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**NAVAJO REFINERY
TRUCK BYPASS LANDFARM**

ANNUAL SOIL MONITORING REPORT

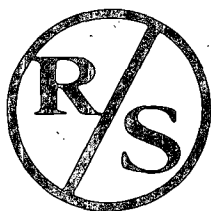
May 1995

prepared for:

Navajo Refining Company
501 East Main Street
Artesia, New Mexico 88210

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Environmental Bureau
Oil Conservation Division

by



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1.0 INTRODUCTION

Navajo Refining Company (Navajo) manages an inactive 2.2-acre nonhazardous landfarm known as the Truck Bypass Landfarm (TBL) at its refinery process area in Artesia, New Mexico. The TBL was formerly used for the treatment of various nonhazardous hydrocarbon-contaminated solid wastes. The unit has undergone routine annual soil monitoring since 1993.

The current document presents the results of annual soil monitoring activities conducted on February 1, 1995. This report presents sampling activities, laboratory analytical results and findings, and recommendations associated with this most recent round of monitoring activities at the TBL.

2.0 SOIL SAMPLE COLLECTION AND ANALYSIS PROCEDURES

The following sections summarize methods and procedures used to:

- Identify sample locations;
- Collect soil samples from those locations;
- Characterize and document subsurface soil conditions observed at the time of sampling; and
- Evaluate the samples at the analytical laboratory.

2.1 Sample Locations

Nine soil sample locations at the TBL were selected on the superimposed grid pattern employed for previous sampling events at the unit. Sample locations were randomly selected from the available grid points (excluding those grid points already used as sample locations during earlier sampling events). Soil sample locations for the February 1995 sampling event are presented in Figure 2-1 along with locations for the representative background sample and samples obtained during prior sampling events.

2.2 Sample Collection Procedures

At each sample location, a drilling rig was used to advance an 8-1/4 inch OD hollow stem auger containing either a split-spoon sampler or a 5-foot core-barrel recovery tube to a target final boring depth of 7 feet. Because of restricted drilling rig clearances at the surface, the split-spoon sampler was used from 0 to 2 feet, with the core-barrel tube used for the deeper samples. Soil samples were obtained at specified depth intervals, and observations concerning soil conditions across the soil profile at each boring location were recorded in boring logs (Appendix A).

Samples were obtained from the following intervals (as measured below surface grade): 1-2, 3-4, 4-5, 5-6, and 6-7 feet. Exceptions to this scheme included boring locations A-7 and A-9. At these locations, sample collection intervals were altered slightly either in response to a lack of sample recovery in a target interval or observation of pronounced differences in soil stratigraphy within a sample interval, which warranted further subdivision of a targeted interval.

Following recovery of soil samples at each location, the coring tubes were opened and samples immediately collected at the specified intervals. All samples were listed on

accompanying chain-of-custody forms. The samples were placed in appropriate sample containers, stored in ice-insulated coolers, and shipped via overnight delivery to the designated analytical laboratory. Copies of the sample chain-of-custody forms are included in Appendix B of this report.

Samples for photoionization detector (PID) analysis were collected and placed in clean pint glass jars. When one-half full with soil, the jar was sealed with aluminum foil and capped. The jars were stored overnight at room temperature. To obtain PID readings, the cap was removed and a special Teflon™ cap was screwed into place. The special cap has two tubes to connect with a Thermo Environmental OVM 580 PID meter so that organic vapors are measured in a closed loop without dilution to maximize sample readings and reproducibility. After meter calibration, the tubes were hooked to the meter and the other ends were pushed through the aluminum foil to obtain a sample reading. The readings were recorded on the sample borehole logs (Appendix A).

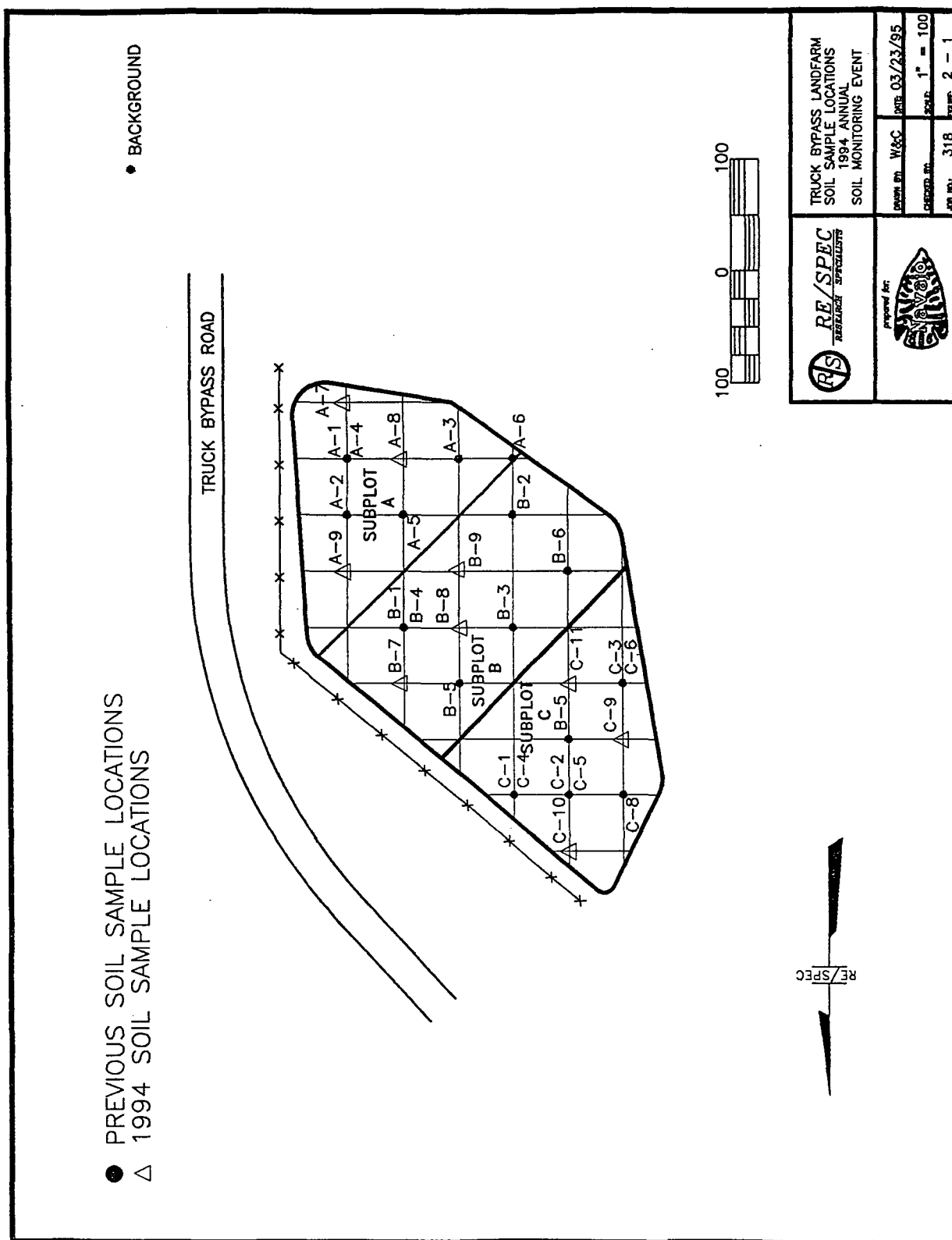


Figure 2-1 Truck Bypass Landfarm Sample Locations,
1994 Annual Soil Monitoring Event

3.0 SAMPLE ANALYSIS AND RESULTS

3.1 Sample Analyses

Soil samples collected from the TBL were analyzed for the following parameters and constituents:

- pH: SW-846 Method 9045
- electrical conductivity (EC): SW-846 Method 9050
- oil and grease: SW-846 Method 9071
- arsenic: SW-846 Method 7061A
- chromium, lead, nickel, and zinc: SW-846 6010A
- volatile organics: SW-846 Method 8240
- semivolatile organics: SW-846 Method 8270

Results of the laboratory analyses (presented in Appendix B and summarized in Table 3-1) are described in the following sections.

3.2 General Soil Chemistry Data

General chemistry parameters for which soil samples were evaluated included pH and EC. As was the case for previous sampling events, data for soil pH again illustrates that unit soils are best described as slightly alkaline throughout the soil profile. Soil EC values indicate moderate soil salinity conditions across the unit with the exception of locations B-7 and B-9, which exhibited relatively elevated EC values of 15.2 and 14.2 mmhos/cm, respectively (Table 3-1).

3.3 Soil Metal Concentrations Data

Soils metal concentration data yielded results that are highly consistent with previous soil sampling events conducted at the unit. Reported soil arsenic concentrations ranged from 3.2 to 42.2 mg/kg in the 1-2 feet interval, with underlying intervals generally exhibiting concentration values similar to background. However, at boring locations A-7 and A-8, discrete intervals were identified at depth in which arsenic was observed to be moderately elevated (soil concentrations ranging from 10.9 to 21.6 mg/kg). At the 4-5 and 5-6 feet sample intervals at location A-8, arsenic concentrations of 19.2 and 21.6 mg/kg were obtained, respectively. However, as samples obtained from these intervals also exhibited significant oil and grease levels while overlying and underlying intervals did not,

Table 3-1. Summary of Laboratory Analyses for February 1995 Truck Bypass Landfarm Soil Sampling Event

Sample ID	pH (s.u.)	EC (mmhos/cm)	Arsenic (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Zinc (mg/kg)	Oil and Grease (percent)	Volatiles ¹ (mg/kg)	Semi-volatiles ² (mg/kg)
Background (1-2)	8.0	5.4	4.2	28	23	20	83	<0.1	- -	- -
Background (5-6)	8.3	8.1	3.1	16	8	9	53	<0.1	- -	- -
A-7 (1-2)	8.0	3.9	9.6	68	415	21	79	17.6	<0.5	<20
A-7 (4-4.5)	7.8	5.2	10.9	79	290	21	75	7.5	E 2, X 6, <1,	<400
A-7 (4.5-5)	8.1	4.5	4.2	14	10	8	29	<0.1	M 0.006, <0.006	<0.5
A-7 (5-6)	8.1	5.2	5.9	13	7	<5	22	<0.1	M 0.008, <0.006	<0.5
A-7 (6-7)	8.2	4.8	3.2	8	4	<5	13	<0.1	M 0.008, <0.006	<0.5
A-8 (1-2)	8.3	5.6	13.8	128	256	31	96	16.6	<1	<200
A-8 (3-4)	8.2	6.1	3.1	19	14	12	42	<0.1	<0.3	<0.5
A-8 (4-5)	7.2	9.6	19.2	61	72	25	90	5.6	<0.6	<30
A-8 (5-6)	7.5	8.7	21.6	53	56	30	70	1.8	<0.6	<20
A-8 (6-7)	8.2	6.3	3.8	13	8	5	22	<0.1	M 0.007, <0.006	<0.5
A-9 (1-2)	7.0	8.8	36.6	57	124	26	107	12.8	<1	<400
A-9 (3.5-4)	7.4	5.2	4.7	27	46	13	54	0.2	M 0.008, MEK 0.070, <0.006	<0.5
A-9 (4-5)	8.3	2.1	4.1	20	18	12	43	0.2	M 0.008, <0.006	<0.5
A-9 (5-6)	8.0	3.4	1.8	5	1	<5	14	<0.1	M 0.011, <0.006	<0.5
A-9 (6-7)	7.8	3.9	2.0	7	8	<5	19	<0.1	M 0.008, <0.006	<0.5
B-7 (1-2)	7.0	15.2	9.1	28	44	16	61	5.6	<1	<60
B-7 (3-4)	8.0	3.0	3.3	24	19	14	54	<0.1	M 0.009, <0.006	<1
B-7 (4-5)	8.2	2.5	3.4	19	17	11	39	<0.1	M 0.007, <0.006	<0.5
B-7 (5-6)	8.1	3.5	2.2	4	<1	<5	8	<0.1	M 0.009, TCA 0.009, <0.007	<0.5
B-7 (6-7)	8.0	4.4	3.5	8	4	<5	16	<0.1	M 0.008, <0.006	<0.5
B-8 (1-2)	7.8	3.6	15.3	101	237	21	104	13.1	<2	<400
B-8 (3-4)	8.0	2.3	2.7	23	14	13	54	0.1	M 0.008, <0.006	<0.5
B-8 (4-5)	8.1	2.6	3.1	20	13	13	46	<0.1	M 0.008, <0.006	<1
B-8 (5-6)	8.1	4.6	4.1	15	10	9	36	<0.1	<0.3	<0.5
B-8 (6-7)	8.1	4.6	4.7	13	8	8	30	<0.1	<0.3	<0.5

Notes are shown at end of table

Table 3-1. Summary of Laboratory Analyses for February 1995 Truck Bypass Landfarm Soil Sampling Event
(concluded)

Sample ID	pH (s.u.)	EC (mmhos/cm)	Arsenic (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Zinc (mg/kg)	Oil and Grease (percent)	Volatiles ¹ (mg/kg)	Semi-volatiles ² (mg/kg)
B-9 (1-2)	8.3	14.2	21.8	232	559	37	137	16.6	< 3	< 400
B-9 (3-4)	8.2	3.6	3.6	22	13	13	51	< 0.1	< 0.3	< 0.5
B-9 (4-5)	7.8	5.3	3.8	16	13	10	40	< 0.1	< 0.6	< 0.5
B-9 (5-6)	7.9	4.6	2.8	7	2	5	20	< 0.1	< 0.3	< 0.5
B-9 (6-7)	7.9	5.0	3.4	9	2	7	20	< 0.1	< 0.3	< 0.5
C-9 (1-2)	7.7	5.3	3.7	22	13	13	45	5.3	< 1	< 80
C-9 (3-4)	7.9	4.8	2.8	19	9	12	41	< 0.1	< 2	< 80
C-9 (4-5)	7.9	5.3	3.2	21	9	12	49	< 0.1	< 0.3	D 0.60, < 0.5
C-9 (5-6)	8.2	4.1	2.4	7	2	< 5	13	< 0.1	< 0.3	< 0.5
C-9 (6-7)	8.2	4.6	2.1	8	3	< 5	17	< 0.1	< 0.3	< 0.5
C-10 (1-2)	8.2	4.1	3.2	22	12	14	55	1.9	X 40, < 3	< 6
C-10 (3-4)	7.6	4.5	4.0	18	10	12	43	1.2	< 0.3	< 4
C-10 (4-5)	7.9	4.6	3.7	14	7	11	46	< 0.1	< 0.3	< 0.5
C-10 (5-6)	7.8	3.7	3.7	20	10	14	80	0.2	< 0.3	< 0.5
C-10 (6-7)	8.2	4.1	1.6	5	2	< 5	23	< 0.1	< 0.3	< 0.5
C-11 (1-2)	7.4	4.5	42.2	56	26	27	161	10.0	< 1	< 90
C-11 (3-4)	8.1	2.1	3.8	21	20	12	48	< 0.1	< 0.3	< 2
C-11 (4-5)	8.0	3.5	3.1	22	19	13	47	0.1	< 0.3	< 0.5
C-11 (5-6)	8.2	2.7	3.2	15	8	8	35	< 0.1	< 0.3	< 0.5
C-11 (6-7)	8.0	4.7	3.6	16	9	10	37	< 0.1	< 0.3	< 0.5
AVERAGES										
(1-2)		7.2	17.3	79	187	23	94	9.2	- -	- -
(5-6)		4.5	5.3	15	11	10	33	< 0.1	- -	- -

Notes:

- ¹ Benzene, Ethylbenzene, Toluene, Xylene (BETX) detection limit shown. Detected constituent abbreviations: E - ethylbenzene, M - methylene chloride, MEK - methyl ethyl ketone, TCA - 1,1,1 trichloroethane, X - total xylenes.
- ² Polycyclic Aromatic Hydrocarbon (PAH) detection limit shown. PAH's include acenaphthene, acenaphthylene, anthracene, (a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, ideno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene. Detected constituent abbreviations: D - Di-n-butylphthalate, J - identified but below detection limit.

the elevated arsenic concentrations are most likely associated with earth materials deposited in place during previous earth-moving and construction activities associated with the unit.

Elevated soil lead concentrations were primarily restricted to the uppermost 1-2 feet sample interval (Table 3-1). However, as was the case for arsenic, elevated lead concentrations reported at significant depth were associated solely with borings A-7 and A-8, at the same sample intervals in which elevated arsenic concentrations were also observed.

For the remaining inorganic constituents of concern (chromium, nickel and zinc) the analytical results indicate either that elevated constituent concentrations are present in unit soils, but at levels which could not be construed to indicate a potential environmental risk (chromium), or that unit soils have otherwise not been impacted by the constituents (nickel and zinc).

3.4 Soil Organic Concentrations Data

Oil and grease concentrations in the 1-2 feet soil sample interval ranged from less than 0.1 to 17.6 percent, with an overall average of 9.2 percent (Table 3-1). The data and associated boring logs generally indicate that hydrocarbon materials present at deeper sampling intervals resulted from direct physical placement rather than by migration through the soil profile.

Volatile organic constituent detections in TBL soil samples were limited primarily to apparent laboratory artifact detections (Table 3-1). Methylene chloride was detected in trace levels in 14 samples, methyl ethyl ketone in one sample, and di-n-butylphthalate in one sample.

Ethylbenzene and xylene were reported at 2 and 6 mg/kg, respectively, in the soil sample collected at Boring A-7 at the 4-4.5 feet interval. As discussed above, the available evidence indicates that the presence of these constituents are contained within a discrete soil interval that originates from historical earth-moving activities rather than from constituent migration from overlying strata.

A single detection of xylene at 40 mg/kg was reported in the sample obtained from the uppermost 1-2 feet interval of boring C-10.

A single detection of 1,1,1-trichloroethane was reported at a trace concentration of 0.009 mg/kg for the soil sample obtained from Boring B-7 at the 5-6 feet interval (Table 3-1). This constituent is not a typical petroleum constituent or refinery process byproduct, and the validity of this detection is uncertain. However, 1,1,1-trichloroethane has a very low solubility in water. If indeed present in unit soils, the limited occurrence

and minimal concentration reported for this constituent indicates no grounds exist for environmental concern.

With the exception of one artifact detection of di-n-butylphthalate, no semivolatile organic constituents were reported in soil sample analyses. It is possible, if not probable, that various semivolatile constituents are present in some of the hydrocarbon-containing oils present at the unit. However, in those samples in which semivolatile constituents would most likely be present due to heavy concentrations of oil and grease materials, analytical detection limits were also elevated due to matrix interference resulting from those same hydrocarbon compounds.

The PID readings included with the boring logs (Appendix A) were examined to compare the results with the laboratory results. PID results show significantly elevated levels (> 100 ppm) near and within five feet of the surface (borings A-7, A-9, C-9 and C-10), or at depth (A-9). However, the results do not correlate particularly well with the laboratory results for the aromatic volatiles. Of the six readings greater than 100 ppm, only two samples (A-7 [4-5'], C-10 [1-2']) had detectable volatiles. Two of the highest readings were from samples at depth (A-9 [5-6'], A-9 [6-7']) which had low detection levels for volatile and semivolatile hydrocarbons. Presence of elevated PID readings at depth is indicative of proximity to petroleum hydrocarbons from previously documented unrelated releases at the facility.

As a final note, during the previous two rounds of soil monitoring activities at the TBL, acetone was detected in 11 and 17 soil samples, respectively. Those detection events were considered to be apparent artifacts, although the analytical laboratory was unable to provide any reason why or how acetone might have been introduced into the environmental samples at that time. Acetone was not detected in any of the samples analyzed during the current round of sampling and analyses.

4.0 DISCUSSION AND RECOMMENDATIONS

The analytical data and observations generated by this most current round of soil sampling at the TBL further confirms the results of previous environmental investigations conducted at the unit. To summarize briefly, surface soils at the unit contain relatively immobile heavy-end hydrocarbons and inorganic metal constituents introduced during past surface applications of nonhazardous hydrocarbon waste materials. Subsurface soils below the first few feet of the unit have generally remained either unaffected by past operations at the unit, or else exhibit moderate levels of hydrocarbon and metal contamination that apparently result from historical site activities which predate the installation of the TBL. Soils at depth (in excess of 5-7 feet) also have been impacted by unrelated petroleum product releases in other areas of the facility that are being addressed under New Mexico state programs.

None of the observations or data obtained to date suggest that waste materials contained in unit soils pose a threat to underlying groundwater, nor is there any feasible potential for public contact with unit soils. Consequently, there is no indication that current environmental conditions at the unit pose any significant environmental risk.

The TBL has not routinely received hydrocarbon materials since 1993 and has been completely inactive since September 1994. During that time, remedial activities in the form of soil tillage and nutrient applications have been conducted on a routine and ongoing basis. Subsurface soils at the TBL have been subject to extensive environmental investigation over the past several years and are now well characterized. Repeated soil sampling events conducted at the unit have yielded consistent observations and data. Consequently, Navajo can foresee no rational reason why the annual soil monitoring program should proceed in its current form.

Specifically, Navajo recommends that future annual monitoring events conducted during the interim period preceding unit closure be limited to analysis of soil oil and grease levels needed to track the progress of hydrocarbon remediation activities. It is also recommended that soil sample depth intervals be limited to 0-1 and 1-2 feet below surface grade, but that the total number of sample locations be upgraded from 9 to 12 locations (four per subplot for a total of 28 oil and grease samples).

APPENDIX A

Truck Bypass Landfarm Boring Logs

Hole No. A-7

COMPANY: NAVAJO REFINING COMPANY DATE DRILLED: 02/01/95, 1130
 PROJECT: TRUCK BYPASS LANDFARM LOGGED BY: DGB
 HOLE DIA.: 8 1/4 in. DRILLED BY: PRECISION ENGINEERING
 INITIAL H2O DEPTH: - - ft. DRILL RIG: CME-75
 FINAL H2O DEPTH: - - ft. TOTAL DEPTH: 9 ft.

DESCRIPTION	SOIL TYPE	GRAPHIC LOG	SAMPLES	PID Reading	REMARKS
0-0.5 ft Silt, light brown, surface tilling	ML		0		
0.5-1.5 ft Clay, black with oil, hydrocarbon odor	CL		1		
1.5-2 ft Clay, brown/black surface, dark gray interior, oil streaks			2	30	2-ft split-spoon sampling 0-2 ft, 1.8 ft recovery
2-4 ft No sample			3		
4-4.5 ft Clay, dark brown with black streaks, strong hydrocarbon odor	CL		4	158	
4.5-5 ft Silty clay, light brown; roots, no odor	CL		5	18	
5-7 ft Silty clay, light brown, with fine gravel, dry, crumbly, no odor, becoming harder at 7'	CL		6	8	
7-8 ft Silty clay, light brown, more frequent gravel, calcite specks	CL		7	9	5-ft core-barrel sampling 4-9 ft, 5 ft recovery
8-9 ft Silty clay, dark brown, black with possible odor at 9'	CL		8		
			9		

Note: PID measured from closed sample containers on 2/3/95, 1130

Hole No. A-8

COMPANY: NAVAJO REFINING COMPANY DATE DRILLED: 02/01/95, 1015
 PROJECT: TRUCK BYPASS LANDFARM LOGGED BY: DGB
 HOLE DIA.: 8 1/4 in. DRILLED BY: PRECISION ENGINEERING
 INITIAL H2O DEPTH: - - ft. DRILL RIG: CME-75
 FINAL H2O DEPTH: - - ft. TOTAL DEPTH: 9 ft.

DESCRIPTION	SOIL TYPE	GRAPHIC LOG	SAMPLES	PID Reading	REMARKS
0-1 ft Clayey silt, light to dark brown, weathered hydrocarbon, no odor	ML		0		
1-2 ft Clay, black oil impregnated, plastic, occasional rock, hydrocarbon odor	CL		1	11	5-ft core-barrel sampling; 4 ft recovery, 0-4 ft; 5 ft recovery, 4-9 ft
2-2.5 ft Clay, black, staining and hydrocarbon odor			2		
2.5-4 ft Silty clay, light brown; grading to light gray, with roots and caliche granules and no odor at 4'			3	14	
4-5 ft Silty clay, dark brown, caliche granules, hydrocarbon odor			4	39	
5-6 ft Clay, dark brown, grading lighter at 5.5', slight odor 5-5.5'			5	33	
6-7 ft Clay, light brown, grading to light gray at 7', granular, dry (but forms thin ribbon when wetted)			6	14	
7-9 ft Clay, chalky color, no odor			7		
			8		
			9		

Note: PID measured from closed sample containers on 2/3/95, 1130

Hole No. A-9

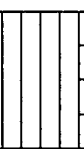
COMPANY: NAVAJO REFINING COMPANY DATE DRILLED: 02/01/95, 1330
 PROJECT: TRUCK BYPASS LANDFARM LOGGED BY: DGB
 HOLE DIA.: 8 1/4 in. DRILLED BY: PRECISION ENGINEERING
 INITIAL H2O DEPTH: - - ft. DRILL RIG: CME-75
 FINAL H2O DEPTH: - - ft. TOTAL DEPTH: 7 ft.

DESCRIPTION	SOIL TYPE	GRAPHIC LOG	SAMPLES	PID Reading	REMARKS
0-0.6 ft Silty clay with sand, surface soil	CL		0		
0.6-1.2 ft Clay, black, hydrocarbon odor (no recovery for PID)			1		2-ft split-spoon sampling 0-2 ft, 1.2 ft recovery
1.2-3 ft No sample			2		
3-3.5 ft Clay, brown with black streaks and calcite, no odor	CL		3	217	5-ft core-barrel sampling 3-7 ft, 4 ft recovery
3.5-4 ft Clay, brown increasing black color with depth			4	110	
4-5 ft Clay, black with roots and slight odor			5	80	
5-6 ft Clay, gray, dry, crumbly, abrupt transition at 5 ft, hard at transition, hydrocarbon odor			6	183	
6-7 ft Clay, gray with calcite crystals, very strong hydrocarbon odor at 7 ft			7	393	

Notes: Wind blowing from refinery process areas,
 PID measured from closed sample containers on
 2/3/95, 1135

Hole No. B-7

COMPANY: NAVAJO REFINING COMPANY DATE DRILLED: 02/01/95, 1430
 PROJECT: TRUCK BYPASS LANDFARM LOGGED BY: DGB
 HOLE DIA.: 8 1/4 in. DRILLED BY: PRECISION ENGINEERING
 INITIAL H2O DEPTH: - - ft. DRILL RIG: CME-75
 FINAL H2O DEPTH: - - ft. TOTAL DEPTH: 7 ft.

DESCRIPTION	SOIL TYPE	GRAPHIC LOG	SAMPLES	PID Reading	REMARKS
0-2 ft Clayey silt, medium brown, some fine-grained sand, grading to dark brown at 1'; strong hydrocarbon odor, but no recovery for PID reading	ML		0 1 2		2-ft split-spoon sampling 0-2 ft, 1 ft total recovery
2-3 ft No sample					
3-3.3 ft Clay, brown with black streaks, dense	CL		3	31	
3.3-4 ft Silty clay, brown, friable, roots			4	48	
4-5.1 ft Clay, brown, no odor, roots, moist and dense at 5'			5	24	
5.1-6 ft Clay, with caliche, moist, calcite crystals; abrupt transition at 5.1'; clay dense, hard at 5.3', no odor	CL		6	28	5-ft core-barrel sampling 3-7 ft, 4 ft recovery
6-7 ft Clay, frequent caliche gravels and small cobbles, cementation, hard			7		

Notes: PID measured from closed sample containers on 2/3/95, 1150

Hole No. B-8

COMPANY: NAVAJO REFINING COMPANY DATE DRILLED: 02/01/95, 1515
 PROJECT: TRUCK BYPASS LANDFARM LOGGED BY: DGB
 HOLE DIA.: 8 1/4 in. DRILLED BY: PRECISION ENGINEERING
 INITIAL H2O DEPTH: - - ft. DRILL RIG: CME-75
 FINAL H2O DEPTH: - - ft. TOTAL DEPTH: 8 ft.

DESCRIPTION	SOIL TYPE	GRAPHIC LOG	SAMPLES	PID Reading	REMARKS
0-0.3 ft Clayey silt, with fine-grained sand, limestone cobble 1.5", rounded at 0.3'	ML		0		
0.4-1.4 ft Clay, black with hydrocarbon streaks	CL		1		
			2	27	2-ft split-spoon sampling 0-2 ft, 1.5 ft total recovery
2-3 ft No sample			3		
3-4 ft Silty clay, brown with hydrocarbon streaks, roots	CL		4	27	
4-5 ft Silty clay, brown, no hydrocarbon or hydrocarbon odor			5	20	
5-6 ft Silty clay, brown, becoming light gray at 6', no odor			6	21	
6-7 ft Silty clay, light gray, increasing caliche at 7', no odor			7	12	5-ft core-barrel sampling 3-8 ft, 5 ft recovery
7-8 ft Caliche gravels and clay, gray, strong hydrocarbon odor	GC		8	101	

Notes: PID measured from closed sample containers on 2/3/95, 1200

Hole No. B-9

COMPANY: NAVAJO REFINING COMPANY DATE DRILLED: 02/01/95, 1615
 PROJECT: TRUCK BYPASS LANDFARM LOGGED BY: DGB
 HOLE DIA.: 8 1/4 in. DRILLED BY: PRECISION ENGINEERING
 INITIAL H2O DEPTH: - - ft. DRILL RIG: CME-75
 FINAL H2O DEPTH: - - ft. TOTAL DEPTH: 7.8 ft.

DESCRIPTION	SOIL TYPE	GRAPHIC LOG	SAMPLES	PID Reading	REMARKS
0-1 ft Silt and clay with fine-grained sand, surface material; increasing clay, black hydrocarbons and odor at 1'	ML CL		0 1		
1-2 ft Clay, black with hydrocarbon and free oil in clay at 1.5'; weathered, no free hydrocarbon at 2', strong odor			2	87	2-ft split-spoon sampling 0-2 ft, 2 ft total recovery
2-3 ft No sample			3		
3-3.5 ft Clay with black hydrocarbon staining, severe at 3.3'	CL		4	39	
3.5-5 ft Silty clay, brown; roots, no hydrocarbon at 3.5-4'; increasing hydrocarbon staining in clay matrix, 4-4.5'			5	28	
5-7.8 ft Clay; light gray 5-5.2', transition zone; color change to gray-brown with dark streaks, moist and strong hydrocarbon odor, 5.2-7.8'			6	40	
			7	33	5-ft core-barrel sampling 3-8 ft, 4.8 ft recovery

Notes: PID measured from closed sample containers on 2/3/95, 1210

Hole No. C-9

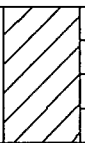
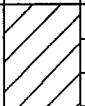
COMPANY: NAVAJO REFINING COMPANY DATE DRILLED: 02/02/95, 0915
 PROJECT: TRUCK BYPASS LANDFARM LOGGED BY: DGB
 HOLE DIA.: 8 1/4 in. DRILLED BY: PRECISION ENGINEERING
 INITIAL H2O DEPTH: - - ft. DRILL RIG: CME-75
 FINAL H2O DEPTH: - - ft. TOTAL DEPTH: 7.4 ft.

DESCRIPTION	SOIL TYPE	GRAPHIC LOG	SAMPLES	PID Reading	REMARKS
0-1 ft Silty clay, dark brown, weathered oil, slight odor	CL		0		
1-2 ft Clay, black with oil matrix, strong odor			1	137	2-ft split-spoon sampling 0-2 ft, 2 ft total recovery
			2		
2-3 ft No sample			3		
3-4.5 ft Silty clay, brown; hydrocarbon and odor, roots at 3.5'; less hydrocarbon at 4'	CL		4	24	
4.5-5 ft Caliche, light gray; abrupt transition, hard, dry, partially cemented	GC		5	18	
5-5.5 ft Caliche with clay, light gray with occasional black hydrocarbon	GC/CL		6	11	
5.5-6 ft Silty clay, light brown, with fine-grained sand, dry to slightly moist, slight hydrocarbon staining, no odor	CL		7	08	5-ft core-barrel sampling 3-8 ft, 4.4 ft recovery
6-7 ft Silty clay, light brown, no hydrocarbon staining, grading to hard clay at 6.5 ft					
7-8 ft Clay with caliche, light brown to chalk white, partially cemented	CL/GC				

Notes: PID measured from closed sample containers on 2/3/95, 1220

Hole No. C-10

COMPANY: NAVAJO REFINING COMPANY DATE DRILLED: 02/02/95, 1000
 PROJECT: TRUCK BYPASS LANDFARM LOGGED BY: DGB
 HOLE DIA.: 8 1/4 in. DRILLED BY: PRECISION ENGINEERING
 INITIAL H2O DEPTH: - - ft. DRILL RIG: CME-75
 FINAL H2O DEPTH: - - ft. TOTAL DEPTH: 6.2 ft.

DESCRIPTION	SOIL TYPE	GRAPHIC LOG	SAMPLES	PID Reading	REMARKS
0-1 ft Silty clay with weathered hydrocarbon at surface	CL		0		
1-2 ft Clay, black with oil matrix, strong odor, soft, oil droplets when squeezed			1	252	2-ft split-spoon sampling 0-2 ft, 2 ft total recovery
2-3 ft No sample			2		
3-4 ft Clay, light brown, plastic with hydrocarbon mottling and roots, increasing silt, less hydrocarbon at 4'	CL		3	170	
4-5 ft Silty clay, light gray with hydrocarbon mottling to 4.5', slight hydrocarbon odor			4	27	5-ft core-barrel sampling 3-8 ft, 3.2 ft recovery
5-6 ft Silty clay, light gray, soft, grading to hard brown clay at 5.3 ft, slight hydrocarbon odor			5	24	
6-7 ft Clay with caliche, hard, partially cemented, calcite crystals	CL/GC		6	11	

Notes: PID measured from closed sample containers on 2/3/95, 1230

Hole No. C-11

COMPANY: NAVAJO REFINING COMPANY DATE DRILLED: 02/01/95, 1640
 PROJECT: TRUCK BYPASS LANDFARM LOGGED BY: DGB
 HOLE DIA.: 8 1/4 in. DRILLED BY: PRECISION ENGINEERING
 INITIAL H2O DEPTH: - - ft. DRILL RIG: CME-75
 FINAL H2O DEPTH: - - ft. TOTAL DEPTH: 7.2 ft.

DESCRIPTION	SOIL TYPE	GRAPHIC LOG	SAMPLES	PID Reading	REMARKS
0-0.3 ft Silt and clay with fine-grained sand, 3/4" limestone gravel at 0.3 ft	CL		0		
0.4-1.2 ft Clay, black, with hydrocarbon, limestone rock at 1.1'			1		
1.2-3 ft No sample			2		
3-4 ft Clay, brown with hydrocarbon mottling, some odor 3-3.4'; roots, no odor, 3.4-4'	CL		3		
4-6.2 ft Clay, slightly moist, crumbly, no odor			4	30	
			5	34	
			6	51	
6.2-7.2 ft Clay with increasing caliche, hard, some rocks, no odor	CL		7	11	
					2-ft split-spoon sampling 0-2 ft, 1.2 ft recovery
					5-ft core-barrel sampling 3-7 ft, 4.2 ft recovery

Notes: PID measured from closed sample containers on 2/3/95, 1200

Hole No. Background

COMPANY: NAVAJO REFINING COMPANY DATE DRILLED: 02/02/95, 1045
 PROJECT: TRUCK BYPASS LANDFARM LOGGED BY: DGB
 HOLE DIA.: 8 1/4 in. DRILLED BY: PRECISION ENGINEERING
 INITIAL H2O DEPTH: -- ft. DRILL RIG: CME-75
 FINAL H2O DEPTH: -- ft. TOTAL DEPTH: 6.5 ft.

DESCRIPTION	SOIL TYPE	GRAPHIC LOG	SAMPLES	PID Reading	REMARKS
0-2 ft Clay, dark brown, with silt and calcite crystals, increasing calcite from 1-2'	CL		0 1 2		2-ft split-spoon sampling 0-2 ft, 2 ft recovery
No sample			3		
4-4.5 ft Silty Clay, light brown	CL		4		5-ft core barrel sampling 4-6.5 ft, 2.5 ft recovery
4.5-5 ft Clay with calcite, very light brown			5		
5-6.5 ft Silty clay, light brown to chalky color, some roots			6	2.0	

Notes: Sample location approximately 300 feet east of Truck Bypass road along east-west line from south end of TEL unit. PID measured from closed sample containers on 2/3/95, 1300

APPENDIX B

Laboratory Analytical Results



Inter-Mountain Laboratories, Inc.

Inorganics Laboratory
11183 SH 30 College Station, Texas 77845
Phone (409) 776-8945 FAX (409) 774-4705

Organics Laboratory
3304 Longmire Drive College Station, Texas 77845
Phone (409) 774-4999 Fax (409) 696-0692

Mr. David Boyer
RE/SPEC
4775 Indian School Road
NE Ste. 300
Albuquerque, New Mexico 87110-3927

March 10, 1995

Dear Mr. Boyer,

On February 3 and 4, 1995, fifty-three soil samples and two trip blanks were received, cool and intact, by Inter-Mountain Laboratories - College Station. The samples were identified by project name "Truck Bypass Landfarm". Analyses for Volatiles, Semivolatiles, pH, Oil & Grease, electrical conductivity, and Metals were performed as requested on the accompanying chains of custody.

It is the policy of this laboratory to employ, whenever possible, preparatory and analytical methods which have been approved by regulatory agencies. The methods used in the analysis of the sample reported here are found in "Test Methods for Evaluating Solid Waste", SW-846, USEPA, Final Update I, July 1992. All reports in this package reference the methods utilized.

The majority of the soils were analyzed in Bozeman for volatiles, after we had problems with our GC/MS instrument. The samples were extracted with methanol and the extracts sent to Bozeman. With the delays in shipping, several samples were analyzed past established holding times. A few samples were analyzed within holding times, but at high dilutions. These samples were reanalyzed at lower dilutions, and these results were reported.

Quality Control reports have been included for your information and use. These reports appear at the end of the analytical package and may be identified by title. If there are any questions regarding the information presented in this package, feel free to call at your convenience.

Sincerely,

Ulonda M. Rogers

Enclosures

NAV0433



CHAIN OF CUSTODY RECORD

Client/Project Name		Project Location		ANALYSES / PARAMETERS			
NAVAJO - TRUCK BYPASS LANDFARM		Chain of Custody Tape No.		No. of Containers		Remarks	
Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	Remarks	
Boring A-8 1-2'	2/1/98	1015	0695600433	56:1	1	8240	
" 3-4'			434			8240	
" 4-5'			435				
" 5-6			436				
" 6-7			437				
" 2-3			438				
A-7 1-2	2/1/98	1130	439				
4-4.5 3-4.5			440				
4.5-5			441				On tact
5-6			442				Cooler - 6°C
6-7			443				U-M log
A-9 1-2	2/1/98	1330	444				
3-3.5			445				
3.5-4			446				
Relinquished by: (Signature)		Date	Time	Received by: (Signature)		Date	Time
<i>A. J. Bary</i>		2/2/98	4 PM	<i>Wanda M. Log</i>		2/3/98	0930
Relinquished by: (Signature)		Date	Time	Received by: (Signature)		Date	Time
<i>FedEx (Carrier)</i>							
Relinquished by: (Signature)		Date	Time	Received by laboratory: (Signature)		Date	Time
Inter-Mountain Laboratories, Inc.							
☐ 1633 Terra Avenue Sheridan, Wyoming 82801 Telephone (307) 672-8945 ☐ 1714 Phillips Circle Gillette, Wyoming 82716 Telephone (307) 682-8945 ☐ 2506 West Main Street Farmington, NM 87401 Telephone (505) 326-4737 ☐ 1160 Research Dr. Bozeman, Montana 59715 Telephone (406) 586-8450 ☒ 3304 Longmire Drive College Station, TX 77845 Telephone (409) 774-4999							
						25744	



CHAIN OF CUSTODY RECORD

Client/Project Name		Project Location		ANALYSES / PARAMETERS				
NAVAJO TRUCK BUSINESS LANDS		Chain of Custody Tape No.		Remarks				
Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers			
Boring A-9 4-8	2/1/53	1330	0095000447	Soil	1	8240	8250	
5-6			448					
6-7			449					
Boring B-7 1-2		1430	450					
3-4			451					
4-5			452					
5-6			453					
6-7			454					
Boring B-8 1-2		1515	455					
3-4			456					
4-5			457					
5-6			458					
6-7			459					
Boring B-8 7-8			460					
Relinquished by: (Signature)				Date	Time	Received by: (Signature)	Date	Time
[Signature]				2/2/53	4pm	Wanda M. Kay	2/2/53	0930
Relinquished by: (Signature)				Date	Time	Received by: (Signature)	Date	Time
[Signature]								
Relinquished by: (Signature)				Date	Time	Received by: (Signature)	Date	Time
[Signature]								

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Telephone (307) 682-8945

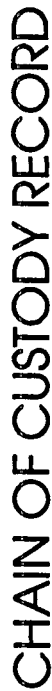
☐ 2506 West Main Street
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☐ 11183 SH 30
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Telephone (409) 776-8945

☒ 3304 Longmire Drive
College Station, TX 77845
Telephone (409) 774-4999

Inter-Mountain Laboratories, Inc.

25747



CHAIN OF CUSTODY RECORD

Client/Project Name		Project Location		ANALYSES / PARAMETERS			
NAVAJO TRUCK BYPASS LAND FARM		Chain of Custody Tape No.					
Sampler: (Signature)		Date		Time		Matrix	
W.H. Boyer		2/1/55		1615		Soil	
BORING 1-2		3-4		462		463	
BORING 3-4		5-6		464		465	
BORING 5-6		6-7		466		467	
BORING 8-11		3-4		468		469	
BORING 12-15		5-6		470		471	
BORING 16-18		3-4		472		473	
BORING 19-21		5-6		474		475	
BORING 22-24		3-4		476		477	
BORING 25-27		5-6		478		479	
BORING 28-30		3-4		480		481	
BORING 31-33		5-6		482		483	
BORING 34-36		3-4		484		485	
BORING 37-39		5-6		486		487	
BORING 40-42		3-4		488		489	
BORING 43-45		5-6		490		491	
BORING 46-48		3-4		492		493	
BORING 49-51		5-6		494		495	
BORING 52-54		3-4		496		497	
BORING 55-57		5-6		498		499	
BORING 58-60		3-4		500		501	
BORING 61-63		5-6		502		503	
BORING 64-66		3-4		504		505	
BORING 67-69		5-6		506		507	
BORING 70-72		3-4		508		509	
BORING 73-75		5-6		510		511	
BORING 76-78		3-4		512		513	
BORING 79-81		5-6		514		515	
BORING 82-84		3-4		516		517	
BORING 85-87		5-6		518		519	
BORING 88-90		3-4		520		521	
BORING 91-93		5-6		522		523	
BORING 94-96		3-4		524		525	
BORING 97-99		5-6		526		527	
BORING 100-102		3-4		528		529	
BORING 103-105		5-6		530		531	
BORING 106-108		3-4		532		533	
BORING 109-111		5-6		534		535	
BORING 112-114		3-4		536		537	
BORING 115-117		5-6		538		539	
BORING 118-120		3-4		540		541	
BORING 121-123		5-6		542		543	
BORING 124-126		3-4		544		545	
BORING 127-129		5-6		546		547	
BORING 130-132		3-4		548		549	
BORING 133-135		5-6		550		551	
BORING 136-138		3-4		552		553	
BORING 139-141		5-6		554		555	
BORING 142-144		3-4		556		557	
BORING 145-147		5-6		558		559	
BORING 148-150		3-4		560		561	
BORING 151-153		5-6		562		563	
BORING 154-156		3-4		564		565	
BORING 157-159		5-6		566		567	
BORING 160-162		3-4		568		569	
BORING 163-165		5-6		570		571	
BORING 166-168		3-4		572		573	
BORING 169-171		5-6		574		575	
BORING 172-174		3-4		576		577	
BORING 175-177		5-6		578		579	
BORING 178-180		3-4		580		581	
BORING 181-183		5-6		582		583	
BORING 184-186		3-4		584		585	
BORING 187-189		5-6		586		587	
BORING 190-192		3-4		588			



CHAIN OF CUSTODY RECORD

Client/Project Name		Project Location		ANALYSES / PARAMETERS						
NAVAJO - TRUCK BYPASS LANDFARM		ARTESIA, NM								
Sampler: (Signature) <i>[Signature]</i>				Chain of Custody Tape No.						
Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	pH	FC	O&G	Metals	Remarks
Boring A-8 1-2'	2/1/95	10:15		Soil	1	V	V	V	V	Metals - ARSENIC, CHROMIUM, LEAD, NICKEL, ZINC
" 3-4'										0.45600 433
" 4-5'										434
" 5-6'										435
" 6-7'										436
A-7 1-2'		11:30								437
4-4.5"										438
4.5-5'										440
5-6'										441
6-7'										442
A-9 1-2'		13:30								443
3.5-4'										444
4-5'										446
5-6'										447
										448
Relinquished by: (Signature) <i>[Signature]</i>		Date	Time	Received by: (Signature)		Date	Time			
Relinquished by: (Signature) <i>[Signature]</i>		2/1/95	1 PM	Received by: (Signature) <i>[Signature]</i>		2/1/95	1500			
Relinquished by: (Signature) <i>[Signature]</i>				Received by laboratory: (Signature)						
Inter-Mountain Laboratories, Inc.										25743

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Sheridan, Wyoming 82801
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College Station, TX 77845
Telephone (409) 774-4999



Inter-Mountain
Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name		Project Location		ANALYSES / PARAMETERS						
NAVAJO - TRUCK Bypass Landfarm		ARTESIA NM								
Sampler: (Signature) <i>D. L. Boyd</i>		Chain of Custody Tape No.								
Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	PH	FC	DO AG	Mo/Al ^a	Remarks
6-7' Boring A-9	2/1/95	1330		Soil	1	✓	✓	✓	✓	Metals - Arsenic, Chromium, Lead, Nickel, Zinc
" R-7 1-2'		1430								065500 445
" " 3-4'										450
" " 4-5'										451
" " 5-6'										452
" " 6-7'										453
Boring B-8 1-2'		1515								454
3-4'										455
4-5'										456
5-6'										457
6-7'										458
B-9 1-2'		1615								459
3-4'										461
4-5'										462
										463
Relinquished by: (Signature) <i>D. L. Boyd</i>		Date	2/3/95	Time	1PM	Received by: (Signature)		Date		Time
Relinquished by: (Signature) <i>Ed Ex (carrier)</i>		Date		Time		Received by: (Signature) <i>Wanda M. Kog</i>		Date		Time
Relinquished by: (Signature)		Date		Time		Received by laboratory: (Signature)		Date		Time
Inter-Mountain Laboratories, Inc.										
9085										

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Farmington, NM 87401
Telephone (505) 326-4737

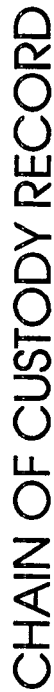
☐ 910 Technology Blvd. Suite B
Bozeman, Montana 59715
Telephone (406) 586-8450

☒ 8304 Longmire Drive
College Station, TX 77845
Telephone (409) 774-4999



CHAIN OF CUSTODY RECORD

Client/Project Name		Project Location		ANALYSES / PARAMETERS															
NAVAJO TRUCK BYPASS ROAD TEAM		ARIZONA NM																	
Sampler: (Signature)		Chain of Custody Tape No.		Remarks															
Date		Time		Lab Number		Matrix		No. of Containers		PH		EC		OdG		Metals			
Boring B-9 5-6'		2/1/95		1615		Soil		1		✓		✓		✓		Metals - As, Cd, Pb, Ni, Zn		464	
6-7'		}		}		}		}		}		}		}		}		465	
C-11 1-2'		}		1640		}		}		}		}		}		}		466	
3-4'		}		}		}		}		}		}		}		}		467	
4-5'		}		}		}		}		}		}		}		}		468	
5-6'		}		}		}		}		}		}		}		}		469	
6-7'		}		}		}		}		}		}		}		}		470	
C-9 1-2'		2/2/95		0915		}		}		}		}		}		}		471	
3-4'		}		}		}		}		}		}		}		}		472	
4-5'		}		}		}		}		}		}		}		}		473	
5-6'		}		}		}		}		}		}		}		}		474	
6-7'		}		}		}		}		}		}		}		}		475	
C-10 1-2'		}		1000		}		}		}		}		}		}		476	
3-4'		}		1000		}		}		}		}		}		}		477	
Relinquished by: (Signature)		Date		Time		Received by: (Signature)		Time		Date		Time							
[Signature]		2/3/95		1 PM		[Signature]													
Relinquished by: (Signature)		Date		Time		Received by: (Signature)		Time		Date		Time							
[Signature]						Wanda M. Kay				2/4/95		1500							
Relinquished by: (Signature)		Date		Time		Received by laboratory: (Signature)		Time		Date		Time							
[Signature]						[Signature]													
Inter-Mountain Laboratories, Inc.																			
☐ 1633 Terra Avenue Sheridan, Wyoming 82801 Telephone (307) 672-8945 ☐ 1714 Phillips Circle Gillette, Wyoming 82716 Telephone (307) 682-8945 ☐ 2506 West Main Street Farmington, NM 87401 Telephone (505) 326-4737 ☐ 910 Technology Blvd. Suite B Bozeman, Montana 59715 Telephone (406) 586-8450 ☒ Route 3, Box 256 College Station, TX 77845 Telephone (409) 774-4999																			
																		9086	



CHAIN OF CUSTODY RECORD

[illegible]



Inter-Mountain Laboratories, Inc.

Inorganics Laboratory
11183 SH 30 College Station, Texas 77845
Phone (409) 776-8945 FAX (409) 774-4705

Organics Laboratory
3304 Longmire Drive College Station, Texas 77845
Phone (409) 774-4999 Fax (409) 696-0692

EPA Method 8240 VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-8 1-2'
Laboratory ID: 0695G00433
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/16/95 **
Time Analyzed: 1:46 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	7
Benzene	ND	1
Bromodichloromethane	ND	1
Bromoform	ND	1
Bromomethane	ND	1
2-Butanone (MEK)	ND	6
Carbon disulfide	ND	1
Carbon tetrachloride	ND	1
Chlorobenzene	ND	1
Chloroethane	ND	3
Chloroform	ND	1
Chloromethane	ND	3
Dibromochloromethane	ND	1
1,1-Dichloroethane	ND	1
1,1-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
1,2-Dichloroethane	ND	1
1,2-Dichloropropane	ND	1
cis-1,3-Dichloropropene	ND	1
trans-1,3-Dichloropropene	ND	1
Ethylbenzene	ND	1
2-Hexanone	ND	1
Methylene chloride	ND	1
4-Methyl-2-pentanone	ND	1
Styrene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Tetrachloroethene	ND	1
Toluene	ND	1
1,1,1-Trichloroethane	ND	1
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Vinyl acetate	ND	1
Vinyl chloride	ND	1
Xylenes (total)	ND	1

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-8 1-2'
Laboratory ID: 0695G00433

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/16/95 **
Time Analyzed: 1:46 PM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported levels of detection		

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	98%	70 - 121%
	Toluene-d8	101%	81 - 117%
	Bromofluorobenzene	95%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.
** Sample originally analyzed on 2/15/95 at a higher dilution.

Analyst

Review

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring A - 8 1 - 2 '
Laboratory ID: 0695G00433
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/26/95
Time Analyzed: 5:27 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	200
Acenaphthylene	ND	200
Anthracene	ND	200
Benzo(a)anthracene	ND	200
Benzo(b)fluoranthene	ND	200
Benzo(k)fluoranthene	ND	200
Benzo(g,h,i)perylene	ND	200
Benzo(a)pyrene	ND	200
Benzoic acid	ND	200
Benzyl alcohol	ND	200
Bis(2-chloroethoxy)methane	ND	200
Bis(2-chloroethyl)ether	ND	200
Bis(2-chloroisopropyl)ether	ND	200
Bis(2-ethylhexyl)phthalate	ND	500
4-Bromophenyl phenyl ether	ND	200
Butyl benzyl phthalate	ND	200
4 - Chloroaniline	ND	200
4 - Chloro - 3 - methylphenol	ND	200
2 - Chloronaphthalene	ND	200
2 - Chlorophenol	ND	200
4-Chlorophenyl phenyl ether	ND	200
Chrysene	ND	200
2 - Methylphenol	ND	200
3 & 4 - Methylphenol **	ND	200
Di - n - butylphthalate	ND	500
Dibenz(a,h)anthracene	ND	200
Dibenzofuran	ND	200
1,2 - Dichlorobenzene	ND	200
1,3 - Dichlorobenzene	ND	200
1,4 - Dichlorobenzene	ND	200
3,3 - Dichlorobenzidine	ND	200
2,4 - Dichlorophenol	ND	200
Diethyl phthalate	ND	200
2,4 - Dimethylphenol	ND	200
Dimethyl phthalate	ND	200



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring A - 8 1 - 2 '
Laboratory ID: 0695G00433

Report Date: 02/25/95
Date Analyzed: 02/26/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	500
2,4 - Dinitrophenol	ND	500
2,4 - Dinitrotoluene	ND	200
2,6 - Dinitrotoluene	ND	200
Di-n-octyl phthalate	ND	500
Fluoranthene	ND	200
Fluorene	ND	200
Hexachlorobenzene	ND	200
Hexachlorocyclopentadiene	ND	500
Hexachloroethane	ND	200
Hexachlorobutadiene	ND	200
Ideno(1,2,3-cd)pyrene	ND	200
Isophorone	ND	200
2 - Methyl-naphthalene	ND	200
Naphthalene	ND	200
2 - Nitroaniline	ND	200
3 - Nitroaniline	ND	200
4 - Nitroaniline	ND	200
Nitrobenzene	ND	200
2 - Nitrophenol	ND	200
4 - Nitrophenol	ND	200
N - Nitrosodiphenylamine	ND	200
N-Nitroso-di-n-propylamine	ND	200
Pentachlorophenol	ND	500
Phenanthrene	ND	200
Phenol	ND	200
Pyrene	ND	200
1,2,4 - Trichlorobenzene	ND	200
2,4,5 - Trichlorophenol	ND	200
2,4,6 - Trichlorophenol	ND	200

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270 SEMIVOLATILE HYDROCARBONS ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring A - 8 1 - 2 '
Laboratory ID: 0695G00433

Report Date: 02/25/95
Date Analyzed: 02/26/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Unknown hydrocarbon	23.75	200
Unknown hydrocarbon	24.32	300
Unknown hydrocarbon	25.37	200
Unknown hydrocarbon	25.45	200
Hydrocarbon envelope	17 to 37	

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
2 - Fluorophenol	* D	25 - 121%
Phenol - d5	* D	24 - 113%
Nitrobenzene - d5	* D	23 - 120%
2 - Fluorobiphenyl	* D	30 - 115%
2,4,6 - Tribromophenol	* D	19 - 122%
Terphenyl - d14	* D	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: * D - Surrogates diluted out of sample.

Analyst

Review



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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING A-8 1-2'
Lab ID: 0495H01359/0695G00433
Matrix: Soil
Condition: Intact

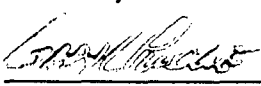
Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/01/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.3 s.u.	0.1	SW-846 9045
Electrical Conductivity	5.6 mmhos/cm	0.1	SW-846 9050
Oil & Grease	16.6 percent	0.1	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	13.8 mg/Kg	0.5	SW-846 7061A
Chromium	128 mg/Kg	1	SW-846 6010A
Lead	256 mg/Kg	14	SW-846 6010A
Nickel	31 mg/Kg	5	SW-846 6010A
Zinc	96 mg/Kg	1	SW-846 6010A

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:


Gary L. Pudge
Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-8 2-3'
Laboratory ID: 0695G00438
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/16/95 *
Time Analyzed: 4:45 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	2.8
Benzene	ND	0.6
Bromodichloromethane	ND	0.6
Bromoform	ND	0.6
Bromomethane	ND	0.6
2-Butanone (MEK)	ND	2.2
Carbon disulfide	ND	0.6
Carbon tetrachloride	ND	0.6
Chlorobenzene	ND	0.6
Chloroethane	ND	1.1
Chloroform	ND	0.6
Chloromethane	ND	1.1
Dibromochloromethane	ND	0.6
1,1-Dichloroethane	ND	0.6
1,1-Dichloroethene	ND	0.6
trans-1,2-Dichloroethene	ND	0.6
1,2-Dichloroethane	ND	0.6
1,2-Dichloropropane	ND	0.6
cis-1,3-Dichloropropene	ND	0.6
trans-1,3-Dichloropropene	ND	0.6
Ethylbenzene	ND	0.6
2-Hexanone	ND	0.6
Methylene chloride	ND	0.6
4-Methyl-2-pentanone	ND	0.6
Styrene	ND	0.6
1,1,2,2-Tetrachloroethane	ND	0.6
Tetrachloroethene	ND	0.6
Toluene	ND	0.6
1,1,1-Trichloroethane	ND	0.6
1,1,2-Trichloroethane	ND	0.6
Trichloroethene	ND	0.6
Vinyl acetate	ND	0.6
Vinyl chloride	ND	0.6
Xylenes (total)	ND	0.6

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-8 2-3'
Laboratory ID: 0695G00438

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/16/95 *
Time Analyzed: 4:45 PM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	12-27	

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	94%	70 - 121%
	Toluene-d8	101%	81 - 117%
	Bromofluorobenzene	97%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.
* Sample originally analyzed on 2/15/95. Bromofluorobenzene was below acceptance limits.

Analyst

Review

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: **Truck Bypass Landfarm**
Sample ID: **Boring A - 8 2 - 3 '**
Laboratory ID: **0695G00438**
Sample Matrix: **Soil**
Condition: **Intact**
Preservative: **Cool**

Report Date: **02/25/95**
Date Sampled: **02/01/95**
Date Received: **02/03/95**
Date Extracted: **02/13/95**
Date Analyzed: **02/16/95**
Time Analyzed: **3:38 PM**

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	40
Acenaphthylene	ND	40
Anthracene	ND	40
Benzo(a)anthracene	ND	40
Benzo(b)fluoranthene	ND	40
Benzo(k)fluoranthene	ND	40
Benzo(g,h,i)perylene	ND	40
Benzo(a)pyrene	ND	40
Benzoic acid	ND	40
Benzyl alcohol	ND	40
Bis(2-chloroethoxy)methane	ND	40
Bis(2-chloroethyl)ether	ND	40
Bis(2-chloroisopropyl)ether	ND	40
Bis(2-ethylhexyl)phthalate	ND	100
4-Bromophenyl phenyl ether	ND	40
Butyl benzyl phthalate	ND	40
4 - Chloroaniline	ND	40
4 - Chloro - 3 - methylphenol	ND	40
2 - Chloronaphthalene	ND	40
2 - Chlorophenol	ND	40
4-Chlorophenyl phenyl ether	ND	40
Chrysene	ND	40
2 - Methylphenol	ND	40
3 & 4 - Methylphenol **	ND	40
Di - n - butylphthalate	ND	100
Dibenz(a,h)anthracene	ND	40
Dibenzofuran	ND	40
1,2 - Dichlorobenzene	ND	40
1,3 - Dichlorobenzene	ND	40
1,4 - Dichlorobenzene	ND	40
3,3 - Dichlorobenzidine	ND	40
2,4 - Dichlorophenol	ND	40
Diethyl phthalate	ND	40
2,4 - Dimethylphenol	ND	40
Dimethyl phthalate	ND	40



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring A - 8 2 - 3 '
Laboratory ID: 0695G00438

Report Date: 02/25/95
Date Analyzed: 02/16/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	100
2,4 - Dinitrophenol	ND	100
2,4 - Dinitrotoluene	ND	40
2,6 - Dinitrotoluene	ND	40
Di-n-octyl phthalate	ND	100
Fluoranthene	ND	40
Fluorene	ND	40
Hexachlorobenzene	ND	40
Hexachlorocyclopentadiene	ND	100
Hexachloroethane	ND	40
Hexachlorobutadiene	ND	40
Ideno(1,2,3-cd)pyrene	ND	40
Isophorone	ND	40
2 - Methyl naphthalene	ND	40
Naphthalene	ND	40
2 - Nitroaniline	ND	40
3 - Nitroaniline	ND	40
4 - Nitroaniline	ND	40
Nitrobenzene	ND	40
2 - Nitrophenol	ND	40
4 - Nitrophenol	ND	40
N - Nitrosodiphenylamine	ND	40
N-Nitroso-di-n-propylamine	ND	40
Pentachlorophenol	ND	100
Phenanthrene	ND	40
Phenol	ND	40
Pyrene	ND	40
1,2,4 - Trichlorobenzene	ND	40
2,4,5 - Trichlorophenol	ND	40
2,4,6 - Trichlorophenol	ND	40

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270 SEMIVOLATILE HYDROCARBONS ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring A - 8 2 - 3 '
Laboratory ID: 0695G00438

Report Date: 02/25/95
Date Analyzed: 02/16/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	17 to 37	

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	63%	25 - 121%
Phenol - d5	63%	24 - 113%
Nitrobenzene - d5	70%	23 - 120%
2 - Fluorobiphenyl	95%	30 - 115%
2,4,6 - Tribromophenol	87%	19 - 122%
Terphenyl - d14	103%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: Elevated detection limit due to matrix interference.

Ramona B. Dennis
Analyst

Wendy M. King
Review

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-8 3-4'
Laboratory ID: 0695G00434
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/15/95
Time Analyzed: 2:24 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	1.4
Benzene	ND	0.3
Bromodichloromethane	ND	0.3
Bromoform	ND	0.3
Bromomethane	ND	0.3
2-Butanone (MEK)	ND	1.1
Carbon disulfide	ND	0.3
Carbon tetrachloride	ND	0.3
Chlorobenzene	ND	0.3
Chloroethane	ND	0.6
Chloroform	ND	0.3
Chloromethane	ND	0.6
Dibromochloromethane	ND	0.3
1,1-Dichloroethane	ND	0.3
1,1-Dichloroethene	ND	0.3
trans-1,2-Dichloroethene	ND	0.3
1,2-Dichloroethane	ND	0.3
1,2-Dichloropropane	ND	0.3
cis-1,3-Dichloropropene	ND	0.3
trans-1,3-Dichloropropene	ND	0.3
Ethylbenzene	ND	0.3
2-Hexanone	ND	0.3
Methylene chloride	ND	0.3
4-Methyl-2-pentanone	ND	0.3
Styrene	ND	0.3
1,1,2,2-Tetrachloroethane	ND	0.3
Tetrachloroethene	ND	0.3
Toluene	ND	0.3
1,1,1-Trichloroethane	ND	0.3
1,1,2-Trichloroethane	ND	0.3
Trichloroethene	ND	0.3
Vinyl acetate	ND	0.3
Vinyl chloride	ND	0.3
Xylenes (total)	ND	0.3

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-8 3-4'
Laboratory ID: 0695G00434

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/15/95
Time Analyzed: 2:24 AM

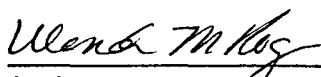
Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels		

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	88%	70 - 121%
	Toluene-d8	98%	81 - 117%
	Bromofluorobenzene	95%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.


Analyst


Review

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring A - 8 3 - 4 '
Laboratory ID: 0695G00434
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/15/95
Time Analyzed: 7:31 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring A - 8 3 - 4 '
Laboratory ID: 0695G00434

Report Date: 02/25/95
Date Analyzed: 02/15/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring A - 8 3 - 4 '
Laboratory ID: 0695G00434

Report Date: 02/25/95
Date Analyzed: 02/15/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	16 to 37	

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

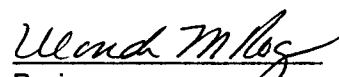
Surrogate	Percent Recovery	Acceptance Limits
2 - Fluorophenol	50%	25 - 121%
Phenol - d5	53%	24 - 113%
Nitrobenzene - d5	48%	23 - 120%
2 - Fluorobiphenyl	52%	30 - 115%
2,4,6 - Tribromophenol	56%	19 - 122%
Terphenyl - d14	80%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:


Analyst


Review



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Client: Navajo Refining Co.

Project: Truck ByPass Land Farm

Sample ID: BORING A-8 3-4'

Lab ID: 0495H01360/0695G00434

Matrix: Soil

Condition: Intact

Report Date: 03/13/95

Receipt Date: 02/06/95

Sample Date: 02/01/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.2 s.u.	0.1	SW-846 9045
Electrical Conductivity	6.1 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	3.1 mg/Kg	0.5	SW-846 7061A
Chromium	19 mg/Kg	1	SW-846 6010A
Lead	14 mg/Kg	1	SW-846 7421
Nickel	12 mg/Kg	5	SW-846 6010A
Zinc	42 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:

Gary L. Pudge
Director, Soil Laboratory



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EPA Method 8240 VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-8 4-5'
Laboratory ID: 0695G00435
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/16/95 *
Time Analyzed: 2:24 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	2.8
Benzene	ND	0.6
Bromodichloromethane	ND	0.6
Bromoform	ND	0.6
Bromomethane	ND	0.6
2-Butanone (MEK)	ND	2.3
Carbon disulfide	ND	0.6
Carbon tetrachloride	ND	0.6
Chlorobenzene	ND	0.6
Chloroethane	ND	1.1
Chloroform	ND	0.6
Chloromethane	ND	1.1
Dibromochloromethane	ND	0.6
1,1-Dichloroethane	ND	0.6
1,1-Dichloroethene	ND	0.6
trans-1,2-Dichloroethene	ND	0.6
1,2-Dichloroethane	ND	0.6
1,2-Dichloropropane	ND	0.6
cis-1,3-Dichloropropene	ND	0.6
trans-1,3-Dichloropropene	ND	0.6
Ethylbenzene	ND	0.6
2-Hexanone	ND	0.6
Methylene chloride	ND	0.6
4-Methyl-2-pentanone	ND	0.6
Styrene	ND	0.6
1,1,2,2-Tetrachloroethane	ND	0.6
Tetrachloroethene	ND	0.6
Toluene	ND	0.6
1,1,1-Trichloroethane	ND	0.6
1,1,2-Trichloroethane	ND	0.6
Trichloroethene	ND	0.6
Vinyl acetate	ND	0.6
Vinyl chloride	ND	0.6
Xylenes (total)	ND	0.6

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-8 4-5'
Laboratory ID: 0695G00435

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/16/95 *
Time Analyzed: 2:24 PM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels		

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	95%	70 - 121%
	Toluene-d8	103%	81 - 117%
	Bromofluorobenzene	100%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.
Originally analyzed on 2/15/95 at a higher dilution.

Analyst

Review

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring A - 8 4 - 5 '
Laboratory ID: 0695G00435
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/16/95
Time Analyzed: 12:36 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	30
Acenaphthylene	ND	30
Anthracene	ND	30
Benzo(a)anthracene	ND	30
Benzo(b)fluoranthene	ND	30
Benzo(k)fluoranthene	ND	30
Benzo(g,h,i)perylene	ND	30
Benzo(a)pyrene	ND	30
Benzoic acid	ND	30
Benzyl alcohol	ND	30
Bis(2-chloroethoxy)methane	ND	30
Bis(2-chloroethyl)ether	ND	30
Bis(2-chloroisopropyl)ether	ND	30
Bis(2-ethylhexyl)phthalate	ND	75
4-Bromophenyl phenyl ether	ND	30
Butyl benzyl phthalate	ND	30
4 - Chloroaniline	ND	30
4 - Chloro - 3 - methylphenol	ND	30
2 - Chloronaphthalene	ND	30
2 - Chlorophenol	ND	30
4-Chlorophenyl phenyl ether	ND	30
Chrysene	ND	30
2 - Methylphenol	ND	30
3 & 4 - Methylphenol **	ND	30
Di - n - butylphthalate	ND	75
Dibenz(a,h)anthracene	ND	30
Dibenzofuran	ND	30
1,2 - Dichlorobenzene	ND	30
1,3 - Dichlorobenzene	ND	30
1,4 - Dichlorobenzene	ND	30
3,3 - Dichlorobenzidine	ND	30
2,4 - Dichlorophenol	ND	30
Diethyl phthalate	ND	30
2,4 - Dimethylphenol	ND	30
Dimethyl phthalate	ND	30



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring A - 8 4 - 5 '
Laboratory ID: 0695G00435

Report Date: 02/25/95
Date Analyzed: 02/16/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	75
2,4 - Dinitrophenol	ND	75
2,4 - Dinitrotoluene	ND	30
2,6 - Dinitrotoluene	ND	30
Di-n-octyl phthalate	ND	75
Fluoranthene	ND	30
Fluorene	ND	30
Hexachlorobenzene	ND	30
Hexachlorocyclopentadiene	ND	75
Hexachloroethane	ND	30
Hexachlorobutadiene	ND	30
Ideno(1,2,3-cd)pyrene	ND	30
Isophorone	ND	30
2 - Methyl naphthalene	ND	30
Naphthalene	ND	30
2 - Nitroaniline	ND	30
3 - Nitroaniline	ND	30
4 - Nitroaniline	ND	30
Nitrobenzene	ND	30
2 - Nitrophenol	ND	30
4 - Nitrophenol	ND	30
N - Nitrosodiphenylamine	ND	30
N-Nitroso-di-n-propylamine	ND	30
Pentachlorophenol	ND	75
Phenanthrene	ND	30
Phenol	ND	30
Pyrene	ND	30
1,2,4 - Trichlorobenzene	ND	30
2,4,5 - Trichlorophenol	ND	30
2,4,6 - Trichlorophenol	ND	30

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring A - 8 4 - 5 '
Laboratory ID: 0695G00435

Report Date: 02/25/95
Date Analyzed: 02/16/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	14 to 37	

* - Concentration calculated using assumed Relative Response Factor = 1.

	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	2 - Fluorophenol	37%	25 - 121%
	Phenol - d5	34%	24 - 113%
	Nitrobenzene - d5	41%	23 - 120%
Quality Control:	2 - Fluorobiphenyl	56%	30 - 115%
	2,4,6 - Tribromophenol	47%	19 - 122%
	Terphenyl - d14	60%	18 - 137%

Method 3550: Sonication Extraction.

Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Orga
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United Stat
Environmental Protection Agency, July 1992.

References:

Elevated detection limit due to matrix interference.

Comments:


Analyst


Review



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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING A-8 4-5'
Lab ID: 0495H01361/0695G00435
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/01/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	7.2 s.u.	0.1	SW-846 9045
Electrical Conductivity	9.6 mmhos/cm	0.1	SW-846 9050
Oil & Grease	5.6 percent	0.1	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	19.2 mg/Kg	0.5	SW-846 7061A
Chromium	61 mg/Kg	1	SW-846 6010A
Lead	72 mg/Kg	14	SW-846 6010A
Nickel	25 mg/Kg	5	SW-846 6010A
Zinc	90 mg/Kg	1	SW-846 6010A

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:

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Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-8 5-6'
Laboratory ID: 0695G00436
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/16/95 *
Time Analyzed: 3:17 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	2.9
Benzene	ND	0.6
Bromodichloromethane	ND	0.6
Bromoform	ND	0.6
Bromomethane	ND	0.6
2-Butanone (MEK)	ND	2.3
Carbon disulfide	ND	0.6
Carbon tetrachloride	ND	0.6
Chlorobenzene	ND	0.6
Chloroethane	ND	1.2
Chloroform	ND	0.6
Chloromethane	ND	1.2
Dibromochloromethane	ND	0.6
1,1-Dichloroethane	ND	0.6
1,1-Dichloroethene	ND	0.6
trans-1,2-Dichloroethene	ND	0.6
1,2-Dichloroethane	ND	0.6
1,2-Dichloropropane	ND	0.6
cis-1,3-Dichloropropene	ND	0.6
trans-1,3-Dichloropropene	ND	0.6
Ethylbenzene	ND	0.6
2-Hexanone	ND	0.6
Methylene chloride	ND	0.6
4-Methyl-2-pentanone	ND	0.6
Styrene	ND	0.6
1,1,2,2-Tetrachloroethane	ND	0.6
Tetrachloroethene	ND	0.6
Toluene	ND	0.6
1,1,1-Trichloroethane	ND	0.6
1,1,2-Trichloroethane	ND	0.6
Trichloroethene	ND	0.6
Vinyl acetate	ND	0.6
Vinyl chloride	ND	0.6
Xylenes (total)	ND	0.6

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-8 5-6'
Laboratory ID: 0695G00436

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/16/95 *
Time Analyzed: 3:17 PM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	18-27	

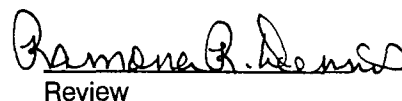
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	99%	70 - 121%
	Toluene-d8	94%	81 - 117%
	Bromofluorobenzene	81%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.
* Originally analyzed on 2/15/95 at a higher dilution.


Analyst


Review

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring A - 8 5 - 6 '
Laboratory ID: 0695G00436
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/26/95
Time Analyzed: 6:12 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	20
Acenaphthylene	ND	20
Anthracene	ND	20
Benzo(a)anthracene	ND	20
Benzo(b)fluoranthene	ND	20
Benzo(k)fluoranthene	ND	20
Benzo(g,h,i)perylene	ND	20
Benzo(a)pyrene	ND	20
Benzoic acid	ND	20
Benzyl alcohol	ND	20
Bis(2-chloroethoxy)methane	ND	20
Bis(2-chloroethyl)ether	ND	20
Bis(2-chloroisopropyl)ether	ND	20
Bis(2-ethylhexyl)phthalate	ND	50
4-Bromophenyl phenyl ether	ND	20
Butyl benzyl phthalate	ND	20
4 - Chloroaniline	ND	20
4 - Chloro - 3 - methylphenol	ND	20
2 - Chloronaphthalene	ND	20
2 - Chlorophenol	ND	20
4-Chlorophenyl phenyl ether	ND	20
Chrysene	ND	20
2 - Methylphenol	ND	20
3 & 4 - Methylphenol **	ND	20
Di - n - butylphthalate	ND	50
Dibenz(a,h)anthracene	ND	20
Dibenzofuran	ND	20
1,2 - Dichlorobenzene	ND	20
1,3 - Dichlorobenzene	ND	20
1,4 - Dichlorobenzene	ND	20
3,3 - Dichlorobenzidine	ND	20
2,4 - Dichlorophenol	ND	20
Diethyl phthalate	ND	20
2,4 - Dimethylphenol	ND	20
Dimethyl phthalate	ND	20



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring A - 8 5 - 6 '
Laboratory ID: 0695G00436

Report Date: 02/25/95
Date Analyzed: 02/26/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	50
2,4 - Dinitrophenol	ND	50
2,4 - Dinitrotoluene	ND	20
2,6 - Dinitrotoluene	ND	20
Di-n-octyl phthalate	ND	50
Fluoranthene	ND	20
Fluorene	ND	20
Hexachlorobenzene	ND	20
Hexachlorocyclopentadiene	ND	50
Hexachloroethane	ND	20
Hexachlorobutadiene	ND	20
Ideno(1,2,3-cd)pyrene	ND	20
Isophorone	ND	20
2 - Methylanthalene	ND	20
Naphthalene	ND	20
2 - Nitroaniline	ND	20
3 - Nitroaniline	ND	20
4 - Nitroaniline	ND	20
Nitrobenzene	ND	20
2 - Nitrophenol	ND	20
4 - Nitrophenol	ND	20
N - Nitrosodiphenylamine	ND	20
N-Nitroso-di-n-propylamine	ND	20
Pentachlorophenol	ND	50
Phenanthrene	ND	20
Phenol	ND	20
Pyrene	ND	20
1,2,4 - Trichlorobenzene	ND	20
2,4,5 - Trichlorophenol	ND	20
2,4,6 - Trichlorophenol	ND	20

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring A - 8 5 - 6 '
Laboratory ID: 0695G00436

Report Date: 02/25/95
Date Analyzed: 02/26/95

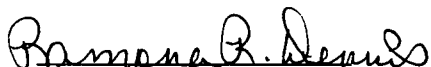
Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Unknown hydrocarbon	24.32	20
Unknown hydrocarbon	25.44	20
Hydrocarbon envelope	15 to 37	

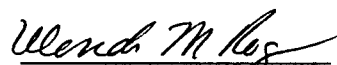
* - Concentration calculated using assumed Relative Response Factor = 1.

	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
Quality Control:	2 - Fluorophenol	* D	25 - 121%
	Phenol - d5	* D	24 - 113%
	Nitrobenzene - d5	* D	23 - 120%
	2 - Fluorobiphenyl	* D	30 - 115%
	2,4,6 - Tribromophenol	* D	19 - 122%
	Terphenyl - d14	* D	18 - 137%

References: Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: * D - Surrogates diluted out of sample.


Analyst


Review



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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING A-8 5-6'
Lab ID: 0495H01362/0695G00436
Matrix: Soil
Condition: Intact

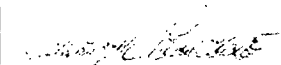
Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/01/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	7.5 s.u.	0.1	SW-846 9045
Electrical Conductivity	8.7 mmhos/cm	0.1	SW-846 9050
Oil & Grease	1.8 percent	0.1	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	21.6 mg/Kg	0.5	SW-846 7061A
Chromium	53 mg/Kg	1	SW-846 6010A
Lead	56 mg/Kg	14	SW-846 6010A
Nickel	30 mg/Kg	5	SW-846 6010A
Zinc	70 mg/Kg	1	SW-846 6010A

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:



Gary L. Pudge
Director, Soil Laboratory



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EPA Method 8240 VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-8 6-7'
Laboratory ID: 0695G00437
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/09/95
Date Analyzed: 02/09/95
Time Analyzed: 9:44 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	0.029
Benzene	ND	0.006
Bromodichloromethane	ND	0.006
Bromoform	ND	0.006
Bromomethane	ND	0.006
2-Butanone (MEK)	ND	0.023
Carbon disulfide	ND	0.006
Carbon tetrachloride	ND	0.006
Chlorobenzene	ND	0.006
Chloroethane	ND	0.012
Chloroform	ND	0.006
Chloromethane	ND	0.012
Dibromochloromethane	ND	0.006
1,1-Dichloroethane	ND	0.006
1,1-Dichloroethene	ND	0.006
trans-1,2-Dichloroethene	ND	0.006
1,2-Dichloroethane	ND	0.006
1,2-Dichloropropane	ND	0.006
cis-1,3-Dichloropropene	ND	0.006
trans-1,3-Dichloropropene	ND	0.006
Ethylbenzene	ND	0.006
2-Hexanone	ND	0.006
Methylene chloride	0.007	0.006
4-Methyl-2-pentanone	ND	0.006
Styrene	ND	0.006
1,1,2,2-Tetrachloroethane	ND	0.006
Tetrachloroethene	ND	0.006
Toluene	ND	0.006
1,1,1-Trichloroethane	ND	0.006
1,1,2-Trichloroethane	ND	0.006
Trichloroethene	ND	0.006
Vinyl acetate	ND	0.006
Vinyl chloride	ND	0.006
Xylenes (total)	ND	0.006

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-8 6-7'
Laboratory ID: 0695G00437

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/09/95
Time Analyzed: 9:44 PM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	20-27	

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	102%	70 - 121%
	Toluene-d8	102%	81 - 117%
	Bromofluorobenzene	95%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.
Methylene chloride is a common laboratory contaminant. Analytical results should not be
considered reliable unless the sample results are 5 times the reporting limit or 10 times
the blank concentration.

Analyst

Review

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: **Truck Bypass Landfarm**
Sample ID: **Boring A - 8 6 - 7 '**
Laboratory ID: **0695G00437**
Sample Matrix: **Soil**
Condition: **Intact**
Preservative: **Cool**

Report Date: **02/25/95**
Date Sampled: **02/01/95**
Date Received: **02/03/95**
Date Extracted: **02/13/95**
Date Analyzed: **02/16/95**
Time Analyzed: **2:52 PM**

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring A - 8 6 - 7 '
Laboratory ID: 0695G00437

Report Date: 02/25/95
Date Analyzed: 02/16/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methylnaphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring A - 8 6 - 7 '
Laboratory ID: 0695G00437

Report Date: 02/25/95
Date Analyzed: 02/16/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection.		

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	50%	25 - 121%
Phenol - d5	54%	24 - 113%
Nitrobenzene - d5	58%	23 - 120%
2 - Fluorobiphenyl	69%	30 - 115%
2,4,6 - Tribromophenol	72%	19 - 122%
Terphenyl - d14	73%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:

Ramona R. Dennis
Analyst

Wanda M. Log
Review



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Client: Navajo Refining Co.

Project: Truck ByPass Land Farm

Sample ID: BORING A-8 6-7'

Lab ID: 0495H01363/0695G00437

Matrix: Soil

Condition: Intact

Report Date: 03/13/95

Receipt Date: 02/06/95

Sample Date: 02/01/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.2 s.u.	0.1	SW-846 9045
Electrical Conductivity	6.3 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	3.8 mg/Kg	0.5	SW-846 7061A
Chromium	13 mg/Kg	1	SW-846 6010A
Lead	8 mg/Kg	1	SW-846 7421
Nickel	5 mg/Kg	5	SW-846 6010A
Zinc	22 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:

Gary L. Pudge
Director, Soil Laboratory



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-7 1-2'
Laboratory ID: 0695G00439

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/15/95
Time Analyzed: 7:18 AM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels		

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	1,2-Dichloroethane-d4	94%	70 - 121%
	Toluene-d8	98%	81 - 117%
	Bromofluorobenzene	93%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.


Analyst


Review

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: **Truck Bypass Landfarm**
Sample ID: **Boring A - 7 1 - 2'**
Laboratory ID: **0695G00439**
Sample Matrix: **Soil**
Condition: **Intact**
Preservative: **Cool**

Report Date: **02/25/95**
Date Sampled: **02/01/95**
Date Received: **02/03/95**
Date Extracted: **02/13/95**
Date Analyzed: **02/16/95**
Time Analyzed: **5:09 PM**

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	20
Acenaphthylene	ND	20
Anthracene	ND	20
Benzo(a)anthracene	ND	20
Benzo(b)fluoranthene	ND	20
Benzo(k)fluoranthene	ND	20
Benzo(g,h,i)perylene	ND	20
Benzo(a)pyrene	ND	20
Benzoic acid	ND	20
Benzyl alcohol	ND	20
Bis(2-chloroethoxy)methane	ND	20
Bis(2-chloroethyl)ether	ND	20
Bis(2-chloroisopropyl)ether	ND	20
Bis(2-ethylhexyl)phthalate	ND	50
4-Bromophenyl phenyl ether	ND	20
Butyl benzyl phthalate	ND	20
4 - Chloroaniline	ND	20
4 - Chloro - 3 - methylphenol	ND	20
2 - Chloronaphthalene	ND	20
2 - Chlorophenol	ND	20
4-Chlorophenyl phenyl ether	ND	20
Chrysene	ND	20
2 - Methylphenol	ND	20
3 & 4 - Methylphenol **	ND	20
Di - n - butylphthalate	ND	50
Dibenz(a,h)anthracene	ND	20
Dibenzofuran	ND	20
1,2 - Dichlorobenzene	ND	20
1,3 - Dichlorobenzene	ND	20
1,4 - Dichlorobenzene	ND	20
3,3 - Dichlorobenzidine	ND	20
2,4 - Dichlorophenol	ND	20
Diethyl phthalate	ND	20
2,4 - Dimethylphenol	ND	20
Dimethyl phthalate	ND	20



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring A - 7 1 - 2 '
Laboratory ID: 0695G00439

Report Date: 02/25/95
Date Analyzed: 02/16/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	50
2,4 - Dinitrophenol	ND	50
2,4 - Dinitrotoluene	ND	20
2,6 - Dinitrotoluene	ND	20
Di-n-octyl phthalate	ND	50
Fluoranthene	ND	20
Fluorene	ND	20
Hexachlorobenzene	ND	20
Hexachlorocyclopentadiene	ND	50
Hexachloroethane	ND	20
Hexachlorobutadiene	ND	20
Ideno(1,2,3-cd)pyrene	ND	20
Isophorone	ND	20
2 - Methyl naphthalene	ND	20
Naphthalene	ND	20
2 - Nitroaniline	ND	20
3 - Nitroaniline	ND	20
4 - Nitroaniline	ND	20
Nitrobenzene	ND	20
2 - Nitrophenol	ND	20
4 - Nitrophenol	ND	20
N - Nitrosodiphenylamine	ND	20
N-Nitroso-di-n-propylamine	ND	20
Pentachlorophenol	ND	50
Phenanthrene	ND	20
Phenol	ND	20
Pyrene	ND	20
1,2,4 - Trichlorobenzene	ND	20
2,4,5 - Trichlorophenol	ND	20
2,4,6 - Trichlorophenol	ND	20

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring A - 7 1 - 2 '
Laboratory ID: 0695G00439

Report Date: 02/25/95
Date Analyzed: 02/16/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Unknown hydrocarbon Hydrocarbon envelope	24.28 20 to 37	20

* - Concentration calculated using assumed Relative Response Factor = 1.

	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
Quality Control:	2 - Fluorophenol	83%	25 - 121%
	Phenol - d5	83%	24 - 113%
	Nitrobenzene - d5	86%	23 - 120%
	2 - Fluorobiphenyl	116%	30 - 115%
	2,4,6 - Tribromophenol	114%	19 - 122%
	Terphenyl - d14	125%	18 - 137%

Method 3550: Sonication Extraction.

Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Orga
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

References:

Elevated detection limit due to matrix interference.
One surrogate is out of acceptance limits.

Comments:

Ramona R. Dennis
Analyst

Wanda M. King
Review



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Client: Navajo Refining Co.

Project: Truck ByPass Land Farm

Sample ID: BORING A-7 1-2'

Lab ID: 0495H01364/0695G00439

Matrix: Soil

Condition: Intact

Report Date: 03/13/95

Receipt Date: 02/06/95

Sample Date: 02/01/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.0 s.u.	0.1	SW-846 9045
Electrical Conductivity	3.9 mmhos/cm	0.1	SW-846 9050
Oil & Grease	17.6 percent	0.1	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	9.6 mg/Kg	0.5	SW-846 7061A
Chromium	68 mg/Kg	1	SW-846 6010A
Lead	415 mg/Kg	14	SW-846 6010A
Nickel	21 mg/Kg	5	SW-846 6010A
Zinc	79 mg/Kg	1	SW-846 6010A

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:

Gary L. Pudge
Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-7 4-4.5'
Laboratory ID: 0695G00440
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/15/95
Time Analyzed: 7:56 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	7
Benzene	ND	1
Bromodichloromethane	ND	1
Bromoform	ND	1
Bromomethane	ND	1
2-Butanone (MEK)	ND	6
Carbon disulfide	ND	1
Carbon tetrachloride	ND	1
Chlorobenzene	ND	1
Chloroethane	ND	3
Chloroform	ND	1
Chloromethane	ND	3
Dibromochloromethane	ND	1
1,1-Dichloroethane	ND	1
1,1-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
1,2-Dichloroethane	ND	1
1,2-Dichloropropane	ND	1
cis-1,3-Dichloropropene	ND	1
trans-1,3-Dichloropropene	ND	1
Ethylbenzene	2	1
2-Hexanone	ND	1
Methylene chloride	ND	1
4-Methyl-2-pentanone	ND	1
Styrene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Tetrachloroethene	ND	1
Toluene	ND	1
1,1,1-Trichloroethane	ND	1
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Vinyl acetate	ND	1
Vinyl chloride	ND	1
Xylenes (total)	6	1

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: NAVAJO REFINING COMPANY
Project : Truck Bypass Landfarm
Sample ID: Boring A-7 4-4.5'
Laboratory ID: 0695G00440

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/15/95
Time Analyzed: 7:56 AM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	12-25	

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	1,2-Dichloroethane-d4	84%	70 - 121%
	Toluene-d8	100%	81 - 117%
	Bromofluorobenzene	95%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.


Analyst


Review

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring A - 7 4 - 4.5 '
Laboratory ID: 0695G00440
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/26/95
Time Analyzed: 6:57 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	400
Acenaphthylene	ND	400
Anthracene	ND	400
Benzo(a)anthracene	ND	400
Benzo(b)fluoranthene	ND	400
Benzo(k)fluoranthene	ND	400
Benzo(g,h,i)perylene	ND	400
Benzo(a)pyrene	ND	400
Benzoic acid	ND	400
Benzyl alcohol	ND	400
Bis(2-chloroethoxy)methane	ND	400
Bis(2-chloroethyl)ether	ND	400
Bis(2-chloroisopropyl)ether	ND	400
Bis(2-ethylhexyl)phthalate	ND	1000
4-Bromophenyl phenyl ether	ND	400
Butyl benzyl phthalate	ND	400
4 - Chloroaniline	ND	400
4 - Chloro - 3 - methylphenol	ND	400
2 - Chloronaphthalene	ND	400
2 - Chlorophenol	ND	400
4-Chlorophenyl phenyl ether	ND	400
Chrysene	ND	400
2 - Methylphenol	ND	400
3 & 4 - Methylphenol **	ND	400
Di - n - butylphthalate	ND	1000
Dibenz(a,h)anthracene	ND	400
Dibenzofuran	ND	400
1,2 - Dichlorobenzene	ND	400
1,3 - Dichlorobenzene	ND	400
1,4 - Dichlorobenzene	ND	400
3,3 - Dichlorobenzidine	ND	400
2,4 - Dichlorophenol	ND	400
Diethyl phthalate	ND	400
2,4 - Dimethylphenol	ND	400
Dimethyl phthalate	ND	400

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring A - 7 4 - 4.5 '
Laboratory ID: 0695G00440

Report Date: 02/25/95
Date Analyzed: 02/26/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1000
2,4 - Dinitrophenol	ND	1000
2,4 - Dinitrotoluene	ND	400
2,6 - Dinitrotoluene	ND	400
Di-n-octyl phthalate	ND	1000
Fluoranthene	ND	400
Fluorene	ND	400
Hexachlorobenzene	ND	400
Hexachlorocyclopentadiene	ND	1000
Hexachloroethane	ND	400
Hexachlorobutadiene	ND	400
Ideno(1,2,3-cd)pyrene	ND	400
Isophorone	ND	400
2 - Methyl naphthalene	ND	400
Naphthalene	ND	400
2 - Nitroaniline	ND	400
3 - Nitroaniline	ND	400
4 - Nitroaniline	ND	400
Nitrobenzene	ND	400
2 - Nitrophenol	ND	400
4 - Nitrophenol	ND	400
N - Nitrosodiphenylamine	ND	400
N-Nitroso-di-n-propylamine	ND	400
Pentachlorophenol	ND	1000
Phenanthrene	ND	400
Phenol	ND	400
Pyrene	ND	400
1,2,4 - Trichlorobenzene	ND	400
2,4,5 - Trichlorophenol	ND	400
2,4,6 - Trichlorophenol	ND	400

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring A - 7 4 - 4.5 '
Laboratory ID: 0695G00440

Report Date: 02/25/95
Date Analyzed: 02/26/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Unknown hydrocarbon Hydrocarbon envelope	24.32 17 to 37	500

* - Concentration calculated using assumed Relative Response Factor = 1.

	Surrogate	Percent Recovery	Acceptance Limits
Quality Control:	2 - Fluorophenol	* D	25 - 121%
	Phenol - d5	* D	24 - 113%
	Nitrobenzene - d5	* D	23 - 120%
	2 - Fluorobiphenyl	* D	30 - 115%
	2,4,6 - Tribromophenol	* D	19 - 122%
	Terphenyl - d14	* D	18 - 137%

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
References: Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States Environmental Protection Agency, July 1992.

Comments: * D - Surrogates diluted out of sample.

Ramona R. Deen
Analyst

Wendy M. Logg
Review



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Client: Navajo Refining Co.

Project: Truck ByPass Land Farm

Sample ID: BORING A-7 4-4.5'

Lab ID: 0495H01365/0695G00440

Matrix: Soil

Condition: Intact

Report Date: 03/13/95

Receipt Date: 02/06/95

Sample Date: 02/01/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	7.8 s.u.	0.1	SW-846 9045
Electrical Conductivity	5.2 mmhos/cm	0.1	SW-846 9050
Oil & Grease	7.5 percent	0.1	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	10.9 mg/Kg	0.5	SW-846 7061A
Chromium	79 mg/Kg	1	SW-846 6010A
Lead	290 mg/Kg	14	SW-846 6010A
Nickel	21 mg/Kg	5	SW-846 6010A
Zinc	75 mg/Kg	1	SW-846 6010A

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:

Gary L. Pudge

Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-7 4.5-5'
Laboratory ID: 0695G00441
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/09/95
Date Analyzed: 02/10/95
Time Analyzed: 12:54 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	0.028
Benzene	ND	0.006
Bromodichloromethane	ND	0.006
Bromoform	ND	0.006
Bromomethane	ND	0.006
2-Butanone (MEK)	ND	0.022
Carbon disulfide	ND	0.006
Carbon tetrachloride	ND	0.006
Chlorobenzene	ND	0.006
Chloroethane	ND	0.011
Chloroform	ND	0.006
Chloromethane	ND	0.011
Dibromochloromethane	ND	0.006
1,1-Dichloroethane	ND	0.006
1,1-Dichloroethene	ND	0.006
trans-1,2-Dichloroethene	ND	0.006
1,2-Dichloroethane	ND	0.006
1,2-Dichloropropane	ND	0.006
cis-1,3-Dichloropropene	ND	0.006
trans-1,3-Dichloropropene	ND	0.006
Ethylbenzene	ND	0.006
2-Hexanone	ND	0.006
Methylene chloride	0.006	0.006
4-Methyl-2-pentanone	ND	0.006
Styrene	ND	0.006
1,1,2,2-Tetrachloroethane	ND	0.006
Tetrachloroethene	ND	0.006
Toluene	ND	0.006
1,1,1-Trichloroethane	ND	0.006
1,1,2-Trichloroethane	ND	0.006
Trichloroethene	ND	0.006
Vinyl acetate	ND	0.006
Vinyl chloride	ND	0.006
Xylenes (total)	ND	0.006

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-7 4.5-5'
Laboratory ID: 0695G00441

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/10/95
Time Analyzed: 12:54 PM

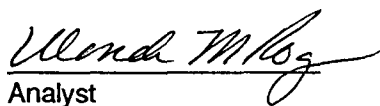
Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels.		

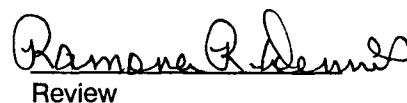
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	108%	70 - 121%
	Toluene-d8	101%	81 - 117%
	Bromofluorobenzene	102%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.
Methylene chloride is a common laboratory contaminant. Analytical results should not be
considered reliable unless the sample results are 5 times the reporting limit or 10 times
the blank concentration.


Analyst


Review

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring A - 7 4.5 - 5 '
Laboratory ID: 0695G00441
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/17/95
Time Analyzed: 3:47 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring A - 7 4.5 - 5 '
Laboratory ID: 0695G00441

Report Date: 02/25/95
Date Analyzed: 02/17/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring A - 7 4.5 - 5 '
Laboratory ID: 0695G00441

Report Date: 02/25/95
Date Analyzed: 02/17/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Unknown hydrocarbon Hydrocarbon envelope	21.25 19 to 35	0.6

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	2 - Fluorophenol	49%	25 - 121%
	Phenol - d5	54%	24 - 113%
	Nitrobenzene - d5	54%	23 - 120%
	2 - Fluorobiphenyl	62%	30 - 115%
	2,4,6 - Tribromophenol	66%	19 - 122%
	Terphenyl - d14	73%	18 - 137%

References: Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:

Ramona R. Dennis
Analyst

Wanda M. King
Review



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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING A-7 4.5-5'
Lab ID: 0495H01366/0695G00441
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/01/95

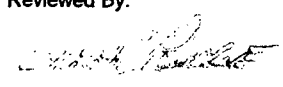
Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.1 s.u.	0.1	SW-846 9045
Electrical Conductivity	4.5 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	4.2 mg/Kg	0.5	SW-846 7061A
Chromium	14 mg/Kg	1	SW-846 6010A
Lead	10 mg/Kg	1	SW-846 7421
Nickel	8 mg/Kg	5	SW-846 6010A
Zinc	29 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:



Gary L. Pudge
Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-7 5-6'
Laboratory ID: 0695G00442
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/09/95
Date Analyzed: 02/10/95
Time Analyzed: 1:32 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	0.029
Benzene	ND	0.006
Bromodichloromethane	ND	0.006
Bromoform	ND	0.006
Bromomethane	ND	0.006
2-Butanone (MEK)	ND	0.024
Carbon disulfide	ND	0.006
Carbon tetrachloride	ND	0.006
Chlorobenzene	ND	0.006
Chloroethane	ND	0.012
Chloroform	ND	0.006
Chloromethane	ND	0.012
Dibromochloromethane	ND	0.006
1,1-Dichloroethane	ND	0.006
1,1-Dichloroethene	ND	0.006
trans-1,2-Dichloroethene	ND	0.006
1,2-Dichloroethane	ND	0.006
1,2-Dichloropropane	ND	0.006
cis-1,3-Dichloropropene	ND	0.006
trans-1,3-Dichloropropene	ND	0.006
Ethylbenzene	ND	0.006
2-Hexanone	ND	0.006
Methylene chloride	0.008	0.006
4-Methyl-2-pentanone	ND	0.006
Styrene	ND	0.006
1,1,2,2-Tetrachloroethane	ND	0.006
Tetrachloroethene	ND	0.006
Toluene	ND	0.006
1,1,1-Trichloroethane	ND	0.006
1,1,2-Trichloroethane	ND	0.006
Trichloroethene	ND	0.006
Vinyl acetate	ND	0.006
Vinyl chloride	ND	0.006
Xylenes (total)	ND	0.006

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-7 5-6'
Laboratory ID: 0695G00442

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/10/95
Time Analyzed: 1:32 AM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels.		

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	106%	70 - 121%
	Toluene-d8	100%	81 - 117%
	Bromofluorobenzene	94%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.
Methylene chloride is a common laboratory contaminant. Analytical results should not be
considered reliable unless the sample results are 5 times the reporting limit or 10 times
the blank concentration.

Analyst

Review

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring A - 7 5 - 6 '
Laboratory ID: 0695G00442
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/17/95
Time Analyzed: 4:31 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring A - 7 5 - 6 '
Laboratory ID: 0695G00442

Report Date: 02/25/95
Date Analyzed: 02/17/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring A - 7 5 - 6 '
Laboratory ID: 0695G00442

Report Date: 02/25/95
Date Analyzed: 02/17/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection.		

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

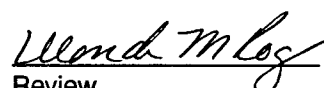
<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	51%	25 - 121%
Phenol - d5	55%	24 - 113%
Nitrobenzene - d5	56%	23 - 120%
2 - Fluorobiphenyl	66%	30 - 115%
2,4,6 - Tribromophenol	67%	19 - 122%
Terphenyl - d14	83%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:


Analyst


Review



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Client: Navajo Refining Co.

Project: Truck ByPass Land Farm

Sample ID: BORING A-7 5-6'

Lab ID: 0495H01367/0695G00442

Matrix: Soil

Condition: Intact

Report Date: 03/13/95

Receipt Date: 02/06/95

Sample Date: 02/01/95

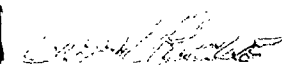
Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.1 s.u.	0.1	SW-846 9045
Electrical Conductivity	5.2 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	5.9 mg/Kg	0.5	SW-846 7061A
Chromium	13 mg/Kg	1	SW-846 6010A
Lead	7 mg/Kg	1	SW-846 7421
Nickel	ND*	5 mg/Kg	SW-846 6010A
Zinc	22 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:


Gary L. Pudge

Director, Soil Laboratory



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EPA Method 8240 VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-7 6-7'
Laboratory ID: 0695G00443
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/09/95
Date Analyzed: 02/10/95
Time Analyzed: 2:10 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	0.029
Benzene	ND	0.006
Bromodichloromethane	ND	0.006
Bromoform	ND	0.006
Bromomethane	ND	0.006
2-Butanone (MEK)	ND	0.023
Carbon disulfide	ND	0.006
Carbon tetrachloride	ND	0.006
Chlorobenzene	ND	0.006
Chloroethane	ND	0.011
Chloroform	ND	0.006
Chloromethane	ND	0.011
Dibromochloromethane	ND	0.006
1,1-Dichloroethane	ND	0.006
1,1-Dichloroethene	ND	0.006
trans-1,2-Dichloroethene	ND	0.006
1,2-Dichloroethane	ND	0.006
1,2-Dichloropropane	ND	0.006
cis-1,3-Dichloropropene	ND	0.006
trans-1,3-Dichloropropene	ND	0.006
Ethylbenzene	ND	0.006
2-Hexanone	ND	0.006
Methylene chloride	0.008	0.006
4-Methyl-2-pentanone	ND	0.006
Styrene	ND	0.006
1,1,2,2-Tetrachloroethane	ND	0.006
Tetrachloroethene	ND	0.006
Toluene	ND	0.006
1,1,1-Trichloroethane	ND	0.006
1,1,2-Trichloroethane	ND	0.006
Trichloroethene	ND	0.006
Vinyl acetate	ND	0.006
Vinyl chloride	ND	0.006
Xylenes (total)	ND	0.006

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-7 6-7'
Laboratory ID: 0695G00443

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/10/95
Time Analyzed: 2:10 AM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels.		

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	102%	70 - 121%
	Toluene-d8	101%	81 - 117%
	Bromofluorobenzene	93%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.
Methylene chloride is a common laboratory contaminant. Analytical results should not be considered reliable unless the sample results are 5 times the reporting limit or 10 times the blank concentration.

Analyst

Review

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring A - 7 6 - 7 '
Laboratory ID: 0695G00443
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/17/95
Time Analyzed: 6:00 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring A - 7 6 - 7 '
Laboratory ID: 0695G00443

Report Date: 02/25/95
Date Analyzed: 02/17/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methylanthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring A - 7 6 - 7 '
Laboratory ID: 0695G00443

Report Date: 02/25/95
Date Analyzed: 02/17/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection.		

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	51%	25 - 121%
Phenol - d5	55%	24 - 113%
Nitrobenzene - d5	54%	23 - 120%
2 - Fluorobiphenyl	60%	30 - 115%
2,4,6 - Tribromophenol	64%	19 - 122%
Terphenyl - d14	83%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:

Ramona R. Dennis
Analyst

Wanda M. Log
Review



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Client: Navajo Refining Co.

Project: Truck ByPass Land Farm

Sample ID: BORING A-7 6-7'

Lab ID: 0495H01368/0695G00443

Matrix: Soil

Condition: Intact

Report Date: 03/13/95

Receipt Date: 02/06/95

Sample Date: 02/01/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.2 s.u.	0.1	SW-846 9045
Electrical Conductivity	4.8 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	3.2 mg/Kg	0.5	SW-846 7061A
Chromium	8 mg/Kg	1	SW-846 6010A
Lead	4 mg/Kg	1	SW-846 7421
Nickel	ND*	5 mg/Kg	SW-846 6010A
Zinc	13 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:

Gary L. Pudge

Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-9 1-2'
Laboratory ID: 0695G00444
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/16/95 *
Time Analyzed: 4:00 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	7
Benzene	ND	1
Bromodichloromethane	ND	1
Bromoform	ND	1
Bromomethane	ND	1
2-Butanone (MEK)	ND	5
Carbon disulfide	ND	1
Carbon tetrachloride	ND	1
Chlorobenzene	ND	1
Chloroethane	ND	3
Chloroform	ND	1
Chloromethane	ND	3
Dibromochloromethane	ND	1
1,1-Dichloroethane	ND	1
1,1-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
1,2-Dichloroethane	ND	1
1,2-Dichloropropane	ND	1
cis-1,3-Dichloropropene	ND	1
trans-1,3-Dichloropropene	ND	1
Ethylbenzene	ND	1
2-Hexanone	ND	1
Methylene chloride	ND	1
4-Methyl-2-pentanone	ND	1
Styrene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Tetrachloroethene	ND	1
Toluene	ND	1
1,1,1-Trichloroethane	ND	1
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Vinyl acetate	ND	1
Vinyl chloride	ND	1
Xylenes (total)	ND	1

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-9 1-2'
Laboratory ID: 0695G00444

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/16/95 *
Time Analyzed: 4:00 PM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	16-27	

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	1,2-Dichloroethane-d4	93%	70 - 121%
	Toluene-d8	102%	81 - 117%
	Bromofluorobenzene	99%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.
* Sample originally analyzed on 2/15/95 at a higher dilution.


Analyst


Review



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EPA Method 8270 SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: **Truck Bypass Landfarm**
Sample ID: **Boring A - 9 1 - 2 '**
Laboratory ID: **0695G00444**
Sample Matrix: **Soil**
Condition: **Intact**
Preservative: **Cool**

Report Date: **02/25/95**
Date Sampled: **02/01/95**
Date Received: **02/03/95**
Date Extracted: **02/13/95**
Date Analyzed: **02/26/95**
Time Analyzed: **7:41 PM**

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	400
Acenaphthylene	ND	400
Anthracene	ND	400
Benzo(a)anthracene	ND	400
Benzo(b)fluoranthene	ND	400
Benzo(k)fluoranthene	ND	400
Benzo(g,h,i)perylene	ND	400
Benzo(a)pyrene	ND	400
Benzoic acid	ND	400
Benzyl alcohol	ND	400
Bis(2-chloroethoxy)methane	ND	400
Bis(2-chloroethyl)ether	ND	400
Bis(2-chloroisopropyl)ether	ND	400
Bis(2-ethylhexyl)phthalate	ND	1000
4-Bromophenyl phenyl ether	ND	400
Butyl benzyl phthalate	ND	400
4 - Chloroaniline	ND	400
4 - Chloro - 3 - methylphenol	ND	400
2 - Chloronaphthalene	ND	400
2 - Chlorophenol	ND	400
4-Chlorophenyl phenyl ether	ND	400
Chrysene	ND	400
2 - Methylphenol	ND	400
3 & 4 - Methylphenol **	ND	400
Di - n - butylphthalate	ND	1000
Dibenz(a,h)anthracene	ND	400
Dibenzofuran	ND	400
1,2 - Dichlorobenzene	ND	400
1,3 - Dichlorobenzene	ND	400
1,4 - Dichlorobenzene	ND	400
3,3 - Dichlorobenzidine	ND	400
2,4 - Dichlorophenol	ND	400
Diethyl phthalate	ND	400
2,4 - Dimethylphenol	ND	400
Dimethyl phthalate	ND	400



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring A - 9 1 - 2 '
Laboratory ID: 0695G00444

Report Date: 02/25/95
Date Analyzed: 02/26/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1000
2,4 - Dinitrophenol	ND	1000
2,4 - Dinitrotoluene	ND	400
2,6 - Dinitrotoluene	ND	400
Di-n-octyl phthalate	ND	1000
Fluoranthene	ND	400
Fluorene	ND	400
Hexachlorobenzene	ND	400
Hexachlorocyclopentadiene	ND	1000
Hexachloroethane	ND	400
Hexachlorobutadiene	ND	400
Ideno(1,2,3-cd)pyrene	ND	400
Isophorone	ND	400
2 - Methyl naphthalene	ND	400
Naphthalene	ND	400
2 - Nitroaniline	ND	400
3 - Nitroaniline	ND	400
4 - Nitroaniline	ND	400
Nitrobenzene	ND	400
2 - Nitrophenol	ND	400
4 - Nitrophenol	ND	400
N - Nitrosodiphenylamine	ND	400
N-Nitroso-di-n-propylamine	ND	400
Pentachlorophenol	ND	1000
Phenanthrene	ND	400
Phenol	ND	400
Pyrene	ND	400
1,2,4 - Trichlorobenzene	ND	400
2,4,5 - Trichlorophenol	ND	400
2,4,6 - Trichlorophenol	ND	400

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring A - 9 1 - 2 '
Laboratory ID: 0695G00444

Report Date: 02/25/95
Date Analyzed: 02/26/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Unknown hydrocarbon Hydrocarbon envelope	24.32 18 to 37	400

* - Concentration calculated using assumed Relative Response Factor = 1.

	Surrogate	Percent Recovery	Acceptance Limits
Quality Control:	2 - Fluorophenol	* D	25 - 121%
	Phenol - d5	* D	24 - 113%
	Nitrobenzene - d5	* D	23 - 120%
	2 - Fluorobiphenyl	* D	30 - 115%
	2,4,6 - Tribromophenol	* D	19 - 122%
	Terphenyl - d14	* D	18 - 137%

References: Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: * D - Surrogates diluted out of sample.

Ramona R. Wenzel
Analyst

Wendy M. King
Review



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Client: Navajo Refining Co.

Project: Truck ByPass Land Farm

Sample ID: BORING A-9 1-2'

Lab ID: 0495H01369/0695G00444

Matrix: Soil

Condition: Intact

Report Date: 03/13/95

Receipt Date: 02/06/95

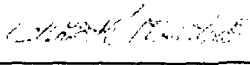
Sample Date: 02/01/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	7.0 s.u.	0.1	SW-846 9045
Electrical Conductivity	8.8 mmhos/cm	0.1	SW-846 9050
Oil & Grease	12.8 percent	0.1	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	36.6 mg/Kg	0.5	SW-846 7061A
Chromium	57 mg/Kg	1	SW-846 6010A
Lead	124 mg/Kg	14	SW-846 6010A
Nickel	26 mg/Kg	5	SW-846 6010A
Zinc	107 mg/Kg	1	SW-846 6010A

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:



Gary L. Pudge
Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-9 3-3.5'
Laboratory ID: 0695G00445
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/15/95
Time Analyzed: 9:49 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	6
Benzene	ND	1
Bromodichloromethane	ND	1
Bromoform	ND	1
Bromomethane	ND	1
2-Butanone (MEK)	ND	5
Carbon disulfide	ND	1
Carbon tetrachloride	ND	1
Chlorobenzene	ND	1
Chloroethane	ND	2
Chloroform	ND	1
Chloromethane	ND	2
Dibromochloromethane	ND	1
1,1-Dichloroethane	ND	1
1,1-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
1,2-Dichloroethane	ND	1
1,2-Dichloropropane	ND	1
cis-1,3-Dichloropropene	ND	1
trans-1,3-Dichloropropene	ND	1
Ethylbenzene	ND	1
2-Hexanone	ND	1
Methylene chloride	ND	1
4-Methyl-2-pentanone	ND	1
Styrene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Tetrachloroethene	ND	1
Toluene	ND	1
1,1,1-Trichloroethane	ND	1
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Vinyl acetate	ND	1
Vinyl chloride	ND	1
Xylenes (total)	ND	1

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-9 3-3.5'
Laboratory ID: 0695G00445

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/15/95
Time Analyzed: 9:49 AM

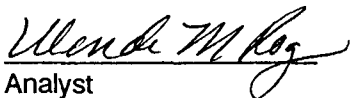
Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels.		

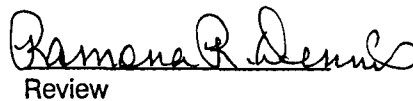
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	1,2-Dichloroethane-d4	90%	70 - 121%
	Toluene-d8	102%	81 - 117%
	Bromofluorobenzene	103%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.


Analyst


Review

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: **Truck Bypass Landfarm**
Sample ID: **Boring A - 9 3 - 3.5 '**
Laboratory ID: **0695G00445**
Sample Matrix: **Soil**
Condition: **Intact**
Preservative: **Cool**

Report Date: **02/25/95**
Date Sampled: **02/01/95**
Date Received: **02/03/95**
Date Extracted: **02/13/95**
Date Analyzed: **02/26/95**
Time Analyzed: **8:26 PM**

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	50
Acenaphthylene	ND	50
Anthracene	ND	50
Benzo(a)anthracene	ND	50
Benzo(b)fluoranthene	ND	50
Benzo(k)fluoranthene	ND	50
Benzo(g,h,i)perylene	ND	50
Benzo(a)pyrene	ND	50
Benzoic acid	ND	50
Benzyl alcohol	ND	50
Bis(2-chloroethoxy)methane	ND	50
Bis(2-chloroethyl)ether	ND	50
Bis(2-chloroisopropyl)ether	ND	50
Bis(2-ethylhexyl)phthalate	ND	125
4-Bromophenyl phenyl ether	ND	50
Butyl benzyl phthalate	ND	50
4 - Chloroaniline	ND	50
4 - Chloro - 3 - methylphenol	ND	50
2 - Chloronaphthalene	ND	50
2 - Chlorophenol	ND	50
4-Chlorophenyl phenyl ether	ND	50
Chrysene	ND	50
2 - Methylphenol	ND	50
3 & 4 - Methylphenol **	ND	50
Di - n - butylphthalate	ND	125
Dibenz(a,h)anthracene	ND	50
Dibenzofuran	ND	50
1,2 - Dichlorobenzene	ND	50
1,3 - Dichlorobenzene	ND	50
1,4 - Dichlorobenzene	ND	50
3,3 - Dichlorobenzidine	ND	50
2,4 - Dichlorophenol	ND	50
Diethyl phthalate	ND	50
2,4 - Dimethylphenol	ND	50
Dimethyl phthalate	ND	50



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring A - 93 - 3.5 '
Laboratory ID: 0695G00445

Report Date: 02/25/95
Date Analyzed: 02/26/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	125
2,4 - Dinitrophenol	ND	125
2,4 - Dinitrotoluene	ND	50
2,6 - Dinitrotoluene	ND	50
Di-n-octyl phthalate	ND	125
Fluoranthene	ND	50
Fluorene	ND	50
Hexachlorobenzene	ND	50
Hexachlorocyclopentadiene	ND	125
Hexachloroethane	ND	50
Hexachlorobutadiene	ND	50
Ideno(1,2,3-cd)pyrene	ND	50
Isophorone	ND	50
2 - Methyl naphthalene	ND	50
Naphthalene	ND	50
2 - Nitroaniline	ND	50
3 - Nitroaniline	ND	50
4 - Nitroaniline	ND	50
Nitrobenzene	ND	50
2 - Nitrophenol	ND	50
4 - Nitrophenol	ND	50
N - Nitrosodiphenylamine	ND	50
N-Nitroso-di-n-propylamine	ND	50
Pentachlorophenol	ND	125
Phenanthrene	ND	50
Phenol	ND	50
Pyrene	ND	50
1,2,4 - Trichlorobenzene	ND	50
2,4,5 - Trichlorophenol	ND	50
2,4,6 - Trichlorophenol	ND	50

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring A - 93 - 3.5 '
Laboratory ID: 0695G00445

Report Date: 02/25/95
Date Analyzed: 02/26/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	11 to 37	

* - Concentration calculated using assumed Relative Response Factor = 1.

	Surrogate	Percent Recovery	Acceptance Limits
Quality Control:	2 - Fluorophenol	55%	25 - 121%
	Phenol - d5	52%	24 - 113%
	Nitrobenzene - d5	73%	23 - 120%
	2 - Fluorobiphenyl	99%	30 - 115%
	2,4,6 - Tribromophenol	57%	19 - 122%
	Terphenyl - d14	106%	18 - 137%

Method 3550: Sonication Extraction.

Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Orga
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
References: Environmental Protection Agency, July 1992.

Comments:

Ramona R. Dennis
Analyst

Wanda M. Log
Review

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-9 3.5-4'
Laboratory ID: 0695G00446
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/09/95
Date Analyzed: 02/10/95
Time Analyzed: 2:48 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	0.028
Benzene	ND	0.006
Bromodichloromethane	ND	0.006
Bromoform	ND	0.006
Bromomethane	ND	0.006
2-Butanone (MEK)	0.070	0.023
Carbon disulfide	ND	0.006
Carbon tetrachloride	ND	0.006
Chlorobenzene	ND	0.006
Chloroethane	ND	0.011
Chloroform	ND	0.006
Chloromethane	ND	0.011
Dibromochloromethane	ND	0.006
1,1-Dichloroethane	ND	0.006
1,1-Dichloroethene	ND	0.006
trans-1,2-Dichloroethene	ND	0.006
1,2-Dichloroethane	ND	0.006
1,2-Dichloropropane	ND	0.006
cis-1,3-Dichloropropene	ND	0.006
trans-1,3-Dichloropropene	ND	0.006
Ethylbenzene	ND	0.006
2-Hexanone	ND	0.006
Methylene chloride	0.008	0.006
4-Methyl-2-pentanone	ND	0.006
Styrene	ND	0.006
1,1,2,2-Tetrachloroethane	ND	0.006
Tetrachloroethene	ND	0.006
Toluene	ND	0.006
1,1,1-Trichloroethane	ND	0.006
1,1,2-Trichloroethane	ND	0.006
Trichloroethene	ND	0.006
Vinyl acetate	ND	0.006
Vinyl chloride	ND	0.006
Xylenes (total)	ND	0.006

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-9 3.5-4'
Laboratory ID: 0695G00446

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/10/95
Time Analyzed: 2:48 AM

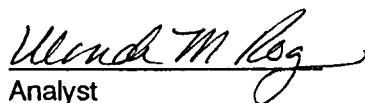
Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	17-27	

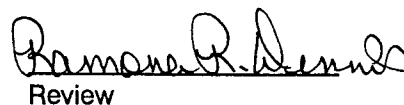
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	104%	70 - 121%
	Toluene-d8	100%	81 - 117%
	Bromofluorobenzene	95%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.
Methylene chloride is a common laboratory contaminant. Analytical results should not be
considered reliable unless the sample results are 5 times the reporting limit or 10 times
the blank concentration.


Analyst


Review

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring A - 9 3.5 - 4 '
Laboratory ID: 0695G00446
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/17/95
Time Analyzed: 2:42 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring A - 9 3.5 - 4 '
Laboratory ID: 0695G00446

Report Date: 02/25/95
Date Analyzed: 02/17/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270 SEMIVOLATILE HYDROCARBONS ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring A - 9 3.5 - 4 '
Laboratory ID: 0695G00446

Report Date: 02/25/95
Date Analyzed: 02/17/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	18 to 37	

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

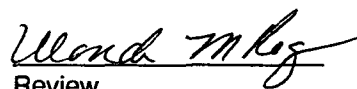
<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	43%	25 - 121%
Phenol - d5	42%	24 - 113%
Nitrobenzene - d5	40%	23 - 120%
2 - Fluorobiphenyl	41%	30 - 115%
2,4,6 - Tribromophenol	61%	19 - 122%
Terphenyl - d14	75%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:


Analyst


Review



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Client: Navajo Refining Co.

Project: Truck ByPass Land Farm

Sample ID: BORING A-9 3.5-4'

Lab ID: 0495H01370/0695G00446

Matrix: Soil

Condition: Intact

Report Date: 03/13/95

Receipt Date: 02/06/95

Sample Date: 02/01/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	7.4 s.u.	0.1	SW-846 9045
Electrical Conductivity	5.2 mmhos/cm	0.1	SW-846 9050
Oil & Grease	0.2 percent	0.1	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	4.7 mg/Kg	0.5	SW-846 7061A
Chromium	27 mg/Kg	1	SW-846 6010A
Lead	46 mg/Kg	14	SW-846 6010A
Nickel	13 mg/Kg	5	SW-846 6010A
Zinc	54 mg/Kg	1	SW-846 6010A

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:

Gary L. Pudge

Director, Soil Laboratory



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EPA Method 8240 VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-9 4-5'
Laboratory ID: 0695G00447
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/09/95
Date Analyzed: 02/10/95
Time Analyzed: 3:26 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	0.029
Benzene	ND	0.006
Bromodichloromethane	ND	0.006
Bromoform	ND	0.006
Bromomethane	ND	0.006
2-Butanone (MEK)	ND	0.024
Carbon disulfide	ND	0.006
Carbon tetrachloride	ND	0.006
Chlorobenzene	ND	0.006
Chloroethane	ND	0.012
Chloroform	ND	0.006
Chloromethane	ND	0.012
Dibromochloromethane	ND	0.006
1,1-Dichloroethane	ND	0.006
1,1-Dichloroethene	ND	0.006
trans-1,2-Dichloroethene	ND	0.006
1,2-Dichloroethane	ND	0.006
1,2-Dichloropropane	ND	0.006
cis-1,3-Dichloropropene	ND	0.006
trans-1,3-Dichloropropene	ND	0.006
Ethylbenzene	ND	0.006
2-Hexanone	ND	0.006
Methylene chloride	0.008	0.006
4-Methyl-2-pentanone	ND	0.006
Styrene	ND	0.006
1,1,2,2-Tetrachloroethane	ND	0.006
Tetrachloroethene	ND	0.006
Toluene	ND	0.006
1,1,1-Trichloroethane	ND	0.006
1,1,2-Trichloroethane	ND	0.006
Trichloroethene	ND	0.006
Vinyl acetate	ND	0.006
Vinyl chloride	ND	0.006
Xylenes (total)	ND	0.006

ND - Analyte not detected at stated limit of detection



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EPA Method 8240 VOLATILE ORGANIC COMPOUNDS ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-9 4-5'
Laboratory ID: 0695G00447

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/10/95
Time Analyzed: 3:26 AM

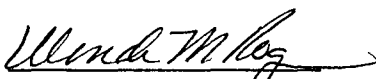
Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	20-27	

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	107%	70 - 121%
	Toluene-d8	99%	81 - 117%
	Bromofluorobenzene	100%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.
Methylene chloride is a common laboratory contaminant. Analytical results should not be considered reliable unless the sample results are 5 times the reporting limit or 10 times the blank concentration.


Analyst


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EPA Method 8270 SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring A - 94 - 5'
Laboratory ID: 0695G00447

Report Date: 02/25/95
Date Analyzed: 02/17/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring A - 9 4 - 5 '
Laboratory ID: 0695G00447

Report Date: 02/25/95
Date Analyzed: 02/17/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	18 to 37	

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

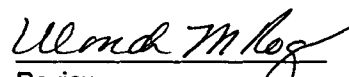
<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	44%	25 - 121%
Phenol - d5	53%	24 - 113%
Nitrobenzene - d5	61%	23 - 120%
2 - Fluorobiphenyl	70%	30 - 115%
2,4,6 - Tribromophenol	66%	19 - 122%
Terphenyl - d14	80%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:


Analyst


Review

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-9 5-6'
Laboratory ID: 0695G00448
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/09/95
Date Analyzed: 02/10/95
Time Analyzed: 4:04 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	0.032
Benzene	ND	0.006
Bromodichloromethane	ND	0.006
Bromoform	ND	0.006
Bromomethane	ND	0.006
2-Butanone (MEK)	ND	0.026
Carbon disulfide	ND	0.006
Carbon tetrachloride	ND	0.006
Chlorobenzene	ND	0.006
Chloroethane	ND	0.013
Chloroform	ND	0.006
Chloromethane	ND	0.013
Dibromochloromethane	ND	0.006
1,1-Dichloroethane	ND	0.006
1,1-Dichloroethene	ND	0.006
trans-1,2-Dichloroethene	ND	0.006
1,2-Dichloroethane	ND	0.006
1,2-Dichloropropane	ND	0.006
cis-1,3-Dichloropropene	ND	0.006
trans-1,3-Dichloropropene	ND	0.006
Ethylbenzene	ND	0.006
2-Hexanone	ND	0.006
Methylene chloride	0.011	0.006
4-Methyl-2-pentanone	ND	0.006
Styrene	ND	0.006
1,1,2,2-Tetrachloroethane	ND	0.006
Tetrachloroethene	ND	0.006
Toluene	ND	0.006
1,1,1-Trichloroethane	ND	0.006
1,1,2-Trichloroethane	ND	0.006
Trichloroethene	ND	0.006
Vinyl acetate	ND	0.006
Vinyl chloride	ND	0.006
Xylenes (total)	ND	0.006

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-9 5-6'
Laboratory ID: 0695G00448

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/10/95
Time Analyzed: 4:04 AM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	19-27	

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	106%	70 - 121%
	Toluene-d8	101%	81 - 117%
	Bromofluorobenzene	97%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.
Methylene chloride is a common laboratory contaminant. Analytical results should not be
considered reliable unless the sample results are 5 times the reporting limit or 10 times
the blank concentration.

Analyst

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring A - 9 5 - 6 '
Laboratory ID: 0695G00448
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/17/95
Time Analyzed: 4:13 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring A - 9 5 - 6 '
Laboratory ID: 0695G00448

Report Date: 02/25/95
Date Analyzed: 02/17/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring A - 9 5 - 6 '
Laboratory ID: 0695G00448

Report Date: 02/25/95
Date Analyzed: 02/17/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection.		

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	51%	25 - 121%
Phenol - d5	56%	24 - 113%
Nitrobenzene - d5	55%	23 - 120%
2 - Fluorobiphenyl	61%	30 - 115%
2,4,6 - Tribromophenol	65%	19 - 122%
Terphenyl - d14	76%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:

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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING A-9 5-6'
Lab ID: 0495H01372/0695G00448
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/01/95

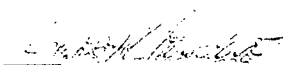
Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.0 s.u.	0.1	SW-846 9045
Electrical Conductivity	3.4 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	1.8 mg/Kg	0.5	SW-846 7061A
Chromium	5 mg/Kg	1	SW-846 6010A
Lead	1 mg/Kg	1	SW-846 7421
Nickel	ND*	5 mg/Kg	SW-846 6010A
Zinc	14 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:



Gary L. Pudge
Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-9 6-7'
Laboratory ID: 0695G00449
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/09/95
Date Analyzed: 02/10/95
Time Analyzed: 4:42 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	0.030
Benzene	ND	0.006
Bromodichloromethane	ND	0.006
Bromoform	ND	0.006
Bromomethane	ND	0.006
2-Butanone (MEK)	ND	0.024
Carbon disulfide	ND	0.006
Carbon tetrachloride	ND	0.006
Chlorobenzene	ND	0.006
Chloroethane	ND	0.012
Chloroform	ND	0.006
Chloromethane	ND	0.012
Dibromochloromethane	ND	0.006
1,1-Dichloroethane	ND	0.006
1,1-Dichloroethene	ND	0.006
trans-1,2-Dichloroethene	ND	0.006
1,2-Dichloroethane	ND	0.006
1,2-Dichloropropane	ND	0.006
cis-1,3-Dichloropropene	ND	0.006
trans-1,3-Dichloropropene	ND	0.006
Ethylbenzene	ND	0.006
2-Hexanone	ND	0.006
Methylene chloride	0.008	0.006
4-Methyl-2-pentanone	ND	0.006
Styrene	ND	0.006
1,1,2,2-Tetrachloroethane	ND	0.006
Tetrachloroethene	ND	0.006
Toluene	ND	0.006
1,1,1-Trichloroethane	ND	0.006
1,1,2-Trichloroethane	ND	0.006
Trichloroethene	ND	0.006
Vinyl acetate	ND	0.006
Vinyl chloride	ND	0.006
Xylenes (total)	ND	0.006

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring A-9 6-7'
Laboratory ID: 0695G00449

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/10/95
Time Analyzed: 4:42 AM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels.		

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	109%	70 - 121%
	Toluene-d8	102%	81 - 117%
	Bromofluorobenzene	95%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.
Methylene chloride is a common laboratory contaminant. Analytical results should not be considered reliable unless the sample results are 5 times the reporting limit or 10 times the blank concentration.

Analyst

Review

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring A - 9 6 - 7 '
Laboratory ID: 0695G00449
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/17/95
Time Analyzed: 5:45 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring A - 9 6 - 7 '
Laboratory ID: 0695G00449

Report Date: 02/25/95
Date Analyzed: 02/17/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270 SEMIVOLATILE HYDROCARBONS ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring A - 9 6 - 7 '
Laboratory ID: 0695G00449

Report Date: 02/25/95
Date Analyzed: 02/17/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection.		

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

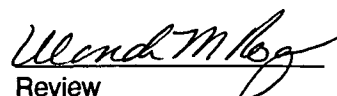
<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	58%	25 - 121%
Phenol - d5	64%	24 - 113%
Nitrobenzene - d5	64%	23 - 120%
2 - Fluorobiphenyl	76%	30 - 115%
2,4,6 - Tribromophenol	77%	19 - 122%
Terphenyl - d14	81%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:


Analyst


Review



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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING A-9 6-7'
Lab ID: 0495H01373/0695G00449
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/01/95

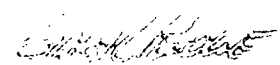
Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	7.8 s.u.	0.1	SW-846 9045
Electrical Conductivity	3.9 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	2.0 mg/Kg	0.5	SW-846 7061A
Chromium	7 mg/Kg	1	SW-846 6010A
Lead	8 mg/Kg	1	SW-846 7421
Nickel	ND*	5 mg/Kg	SW-846 6010A
Zinc	19 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:



Gary L. Pudge
Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-7 1-2'
Laboratory ID: 0695G00450
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/15/95
Time Analyzed: 12:07 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	7
Benzene	ND	1
Bromodichloromethane	ND	1
Bromoform	ND	1
Bromomethane	ND	1
2-Butanone (MEK)	ND	6
Carbon disulfide	ND	1
Carbon tetrachloride	ND	1
Chlorobenzene	ND	1
Chloroethane	ND	3
Chloroform	ND	1
Chloromethane	ND	3
Dibromochloromethane	ND	1
1,1-Dichloroethane	ND	1
1,1-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
1,2-Dichloroethane	ND	1
1,2-Dichloropropane	ND	1
cis-1,3-Dichloropropene	ND	1
trans-1,3-Dichloropropene	ND	1
Ethylbenzene	ND	1
2-Hexanone	ND	1
Methylene chloride	ND	1
4-Methyl-2-pentanone	ND	1
Styrene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Tetrachloroethene	ND	1
Toluene	ND	1
1,1,1-Trichloroethane	ND	1
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Vinyl acetate	ND	1
Vinyl chloride	ND	1
Xylenes (total)	ND	1

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-7 1-2'
Laboratory ID: 0695G00450

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/15/95
Time Analyzed: 12:07 PM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	19-27	

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	1,2-Dichloroethane-d4	88%	70 - 121%
	Toluene-d8	100%	81 - 117%
	Bromofluorobenzene	102%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.


Analyst


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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring B - 7 1 - 2 '
Laboratory ID: 0695G00450
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/26/95
Time Analyzed: 9:11 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	60
Acenaphthylene	ND	60
Anthracene	ND	60
Benzo(a)anthracene	ND	60
Benzo(b)fluoranthene	ND	60
Benzo(k)fluoranthene	ND	60
Benzo(g,h,i)perylene	ND	60
Benzo(a)pyrene	ND	60
Benzoic acid	ND	60
Benzyl alcohol	ND	60
Bis(2-chloroethoxy)methane	ND	60
Bis(2-chloroethyl)ether	ND	60
Bis(2-chloroisopropyl)ether	ND	60
Bis(2-ethylhexyl)phthalate	ND	150
4-Bromophenyl phenyl ether	ND	60
Butyl benzyl phthalate	ND	60
4 - Chloroaniline	ND	60
4 - Chloro - 3 - methylphenol	ND	60
2 - Chloronaphthalene	ND	60
2 - Chlorophenol	ND	60
4-Chlorophenyl phenyl ether	ND	60
Chrysene	ND	60
2 - Methylphenol	ND	60
3 & 4 - Methylphenol **	ND	60
Di - n - butylphthalate	ND	150
Dibenz(a,h)anthracene	ND	60
Dibenzofuran	ND	60
1,2 - Dichlorobenzene	ND	60
1,3 - Dichlorobenzene	ND	60
1,4 - Dichlorobenzene	ND	60
3,3 - Dichlorobenzidine	ND	60
2,4 - Dichlorophenol	ND	60
Diethyl phthalate	ND	60
2,4 - Dimethylphenol	ND	60
Dimethyl phthalate	ND	60



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring B - 7 1 - 2 '
Laboratory ID: 0695G00450

Report Date: 02/25/95
Date Analyzed: 02/26/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	150
2,4 - Dinitrophenol	ND	150
2,4 - Dinitrotoluene	ND	60
2,6 - Dinitrotoluene	ND	60
Di-n-octyl phthalate	ND	150
Fluoranthene	ND	60
Fluorene	ND	60
Hexachlorobenzene	ND	60
Hexachlorocyclopentadiene	ND	150
Hexachloroethane	ND	60
Hexachlorobutadiene	ND	60
Ideno(1,2,3-cd)pyrene	ND	60
Isophorone	ND	60
2 - Methyl naphthalene	ND	60
Naphthalene	ND	60
2 - Nitroaniline	ND	60
3 - Nitroaniline	ND	60
4 - Nitroaniline	ND	60
Nitrobenzene	ND	60
2 - Nitrophenol	ND	60
4 - Nitrophenol	ND	60
N - Nitrosodiphenylamine	ND	60
N-Nitroso-di-n-propylamine	ND	60
Pentachlorophenol	ND	150
Phenanthrene	ND	60
Phenol	ND	60
Pyrene	ND	60
1,2,4 - Trichlorobenzene	ND	60
2,4,5 - Trichlorophenol	ND	60
2,4,6 - Trichlorophenol	ND	60

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring B - 7 1 - 2 '
Laboratory ID: 0695G00450

Report Date: 02/25/95
Date Analyzed: 02/26/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Unknown hydrocarbon	24.32	70
Unknown hydrocarbon	24.84	60
Unknown hydrocarbon	25.37	60
Unknown hydrocarbon	25.46	90
Hydrocarbon envelope	15 to 37	

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	* D	25 - 121%
Phenol - d5	* D	24 - 113%
Nitrobenzene - d5	* D	23 - 120%
2 - Fluorobiphenyl	* D	30 - 115%
2,4,6 - Tribromophenol	* D	19 - 122%
Terphenyl - d14	* D	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: * D - Surrogates diluted out of sample.

Pamela R. Dennis
Analyst

Ulonda M. Log
Review



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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING B-7 1-2'
Lab ID: 0495H01374/0695G00450
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/01/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	7.0 s.u.	0.1	SW-846 9045
Electrical Conductivity	15.2 mmhos/cm	0.1	SW-846 9050
Oil & Grease	5.6 percent	0.1	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	9.1 mg/Kg	0.5	SW-846 7061A
Chromium	28 mg/Kg	1	SW-846 6010A
Lead	44 mg/Kg	14	SW-846 6010A
Nickel	16 mg/Kg	5	SW-846 6010A
Zinc	61 mg/Kg	1	SW-846 6010A

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:

Gary L. Pudge
Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-7 3-4'
Laboratory ID: 0695G00451
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/09/95
Date Analyzed: 02/10/95
Time Analyzed: 5:20 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	0.029
Benzene	ND	0.006
Bromodichloromethane	ND	0.006
Bromoform	ND	0.006
Bromomethane	ND	0.006
2-Butanone (MEK)	ND	0.023
Carbon disulfide	ND	0.006
Carbon tetrachloride	ND	0.006
Chlorobenzene	ND	0.006
Chloroethane	ND	0.011
Chloroform	ND	0.006
Chloromethane	ND	0.011
Dibromochloromethane	ND	0.006
1,1-Dichloroethane	ND	0.006
1,1-Dichloroethene	ND	0.006
trans-1,2-Dichloroethene	ND	0.006
1,2-Dichloroethane	ND	0.006
1,2-Dichloropropane	ND	0.006
cis-1,3-Dichloropropene	ND	0.006
trans-1,3-Dichloropropene	ND	0.006
Ethylbenzene	ND	0.006
2-Hexanone	ND	0.006
Methylene chloride	0.009	0.006
4-Methyl-2-pentanone	ND	0.006
Styrene	ND	0.006
1,1,2,2-Tetrachloroethane	ND	0.006
Tetrachloroethene	ND	0.006
Toluene	ND	0.006
1,1,1-Trichloroethane	ND	0.006
1,1,2-Trichloroethane	ND	0.006
Trichloroethene	ND	0.006
Vinyl acetate	ND	0.006
Vinyl chloride	ND	0.006
Xylenes (total)	ND	0.006

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-7 3-4'
Laboratory ID: 0695G00451

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/10/95
Time Analyzed: 5:20 AM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels		

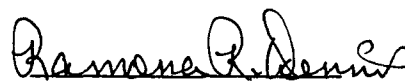
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	1,2-Dichloroethane-d4	104%	70 - 121%
	Toluene-d8	95%	81 - 117%
	Bromofluorobenzene	103%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.


Analyst


Review



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EPA Method 8270 SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring B - 7 3 - 4 '
Laboratory ID: 0695G00451
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/17/95
Time Analyzed: 8:02 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	1
Acenaphthylene	ND	1
Anthracene	ND	1
Benzo(a)anthracene	ND	1
Benzo(b)fluoranthene	ND	1
Benzo(k)fluoranthene	ND	1
Benzo(g,h,i)perylene	ND	1
Benzo(a)pyrene	ND	1
Benzoic acid	ND	1
Benzyl alcohol	ND	1
Bis(2-chloroethoxy)methane	ND	1
Bis(2-chloroethyl)ether	ND	1
Bis(2-chloroisopropyl)ether	ND	1
Bis(2-ethylhexyl)phthalate	ND	3
4-Bromophenyl phenyl ether	ND	1
Butyl benzyl phthalate	ND	1
4 - Chloroaniline	ND	1
4 - Chloro - 3 - methylphenol	ND	1
2 - Chloronaphthalene	ND	1
2 - Chlorophenol	ND	1
4-Chlorophenyl phenyl ether	ND	1
Chrysene	ND	1
2 - Methylphenol	ND	1
3 & 4 - Methylphenol **	ND	1
Di - n - butylphthalate	ND	3
Dibenz(a,h)anthracene	ND	1
Dibenzofuran	ND	1
1,2 - Dichlorobenzene	ND	1
1,3 - Dichlorobenzene	ND	1
1,4 - Dichlorobenzene	ND	1
3,3 - Dichlorobenzidine	ND	1
2,4 - Dichlorophenol	ND	1
Diethyl phthalate	ND	1
2,4 - Dimethylphenol	ND	1
Dimethyl phthalate	ND	1



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring B - 7 3 - 4 '
Laboratory ID: 0695G00451

Report Date: 02/25/95
Date Analyzed: 02/17/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	3
2,4 - Dinitrophenol	ND	3
2,4 - Dinitrotoluene	ND	1
2,6 - Dinitrotoluene	ND	1
Di-n-octyl phthalate	ND	3
Fluoranthene	ND	1
Fluorene	ND	1
Hexachlorobenzene	ND	1
Hexachlorocyclopentadiene	ND	3
Hexachloroethane	ND	1
Hexachlorobutadiene	ND	1
Ideno(1,2,3-cd)pyrene	ND	1
Isophorone	ND	1
2 - Methyl-naphthalene	ND	1
Naphthalene	ND	1
2 - Nitroaniline	ND	1
3 - Nitroaniline	ND	1
4 - Nitroaniline	ND	1
Nitrobenzene	ND	1
2 - Nitrophenol	ND	1
4 - Nitrophenol	ND	1
N - Nitrosodiphenylamine	ND	1
N-Nitroso-di-n-propylamine	ND	1
Pentachlorophenol	ND	3
Phenanthrene	ND	1
Phenol	ND	1
Pyrene	ND	1
1,2,4 - Trichlorobenzene	ND	1
2,4,5 - Trichlorophenol	ND	1
2,4,6 - Trichlorophenol	ND	1

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring B - 73 - 4 '
Laboratory ID: 0695G00451

Report Date: 02/25/95
Date Analyzed: 02/17/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	15 to 37	

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	60%	25 - 121%
Phenol - d5	68%	24 - 113%
Nitrobenzene - d5	70%	23 - 120%
2 - Fluorobiphenyl	80%	30 - 115%
2,4,6 - Tribromophenol	80%	19 - 122%
Terphenyl - d14	79%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: Elevated detection limit due to matrix interference.


Analyst


Review



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Client: Navajo Refining Co.

Project: Truck ByPass Land Farm

Sample ID: BORING B-7 3-4'

Lab ID: 0495H01375/0695G00451

Matrix: Soil

Condition: Intact

Report Date: 03/13/95

Receipt Date: 02/06/95

Sample Date: 02/01/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.0 s.u.	0.1	SW-846 9045
Electrical Conductivity	3.0 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

1051 Digestion Trace Metals			
Arsenic	3.3 mg/Kg	0.5	SW-846 7061A
Chromium	24 mg/Kg	1	SW-846 6010A
Lead	19 mg/Kg	14	SW-846 6010A
Nickel	14 mg/Kg	5	SW-846 6010A
Zinc	54 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:

Gary L. Pudge

Director, Soil Laboratory

**Inter-Mountain Laboratories, Inc.**

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-7 4-5'
Laboratory ID: 0695G00452
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/09/95
Date Analyzed: 02/10/95
Time Analyzed: 5:58 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	0.029
Benzene	ND	0.006
Bromodichloromethane	ND	0.006
Bromoform	ND	0.006
Bromomethane	ND	0.006
2-Butanone (MEK)	ND	0.023
Carbon disulfide	ND	0.006
Carbon tetrachloride	ND	0.006
Chlorobenzene	ND	0.006
Chloroethane	ND	0.011
Chloroform	ND	0.006
Chloromethane	ND	0.011
Dibromochloromethane	ND	0.006
1,1-Dichloroethane	ND	0.006
1,1-Dichloroethene	ND	0.006
trans-1,2-Dichloroethene	ND	0.006
1,2-Dichloroethane	ND	0.006
1,2-Dichloropropane	ND	0.006
cis-1,3-Dichloropropene	ND	0.006
trans-1,3-Dichloropropene	ND	0.006
Ethylbenzene	ND	0.006
2-Hexanone	ND	0.006
Methylene chloride	0.007	0.006
4-Methyl-2-pentanone	ND	0.006
Styrene	ND	0.006
1,1,2,2-Tetrachloroethane	ND	0.006
Tetrachloroethene	ND	0.006
Toluene	ND	0.006
1,1,1-Trichloroethane	ND	0.006
1,1,2-Trichloroethane	ND	0.006
Trichloroethene	ND	0.006
Vinyl acetate	ND	0.006
Vinyl chloride	ND	0.006
Xylenes (total)	ND	0.006

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-7 4-5'
Laboratory ID: 0695G00452

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/10/95
Time Analyzed: 5:58 AM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	19-27	

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	1,2-Dichloroethane-d4	106%	70 - 121%
	Toluene-d8	98%	81 - 117%
	Bromofluorobenzene	91%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.

Analyst

Review

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EPA Method 8270**SEMIVOLATILE ORGANIC COMPOUNDS****Client: NAVAJO REFINING COMPANY****Project: Truck Bypass Landfarm****Sample ID: Boring B - 7 4 - 5 '****Laboratory ID: 0695G00452****Sample Matrix: Soil****Condition: Intact****Preservative: Cool****Report Date: 02/25/95****Date Sampled: 02/01/95****Date Received: 02/03/95****Date Extracted: 02/13/95****Date Analyzed: 02/17/95****Time Analyzed: 8:47 PM**

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring B - 7 4 - 5 '
Laboratory ID: 0695G00452

Report Date: 02/25/95
Date Analyzed: 02/17/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl-naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring B - 7 4 - 5 '
Laboratory ID: 0695G00452

Report Date: 02/25/95
Date Analyzed: 02/17/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection.		

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	47%	25 - 121%
Phenol - d5	47%	24 - 113%
Nitrobenzene - d5	38%	23 - 120%
2 - Fluorobiphenyl	41%	30 - 115%
2,4,6 - Tribromophenol	62%	19 - 122%
Terphenyl - d14	83%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:

Ramona R. Dennis
Analyst

Ulrich M. Log
Review



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Client: Navajo Refining Co.

Project: Truck ByPass Land Farm

Sample ID: BORING B-7 4-5'

Lab ID: 0495H01376/0695G00452

Matrix: Soil

Condition: Intact

Report Date: 03/13/95

Receipt Date: 02/06/95

Sample Date: 02/01/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.2 s.u.	0.1	SW-846 9045
Electrical Conductivity	2.5 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	3.4 mg/Kg	0.5	SW-846 7061A
Chromium	19 mg/Kg	1	SW-846 6010A
Lead	17 mg/Kg	14	SW-846 6010A
Nickel	11 mg/Kg	5	SW-846 6010A
Zinc	39 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:

Gary L. Pudge

Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-7 5-6'
Laboratory ID: 0695G00453
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/09/95
Date Analyzed: 02/10/95
Time Analyzed: 7:52 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	0.034
Benzene	ND	0.007
Bromodichloromethane	ND	0.007
Bromoform	ND	0.007
Bromomethane	ND	0.007
2-Butanone (MEK)	ND	0.027
Carbon disulfide	ND	0.007
Carbon tetrachloride	ND	0.007
Chlorobenzene	ND	0.007
Chloroethane	ND	0.013
Chloroform	ND	0.007
Chloromethane	ND	0.013
Dibromochloromethane	ND	0.007
1,1-Dichloroethane	ND	0.007
1,1-Dichloroethene	ND	0.007
trans-1,2-Dichloroethene	ND	0.007
1,2-Dichloroethane	ND	0.007
1,2-Dichloropropane	ND	0.007
cis-1,3-Dichloropropene	ND	0.007
trans-1,3-Dichloropropene	ND	0.007
Ethylbenzene	ND	0.007
2-Hexanone	ND	0.007
Methylene chloride	0.009	0.007
4-Methyl-2-pentanone	ND	0.007
Styrene	ND	0.007
1,1,2,2-Tetrachloroethane	ND	0.007
Tetrachloroethene	ND	0.007
Toluene	ND	0.007
1,1,1-Trichloroethane	0.009	0.007
1,1,2-Trichloroethane	ND	0.007
Trichloroethene	ND	0.007
Vinyl acetate	ND	0.007
Vinyl chloride	ND	0.007
Xylenes (total)	ND	0.007

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: NAVAJO REFINING COMPANY
Project : Truck Bypass Landfarm
Sample ID: Boring B-7 5-6'
Laboratory ID: 0695G00453

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/10/95
Time Analyzed: 7:52 AM

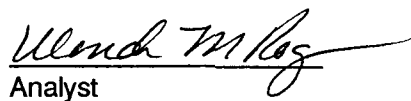
Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels		

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	1,2-Dichloroethane-d4	107%	70 - 121%
	Toluene-d8	102%	81 - 117%
	Bromofluorobenzene	98%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.
Methylene chloride is a common laboratory contaminant. Analytical results should not be
considered reliable unless the sample results are 5 times the reporting limit or 10 times
the blank concentration.


Analyst


Review



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring B - 7 5 - 6 '
Laboratory ID: 0695G00453

Report Date: 02/25/95
Date Analyzed: 02/17/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring B - 7 5 - 6 '
Laboratory ID: 0695G00453

Report Date: 02/25/95
Date Analyzed: 02/17/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection.		

* - Concentration calculated using assumed Relative Response Factor = 1.

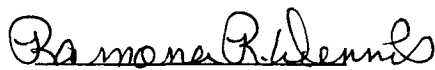
Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	39%	25 - 121%
Phenol - d5	36%	24 - 113%
Nitrobenzene - d5	29%	23 - 120%
2 - Fluorobiphenyl	35%	30 - 115%
2,4,6 - Tribromophenol	46%	19 - 122%
Terphenyl - d14	72%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:


Analyst


Review



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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING B-7 5-6'
Lab ID: 0495H01377/0695G00453
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/01/95

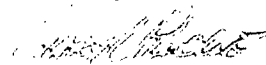
Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.1 s.u.	0.1	SW-846 9045
Electrical Conductivity	3.5 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	2.2 mg/Kg	0.5	SW-846 7061A
Chromium	4 mg/Kg	1	SW-846 6010A
Lead	ND*	1 mg/Kg	SW-846 7421
Nickel	ND*	5 mg/Kg	SW-846 6010A
Zinc	8 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:



Gary L. Pudge
Director, Soil Laboratory



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EPA Method 8240 VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-7 6-7'
Laboratory ID: 0695G00454
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/09/95
Date Analyzed: 02/10/95
Time Analyzed: 8:30 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	0.030
Benzene	ND	0.006
Bromodichloromethane	ND	0.006
Bromoform	ND	0.006
Bromomethane	ND	0.006
2-Butanone (MEK)	ND	0.024
Carbon disulfide	ND	0.006
Carbon tetrachloride	ND	0.006
Chlorobenzene	ND	0.006
Chloroethane	ND	0.012
Chloroform	ND	0.006
Chloromethane	ND	0.012
Dibromochloromethane	ND	0.006
1,1-Dichloroethane	ND	0.006
1,1-Dichloroethene	ND	0.006
trans-1,2-Dichloroethene	ND	0.006
1,2-Dichloroethane	ND	0.006
1,2-Dichloropropane	ND	0.006
cis-1,3-Dichloropropene	ND	0.006
trans-1,3-Dichloropropene	ND	0.006
Ethylbenzene	ND	0.006
2-Hexanone	ND	0.006
Methylene chloride	0.008	0.006
4-Methyl-2-pentanone	ND	0.006
Styrene	ND	0.006
1,1,2,2-Tetrachloroethane	ND	0.006
Tetrachloroethene	ND	0.006
Toluene	ND	0.006
1,1,1-Trichloroethane	ND	0.006
1,1,2-Trichloroethane	ND	0.006
Trichloroethene	ND	0.006
Vinyl acetate	ND	0.006
Vinyl chloride	ND	0.006
Xylenes (total)	ND	0.006

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-7 6-7'
Laboratory ID: 0695G00454

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/10/95
Time Analyzed: 8:30 AM

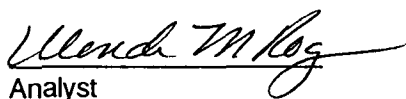
Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	20-26	

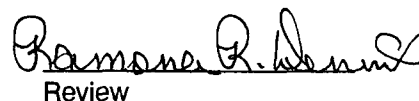
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	106%	70 - 121%
	Toluene-d8	100%	81 - 117%
	Bromofluorobenzene	90%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.
Methylene chloride is a common laboratory contaminant. Analytical results should not be considered reliable unless the sample results are 5 times the reporting limit or 10 times the blank concentration.


Analyst


Review

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EPA Method 8270**SEMIVOLATILE ORGANIC COMPOUNDS**

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring B - 7 6 - 7 '
Laboratory ID: 0695G00454
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/17/95
Time Analyzed: 11:00 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring B - 7 6 - 7 '
Laboratory ID: 0695G00454

Report Date: 02/25/95
Date Analyzed: 02/17/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270 SEMIVOLATILE HYDROCARBONS ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring B - 7 6 - 7 '
Laboratory ID: 0695G00454

Report Date: 02/25/95
Date Analyzed: 02/17/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection.		

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

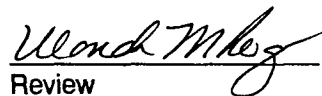
<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	43%	25 - 121%
Phenol - d5	47%	24 - 113%
Nitrobenzene - d5	47%	23 - 120%
2 - Fluorobiphenyl	58%	30 - 115%
2,4,6 - Tribromophenol	63%	19 - 122%
Terphenyl - d14	75%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:


Analyst


Review



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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING B-7 6-7'
Lab ID: 0495H01378/0695G00454
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/01/95

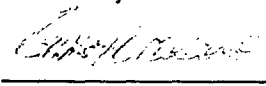
Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.0 s.u.	0.1	SW-846 9045
Electrical Conductivity	4.4 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	3.5 mg/Kg	0.5	SW-846 7061A
Chromium	8 mg/Kg	1	SW-846 6010A
Lead	4 mg/Kg	1	SW-846 7421
Nickel	ND*	5 mg/Kg	SW-846 6010A
Zinc	16 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:


Gary L. Pudge
Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-8 1-2'
Laboratory ID: 0695G00455
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/15/95
Time Analyzed: 12:44 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	11
Benzene	ND	2
Bromodichloromethane	ND	2
Bromoform	ND	2
Bromomethane	ND	2
2-Butanone (MEK)	ND	9
Carbon disulfide	ND	2
Carbon tetrachloride	ND	2
Chlorobenzene	ND	2
Chloroethane	ND	5
Chloroform	ND	2
Chloromethane	ND	5
Dibromochloromethane	ND	2
1,1-Dichloroethane	ND	2
1,1-Dichloroethene	ND	2
trans-1,2-Dichloroethene	ND	2
1,2-Dichloroethane	ND	2
1,2-Dichloropropane	ND	2
cis-1,3-Dichloropropene	ND	2
trans-1,3-Dichloropropene	ND	2
Ethylbenzene	ND	2
2-Hexanone	ND	2
Methylene chloride	ND	2
4-Methyl-2-pentanone	ND	2
Styrene	ND	2
1,1,2,2-Tetrachloroethane	ND	2
Tetrachloroethene	ND	2
Toluene	ND	2
1,1,1-Trichloroethane	ND	2
1,1,2-Trichloroethane	ND	2
Trichloroethene	ND	2
Vinyl acetate	ND	2
Vinyl chloride	ND	2
Xylenes (total)	ND	2

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-8 1-2'
Laboratory ID: 0695G00455

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/15/95
Time Analyzed: 12:44 PM

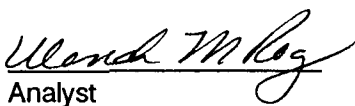
Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	19-27	

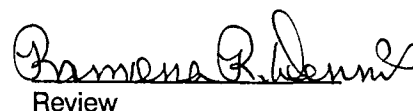
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	89%	70 - 121%
	Toluene-d8	100%	81 - 117%
	Bromofluorobenzene	101%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.


Analyst


Review

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring B - 8 1 - 2 '
Laboratory ID: 0695G00455
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/18/95
Time Analyzed: 12:45 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	400
Acenaphthylene	ND	400
Anthracene	ND	400
Benzo(a)anthracene	ND	400
Benzo(b)fluoranthene	ND	400
Benzo(k)fluoranthene	ND	400
Benzo(g,h,i)perylene	ND	400
Benzo(a)pyrene	ND	400
Benzoic acid	ND	400
Benzyl alcohol	ND	400
Bis(2-chloroethoxy)methane	ND	400
Bis(2-chloroethyl)ether	ND	400
Bis(2-chloroisopropyl)ether	ND	400
Bis(2-ethylhexyl)phthalate	ND	1000
4-Bromophenyl phenyl ether	ND	400
Butyl benzyl phthalate	ND	400
4 - Chloroaniline	ND	400
4 - Chloro - 3 - methylphenol	ND	400
2 - Chloronaphthalene	ND	400
2 - Chlorophenol	ND	400
4-Chlorophenyl phenyl ether	ND	400
Chrysene	ND	400
2 - Methylphenol	ND	400
3 & 4 - Methylphenol **	ND	400
Di - n - butylphthalate	ND	1000
Dibenz(a,h)anthracene	ND	400
Dibenzofuran	ND	400
1,2 - Dichlorobenzene	ND	400
1,3 - Dichlorobenzene	ND	400
1,4 - Dichlorobenzene	ND	400
3,3 - Dichlorobenzidine	ND	400
2,4 - Dichlorophenol	ND	400
Diethyl phthalate	ND	400
2,4 - Dimethylphenol	ND	400
Dimethyl phthalate	ND	400

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring B - 8 1 - 2 '
Laboratory ID: 0695G00455

Report Date: 02/25/95
Date Analyzed: 02/18/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1000
2,4 - Dinitrophenol	ND	1000
2,4 - Dinitrotoluene	ND	400
2,6 - Dinitrotoluene	ND	400
Di-n-octyl phthalate	ND	1000
Fluoranthene	ND	400
Fluorene	ND	400
Hexachlorobenzene	ND	400
Hexachlorocyclopentadiene	ND	1000
Hexachloroethane	ND	400
Hexachlorobutadiene	ND	400
Ideno(1,2,3-cd)pyrene	ND	400
Isophorone	ND	400
2 - Methylanththalene	ND	400
Naphthalene	ND	400
2 - Nitroaniline	ND	400
3 - Nitroaniline	ND	400
4 - Nitroaniline	ND	400
Nitrobenzene	ND	400
2 - Nitrophenol	ND	400
4 - Nitrophenol	ND	400
N - Nitrosodiphenylamine	ND	400
N-Nitroso-di-n-propylamine	ND	400
Pentachlorophenol	ND	1000
Phenanthrene	ND	400
Phenol	ND	400
Pyrene	ND	400
1,2,4 - Trichlorobenzene	ND	400
2,4,5 - Trichlorophenol	ND	400
2,4,6 - Trichlorophenol	ND	400

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring B - 8 1 - 2 '
Laboratory ID: 0695G00455

Report Date: 02/25/95
Date Analyzed: 02/18/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Unknown hydrocarbon	24.30	500
Unknown hydrocarbon	25.43	400
Hydrocarbon envelope	18 to 37	

* - Concentration calculated using assumed Relative Response Factor = 1.

	Surrogate	Percent Recovery	Acceptance Limits
Quality Control:	2 - Fluorophenol	* D	25 - 121%
	Phenol - d5	* D	24 - 113%
	Nitrobenzene - d5	* D	23 - 120%
	2 - Fluorobiphenyl	* D	30 - 115%
	2,4,6 - Tribromophenol	* D	19 - 122%
	Terphenyl - d14	* D	18 - 137%

* D - Surrogates diluted out of sample.

References: Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Elevated detection limit due to matrix interference.

Comments:

Analyst

Review



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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING B-8 1-2'
Lab ID: 0495H01379/0695G00455
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/01/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	7.8 s.u.	0.1	SW-846 9045
Electrical Conductivity	3.6 mmhos/cm	0.1	SW-846 9050
Oil & Grease	13.1 percent	0.1	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	15.3 mg/Kg	0.5	SW-846 7061A
Chromium	101 mg/Kg	1	SW-846 6010A
Lead	237 mg/Kg	14	SW-846 6010A
Nickel	21 mg/Kg	5	SW-846 6010A
Zinc	104 mg/Kg	1	SW-846 6010A

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:

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Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-8 3-4'
Laboratory ID: 0695G00456
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/09/95
Date Analyzed: 02/10/95
Time Analyzed: 9:08 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	0.028
Benzene	ND	0.006
Bromodichloromethane	ND	0.006
Bromoform	ND	0.006
Bromomethane	ND	0.006
2-Butanone (MEK)	ND	0.023
Carbon disulfide	ND	0.006
Carbon tetrachloride	ND	0.006
Chlorobenzene	ND	0.006
Chloroethane	ND	0.011
Chloroform	ND	0.006
Chloromethane	ND	0.011
Dibromochloromethane	ND	0.006
1,1-Dichloroethane	ND	0.006
1,1-Dichloroethene	ND	0.006
trans-1,2-Dichloroethene	ND	0.006
1,2-Dichloroethane	ND	0.006
1,2-Dichloropropane	ND	0.006
cis-1,3-Dichloropropene	ND	0.006
trans-1,3-Dichloropropene	ND	0.006
Ethylbenzene	ND	0.006
2-Hexanone	ND	0.006
Methylene chloride	0.008	0.006
4-Methyl-2-pentanone	ND	0.006
Styrene	ND	0.006
1,1,2,2-Tetrachloroethane	ND	0.006
Tetrachloroethene	ND	0.006
Toluene	ND	0.006
1,1,1-Trichloroethane	ND	0.006
1,1,2-Trichloroethane	ND	0.006
Trichloroethene	ND	0.006
Vinyl acetate	ND	0.006
Vinyl chloride	ND	0.006
Xylenes (total)	ND	0.006

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-8 3-4'
Laboratory ID: 0695G00456

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/10/95
Time Analyzed: 9:08 AM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	20-26	

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	103%	70 - 121%
	Toluene-d8	100%	81 - 117%
	Bromofluorobenzene	95%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.
Methylene chloride is a common laboratory contaminant. Analytical results should not be
considered reliable unless the sample results are 5 times the reporting limit or 10 times
the blank concentration.


Analyst


Review

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring B - 83 - 4'
Laboratory ID: 0695G00456
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/18/95
Time Analyzed: 1:30 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring B - 83 - 4 '
Laboratory ID: 0695G00456

Report Date: 02/25/95
Date Analyzed: 02/18/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring B - 83 - 4 '
Laboratory ID: 0695G00456

Report Date: 02/25/95
Date Analyzed: 02/18/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection.		

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

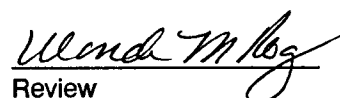
<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	63%	25 - 121%
Phenol - d5	69%	24 - 113%
Nitrobenzene - d5	71%	23 - 120%
2 - Fluorobiphenyl	80%	30 - 115%
2,4,6 - Tribromophenol	79%	19 - 122%
Terphenyl - d14	92%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:


Analyst


Review



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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm

Sample ID: BORING B-8 3-4'

Lab ID: 0495H01380/0695G00456

Matrix: Soil

Condition: Intact

Report Date: 03/13/95

Receipt Date: 02/06/95

Sample Date: 02/01/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.0 s.u.	0.1	SW-846 9045
Electrical Conductivity	2.3 mmhos/cm	0.1	SW-846 9050
Oil & Grease	0.1 percent	0.1	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	2.7 mg/Kg	0.5	SW-846 7061A
Chromium	23 mg/Kg	1	SW-846 6010A
Lead	14 mg/Kg	1	SW-846 7421
Nickel	13 mg/Kg	5	SW-846 6010A
Zinc	54 mg/Kg	1	SW-846 6010A

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:

Gary L. Pudge

Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-8 4-5'
Laboratory ID: 0695G00457
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/09/95
Date Analyzed: 02/10/95
Time Analyzed: 9:46 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	0.028
Benzene	ND	0.006
Bromodichloromethane	ND	0.006
Bromoform	ND	0.006
Bromomethane	ND	0.006
2-Butanone (MEK)	ND	0.023
Carbon disulfide	ND	0.006
Carbon tetrachloride	ND	0.006
Chlorobenzene	ND	0.006
Chloroethane	ND	0.011
Chloroform	ND	0.006
Chloromethane	ND	0.011
Dibromochloromethane	ND	0.006
1,1-Dichloroethane	ND	0.006
1,1-Dichloroethene	ND	0.006
trans-1,2-Dichloroethene	ND	0.006
1,2-Dichloroethane	ND	0.006
1,2-Dichloropropane	ND	0.006
cis-1,3-Dichloropropene	ND	0.006
trans-1,3-Dichloropropene	ND	0.006
Ethylbenzene	ND	0.006
2-Hexanone	ND	0.006
Methylene chloride	0.008	0.006
4-Methyl-2-pentanone	ND	0.006
Styrene	ND	0.006
1,1,2,2-Tetrachloroethane	ND	0.006
Tetrachloroethene	ND	0.006
Toluene	ND	0.006
1,1,1-Trichloroethane	ND	0.006
1,1,2-Trichloroethane	ND	0.006
Trichloroethene	ND	0.006
Vinyl acetate	ND	0.006
Vinyl chloride	ND	0.006
Xylenes (total)	ND	0.006

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-8 4-5'
Laboratory ID: 0695G00457

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/10/95
Time Analyzed: 9:46 AM

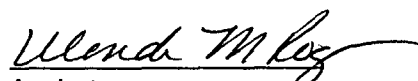
Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	17-27	

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	107%	70 - 121%
	Toluene-d8	92%	81 - 117%
	Bromofluorobenzene	98%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.
Methylene chloride is a common laboratory contaminant. Analytical results should not be considered reliable unless the sample results are 5 times the reporting limit or 10 times the blank concentration.


Analyst


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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring B - 8 4 - 5 '
Laboratory ID: 0695G00457
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/18/95
Time Analyzed: 2:14 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	1
Acenaphthylene	ND	1
Anthracene	ND	1
Benzo(a)anthracene	ND	1
Benzo(b)fluoranthene	ND	1
Benzo(k)fluoranthene	ND	1
Benzo(g,h,i)perylene	ND	1
Benzo(a)pyrene	ND	1
Benzoic acid	ND	1
Benzyl alcohol	ND	1
Bis(2-chloroethoxy)methane	ND	1
Bis(2-chloroethyl)ether	ND	1
Bis(2-chloroisopropyl)ether	ND	1
Bis(2-ethylhexyl)phthalate	ND	3
4-Bromophenyl phenyl ether	ND	1
Butyl benzyl phthalate	ND	1
4 - Chloroaniline	ND	1
4 - Chloro - 3 - methylphenol	ND	1
2 - Chloronaphthalene	ND	1
2 - Chlorophenol	ND	1
4-Chlorophenyl phenyl ether	ND	1
Chrysene	ND	1
2 - Methylphenol	ND	1
3 & 4 - Methylphenol **	ND	1
Di - n - butylphthalate	ND	3
Dibenz(a,h)anthracene	ND	1
Dibenzofuran	ND	1
1,2 - Dichlorobenzene	ND	1
1,3 - Dichlorobenzene	ND	1
1,4 - Dichlorobenzene	ND	1
3,3 - Dichlorobenzidine	ND	1
2,4 - Dichlorophenol	ND	1
Diethyl phthalate	ND	1
2,4 - Dimethylphenol	ND	1
Dimethyl phthalate	ND	1

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-8 5-6'
Laboratory ID: 0695G00458
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/11/95
Date Analyzed: 02/15/95
Time Analyzed: 1:20 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	1.5
Benzene	ND	0.3
Bromodichloromethane	ND	0.3
Bromoform	ND	0.3
Bromomethane	ND	0.3
2-Butanone (MEK)	ND	1.2
Carbon disulfide	ND	0.3
Carbon tetrachloride	ND	0.3
Chlorobenzene	ND	0.3
Chloroethane	ND	0.6
Chloroform	ND	0.3
Chloromethane	ND	0.6
Dibromochloromethane	ND	0.3
1,1-Dichloroethane	ND	0.3
1,1-Dichloroethene	ND	0.3
trans-1,2-Dichloroethene	ND	0.3
1,2-Dichloroethane	ND	0.3
1,2-Dichloropropane	ND	0.3
cis-1,3-Dichloropropene	ND	0.3
trans-1,3-Dichloropropene	ND	0.3
Ethylbenzene	ND	0.3
2-Hexanone	ND	0.3
Methylene chloride	ND	0.3
4-Methyl-2-pentanone	ND	0.3
Styrene	ND	0.3
1,1,2,2-Tetrachloroethane	ND	0.3
Tetrachloroethene	ND	0.3
Toluene	ND	0.3
1,1,1-Trichloroethane	ND	0.3
1,1,2-Trichloroethane	ND	0.3
Trichloroethene	ND	0.3
Vinyl acetate	ND	0.3
Vinyl chloride	ND	0.3
Xylenes (total)	ND	0.3

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-8 5-6'
Laboratory ID: 0695G00458

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/15/95
Time Analyzed: 1:20 PM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels		

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	88%	70 - 121%
	Toluene-d8	100%	81 - 117%
	Bromofluorobenzene	102%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.

Analyst

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring B - 8 5 - 6 '
Laboratory ID: 0695G00458
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/18/95
Time Analyzed: 2:58 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring B - 8 5 - 6 '
Laboratory ID: 0695G00458

Report Date: 02/25/95
Date Analyzed: 02/18/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methylnaphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring B - 8 5 - 6 '
Laboratory ID: 0695G00458

Report Date: 02/25/95
Date Analyzed: 02/18/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection.		

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

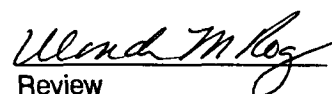
<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	50%	25 - 121%
Phenol - d5	50%	24 - 113%
Nitrobenzene - d5	48%	23 - 120%
2 - Fluorobiphenyl	51%	30 - 115%
2,4,6 - Tribromophenol	57%	19 - 122%
Terphenyl - d14	84%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:


Analyst


Review



Inter-Mountain Laboratories, Inc.

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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING B-8 5-6'
Lab ID: 0495H01382/0695G00458
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/01/95

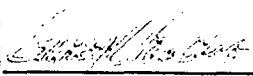
Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.1 s.u.	0.1	SW-846 9045
Electrical Conductivity	4.6 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	4.1 mg/Kg	0.5	SW-846 7061A
Chromium	15 mg/Kg	1	SW-846 6010A
Lead	10 mg/Kg	1	SW-846 7421
Nickel	9 mg/Kg	5	SW-846 6010A
Zinc	36 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:


Gary L. Pudge
Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-8 6-7'
Laboratory ID: 0695G00459
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/11/95
Date Analyzed: 02/15/95
Time Analyzed: 1:59 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	1.5
Benzene	ND	0.3
Bromodichloromethane	ND	0.3
Bromoform	ND	0.3
Bromomethane	ND	0.3
2-Butanone (MEK)	ND	1.2
Carbon disulfide	ND	0.3
Carbon tetrachloride	ND	0.3
Chlorobenzene	ND	0.3
Chloroethane	ND	0.6
Chloroform	ND	0.3
Chloromethane	ND	0.6
Dibromochloromethane	ND	0.3
1,1-Dichloroethane	ND	0.3
1,1-Dichloroethene	ND	0.3
trans-1,2-Dichloroethene	ND	0.3
1,2-Dichloroethane	ND	0.3
1,2-Dichloropropane	ND	0.3
cis-1,3-Dichloropropene	ND	0.3
trans-1,3-Dichloropropene	ND	0.3
Ethylbenzene	ND	0.3
2-Hexanone	ND	0.3
Methylene chloride	ND	0.3
4-Methyl-2-pentanone	ND	0.3
Styrene	ND	0.3
1,1,2,2-Tetrachloroethane	ND	0.3
Tetrachloroethene	ND	0.3
Toluene	ND	0.3
1,1,1-Trichloroethane	ND	0.3
1,1,2-Trichloroethane	ND	0.3
Trichloroethene	ND	0.3
Vinyl acetate	ND	0.3
Vinyl chloride	ND	0.3
Xylenes (total)	ND	0.3

ND - Analyte not detected at stated limit of detection



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EPA Method 8270 SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring B - 8 6 - 7 '
Laboratory ID: 0695G00459
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/18/95
Time Analyzed: 3:42 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring B - 8 6 - 7 '
Laboratory ID: 0695G00459

Report Date: 02/25/95
Date Analyzed: 02/18/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methylnaphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring B - 8 6 - 7 '
Laboratory ID: 0695G00459

Report Date: 02/25/95
Date Analyzed: 02/18/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection.		

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
2 - Fluorophenol	51%	25 - 121%
Phenol - d5	56%	24 - 113%
Nitrobenzene - d5	58%	23 - 120%
2 - Fluorobiphenyl	70%	30 - 115%
2,4,6 - Tribromophenol	69%	19 - 122%
Terphenyl - d14	85%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:

Ramona R. Williams
Analyst

Wanda M. King
Review



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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING B-8 6-7'
Lab ID: 0495H01383/0695G00459
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/01/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.1 s.u.	0.1	SW-846 9045
Electrical Conductivity	4.6 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	4.7 mg/Kg	0.5	SW-846 7061A
Chromium	13 mg/Kg	1	SW-846 6010A
Lead	8 mg/Kg	1	SW-846 7421
Nickel	8 mg/Kg	5	SW-846 6010A
Zinc	30 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:

Gary L. Pudge

Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-8 7-8'
Laboratory ID: 0695G00460
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/11/95
Date Analyzed: 02/15/95
Time Analyzed: 2:37 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	1.4
Benzene	ND	0.3
Bromodichloromethane	ND	0.3
Bromoform	ND	0.3
Bromomethane	ND	0.3
2-Butanone (MEK)	ND	1.1
Carbon disulfide	ND	0.3
Carbon tetrachloride	ND	0.3
Chlorobenzene	ND	0.3
Chloroethane	ND	0.6
Chloroform	ND	0.3
Chloromethane	ND	0.6
Dibromochloromethane	ND	0.3
1,1-Dichloroethane	ND	0.3
1,1-Dichloroethene	ND	0.3
trans-1,2-Dichloroethene	ND	0.3
1,2-Dichloroethane	ND	0.3
1,2-Dichloropropane	ND	0.3
cis-1,3-Dichloropropene	ND	0.3
trans-1,3-Dichloropropene	ND	0.3
Ethylbenzene	ND	0.3
2-Hexanone	ND	0.3
Methylene chloride	ND	0.3
4-Methyl-2-pentanone	ND	0.3
Styrene	ND	0.3
1,1,2,2-Tetrachloroethane	ND	0.3
Tetrachloroethene	ND	0.3
Toluene	ND	0.3
1,1,1-Trichloroethane	ND	0.3
1,1,2-Trichloroethane	ND	0.3
Trichloroethene	ND	0.3
Vinyl acetate	ND	0.3
Vinyl chloride	ND	0.3
Xylenes (total)	ND	0.3

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-8 7-8'
Laboratory ID: 0695G00460

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/15/95
Time Analyzed: 2:37 PM

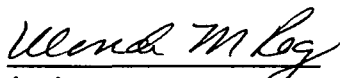
Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels		

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	1,2-Dichloroethane-d4	82%	70 - 121%
	Toluene-d8	102%	81 - 117%
	Bromofluorobenzene	100%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.


Analyst


Review

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EPA Method 8270**SEMIVOLATILE ORGANIC COMPOUNDS**

Client: **NAVAJO REFINING COMPANY**

Project: **Truck Bypass Landfarm**

Sample ID: **Boring B - 8 7 - 8 '**

Laboratory ID: **0695G00460**

Sample Matrix: **Soil**

Condition: **Intact**

Preservative: **Cool**

Report Date: **02/25/95**

Date Sampled: **02/01/95**

Date Received: **02/03/95**

Date Extracted: **02/13/95**

Date Analyzed: **02/18/95**

Time Analyzed: **4:26 AM**

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring B - 87 - 8'
Laboratory ID: 0695G00460

Report Date: 02/25/95
Date Analyzed: 02/18/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring B - 87 - 8'
Laboratory ID: 0695G00460

Report Date: 02/25/95
Date Analyzed: 02/18/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection.		

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	45%	25 - 121%
Phenol - d5	53%	24 - 113%
Nitrobenzene - d5	63%	23 - 120%
2 - Fluorobiphenyl	75%	30 - 115%
2,4,6 - Tribromophenol	74%	19 - 122%
Terphenyl - d14	89%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:


Analyst


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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-9 1-2'
Laboratory ID: 0695G00461
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/15/95
Time Analyzed: 3:14 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	13
Benzene	ND	3
Bromodichloromethane	ND	3
Bromoform	ND	3
Bromomethane	ND	3
2-Butanone (MEK)	ND	10
Carbon disulfide	ND	3
Carbon tetrachloride	ND	3
Chlorobenzene	ND	3
Chloroethane	ND	5
Chloroform	ND	3
Chloromethane	ND	5
Dibromochloromethane	ND	3
1,1-Dichloroethane	ND	3
1,1-Dichloroethene	ND	3
trans-1,2-Dichloroethene	ND	3
1,2-Dichloroethane	ND	3
1,2-Dichloropropane	ND	3
cis-1,3-Dichloropropene	ND	3
trans-1,3-Dichloropropene	ND	3
Ethylbenzene	ND	3
2-Hexanone	ND	3
Methylene chloride	ND	3
4-Methyl-2-pentanone	ND	3
Styrene	ND	3
1,1,2,2-Tetrachloroethane	ND	3
Tetrachloroethene	ND	3
Toluene	ND	3
1,1,1-Trichloroethane	ND	3
1,1,2-Trichloroethane	ND	3
Trichloroethene	ND	3
Vinyl acetate	ND	3
Vinyl chloride	ND	3
Xylenes (total)	ND	3

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-9 1-2'
Laboratory ID: 0695G00461

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/15/95
Time Analyzed: 3:14 PM

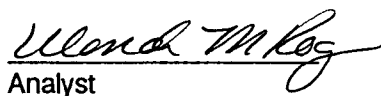
Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	19-24	

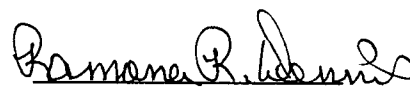
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	88%	70 - 121%
	Toluene-d8	100%	81 - 117%
	Bromofluorobenzene	101%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.


Analyst


Review

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring B - 9 1 - 2 '
Laboratory ID: 0695G00461
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/26/95
Time Analyzed: 9:56 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	400
Acenaphthylene	ND	400
Anthracene	ND	400
Benzo(a)anthracene	ND	400
Benzo(b)fluoranthene	ND	400
Benzo(k)fluoranthene	ND	400
Benzo(g,h,i)perylene	ND	400
Benzo(a)pyrene	ND	400
Benzoic acid	ND	400
Benzyl alcohol	ND	400
Bis(2-chloroethoxy)methane	ND	400
Bis(2-chloroethyl)ether	ND	400
Bis(2-chloroisopropyl)ether	ND	400
Bis(2-ethylhexyl)phthalate	ND	1000
4-Bromophenyl phenyl ether	ND	400
Butyl benzyl phthalate	ND	400
4 - Chloroaniline	ND	400
4 - Chloro - 3 - methylphenol	ND	400
2 - Chloronaphthalene	ND	400
2 - Chlorophenol	ND	400
4-Chlorophenyl phenyl ether	ND	400
Chrysene	ND	400
2 - Methylphenol	ND	400
3 & 4 - Methylphenol **	ND	400
Di - n - butylphthalate	ND	1000
Dibenz(a,h)anthracene	ND	400
Dibenzofuran	ND	400
1,2 - Dichlorobenzene	ND	400
1,3 - Dichlorobenzene	ND	400
1,4 - Dichlorobenzene	ND	400
3,3 - Dichlorobenzidine	ND	400
2,4 - Dichlorophenol	ND	400
Diethyl phthalate	ND	400
2,4 - Dimethylphenol	ND	400
Dimethyl phthalate	ND	400



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring B - 9 1 - 2 '
Laboratory ID: 0695G00461

Report Date: 02/25/95
Date Analyzed: 02/26/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1000
2,4 - Dinitrophenol	ND	1000
2,4 - Dinitrotoluene	ND	400
2,6 - Dinitrotoluene	ND	400
Di-n-octyl phthalate	ND	1000
Fluoranthene	ND	400
Fluorene	ND	400
Hexachlorobenzene	ND	400
Hexachlorocyclopentadiene	ND	1000
Hexachloroethane	ND	400
Hexachlorobutadiene	ND	400
Ideno(1,2,3-cd)pyrene	ND	400
Isophorone	ND	400
2 - Methyl naphthalene	ND	400
Naphthalene	ND	400
2 - Nitroaniline	ND	400
3 - Nitroaniline	ND	400
4 - Nitroaniline	ND	400
Nitrobenzene	ND	400
2 - Nitrophenol	ND	400
4 - Nitrophenol	ND	400
N - Nitrosodiphenylamine	ND	400
N-Nitroso-di-n-propylamine	ND	400
Pentachlorophenol	ND	1000
Phenanthrene	ND	400
Phenol	ND	400
Pyrene	ND	400
1,2,4 - Trichlorobenzene	ND	400
2,4,5 - Trichlorophenol	ND	400
2,4,6 - Trichlorophenol	ND	400

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring B - 9 1 - 2 '
Laboratory ID: 0695G00461

Report Date: 02/25/95
Date Analyzed: 02/26/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Unknown hydrocarbon Hydrocarbon envelope	24.32 18 to 37	400

* - Concentration calculated using assumed Relative Response Factor = 1.

	Surrogate	Percent Recovery	Acceptance Limits
Quality Control:	2 - Fluorophenol	* D	25 - 121%
	Phenol - d5	* D	24 - 113%
	Nitrobenzene - d5	* D	23 - 120%
	2 - Fluorobiphenyl	* D	30 - 115%
	2,4,6 - Tribromophenol	* D	19 - 122%
	Terphenyl - d14	* D	18 - 137%

References: Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

* D - Surrogates diluted out of sample

Comments:

Analyst

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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm

Sample ID: BORING B-9 1-2'

Lab ID: 0495H01384/0695G00461

Matrix: Soil

Condition: Intact

Report Date: 03/21/95

Receipt Date: 02/06/95

Sample Date: 02/01/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.3 s.u.	0.1	SW-846 9045
Electrical Conductivity	14.2 mmhos/cm	0.1	SW-846 9050
Oil & Grease	16.6 percent	0.1	SW-846 9071
3051 Digestion Trace Metals			
Arsenic	21.8 mg/Kg	0.5	SW-846 7061A
Chromium	232 mg/Kg	1	SW-846 6010A
Lead	559 mg/Kg	14	SW-846 6010A
Nickel	37 mg/Kg	5	SW-846 6010A
Zinc	137 mg/Kg	1	SW-846 6010A

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:

Gary L. Pudge

Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-9 3-4'
Laboratory ID: 0695G00462
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/11/95
Date Analyzed: 02/15/95
Time Analyzed: 3:51 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	1.5
Benzene	ND	0.3
Bromodichloromethane	ND	0.3
Bromoform	ND	0.3
Bromomethane	ND	0.3
2-Butanone (MEK)	ND	1.2
Carbon disulfide	ND	0.3
Carbon tetrachloride	ND	0.3
Chlorobenzene	ND	0.3
Chloroethane	ND	0.6
Chloroform	ND	0.3
Chloromethane	ND	0.6
Dibromochloromethane	ND	0.3
1,1-Dichloroethane	ND	0.3
1,1-Dichloroethene	ND	0.3
trans-1,2-Dichloroethene	ND	0.3
1,2-Dichloroethane	ND	0.3
1,2-Dichloropropane	ND	0.3
cis-1,3-Dichloropropene	ND	0.3
trans-1,3-Dichloropropene	ND	0.3
Ethylbenzene	ND	0.3
2-Hexanone	ND	0.3
Methylene chloride	ND	0.3
4-Methyl-2-pentanone	ND	0.3
Styrene	ND	0.3
1,1,1,2-Tetrachloroethane	ND	0.3
Tetrachloroethene	ND	0.3
Toluene	ND	0.3
1,1,1-Trichloroethane	ND	0.3
1,1,2-Trichloroethane	ND	0.3
Trichloroethene	ND	0.3
Vinyl acetate	ND	0.3
Vinyl chloride	ND	0.3
Xylenes (total)	ND	0.3

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-9 3-4'
Laboratory ID: 0695G00462

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/15/95
Time Analyzed: 3:51 PM

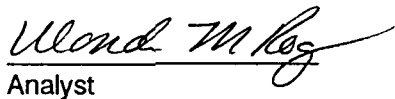
Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels		

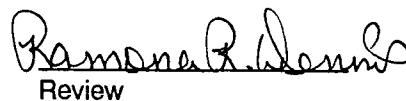
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	1,2-Dichloroethane-d4	87%	70 - 121%
	Toluene-d8	101%	81 - 117%
	Bromofluorobenzene	102%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.


Analyst


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EPA Method 8270**SEMIVOLATILE ORGANIC COMPOUNDS****Client: NAVAJO REFINING COMPANY****Project: Truck Bypass Landfarm****Sample ID: Boring B - 93 - 4 '****Laboratory ID: 0695G00462****Sample Matrix: Soil****Condition: Intact****Preservative: Cool****Report Date: 02/25/95****Date Sampled: 02/01/95****Date Received: 02/03/95****Date Extracted: 02/13/95****Date Analyzed: 02/18/95****Time Analyzed: 5:10 AM**

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring B - 9 3 - 4 '
Laboratory ID: 0695G00462

Report Date: 02/25/95
Date Analyzed: 02/18/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring B - 93 - 4 '
Laboratory ID: 0695G00462

Report Date: 02/25/95
Date Analyzed: 02/18/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection.		

* - Concentration calculated using assumed Relative Response Factor = 1.

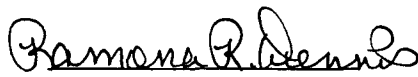
Quality Control:

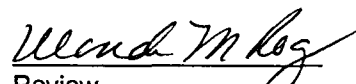
<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	54%	25 - 121%
Phenol - d5	61%	24 - 113%
Nitrobenzene - d5	70%	23 - 120%
2 - Fluorobiphenyl	80%	30 - 115%
2,4,6 - Tribromophenol	77%	19 - 122%
Terphenyl - d14	89%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:


Analyst


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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING B-9 3-4'
Lab ID: 0495H01385/0695G00462
Matrix: Soil
Condition: Intact

Report Date: 03/21/95
Receipt Date: 02/06/95
Sample Date: 02/01/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.2 s.u.	0.1	SW-846 9045
Electrical Conductivity	3.6 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	3.6 mg/Kg	0.5	SW-846 7061A
Chromium	22 mg/Kg	1	SW-846 6010A
Lead	13 mg/Kg	1	SW-846 7421
Nickel	13 mg/Kg	5	SW-846 6010A
Zinc	51 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:

Gary L. Pudge

Director, Soil Laboratory

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring B - 9 4 - 5 '
Laboratory ID: 0695G00463
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/18/95
Time Analyzed: 5:54 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring B - 9 4 - 5 '
Laboratory ID: 0695G00463

Report Date: 02/25/95
Date Analyzed: 02/18/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring B - 9 4 - 5 '
Laboratory ID: 0695G00463

Report Date: 02/25/95
Date Analyzed: 02/18/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	18 to 32	

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

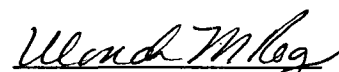
<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	48%	25 - 121%
Phenol - d5	45%	24 - 113%
Nitrobenzene - d5	40%	23 - 120%
2 - Fluorobiphenyl	49%	30 - 115%
2,4,6 - Tribromophenol	63%	19 - 122%
Terphenyl - d14	87%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:


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Client: Navajo Refining Co.

Project: Truck ByPass Land Farm

Sample ID: BORING B-9 4-5'

Lab ID: 0495H01386/0695G00463

Matrix: Soil

Condition: Intact

Report Date: 03/13/95

Receipt Date: 02/06/95

Sample Date: 02/01/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	7.8 s.u.	0.1	SW-846 9045
Electrical Conductivity	5.3 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	3.8 mg/Kg	0.5	SW-846 7061A
Chromium	16 mg/Kg	1	SW-846 6010A
Lead	13 mg/Kg	1	SW-846 7421
Nickel	10 mg/Kg	5	SW-846 6010A
Zinc	40 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:

Gary L. Pudge
Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-9 5-6'
Laboratory ID: 0695G00464
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/11/95
Date Analyzed: 02/16/95
Time Analyzed: 9:26 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	1.6
Benzene	ND	0.3
Bromodichloromethane	ND	0.3
Bromoform	ND	0.3
Bromomethane	ND	0.3
2-Butanone (MEK)	ND	1.3
Carbon disulfide	ND	0.3
Carbon tetrachloride	ND	0.3
Chlorobenzene	ND	0.3
Chloroethane	ND	0.7
Chloroform	ND	0.3
Chloromethane	ND	0.7
Dibromochloromethane	ND	0.3
1,1-Dichloroethane	ND	0.3
1,1-Dichloroethene	ND	0.3
trans-1,2-Dichloroethene	ND	0.3
1,2-Dichloroethane	ND	0.3
1,2-Dichloropropane	ND	0.3
cis-1,3-Dichloropropene	ND	0.3
trans-1,3-Dichloropropene	ND	0.3
Ethylbenzene	ND	0.3
2-Hexanone	ND	0.3
Methylene chloride	ND	0.3
4-Methyl-2-pentanone	ND	0.3
Styrene	ND	0.3
1,1,2,2-Tetrachloroethane	ND	0.3
Tetrachloroethene	ND	0.3
Toluene	ND	0.3
1,1,1-Trichloroethane	ND	0.3
1,1,2-Trichloroethane	ND	0.3
Trichloroethene	ND	0.3
Vinyl acetate	ND	0.3
Vinyl chloride	ND	0.3
Xylenes (total)	ND	0.3

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-9 5-6'
Laboratory ID: 0695G00464

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/16/95
Time Analyzed: 9:26 AM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels		

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	1,2-Dichloroethane-d4	94%	70 - 121%
	Toluene-d8	102%	81 - 117%
	Bromofluorobenzene	97%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.

Analyst

Review

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring B - 9 5 - 6 '
Laboratory ID: 0695G00464
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/18/95
Time Analyzed: 9:34 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring B - 9 5 - 6 '
Laboratory ID: 0695G00464

Report Date: 02/25/95
Date Analyzed: 02/18/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring B - 9 5 - 6 '
Laboratory ID: 0695G00464

Report Date: 02/25/95
Date Analyzed: 02/18/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	18 to 32	

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

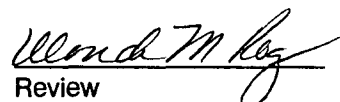
<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	50%	25 - 121%
Phenol - d5	54%	24 - 113%
Nitrobenzene - d5	52%	23 - 120%
2 - Fluorobiphenyl	60%	30 - 115%
2,4,6 - Tribromophenol	72%	19 - 122%
Terphenyl - d14	85%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:


Analyst


Review



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Client: Navajo Refining Co.

Project: Truck ByPass Land Farm

Sample ID: BORING B-9 5-6'

Lab ID: 0495H01387/0695G00464

Matrix: Soil

Condition: Intact

Report Date: 03/13/95

Receipt Date: 02/06/95

Sample Date: 02/01/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	7.9 s.u.	0.1	SW-846 9045
Electrical Conductivity	4.6 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals

Arsenic	2.8 mg/Kg	0.5	SW-846 7061A
Chromium	7 mg/Kg	1	SW-846 6010A
Lead	2 mg/Kg	1	SW-846 7421
Nickel	5 mg/Kg	5	SW-846 6010A
Zinc	20 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:

Gary L. Pudge

Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-9 6-7'
Laboratory ID: 0695G00465
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/11/95
Date Analyzed: 02/16/95
Time Analyzed: 10:05 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	1.5
Benzene	ND	0.3
Bromodichloromethane	ND	0.3
Bromoform	ND	0.3
Bromomethane	ND	0.3
2-Butanone (MEK)	ND	1.2
Carbon disulfide	ND	0.3
Carbon tetrachloride	ND	0.3
Chlorobenzene	ND	0.3
Chloroethane	ND	0.6
Chloroform	ND	0.3
Chloromethane	ND	0.6
Dibromochloromethane	ND	0.3
1,1-Dichloroethane	ND	0.3
1,1-Dichloroethene	ND	0.3
trans-1,2-Dichloroethene	ND	0.3
1,2-Dichloroethane	ND	0.3
1,2-Dichloropropane	ND	0.3
cis-1,3-Dichloropropene	ND	0.3
trans-1,3-Dichloropropene	ND	0.3
Ethylbenzene	ND	0.3
2-Hexanone	ND	0.3
Methylene chloride	ND	0.3
4-Methyl-2-pentanone	ND	0.3
Styrene	ND	0.3
1,1,2,2-Tetrachloroethane	ND	0.3
Tetrachloroethene	ND	0.3
Toluene	ND	0.3
1,1,1-Trichloroethane	ND	0.3
1,1,2-Trichloroethane	ND	0.3
Trichloroethene	ND	0.3
Vinyl acetate	ND	0.3
Vinyl chloride	ND	0.3
Xylenes (total)	ND	0.3

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring B-9 6-7'
Laboratory ID: 0695G00465

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/16/95
Time Analyzed: 10:05 AM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels		

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	1,2-Dichloroethane-d4	93%	70 - 121%
	Toluene-d8	102%	81 - 117%
	Bromofluorobenzene	97%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.

Ilana M. Koz
Analyst

Ramona B. Dennis
Review

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EPA Method 8270**SEMIVOLATILE ORGANIC COMPOUNDS**

Client: **NAVAJO REFINING COMPANY**

Project: **Truck Bypass Landfarm**

Sample ID: **Boring B - 9 6 - 7 '**

Laboratory ID: **0695G00465**

Sample Matrix: **Soil**

Condition: **Intact**

Preservative: **Cool**

Report Date: **02/25/95**

Date Sampled: **02/01/95**

Date Received: **02/03/95**

Date Extracted: **02/14/95**

Date Analyzed: **02/18/95**

Time Analyzed: **10:19 AM**

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring B - 9 6 - 7 '
Laboratory ID: 0695G00465

Report Date: 02/25/95
Date Analyzed: 02/18/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methylnaphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring B - 9 6 - 7 '
Laboratory ID: 0695G00465

Report Date: 02/25/95
Date Analyzed: 02/18/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection limits.		

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

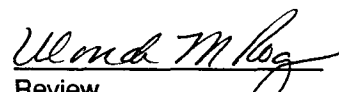
<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	52%	25 - 121%
Phenol - d5	57%	24 - 113%
Nitrobenzene - d5	63%	23 - 120%
2 - Fluorobiphenyl	70%	30 - 115%
2,4,6 - Tribromophenol	67%	19 - 122%
Terphenyl - d14	77%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:


Analyst


Review



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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING B-9 6-7'
Lab ID: 0495H01388/0695G00465
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/01/95

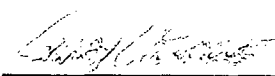
Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	7.9 s.u.	0.1	SW-846 9045
Electrical Conductivity	5.0 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	3.4 mg/Kg	0.5	SW-846 7061A
Chromium	9 mg/Kg	1	SW-846 6010A
Lead	2 mg/Kg	1	SW-846 7421
Nickel	7 mg/Kg	5	SW-846 6010A
Zinc	20 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:


Gary L. Pudge
Director, Soil Laboratory

**Inter-Mountain Laboratories, Inc.****Inorganics Laboratory**

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: NAVAJO REFINING COMPANY
Project : Truck Bypass Landfarm
Sample ID: Boring C-11 1-2'
Laboratory ID: 0695G00466
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/15/95
Time Analyzed: 4:26 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	6
Benzene	ND	1
Bromodichloromethane	ND	1
Bromoform	ND	1
Bromomethane	ND	1
2-Butanone (MEK)	ND	4
Carbon disulfide	ND	1
Carbon tetrachloride	ND	1
Chlorobenzene	ND	1
Chloroethane	ND	2
Chloroform	ND	1
Chloromethane	ND	2
Dibromochloromethane	ND	1
1,1-Dichloroethane	ND	1
1,1-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
1,2-Dichloroethane	ND	1
1,2-Dichloropropane	ND	1
cis-1,3-Dichloropropene	ND	1
trans-1,3-Dichloropropene	ND	1
Ethylbenzene	ND	1
2-Hexanone	ND	1
Methylene chloride	ND	1
4-Methyl-2-pentanone	ND	1
Styrene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Tetrachloroethene	ND	1
Toluene	ND	1
1,1,1-Trichloroethane	ND	1
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Vinyl acetate	ND	1
Vinyl chloride	ND	1
Xylenes (total)	ND	1

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-11 1-2'
Laboratory ID: 0695G00466

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/15/95
Time Analyzed: 4:26 PM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	12-25	

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	88%	70 - 121%
	Toluene-d8	101%	81 - 117%
	Bromofluorobenzene	103%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.


Analyst


Review

**Inter-Mountain Laboratories, Inc.**

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EPA Method 8270**SEMIVOLATILE ORGANIC COMPOUNDS**

Client: **NAVAJO REFINING COMPANY**

Project: **Truck Bypass Landfarm**

Sample ID: **Boring C - 11 1 - 2'**

Laboratory ID: **0695G00466**

Sample Matrix: **Soil**

Condition: **Intact**

Preservative: **Cool**

Report Date: **02/25/95**

Date Sampled: **02/01/95**

Date Received: **02/03/95**

Date Extracted: **02/14/95**

Date Analyzed: **02/26/95**

Time Analyzed: **10:40 PM**

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	90
Acenaphthylene	ND	90
Anthracene	ND	90
Benzo(a)anthracene	ND	90
Benzo(b)fluoranthene	ND	90
Benzo(k)fluoranthene	ND	90
Benzo(g,h,i)perylene	ND	90
Benzo(a)pyrene	ND	90
Benzoic acid	ND	90
Benzyl alcohol	ND	90
Bis(2-chloroethoxy)methane	ND	90
Bis(2-chloroethyl)ether	ND	90
Bis(2-chloroisopropyl)ether	ND	90
Bis(2-ethylhexyl)phthalate	ND	225
4-Bromophenyl phenyl ether	ND	90
Butyl benzyl phthalate	ND	90
4 - Chloroaniline	ND	90
4 - Chloro - 3 - methylphenol	ND	90
2 - Chloronaphthalene	ND	90
2 - Chlorophenol	ND	90
4-Chlorophenyl phenyl ether	ND	90
Chrysene	ND	90
2 - Methylphenol	ND	90
3 & 4 - Methylphenol **	ND	90
Di - n - butylphthalate	ND	225
Dibenz(a,h)anthracene	ND	90
Dibenzofuran	ND	90
1,2 - Dichlorobenzene	ND	90
1,3 - Dichlorobenzene	ND	90
1,4 - Dichlorobenzene	ND	90
3,3 - Dichlorobenzidine	ND	90
2,4 - Dichlorophenol	ND	90
Diethyl phthalate	ND	90
2,4 - Dimethylphenol	ND	90
Dimethyl phthalate	ND	90



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring C - 11 1 - 2'
Laboratory ID: 0695G00466

Report Date: 02/25/95
Date Analyzed: 02/26/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	225
2,4 - Dinitrophenol	ND	225
2,4 - Dinitrotoluene	ND	90
2,6 - Dinitrotoluene	ND	90
Di-n-octyl phthalate	ND	225
Fluoranthene	ND	90
Fluorene	ND	90
Hexachlorobenzene	ND	90
Hexachlorocyclopentadiene	ND	225
Hexachloroethane	ND	90
Hexachlorobutadiene	ND	90
Ideno(1,2,3-cd)pyrene	ND	90
Isophorone	ND	90
2 - Methyl naphthalene	ND	90
Naphthalene	ND	90
2 - Nitroaniline	ND	90
3 - Nitroaniline	ND	90
4 - Nitroaniline	ND	90
Nitrobenzene	ND	90
2 - Nitrophenol	ND	90
4 - Nitrophenol	ND	90
N - Nitrosodiphenylamine	ND	90
N-Nitroso-di-n-propylamine	ND	90
Pentachlorophenol	ND	225
Phenanthrene	ND	90
Phenol	ND	90
Pyrene	ND	90
1,2,4 - Trichlorobenzene	ND	90
2,4,5 - Trichlorophenol	ND	90
2,4,6 - Trichlorophenol	ND	90

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring C - 11 1 - 2'
Laboratory ID: 0695G00466

Report Date: 02/25/95
Date Analyzed: 02/26/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Unknown hydrocarbon	24.15	100
Unknown hydrocarbon	24.33	200
Unknown hydrocarbon	25.37	100
Unknown hydrocarbon	25.46	100
Hydrocarbon envelope	16 to 37	

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	2 - Fluorophenol	* D	25 - 121%
	Phenol - d5	* D	24 - 113%
	Nitrobenzene - d5	* D	23 - 120%
	2 - Fluorobiphenyl	* D	30 - 115%
	2,4,6 - Tribromophenol	* D	19 - 122%
	Terphenyl - d14	* D	18 - 137%

References: Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: * D - Surrogates diluted out of sample.

Analyst

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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING C-11 1-2'
Lab ID: 0495H01389/0695G00466
Matrix: Soil
Condition: Intact

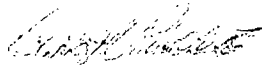
Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/01/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	7.4 s.u.	0.1	SW-846 9045
Electrical Conductivity	4.5 mmhos/cm	0.1	SW-846 9050
Oil & Grease	10.0 percent	0.1	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	42.2 mg/Kg	0.5	SW-846 7061A
Chromium	56 mg/Kg	1	SW-846 6010A
Lead	26 mg/Kg	14	SW-846 6010A
Nickel	27 mg/Kg	5	SW-846 6010A
Zinc	161 mg/Kg	1	SW-846 6010A

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:


Gary L. Pudge
Director, Soil Laboratory



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EPA Method 8240 VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-11 3-4'
Laboratory ID: 0695G00467
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/16/95
Time Analyzed: 11:00 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	1.4
Benzene	ND	0.3
Bromodichloromethane	ND	0.3
Bromoform	ND	0.3
Bromomethane	ND	0.3
2-Butanone (MEK)	ND	1.1
Carbon disulfide	ND	0.3
Carbon tetrachloride	ND	0.3
Chlorobenzene	ND	0.3
Chloroethane	ND	0.6
Chloroform	ND	0.3
Chloromethane	ND	0.6
Dibromochloromethane	ND	0.3
1,1-Dichloroethane	ND	0.3
1,1-Dichloroethene	ND	0.3
trans-1,2-Dichloroethene	ND	0.3
1,2-Dichloroethane	ND	0.3
1,2-Dichloropropane	ND	0.3
cis-1,3-Dichloropropene	ND	0.3
trans-1,3-Dichloropropene	ND	0.3
Ethylbenzene	ND	0.3
2-Hexanone	ND	0.3
Methylene chloride	ND	0.3
4-Methyl-2-pentanone	ND	0.3
Styrene	ND	0.3
1,1,2,2-Tetrachloroethane	ND	0.3
Tetrachloroethene	ND	0.3
Toluene	ND	0.3
1,1,1-Trichloroethane	ND	0.3
1,1,2-Trichloroethane	ND	0.3
Trichloroethene	ND	0.3
Vinyl acetate	ND	0.3
Vinyl chloride	ND	0.3
Xylenes (total)	ND	0.3

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-11 3-4'
Laboratory ID: 0695G00467

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/16/95
Time Analyzed: 11:00 AM

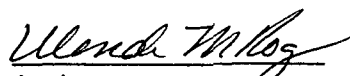
Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels		

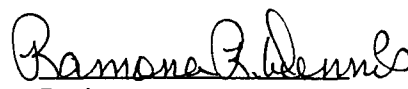
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	92%	70 - 121%
	Toluene-d8	102%	81 - 117%
	Bromofluorobenzene	98%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.


Analyst


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EPA Method 8270**SEMIVOLATILE ORGANIC COMPOUNDS**

Client: **NAVAJO REFINING COMPANY**

Project: Truck Bypass Landfarm

Sample ID: Boring C - 11 3 - 4 '

Laboratory ID: 0695G00467

Sample Matrix: Soil

Condition: Intact

Preservative: Cool

Report Date: 02/25/95

Date Sampled: 02/01/95

Date Received: 02/03/95

Date Extracted: 02/14/95

Date Analyzed: 02/26/95

Time Analyzed: 11:25 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	2
Acenaphthylene	ND	2
Anthracene	ND	2
Benzo(a)anthracene	ND	2
Benzo(b)fluoranthene	ND	2
Benzo(k)fluoranthene	ND	2
Benzo(g,h,i)perylene	ND	2
Benzo(a)pyrene	ND	2
Benzoic acid	ND	2
Benzyl alcohol	ND	2
Bis(2-chloroethoxy)methane	ND	2
Bis(2-chloroethyl)ether	ND	2
Bis(2-chloroisopropyl)ether	ND	2
Bis(2-ethylhexyl)phthalate	ND	5
4-Bromophenyl phenyl ether	ND	2
Butyl benzyl phthalate	ND	2
4 - Chloroaniline	ND	2
4 - Chloro - 3 - methylphenol	ND	2
2 - Chloronaphthalene	ND	2
2 - Chlorophenol	ND	2
4-Chlorophenyl phenyl ether	ND	2
Chrysene	ND	2
2 - Methylphenol	ND	2
3 & 4 - Methylphenol **	ND	2
Di - n - butylphthalate	ND	5
Dibenz(a,h)anthracene	ND	2
Dibenzofuran	ND	2
1,2 - Dichlorobenzene	ND	2
1,3 - Dichlorobenzene	ND	2
1,4 - Dichlorobenzene	ND	2
3,3 - Dichlorobenzidine	ND	2
2,4 - Dichlorophenol	ND	2
Diethyl phthalate	ND	2
2,4 - Dimethylphenol	ND	2
Dimethyl phthalate	ND	2



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring C - 11 3 - 4 '
Laboratory ID: 0695G00467

Report Date: 02/25/95
Date Analyzed: 02/26/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	5
2,4 - Dinitrophenol	ND	5
2,4 - Dinitrotoluene	ND	2
2,6 - Dinitrotoluene	ND	2
Di-n-octyl phthalate	ND	5
Fluoranthene	ND	2
Fluorene	ND	2
Hexachlorobenzene	ND	2
Hexachlorocyclopentadiene	ND	5
Hexachloroethane	ND	2
Hexachlorobutadiene	ND	2
Ideno(1,2,3-cd)pyrene	ND	2
Isophorone	ND	2
2 - Methyl naphthalene	ND	2
Naphthalene	ND	2
2 - Nitroaniline	ND	2
3 - Nitroaniline	ND	2
4 - Nitroaniline	ND	2
Nitrobenzene	ND	2
2 - Nitrophenol	ND	2
4 - Nitrophenol	ND	2
N - Nitrosodiphenylamine	ND	2
N-Nitroso-di-n-propylamine	ND	2
Pentachlorophenol	ND	5
Phenanthrene	ND	2
Phenol	ND	2
Pyrene	ND	2
1,2,4 - Trichlorobenzene	ND	2
2,4,5 - Trichlorophenol	ND	2
2,4,6 - Trichlorophenol	ND	2

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring C - 11 3 - 4 '
Laboratory ID: 0695G00467

Report Date: 02/25/95
Date Analyzed: 02/26/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Unknown hydrocarbon	33.41	2
Unknown hydrocarbon	34.77	2
Unknown hydrocarbon	36.40	2
Hydrocarbon envelope	14 to 37	

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	2 - Fluorophenol	49%	25 - 121%
	Phenol - d5	54%	24 - 113%
	Nitrobenzene - d5	57%	23 - 120%
	2 - Fluorobiphenyl	71%	30 - 115%
	2,4,6 - Tribromophenol	63%	19 - 122%
	Terphenyl - d14	71%	18 - 137%

References: Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:


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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING C-11 3-4'
Lab ID: 0495H01390/0695G00467
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/01/95

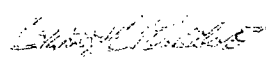
Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.1 s.u.	0.1	SW-846 9045
Electrical Conductivity	2.1 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	3.8 mg/Kg	0.5	SW-846 7061A
Chromium	21 mg/Kg	1	SW-846 6010A
Lead	20 mg/Kg	14	SW-846 6010A
Nickel	12 mg/Kg	5	SW-846 6010A
Zinc	48 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:



Gary L. Pudge
Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-11 4-5'
Laboratory ID: 0695G00468
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/11/95
Date Analyzed: 02/16/95
Time Analyzed: 11:40 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	1.4
Benzene	ND	0.3
Bromodichloromethane	ND	0.3
Bromoform	ND	0.3
Bromomethane	ND	0.3
2-Butanone (MEK)	ND	1.1
Carbon disulfide	ND	0.3
Carbon tetrachloride	ND	0.3
Chlorobenzene	ND	0.3
Chloroethane	ND	0.6
Chloroform	ND	0.3
Chloromethane	ND	0.6
Dibromochloromethane	ND	0.3
1,1-Dichloroethane	ND	0.3
1,1-Dichloroethene	ND	0.3
trans-1,2-Dichloroethene	ND	0.3
1,2-Dichloroethane	ND	0.3
1,2-Dichloropropane	ND	0.3
cis-1,3-Dichloropropene	ND	0.3
trans-1,3-Dichloropropene	ND	0.3
Ethylbenzene	ND	0.3
2-Hexanone	ND	0.3
Methylene chloride	ND	0.3
4-Methyl-2-pentanone	ND	0.3
Styrene	ND	0.3
1,1,2,2-Tetrachloroethane	ND	0.3
Tetrachloroethene	ND	0.3
Toluene	ND	0.3
1,1,1-Trichloroethane	ND	0.3
1,1,2-Trichloroethane	ND	0.3
Trichloroethene	ND	0.3
Vinyl acetate	ND	0.3
Vinyl chloride	ND	0.3
Xylenes (total)	ND	0.3

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-11 4-5'
Laboratory ID: 0695G00468

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/16/95
Time Analyzed: 11:40 AM

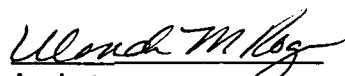
Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels		

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	99%	70 - 121%
	Toluene-d8	100%	81 - 117%
	Bromofluorobenzene	93%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.


Analyst


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EPA Method 8270**SEMIVOLATILE ORGANIC COMPOUNDS**

Client: **NAVAJO REFINING COMPANY**

Project: **Truck Bypass Landfarm**

Sample ID: **Boring C - 11 4 - 5'**

Laboratory ID: **0695G00468**

Sample Matrix: **Soil**

Condition: **Intact**

Preservative: **Cool**

Report Date: **02/25/95**

Date Sampled: **02/01/95**

Date Received: **02/03/95**

Date Extracted: **02/13/95**

Date Analyzed: **03/03/95**

Time Analyzed: **5:44 PM**

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid ***	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring C - 11 4 - 5 '
Laboratory ID: 0695G00468

Report Date: 02/25/95
Date Analyzed: 03/03/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol ***	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring C - 11 4 - 5 '
Laboratory ID: 0695G00468

Report Date: 02/25/95
Date Analyzed: 03/03/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits.		

* - Concentration calculated using assumed Relative Response Factor = 1.

	Surrogate	Percent Recovery	Acceptance Limits
Quality Control:	2 - Fluorophenol	44%	25 - 121%
	Phenol - d5	49%	24 - 113%
	Nitrobenzene - d5	60%	23 - 120%
	2 - Fluorobiphenyl	67%	30 - 115%
	2,4,6 - Tribromophenol	59%	19 - 122%
	Terphenyl - d14	73%	18 - 137%

Method 3550: Sonication Extraction.

Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Orga
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States

References: Environmental Protection Agency, July 1992.

Comments: *** - Benzoic Acid and 2,4-Dinitrophenol did not meet calibration criteria.

Analyst

Review



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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING C-11 4-5'
Lab ID: 0495H01391/0695G00468
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/01/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.0 s.u.	0.1	SW-846 9045
Electrical Conductivity	3.5 mmhos/cm	0.1	SW-846 9050
Oil & Grease	0.1 percent	0.1	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	3.1 mg/Kg	0.5	SW-846 7061A
Chromium	22 mg/Kg	1	SW-846 6010A
Lead	19 mg/Kg	14	SW-846 6010A
Nickel	13 mg/Kg	5	SW-846 6010A
Zinc	47 mg/Kg	1	SW-846 6010A

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:

Gary L. Pudge
Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-11 5-6'
Laboratory ID: 0695G00469
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/11/95
Date Analyzed: 02/16/95
Time Analyzed: 12:17 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	1.4
Benzene	ND	0.3
Bromodichloromethane	ND	0.3
Bromoform	ND	0.3
Bromomethane	ND	0.3
2-Butanone (MEK)	ND	1.1
Carbon disulfide	ND	0.3
Carbon tetrachloride	ND	0.3
Chlorobenzene	ND	0.3
Chloroethane	ND	0.6
Chloroform	ND	0.3
Chloromethane	ND	0.6
Dibromochloromethane	ND	0.3
1,1-Dichloroethane	ND	0.3
1,1-Dichloroethene	ND	0.3
trans-1,2-Dichloroethene	ND	0.3
1,2-Dichloroethane	ND	0.3
1,2-Dichloropropane	ND	0.3
cis-1,3-Dichloropropene	ND	0.3
trans-1,3-Dichloropropene	ND	0.3
Ethylbenzene	ND	0.3
2-Hexanone	ND	0.3
Methylene chloride	ND	0.3
4-Methyl-2-pentanone	ND	0.3
Styrene	ND	0.3
1,1,1,2-Tetrachloroethane	ND	0.3
Tetrachloroethene	ND	0.3
Toluene	ND	0.3
1,1,1-Trichloroethane	ND	0.3
1,1,2-Trichloroethane	ND	0.3
Trichloroethene	ND	0.3
Vinyl acetate	ND	0.3
Vinyl chloride	ND	0.3
Xylenes (total)	ND	0.3

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-11 5-6'
Laboratory ID: 0695G00469

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/16/95
Time Analyzed: 12:17 PM

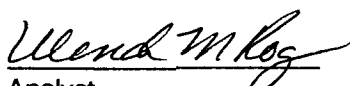
Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels		

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	1,2-Dichloroethane-d4	92%	70 - 121%
	Toluene-d8	102%	81 - 117%
	Bromofluorobenzene	98%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.


Analyst


Review

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EPA Method 8270**SEMIVOLATILE ORGANIC COMPOUNDS**

Client: **NAVAJO REFINING COMPANY**

Project: **Truck Bypass Landfarm**

Sample ID: **Boring C - 11 5 - 6 '**

Laboratory ID: **0695G00469**

Sample Matrix: **Soil**

Condition: **Intact**

Preservative: **Cool**

Report Date: **02/25/95**

Date Sampled: **02/01/95**

Date Received: **02/03/95**

Date Extracted: **02/14/95**

Date Analyzed: **02/27/95**

Time Analyzed: **12:54 PM**

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring C - 11 5 - 6 '
Laboratory ID: 0695G00469

Report Date: 02/25/95
Date Analyzed: 02/27/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring C - 11 5 - 6 '
Laboratory ID: 0695G00469

Report Date: 02/25/95
Date Analyzed: 02/27/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection		

* - Concentration calculated using assumed Relative Response Factor = 1.

	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
Quality Control:	2 - Fluorophenol	46%	25 - 121%
	Phenol - d5	54%	24 - 113%
	Nitrobenzene - d5	57%	23 - 120%
	2 - Fluorobiphenyl	71%	30 - 115%
	2,4,6 - Tribromophenol	73%	19 - 122%
	Terphenyl - d14	84%	18 - 137%

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Orga
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
References: Environmental Protection Agency, July 1992.

Comments:

Ramona R. Dennis
Analyst

Wendy M. Logg
Review



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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING C-11 5-6'
Lab ID: 0495H01392/0695G00469
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/01/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.2 s.u.	0.1	SW-846 9045
Electrical Conductivity	2.7 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	3.2 mg/Kg	0.5	SW-846 7061A
Chromium	15 mg/Kg	1	SW-846 6010A
Lead	8 mg/Kg	1	SW-846 7421
Nickel	8 mg/Kg	5	SW-846 6010A
Zinc	35 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:

Gary L. Pudge
Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-11 6-7'
Laboratory ID: 0695G00470
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/16/95
Time Analyzed: 12:55 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	1.4
Benzene	ND	0.3
Bromodichloromethane	ND	0.3
Bromoform	ND	0.3
Bromomethane	ND	0.3
2-Butanone (MEK)	ND	1.1
Carbon disulfide	ND	0.3
Carbon tetrachloride	ND	0.3
Chlorobenzene	ND	0.3
Chloroethane	ND	0.6
Chloroform	ND	0.3
Chloromethane	ND	0.6
Dibromochloromethane	ND	0.3
1,1-Dichloroethane	ND	0.3
1,1-Dichloroethene	ND	0.3
trans-1,2-Dichloroethene	ND	0.3
1,2-Dichloroethane	ND	0.3
1,2-Dichloropropane	ND	0.3
cis-1,3-Dichloropropene	ND	0.3
trans-1,3-Dichloropropene	ND	0.3
Ethylbenzene	ND	0.3
2-Hexanone	ND	0.3
Methylene chloride	ND	0.3
4-Methyl-2-pentanone	ND	0.3
Styrene	ND	0.3
1,1,2,2-Tetrachloroethane	ND	0.3
Tetrachloroethene	ND	0.3
Toluene	ND	0.3
1,1,1-Trichloroethane	ND	0.3
1,1,2-Trichloroethane	ND	0.3
Trichloroethene	ND	0.3
Vinyl acetate	ND	0.3
Vinyl chloride	ND	0.3
Xylenes (total)	ND	0.3

ND - Analyte not detected at stated limit of detection

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-11 6-7'
Laboratory ID: 0695G00470

Report Date: 03/06/95
Date Sampled: 02/01/95
Date Analyzed: 02/16/95
Time Analyzed: 12:55 PM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels		

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	1,2-Dichloroethane-d4	94%	70 - 121%
	Toluene-d8	101%	81 - 117%
	Bromofluorobenzene	96%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.


Analyst


Review

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring C - 11 6 - 7 '
Laboratory ID: 0695G00470
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/14/95
Date Analyzed: 02/27/95
Time Analyzed: 1:39 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring C - 11 6 - 7 '
Laboratory ID: 0695G00470

Report Date: 02/25/95
Date Analyzed: 02/27/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring C - 11 6 - 7 '
Laboratory ID: 0695G00470

Report Date: 02/25/95
Date Analyzed: 02/27/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection		

* - Concentration calculated using assumed Relative Response Factor = 1.

	Surrogate	Percent Recovery	Acceptance Limits
Quality Control:	2 - Fluorophenol	50%	25 - 121%
	Phenol - d5	56%	24 - 113%
	Nitrobenzene - d5	57%	23 - 120%
	2 - Fluorobiphenyl	67%	30 - 115%
	2,4,6 - Tribromophenol	67%	19 - 122%
	Terphenyl - d14	84%	18 - 137%

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Orga
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
References: Environmental Protection Agency, July 1992.

Comments:

Analyst

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Client: Navajo Refining Co.

Project: Truck ByPass Land Farm

Sample ID: BORING C-11 6-7'

Lab ID: 0495H01393/0695G00470

Matrix: Soil

Condition: Intact

Report Date: 03/13/95

Receipt Date: 02/06/95

Sample Date: 02/01/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.0 s.u.	0.1	SW-846 9045
Electrical Conductivity	4.7 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	3.6 mg/Kg	0.5	SW-846 7061A
Chromium	16 mg/Kg	1	SW-846 6010A
Lead	9 mg/Kg	1	SW-846 7421
Nickel	10 mg/Kg	5	SW-846 6010A
Zinc	37 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:

Gary L. Pudge

Director, Soil Laboratory



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EPA Method 8240 VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-9 1-2'
Laboratory ID: 0695G00471
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/02/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/15/95
Time Analyzed: 6:43 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	5
Benzene	ND	1
Bromodichloromethane	ND	1
Bromoform	ND	1
Bromomethane	ND	1
2-Butanone (MEK)	ND	4
Carbon disulfide	ND	1
Carbon tetrachloride	ND	1
Chlorobenzene	ND	1
Chloroethane	ND	2
Chloroform	ND	1
Chloromethane	ND	2
Dibromochloromethane	ND	1
1,1-Dichloroethane	ND	1
1,1-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
1,2-Dichloroethane	ND	1
1,2-Dichloropropane	ND	1
cis-1,3-Dichloropropene	ND	1
trans-1,3-Dichloropropene	ND	1
Ethylbenzene	ND	1
2-Hexanone	ND	1
Methylene chloride	ND	1
4-Methyl-2-pentanone	ND	1
Styrene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Tetrachloroethene	ND	1
Toluene	ND	1
1,1,1-Trichloroethane	ND	1
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Vinyl acetate	ND	1
Vinyl chloride	ND	1
Xylenes (total)	ND	1

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-9 1-2'
Laboratory ID: 0695G00471

Report Date: 03/06/95
Date Sampled: 02/02/95
Date Analyzed: 02/15/95
Time Analyzed: 6:43 PM

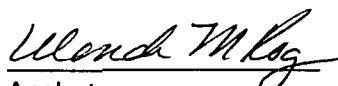
Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	12-23	

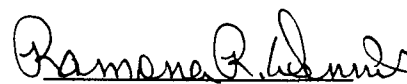
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	86%	70 - 121%
	Toluene-d8	97%	81 - 117%
	Bromofluorobenzene	87%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.


Analyst


Review



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EPA Method 8270 SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring C - 9 1 - 2 '
Laboratory ID: 0695G00471
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/02/95
Date Received: 02/03/95
Date Extracted: 02/14/95
Date Analyzed: 02/27/95
Time Analyzed: 2:23 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	80
Acenaphthylene	ND	80
Anthracene	ND	80
Benzo(a)anthracene	ND	80
Benzo(b)fluoranthene	ND	80
Benzo(k)fluoranthene	ND	80
Benzo(g,h,i)perylene	ND	80
Benzo(a)pyrene	ND	80
Benzoic acid	ND	80
Benzyl alcohol	ND	80
Bis(2-chloroethoxy)methane	ND	80
Bis(2-chloroethyl)ether	ND	80
Bis(2-chloroisopropyl)ether	ND	80
Bis(2-ethylhexyl)phthalate	ND	200
4-Bromophenyl phenyl ether	ND	80
Butyl benzyl phthalate	ND	80
4 - Chloroaniline	ND	80
4 - Chloro - 3 - methylphenol	ND	80
2 - Chloronaphthalene	ND	80
2 - Chlorophenol	ND	80
4-Chlorophenyl phenyl ether	ND	80
Chrysene	ND	80
2 - Methylphenol	ND	80
3 & 4 - Methylphenol **	ND	80
Di - n - butylphthalate	ND	200
Dibenz(a,h)anthracene	ND	80
Dibenzofuran	ND	80
1,2 - Dichlorobenzene	ND	80
1,3 - Dichlorobenzene	ND	80
1,4 - Dichlorobenzene	ND	80
3,3 - Dichlorobenzidine	ND	80
2,4 - Dichlorophenol	ND	80
Diethyl phthalate	ND	80
2,4 - Dimethylphenol	ND	80
Dimethyl phthalate	ND	80



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring C - 9 1 - 2 '
Laboratory ID: 0695G00471

Report Date: 02/25/95
Date Analyzed: 02/27/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	200
2,4 - Dinitrophenol	ND	200
2,4 - Dinitrotoluene	ND	80
2,6 - Dinitrotoluene	ND	80
Di-n-octyl phthalate	ND	200
Fluoranthene	ND	80
Fluorene	ND	80
Hexachlorobenzene	ND	80
Hexachlorocyclopentadiene	ND	200
Hexachloroethane	ND	80
Hexachlorobutadiene	ND	80
Ideno(1,2,3-cd)pyrene	ND	80
Isophorone	ND	80
2 - Methyl naphthalene	ND	80
Naphthalene	ND	80
2 - Nitroaniline	ND	80
3 - Nitroaniline	ND	80
4 - Nitroaniline	ND	80
Nitrobenzene	ND	80
2 - Nitrophenol	ND	80
4 - Nitrophenol	ND	80
N - Nitrosodiphenylamine	ND	80
N-Nitroso-di-n-propylamine	ND	80
Pentachlorophenol	ND	200
Phenanthrene	ND	80
Phenol	ND	80
Pyrene	ND	80
1,2,4 - Trichlorobenzene	ND	80
2,4,5 - Trichlorophenol	ND	80
2,4,6 - Trichlorophenol	ND	80

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring C - 91 - 2 '
Laboratory ID: 0695G00471

Report Date: 02/25/95
Date Analyzed: 02/27/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Unknown Hydrocarbon	23.01	100
Unknown Hyrdorcarbon	23.76	100
Unknown Hydrocarbon	24.33	200
Unknown Hydrocarbon	25.47	100
Hydrocarbon Envelope	18 to 37	

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	* D	25 - 121%
Phenol - d5	* D	24 - 113%
Nitrobenzene - d5	* D	23 - 120%
2 - Fluorobiphenyl	* D	30 - 115%
2,4,6 - Tribromophenol	* D	19 - 122%
Terphenyl - d14	* D	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: * D - Surrogates diluted out of sample.

Analyst

Review



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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING C-9 1-2'
Lab ID: 0495H01394/0695G00471
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/02/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	7.7 s.u.	0.1	SW-846 9045
Electrical Conductivity	5.3 mmhos/cm	0.1	SW-846 9050
Oil & Grease	5.3 percent	0.1	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	3.7 mg/Kg	0.5	SW-846 7061A
Chromium	22 mg/Kg	1	SW-846 6010A
Lead	13 mg/Kg	1	SW-846 7421
Nickel	13 mg/Kg	5	SW-846 6010A
Zinc	45 mg/Kg	1	SW-846 6010A

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:

Gary L. Pudge
Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: NAVAJO REFINING COMPANY
Project : Truck Bypass Landfarm
Sample ID: Boring C-9 3-4'
Laboratory ID: 0695G00472
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/02/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/15/95
Time Analyzed: 7:23 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	12
Benzene	ND	2
Bromodichloromethane	ND	2
Bromoform	ND	2
Bromomethane	ND	2
2-Butanone (MEK)	ND	9
Carbon disulfide	ND	2
Carbon tetrachloride	ND	2
Chlorobenzene	ND	2
Chloroethane	ND	5
Chloroform	ND	2
Chloromethane	ND	5
Dibromochloromethane	ND	2
1,1-Dichloroethane	ND	2
1,1-Dichloroethene	ND	2
trans-1,2-Dichloroethene	ND	2
1,2-Dichloroethane	ND	2
1,2-Dichloropropane	ND	2
cis-1,3-Dichloropropene	ND	2
trans-1,3-Dichloropropene	ND	2
Ethylbenzene	ND	2
2-Hexanone	ND	2
Methylene chloride	ND	2
4-Methyl-2-pentanone	ND	2
Styrene	ND	2
1,1,2,2-Tetrachloroethane	ND	2
Tetrachloroethene	ND	2
Toluene	ND	2
1,1,1-Trichloroethane	ND	2
1,1,2-Trichloroethane	ND	2
Trichloroethene	ND	2
Vinyl acetate	ND	2
Vinyl chloride	ND	2
Xylenes (total)	ND	2

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-9 3-4'
Laboratory ID: 0695G00472

Report Date: 03/06/95
Date Sampled: 02/02/95
Date Analyzed: 02/15/95
Time Analyzed: 7:23 PM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	20-25	

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	1,2-Dichloroethane-d4	91%	70 - 121%
	Toluene-d8	96%	81 - 117%
	Bromofluorobenzene	89%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.

Analyst

Review

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EPA Method 8270**SEMIVOLATILE ORGANIC COMPOUNDS**

Client: **NAVAJO REFINING COMPANY**

Project: **Truck Bypass Landfarm**

Sample ID: **Boring C - 93 - 4'**

Laboratory ID: **0695G00472**

Sample Matrix: **Soil**

Condition: **Intact**

Preservative: **Cool**

Report Date: **02/25/95**

Date Sampled: **02/02/95**

Date Received: **02/03/95**

Date Extracted: **02/14/95**

Date Analyzed: **02/27/95**

Time Analyzed: **3:08 AM**

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	80
Acenaphthylene	ND	80
Anthracene	ND	80
Benzo(a)anthracene	ND	80
Benzo(b)fluoranthene	ND	80
Benzo(k)fluoranthene	ND	80
Benzo(g,h,i)perylene	ND	80
Benzo(a)pyrene	ND	80
Benzoic acid	ND	80
Benzyl alcohol	ND	80
Bis(2-chloroethoxy)methane	ND	80
Bis(2-chloroethyl)ether	ND	80
Bis(2-chloroisopropyl)ether	ND	80
Bis(2-ethylhexyl)phthalate	ND	200
4-Bromophenyl phenyl ether	ND	80
Butyl benzyl phthalate	ND	80
4 - Chloroaniline	ND	80
4 - Chloro - 3 - methylphenol	ND	80
2 - Chloronaphthalene	ND	80
2 - Chlorophenol	ND	80
4-Chlorophenyl phenyl ether	ND	80
Chrysene	ND	80
2 - Methylphenol	ND	80
3 & 4 - Methylphenol **	ND	80
Di - n - butylphthalate	ND	200
Dibenz(a,h)anthracene	ND	80
Dibenzofuran	ND	80
1,2 - Dichlorobenzene	ND	80
1,3 - Dichlorobenzene	ND	80
1,4 - Dichlorobenzene	ND	80
3,3 - Dichlorobenzidine	ND	80
2,4 - Dichlorophenol	ND	80
Diethyl phthalate	ND	80
2,4 - Dimethylphenol	ND	80
Dimethyl phthalate	ND	80



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring C - 9 3 - 4 '
Laboratory ID: 0695G00472

Report Date: 02/25/95
Date Analyzed: 02/27/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	200
2,4 - Dinitrophenol	ND	200
2,4 - Dinitrotoluene	ND	80
2,6 - Dinitrotoluene	ND	80
Di-n-octyl phthalate	ND	200
Fluoranthene	ND	80
Fluorene	ND	80
Hexachlorobenzene	ND	80
Hexachlorocyclopentadiene	ND	200
Hexachloroethane	ND	80
Hexachlorobutadiene	ND	80
Ideno(1,2,3-cd)pyrene	ND	80
Isophorone	ND	80
2 - Methyl naphthalene	ND	80
Naphthalene	ND	80
2 - Nitroaniline	ND	80
3 - Nitroaniline	ND	80
4 - Nitroaniline	ND	80
Nitrobenzene	ND	80
2 - Nitrophenol	ND	80
4 - Nitrophenol	ND	80
N - Nitrosodiphenylamine	ND	80
N-Nitroso-di-n-propylamine	ND	80
Pentachlorophenol	ND	200
Phenanthrene	ND	80
Phenol	ND	80
Pyrene	ND	80
1,2,4 - Trichlorobenzene	ND	80
2,4,5 - Trichlorophenol	ND	80
2,4,6 - Trichlorophenol	ND	80

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring C - 93 - 4'
Laboratory ID: 0695G00472

Report Date: 02/25/95
Date Analyzed: 02/27/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Unknown Hydrocarbon	24.15	50
Unknown Hyrdorcarbon	24.32	100
Unknown Hydrocarbon	25.38	60
Unknown Hydrocarbon	25.47	100
Hydrocarbon Envelope	18 to 37	

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	* D	25 - 121%
Phenol - d5	* D	24 - 113%
Nitrobenzene - d5	* D	23 - 120%
2 - Fluorobiphenyl	* D	30 - 115%
2,4,6 - Tribromophenol	* D	19 - 122%
Terphenyl - d14	* D	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: * D - Surrogates out of sample.

Ramona R. Dennis
Analyst

Wendy M. Kay
Review



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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING C-9 3-4'
Lab ID: 0495H01395/0695G00472
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/02/95

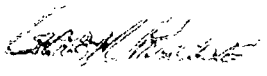
Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	7.9 s.u.	0.1	SW-846 9045
Electrical Conductivity	4.8 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	2.8 mg/Kg	0.5	SW-846 7061A
Chromium	19 mg/Kg	1	SW-846 6010A
Lead	9 mg/Kg	1	SW-846 7421
Nickel	12 mg/Kg	5	SW-846 6010A
Zinc	41 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:



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Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-9 4-5'
Laboratory ID: 0695G00473
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/02/95
Date Received: 02/03/95
Date Extracted: 02/11/95
Date Analyzed: 02/15/95
Time Analyzed: 8:28 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	1.5
Benzene	ND	0.3
Bromodichloromethane	ND	0.3
Bromoform	ND	0.3
Bromomethane	ND	0.3
2-Butanone (MEK)	ND	1.2
Carbon disulfide	ND	0.3
Carbon tetrachloride	ND	0.3
Chlorobenzene	ND	0.3
Chloroethane	ND	0.6
Chloroform	ND	0.3
Chloromethane	ND	0.6
Dibromochloromethane	ND	0.3
1,1-Dichloroethane	ND	0.3
1,1-Dichloroethene	ND	0.3
trans-1,2-Dichloroethene	ND	0.3
1,2-Dichloroethane	ND	0.3
1,2-Dichloropropane	ND	0.3
cis-1,3-Dichloropropene	ND	0.3
trans-1,3-Dichloropropene	ND	0.3
Ethylbenzene	ND	0.3
2-Hexanone	ND	0.3
Methylene chloride	ND	0.3
4-Methyl-2-pentanone	ND	0.3
Styrene	ND	0.3
1,1,2,2-Tetrachloroethane	ND	0.3
Tetrachloroethene	ND	0.3
Toluene	ND	0.3
1,1,1-Trichloroethane	ND	0.3
1,1,2-Trichloroethane	ND	0.3
Trichloroethene	ND	0.3
Vinyl acetate	ND	0.3
Vinyl chloride	ND	0.3
Xylenes (total)	ND	0.3

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-9 4-5'
Laboratory ID: 0695G00473

Report Date: 03/06/95
Date Sampled: 02/02/95
Date Analyzed: 02/15/95
Time Analyzed: 8:28 PM

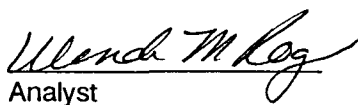
Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels		

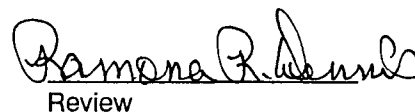
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	1,2-Dichloroethane-d4	88%	70 - 121%
	Toluene-d8	99%	81 - 117%
	Bromofluorobenzene	90%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.


Analyst


Review

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring C - 9 4 - 5 '
Laboratory ID: 0695G00473
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/02/95
Date Received: 02/03/95
Date Extracted: 02/14/95
Date Analyzed: 02/15/95
Time Analyzed: 10:46 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	0.6 (J)	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring C - 9 4 - 5 '
Laboratory ID: 0695G00473

Report Date: 02/25/95
Date Analyzed: 02/15/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring C - 9 4 - 5 '
Laboratory ID: 0695G00473

Report Date: 02/25/95
Date Analyzed: 02/15/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	18 to 35	

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	61%	25 - 121%
Phenol - d5	68%	24 - 113%
Nitrobenzene - d5	71%	23 - 120%
2 - Fluorobiphenyl	79%	30 - 115%
2,4,6 - Tribromophenol	78%	19 - 122%
Terphenyl - d14	92%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:

Ramona B. Dennis
Analyst

Wanda M. Logg
Review



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Client: Navajo Refining Co.

Project: Truck ByPass Land Farm

Sample ID: BORING C-9 4-5'

Lab ID: 0495H01396/0695G00473

Matrix: Soil

Condition: Intact

Report Date: 03/13/95

Receipt Date: 02/06/95

Sample Date: 02/02/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	7.9 s.u.	0.1	SW-846 9045
Electrical Conductivity	5.3 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	3.2 mg/Kg	0.5	SW-846 7061A
Chromium	21 mg/Kg	1	SW-846 6010A
Lead	9 mg/Kg	1	SW-846 7421
Nickel	12 mg/Kg	5	SW-846 6010A
Zinc	49 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:

Gary L. Pudge

Director, Soil Laboratory



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EPA Method 8240 VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-9 5-6'
Laboratory ID: 0695G00474
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/02/95
Date Received: 02/03/95
Date Extracted: 02/11/95
Date Analyzed: 02/15/95
Time Analyzed: 9:07 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	1.5
Benzene	ND	0.3
Bromodichloromethane	ND	0.3
Bromoform	ND	0.3
Bromomethane	ND	0.3
2-Butanone (MEK)	ND	1.2
Carbon disulfide	ND	0.3
Carbon tetrachloride	ND	0.3
Chlorobenzene	ND	0.3
Chloroethane	ND	0.6
Chloroform	ND	0.3
Chloromethane	ND	0.6
Dibromochloromethane	ND	0.3
1,1-Dichloroethane	ND	0.3
1,1-Dichloroethene	ND	0.3
trans-1,2-Dichloroethene	ND	0.3
1,2-Dichloroethane	ND	0.3
1,2-Dichloropropane	ND	0.3
cis-1,3-Dichloropropene	ND	0.3
trans-1,3-Dichloropropene	ND	0.3
Ethylbenzene	ND	0.3
2-Hexanone	ND	0.3
Methylene chloride	ND	0.3
4-Methyl-2-pentanone	ND	0.3
Styrene	ND	0.3
1,1,2,2-Tetrachloroethane	ND	0.3
Tetrachloroethene	ND	0.3
Toluene	ND	0.3
1,1,1-Trichloroethane	ND	0.3
1,1,2-Trichloroethane	ND	0.3
Trichloroethene	ND	0.3
Vinyl acetate	ND	0.3
Vinyl chloride	ND	0.3
Xylenes (total)	ND	0.3

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-9 5-6'
Laboratory ID: 0695G00474

Report Date: 03/06/95
Date Sampled: 02/02/95
Date Analyzed: 02/15/95
Time Analyzed: 9:07 PM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels		

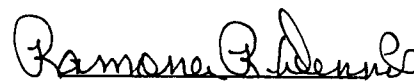
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	1,2-Dichloroethane-d4	91%	70 - 121%
	Toluene-d8	96%	81 - 117%
	Bromofluorobenzene	88%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.


Analyst


Review

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring C - 9 5 - 6 '
Laboratory ID: 0695G00474
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/02/95
Date Received: 02/03/95
Date Extracted: 02/14/95
Date Analyzed: 02/15/95
Time Analyzed: 11:30 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring C - 9 5 - 6 '
Laboratory ID: 0695G00474

Report Date: 02/25/95
Date Analyzed: 02/15/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring C - 9 5 - 6 '
Laboratory ID: 0695G00474

Report Date: 02/25/95
Date Analyzed: 02/15/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection.		

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

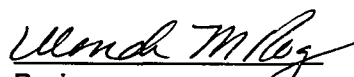
<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	48%	25 - 121%
Phenol - d5	53%	24 - 113%
Nitrobenzene - d5	55%	23 - 120%
2 - Fluorobiphenyl	62%	30 - 115%
2,4,6 - Tribromophenol	68%	19 - 122%
Terphenyl - d14	79%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:


Analyst


Review



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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING C-9 5-6'
Lab ID: 0495H01397/0695G00474
Matrix: Soil
Condition: Intact

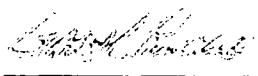
Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/02/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.2 s.u.	0.1	SW-846 9045
Electrical Conductivity	4.1 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071
3051 Digestion Trace Metals			
Arsenic	2.4 mg/Kg	0.5	SW-846 7061A
Chromium	7 mg/Kg	1	SW-846 6010A
Lead	2 mg/Kg	1	SW-846 7421
Nickel	ND*	5 mg/Kg	SW-846 6010A
Zinc	13 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:



Gary L. Pudge
Director, Soil Laboratory

**Inter-Mountain Laboratories, Inc.**

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-9 6-7'
Laboratory ID: 0695G00475
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/02/95
Date Received: 02/03/95
Date Extracted: 02/11/95
Date Analyzed: 02/15/95
Time Analyzed: 10:01 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	1.3
Benzene	ND	0.3
Bromodichloromethane	ND	0.3
Bromoform	ND	0.3
Bromomethane	ND	0.3
2-Butanone (MEK)	ND	1.1
Carbon disulfide	ND	0.3
Carbon tetrachloride	ND	0.3
Chlorobenzene	ND	0.3
Chloroethane	ND	0.5
Chloroform	ND	0.3
Chloromethane	ND	0.5
Dibromochloromethane	ND	0.3
1,1-Dichloroethane	ND	0.3
1,1-Dichloroethene	ND	0.3
trans-1,2-Dichloroethene	ND	0.3
1,2-Dichloroethane	ND	0.3
1,2-Dichloropropane	ND	0.3
cis-1,3-Dichloropropene	ND	0.3
trans-1,3-Dichloropropene	ND	0.3
Ethylbenzene	ND	0.3
2-Hexanone	ND	0.3
Methylene chloride	ND	0.3
4-Methyl-2-pentanone	ND	0.3
Styrene	ND	0.3
1,1,2,2-Tetrachloroethane	ND	0.3
Tetrachloroethene	ND	0.3
Toluene	ND	0.3
1,1,1-Trichloroethane	ND	0.3
1,1,2-Trichloroethane	ND	0.3
Trichloroethene	ND	0.3
Vinyl acetate	ND	0.3
Vinyl chloride	ND	0.3
Xylenes (total)	ND	0.3

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-9 6-7'
Laboratory ID: 0695G00475

Report Date: 03/06/95
Date Sampled: 02/02/95
Date Analyzed: 02/15/95
Time Analyzed: 10:01 PM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels		

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	88%	70 - 121%
	Toluene-d8	97%	81 - 117%
	Bromofluorobenzene	93%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.

Analyst

Review

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: NAVAJO REFINING COMPANY

Project: Truck Bypass Landfarm

Sample ID: Boring C - 9 6 - 7 '

Laboratory ID: 0695G00475

Sample Matrix: Soil

Condition: Intact

Preservative: Cool

Report Date: 02/25/95

Date Sampled: 02/02/95

Date Received: 02/03/95

Date Extracted: 02/14/95

Date Analyzed: 02/16/95

Time Analyzed: 12:15 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring C - 9 6 - 7 '
Laboratory ID: 0695G00475

Report Date: 02/25/95
Date Analyzed: 02/16/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring C - 9 6 - 7 '
Laboratory ID: 0695G00475

Report Date: 02/25/95
Date Analyzed: 02/16/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection.		

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

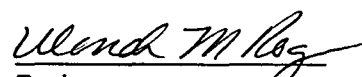
<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	49%	25 - 121%
Phenol - d5	49%	24 - 113%
Nitrobenzene - d5	42%	23 - 120%
2 - Fluorobiphenyl	45%	30 - 115%
2,4,6 - Tribromophenol	52%	19 - 122%
Terphenyl - d14	76%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:


Analyst


Review



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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING C-9 6-7'
Lab ID: 0495H01398/0695G00475
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/02/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.2 s.u.	0.1	SW-846 9045
Electrical Conductivity	4.6 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	2.1 mg/Kg	0.5	SW-846 7061A
Chromium	8 mg/Kg	1	SW-846 6010A
Lead	3 mg/Kg	1	SW-846 7421
Nickel	ND*	5 mg/Kg	SW-846 6010A
Zinc	17 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:

Gary L. Pudge
Director, Soil Laboratory



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EPA Method 8240 VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-10 1-2'
Laboratory ID: 0695G00476
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/02/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/15/95
Time Analyzed: 10:38 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	13
Benzene	ND	3
Bromodichloromethane	ND	3
Bromoform	ND	3
Bromomethane	ND	3
2-Butanone (MEK)	ND	11
Carbon disulfide	ND	3
Carbon tetrachloride	ND	3
Chlorobenzene	ND	3
Chloroethane	ND	5
Chloroform	ND	3
Chloromethane	ND	5
Dibromochloromethane	ND	3
1,1-Dichloroethane	ND	3
1,1-Dichloroethene	ND	3
trans-1,2-Dichloroethene	ND	3
1,2-Dichloroethane	ND	3
1,2-Dichloropropane	ND	3
cis-1,3-Dichloropropene	ND	3
trans-1,3-Dichloropropene	ND	3
Ethylbenzene	ND	3
2-Hexanone	ND	3
Methylene chloride	ND	3
4-Methyl-2-pentanone	ND	3
Styrene	ND	3
1,1,2,2-Tetrachloroethane	ND	3
Tetrachloroethene	ND	3
Toluene	ND	3
1,1,1-Trichloroethane	ND	3
1,1,2-Trichloroethane	ND	3
Trichloroethene	ND	3
Vinyl acetate	ND	3
Vinyl chloride	ND	3
Xylenes (total)	40	3

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-10 1-2'
Laboratory ID: 0695G00476

Report Date: 03/06/95
Date Sampled: 02/02/95
Date Analyzed: 02/15/95
Time Analyzed: 10:38 PM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	12-25	

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	1,2-Dichloroethane-d4	89%	70 - 121%
	Toluene-d8	98%	81 - 117%
	Bromofluorobenzene	94%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.

Analyst

Review

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EPA Method 8270**SEMIVOLATILE ORGANIC COMPOUNDS**

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring C - 10 1 - 2 '
Laboratory ID: 0695G00476
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/02/95
Date Received: 02/03/95
Date Extracted: 02/14/95
Date Analyzed: 02/16/95
Time Analyzed: 8:50 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	6
Acenaphthylene	ND	6
Anthracene	ND	6
Benzo(a)anthracene	ND	6
Benzo(b)fluoranthene	ND	6
Benzo(k)fluoranthene	ND	6
Benzo(g,h,i)perylene	ND	6
Benzo(a)pyrene	ND	6
Benzoic acid	ND	6
Benzyl alcohol	ND	6
Bis(2-chloroethoxy)methane	ND	6
Bis(2-chloroethyl)ether	ND	6
Bis(2-chloroisopropyl)ether	ND	6
Bis(2-ethylhexyl)phthalate	ND	15
4-Bromophenyl phenyl ether	ND	6
Butyl benzyl phthalate	ND	6
4 - Chloroaniline	ND	6
4 - Chloro - 3 - methylphenol	ND	6
2 - Chloronaphthalene	ND	6
2 - Chlorophenol	ND	6
4-Chlorophenyl phenyl ether	ND	6
Chrysene	ND	6
2 - Methylphenol	ND	6
3 & 4 - Methylphenol **	ND	6
Di - n - butylphthalate	ND	15
Dibenz(a,h)anthracene	ND	6
Dibenzofuran	ND	6
1,2 - Dichlorobenzene	ND	6
1,3 - Dichlorobenzene	ND	6
1,4 - Dichlorobenzene	ND	6
3,3 - Dichlorobenzidine	ND	6
2,4 - Dichlorophenol	ND	6
Diethyl phthalate	ND	6
2,4 - Dimethylphenol	ND	6
Dimethyl phthalate	ND	6



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring C - 10 1 - 2 '
Laboratory ID: 0695G00476

Report Date: 02/25/95
Date Analyzed: 02/16/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	15
2,4 - Dinitrophenol	ND	15
2,4 - Dinitrotoluene	ND	6
2,6 - Dinitrotoluene	ND	6
Di-n-octyl phthalate	ND	15
Fluoranthene	ND	6
Fluorene	ND	6
Hexachlorobenzene	ND	6
Hexachlorocyclopentadiene	ND	15
Hexachloroethane	ND	6
Hexachlorobutadiene	ND	6
Ideno(1,2,3-cd)pyrene	ND	6
Isophorone	ND	6
2 - Methyl naphthalene	ND	6
Naphthalene	ND	6
2 - Nitroaniline	ND	6
3 - Nitroaniline	ND	6
4 - Nitroaniline	ND	6
Nitrobenzene	ND	6
2 - Nitrophenol	ND	6
4 - Nitrophenol	ND	6
N - Nitrosodiphenylamine	ND	6
N-Nitroso-di-n-propylamine	ND	6
Pentachlorophenol	ND	15
Phenanthrene	ND	6
Phenol	ND	6
Pyrene	ND	6
1,2,4 - Trichlorobenzene	ND	6
2,4,5 - Trichlorophenol	ND	6
2,4,6 - Trichlorophenol	ND	6

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring C - 10 1 - 2 '
Laboratory ID: 0695G00476

Report Date: 02/25/95
Date Analyzed: 02/16/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	11 to 37	

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	2 - Fluorophenol	58%	25 - 121%
	Phenol - d5	64%	24 - 113%
	Nitrobenzene - d5	70%	23 - 120%
	2 - Fluorobiphenyl	84%	30 - 115%
	2,4,6 - Tribromophenol	75%	19 - 122%
	Terphenyl - d14	84%	18 - 137%

Method 3550: Sonication Extraction.

References: Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Elevated detection limit due to matrix interference.

Comments:

Ramona R. Dennis
Analyst

Wanda M. Rog
Review



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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING C-10 1-2'
Lab ID: 0495H01399/0695G00476
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/02/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.2 s.u.	0.1	SW-846 9045
Electrical Conductivity	4.1 mmhos/cm	0.1	SW-846 9050
Oil & Grease	1.9 percent	0.1	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	3.2 mg/Kg	0.5	SW-846 7061A
Chromium	22 mg/Kg	1	SW-846 6010A
Lead	12 mg/Kg	1	SW-846 7421
Nickel	14 mg/Kg	5	SW-846 6010A
Zinc	55 mg/Kg	1	SW-846 6010A

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:

Gary L. Pudge
Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-10 3-4'
Laboratory ID: 0695G00477
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/02/95
Date Received: 02/03/95
Date Extracted: 02/11/95
Date Analyzed: 02/15/95
Time Analyzed: 11:14 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	1.4
Benzene	ND	0.3
Bromodichloromethane	ND	0.3
Bromoform	ND	0.3
Bromomethane	ND	0.3
2-Butanone (MEK)	ND	1.1
Carbon disulfide	ND	0.3
Carbon tetrachloride	ND	0.3
Chlorobenzene	ND	0.3
Chloroethane	ND	0.6
Chloroform	ND	0.3
Chloromethane	ND	0.6
Dibromochloromethane	ND	0.3
1,1-Dichloroethane	ND	0.3
1,1-Dichloroethene	ND	0.3
trans-1,2-Dichloroethene	ND	0.3
1,2-Dichloroethane	ND	0.3
1,2-Dichloropropane	ND	0.3
cis-1,3-Dichloropropene	ND	0.3
trans-1,3-Dichloropropene	ND	0.3
Ethylbenzene	ND	0.3
2-Hexanone	ND	0.3
Methylene chloride	ND	0.3
4-Methyl-2-pentanone	ND	0.3
Styrene	ND	0.3
1,1,2,2-Tetrachloroethane	ND	0.3
Tetrachloroethene	ND	0.3
Toluene	ND	0.3
1,1,1-Trichloroethane	ND	0.3
1,1,2-Trichloroethane	ND	0.3
Trichloroethene	ND	0.3
Vinyl acetate	ND	0.3
Vinyl chloride	ND	0.3
Xylenes (total)	ND	0.3

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-10 3-4'
Laboratory ID: 0695G00477

Report Date: 03/06/95
Date Sampled: 02/02/95
Date Analyzed: 02/15/95
Time Analyzed: 11:14 PM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	15-26	

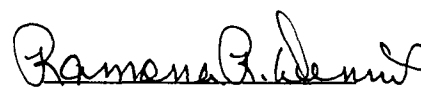
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	1,2-Dichloroethane-d4	90%	70 - 121%
	Toluene-d8	97%	81 - 117%
	Bromofluorobenzene	93%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.


Analyst


Review

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring C - 10 3 - 4 '
Laboratory ID: 0695G00477
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/02/95
Date Received: 02/03/95
Date Extracted: 02/14/95
Date Analyzed: 02/27/95
Time Analyzed: 3:52 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	4
Acenaphthylene	ND	4
Anthracene	ND	4
Benzo(a)anthracene	ND	4
Benzo(b)fluoranthene	ND	4
Benzo(k)fluoranthene	ND	4
Benzo(g,h,i)perylene	ND	4
Benzo(a)pyrene	ND	4
Benzoic acid	ND	4
Benzyl alcohol	ND	4
Bis(2-chloroethoxy)methane	ND	4
Bis(2-chloroethyl)ether	ND	4
Bis(2-chloroisopropyl)ether	ND	4
Bis(2-ethylhexyl)phthalate	ND	10
4-Bromophenyl phenyl ether	ND	4
Butyl benzyl phthalate	ND	4
4 - Chloroaniline	ND	4
4 - Chloro - 3 - methylphenol	ND	4
2 - Chloronaphthalene	ND	4
2 - Chlorophenol	ND	4
4-Chlorophenyl phenyl ether	ND	4
Chrysene	ND	4
2 - Methylphenol	ND	4
3 & 4 - Methylphenol **	ND	4
Di - n - butylphthalate	ND	10
Dibenz(a,h)anthracene	ND	4
Dibenzofuran	ND	4
1,2 - Dichlorobenzene	ND	4
1,3 - Dichlorobenzene	ND	4
1,4 - Dichlorobenzene	ND	4
3,3 - Dichlorobenzidine	ND	4
2,4 - Dichlorophenol	ND	4
Diethyl phthalate	ND	4
2,4 - Dimethylphenol	ND	4
Dimethyl phthalate	ND	4



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring C - 103 - 4 '
Laboratory ID: 0695G00477

Report Date: 02/25/95
Date Analyzed: 02/27/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	10
2,4 - Dinitrophenol	ND	10
2,4 - Dinitrotoluene	ND	4
2,6 - Dinitrotoluene	ND	4
Di-n-octyl phthalate	ND	10
Fluoranthene	ND	4
Fluorene	ND	4
Hexachlorobenzene	ND	4
Hexachlorocyclopentadiene	ND	10
Hexachloroethane	ND	4
Hexachlorobutadiene	ND	4
Ideno(1,2,3-cd)pyrene	ND	4
Isophorone	ND	4
2 - Methyl naphthalene	ND	4
Naphthalene	ND	4
2 - Nitroaniline	ND	4
3 - Nitroaniline	ND	4
4 - Nitroaniline	ND	4
Nitrobenzene	ND	4
2 - Nitrophenol	ND	4
4 - Nitrophenol	ND	4
N - Nitrosodiphenylamine	ND	4
N-Nitroso-di-n-propylamine	ND	4
Pentachlorophenol	ND	10
Phenanthrene	ND	4
Phenol	ND	4
Pyrene	ND	4
1,2,4 - Trichlorobenzene	ND	4
2,4,5 - Trichlorophenol	ND	4
2,4,6 - Trichlorophenol	ND	4

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270 SEMIVOLATILE HYDROCARBONS ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring C - 10 3 - 4 '
Laboratory ID: 0695G00477

Report Date: 02/25/95
Date Analyzed: 02/27/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon Envelope	12 to 37	

* - Concentration calculated using assumed Relative Response Factor = 1.

	Surrogate	Percent Recovery	Acceptance Limits
Quality Control:	2 - Fluorophenol	* D	25 - 121%
	Phenol - d5	* D	24 - 113%
	Nitrobenzene - d5	* D	23 - 120%
	2 - Fluorobiphenyl	* D	30 - 115%
	2,4,6 - Tribromophenol	* D	19 - 122%
	Terphenyl - d14	* D	18 - 137%

Method 3550: Sonication Extraction.

Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Orga
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
References: Environmental Protection Agency, July 1992.

Comments: * D - Surrogates diluted out of sample.

Ramona R. Dennis
Analyst

Wanda M. King
Review



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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING C-10 3-4'
Lab ID: 0495H01400/0695G00477
Matrix: Soil
Condition: Intact

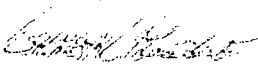
Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/02/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	7.6 s.u.	0.1	SW-846 9045
Electrical Conductivity	4.5 mmhos/cm	0.1	SW-846 9050
Oil & Grease	1.2 percent	0.1	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	4.0 mg/Kg	0.5	SW-846 7061A
Chromium	18 mg/Kg	1	SW-846 6010A
Lead	10 mg/Kg	1	SW-846 7421
Nickel	12 mg/Kg	5	SW-846 6010A
Zinc	43 mg/Kg	1	SW-846 6010A

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:



Gary L. Pudge
Director, Soil Laboratory

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-10 4-5'
Laboratory ID: 0695G00478
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/02/95
Date Received: 02/03/95
Date Extracted: 02/11/95
Date Analyzed: 02/16/95
Time Analyzed: 6:46 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	1.5
Benzene	ND	0.3
Bromodichloromethane	ND	0.3
Bromoform	ND	0.3
Bromomethane	ND	0.3
2-Butanone (MEK)	ND	1.2
Carbon disulfide	ND	0.3
Carbon tetrachloride	ND	0.3
Chlorobenzene	ND	0.3
Chloroethane	ND	0.6
Chloroform	ND	0.3
Chloromethane	ND	0.6
Dibromochloromethane	ND	0.3
1,1-Dichloroethane	ND	0.3
1,1-Dichloroethene	ND	0.3
trans-1,2-Dichloroethene	ND	0.3
1,2-Dichloroethane	ND	0.3
1,2-Dichloropropane	ND	0.3
cis-1,3-Dichloropropene	ND	0.3
trans-1,3-Dichloropropene	ND	0.3
Ethylbenzene	ND	0.3
2-Hexanone	ND	0.3
Methylene chloride	ND	0.3
4-Methyl-2-pentanone	ND	0.3
Styrene	ND	0.3
1,1,2,2-Tetrachloroethane	ND	0.3
Tetrachloroethene	ND	0.3
Toluene	ND	0.3
1,1,1-Trichloroethane	ND	0.3
1,1,2-Trichloroethane	ND	0.3
Trichloroethene	ND	0.3
Vinyl acetate	ND	0.3
Vinyl chloride	ND	0.3
Xylenes (total)	ND	0.3

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-10 4-5'
Laboratory ID: 0695G00478

Report Date: 03/06/95
Date Sampled: 02/02/95
Date Analyzed: 02/16/95
Time Analyzed: 6:46 AM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels		

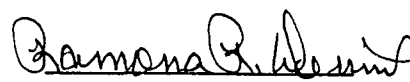
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	1,2-Dichloroethane-d4	89%	70 - 121%
	Toluene-d8	102%	81 - 117%
	Bromofluorobenzene	97%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.


Analyst


Review

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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: **Truck Bypass Landfarm**
Sample ID: **Boring C - 10 4 - 5'**
Laboratory ID: **0695G00478**
Sample Matrix: **Soil**
Condition: **Intact**
Preservative: **Cool**

Report Date: **02/25/95**
Date Sampled: **02/02/95**
Date Received: **02/03/95**
Date Extracted: **02/14/95**
Date Analyzed: **02/16/95**
Time Analyzed: **2:29 AM**

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring C - 10 4 - 5 '
Laboratory ID: 0695G00478

Report Date: 02/25/95
Date Analyzed: 02/16/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methylnaphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring C - 10 4 - 5 '
Laboratory ID: 0695G00478

Report Date: 02/25/95
Date Analyzed: 02/16/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection.		

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

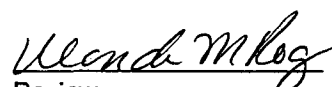
<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	44%	25 - 121%
Phenol - d5	46%	24 - 113%
Nitrobenzene - d5	45%	23 - 120%
2 - Fluorobiphenyl	52%	30 - 115%
2,4,6 - Tribromophenol	64%	19 - 122%
Terphenyl - d14	79%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:


Analyst


Review



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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING C-10 4-5'
Lab ID: 0495H01401/0695G00478
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/02/95

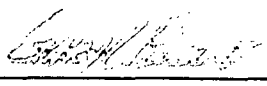
Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	7.9 s.u.	0.1	SW-846 9045
Electrical Conductivity	4.6 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	3.7 mg/Kg	0.5	SW-846 7061A
Chromium	14 mg/Kg	1	SW-846 6010A
Lead	7 mg/Kg	1	SW-846 7421
Nickel	11 mg/Kg	5	SW-846 6010A
Zinc	46 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:



Gary L. Pudge
Director, Soil Laboratory

**Inter-Mountain Laboratories, Inc.**

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-10 5-6'
Laboratory ID: 0695G00479
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/02/95
Date Received: 02/03/95
Date Extracted: 02/11/95
Date Analyzed: 02/16/95
Time Analyzed: 7:23 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	1.4
Benzene	ND	0.3
Bromodichloromethane	ND	0.3
Bromoform	ND	0.3
Bromomethane	ND	0.3
2-Butanone (MEK)	ND	1.1
Carbon disulfide	ND	0.3
Carbon tetrachloride	ND	0.3
Chlorobenzene	ND	0.3
Chloroethane	ND	0.6
Chloroform	ND	0.3
Chloromethane	ND	0.6
Dibromochloromethane	ND	0.3
1,1-Dichloroethane	ND	0.3
1,1-Dichloroethene	ND	0.3
trans-1,2-Dichloroethene	ND	0.3
1,2-Dichloroethane	ND	0.3
1,2-Dichloropropane	ND	0.3
cis-1,3-Dichloropropene	ND	0.3
trans-1,3-Dichloropropene	ND	0.3
Ethylbenzene	ND	0.3
2-Hexanone	ND	0.3
Methylene chloride	ND	0.3
4-Methyl-2-pentanone	ND	0.3
Styrene	ND	0.3
1,1,2,2-Tetrachloroethane	ND	0.3
Tetrachloroethene	ND	0.3
Toluene	ND	0.3
1,1,1-Trichloroethane	ND	0.3
1,1,2-Trichloroethane	ND	0.3
Trichloroethene	ND	0.3
Vinyl acetate	ND	0.3
Vinyl chloride	ND	0.3
Xylenes (total)	ND	0.3

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-10 5-6'
Laboratory ID: 0695G00479

Report Date: 03/06/95
Date Sampled: 02/02/95
Date Analyzed: 02/16/95
Time Analyzed: 7:23 AM

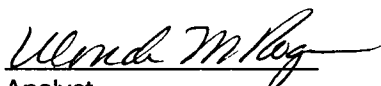
Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels		

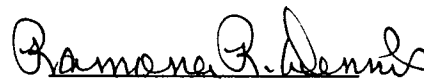
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	1,2-Dichloroethane-d4	92%	70 - 121%
	Toluene-d8	102%	81 - 117%
	Bromofluorobenzene	98%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.


Analyst


Review



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EPA Method 8270 SEMIVOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project: Truck Bypass Landfarm
Sample ID: Boring C - 10 5 - 6 '
Laboratory ID: 0695G00479
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/02/95
Date Received: 02/03/95
Date Extracted: 02/14/95
Date Analyzed: 02/16/95
Time Analyzed: 10:20 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Boring C - 10 5 - 6 '
Laboratory ID: 0695G00479

Report Date: 02/25/95
Date Analyzed: 02/16/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methylnaphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring C - 10 5 - 6 '
Laboratory ID: 0695G00479

Report Date: 02/25/95
Date Analyzed: 02/16/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
Hydrocarbon envelope	17 to 37	

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	47%	25 - 121%
Phenol - d5	52%	24 - 113%
Nitrobenzene - d5	54%	23 - 120%
2 - Fluorobiphenyl	69%	30 - 115%
2,4,6 - Tribromophenol	77%	19 - 122%
Terphenyl - d14	79%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:

Analyst

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EPA Method 8240 VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-10 6-7'
Laboratory ID: 0695G00480
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/02/95
Date Received: 02/03/95
Date Extracted: 02/11/95
Date Analyzed: 02/16/95
Time Analyzed: 8:01 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	1.5
Benzene	ND	0.3
Bromodichloromethane	ND	0.3
Bromoform	ND	0.3
Bromomethane	ND	0.3
2-Butanone (MEK)	ND	1.2
Carbon disulfide	ND	0.3
Carbon tetrachloride	ND	0.3
Chlorobenzene	ND	0.3
Chloroethane	ND	0.6
Chloroform	ND	0.3
Chloromethane	ND	0.6
Dibromochloromethane	ND	0.3
1,1-Dichloroethane	ND	0.3
1,1-Dichloroethene	ND	0.3
trans-1,2-Dichloroethene	ND	0.3
1,2-Dichloroethane	ND	0.3
1,2-Dichloropropane	ND	0.3
cis-1,3-Dichloropropene	ND	0.3
trans-1,3-Dichloropropene	ND	0.3
Ethylbenzene	ND	0.3
2-Hexanone	ND	0.3
Methylene chloride	ND	0.3
4-Methyl-2-pentanone	ND	0.3
Styrene	ND	0.3
1,1,1,2-Tetrachloroethane	ND	0.3
Tetrachloroethene	ND	0.3
Toluene	ND	0.3
1,1,1-Trichloroethane	ND	0.3
1,1,2-Trichloroethane	ND	0.3
Trichloroethene	ND	0.3
Vinyl acetate	ND	0.3
Vinyl chloride	ND	0.3
Xylenes (total)	ND	0.3

ND - Analyte not detected at stated limit of detection

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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-10 6-7'
Laboratory ID: 0695G00480
Sample Matrix: Soil
Preservative: Cool
Condition: Intact

Report Date: 03/06/95
Date Sampled: 02/02/95
Date Received: 02/03/95
Date Extracted: 02/11/95
Date Analyzed: 02/16/95
Time Analyzed: 8:01 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	ND	1.5
Benzene	ND	0.3
Bromodichloromethane	ND	0.3
Bromoform	ND	0.3
Bromomethane	ND	0.3
2-Butanone (MEK)	ND	1.2
Carbon disulfide	ND	0.3
Carbon tetrachloride	ND	0.3
Chlorobenzene	ND	0.3
Chloroethane	ND	0.6
Chloroform	ND	0.3
Chloromethane	ND	0.6
Dibromochloromethane	ND	0.3
1,1-Dichloroethane	ND	0.3
1,1-Dichloroethene	ND	0.3
trans-1,2-Dichloroethene	ND	0.3
1,2-Dichloroethane	ND	0.3
1,2-Dichloropropane	ND	0.3
cis-1,3-Dichloropropene	ND	0.3
trans-1,3-Dichloropropene	ND	0.3
Ethylbenzene	ND	0.3
2-Hexanone	ND	0.3
Methylene chloride	ND	0.3
4-Methyl-2-pentanone	ND	0.3
Styrene	ND	0.3
1,1,2,2-Tetrachloroethane	ND	0.3
Tetrachloroethene	ND	0.3
Toluene	ND	0.3
1,1,1-Trichloroethane	ND	0.3
1,1,2-Trichloroethane	ND	0.3
Trichloroethene	ND	0.3
Vinyl acetate	ND	0.3
Vinyl chloride	ND	0.3
Xylenes (total)	ND	0.3

ND - Analyte not detected at stated limit of detection



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EPA Method 8240
VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Client: **NAVAJO REFINING COMPANY**
Project : Truck Bypass Landfarm
Sample ID: Boring C-10 6-7'
Laboratory ID: 0695G00480

Report Date: 03/06/95
Date Sampled: 02/02/95
Date Analyzed: 02/16/95
Time Analyzed: 8:01 AM

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported detection levels		

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	95%	70 - 121%
	Toluene-d8	101%	81 - 117%
	Bromofluorobenzene	98%	74 - 121%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.
Sample results are calculated on a dry weight basis.


Analyst


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EPA Method 8270**SEMIVOLATILE ORGANIC COMPOUNDS**

Client: **NAVAJO REFINING COMPANY**

Project: Truck Bypass Landfarm

Sample ID: Boring C - 10 6 - 7 '

Laboratory ID: 0695G00480

Sample Matrix: Soil

Condition: Intact

Preservative: Cool

Report Date: 02/25/95

Date Sampled: 02/02/95

Date Received: 02/03/95

Date Extracted: 02/14/95

Date Analyzed: 02/16/95

Time Analyzed: 3:58 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5

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Page 2

SEMIVOLATILE ORGANIC COMPOUNDS (cont)Sample ID: Boring C - 10 6 - 7 '
Laboratory ID: 0695G00480Report Date: 02/25/95
Date Analyzed: 02/16/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Boring C - 10 6 - 7 '
Laboratory ID: 0695G00480

Report Date: 02/25/95
Date Analyzed: 02/16/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection.		

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

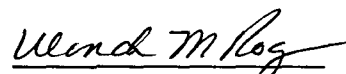
<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	49%	25 - 121%
Phenol - d5	56%	24 - 113%
Nitrobenzene - d5	58%	23 - 120%
2 - Fluorobiphenyl	68%	30 - 115%
2,4,6 - Tribromophenol	68%	19 - 122%
Terphenyl - d14	76%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:


Analyst


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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING C-10 6-7'
Lab ID: 0495H01403/0695G00480
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/02/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.2 s.u.	0.1	SW-846 9045
Electrical Conductivity	4.1 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	1.6 mg/Kg	0.5	SW-846 7061A
Chromium	5 mg/Kg	1	SW-846 6010A
Lead	2 mg/Kg	1	SW-846 7421
Nickel	ND*	5 mg/Kg	SW-846 6010A
Zinc	23 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:



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Director, Soil Laboratory



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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BACKGROUND 1-2'
Lab ID: 0495H01404/0695G00528
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/02/95

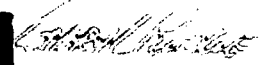
Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.0 s.u.	0.1	SW-846 9045
Electrical Conductivity	5.4 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	4.2 mg/Kg	0.5	SW-846 7061A
Chromium	28 mg/Kg	1	SW-846 6010A
Lead	23 mg/Kg	14	SW-846 6010A
Nickel	20 mg/Kg	5	SW-846 6010A
Zinc	83 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BACKGROUND 5-6'
Lab ID: 0495H01405/0695G00529
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/02/95

Parameter	Concentration	PQL	Method
Inorganic Characterization			
pH	8.3 s.u.	0.1	SW-846 9045
Electrical Conductivity	8.1 mmhos/cm	0.1	SW-846 9050
Oil & Grease	ND*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals			
Arsenic	3.1 mg/Kg	0.5	SW-846 7061A
Chromium	16 mg/Kg	1	SW-846 6010A
Lead	8 mg/Kg	1	SW-846 7421
Nickel	9 mg/Kg	5	SW-846 6010A
Zinc	53 mg/Kg	1	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

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QUALITY CONTROL REPORT - METHOD BLANK
EPA METHOD 8240 VOLATILE ORGANIC COMPOUNDS

Sample ID: Method Blank
Laboratory ID: MB0209
Sample Matrix: Water

Report Date: 03/06/95
Date Extracted: 02/09/95
Date Analyzed: 02/09/95
Time Analyzed: 11:38 PM

Analyte	Concentration (mg/L)	Detection Limit (mg/L)
Acetone	ND	0.025
Benzene	ND	0.005
Bromodichloromethane	ND	0.005
Bromoform	ND	0.005
Bromomethane	ND	0.005
2-Butanone (MEK)	ND	0.005
Carbon disulfide	ND	0.005
Carbon tetrachloride	ND	0.005
Chlorobenzene	ND	0.005
Chloroethane	ND	0.010
Chloroform	ND	0.005
Chloromethane	ND	0.010
Dibromochloromethane	ND	0.005
1,1-Dichloroethane	ND	0.005
1,1-Dichloroethene	ND	0.005
trans-1,2-Dichloroethene	ND	0.005
1,2-Dichloroethane	ND	0.005
1,2-Dichloropropane	ND	0.005
cis-1,3-Dichloropropene	ND	0.005
trans-1,3-Dichloropropene	ND	0.005
Ethylbenzene	ND	0.005
2-Hexanone	ND	0.005
Methylene chloride	ND	0.005
4-Methyl-2-pentanone	ND	0.005
Styrene	ND	0.005
1,1,2,2-Tetrachloroethane	ND	0.005
Tetrachloroethene	ND	0.005
Toluene	ND	0.005
1,1,1-Trichloroethane	ND	0.005
1,1,2-Trichloroethane	ND	0.005
Trichloroethene	ND	0.005
Vinyl acetate	ND	0.005
Vinyl chloride	ND	0.005
Xylenes (total)	ND	0.005

ND - Analyte not detected at stated limit of detection



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QUALITY CONTROL REPORT - METHOD BLANK
EPA METHOD 8240 VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Sample ID: Method Blank
Laboratory ID: MB0209
Sample Matrix: Water

Report Date: 03/06/95
Date Extracted: 02/09/95
Date Analyzed: 02/09/95
Time Analyzed: 11:38 PM

Tentative Identification	Retention Time (Minutes)	Concentration (mg/L) *
None detected at reportable levels		

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	103%	76 - 114%
	Toluene-d8	99%	88 - 110%
	Bromofluorobenzene	103%	86 - 115%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.

Analyst

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QUALITY CONTROL REPORT - METHOD BLANK
EPA METHOD 8240 VOLATILE ORGANIC COMPOUNDS

Sample ID: Method Blank
Laboratory ID: MB0215
Sample Matrix: Water

Report Date: 03/06/95
Date Extracted: 02/15/95
Date Analyzed: 02/15/95
Time Analyzed: 6:03 AM

Analyte	Concentration (mg/L)	Detection Limit (mg/L)
Acetone	ND	0.025
Benzene	ND	0.005
Bromodichloromethane	ND	0.005
Bromoform	ND	0.005
Bromomethane	ND	0.005
2-Butanone (MEK)	ND	0.005
Carbon disulfide	ND	0.005
Carbon tetrachloride	ND	0.005
Chlorobenzene	ND	0.005
Chloroethane	ND	0.010
Chloroform	ND	0.005
Chloromethane	ND	0.010
Dibromochloromethane	ND	0.005
1,1-Dichloroethane	ND	0.005
1,1-Dichloroethene	ND	0.005
trans-1,2-Dichloroethene	ND	0.005
1,2-Dichloroethane	ND	0.005
1,2-Dichloropropane	ND	0.005
cis-1,3-Dichloropropene	ND	0.005
trans-1,3-Dichloropropene	ND	0.005
Ethylbenzene	ND	0.005
2-Hexanone	ND	0.005
Methylene chloride	ND	0.005
4-Methyl-2-pentanone	ND	0.005
Styrene	ND	0.005
1,1,2,2-Tetrachloroethane	ND	0.005
Tetrachloroethene	ND	0.005
Toluene	ND	0.005
1,1,1-Trichloroethane	ND	0.005
1,1,2-Trichloroethane	ND	0.005
Trichloroethene	ND	0.005
Vinyl acetate	ND	0.005
Vinyl chloride	ND	0.005
Xylenes (total)	ND	0.005

ND - Analyte not detected at stated limit of detection



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QUALITY CONTROL REPORT - METHOD BLANK
EPA METHOD 8240 VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Sample ID: Method Blank
Laboratory ID: MB0215
Sample Matrix: Water

Report Date: 03/06/95
Date Extracted: 02/15/95
Date Analyzed: 02/15/95
Time Analyzed: 6:03 AM

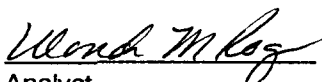
Tentative Identification	Retention Time (Minutes)	Concentration (mg/L) *
None detected at reportable levels		

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	85%	76 - 114%
	Toluene-d8	103%	88 - 110%
	Bromofluorobenzene	105%	86 - 115%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.


Analyst


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QUALITY CONTROL REPORT - METHOD BLANK
EPA METHOD 8240 VOLATILE ORGANIC COMPOUNDS

Sample ID: Method Blank
Laboratory ID: MB0215B
Sample Matrix: Water

Report Date: 03/06/95
Date Extracted: 02/15/95
Date Analyzed: 02/15/95
Time Analyzed: 5:59 PM

Analyte	Concentration (mg/L)	Detection Limit (mg/L)
Acetone	ND	0.025
Benzene	ND	0.005
Bromodichloromethane	ND	0.005
Bromoform	ND	0.005
Bromomethane	ND	0.005
2-Butanone (MEK)	ND	0.005
Carbon disulfide	ND	0.005
Carbon tetrachloride	ND	0.005
Chlorobenzene	ND	0.005
Chloroethane	ND	0.010
Chloroform	ND	0.005
Chloromethane	ND	0.010
Dibromochloromethane	ND	0.005
1,1-Dichloroethane	ND	0.005
1,1-Dichloroethene	ND	0.005
trans-1,2-Dichloroethene	ND	0.005
1,2-Dichloroethane	ND	0.005
1,2-Dichloropropane	ND	0.005
cis-1,3-Dichloropropene	ND	0.005
trans-1,3-Dichloropropene	ND	0.005
Ethylbenzene	ND	0.005
2-Hexanone	ND	0.005
Methylene chloride	ND	0.005
4-Methyl-2-pentanone	ND	0.005
Styrene	ND	0.005
1,1,2,2-Tetrachloroethane	ND	0.005
Tetrachloroethene	ND	0.005
Toluene	ND	0.005
1,1,1-Trichloroethane	ND	0.005
1,1,2-Trichloroethane	ND	0.005
Trichloroethene	ND	0.005
Vinyl acetate	ND	0.005
Vinyl chloride	ND	0.005
Xylenes (total)	ND	0.005

ND - Analyte not detected at stated limit of detection

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QUALITY CONTROL REPORT - METHOD BLANK
EPA METHOD 8240 VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Sample ID: Method Blank
Laboratory ID: MB0215B
Sample Matrix: Water

Report Date: 03/06/95
Date Extracted: 02/15/95
Date Analyzed: 02/15/95
Time Analyzed: 5:59 PM

Tentative Identification	Retention Time (Minutes)	Concentration (mg/L) *
None detected at reportable levels		

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	1,2-Dichloroethane-d4	87%	76 - 114%
	Toluene-d8	101%	88 - 110%
	Bromofluorobenzene	99%	86 - 115%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.

Analyst

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QUALITY CONTROL REPORT - METHOD BLANK EPA METHOD 8240 VOLATILE ORGANIC COMPOUNDS

Sample ID: Method Blank
Laboratory ID: MB0216
Sample Matrix: Water

Report Date: 03/06/95
Date Extracted: 02/16/95
Date Analyzed: 02/16/95
Time Analyzed: 6:10 AM

Analyte	Concentration (mg/L)	Detection Limit (mg/L)
Acetone	ND	0.025
Benzene	ND	0.005
Bromodichloromethane	ND	0.005
Bromoform	ND	0.005
Bromomethane	ND	0.005
2-Butanone (MEK)	ND	0.005
Carbon disulfide	ND	0.005
Carbon tetrachloride	ND	0.005
Chlorobenzene	ND	0.005
Chloroethane	ND	0.010
Chloroform	ND	0.005
Chloromethane	ND	0.010
Dibromochloromethane	ND	0.005
1,1-Dichloroethane	ND	0.005
1,1-Dichloroethene	ND	0.005
trans-1,2-Dichloroethene	ND	0.005
1,2-Dichloroethane	ND	0.005
1,2-Dichloropropane	ND	0.005
cis-1,3-Dichloropropene	ND	0.005
trans-1,3-Dichloropropene	ND	0.005
Ethylbenzene	ND	0.005
2-Hexanone	ND	0.005
Methylene chloride	ND	0.005
4-Methyl-2-pentanone	ND	0.005
Styrene	ND	0.005
1,1,2,2-Tetrachloroethane	ND	0.005
Tetrachloroethene	ND	0.005
Toluene	ND	0.005
1,1,1-Trichloroethane	ND	0.005
1,1,2-Trichloroethane	ND	0.005
Trichloroethene	ND	0.005
Vinyl acetate	ND	0.005
Vinyl chloride	ND	0.005
Xylenes (total)	ND	0.005

ND - Analyte not detected at stated limit of detection



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QUALITY CONTROL REPORT - METHOD BLANK
EPA METHOD 8240 VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Page 2

Sample ID: Method Blank
Laboratory ID: MB0216
Sample Matrix: Water

Report Date: 03/06/95
Date Extracted: 02/16/95
Date Analyzed: 02/16/95
Time Analyzed: 6:10 AM

Tentative Identification	Retention Time (Minutes)	Concentration (mg/L) *
None detected at reportable levels.		

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1,2-Dichloroethane-d4	85%	76 - 114%
	Toluene-d8	100%	88 - 110%
	Bromofluorobenzene	97%	86 - 115%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.


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QUALITY CONTROL REPORT - MATRIX SPIKE / SPIKE DUPLICATE ANALYSIS

EPA Method 8240 - VOLATILE ORGANICS

Laboratory ID: 0695G00442 Matrix Spike and Spike Duplicate Report Date: 03/06/95
Sample Matrix: Soil Date Sampled: NA
Preservative: Cool Date Received: NA
Condition: Intact Date Analyzed: 02/09/95
Time Analyzed: 6:37 AM/7:14 AM

MATRIX SPIKE ANALYSIS

Analyte	Spiked Sample Result (mg/Kg)	Sample esuKgt (mg/K)	Spike Added (mg/Kg)	Percent Recovery	QC Limits Recovery
1,1 - Dichloroethene	0.161	ND	0.118	137%	61 - 145
Trichloroethene	0.142	ND	0.118	121%	71 - 120
Benzene	0.144	ND	0.118	122%	76 - 127
Toluene	0.140	ND	0.118	119%	76 - 125
Chlorobenzene	0.133	ND	0.118	113%	75 - 130

MATRIX SPIKE DUPLICATE ANALYSIS

Analyte	Duplicate Result (mg/Kg)	Percent Recovery	Original Spike Result (mg/Kg)	RPD	QC Limits RPD	Rec.
1,1 - Dichloroethene	0.160	134%	137%	2%	14%	61 - 145
Trichloroethene	0.141	118%	121%	2%	14%	71 - 120
Benzene	0.145	122%	122%	0%	11%	76 - 127
Toluene	0.143	120%	119%	1%	13%	76 - 125
Chlorobenzene	0.136	114%	113%	1%	13%	75 - 130

ND - Analyte not detected at stated limit of detection

Spike Recovery: 0 out of 10 outside QC Limits
RPD: 0 out of 5 outside QC Limits

Quality Control:	<u>Surrogate</u>	<u>Spike Recovery</u>	<u>Duplicate Recovery</u>	<u>Recovery Limits</u>
	1,4-Dichloroethane-d4	107%	107%	76 - 114%
	Toluene-d8	99%	101%	88 - 110%
	Bromofluorobenzene	97%	96%	86 - 115%

Reference: Method 8240A: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Waste, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments: A capillary column is used instead of a packed column as in the reference above.

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QUALITY CONTROL REPORT - METHOD BLANK

EPA Method 8270

SEMIVOLATILE ORGANIC COMPOUNDS

Sample ID: Method Blank
Laboratory ID: MB088
Sample Matrix: Solid

Report Date: 02/25/95
Date Extracted: 02/13/95
Date Analyzed: 02/14/95
Time Analyzed: 6:35 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Method Blank
Laboratory ID: MB088

Report Date: 02/25/95
Date Analyzed: 02/14/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Method Blank
Laboratory ID: MB088

Report Date: 02/25/95
Date Analyzed: 02/14/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection.		

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

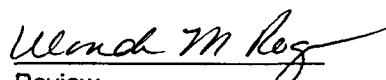
<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	50%	25 - 121%
Phenol - d5	53%	24 - 113%
Nitrobenzene - d5	48%	23 - 120%
2 - Fluorobiphenyl	52%	30 - 115%
2,4,6 - Tribromophenol	56%	19 - 122%
Terphenyl - d14	80%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:


Analyst


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QUALITY CONTROL REPORT - METHOD BLANK

EPA Method 8270 SEMIVOLATILE ORGANIC COMPOUNDS

Sample ID: Method Blank
Laboratory ID: MB089
Sample Matrix: Solid

Report Date: 02/25/95
Date Extracted: 02/13/95
Date Analyzed: 02/17/95
Time Analyzed: 4:59 PM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Method Blank
Laboratory ID: MB089

Report Date: 02/25/95
Date Analyzed: 02/17/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Method Blank
Laboratory ID: MB089

Report Date: 02/25/95
Date Analyzed: 02/17/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection.		

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

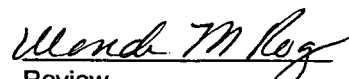
<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	49%	25 - 121%
Phenol - d5	50%	24 - 113%
Nitrobenzene - d5	50%	23 - 120%
2 - Fluorobiphenyl	45%	30 - 115%
2,4,6 - Tribromophenol	49%	19 - 122%
Terphenyl - d14	77%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:


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QUALITY CONTROL REPORT - METHOD BLANK

EPA Method 8270 SEMIVOLATILE ORGANIC COMPOUNDS

Sample ID: Method Blank
Laboratory ID: MB092
Sample Matrix: Solid

Report Date: 02/25/95
Date Extracted: 02/14/95
Date Analyzed: 02/18/95
Time Analyzed: 6:38 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270

Page 2

SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Sample ID: Method Blank
Laboratory ID: MB092

Report Date: 02/25/95
Date Analyzed: 02/18/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Method Blank
Laboratory ID: MB092

Report Date: 02/25/95
Date Analyzed: 02/18/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection.		

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

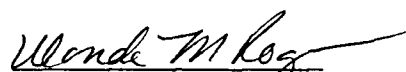
<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	47%	25 - 121%
Phenol - d5	49%	24 - 113%
Nitrobenzene - d5	55%	23 - 120%
2 - Fluorobiphenyl	56%	30 - 115%
2,4,6 - Tribromophenol	55%	19 - 122%
Terphenyl - d14	83%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:


Analyst


Review



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QUALITY CONTROL REPORT - METHOD BLANK

EPA Method 8270 SEMIVOLATILE ORGANIC COMPOUNDS

Sample ID: Method Blank
Laboratory ID: MB093
Sample Matrix: Solid

Report Date: 02/25/95
Date Extracted: 02/14/95
Date Analyzed: 02/18/95
Time Analyzed: 7:22 AM

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acenaphthene	ND	0.5
Acenaphthylene	ND	0.5
Anthracene	ND	0.5
Benzo(a)anthracene	ND	0.5
Benzo(b)fluoranthene	ND	0.5
Benzo(k)fluoranthene	ND	0.5
Benzo(g,h,i)perylene	ND	0.5
Benzo(a)pyrene	ND	0.5
Benzoic acid	ND	0.5
Benzyl alcohol	ND	0.5
Bis(2-chloroethoxy)methane	ND	0.5
Bis(2-chloroethyl)ether	ND	0.5
Bis(2-chloroisopropyl)ether	ND	0.5
Bis(2-ethylhexyl)phthalate	ND	1.3
4-Bromophenyl phenyl ether	ND	0.5
Butyl benzyl phthalate	ND	0.5
4 - Chloroaniline	ND	0.5
4 - Chloro - 3 - methylphenol	ND	0.5
2 - Chloronaphthalene	ND	0.5
2 - Chlorophenol	ND	0.5
4-Chlorophenyl phenyl ether	ND	0.5
Chrysene	ND	0.5
2 - Methylphenol	ND	0.5
3 & 4 - Methylphenol **	ND	0.5
Di - n - butylphthalate	ND	1.3
Dibenz(a,h)anthracene	ND	0.5
Dibenzofuran	ND	0.5
1,2 - Dichlorobenzene	ND	0.5
1,3 - Dichlorobenzene	ND	0.5
1,4 - Dichlorobenzene	ND	0.5
3,3 - Dichlorobenzidine	ND	0.5
2,4 - Dichlorophenol	ND	0.5
Diethyl phthalate	ND	0.5
2,4 - Dimethylphenol	ND	0.5
Dimethyl phthalate	ND	0.5



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Method Blank
Laboratory ID: MB093

Report Date: 02/25/95
Date Analyzed: 02/18/95

Analyte	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4,6 - Dinitro -2- methylphenol	ND	1.3
2,4 - Dinitrophenol	ND	1.3
2,4 - Dinitrotoluene	ND	0.5
2,6 - Dinitrotoluene	ND	0.5
Di-n-octyl phthalate	ND	1.3
Fluoranthene	ND	0.5
Fluorene	ND	0.5
Hexachlorobenzene	ND	0.5
Hexachlorocyclopentadiene	ND	1.3
Hexachloroethane	ND	0.5
Hexachlorobutadiene	ND	0.5
Ideno(1,2,3-cd)pyrene	ND	0.5
Isophorone	ND	0.5
2 - Methyl naphthalene	ND	0.5
Naphthalene	ND	0.5
2 - Nitroaniline	ND	0.5
3 - Nitroaniline	ND	0.5
4 - Nitroaniline	ND	0.5
Nitrobenzene	ND	0.5
2 - Nitrophenol	ND	0.5
4 - Nitrophenol	ND	0.5
N - Nitrosodiphenylamine	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.5
Pentachlorophenol	ND	1.3
Phenanthrene	ND	0.5
Phenol	ND	0.5
Pyrene	ND	0.5
1,2,4 - Trichlorobenzene	ND	0.5
2,4,5 - Trichlorophenol	ND	0.5
2,4,6 - Trichlorophenol	ND	0.5

ND - Analyte not detected at stated limit of detection

** - Compounds coelute by GCMS.

J - Meets identification criteria, below detection limit.

B - Compound detected in Method Blank.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: Method Blank
Laboratory ID: MB093

Report Date: 02/25/95
Date Analyzed: 02/18/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection.		

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	54%	25 - 121%
Phenol - d5	56%	24 - 113%
Nitrobenzene - d5	64%	23 - 120%
2 - Fluorobiphenyl	66%	30 - 115%
2,4,6 - Tribromophenol	66%	19 - 122%
Terphenyl - d14	87%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:

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QUALITY CONTROL REPORT - MATRIX DUPLICATE**EPA Method 8270****SEMIVOLATILE ORGANIC COMPOUNDS**

Sample ID: Matrix Duplicate
Laboratory ID: 0695G00442
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/17/95
Time Analyzed: 5:16 AM

Analyte	Initial Sample Concentration (mg/Kg)	Duplicate Concentration (mg/Kg)	Relative Percent Difference
Acenaphthene	ND	ND	NA
Acenaphthylene	ND	ND	NA
Anthracene	ND	ND	NA
Benzo(a)anthracene	ND	ND	NA
Benzo(b)fluoranthene	ND	ND	NA
Benzo(k)fluoranthene	ND	ND	NA
Benzo(g,h,i)perylene	ND	ND	NA
Benzo(a)pyrene	ND	ND	NA
Benzoic acid	ND	ND	NA
Benzyl alcohol	ND	ND	NA
Bis(2-chloroethoxy)methane	ND	ND	NA
Bis(2-chloroethyl)ether	ND	ND	NA
Bis(2-chloroisopropyl)ether	ND	ND	NA
Bis(2-ethylhexyl)phthalate	ND	ND	NA
4-Bromophenyl phenyl ether	ND	ND	NA
Butyl benzyl phthalate	ND	ND	NA
4 - Chloroaniline	ND	ND	NA
4 - Chloro - 3 - methylphenol	ND	ND	NA
2 - Chloronaphthalene	ND	ND	NA
2 - Chlorophenol	ND	ND	NA
4-Chlorophenyl phenyl ether	ND	ND	NA
Chrysene	ND	ND	NA
2 - Methylphenol	ND	ND	NA
3 & 4 - Methylphenol **	ND	ND	NA
Di - n - butylphthalate	ND	ND	NA
Dibenz(a,h)anthracene	ND	ND	NA
Dibenzofuran	ND	ND	NA
1,2 - Dichlorobenzene	ND	ND	NA
1,3 - Dichlorobenzene	ND	ND	NA
1,4 - Dichlorobenzene	ND	ND	NA
3,3 - Dichlorobenzidine	ND	ND	NA
2,4 - Dichlorophenol	ND	ND	NA
Diethyl phthalate	ND	ND	NA
2,4 - Dimethylphenol	ND	ND	NA
Dimethyl phthalate	ND	ND	NA



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Matrix Duplicate
Laboratory ID: 0695G00442

Report Date: 02/25/95
Date Analyzed: 02/17/95

Analyte	Initial Sample Concentration (mg/Kg)	Duplicate Concentration (mg/Kg)	Relative Percent Difference
4,6 - Dinitro -2- methylphenol	ND	ND	NA
2,4 - Dinitrophenol	ND	ND	NA
2,4 - Dinitrotoluene	ND	ND	NA
2,6 - Dinitrotoluene	ND	ND	NA
Di-n-octyl phthalate	ND	ND	NA
Fluoranthene	ND	ND	NA
Fluorene	ND	ND	NA
Hexachlorobenzene	ND	ND	NA
Hexachlorocyclopentadiene	ND	ND	NA
Hexachloroethane	ND	ND	NA
Hexachlorobutadiene	ND	ND	NA
Ideno(1,2,3-cd)pyrene	ND	ND	NA
Isophorone	ND	ND	NA
2 - Methyl naphthalene	ND	ND	NA
Naphthalene	ND	ND	NA
2 - Nitroaniline	ND	ND	NA
3 - Nitroaniline	ND	ND	NA
4 - Nitroaniline	ND	ND	NA
Nitrobenzene	ND	ND	NA
2 - Nitrophenol	ND	ND	NA
4 - Nitrophenol	ND	ND	NA
N - Nitrosodiphenylamine	ND	ND	NA
N-Nitroso-di-n-propylamine	ND	ND	NA
Pentachlorophenol	ND	ND	NA
Phenanthrene	ND	ND	NA
Phenol	ND	ND	NA
Pyrene	ND	ND	NA
1,2,4 - Trichlorobenzene	ND	ND	NA
2,4,5 - Trichlorophenol	ND	ND	NA
2,4,6 - Trichlorophenol	ND	ND	NA

ND - Analyte not detected at stated limit of detection.

** - Compounds coelute by GCMS.

NA - Parameter not calculated or undefined.

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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: 0695G00442
Laboratory ID: Soil

Report Date: 02/25/95
Date Analyzed: 02/17/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection.		

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

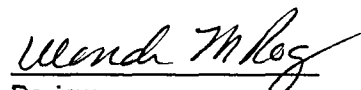
<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	48%	25 - 121%
Phenol - d5	53%	24 - 113%
Nitrobenzene - d5	55%	23 - 120%
2 - Fluorobiphenyl	65%	30 - 115%
2,4,6 - Tribromophenol	63%	19 - 122%
Terphenyl - d14	37%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:


Analyst


Review

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QUALITY CONTROL REPORT - MATRIX DUPLICATE**EPA Method 8270****SEMIVOLATILE ORGANIC COMPOUNDS**

Sample ID: Matrix Duplicate
Laboratory ID: 0695G00452
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/17/95
Time Analyzed: 9:31 PM

Analyte	Initial Sample Concentration (mg/Kg)	Duplicate Concentration (mg/Kg)	Relative Percent Difference
Acenaphthene	ND	ND	NA
Acenaphthylene	ND	ND	NA
Anthracene	ND	ND	NA
Benzo(a)anthracene	ND	ND	NA
Benzo(b)fluoranthene	ND	ND	NA
Benzo(k)fluoranthene	ND	ND	NA
Benzo(g,h,i)perylene	ND	ND	NA
Benzo(a)pyrene	ND	ND	NA
Benzoic acid	ND	ND	NA
Benzyl alcohol	ND	ND	NA
Bis(2-chloroethoxy)methane	ND	ND	NA
Bis(2-chloroethyl)ether	ND	ND	NA
Bis(2-chloroisopropyl)ether	ND	ND	NA
Bis(2-ethylhexyl)phthalate	ND	ND	NA
4-Bromophenyl phenyl ether	ND	ND	NA
Butyl benzyl phthalate	ND	ND	NA
4 - Chloroaniline	ND	ND	NA
4 - Chloro - 3 - methylphenol	ND	ND	NA
2 - Chloronaphthalene	ND	ND	NA
2 - Chlorophenol	ND	ND	NA
4-Chlorophenyl phenyl ether	ND	ND	NA
Chrysene	ND	ND	NA
2 - Methylphenol	ND	ND	NA
3 & 4 - Methylphenol **	ND	ND	NA
Di - n - butylphthalate	ND	ND	NA
Dibenz(a,h)anthracene	ND	ND	NA
Dibenzofuran	ND	ND	NA
1,2 - Dichlorobenzene	ND	ND	NA
1,3 - Dichlorobenzene	ND	ND	NA
1,4 - Dichlorobenzene	ND	ND	NA
3,3 - Dichlorobenzidine	ND	ND	NA
2,4 - Dichlorophenol	ND	ND	NA
Diethyl phthalate	ND	ND	NA
2,4 - Dimethylphenol	ND	ND	NA
Dimethyl phthalate	ND	ND	NA



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EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Sample ID: Matrix Duplicate
Laboratory ID: 0695G00452

Report Date: 02/25/95
Date Analyzed: 02/17/95

Analyte	Initial Sample Concentration (mg/Kg)	Duplicate Concentration (mg/Kg)	Relative Percent Difference
4,6 - Dinitro -2- methylphenol	ND	ND	NA
2,4 - Dinitrophenol	ND	ND	NA
2,4 - Dinitrotoluene	ND	ND	NA
2,6 - Dinitrotoluene	ND	ND	NA
Di-n-octyl phthalate	ND	ND	NA
Fluoranthene	ND	ND	NA
Fluorene	ND	ND	NA
Hexachlorobenzene	ND	ND	NA
Hexachlorocyclopentadiene	ND	ND	NA
Hexachloroethane	ND	ND	NA
Hexachlorobutadiene	ND	ND	NA
Ideno(1,2,3-cd)pyrene	ND	ND	NA
Isophorone	ND	ND	NA
2 - Methyl naphthalene	ND	ND	NA
Naphthalene	ND	ND	NA
2 - Nitroaniline	ND	ND	NA
3 - Nitroaniline	ND	ND	NA
4 - Nitroaniline	ND	ND	NA
Nitrobenzene	ND	ND	NA
2 - Nitrophenol	ND	ND	NA
4 - Nitrophenol	ND	ND	NA
N - Nitrosodiphenylamine	ND	ND	NA
N-Nitroso-di-n-propylamine	ND	ND	NA
Pentachlorophenol	ND	ND	NA
Phenanthrene	ND	ND	NA
Phenol	ND	ND	NA
Pyrene	ND	ND	NA
1,2,4 - Trichlorobenzene	ND	ND	NA
2,4,5 - Trichlorophenol	ND	ND	NA
2,4,6 - Trichlorophenol	ND	ND	NA

ND - Analyte not detected at stated limit of detection.

** - Compounds coelute by GCMS.

NA - Parameter not calculated or undefined.



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EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Sample ID: 0695G00452
Laboratory ID: Soil

Report Date: 02/25/95
Date Analyzed: 02/17/95

Tentative Identification	Retention Time (Minutes)	Concentration* (mg/Kg)
None detected at reported limits of detection.		

* - Concentration calculated using assumed Relative Response Factor = 1.

Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	58%	25 - 121%
Phenol - d5	61%	24 - 113%
Nitrobenzene - d5	63%	23 - 120%
2 - Fluorobiphenyl	76%	30 - 115%
2,4,6 - Tribromophenol	73%	19 - 122%
Terphenyl - d14	84%	18 - 137%

References:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:

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Analyst

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QUALITY CONTROL REPORT - MATRIX SPIKE

EPA Method 8270

SEMIVOLATILE ORGANIC COMPOUNDS

Sample ID: Matrix Spike
Laboratory ID: 0695G00434
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/16/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/15/95
Time Analyzed: 8:16 PM

Analyte	Spike Concentration (mg/Kg)	Sample Concentration (mg/Kg)	Spike Added (mg/Kg)	Percent Recovery (%)	QC Limits
Phenol	4.99	ND	9.99	50%	5 - 112%
2 - Chlorophenol	5.27	ND	9.99	53%	23 - 134%
1,4 - Dichlorobenzene	2.72	ND	5.00	54%	20 - 124%
n-Nitroso-di-propylamine	3.77	ND	5.00	75%	D - 230%
1,2,4 - Trichlorobenzene	3.06	ND	5.00	61%	44 - 142%
4-Chloro-3-methylphenol	6.43	ND	9.99	64%	22 - 147%
Acenaphthene	3.73	ND	5.00	75%	47 - 145%
4 - Nitrophenol	6.71	ND	9.99	67%	D - 132%
2,4 - Dinitrotoluene	3.80	ND	5.00	76%	39 - 139%
Pentachlorophenol	7.40	ND	9.99	74%	14 - 176%
Pyrene	4.24	ND	5.00	85%	52 - 115%

ND - Analyte not detected at stated limit of detection

D - Detection (result greater than 0)

Spike Recovery: All recoveries within QC limits.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
2 - Fluorophenol	48%	25 - 121%
Phenol - d6	58%	24 - 113%
Nitrobenzene - d5	61%	23 - 120%
2 - Fluorobiphenyl	75%	30 - 115%
2,4,6 - Tribromophenol	80%	19 - 122%
Terphenyl - d14	85%	18 - 137%

Reference: Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States Environmental Protection Agency, July 1992.

Comments:

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QUALITY CONTROL REPORT - MATRIX SPIKE

EPA Method 8270

SEMIVOLATILE ORGANIC COMPOUNDS

Sample ID: Matrix Spike
Laboratory ID: 0695G00449
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/01/95
Date Received: 02/03/95
Date Extracted: 02/13/95
Date Analyzed: 02/17/95
Time Analyzed: 6:31 PM

Analyte	Spike Concentration (mg/Kg)	Sample Concentration (mg/Kg)	Spike Added (mg/Kg)	Percent Recovery (%)	QC Limits
Phenol	4.13	ND	9.87	42%	5 - 112%
2 - Chlorophenol	4.54	ND	9.87	46%	23 - 134%
1,4 - Dichlorobenzene	2.14	ND	4.93	43%	20 - 124%
n-Nitroso-di-propylamine	2.70	ND	4.93	55%	D - 230%
1,2,4 - Trichlorobenzene	2.05	ND	4.93	42%	44 - 142%
4-Chloro-3-methylphenol	4.50	ND	9.87	46%	22 - 147%
Acenaphthene	2.35	ND	4.93	48%	47 - 145%
4 - Nitrophenol	4.85	ND	9.87	49%	D - 132%
2,4 - Dinitrotoluene	2.69	ND	4.93	55%	39 - 139%
Pentachlorophenol	5.13	ND	9.87	52%	14 - 176%
Pyrene	3.16	ND	4.93	64%	52 - 115%

ND - Analyte not detected at stated limit of detection

D - Detection (result greater than 0)

Spike Recovery: All recoveries within QC limits.

Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	47%	25 - 121%
Phenol - d6	49%	24 - 113%
Nitrobenzene - d5	41%	23 - 120%
2 - Fluorobiphenyl	47%	30 - 115%
2,4,6 - Tribromophenol	55%	19 - 122%
Terphenyl - d14	65%	18 - 137%

Reference: Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:

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QUALITY CONTROL REPORT - MATRIX SPIKE

EPA Method 8270

SEMIVOLATILE ORGANIC COMPOUNDS

Sample ID: Matrix Spike
Laboratory ID: 0695G00480
Sample Matrix: Soil
Condition: Intact
Preservative: Cool

Report Date: 02/25/95
Date Sampled: 02/02/95
Date Received: 02/03/95
Date Extracted: 02/14/95
Date Analyzed: 02/16/95
Time Analyzed: 4:43 AM

Analyte	Spike Concentration (mg/Kg)	Sample Concentration (mg/Kg)	Spike Added (mg/Kg)	Percent Recovery (%)	QC Limits
Phenol	4.34	ND	9.76	44%	5 - 112%
2 - Chlorophenol	4.46	ND	9.76	46%	23 - 134%
1,4 - Dichlorobenzene	2.21	ND	4.88	45%	20 - 124%
n-Nitroso-di-propylamine	3.49	ND	4.88	72%	D - 230%
1,2,4 - Trichlorobenzene	2.47	ND	4.88	51%	44 - 142%
4-Chloro-3-methylphenol	5.61	ND	9.76	57%	22 - 147%
Acenaphthene	3.18	ND	4.88	65%	47 - 145%
4 - Nitrophenol	6.04	ND	9.76	62%	D - 132%
2,4 - Dinitrotoluene	3.28	ND	4.88	67%	39 - 139%
Pentachlorophenol	6.17	ND	9.76	63%	14 - 176%
Pyrene	3.64	ND	4.88	75%	52 - 115%

ND - Analyte not detected at stated limit of detection

D - Detection (result greater than 0)

Spike Recovery: All recoveries within QC limits.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
2 - Fluorophenol	43%	25 - 121%
Phenol - d6	52%	24 - 113%
Nitrobenzene - d5	54%	23 - 120%
2 - Fluorobiphenyl	64%	30 - 115%
2,4,6 - Tribromophenol	68%	19 - 122%
Terphenyl - d14	75%	18 - 137%

Reference: Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:

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Analyst

Wanda M. King
Review



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QUALITY CONTROL REPORT - BLANK SPIKE

EPA Method 8270

SEMIVOLATILE ORGANIC COMPOUNDS

Sample ID: Blank Spike
Laboratory ID: DI SPK 090
Sample Matrix: Solid

Report Date: 02/26/95
Date Extracted: 02/14/95
Date Analyzed: 02/18/95
Time Analyzed: 8:06 AM

Analyte	Spike Conc. (mg/Kg)	Blank Conc. (mg/Kg)	Spike Added (mg/Kg)	Percent Recovery	QC Limits
Phenol	5.03	ND	9.95	51%	5 - 112%
2 - Chlorophenol	5.36	ND	9.95	54%	23 - 134%
1,4 - Dichlorobenzene	2.62	ND	4.98	53%	20 - 124%
n-Nitroso-di-propylamine	3.75	ND	4.98	75%	D - 230%
1,2,4 - Trichlorobenzene	2.99	ND	4.98	60%	44 - 142%
4-Chloro-3-methylphenol	6.67	ND	9.95	67%	22 - 147%
Acenaphthene	3.54	ND	4.98	71%	47 - 145%
4 - Nitrophenol	7.34	ND	9.95	74%	D - 132%
2,4 - Dinitrotoluene	3.51	ND	4.98	71%	39 - 139%
Pentachlorophenol	6.22	ND	9.95	63%	14 - 176%
Pyrene	3.72	ND	4.98	75%	52 - 115%

ND - Analyte not detected at stated limit of detection.

Spike Recovery: 0 of 11 spike recoveries outside QC limits.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
2 - Fluorophenol	47%	21 - 110 %
Phenol - d6	58%	10 - 110 %
Nitrobenzene - d5	63%	35 - 114 %
2 - Fluorobiphenyl	67%	43 - 116 %
2,4,6 - Tribromoph	67%	10 - 123 %
Terphenyl - d14	71%	33 - 141 %

Reference: Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I, United States
Environmental Protection Agency, July 1992.

Comments:


Analyst


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QUALITY CONTROL REPORT - BLANK SPIKE DUPLICATE

EPA Method 8270

SEMIVOLATILE ORGANIC COMPOUNDS

Sample ID: Blank Spike Duplicate
Laboratory ID: DI SPK 091
Sample Matrix: Solid

Report Date: 02/26/95
Date Extracted: 02/14/95
Date Analyzed: 02/18/95
Time Analyzed: 8:50 AM

Analyte	Spike Recovery (%)	Spike Duplicate Recovery (%)	Relative Percent Difference
Phenol	51%	48%	4%
2 - Chlorophenol	54%	50%	7%
1,4 - Dichlorobenzene	53%	48%	8%
N-Nitroso-di-propylamine	75%	72%	4%
1,2,4 - Trichlorobenzene	60%	55%	10%
4-Chloro-3-methylphenol	67%	60%	12%
Acenaphthene	71%	68%	5%
4 - Nitrophenol	74%	74%	0%
2,4 - Dinitrotoluene	71%	76%	7%
Pentachlorophenol	63%	69%	9%
Pyrene	75%	81%	8%

ND - Analyte not detected at established limit of detection

Spike Recovery: All recoveries within QC limits.

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	2 - Fluorophenol	46%	25 - 121%
	Phenol - d5	54%	24 - 113%
	Nitrobenzene - d5	57%	23 - 120%
	2 - Fluorobiphenyl	64%	30 - 115%
	2,4,6 - Tribromophenol	69%	19 - 122%
	Terphenyl - d14	80%	18 - 137%

Reference:

Method 3550: Sonication Extraction.
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile
Organics Test Methods for Evaluating Solid Wastes, SW - 846, Final Update I,
United States Environmental Protection Agency, July 1992.

Comments:

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Analyst

Ulrich M. Log
Review



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Quality Control Report Duplicate Analysis

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Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING A-8 6-7'
Lab ID: 0495H01363/0695G00437
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/01/95

Parameter	Original Conc.	Duplicate Conc.	Relative % Diff.	PQL	Method
Inorganic Characterization					
pH	8.2	8.2	0	0.1 s.u.	SW-846 9045
Electrical Conductivity	6.3	6.3	0	0.1 mmhos/cm	SW-846 9050
Oil & Grease	ND*	ND*	NC*	0.1 percent	SW-846 9071

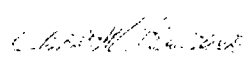
3051 Digestion Trace Metals					
Arsenic	3.8	3.5	4	0.5 mg/Kg	SW-846 7061A
Chromium	13	13	0	1 mg/Kg	SW-846 6010A
Lead	8	8	0	1 mg/Kg	SW-846 7421
Nickel	5	6	9	5 mg/Kg	SW-846 6010A
Zinc	22	27	10	1 mg/Kg	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

*NC - Non-Calculable RPD due to value(s) less than PQL

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By:


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Quality Control Report Duplicate Analysis

Client: Navajo Refining Co.

Project: Truck ByPass Land Farm

Sample ID: BORING A-9 1-2'

Lab ID: 0495H01369/0695G00444

Matrix: Soil

Condition: Intact

Report Date: 03/13/95

Receipt Date: 02/06/95

Sample Date: 02/01/95

Parameter	Original Conc.	Duplicate Conc.	Relative % Diff.	PQL	Method
Inorganic Characterization					
pH	7.0	7.0	0	0.1 s.u.	SW-846 9045
Electrical Conductivity	8.8	8.6	1	0.1 mmhos/cm	SW-846 9050
Oil & Grease	12.8	11.6	5	0.1 percent	SW-846 9071

3051 Digestion Trace Metals					
Arsenic	36.6	36.6	0	0.5 mg/Kg	SW-846 7061A
Chromium	57	57	0	1 mg/Kg	SW-846 6010A
Lead	124	128	2	14 mg/Kg	SW-846 6010A
Nickel	26	30	7	5 mg/Kg	SW-846 6010A
Zinc	107	127	9	1 mg/Kg	SW-846 6010A

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

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Quality Control Report Duplicate Analysis

Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING B-8 6-7'
Lab ID: 0495H01383/0695G00459
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/01/95

Parameter	Original Conc.	Duplicate Conc.	Relative % Diff.	PQL	Method
Inorganic Characterization					
pH	8.1	8.1	0	0.1 s.u.	SW-846 9045
Electrical Conductivity	4.6	4.5	1	0.1 mmhos/cm	SW-846 9050
Oil & Grease	ND*	ND*	NC*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals					
Arsenic	4.7	4.4	3	0.5 mg/Kg	SW-846 7061A
Chromium	13	13	0	1 mg/Kg	SW-846 6010A
Lead	8	8	0	1 mg/Kg	SW-846 7421
Nickel	8	7	7	5 mg/Kg	SW-846 6010A
Zinc	30	29	2	1 mg/Kg	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

*NC - Non-Calculable RPD due to value(s) less than PQL

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

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Quality Control Report Duplicate Analysis

Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING C-11 6-7'
Lab ID: 0495H01393/0695G00470
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/01/95

Parameter	Original Conc.	Duplicate Conc.	Relative % Diff.	PQL	Method
Inorganic Characterization					
pH	8.0	8.1	1	0.1 s.u.	SW-846 9045
Electrical Conductivity	4.7	4.7	0	0.1 mmhos/cm	SW-846 9050
Oil & Grease	ND*	ND*	NC*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals					
Arsenic	3.6	4.0	5	0.5 mg/Kg	SW-846 7061A
Chromium	16	13	10	1 mg/Kg	SW-846 6010A
Lead	9	8	6	1 mg/Kg	SW-846 7421
Nickel	10	8	11	5 mg/Kg	SW-846 6010A
Zinc	37	32	7	1 mg/Kg	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

*NC - Non-Calculable RPD due to value(s) less than PQL

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

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Quality Control Report Duplicate Analysis

Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING C-9 5-6'
Lab ID: 0495H01397/0695G00474
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/02/95

Parameter	Original Conc.	Duplicate Conc.	Relative % Diff.	PQL	Method
Inorganic Characterization					
pH	8.2	8.1	1	0.1 s.u.	SW-846 9045
Electrical Conductivity	4.1	4.1	0	0.1 mmhos/cm	SW-846 9050
Oil & Grease	ND*	ND*	NC*	0.1 percent	SW-846 9071

3051 Digestion Trace Metals					
Arsenic	2.4	2.6	4	0.5 mg/Kg	SW-846 7061A
Chromium	7	7	0	1 mg/Kg	SW-846 6010A
Lead	2	2	0	1 mg/Kg	SW-846 7421
Nickel	ND*	ND*	NC*	5 mg/Kg	SW-846 6010A
Zinc	13	13	0	1 mg/Kg	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

*NC - Non-Calculable RPD due to value(s) less than PQL

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

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Quality Control Report Matrix Spike Analysis

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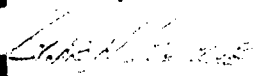
Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING B-7 5-6'
Lab ID: 0495H01377/0695G00453
Matrix: Soil
Condition: Intact

Report Date: 03/07/95
Receipt Date: 02/06/95
Sample Date: 02/01/95

Parameter	Concentration			% Recovery
	Unspiked	Spiked	Spike Amount	
Arsenic	0.0109 mg/L	0.0203 mg/L	0.010 mg/L	94
Chromium	0.03 mg/L	0.85 mg/L	1.00 mg/L	82
Lead	0.007 mg/L	0.049 mg/L	0.05 mg/L	84
Nickel	0.02 mg/L	0.84 mg/L	1.00 mg/L	82
Zinc	0.06 mg/L	0.94 mg/L	1.00 mg/L	88

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

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Quality Control Report Matrix Spike Analysis

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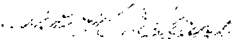
Client: Navajo Refining Co.
Project: Truck ByPass Land Farm
Sample ID: BORING C-9 3-4'
Lab ID: 0495H01395/0695G00472
Matrix: Soil
Condition: Intact

Report Date: 03/13/95
Receipt Date: 02/06/95
Sample Date: 02/02/95

Parameter	Concentration			% Recovery
	Unspiked	Spiked	Spike Amount	
Arsenic	0.0142 mg/L	0.0258 mg/L	0.010 mg/L	116
Chromium	0.16 mg/L	1.02 mg/L	1.00 mg/L	86
Lead	0.077 mg/L	0.130 mg/L	0.05 mg/L	105
Nickel	0.10 mg/L	0.94 mg/L	1.00 mg/L	84
Zinc	0.35 mg/L	1.26 mg/L	1.00 mg/L	91

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

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Quality Control Report Method Blank Analysis

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Client: Navajo Refining Co.
Project: RFI Phase III, Artesia, NM

Lab ID: TM022395A
Matrix: Water

Report Date: 02/28/95

Parameter	Concentration		PQL		Method
Arsenic	ND	mg/L	0.005	mg/L	SW-846 7061A
Chromium	ND	mg/L	0.01	mg/L	SW-846 6010A
Lead	ND	mg/L	0.01	mg/L	SW-846 7421
Nickel	ND	mg/L	0.05	mg/L	SW-846 6010A
Zinc	0.13	mg/L	0.01	mg/L	SW-846 6010A

*ND - Parameter not detected at stated Practical Quantitation Limit.

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

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