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**LOCKHEED MARTIN**

**SITE:** Mills Gap Rd  
**BREAK:** 2.2  
**OTHER:** WT

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 *K.W.*  
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 ( $\mu\text{g}/\text{L}$ ) of TCE, small amounts of benzene and xylenes, and 16,000  $\mu\text{g}/\text{L}$  of total petroleum hydrocarbons (TPHs). Water from the Upper Spring contained approximately 200,000  $\mu\text{g}/\text{L}$  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.

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## 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 Geoprobe 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 ( $\mu\text{g}/\text{kg}$ ), 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  $\mu\text{g}/\text{kg}$  and 140,000  $\mu\text{g}/\text{kg}$  at 12 to 16 feet bgs and 16 to 19 feet bgs respectively. Benzene compounds were also common, with concentrations generally averaging several thousand  $\mu\text{g}/\text{kg}$  in cores from boreholes BH-1, BH-3, and BH-12.

Of the BNAs present in the core samples, 2-methylnaphthalene generally exhibited the highest concentration. The highest concentration of 2-methylnaphthalene, 270,000  $\mu\text{g}/\text{kg}$ , 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 naphthalene and phenanthrene, were also present in boreholes BH-1, BH-3, and BH-12 at concentrations of several thousand  $\mu\text{g}/\text{kg}$ .

The core sample from borehole BH-3 at 32 to 34 feet bgs also contained the highest TPH concentration (16,000  $\mu\text{g}/\text{kg}$ ). 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 biodegradation. 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 milligrams/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.

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MILLS GAP ~~AN~~ SITE, BARBARA CAPRIZ

FOR MEETING 3/11 @ 3:00 PM WITH

• PREVIOUS INVESTIGATIONS

- EPA REGION 4 → SCREENING SITE INSPECTION (HRS) - LATE '80S
- NC DEPT. OF ENV RESOURCES (NCDENR) → IDENTIFIED 2 SPRINGS
  - 1 DOMESTIC WELL
  - DOWNGRADING OF SITE
- MID 1999 NCDENR REQUEST EPA REGION 4 TO EVAL. SITE.  
EPA DETERMINED CONTAMINATION OF SPRINGS (4 HOUSEHOLDS  
BOTTLED WATER PROVIDED UNTIL CONNECTION <sup>AFFECTED</sup>)  
TO CITY WATER SUPPLY
- LATE 1999, EPA REGION 4, SESD, START CONTRACTOR  
CONDUCT SOIL SAMPLING @ SITE & FOUND VARIOUS  
CONCENTRATIONS OF VOC'S & SOME VOL'S AT SAME LOCATIONS  
SAME TIME PERIOD IN BUILDING NO DRILLS, TANKS OR VATS  
FOUND BUT PIT <sup>THIN</sup> INSIDE. 5,000 GAL TK OUTSIDE & CRADLE UP HILL
- MID 2000 EPA REAL PERSONNEL (THRU REMEDIAL) SEARCHED  
FOR BURIED SOURCES USING MAGNETIC & ELECTROMAGNETIC GEOPHYSICAL  
TECHNIQUES; SPRINGS RESAMPLED; EXCAVATION OF BREAKAWAY IN  
TRACTED AREAS; SUMP SAMPLED; GEOPHASE (TRUCK) TOOK PROBES  
IN BUILDING THRU CONCRETE FLOOR  
FIELD & LAB DATA SUGGESTED A SOURCE OF VOC'S & PETROLEUM  
HYDROCARBONS IN SOIL & SHALLOW BEDROCK BEHIND BLDG. BECAUSE  
SITE IS LOCATED ON A TOPOGRAPHIC HILL, CONTAMINATES WOULD MOVE  
AWAY FROM SITE ONCE THEY REACH WATER TABLE & DISCHARGE @ STREAMS
- EARLY 2002, EPA REGION 4 CONVERSE WITH "ENV. MANAGER" CIS & SENDS  
REPORTS FROM LATE 1999 TRIP & MID 2000 REAL TRIP
- MARCH 6 EPA REGION 4 EXEC REPS (ALL VOL'S) CONF. BY TELEPHONE  
CONCERNING FINDINGS & QUESTION & ANSWER PERIOD

• IN DRAFT FORM AWAITING APPROVAL

- FINDINGS OF FACT
- S.O.N
- ACTION MEMO: ENFORCEMENT

- To Be SENT TO CIS  
Another Report & COPY OF  
OLD AERIAL PHOTO

ORL  
ADC

MG

; TALK TO DON / CAROL

SIGN OFF ON ACTION MEMO, SOW, & FINDINGS  
SEND TO HOLLEY

• CALL CIS-GIVE ATTORNEY NAME & #  
TALK ON SUBMITAL OF ADC

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

DEPTH (feet bgs)	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	
	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	U	U	U	U	U	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	U	U	U	U				
1,1-Dichloroethene	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U				
2-Butanone	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U				
cis-1,2-Dichloroethene	U	U	U	U	U	U	U	U	1.4	U	U	U	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	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	U	U	1,200	2,300						
Trichloroethylene	280,000	400,000	170,000	110,000	14,000	830,000 <sup>1</sup>	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	U	U	U	U				
Toluene	750	3,900	U	710	U	1,700	U	U	U	U	U	U	U	64	U	U	U	U	990	2,800						
Tetrachloroethylene	U	U	U	U	280	U	U	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	U	47	U	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	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	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	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	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	U	U	4,600	8,600						
2-Chlorotoluene	U	U	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 <sup>3</sup>	U	U	U	U	U	1,900	U	430	U	U	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	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	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	U	U	3,400	6,600						
Hexachlorobutadiene	U	U	U	U	U	U	U	U	U	U	U	U	U	280	U	U	U	U	U	U	U					
Naphthalene	6,200	11,000	14,000	8,600	4,800	33,000 <sup>4</sup>	U	U	U	U	U	1,500	72	470	U	U	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	U	U	U					
Naphthalene	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	U	U	2,500 J	17,000 J						
2-Methylnaphthalene	69,000	270,000	88,000	38,000	17,000	160,000 <sup>2</sup>	U	U	U	U	U	14,000	560	14,000	U	U	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	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	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	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	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	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	U	U	U					
Fluoranthene	U	U	U	U	U	470 J	U	U	U	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	U	440 J	U	U	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	420	NA	3,700						
TPHs (ug/kg)	6,700</																									

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

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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 8-12 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, brown, 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.

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

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## ANALYTICAL REPORT

Prepared by  
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Mills Gap Road Site  
Skyland, NC

July 2001

EPA Work Assignment No.0-141  
LOCKHEED MARTIN Work Order No. R1A00141  
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## 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		
	1				VOC, BNA & TPH		K148		
	5	5/8/01			VOC & BNA		K133		
	2				VOC, BNA & TPH				
00454	3	5/9/01	5/10/01		VOC & BNA				
	5								
	1								

## 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, 051101 and 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-ethylhexyl) phthalate. The bis (2-ethylhexyl) 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 biodegradation. 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 Dibenz-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 <sup>3</sup>	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<sub>8</sub>, 4-bromofluorobenzene and 1,2-dichloroethane-d<sub>4</sub> and a three component internal standard mixture consisting of bromochloromethane, 1,4-difluorobenzene, and chlorobenzene-d<sub>5</sub>. 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 ( $\mu\text{g/kg}$ ) 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 ( $\mu\text{g/L}$ )  
 $A_{is}$  = 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 ( $\mu\text{g/kg}$ ) 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 ( $\mu\text{g/L}$ )  
 $A_{is}$  = 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

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

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<sub>5</sub>, 2-fluorobiphenyl, terphenyl-d<sub>14</sub>, phenol-d<sub>5</sub>, 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<sub>4</sub>, naphthalene-d<sub>8</sub>, acenaphthene-d<sub>10</sub>, phenanthrene-d<sub>10</sub>, chrysene-d<sub>12</sub>, and perylene-d<sub>12</sub> 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 Split time = 2.00 min @ 8:1 split ratio Pressure pulse = 16 psi for 0.5 min, then normal
Pulsed Split Injection	1 µL
Injection Volume	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:

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

where

$C_u$	= Concentration of target analyte ( $\mu\text{g}/\text{kg}$ )
$DF$	= Dilution Factor
$A_u$	= Area of target analyte
$I_{is}$	= Mass of specific internal standard (ng)
$V_i$	= Final volume of extract ( $\mu\text{L}$ )
$A_{is}$	= Area of specific internal standard
$RF$	= Response Factor (unitless)
$RF_{ave}$	= average Response Factor
$V_i$	= Volume of extract injected ( $\mu\text{L}$ )
$W$	= 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:

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

where

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

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

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, 20 $\mu$ L 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<sub>10</sub>, chrysene-d<sub>12</sub>, and perylene-d<sub>12</sub>, tetradecane-d<sub>30</sub> and tetracosane-d<sub>50</sub>.

### Extraction Procedure (BS/BSD and MS/MSD)

Prior to extraction each sample was spiked with 500 $\mu$ L of a 400 $\mu$ g/mL surrogate mixture containing anthracene-d<sub>10</sub>, 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, 20 $\mu$ L of a 500  $\mu$ g/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<sub>10</sub>, chrysene-d<sub>12</sub>, and perylene-d<sub>12</sub>, tetradecane-d<sub>30</sub> and tetracosane-d<sub>50</sub>.

### 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  $\mu$ m  
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  $\mu$ L

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  $\mu$ g/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  $\mu$ g/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  $\mu$ g/mL and the other a standard mixture of saturated hydrocarbons which contained the surrogate compounds at 10.0  $\mu$ g/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:

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

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)  
 $V_i$  = Volume of extract ( $\mu\text{L}$ )  
 $A_{is}$  = 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 ( $\mu\text{L}$ )  
 $V_o$  = 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:

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

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

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

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 BH-5, 20-24	27041 A, B BH-5, 32-34	27042 A, B BH-6, 20-22
Location	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
<u>Compound</u>	<u>Conc.</u>	<u>MDL</u>	<u>Conc.</u>	<u>MDL</u>
Dichlorodifluoromethane	U	1.0	U	1.3
Chloromethane	U	1.0	U	1.3
Vinyl Chloride	U	1.0	U	1.3
Bromomethane	U	2.0	U	2.5
Chloroethane	U	1.0	U	1.3
Trichlorofluoromethane	U	1.0	U	1.3
Acetone	U	8.0	U	10
1,1-Dichloroethene	U	1.0	U	1.3
Methylene Chloride	U	1.0	U	1.3
Carbon Disulfide	U	1.0	U	1.3
Methyl-t-butyl Ether	U	1.0	U	1.3
trans-1,2-Dichloroethene	U	1.0	U	1.3
1,1-Dichloroethane	U	1.0	U	1.3
2-Butanone	U	4.0	U	5.0
2,2-Dichloropropane	U	1.0	U	1.3
cis-1,2-Dichloroethene	U	1.0	1.4	1.3
Chloroform	U	1.0	U	1.3
1,1-Dichloropropene	U	1.0	U	1.3
1,2-Dichloroethane	U	1.0	U	1.3
1,1,1-Trichloroethane	U	1.0	U	1.3
Carbon Tetrachloride	U	1.0	U	1.3
Benzene	U	1.0	U	1.3
Trichloroethene	U	1.0	18	24
1,2-Dichloropropane	U	1.0	U	1.3
Bromodichloromethane	U	1.0	U	1.3
Dibromomethane	U	1.0	U	1.3
cis-1,3-Dichloropropene	U	1.0	U	1.3
trans-1,3-Dichloropropene	U	1.0	U	1.3
1,1,2-Trichloroethane	U	1.0	U	1.3
1,3-Dichloropropane	U	1.0	U	1.3
Dibromo-chloromethane	U	1.0	U	1.3
1,2-Dibromoethane	U	1.0	U	1.3
Bromoform	U	1.0	U	1.3
4-Methyl-2-Pentanone	U	2.0	U	2.5
Toluene	U	1.0	U	1.3
2-Hexanone	U	2.0	U	2.5
Tetrachloroethene	U	1.0	U	1.3
Chlorobenzene	U	1.0	U	1.3
1,1,1,2-Tetrachloroethane	U	1.0	U	1.3
Ethylbenzene	U	1.0	U	1.3
p&m-Xylene	U	1.0	U	1.3
o-Xylene	U	1.0	U	1.3
Styrene	U	1.0	U	1.3
Isopropylbenzene	U	1.0	U	1.3
1,1,2,2-Tetrachloroethane	U	1.0	U	1.3
1,2,3-Trichloropropane	U	1.0	U	1.3
n-Propylbenzene	U	1.0	U	1.3
Bromobenzene	U	1.0	U	1.3
1,3,5-Tnmethylbenzene	U	1.0	U	1.3
2-Chlorotoluene	U	1.0	U	1.3
4-Chlorotoluene	U	1.0	U	1.3
tert-Butylbenzene	U	1.0	U	1.3
1,2,4-Tnmethylbenzene	U	1.0	U	1.3
sec-Butylbenzene	U	1.0	U	1.3
p-Isopropyltoluene	U	1.0	U	1.3
1,3-Dichlorobenzene	U	1.0	U	1.3
1,4-Dichlorobenzene	U	1.0	U	1.3
n-Butylbenzene	U	1.0	U	1.3
1,2-Dichlorobenzene	U	1.0	U	1.3
1,2-Dibromo-3-chloropropane	U	1.0	U	1.3
1,2,4-Trichlorobenzene	U	1.0	U	1.3
Hexachlorobutadiene	U	1.0	U	1.3
Naphthalene	U	1.0	U	1.3
1,2,3-Trichlorobenzene	U	1.0	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 050901	27038 A, B BH-8, 28-31.5	27027 A, B BH-8, 28-31.5 dup.	27044 A, B H-1, 20-24	27025 A, B BH-1, 12-16
Location :	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
<u>Compound</u>	<u>Conc.</u>	<u>MDL</u>	<u>Conc.</u>	<u>MDL</u>	<u>Conc.</u>
Dichlorodifluoromethane	U	50	U	60	U
Chloromethane	U	50	U	60	U
Vinyl Chloride	U	50	U	60	U
Bromomethane	U	100	91	J 120	U
Chloroethane	U	50	U	60	U
Trichlorofluoromethane	U	50	U	60	U
Acetone	U	400	170	J 480	340
1,1-Dichloroethene	U	50	72	60	U
Methylene Chloride	U	50	U	60	U
Carbon Disulfide	U	50	U	60	U
Methyl-t-butyl Ether	U	50	U	60	U
trans-1,2-Dichloroethene	U	50	U	60	U
1,1-Dichloroethane	U	50	U	60	U
2-Butanone	U	200	U	240	U
2,2-Dichloropropane	U	50	U	60	U
cis-1,2-Dichloroethene	U	50	U	60	U
Chloroform	U	50	U	60	U
1,1-Dichloropropene	U	50	U	60	U
1,2-Dichloroethane	U	50	U	60	U
1,1,1-Trichloroethane	U	50	U	60	U
Carbon Tetrachloride	U	50	U	60	U
Benzene	U	50	U	60	U
Trichloroethene	U	50	5700	60	5500
1,2-Dichloropropane	U	50	U	60	U
Bromodichloromethane	U	50	U	60	U
Dibromomethane	U	50	U	60	U
cis-1,3-Dichloropropene	U	50	U	60	U
trans-1,3-Dichloropropene	U	50	U	60	U
1,1,2-Trichloroethane	U	50	U	60	U
1,3-Dichloropropane	U	50	U	60	U
Dibromochloromethane	U	50	U	60	U
1,2-Dibromoethane	U	50	U	60	U
Bromoform	U	50	U	60	U
4-Methyl-2-Pentanone	U	100	U	120	U
Toluene	U	50	64	60	U
2-Hexanone	U	100	U	120	U
Tetrachloroethene	U	50	U	60	U
Chlorobenzene	U	50	U	60	U
1,1,1,2-Tetrachloroethane	U	50	U	60	U
Ethylbenzene	U	50	U	60	U
p&m-Xylene	U	50	U	60	210
o-Xylene	U	50	U	60	230
Styrene	U	50	U	60	U
Isopropylbenzene	U	50	U	60	110
1,1,2,2-Tetrachloroethane	U	50	U	60	U
1,2,3-Trichloropropane	U	50	U	60	U
n-Propylbenzene	U	50	U	60	270
Bromobenzene	U	50	U	60	U
1,3,5-Tnmethylbenzene	U	50	U	60	640
2-Chlorotoluene	U	50	U	60	U
4-Chlorotoluene	U	50	U	60	U
tert-Butylbenzene	U	50	U	60	U
1,2,4-Tnmethylbenzene	U	50	U	60	880
sec-Butylbenzene	U	50	U	60	250
p-Isopropyltoluene	U	50	U	60	150
1,3-Dichlorobenzene	U	50	U	60	U
1,4-Dichlorobenzene	U	50	U	60	U
n-Butylbenzene	U	50	U	60	610
1,2-Dichlorobenzene	U	50	U	60	U
1,2-Dibromo-3-chloropropane	U	50	U	60	U
1,2,4-Tnchlorobenzene	U	50	U	60	U
Hexachlorobutadiene	U	50	280	60	U
Naphthalene	U	50	72	60	820
1,2,3-Trichlorobenzene	U	50	U	60	U

**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		
<b>Compound</b>	<b>Conc.</b>	<b>MDL</b>	<b>Conc.</b>	<b>MDL</b>
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	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-Dichloropropene	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-Tri(methyl)benzene	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 BH-8, 16-20	27028 A, B BH-1, 28-32	23742 A, B BH-3, 32-34	23745 A, B BH-12, 12-16
Location :	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
<u>Compound</u>	<u>Conc.</u>	<u>MDL</u>	<u>Conc.</u>	<u>MDL</u>	<u>Conc.</u>
Dichlorodifluoromethane	U	50	U	56	U
Chloromethane	U	50	U	56	U
Vinyl Chloride	U	50	U	56	U
Bromomethane	U	100	U	110	U
Chloroethane	U	50	U	56	U
Trichlorofluoromethane	U	50	U	56	U
Acetone	U	400	220	J 450	U
1,1-Dichloroethene	U	50	U	56	U
Methylene Chloride	U	50	U	56	U
Carbon Disulfide	U	50	U	56	U
Methyl-t-butyl Ether	U	50	U	56	U
trans-1,2-Dichloroethene	U	50	U	56	U
1,1-Dichloroethane	U	50	U	56	U
2-Butanone	U	200	130	J 220	U
2,2-Dichloropropane	U	50	U	56	U
cis-1,2-Dichloroethene	U	50	U	56	U
Chloroform	U	50	U	56	U
1,1-Dichloropropene	U	50	U	56	U
1,2-Dichloroethane	U	50	U	56	U
1,1,1-Trichloroethane	U	50	U	56	U
Carbon Tetrachloride	U	50	U	56	U
Benzene	U	50	U	56	U
Trichloroethene	U	50	3000	56 170000	2900 830000
1,2-Dichloropropane	U	50	U	56	U
Bromodichloromethane	U	50	U	56	U
Dibromomethane	U	50	U	56	U
cis-1,3-Dichloropropene	U	50	U	56	U
trans-1,3-Dichloropropene	U	50	U	56	U
1,1,2-Trichloroethane	U	50	U	56	U
1,3-Dichloropropane	U	50	U	56	U
Dibromochloromethane	U	50	U	56	U
1,2-Dibromoethane	U	50	U	56	U
Bromoform	U	50	U	56	U
4-Methyl-2-Pentanone	U	100	U	110	U
Toluene	U	50	U	56	U
2-Hexanone	U	100	U	110	U
Tetrachloroethene	U	50	U	56	U
Chlorobenzene	U	50	U	56	U
1,1,2-Tetrachloroethane	U	50	U	56	U
Ethylbenzene	U	50	140	56	U
p&m-Xylene	U	50	430	56 5700	2900 13000
o-Xylene	U	50	370	56 3700	2900 12000
Styrene	U	50	U	56	U
Isopropylbenzene	U	50	110	56	U
1,1,2,2-Tetrachloroethane	U	50	U	56	U
1,2,3-Trichloropropane	U	50	U	56	U
n-Propylbenzene	U	50	300	56 2900	2900 7100
Bromobenzene	U	50	U	56	U
1,3,5-Trimethylbenzene	U	50	730	56 4200	2900 11000
2-Chlorotoluene	U	50	U	56	U
4-Chlorotoluene	U	50	U	56	U
tert-Butylbenzene	U	50	U	56	U
1,2,4-Trimethylbenzene	U	50	1900	56 14000	2900 36000
sec-Butylbenzene	U	50	250	56	U
p-Isopropyltoluene	U	50	170	56	U
1,3-Dichlorobenzene	U	50	U	56	U
1,4-Dichlorobenzene	U	50	U	56	U
n-Butylbenzene	U	50	670	56 3700	2900 9900
1,2-Dichlorobenzene	U	50	U	56	U
1,2-Dibromo-3-chloropropane	U	50	U	56	U
1,2,4-Trichlorobenzene	U	50	U	56	U
Hexachlorobutadiene	U	50	U	56	U
Naphthalene	U	50	1500	56 14000	2900 33000
1,2,3-Trichlorobenzene	U	50	U	56	U

**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 BH-10, 28-31	23744 A, B BH-10, 28-31 dup.	23743 A, B H-4, 24-27	27037 A, B BH-7, 32-34
Location	AV3157.D	AV3158.D	AV3161.D	AV3162.D	AV3169.D
File					
Dil. Fact.	1	1	1	1	1
Unit	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
% Solid	100	69	70	81	76
<u><b>Compound</b></u>	<u><b>Conc.</b></u>	<u><b>MDL</b></u>	<u><b>Conc.</b></u>	<u><b>MDL</b></u>	<u><b>Conc.</b></u>
Dichlorodifluoromethane	U	1.0	U	1.4	U
Chloromethane	U	1.0	U	1.4	U
Vinyl Chloride	U	1.0	U	1.4	U
Bromomethane	U	2.0	U	2.9	U
Chloroethane	U	1.0	U	1.4	U
Trichlorofluoromethane	U	1.0	U	1.4	U
Acetone	U	8.0	U	12	J
1,1-Dichloroethene	U	1.0	U	1.4	U
Methylene Chloride	U	1.0	U	1.4	U
Carbon Disulfide	U	1.0	U	1.4	U
Methyl-t-butyl Ether	U	1.0	U	1.4	U
trans-1,2-Dichloroethene	U	1.0	U	1.4	U
1,1-Dichloroethane	U	1.0	U	1.4	U
2-Butanone	U	4.0	U	5.8	U
2,2-Dichloropropane	U	1.0	U	1.4	U
cis-1,2-Dichloroethene	U	1.0	U	1.4	U
Chloroform	U	1.0	U	1.4	U
1,1-Dichloropropene	U	1.0	U	1.4	U
1,2-Dichloroethane	U	1.0	U	1.4	U
1,1,1-Trichloroethane	U	1.0	U	1.4	U
Carbon Tetrachloride	U	1.0	U	1.4	U
Benzene	U	1.0	U	1.4	U
Trichloroethene	U	1.0	40	25	1.4
1,2-Dichloropropane	U	1.0	U	1.4	U
Bromodichloromethane	U	1.0	U	1.4	U
Dibromomethane	U	1.0	U	1.4	U
cis-1,3-Dichloropropene	U	1.0	U	1.4	U
trans-1,3-Dichloropropene	U	1.0	U	1.4	U
1,1,2-Trichloroethane	U	1.0	U	1.4	U
1,3-Dichloropropane	U	1.0	U	1.4	U
Dibromochloromethane	U	1.0	U	1.4	U
1,2-Dibromoethane	U	1.0	U	1.4	U
Bromoform	U	1.0	U	1.4	U
4-Methyl-2-Pentanone	U	2.0	U	2.9	U
Toluene	U	1.0	U	1.4	U
2-Hexanone	U	2.0	U	2.9	U
Tetrachloroethene	U	1.0	U	1.4	U
Chlorobenzene	U	1.0	U	1.4	U
1,1,2-Tetrachloroethane	U	1.0	U	1.4	U
Ethylbenzene	U	1.0	U	1.4	U
p&m-Xylene	U	1.0	U	1.4	U
o-Xylene	U	1.0	U	1.4	U
Styrene	U	1.0	U	1.4	U
Isopropylbenzene	U	1.0	U	1.4	U
1,1,2,2-Tetrachloroethane	U	1.0	U	1.4	U
1,2,3-Tnchloropropane	U	1.0	U	1.4	U
n-Propylbenzene	U	1.0	U	1.4	U
Bromobenzene	U	1.0	U	1.4	U
1,3,5-Trimethylbenzene	U	1.0	U	1.4	U
2-Chlorotoluene	U	1.0	U	1.4	U
4-Chlorotoluene	U	1.0	U	1.4	U
tert-Butylbenzene	U	1.0	U	1.4	U
1,2,4-Trimethylbenzene	U	1.0	U	1.4	U
sec-Butylbenzene	U	1.0	U	1.4	U
p-Isopropyltoluene	U	1.0	U	1.4	U
1,3-Dichlorobenzene	U	1.0	U	1.4	U
1,4-Dichlorobenzene	U	1.0	U	1.4	U
n-Butylbenzene	U	1.0	U	1.4	U
1,2-Dichlorobenzene	U	1.0	U	1.4	U
1,2-Dibromo-3-chloropropane	U	1.0	U	1.4	U
1,2,4-Tnchlorobenzene	U	1.0	U	1.4	U
Hexachlorobutadiene	U	1.0	U	1.4	U
Naphthalene	U	1.0	U	1.4	U
1,2,3-Trichlorobenzene	U	1.0	U	1.4	U

**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 BH-2, 20-21	23746 A, B BH-12, 16-19	MeOH blank 051400	26510 A, B BH-9, 30-31
Location :	AV3156.D	AV3163.D	AV3168.D	AV3176.D	AV3178.D
File :					
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
<u>Compound</u>	<u>Conc.</u>	<u>MDL</u>	<u>Conc.</u>	<u>MDL</u>	<u>Conc.</u>
Dichlorodifluoromethane	U	50	U	120	U
Chloromethane	U	50	U	120	U
Vinyl Chloride	U	50	U	120	U
Bromomethane	U	100	U	230	U
Chloroethane	U	50	U	120	U
Trichlorofluoromethane	U	50	U	120	U
Acetone	U	400	U	930	U
1,1-Dichloroethene	U	50	U	120	U
Methylene Chloride	U	50	U	120	U
Carbon Disulfide	U	50	U	120	U
Methyl-t-butyl Ether	U	50	U	120	U
trans-1,2-Dichloroethene	U	50	U	120	U
1,1-Dichloroethane	U	50	U	120	U
2-Butanone	U	200	U	470	U
2,2-Dichloropropane	U	50	U	120	U
cis-1,2-Dichloroethene	U	50	U	120	U
Chloroform	U	50	U	120	U
1,1-Dichloropropene	U	50	U	120	U
1,2-Dichloroethane	U	50	U	120	U
1,1,1-Trichloroethane	U	50	310	120	15000
Carbon Tetrachloride	U	50	U	2300	U
Benzene	U	50	U	120	U
Trichloroethene	U	50	14000	120	140000
1,2-Dichloropropane	U	50	U	120	U
Bromodichloromethane	U	50	U	120	U
Dibromomethane	U	50	U	120	U
cis-1,3-Dichloropropene	U	50	U	120	U
trans-1,3-Dichloropropene	U	50	U	120	U
1,1,2-Trichloroethane	U	50	U	120	U
1,3-Dichloropropane	U	50	U	120	U
Dibromochloromethane	U	50	U	120	U
1,2-Dibromoethane	U	50	U	120	U
Bromoform	U	50	U	120	U
4-Methyl-2-Pentanone	U	100	U	230	U
Toluene	U	50	U	120	2800
2-Hexanone	U	100	U	230	U
Tetrachloroethene	U	50	280	120	U
Chlorobenzene	U	50	U	120	U
1,1,1,2-Tetrachloroethane	U	50	U	120	U
Ethylbenzene	U	50	210	120	4200
p&m-Xylene	U	50	580	120	12000
o-Xylene	U	50	400	120	7400
Styrene	U	50	U	120	U
Isopropylbenzene	U	50	300	120	2500
1,1,2,2-Tetrachloroethane	U	50	U	120	U
1,2,3-Trichloropropane	U	50	U	120	U
n-Propylbenzene	U	50	770	120	4800
Bromobenzene	U	50	U	120	U
1,3,5-Trimethylbenzene	U	50	1600	120	8600
2-Chlorotoluene	U	50	U	120	U
4-Chlorotoluene	U	50	U	120	U
tert-Butylbenzene	U	50	U	120	U
1,2,4-Trimethylbenzene	U	50	4100	120	25000
sec-Butylbenzene	U	50	930	120	4000
p-Isopropyltoluene	U	50	660	120	2500
1,3-Dichlorobenzene	U	50	U	120	U
1,4-Dichlorobenzene	U	50	U	120	U
n-Butylbenzene	U	50	2000	120	6600
1,2-Dichlorobenzene	U	50	U	120	U
1,2-Dibromo-3-chloropropane	U	50	U	120	U
1,2,4-Trichlorobenzene	U	50	U	120	U
Hexachlorobutadiene	U	50	U	120	U
Naphthalene	U	50	4800	120	20000
1,2,3-Trichlorobenzene	U	50	U	120	U

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

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

<b>Sample #</b>	<b>Compound</b>
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 <sub>9</sub> H <sub>12</sub> Trimethylbenzene		20.06	860
5		Unknown		20.34	2800
6		C <sub>10</sub> H <sub>14</sub> Alkybenzene		21.30	880
7		Unknown		21.54	1400
8		Unknown		21.85	1000
9		C <sub>10</sub> H <sub>14</sub> 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

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 <sub>9</sub> H <sub>18</sub> Cycloalkane		16.83	28000
4	124-18-5	Decane	95	17.77	12000
5		C <sub>9</sub> H <sub>12</sub> C <sub>3</sub> benzene		18.08	11000
6		C <sub>9</sub> H <sub>12</sub> C <sub>3</sub> benzene		18.73	13000
7		C <sub>9</sub> H <sub>12</sub> C <sub>3</sub> benzene		20.04	16000
8		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		20.38	36000
9		Decahydronaphthalene		20.73	14000
10		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		20.91	11000
11		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		21.30	13000
12		Unknown		21.54	19000
13		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> 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 <sub>8</sub> H <sub>16</sub> C <sub>2</sub> Cyclohexane		12.97	4500
3		Unknown		14.54	6300
4		Unknown		16.83	8600
5		C <sub>9</sub> H <sub>12</sub> C <sub>3</sub> benzene		18.08	5400
6		C <sub>9</sub> H <sub>12</sub> C <sub>3</sub> benzene		18.73	5900
7		C <sub>10</sub> H <sub>14</sub> Alkylbenzene		19.62	4100
8		C <sub>9</sub> H <sub>12</sub> C <sub>3</sub> benzene		20.05	6800
9		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		20.38	14000
10		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		20.91	4600
11		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		21.30	5900
12		C <sub>11</sub> H <sub>16</sub> C <sub>5</sub> benzene		21.54	8600
13		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> 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

$\mu\text{g}/\text{kg}$

LabFile# AV3124

Con. Factor

322.6

	CAS#	Compound	Q	RT	Conc
1	108-87-2	Methyl Cycloalkane	96	11.54	4600
2		C <sub>8</sub> H <sub>16</sub> C <sub>2</sub> Cyclohexane		12.97	3400
3		C <sub>8</sub> H <sub>16</sub> C <sub>2</sub> Cyclohexane + Alkenes		14.54	5000
4		C <sub>9</sub> H <sub>18</sub> C <sub>3</sub> Cyclohexane + Alkenes+Alkane		16.83	6700
5	124-18-5	Decane	97	17.78	3300
6		C <sub>9</sub> H <sub>12</sub> C <sub>3</sub> benzene		18.07	4400
7		C <sub>9</sub> H <sub>12</sub> C <sub>3</sub> benzene		18.73	2900
8		C <sub>9</sub> H <sub>12</sub> C <sub>3</sub> benzene		20.05	3300
9		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		20.38	9000
10		Decahydronaphthalene+unknown		20.74	3100
11		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> 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 <sub>9</sub> H <sub>18</sub> C <sub>3</sub> Cyclohexane + Alkenes+Alkane		16.83	1500
2		C <sub>9</sub> H <sub>12</sub> C <sub>3</sub> benzene		18.07	1200
3		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		19.63	1000
4		C <sub>9</sub> H <sub>12</sub> Trimethylbenzene		20.05	1000
5		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		20.37	2900
6		Decahydronaphthalene+unknowns		20.73	920
7		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		20.91	720
8		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		21.31	1000
9		Unknown		21.54	1400
10		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		22.02	680
11		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> 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

Unit

µg/kg

LabFile# AV3138

Con. Factor

2857.1

	CAS#	Compound	Q	RT	Conc
1		C <sub>9</sub> H <sub>18</sub> C <sub>3</sub> 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 <sub>2</sub> Cyclohexane		14.54	14000
3		Unknown		16.27	11000
4		C <sub>3</sub> Cyclohexane		16.83	33000
5	124-18-5	Decane	95	17.76	43000
6		C <sub>3</sub> Cyclohexane		18.06	20000
7		C <sub>3</sub> Cyclohexane		18.71	12000
8		C <sub>4</sub> Cyclohexane		19.62	29000
9		C <sub>9</sub> H <sub>12</sub> Trimethylbenzene		20.04	13000
10	1120-21-4	Undecane	93	20.31	110000
11		C <sub>4</sub> Cyclohexane		21.29	12000
12		C <sub>11</sub> H <sub>16</sub> Alkylbenzene		21.52	29000
13		Unknown		21.67	16000
14		Unknown		21.84	21000
15		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> 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  $\mu\text{g}/\text{kg}$

LabFile# AV3146

Con. Factor

224.7

	CAS#	Compound	Q	RT	Conc
1	108-87-2	Methyl Cycloalkane	96	11.52	6900
2		C <sub>2</sub> Cyclohexane		12.97	6500
3		C <sub>2</sub> Cyclohexane + Alkene		14.53	7700
4		C <sub>3</sub> Cycloalkane+ Alkene+Alkane		16.82	8800
5		C <sub>9</sub> H <sub>12</sub> C <sub>3</sub> benzene		18.06	6200
6		C <sub>9</sub> H <sub>12</sub> C <sub>3</sub> benzene		18.72	4700
7		C <sub>9</sub> H <sub>12</sub> C <sub>3</sub> benzene		20.04	6200
8		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		20.36	12000
9		Decahydronaphthalene+unknown		20.72	4700
10		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		20.91	4200
11		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		21.29	5400
12		Unknown		21.53	7700
13		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> 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

 $\mu\text{g}/\text{kg}$ 

LabFile# AV3163

Con. Factor

116.3

	CAS#	Compound	Q	RT	Conc
1		C <sub>8</sub> H <sub>16</sub> Cycloalkane+alkene		14.55	2500
2		C <sub>10</sub> H <sub>22</sub> Alkane		16.28	1900
3		Cycloalkane+ Alkene+Alkane		16.85	5100
4	124-18-5	Decane	95	17.79	2800
5		C <sub>9</sub> H <sub>12</sub> C <sub>3</sub> benzene		18.09	1900
6		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		19.65	3700
7		Undecane+Alkylbenzene		20.35	8800
8		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		20.93	2200
9		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		21.32	2300
10		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		21.56	4000
11		C <sub>11</sub> H <sub>20</sub> Cyclic alkane		21.86	2300
12		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		22.17	2000
13	112-40-3	Dodecane	96	22.40	3500
14		C <sub>10</sub> H <sub>14</sub> 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  $\mu\text{g/kg}$   
Con. Factor 1149.4

	CAS#	Compound	Q	RT	Conc
1	108-87-2	Methyl Cycloalkane	96	11.55	9200
2		C <sub>2</sub> Cyclohexane		14.55	14000
3		C <sub>10</sub> H <sub>22</sub> Alkane+Alkene		16.28	10000
4		C <sub>9</sub> H <sub>18</sub> Cycloalkane+ Alkene+Alkane		16.85	29000
5	124-18-5	Decane	95	17.79	21000
6		C <sub>9</sub> H <sub>12</sub> C <sub>3</sub> benzene		18.09	14000
7		C <sub>9</sub> H <sub>12</sub> C <sub>3</sub> benzene		18.74	10000
8		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		19.65	18000
9		C <sub>9</sub> H <sub>12</sub> C <sub>3</sub> benzene		20.07	11000
10		Undecane+ Alkylbenzene		20.34	44000
11		Decahydronaphthalene+unknown		20.75	12000
12		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> 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  $\mu\text{g}/\text{kg}$   
 LabFile# AV3178 Con. Factor 12.3

	CAS#	Compound	Q	RT	Conc
1		Unknown Cycloalkane+Alkene		14.56	180
2		C <sub>10</sub> H <sub>22</sub> Alkane+Alkene		16.31	150
3		C <sub>9</sub> H <sub>18</sub> Cycloalkane+alkene+alkane		16.86	460
4	124-18-5	Decane	95	17.82	350
5		C <sub>9</sub> H <sub>12</sub> C <sub>3</sub> benzene		18.12	200
6		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		19.67	290
7		C <sub>9</sub> H <sub>12</sub> C <sub>3</sub> benzene		20.10	180
8		Undecane+C <sub>10</sub> H <sub>14</sub> Alkylbenzene		20.37	610
9		C <sub>10</sub> H <sub>14</sub> Alkylbenzenes		20.57	400
10		Decahydronaphthalene+unknowns		20.77	220
11		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		21.34	180
12		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		21.57	140
13		C <sub>10</sub> H <sub>14</sub> C <sub>4</sub> benzene		22.20	150
14		C <sub>10</sub> H <sub>12</sub> 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 BH-1, 12-16	27044A, B BH-1, 20-24	27028A, B BH-1, 28-32	27043A, B BH-1, 32-38			
Sample Location	Lab Blank	MIL002	MIL003	MIL004	MIL006			
GC/MS File Name		Soil	Soil	Soil	Soil			
Matrix		1	50	50	10			
Dilution Factor		100	87	81	70			
% Solid					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
Phenol	U	330	U	19000	U	21000	U	24000
bis(-2-Chloroethyl)Ether	U	330	U	19000	U	21000	U	24000
2-Chlorophenol	U	330	U	19000	U	21000	U	24000
1,3-Dichlorobenzene	U	330	U	19000	U	21000	U	24000
1,4-Dichlorobenzene	U	330	U	19000	U	21000	U	24000
Benzyl alcohol	U	330	U	19000	U	21000	U	24000
1,2-Dichlorobenzene	U	330	U	19000	U	21000	U	24000
2-Methylphenol	U	330	U	19000	U	21000	U	24000
bis(2-Chloroisopropyl)ether	U	330	U	19000	U	21000	U	24000
4-Methylphenol	U	330	U	19000	U	21000	U	24000
N-Nitroso-Di-n-propylamine	U	330	U	19000	U	21000	U	24000
Hexachloroethane	U	330	U	19000	U	21000	U	24000
Nitrobenzene	U	330	U	19000	U	21000	U	24000
Isophorone	U	330	U	19000	U	21000	U	24000
2-Nitrophenol	U	330	U	19000	U	21000	U	24000
2,4-Dimethylphenol	U	330	U	19000	U	21000	U	24000
bis(2-Chloroethoxy)methane	U	330	U	19000	U	21000	U	24000
2,4-Dichlorophenol	U	330	U	19000	U	21000	U	24000
1,2,4-Trichlorobenzene	U	330	U	19000	U	21000	U	24000
Naphthalene	U	330	6000 J	19000	21000	21000	12000 J	24000
4-Chloroniline	U	330	U	19000	U	21000	U	24000
Hexachlorobutadiene	U	330	U	19000	U	21000	U	24000
4-Chloro-3-methylphenol	U	330	U	19000	U	21000	U	24000
2-Methylnaphthalene	U	330	69000	19000	270000	21000	88000	24000
Hexachlorocyclopentadiene	U	330	U	19000	U	21000	U	24000
2,4,8-Trichlorophenol	U	330	U	19000	U	21000	U	24000
2,4,5-Trichlorophenol	U	330	U	19000	U	21000	U	24000
2-Chloronaphthalene	U	330	U	19000	U	21000	U	24000
2-Nitroaniline	U	330	U	19000	U	21000	U	24000
Dimethylphthalate	U	330	U	19000	U	21000	U	24000
Acenaphthylene	U	330	U	19000	U	21000	U	24000
2,6-Dinitrotoluene	U	330	U	19000	U	21000	U	24000
3-Nitroaniline	U	330	U	19000	U	21000	U	24000
Acenaphthene	U	330	U	19000	U	21000	U	24000
2,4-Dinitrophenol	U	330	U	19000	U	21000	U	24000
4-Nitrophenol	U	330	U	19000	U	21000	U	24000
Dibenzofuran	U	330	U	19000	8900 J	21000	U	24000
2,4-Dinitrotoluene	U	330	U	19000	U	21000	U	24000
Diethylphthalate	U	330	U	19000	U	21000	U	24000
4-Chlorophenyl-phenylether	U	330	U	19000	U	21000	U	24000
Fluorene	U	330	U	19000	10000 J	21000	6900 J	24000
4-Nitroaniline	U	330	U	19000	U	21000	U	24000
4,6-Dinitro-2-methylphenol	U	330	U	19000	U	21000	U	24000
N-Nitrosodiphenylamine	U	330	U	19000	U	21000	U	24000
4-Bromophenyl-phenylether	U	330	U	19000	U	21000	U	24000
Hexachlorobenzene	U	330	U	19000	U	21000	U	24000
Pentachlorophenol	U	330	U	19000	U	21000	U	24000
Phenanthrene	U	330	11000 J	19000	44000	21000	15000 J	24000
Anthracene	U	330	U	19000	U	21000	U	24000
Carbazole	U	330	U	19000	U	21000	U	24000
Di-n-butylphthalate	U	330	U	19000	U	21000	U	24000
Fluoranthene	U	330	U	19000	U	21000	U	24000
Pyrene	U	330	U	19000	U	21000	U	24000
Butylbenzylphthalate	U	330	U	19000	U	21000	U	24000
Benzo(a)anthracene	U	330	U	19000	U	21000	U	24000
3,3'-Dichlorobenzidine	U	330	U	19000	U	21000	U	24000
Chrysene	U	330	U	19000	U	21000	U	24000
Bis(2-Ethylhexyl)phthalate	110 J	330	U	19000	U	21000	U	24000
Di-n-octylphthalate	U	330	U	19000	U	21000	U	24000
Benzo(b)fluoranthene	U	330	U	19000	U	21000	U	24000
Benzo(k)fluoranthene	U	330	U	19000	U	21000	U	24000
Benzo(a)pyrene	U	330	U	19000	U	21000	U	24000
Indeno(1,2,3-cd)pyrene	U	330	U	19000	U	21000	U	24000
Dibenzo(a,h)anthracene	U	330	U	19000	U	21000	U	24000
Benzo(g,h,i)perylene	U	330	U	19000	U	21000	U	24000

**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 BH-5, 20-24	27041A, B BH-5, 32-34	27042A, B BH-5, 20-22	27037A, B BH-7, 32-34	27038A, B BH-8, 28-31.5					
Sample Location	Soil	Soil	Soil	Soil	Soil					
GC/MS File Name	MIL007	MIL008	MIL009	MIL018	MIL039					
Matrix	1	1	1	1	1					
Dilution Factor	80	76	93	76	84					
% Solid										
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	U	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	J	330 J
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
Benz(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	J	440	U	400
Di-n-octylphthalate	U	420	U	440	U	360	U	440	U	400
Benz(b)fluoranthene	U	420	U	440	U	360	U	440	U	400
Benz(k)fluoranthene	U	420	U	440	U	360	U	440	U	400
Benz(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
Benz(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 BH-8, 16-20 MIL024	27027A, B BH-8, 21-31.5 Dup MIL040	SBLK051001 Lab Blank MIL026	23741A, B BH-2, 20-21 MIL027	23742A, B BH-3, 32-34 MIL028					
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	3800	U	410	U	330	U	3900	U	4400	
1,4-Dichlorobenzene	3800	U	410	U	330	U	3900	U	4400	
Benzyl alcohol	3800	U	410	U	330	U	3900	U	4400	
1,2-Dichlorobenzene	3800	U	410	U	330	U	3900	U	4400	
2-Methylphenol	3800	U	410	U	330	U	3900	U	4400	
bis(2-Chloroisopropyl)ether	3800	U	410	U	330	U	3900	U	4400	
4-Methylphenol	3800	U	410	U	330	U	3900	U	4400	
N-Nitroso-Di-n-propylamine	3800	U	410	U	330	U	3900	U	4400	
Hexachloroethane	3800	U	410	U	330	U	3900	U	4400	
Nitrobenzene	3800	U	410	U	330	U	3900	U	4400	
Isophorone	3800	U	410	U	330	U	3900	U	4400	
2-Nitrophenol	3800	U	410	U	330	U	3900	U	4400	
2,4-Dimethylphenol	3800	U	410	U	330	U	3900	U	4400	
bis(2-Chloroethyl)methane	3800	U	410	U	330	U	3900	U	4400	
2,4-Dichlorophenol	3800	U	410	U	330	U	3900	U	4400	
1,2,4-Trichlorobenzene	3800	U	410	U	330	U	3900	U	4400	
Naphthalene	3800	U	410	U	330	U	1400 J	3900	26000	4400
4-Chloraniline	3800	U	410	U	330	U	3900	U	4400	
Hexachlorobutadiene	3800	U	410	U	330	U	3900	U	4400	
4-Chloro-3-methylphenol	3800	U	410	U	330	U	3900	U	4400	
2-Methylnaphthalene	14000	3800	2500	410	330	U	17000	3900	160000	4400
Hexachlorocyclopentadiene	3800	U	410	U	330	U	3900	U	4400	
2,4,8-Trichlorophenol	3800	U	410	U	330	U	3900	U	4400	
2,4,5-Trichlorophenol	3800	U	410	U	330	U	3900	U	4400	
2-Chloronaphthalene	3800	U	410	U	330	U	3900	U	4400	
2-Nitroaniline	3800	U	410	U	330	U	3900	U	4400	
Dimethylphthalate	3800	U	410	U	330	U	3900	U	4400	
Acenaphthylene	3800	U	410	U	330	U	3900	U	4400	
2,6-Dinitrotoluene	3800	U	410	U	330	U	3900	U	4400	
3-Nitroaniline	3800	U	410	U	330	U	3900	U	4400	
Acenaphthene	3800	U	410	U	330	U	3900	U	6800	4400
2,4-Dinitrophenol	3800	U	410	U	330	U	3900	U	4400	
4-Nitrophenol	3800	U	410	U	330	U	3900	U	4400	
Dibenzofuran	3800	U	120 J	410	330	U	3900	U	5100	4400
2,4-Dinitrotoluene	3800	U	410	U	330	U	3900	U	4400	
Diethylphthalate	3800	U	410	U	330	U	3900	U	4400	
4-Chlorophenyl-phenylether	3800	U	410	U	330	U	3900	U	4400	
Fluorene	3800	U	170 J	410	330	U	1300 J	3900	12000	4400
4-Nitroaniline	3800	U	410	U	330	U	3900	U	4400	
4,6-Dinitro-2-methylphenol	3800	U	410	U	330	U	3900	U	4400	
N-Nitrosodiphenylamine	3800	U	410	U	330	U	3900	U	4400	
4-Bromophenyl-phenylether	3800	U	410	U	330	U	3900	U	4400	
Hexachlorobenzene	3800	U	410	U	330	U	3900	U	4400	
Pentachlorophenol	3800	U	410	U	330	U	3900	U	4400	
Phenanthrene	3100 J	3800	840	410	330	U	3700 J	3900	24000	4400
Anthracene	3800	U	410	U	330	U	3900	U	1800 J	4400
Carbazole	3800	U	410	U	330	U	3900	U	4400	
Di-n-butylphthalate	3800	U	410	U	330	U	3900	U	4400	
Fluoranthene	3800	U	410	U	330	U	3900	U	4400	
Pyrene	3800	U	410	U	330	U	3900	U	2100 J	4400
Butylbenzylphthalate	3800	U	410	U	330	U	3900	U	4400	
Benzo(a)anthracene	3800	U	410	U	330	U	3900	U	4400	
3,3'-Dichlorobenzidine	3800	U	410	U	330	U	3900	U	4400	
Chrysene	3800	U	410	U	330	U	3900	U	4400	
Bis(2-Ethyhexyl)phthalate	3800	U	410	U	330	U	3900	U	4400	
Di-n-octylphthalate	3800	U	410	U	330	U	3900	U	4400	
Benzo(b)fluoranthene	3800	U	410	U	330	U	3900	U	4400	
Benzo(k)fluoranthene	3800	U	410	U	330	U	3900	U	4400	
Benzo(a)pyrene	3800	U	410	U	330	U	3900	U	4400	
Indeno(1,2,3-cd)pyrene	3800	U	410	U	330	U	3900	U	4400	
Dibenzo(a,h)anthracene	3800	U	410	U	330	U	3900	U	4400	
Benzo(g,h,i)perylene	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 BH-4, 24-27 MIL029	26510A, B BH-9, 30-31 MIL030	26511A, B BH-10, 28-31 MIL042	23744A BH-10 28-31 Dup MIL047	23747A BH-11, 8-12 MIL048					
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		
GCMS 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
Benz(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
D-n-octylphthalate	U	3700	U	19000
Benz(a)bifluoranthene	U	3700	U	19000
Benz(k)bifluoranthene	U	3700	U	19000
Benz(a)pyrene	U	3700	U	19000
Indeno(1,2,3-cd)pyrene	U	3700	U	19000
Dibenzo(a,h)anthracene	U	3700	U	19000
Benz(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 #	LabFile#	SBLK050901 MIL002	Con. Factor	33	Conc.*
	CAS#	Compound	Q	RT	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		Con. Factor	1911	
LabFile#	MIL003			Conc.*	
	CAS#	Compound	Q	RT	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		Con. Factor	2050	
LabFile#	MIL004			Conc.*	
	CAS#	Compound	Q	RT	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 #	LabFile#	27028A, B 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		Con. Factor	540
LabFile#	MIL006			Conc.*
	CAS#	Compound	Q	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 #	LabFile#	27040, A, B 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 #	LabFile#	27041A, B MIL008	Con. Factor	44	Conc.*
	CAS#	Compound	Q	RT	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 #	LabFile#	27042A, B MIL009	Con. Factor	36	Conc.*
	CAS#	Compound	Q	RT	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	Con. Factor	44		
LabFile#	MIL018		Conc.*		
	CAS#	Compound	Q	RT	Conc.*
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 # LabFile#	27038A, B MIL039	Con. Factor	40	Conc.* µg/kg	
	CAS#	Compound	Q	RT	
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		Con. Factor	375	
LabFile#	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	Con. Factor	41
LabFile#		MIL040		Conc.*
	CAS#	Compound	Q	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	Con. Factor	33	Conc.*
LabFile#		MIL026			µg/kg
1	CAS#	Compound	Q	RT	
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 # LabFile#	CAS#	Compound	Con. Factor	Conc.* μg/kg
	23741A, B MIL027			386
1		Alkane	Q	RT
2		Alkane		6.21 21000
3		Alkane		6.99 32000
4		Alkane		7.53 20000
5		Tetrahydro-dimethyl-naphthalene isomer + Unknown		7.73 53000
6		Methyl-naphthalene isomer + Alkane		8.11 10000
7		Dimethyl-naphthalene isomer		8.14 26000
8		Alkane		8.76 21000
9		Alkane		8.84 18000
10		Dimethyl-naphthalene isomer + Unknown		8.87 15000
11		Alkane		8.90 16000
12		Alkane		9.08 34000
13		Dimethyl-naphthalene isomer + Alkane		9.14 13000
14		Alkane		9.70 38000
15		Alkane		10.28 35000
16		Alkane		10.31 26000
17		Alkane		10.83 28000
18		Alkane		10.88 12000
19		Alkane		11.35 23000
20		Alkane		11.85 21000
		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 # LabFile#	23742A, B MIL028	Con. Factor	435
	CAS#	Compound	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 #  
LabFile#23743A, B  
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 #	LabFile#	26510A, B 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 #	LabFile#	26511A, B 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 #	LabFile#	23744A, B MIL047	Con. Factor	47	Conc.*
	CAS#	Compound	Q	RT	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	Con. Factor	39		
LabFile#	MIL048	Conc.*			
	CAS#	Compound	Q	RT	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		Con. Factor	375
LabFile#	CAS#	Compound	Q	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 #	CAS#	Compound	Q	RT	Conc.*	1907
					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 :		1		1		5	BH-3	
Dil. Fact.		mg/L		mg/L		mg/L	5	
Unit							mg/L	
<u>Compound</u>	<u>Conc.</u>	<u>MDL</u>	<u>Conc.</u>	<u>MDL</u>	<u>Conc.</u>	<u>MDL</u>	<u>Conc.</u>	<u>MDL</u>
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<sub>8</sub>, 4-bromofluorobenzene and 1,2-dichloroethane-d<sub>4</sub>, and a three component internal standard mixture consisting of bromochloromethane, 1,4-difluorobenzene, and chlorobenzene-d<sub>5</sub>.

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	Sur. 1	Sur. 2	Sur.
V3111.D	Soil blank 050901	296246	2719638	1125685	100	104	
AV3112.D	27040, A, B	265509	2337910	951065	103	105	
AV3113.D	27041 A, B	236178	2062324	843918	105	106	
V3114.D	27042 A, B	239717	2078865	885677	107	103	
AV3115.D	27040, A, B ms	221694	2031046	852497	110	102	
AV3116.D	27040, A, Bmsd	217619	1953240	831302	111	101	
V3118.D	MeOH blank 050901	267656	2114923	890345	116	104	
AV3119.D	27038 A, B/1:50	208916	1890521	824543	110	107	
AV3120.D	27027 A, B/1:50	219135	1971395	988923	110	97	
AV3121.D	27044 A, B/1:1,000	330320	2945789	1419274	106	95	
AV3123.D	27025 A, B/1:200	325737	2884465	1425007	103	93	
AV3124.D	27043 A, B/1:200	327574	2996221	1440702	104	95	
Cal Check Area	AV3110.D	309251	2802460	1228850			

Surrogate Limits

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

Mills Gap Road Site  
RIA00141

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					
IS 1	Bromochloromethane	Surr. 1	1,2-Dichloroethane-d4	Soil	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				
IS 1	Bromochloromethane	Surr. 1	1,2-Dichloroethane-d4	Soil 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	MS	MSD	MS Conc. (µg/kg)	MSD Conc. (µg/kg)	MS % Rec.	MSD Conc. (µg/kg)	MS % Rec.	QC Limits	
	Conc.	Spike	Spike						RPD	% Rec.
	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	Rec.	RPD	% 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	MS	MSD	MS Conc. ( $\mu\text{g/kg}$ )	MSD	MS	MSD	RPD	QC Limits	
	Conc.	Spike	Spike		Conc.	%	Rec.		RPD	% Rec.
	( $\mu\text{g/kg}$ )	( $\mu\text{g/kg}$ )	( $\mu\text{g/kg}$ )	( $\mu\text{g/kg}$ )	( $\mu\text{g/kg}$ )	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	63.8	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	84.2	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<sub>5</sub>, 2-fluorobiphenyl, terphenyl-d<sub>14</sub>, phenol-d<sub>5</sub>, 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<sub>4</sub>, naphthalene-d<sub>8</sub>, acenaphthene-d<sub>10</sub>, phenanthrene-d<sub>10</sub>, chrysene-d<sub>12</sub>, and perylene-d<sub>12</sub>.

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 <sup>1</sup> *	96
27043A, B 10x	MIL006.D	72	91	136 *	111	NA <sup>1</sup> *	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

<sup>1</sup>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 <sup>1</sup>	96
23742A, B10x	MIL028.D	39	60	NA <sup>1</sup>	112	NA <sup>1</sup>	105
23743A, B	MIL029.D	64	77	77	82	69	87
26510A, B 10x	MIL030.D	65	76	101	102	NA <sup>1</sup>	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

<sup>1</sup>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	83
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 <sup>1</sup>	101
23746A, B 10x	MIL046.D	94	95	NA <sup>1</sup>	144	NA <sup>1</sup>	109
23744A, B	MIL047.D	57	69	69	71	66	77
23747A	MIL048.D	63	74	80	87	79	86

<sup>1</sup>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	MS		MSD		MS Conc. (µg/kg)	MSD Conc. (µg/kg)	MS % Rec.	MSD % Rec.	QC Limits		
	Sample Conc. (µg/kg)	Spike Added (µg/kg)	Spike Added (µg/kg)	MS Conc. (µg/kg)					RPD	RPD	% 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	MS	MSD	MS Conc. (µg/kg)	MSD Conc. (µg/kg)	MS % Rec.	MSD % Rec.	QC Limits		
	Conc. (µg/kg)	Spike Added (µg/kg)	Spike Added (µg/kg)					RPD	RPD	% 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	MS	MSD	MS	MSD	MS	MSD	QC Limits		
	Conc. ( $\mu\text{g/kg}$ )	Spike Added ( $\mu\text{g/kg}$ )	Spike Added ( $\mu\text{g/kg}$ )					Conc. ( $\mu\text{g/kg}$ )	Conc. ( $\mu\text{g/kg}$ )	%
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<sub>10</sub>, 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	Spike				Duplicate				RPD
	Conc.	Added	Conc.	%	Added	Duplicate	Conc.	%	
	mg/kg	mg/kg	mg/kg	Rec.	mg/kg	mg/kg	mg/kg	Rec.	
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<sub>8</sub>, p-bromofluorobenzene and 1,2-dichloroethane-d<sub>45</sub>.

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. ( $\mu\text{g/L}$ )	LS		LSD				QC Limits		
		Spike Added ( $\mu\text{g/L}$ )	Spike Added ( $\mu\text{g/L}$ )	LS Conc. ( $\mu\text{g/L}$ )	LSD Conc. ( $\mu\text{g/L}$ )	LS % Rec.	LSD % Rec.	RPD	RPD	% 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	BS	BS	QC Limits	
	Spike Added (µg/L)			% Rec.	% 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  
(732) 321-4206  
EPA Contract 68-C99-223

**CHAIN OF CUSTODY RECORD**

Project Name: Mills Gap Rd

Project Number: 0-14

LM Contact: K-Woodluff Phone: 732-321-4231

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

250901-

## **Sample Identification**

### **Analyses Requested**

REAC#	Sample No	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	VOCs	BNAAs	TPH	
167	27025 A,B	BH-1, 12-16	S	5/7/01	2	33/corr	X	X		
168	27044 A,B	BH-1 20-24		5/7/01	1		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	RH-5, 20-24		5/8/01			X	X		
172	27041 A,B	BH-5, 32-34					X	X	X	RW
173	27042 A,B	BH-5, 20-22					X	X	X	
174	27037 A,B	BH-7, 32-34					X	X	X	
175	27038 A,B	RH-8, 28-36.5					X	X	X	
176	27039 A,B	RH-8, 16-20					X	X		
177	27027 A,B	BH-8, 20-21.5 (up 28 m)					X	X	X	

Matrix:

**Special Instructions:**

**A- Air**  
**AT-Animal Tissue**  
**DL- Drum Liquids**  
**DS- Drum Solids**  
**GW- Groundwater**  
**O- Oil**  
**PR-Product**  
**PT-Plant Tissue**

PW- Potable Water  
S- Soil  
SD- Sediment  
SL- Sludge  
SW- Surface Water  
TX-TCLP Extract  
W- Water  
X- Other

**SAMPLES TRANSFERRED FROM**  
**CHAIN OF CUSTODY #:**

REAC, Edison, NJ

(732) 321-4200

EPA Contract 68-C99-223

CHAIN OF CUSTODY RECORDProject Name: Miller Gap RdProject Number: 0-141LM Contact: H. Woodruff Phone: 732-321-4231No: 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	RH-2, 20-21	S	5/8/01	2	8 oz/corr	X	X	X		
193	23742 A,B	RH-3, 30-34		5/8/01	1		X	X	X		
194	23743 A,B	RH-4, 24-37		5/8/01	1		X	X	X		
195	26510 A,B	RH-9, 30-31		5/9/01			X	X	X		
196	26511 A,B	RH-10, 28-31		5/9/01			X	X	X		
197	23744 A,B	RH-10, 28-31 (up)		5/9/01			X	X	X		
198	23747 A	RH-11, 8-12		5/9/01	1		X	X	X		
199	23745 A,B	RH-12, 18-16		5/9/01	2		X	X			
200	23746 A,B	RH-12, 16-19		5/9/01	2		X	X	X		

## 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
- TCLP Extract
- PR-Product
- W- Water
- PT-Plant Tissue
- X- Other

## Special Instructions:

8°C

## SAMPLES TRANSFERRED FROM

## CHAIN OF CUSTODY #:

Item/Reason	Relinquished by	Date	Received by	Date	Time	Item/Reason	Relinquished by	Date	Received by	Date	Time
All analyses P/S/C INT/PW	H. Woodruff	5/9/01	J. Morris	05/01	09:30	Storm, TAT	J. Morris	05/01	J. Morris	05/01	10:00

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

## **CHAIN OF CUS' Y RECORD**

Project Name: Mitts Gap Road

Project Number: R14 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**

## Matrix:

**A- Air**  
**AT-Animal Tissue**  
**DL-Drum Liquids**  
**DS-Drum Solids**  
**GW-Groundwater**  
**O-Oil**  
**PR-Product**  
**PT-Plant Tissue**

PW- Potable Water  
 S- Soil  
 SD- Sediment  
 SL- Sludge  
 SW- Surface Water  
 TX-TCLP Extract  
 W- Water  
 X- Other

**Special Instructions:**

Delivered to accountst., Dayton N.J.

for TCP's

## SAMPLES TRANSFERRED FROM

**CHAIN OF CUSTODY #:**

0045-4

APPENDIX C  
TABLE I - DECEMBER 20, 2000 TRIP REPORT  
MILLS GAP ROAD SITE  
SKYLAND, NORTH CAROLINA  
JULY 2001

0141\tr\tr0141

TABLE 1  
SUMMARY OF LABORATORY ANALYSES  
MILLS GAP ROAD SITE  
SKYLAND, NORTH CAROLINA  
DECEMBER 2000

	WATER <sup>(1)</sup>			SOIL <sup>(2)</sup>	
	Upper Spring	Lower Spring	Sump	Trench 1	Trench 8
VOCs					
Acetone	<b>17 J</b>	800 U	8.0 U	<b>47 B</b>	<b>9.5 JB</b>
1,1 Dichloroethane	<b>5.1</b>	100 U	1.0 U	1.1 U	1.2 U
2-Butanone	20 U	400 U	4.0 U	<b>5.5</b>	4.8 U
cis-1,2-Dichloroethene	<b>330</b>	<b>400</b>	1.0 U	1.1 U	1.2 U
Chloroform	5.0 U	<b>120 B</b>	1.0 U	1.1 U	1.2 U
1,1,1-Trichloroethane	<b>23</b>	<b>460</b>	1.0 U	<b>4.9</b>	<b>35</b>
Benzene	<b>9.9</b>	<b>110</b>	1.0 U	1.1 U	1.2 U
Trichloroethene	<b>23</b>	<b>11,000</b>	<b>11</b>	<b>4.9</b>	<b>35</b>
Toluene	<b>8.9</b>	100 U	1.0 U	<b>4.9</b>	1.2 U
Ethylbenzene	<b>5.1</b>	100 U	1.0 U	<b>3.4</b>	1.2 U
p&m xylene	5.0 U	<b>140</b>	1.0 U	<b>5.5</b>	1.2 U
o-xylene	<b>11</b>	100 U	1.0 U	<b>4.8</b>	1.2
n-propylbenzene	5.0 U	100 U	1.0 U	1.9	1.2 U
1,3,5-Trimethylbenzene	5.0 U	100 U	1.0 U	<b>9.9</b>	1.7
1,2,4-Trimethylbenzene	5.0 U	100 U	1.0 U	<b>22</b>	<b>4.3</b>
sec-Butylbenzene	5.0 U	100 U	1.0 U	<b>2.8</b>	2.1
p-Isopropyltoluene	5.0 U	100 U	1.0 U	3.5	1.6
Naphthalene	5.0 U	100 U	1.0 U	<b>33</b>	<b>3.4</b>
BNAs					
Benzyl alcohol	11 U	3.9 J	11 U	350 U	370 U
Naphthalene	11 U	17	10 U	<b>40 J</b>	370 U
2-Methylnaphthalene	11 U	72	11 U	<b>150 J</b>	370 U
Dibenzofuran	11 U	1.9 J	11 U	350 U	370 U
Phenanthrene	11 U	4.2 J	11 U	350 U	370 U
Bis(2-Ethylhexyl)phthalate	11 U	1.1 J	11 U	<b>120 J</b>	<b>900</b>

(1) Results in micrograms/liter

(2) Results in micrograms/kilogram dry weight

U = non-detect; number is minimum detection limit

J = detected below minimum detection limit

B = compound found in laboratory blank

Bold print = detected compounds



**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-C99-223**

141/141-FIG1.DWG 07/09/01