Phone: 732-321-4231

No: 00454
Sheet 01 of 01 (Do not copy)
(for addnl. samples use new form)

057001-

Sample Identification | **Analyses Requested**

REAC#	Sample No	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	VOC	BNA	TPH
192	23741 A,B	BH-2, 20-21	S	5/8/01	2	8 g/cool	X	X	X
193	23742 A,B	BH-3, 32-34		5/8/01			X	X	X
194	23743 A,B	BH-4, 24-27		5/8/01			X	X	X
195	26510 A,B	BH-9, 30-31		5/9/01			X	X	X
196	26511 A,B	BH-10, 28-31		5/9/01			X	X	X
197	23744 A,B	BH-10, 28-31 Dup		5/9/01			X	X	X
198	23747 A	BH-11, 8-12		5/9/01	1		X	X	X
199	23745 A,B	BH-12, 12-16		5/9/01	2		X	X	
200	23746 A,B	BH-12, 16-19		5/9/01	2		X	X	X

RUF

083

Matrix:

A- Air	PW- Potable Water
AT-Animal Tissue	S- Soil
DL- Drum Liquids	SD- Sediment
DS- Drum Solids	SL- Sludge
GW- Groundwater	SW- Surface Water
O- Oil	TX-TCLP Extract
PR-Product	W- Water
PT-Plant Tissue	X- Other

Special Instructions:

8°C

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #:

Items/Reason	Relinquished by	Date	Received by	Date	Time
Call analysis for PR/ VOC BNA TPH	N. Woodruff	5/9/01		05/10/01	0930
		05/10/01		05/10/01	10:10

Items/Reason	Relinquished by	Date	Received by	Date	Time
VOC BNA TPH		05/10/01	M. Nemeth	05/10/01	10:00

☆ U.S. GPO: 2000-521-151

REAC, Edison, NJ
(732) 321-4200
EPA Contract 68-C99-223

CHAIN OF CUSTODY RECORD

Project Name: Mills Gap Road
Project Number: RIA 00 141
LM Contact: Wood Ruff Phone: 732-321-4200

No: 00472
Sheet 01 of 01 (Do not copy)
(for addnl. samples use new form)

Sample Identification | **Analyses Requested**

REAC#	Sample No	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative					
193	25742	BH-3	S	5/8/01	1	8oz Jar/ICE	TCLP VOA				
							X				

084

Matrix:

A- Air	PW- Potable Water
AT-Animal Tissue	S- Soil
DL- Drum Liquids	SD- Sediment
DS- Drum Solids	SL- Sludge
GW- Groundwater	SW- Surface Water
O- Oil	TX-TCLP Extract
PR-Product	W- Water
PT-Plant Tissue	X- Other

Special Instructions:

Delivered to accutest, Dayton N.J.
for TCLP VOA's

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #:

00454

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished by	Date	Received by	Date	Time
1/TCLP VOA		5/23/01		5/23/01	2025	SC					

JULY 2001

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