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ANALYTICAL RESULTS REPORT
STANDARD OIL REFINERY
LARAMIE, WYOMING

TDD R8-8602-14

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ANALYTICAL RESULTS REPORT
STANDARD OIL REFINERY
LARAMIE, WYOMING
TDD R8-8602-14

I. INTRODUCTION

This report has been prepared to satisfy the requirements of Technical Directive Document (TDD) R8-8602-14, issued to Ecology & Environment, Inc., Field Investigation Team (E&E/FIT) by the Region VIII Environmental Protection Agency (EPA).

The samples discussed within this report were collected by E&E/FIT on September 12 and 13, 1985 from the dismantled Standard Oil Refinery site in Laramie, Wyoming (Fig. 1). Two previous reports, the report of Sampling Activities (R8-8505-10) and the Sampling Plan (R8-8505-10), present discussions regarding project objectives, site description, sampling procedures, quality control, sample documentation, and field observations including sampling oversight.

The sampling results discussed in this report were generated from a field blank, three surface water, three sediment, two soil, and six groundwater samples, collected during this investigation. These sample splits were provided by Standard Oil's consultant, Western Water Consultants.

The dismantled Standard Oil Refinery site is located in the northwest end of Laramie, Wyoming. The legal description of the site is the South 1/2 of Section 29, T16N, R73W. The site coordinates are 40° 19' 27"N, 105° 36' 10"W. The site is adjacent to the Laramie River and is bounded on the east by the Union Pacific Railroad and on the north by Curtis Street (Figure 1).

There is very little evidence today of the old refinery facility, operated by Standard Oil from 1922 until 1932. Some of the potential contamination sources at this site included:

1) A waste area close to the river in the southwest part of the site.

2) The remnants of an old oil separator near the river.

3) An old acid sludge pit close to the river that is now below ground surface level.

4) The remains of tank dikes in the storage area of the site.

5) A process water sump in the northwest corner of the site.

6) A disposal area east of the sump.

7) The former refining area in the southeast end of the site.

Much of the preceeding description was adapted from a Preliminary Assessment Report prepared by Katie Sewell of the Wyoming Department of Environmental Quality and from site visits Oct. 15, 1984 and Sept. 12 & 13, 1985 by E&E/FIT.

II. QUALITY ASSURANCE REVIEW

Both soil samples and two of the six groundwater samples collected in this investigation were considered medium hazard samples. All other samples were deemed low hazard. All samples were analyzed for hazardous substance list organics and for Task 1 & 2 Metals. One blank sample SO-BL-1 and one duplicate sample SO-GW-20 were taken for quality control purposes. Appendix B contains the data sheets and quality assurance reports discussed below.

The organic data packages were examined for quality assurance by an E&E/FIT reviewer. The findings are as follows:

1. The holding times, mass spectrometer tuning, surrogates and matrix spikes were all performed within contract limits for sediment, soil and water samples.

2. None of the low soil surrogates were recovered from the samples. SO-SO-1 and SO-SO-2. Because of low surrogate recoveries, all identified compounds in these samples were qualified with a "J."

3. A large number of continuing calibration compounds were outside of QC limits. These compounds were qualified with a "J."

4. Laboratory blank compounds detected in the soil and water include methylene chloride, acetone, bis(2-ethylhexyl) phthalate and di-n-octylphthalate. Where detected in field samples, these contaminants are flagged with a "B." These compounds have been observed in several previous blank analyses.

5. The percent of Relative Standard Deviations was calculated with an "n" rather than "n-1", but no data have been qualified as a result of this mistake.

The organic data packages were judged as acceptable for use with these qualifications.

The inorganic data packages were examined for quality assurance by an E&E/FIT reviewer. The findings are as follows:

1. The manganese result for the water samples may be greater than actual due to a matrix effect. The arsenic result for the

soil samples may be less than actual due to a matrix effect. These results are flagged with an "R."

2. The pH of the surface water samples (SO-SW-1 — SO-SW-3) was determined by lab personnel upon receipt to be 6. These samples apparently were not acidified in the field.

3. The manganese result for the water samples exceeded the control limit for the matrix spike. The selenium result for the water samples did not meet the matrix spike requirements. These results are flagged with an "R."

4. Barium and sodium results for the soil samples exceeded the control limit for laboratory duplicates (RPD). The aluminum results for the water samples also exceeded control limits for RPD. These results are flagged with an "*."

5. The sodium results for water samples and the arsenic and vanadium results for the soil samples failed to meet contract limits for laboratory control samples. These results are considered estimates and are flagged with a "J."

The inorganic data package was judged as acceptable for use with these qualifications.

The field blank SO-BL-1 was found to contain methylene chloride and acetone. These results were flagged with a "B" for all samples containing these contaminants. The duplicate sample, SO-GW-20, was found to be in good agreement with SO-GW-14 both qualitatively and quantitatively for organic contaminants. No inorganic analysis was done on these samples due to the well going dry during sampling and therefore not providing enough water to collect for the analysis.

It should be noted no samples were field filtered due to an oily sheen on the well water. Also, surface water samples were apparently unacidified. Groundwater samples were acidified.

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III. ANALYTICAL RESULTS

Analytical results for the 1985 sampling effort at the dismantled Standard Oil Refinery have been compiled in Tables 1 through 8. Corresponding sample locations are illustrated in Figure 2.

A review of the analytical data allows the following observations and conclusions.

A. GROUNDWATER SAMPLES

Organic contaminants found in groundwater samples and not appearing in the blank include butylbenzylphthalate, and di-n-butylphthalate. Other compounds detected and flagged "B" are probably attributable to Western Water Consultants decontamination procedures and contract laboratory's use of methylene chloride. The phthalate compounds are ubiquitous in the environment and are also common laboratory contaminants, hence their presence should not be considered a groundwater release.

Inorganic data results for groundwater samples yielded the following findings. Sample SO-GW-9 had elevated total metal concentrations of chromium, iron, lead and arsenic. Sample SO-GW-2 had elevated concentrations of chromium, iron and magnesium. Sample SO-GW-15 had significant concentrations of chromium, iron and arsenic. These results are all high relative to the background sample results (SO-GW-25). The concentrations of chromium in these samples appears to be of the most concern. (Table 2).

Sample SO-GW-2 was collected in an area where condensers and stills were formerly located at this facility. Sample SO-GW-9 was taken from close by the old site disposal area at the north end of the site. This area was heavily stained and tank sludges were visible. Sample SO-GW-15 was collected near the former acid sludge pit which is now buried below ground surface.

The groundwater flow beneath this site is northerly to northwesterly. The population within a 3 mile radius of this site is approximately 24,410. The city of Laramie has its drinking water supplied from three sources. There is a surface water intake 20 miles west of town, a set of deep wells 7 miles south of town, and a set of deep wells just on the eastern outskirts of town. A potential target of groundwater contamination lies near the site's northern boundary in a private well. A potential release of chromium, iron, lead and/or magnesium might affect this private well, however sample results from this well have not indicated contaminants migrating into this drinking water source. It is doubtful, considering the aforementioned locations of Laramie's drinking water supplies, that a northerly or northwesterly migration of this site associated groundwater contaminants would affect any of the city's drinking water supplies.

B. SURFACE WATER SAMPLES

All three surface water samples taken at this site showed limited amounts of methylene chloride, acetone, bis(2-ethylhexyl)phthalate, and di-n-octylphthalate. None of these contaminants are in major concentrations. All are found in the field blank, and as noted in the groundwater section, they can probably be traced to decontamination procedures or contract laboratory procedures.

Inorganic data results for these surface water samples gave no indication of a release. The data were rather consistent, with the background sample's results roughly equivalent to the other two downstream samples' results.

C. SEDIMENT SAMPLES

Organic data results show that each sediment sample contains methylene chloride, acetone and bis(2-ethylhexyl)phthalate in insignificant concentrations. These compounds were all detected in the field blank, sample SO-BL-1. However, background sample SO-SED-1 also

contains chloroform, toluene, phenanthrene, anthracene, fluoranthene, pyrene, benzo[a]anthracene, chrysene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[a]pyrene and di-n-butylphthalate. These contaminants exist in significant concentrations in this sample. There is little chance however, that this sample's results have any bearing on the dismantled Standard Oil facility. SO-SED-1 was collected as a background sample approximately 1/2 mile upstream of the Standard Oil site. None of the contaminants found in SO-SED-1 were detected in the samples downstream of the Standard Oil site. For this reason, no surface water release is indicated from the dismantled Standard Oil facility itself. However, with significant concentrations of contaminants found in SO-SED-1, it might be prudent to investigate areas adjacent to and upstream of the sample location for SO-SED-1.

D. SOIL SAMPLES

Organic contaminants detected in the soil samples include toluene and polynuclear aromatic hydrocarbons in significant concentrations (Table 7). Sample SO-SO-1 contains 1200 ug/kg of toluene and sample SO-SO-2 contains 1000 ug/kg of toluene. The groundwater sample SO-GW-9, in the general vicinity of the two samples, does not show detection of these organic contaminants. (Figure 2 and Table 1 and 7).

The inorganic contaminants detected in the soil samples included significant concentrations of zinc, lead, and mercury in sample SO-SO-1 and lead in sample SO-SO-2. These findings of heavy metal contamination in the soil increase the probability of contaminant release of refinery wastes in the old disposal area.

These samples were both collected as opportunity grab samples from heavily stained surface soils in the old disposal area at the north end of the site. Tank bottom sludges and other unknown solid wastes were observed here by the FIT during this sampling investigation. It seems likely that the refinery wastes disposed of in this area have led to

the presence of polynuclear aromatic hydrocarbons, toluene and heavy metals in the soils at the old disposal area.

E. TENTATIVELY IDENTIFIED COMPOUNDS

Some of the tentatively identified compounds include tetrahydrofuran, 2-propanone, hexadecanoic acid, ethane, hexane, methyl pyrenes, alkyl substituted biphenyls, phenanthrene and many unknown hydrocarbon compounds. These compounds are consistent with what FIT has detected at other old refinery sites.

IV. CONCLUSIONS

This report has documented contamination of soils in the old disposal area of this site and groundwater contamination in the disposal area, acid/sludge pit area and the condenser/still area of the site. Significant levels of toluene, polynuclear aromatic hydrocarbons, and heavy metals have been detected in soil samples SO-SO-1 and SO-SO-2. Significant levels of magnesium, iron, lead, arsenic and chromium have been found in groundwater samples SO-GW-9, SO-GW-2 and SO-GW-15.

While the data supports a possible groundwater release of hazardous substance metals, it must be noted that groundwater metals samples were not filtered because of the presence of an oily sheen. Also, the downgradient surface water samples showed no evidence that heavy metals contamination may have infiltrated the Laramie River to the north or west. In addition, the city of Laramie has no surface water intakes or wells located downgradient of the site which provide drinking water for Laramie residents.

The existence of heavy metals and hazardous-substance organics in the soils samples of the old disposal area strongly suggest a release at that location. Lead contamination found at SO-SO-1 and SO-SO-2 may have reached into groundwater as evidenced by significant

concentrations of lead in nearby groundwater sample SO-GW-9. The major threat posed by this abandoned disposal area would appear to be direct contact due to the unsecured nature of this site and the close proximity of housing and commercial areas.

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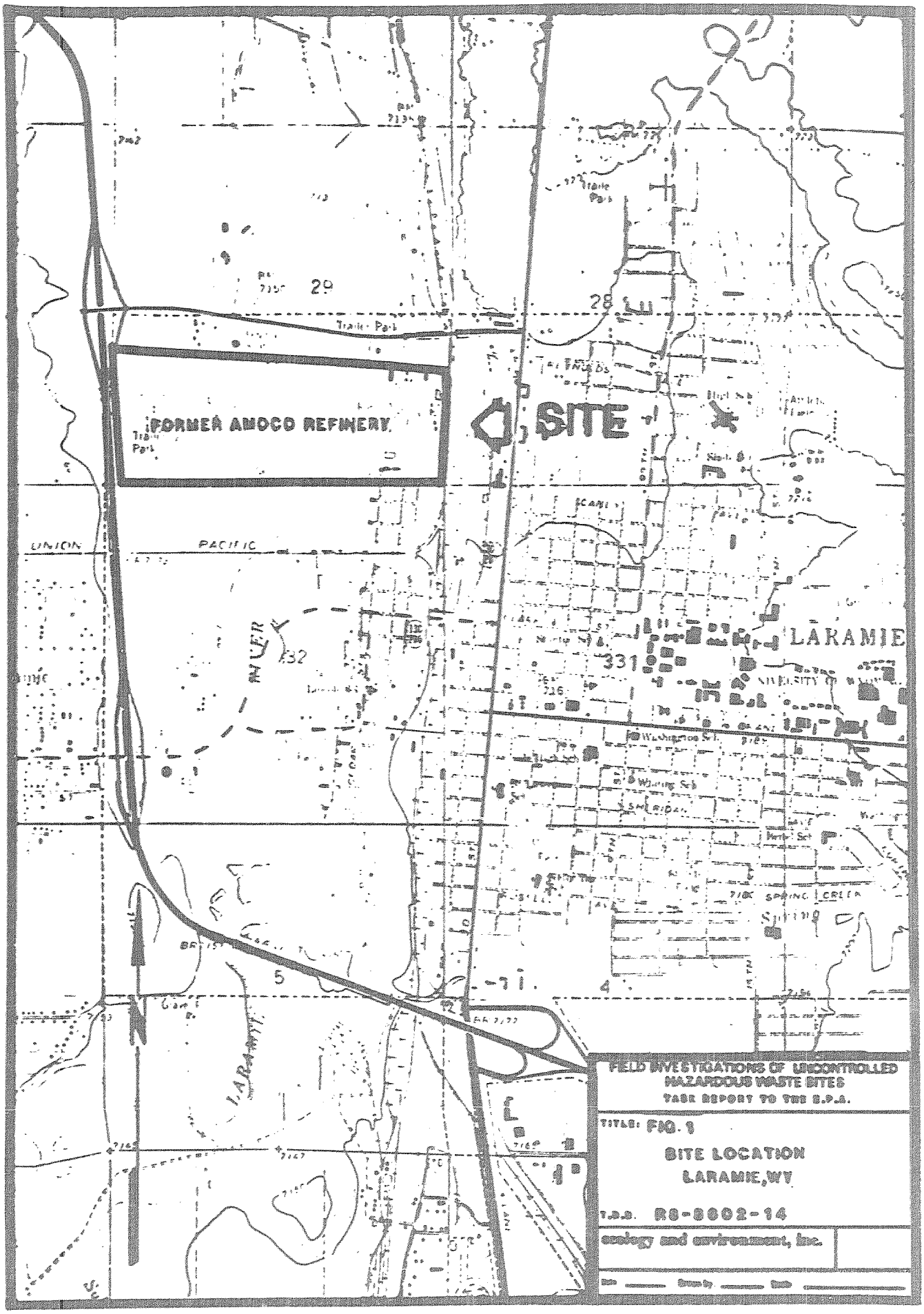
FORMER AMOCO REFINERY
SITE
LARAMIE
UNION PACIFIC
Trailer Park
29
28
331
32
5
4
SPRING CREEK
FIELD INVESTIGATIONS OF UNCONTROLLED HAZARDOUS WASTE SITES
TASK REPORT TO THE E.P.A.
TITLE: FIG. 1
SITE LOCATION
LARAMIE, WY
T.D.D. R8-8602-14
ecology and environment, inc.

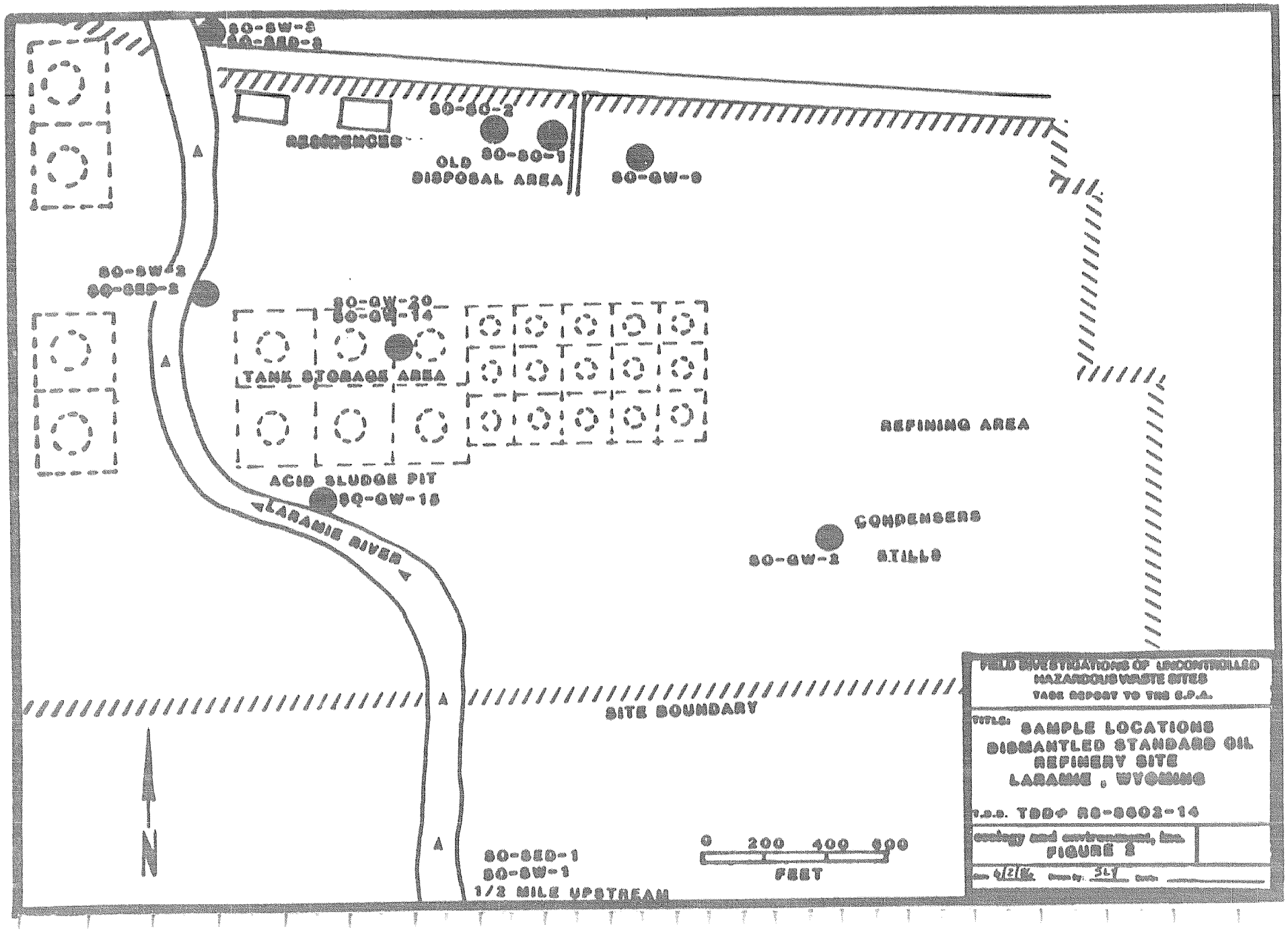

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TABLE 1

STANDARD OIL REFINERY

ORGANIC ANALYTICAL RESULTS

GROUNDWATER SAMPLES (ug/l)

CASE # 4951

	Background					Duplicate	Blank
	SO-GW-25	SO-GW-9	SO-GW-2	SO-GW-15	SO-GW-14	SO-GW-20	SO-BL-1
	HB-002	HB-003	HB-004	HB-101	HB-102	HB-281	HB-282
Methylene chloride	8UB	1000	21UB	23UB	19UB	910B	10UB
Acetone	17UB	14,000B	---	14UB	8,700B	9300B	88B
Bis(2-3thylhexyl) phathalate	---	34J	21	61UB	24UB	---	---
di-n-octylphthalate	---	---	---	171UB	2JB	---	---
Butybenzylphthalate	---	59J	2J	---	---	---	---
di-n-butylphthalate	---	97J	---	---	---	---	---

DATA QUALIFIER DEFINITIONS

JB - The value is an estimated amount detected below required limits and also detected in the blank.

B - Compound was detected in the blank. Quantity reported is >5 X the amount found in the blank (>10 X for methylene chloride, acetone, toluene, and phthalates).

J - The associated numerical value is an estimated quantity because the amount detected is below the required limits or because quality control criteria were not met.

UE - Estimated sample quantitation limit increased. Amount found in sample reported. Compound detected at >5 X the amount in blank (>10 X for methylene chloride, acetone, toluene and phthalates).

TABLE 2
STANDARD OIL REFINERY
INORGANIC ANALYTICAL RESULTS
GROUNDWATER SAMPLES (ug/l)
CASE #4951/1930H

GW14 ?

	Background SO-GW-25 MHC-262	SO-GW-9 MHC-263	SO-GW-2 MHC-264	SO-GW-15 MHC-265
Aluminum	[3U]	14,400R	30,300R	48,200
Antimony	[50U]	155UR	155UR	50U
Arsenic	6U	80	7B	28
Barium	48	[425]	[550]	1520
Beryllium	4U	[2.1]R	[2.9]R	[4U]
Cadmium	2U	20U	20U	[2]
Calcium	116,000	248,000	365,000	7,000
Chromium	5U	56	64	64
Cobalt	4U	20UR	[23]R	51
Copper	76	129R	[92]R	68
Iron	1240	33,900	49,700	47,300
Lead	3U	27	25U	8
Magnesium	39,200	161,000	303,000	114,000
Manganese	110R	988R	2520R	3710R
Mercury	0.2U	0.5U	0.5U	0.2U
Nickel	[20U]	[44]	[54]R	102
Potassium	[2760]	[10,500]	16,100	19,000
Selenium	5UR	25UR	150UR	5UR
Silver	[3U]	15U	15U	4U
Sodium	40,000J	176,000E	311,000E	49,400J
Thallium	[3U]	50U	50UR	3U
Tin	[22]	85U	85U	22U
Vanadium	[4u]	[127]R	[115]R	96
Zinc	106	330R	307R	304

DATA QUALIFIER DEFINITIONS

NR - not required by contract at this time
Value - If the result is a value greater than or equal to the instrument detection limit but less than the contract required detection limit, report the value in brackets (ie. [10]). Indicate the analytical method used with P (for ICP/Flame AA), F (for furnace), or CV (for cold vapor).
U - Indicates element was analyzed for but not detected. Report with the detection limit value (e.g., <10U).
E - Indicates a value estimated or not reported due to the presence of interference. Explanatory note included on cover page.
R - Indicates spike sample recovery is not within control limits.
* - Indicates duplicate analysis is not within control limits.

TABLE 3

STANDARD OIL REFINERY
CASE # 4951
ORGANIC ANALYTICAL RESULTS

SURFACE WATER SAMPLES (ug/l)

	Background		
	SO-SW-1	SO-SW-2	SO-SW-3
	HB-283	HB-284	HB-285
Methylene Chloride	9UB	9UB	10UB
Acetone	15UB	12UB	10UB
bis(2-3thylhexyl)phthalate	24UB	19UB	3JB
di-n-octylphthalate	---	18UB	---

DATA QUALIFIER DEFINITIONS

UB - Estimated sample quantitation limit increased. Amount found in sample reported. Compound detected at <5 X the amount in blank (<10 X for methylene chloride, acetone, toluene and phthalates).

JB - The value is an estimated amount detected below required limits and also detected in the blank.

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TABLE 4
STANDARD OIL REFINERY
INORGANIC ANALYTICAL RESULTS
SURFACE WATER SAMPLES (ug/l)
CASE #4951/1930H

	Background SO-SW-1 MHC-268	SO-SW-2 MHC-269	SO-SW-3 MHC-270
Aluminum	369	273*	287*
Antimony	[50U]	[50U]	[50U]
Arsenic	[6U]	[6U]	[6U]
Barium	[53]	[51]	[51]
Beryllium	[4U]	[4U]	[4U]
Cadmium	[2U]	[2U]	[2U]
Calcium	78,300	78,500	78,200
Chromium	[5U]	[5U]	[5U]
Cobalt	[4U]	[4U]	[4U]
Copper	[6U]	[5]	[6]
Iron	516	333	364
Lead	[3U]	[3U]	[3U]
Magnesium	36,000	36,700	36,300
Manganese	107R	93R	99R
Mercury	0.2U	0.2U	0.2U
Nickel	[20U]	[20U]	[20U]
Potassium	[2400]	2490	[2410]
Selenium	[4U]R	5UR	[4U]R
Silver	[4U]	[3U]	U
Sodium	50,200J	50,900J	50,500J
Thallium	[3U]	10U	[3U]
Tin	[22U]	[22U]	[22U]
Vanadium	[5]	[4]	[4]
Zinc	[4]	[4]	[4]

DATA QUALIFIER DEFINITIONS

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Value - If the result is a value greater than or equal to the instrument detection limit but less than the contract required detection limit, report the value in brackets (ie. [10]). Indicate the analytical method used with P (for ICP/Flame AA), F (for furnace), or CV (for cold vapor).
U - Indicates element was analyzed for but not detected. Report with the detection limit value (e.g., <10U).
R - Indicates spike sample recovery is not within control limits.
* - Indicates duplicate analysis is not within control limits.

TABLE 5

STANDARD OIL REFINERY
CASE #4951
ORGANIC ANALYTICAL RESULTS

SEDIMENT SAMPLES (ug/kg)

	Background SO-SED-1 HB-288	SO-SED-2 HB-289	SO-SED-3 HB-299
Methylene Chloride	650B	240B	350B
Acetone	430B	660B	520B
Chloroform	5J	---	---
Toluene	380	---	---
Phenanthrene	11,000J	---	---
Anthracene	4,500J	---	---
Fluoranthene	24,000J	---	---
Pyrene	17,000J	---	---
Benzo[a]anthracene	7100J	---	---
Chrysene	6400	---	---
Benzo[b]fluoranthene	2900J	---	---
Benzo[k]fluoranthene	2900J	---	---
Benzo[a]pyrene	4200J	---	---
di-n-butylphthalate	3600J	---	---
bis-(2-ethylhexyl)phthalate	7400UB	1300UB	1100UB
di-n-octylphthalate	---	240JB	---

DATA QUALIFIER DEFINITIONS

JB - The value is an estimated amount detected below required limits and also detected in the blank.

B - Compound was detected in the blank. Quantity reported is <5 X the amount found in the blank (>10 X for methylene chloride, acetone, toluene, and phthalates).

U - The material was analyzed for, but was not detected. The associated numerical vlue is the estimated sample quantitation limit.

J - The associated numerical value is an estimated quantity because the amount detected is below the required limits or because quality control criteria were not met.

UB - Estimated sample quantitation limit increased. Amount found in sample reported. Compound detected at <5 X the amount in blank (<10 X for methylene chloride, acetone, toluene and phthalates).

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TABLE 6
STANDARD OIL REFINERY
INORGANIC ANALYTICAL RESULTS
SEDIMENT SAMPLES (mg/kg)
CASE # 4951/1930H

	Background SO-SW-1 MHC-268	SO-SW-2 MHC-269	SO-SW-3 MHC-270
Aluminum	3270	1170	1730
Antimony	[28U]	[30U]	[10U]
Arsenic	6UJ	[3U]J	[1]J
Barium	[56]*	[22]	56*
Beryllium	[3U]	[3U]	[0.6U]
Cadmium	[2U]	[2U]	[0.4U]
Calcium	10,500	2,850	3,690
Chromium	9.6	[4.0]	[2.5]
Cobalt	[2.9]	[3U]	[1.7]
Copper	[6.7]	[4U]	[2.6]
Iron	7220	2940	3440
Lead	8.6	[3]	[3]
Magnesium	2400	[697]	1630
Manganese	177	96	392
Mercury	<0.06	<0.07	<0.06
Nickel	[11U]	[12U]	[4U]
Potassium	[525]	[230U]	[466]
Selenium	[3U]	[3U]	[1U]
Silver	[2U]	[2U]	[1]
Sodium	[119]*	[137]*	[69]*
Thallium	[2U]	[2U]	[0.6U]
Tin	[12U]	[13U]	[4.5U]
Vanadium	[13]JK	[3U]J	[5.2]J
Zinc	23	[9]	10
PERCENT SOLIDS(%)	78.2	76.0	82.2

DATA QUALIFIER DEFINITIONS

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Value - If the result is a value greater than or equal to the instrument detection limit but less than the contract required detection limit, report the value in brackets (ie. [10]). Indicate the analytical method used with P (for ICP/Flame AA), F (for furnace), or CV (for cold vapor).
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R - Indicates spike sample recovery is not within control limits.
* - Indicates duplicate analysis is not within control limits.

TABLE 7

STANDARD OIL REFINERY
CASE #4951/1930H
ORGANIC ANALYTICAL RESULTS

SOIL SAMPLES (ug/kg)

	SO-SO-1 HB-103	SO-SO-2 HB-287
Methylene Chloride	140UB	230UB
Acetone	210UB	240UB
Toluene	→ 1200	→ 1000
Pyrene	$1.4(10)^5$J	$2.1(10^4$J
Benzo[a]anthracene	$3.1(10)^4$J	---
Chrysene	$0.4(10)^4$J	$4.4(10)^4$J
Benzo[b&k]fluoranthene	$1.3(10)^4$J	$1.3(10)^4$J
Benzo[a]pyrene	$2.4(10)^4$J	$2.4(10)^4$J
Benzo[ghi]perylene	$2.1(10)^4$J	$1.6(10)^4$J
2-methylnaphthalene	---	$1.0(10)^4$J
2-butanone	---	140UB
Phenanthrene	---	$1.8(10)^4$J

DATA QUALIFIER DEFINITIONS

J - The associated numerical value is an estimated quantity because the amount detected is below the required limits or because quality control criteria were not met.

UB - Estimated sample quantitation limit increased. Amount found in sample reported. Compound detected at <5 X the amount in blank (<10 X for methylene chloride, acetone, toluene and phthalates).

TABLE 8
STANDARD OIL REFINERY
CASE 4951/1930H
INORGANIC ANALYTICAL RESULTS
SOIL SAMPLES (mg/kg)

	SO-SO-1 MHC-271	SO-SO-2 MHC-272
Aluminum	1760	1670
Antimony	18U	17U
Arsenic	8.3	9.9
Barium	[80]	[34]
Beryllium	0.31	0.16U
Cadmium	2.4U	2.2U
Calcium	14300	5150
Chromium	[5.5]	[3.3]
Cobalt	2.4U	[2.5]
Copper	33	17
Iron	5660	7280
Lead	237	56
Magnesium	[1640]	[837]
Manganese	211	81
Mercury	0.48	0.2
Nickel	[17]	[21]
Potassium	[890]	[575]
Selenium	3U	2.7U
Silver	1.8U	1.6U
Sodium	[605]	324U
Thallium	1.8U	1.6U
Tin	[13]	9.3U
Vanadium	[11]	[9.8]
Zinc	276	51
PERCENT SOLIDS(%)	84	91

DATA QUILIFIER DEFINITIONS

NR - not required by contract at this time
Value - If the result is a value greater than or equal to the instrument detection limit but less than the contract required detection limit, report the value in brackets (ie. [10]). Indicate the analytical method used with P (for ICP/Flame AA), F (for furnace), or CV (for cold vapor).
U - Indicates element was analyzed for but not detected. Report with the detection limit value (e.g., <10U).

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
WY	D980951602

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Dismantled Standard Oil Refinery	Cedar and Lyons Street

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Laramie	WY	82070	Albany	001	WY01

09 COORDINATES LATITUDE	LONGITUDE	10 TYPE OF OWNERSHIP (Check one)
41° 19' 27" N	105° 36' 10" W	☒ A PRIVATE ☐ B FEDERAL ☐ C STATE ☐ D COUNTY ☐ E MUNICIPAL ☐ F OTHER ☐ G UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
9 / 12 / 85 (MONTH DAY YEAR)	☐ ACTIVE ☒ INACTIVE	1919 / 1932 (BEGINNING YEAR / ENDING YEAR) ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)
☐ A EPA ☒ B EPA CONTRACTOR E&E Ecology & Environment, Inc. (Name of firm) ☐ C MUNICIPAL ☐ D MUNICIPAL CONTRACTOR ___ (Name of firm)
☐ E STATE ☐ F STATE CONTRACTOR ___ (Name of firm) ☒ G OTHER Western Water Consultants (Name of firm) (Specify) Amoco Contractors

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO
Steve Yarbrough	Env. Scientist	E&E	(303) 757-4984
09 OTHER INSPECTORS	**10 TITLE**	**11 ORGANIZATION**	**12 TELEPHONE NO**
Susan Kennedy	Reclamation Biologist	E&E	(303) 757-4984
Chuck Corley	Chief Technician	Western Water Consultants	(307) 742-0031
Dan Richards	Geological Technician	Western Water Consultants	(307) 742-0031
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
			( )
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☒ PERMISSION ☐ WARRANT	9/12 - 9/13/86	Clear, cool to moderate temperatures.

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO
Martha Rosenberg	U.S. EPA	(303) 293-1539

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO	08 DATE
Steve Yarbrough	U.S. EPA	E&E-FIT	(303)757-4984	5 / 6 / 86 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
WY	D980951602

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- [X] A SOLID
- [ ] B POWDER FINES
- [X] C SLUDGE
- [ ] D OTHER _____ (Specify)
- [ ] E SLURRY
- [X] F LIQUID
- [ ] G GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS unknown
CUBIC YARDS unknown
NO OF DRUMS none known

03 WASTE CHARACTERISTICS (Check all that apply)

- [X] A TOXIC
- [ ] B CORROSIVE
- [ ] C RADIOACTIVE
- [X] D PERSISTENT
- [X] E SOLUBLE
- [ ] F INFECTIOUS
- [X] G FLAMMABLE
- [ ] H IGNITABLE
- [X] I HIGHLY VOLATILE
- [ ] J EXPLOSIVE
- [ ] K REACTIVE
- [ ] L INCOMPATIBLE
- [ ] M NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE	unknown	--	Leaded tank bottom sludge
OLW	OILY WASTE	unknown	--	Tentatively identified hydrocarbons
SOL	SOLVENTS	--	--	
PSD	PESTICIDES	--	--	Not analyzed for
OCC	OTHER ORGANIC CHEMICALS	unknown	--	Several tentatively identified
IOC	INORGANIC CHEMICALS	unknown	--	
ACD	ACIDS	unknown	--	
BAS	BASES	--	--	
MES	HEAVY METALS	unknown	--	Metals (lead) from tank bottom sludge

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
MES/SLU	Lead	7439-92-1	Landfill on-site	237	mg/kg
MES	Mercury	7439-97-6	" "	0.48	mg/kg
MES	Zinc	7440-66-6	" "	276	mg/kg
SOL	Toluene	108-88-3	" "	1200	ug/kg
OLW	Pyrene	129-00-0	" "	$2.1\ (10)^5$	ug/kg
OLW	Benzo [a] anthracene	56-55-3	" "	$3.1\ (10)^4$	ug/kg
OLW	Chrysene	218-01-9	" "	$4.4\ (10)^4$	ug/kg
OLW	Benzo [b&k] fluoranthene	205-99-2	" "	$1.3\ (10)^4$	ug/kg
OLW	Benzo [a] pyrene	50-32-8	" "	$2.4\ (10)^4$	ug/kg
OLW	Benzo [ghi] perylene	191-24-2	" "	$2.1\ (10)^4$	ug/kg
OLW	2-methylnaphthalene	91-57-6	" "	$1.0\ (10)^4$	ug/kg
OLW	Phenanthrene	85-01-8	" "	$1.8\ (10)^4$	ug/kg
	SEE ATTACHED TABLES				

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

Sample Data Package, Case #4951, Standard Oil Refinery, Laramie, WY TDD R8-8602-14.
The Merck Index, 9th Edition, 1976, Chemical Abstract Registry Numbers Section.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
WY	D980951602

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A GROUNDWATER CONTAMINATION — 02 [X] OBSERVED (DATE 9/12-13/85) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____ — 04 NARRATIVE DESCRIPTION

Trace amounts of organic contaminants have been tentatively identified in some samples obtained by E&E-FIT. Chromium, lead, iron and magnesium concentrations were high in some GW samples.

01 [ ] B SURFACE WATER CONTAMINATION — 02 [ ] OBSERVED (DATE _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____ — 04 NARRATIVE DESCRIPTION

None connected with this site, to this point. Upstream samples had higher levels of organic and inorganic results than downstream samples from this site.

01 [ ] C CONTAMINATION OF AIR — 02 [ ] OBSERVED (DATE _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____ — 04 NARRATIVE DESCRIPTION

Does not appear to be of major concern. Instruments used on-site to measure organic contaminants in the ambient air showed no more than background readings.

01 [ ] D FIRE/EXPLOSIVE CONDITIONS — 02 [ ] OBSERVED (DATE _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____ — 04 NARRATIVE DESCRIPTION

None known.

01 [X] E DIRECT CONTACT — 02 [ ] OBSERVED (DATE _____) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____ — 04 NARRATIVE DESCRIPTION

This site is unsecured and children have been observed playing just north of the site and adults jog along the north border of the site.

01 [X] F CONTAMINATION OF SOIL — 02 [X] OBSERVED (DATE 9/12/85) — [ ] POTENTIAL — [ ] ALLEGED
03 AREA POTENTIALLY AFFECTED _____ (Acres) — 04 NARRATIVE DESCRIPTION

Soil samples revealed release of zinc, lead, mercury and toluene. There was solid or solidified sludge material present in abundance in the old disposal area of this dismantled facility. May be leaded tank bottom sludge.

01 [X] G DRINKING WATER CONTAMINATION — 02 [ ] OBSERVED (DATE _____) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____ — 04 NARRATIVE DESCRIPTION

One well located just north of site - approximately 50 yards. It is in use, but taps a deeper aquifer. Data showed this well to be safe for the time being.

01 [ ] H WORKER EXPOSURE/INJURY — 02 [ ] OBSERVED (DATE _____) — [ ] POTENTIAL — [ ] ALLEGED
03 WORKERS POTENTIALLY AFFECTED _____ — 04 NARRATIVE DESCRIPTION

None known.

01 [X] I POPULATION EXPOSURE/INJURY — 02 [ ] OBSERVED (DATE _____) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED @ 8 — 04 NARRATIVE DESCRIPTION

Two residences located just north of the property line of this site. Two families residing there. One drinking water well for these two homes. Potential exists for contamination from groundwater and direct contact pathways.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: WY
02 SITE NUMBER: D980951602

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 [X] J DAMAGE TO FLORA — 02 [X] OBSERVED (DATE 9/12/85) — [ ] POTENTIAL — [ ] ALLEGED
04 NARRATIVE DESCRIPTION
No vegetation present in old disposal area. Contamination found in soil samples and in the adjacent groundwater sample is probably the reason for this stressed vegetation.

01 [ ] K DAMAGE TO FAUNA — 02 [ ] OBSERVED (DATE _____) — [ ] POTENTIAL — [ ] ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)
None known.

01 [ ] L CONTAMINATION OF FOOD CHAIN — 02 [ ] OBSERVED (DATE _____) — [ ] POTENTIAL — [ ] ALLEGED
04 NARRATIVE DESCRIPTION
None known.

01 [X] M UNSTABLE CONTAINMENT OF WASTES (Spills, Runoff, Standing liquids, Leaking drums) — 02 [ ] OBSERVED (DATE _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED 24,410 — 04 NARRATIVE DESCRIPTION
Surface soils in the old disposal area appear contaminated and easily accessible from the street at the north edge of the site.

01 [ ] N DAMAGE TO OFFSITE PROPERTY — 02 [ ] OBSERVED (DATE _____) — [ ] POTENTIAL — [ ] ALLEGED
04 NARRATIVE DESCRIPTION
None none.

01 [ ] O CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 [ ] OBSERVED (DATE _____) — [ ] POTENTIAL — [ ] ALLEGED
04 NARRATIVE DESCRIPTION
None known.

01 [X] P ILLEGAL/UNAUTHORIZED DUMPING — 02 [ ] OBSERVED (DATE 9/12/85) — [ ] POTENTIAL — [ ] ALLEGED
04 NARRATIVE DESCRIPTION
Unauthorized dumping appears to be possible at this site because it is unsecured. Some trash was visible in spots, but no direct evidence of third party hazardous materials dumping.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS
None known.

III. TOTAL POPULATION POTENTIALLY AFFECTED: 24,410

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)
Sample Data Package, Standard Oil Refinery, Laramie, WY, TDD R8-8602-14.
Sampling Activities Report, TDD R8-8505-10, 10/15/85, E&E-FIT.
Sampling Team Field Observations, 9/12/85 thru 9/13/85, E&E-FIT.

being filmed

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
WY	D980951602

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A NPDES	none			
☐ B UIC	none			
☐ C AIR	none			
☐ D RCRA	none			
☐ E RCRA INTERIM STATUS	none			
☐ F SPCC PLAN	none			
☐ G STATE (Specify)	none			
☐ H LOCAL (Specify)	none			
☐ I OTHER (Specify)	none			
☐ J NONE	none			

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☒ A SURFACE IMPOUNDMENT	1	
☐ B PILES		
☐ C DRUMS, ABOVE GROUND		
☐ D TANK, ABOVE GROUND		
☐ E TANK, BELOW GROUND		
☐ F LANDFILL		
☐ G LANDFARM		
☐ H OPEN DUMP	sludges, trash	
☐ I OTHER (Specify)		

04 TREATMENT (Check all that apply)

- ☐ A INCENERATION
- ☐ B UNDERGROUND INJECTION
- ☐ C CHEMICAL/PHYSICAL
- ☐ D BIOLOGICAL
- ☐ E WASTE OIL PROCESSING
- ☐ F SOLVENT RECOVERY
- ☐ G OTHER RECYCLING/RECOVERY
- ☐ H OTHER (Specify)

05 OTHER

☒ A BUILDINGS ON SITE

None

06 AREA OF SITE

(Acres)

07 COMMENTS

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☐ A ADEQUATE, SECURE ☐ B MODERATE ☐ C INADEQUATE, POOR ☒ D INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

No drums visible or suspected.
No liners in disposal areas.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE ☒ YES ☐ NO

02 COMMENTS

The waste disposal area where dumping and perhaps burial of wastes has occurred is easily accessible several yards south of a residential road. People were observed traversing the site.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

Sampling Team Field Observations, 9/12/85 thru 9/13/85. E&E-FIT, File R8-8505-10.

being filmed

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
WY	D980951602

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL
COMMUNITY	A. ☒	B. ☒
NON-COMMUNITY	C. ☐	D. ☒

02 STATUS

ENDANGERED	AFFECTED	MONITORED
A. ☐	B. ☐	C. ☒
D. ☒	E. ☐	F. ☒

03 DISTANCE TO SITE

A 7 (mi)
B <1/4 (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☐ A. ONLY SOURCE FOR DRINKING ☒ B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL IRRIGATION (No other water sources available) ☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available) ☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER @ 12,000

03 DISTANCE TO NEAREST DRINKING WATER WELL 100 ft. (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
@ 10 (ft)	north to northwesterly	@ 10 (ft)	unknown (gpd)	☐ YES ☒ NO

09 DESCRIPTION OF WELLS (including usage, depth, and location relative to population and buildings)

Few groundwater wells exist in this vicinity. However, one 30' well used for drinking is located along the northern border of the site. Two residences utilize this well. A sample taken by E&E-FIT 9/13/85 has shown no contamination from the site has reached this well.

10 RECHARGE AREA

☒ YES ☐ NO

COMMENTS Tributary groundwater from Laramie River. Seasonal

11 DISCHARGE AREA

☐ YES ☐ NO

COMMENTS Insufficient data

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☒ A. RESERVOIR, RECREATION DRINKING WATER SOURCE ☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES ☐ C. COMMERCIAL, INDUSTRIAL ☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME	AFFECTED	DISTANCE TO SITE
Laramie River	☐	adjacent (mi)
	☐	(mi)
	☐	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A @ 1,000 (NO. OF PERSONS)	B 12,000+ (NO. OF PERSONS)	C 24,410 (NO. OF PERSONS)

02 DISTANCE TO NEAREST POPULATION 100 ft. (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE @ 2,500

04 DISTANCE TO NEAREST OFF SITE BUILDING 100 ft. (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

This site lies along the northwest edge of the city of Laramie, Wyoming. Laramie's population, approximately 24,410, lies mostly south and east of the site. However, nearly all of the city falls within the 3 mile radius of this dismantled facility.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE: WY | 02 SITE NUMBER: D980951602

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A $10^{-6} - 10^{-8}$ cm/sec ☐ B $10^{-4} - 10^{-6}$ cm/sec ☒ C $10^{-4} - 10^{-3}$ cm/sec ☐ D GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☐ A IMPERMEABLE (Less than 10^{-6} cm/sec) ☐ B RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ☒ C RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☐ D VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH
24.5 (ft)	unknown (ft)	unknown

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
-27.3 (in)	<1.25 (in)	0-2 %	northerly	0-1 %

09 FLOOD POTENTIAL

SITE IS IN unknown YEAR FLOODPLAIN

10 ☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE: A N/A (mi) OTHER: B - (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

None in this area (mi)

ENDANGERED SPECIES Wyoming toad

13 LAND USE IN VICINITY

DISTANCE TO

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS, NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AGRICULTURAL LANDS: AG LAND
A <1/2 (mi)	B <1/4 (mi)	C None known (mi)	D <2 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The site is bordered by the Laramie River to the west. The topography in this immediate vicinity is extremely flat.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Geohydrology of Former Amoco Oil Company Refinery Site, Anthony J. Gogel, 2/8/85. Amoco Oil Company.

Rainfall Frequency Atlas of the United States, U.S. Dept. of Commerce, 1963.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
WY	D980951602

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	7	Organics - Laucks Testing Labs (LTL) Inorganics - Rocky Mtn. Analytical Lab (RMA)	Currently
SURFACE WATER	3	Organics - LTL, 9/13/85 Inorganics - RMA	Currently
WASTE	-	--	
AIR	-	--	
RUNOFF	-	--	
SPILL	-	--	
SOIL	2	Organics - LTL Inorganics - RMA 9/13/85	Currently
VEGETATION	-	--	
OTHER Sediment	3	Organics - LTL Inorganics - RMA 9/13/85	Currently

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS	RANGES
pH	Groundwater :	7.19 - 8.13
	Surface Water :	8.28 - 8.33
Specific Conductance	Groundwater :	800-3590 umhos
	Surface Water :	750 umhos
Temperature °C	Groundwater :	12°-19°C
	Surface Water :	18° - 19.5°C
HNu	Wells sampled :	0.1 - 21 ppm

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☒ GROUND ☐ AERIAL

02 IN CUSTODY OF Ecology and Environment, Inc. files/Denver, CO
(Name of organization or individual)

03 MAPS ☒ YES ☐ NO

04 LOCATION OF MAPS Ecology and Environment, Inc./Denver, CO

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Sample Activities Report, TDD R8-8505-10, 1/15/85, E&E-FIT
Field Log Book - TDD R8-8505-10, E&E-FIT files.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
WY	D980951602

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER
Standard Oil Company		Amoco Oil Company	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**10 STREET ADDRESS** (P.O. Box, RFD #, etc.)	**11 SIC CODE**
P.O. Box 3385		200 E. Randolph Dr. P.O. Box 6110A	
05 CITY / **06 STATE** / **07 ZIP CODE**		**12 CITY** / **13 STATE** / **14 ZIP CODE**	
Tulsa / OK / 74102		Chicago / IL / 60680	

PARENT COMPANY (If applicable)

01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**10 STREET ADDRESS** (P.O. Box, RFD #, etc.)	**11 SIC CODE**
05 CITY / **06 STATE** / **07 ZIP CODE**		**12 CITY** / **13 STATE** / **14 ZIP CODE**	

01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**10 STREET ADDRESS** (P.O. Box, RFD #, etc.)	**11 SIC CODE**
05 CITY / **06 STATE** / **07 ZIP CODE**		**12 CITY** / **13 STATE** / **14 ZIP CODE**	

01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**10 STREET ADDRESS** (P.O. Box, RFD #, etc.)	**11 SIC CODE**
05 CITY / **06 STATE** / **07 ZIP CODE**		**12 CITY** / **13 STATE** / **14 ZIP CODE**	

III. PREVIOUS OWNER(S) (List most recent first)

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**
05 CITY / **06 STATE** / **07 ZIP CODE**	

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**
05 CITY / **06 STATE** / **07 ZIP CODE**	

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**
05 CITY / **06 STATE** / **07 ZIP CODE**	

IV. REALTY OWNER(S) (If applicable, list most recent first)

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**
05 CITY / **06 STATE** / **07 ZIP CODE**	

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**
05 CITY / **06 STATE** / **07 ZIP CODE**	

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**
05 CITY / **06 STATE** / **07 ZIP CODE**	

V. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

Geohydrology of Former Amoco Oil Co. Refinery Site, Anthony J. Gogel, 2/8/85.
Amoco Oil Company.
Phone conversation with Phil Pucel, 5/29/86 at 9:00 A.M. (WDEQ).

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
WY	D980951602

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME: Facility is dismantled	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.): No activity presently.	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER

OPERATOR'S PARENT COMPANY (If applicable)

10 NAME	11 D+B NUMBER
12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE
14 CITY	15 STATE / 16 ZIP CODE

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD
01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD
01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

10 NAME	11 D+B NUMBER
12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE
14 CITY	15 STATE / 16 ZIP CODE
10 NAME	11 D+B NUMBER
12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE
14 CITY	15 STATE / 16 ZIP CODE
10 NAME	11 D+B NUMBER
12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE
14 CITY	15 STATE / 16 ZIP CODE

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Field observation, E&E-FIT, 9/12 and 13/85 TDD R8-8505-10.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
WY	D980951602

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
Standard Oil Company	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
P.O. Box 3385	

05 CITY	06 STATE	07 ZIP CODE
Tulsa	OD	74102

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Sample data package, Case #4591, Standard Oil Refinery, Laramie, WY TDD R8-8602-14.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
WY	D980951602

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Not Reported.

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Not Reported.

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Not Reported.

01 ☐ D. SPILLED MATERIAL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Not Reported.

01 ☐ E. CONTAMINATED SOIL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Not Reported.

01 ☐ F. WASTE REPACKAGED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Not Reported.

01 ☐ G. WASTE DISPOSED ELSEWHERE — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Not Reported.

01 ☐ H. ON SITE BURIAL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
At least 2 disposal sites for wastes were located at this site.

01 ☐ I. IN SITU CHEMICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Not Reported.

01 ☐ J. IN SITU BIOLOGICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Not Reported.

01 ☐ K. IN SITU PHYSICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Not Reported.

01 ☐ L. ENCAPSULATION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Not Reported.

01 ☐ M. EMERGENCY WASTE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Not Reported.

01 ☐ N. CUTOFF WALLS — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
None observed.

01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
None observed or reported. They may have existed during site's active years.

01 ☐ P. CUTOFF TRENCHES/SUMP — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
None observed.

01 ☐ Q. SUBSURFACE CUTOFF WALL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
None Reported.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
WY	D980951602

II PAST RESPONSE ACTIVITIES (Continued)

01 ☐ R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Not Reported.

01 ☐ S. CAPPING/COVERING — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Not observed or reported.

01 ☐ T. BULK TANKAGE REPAIRED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Not Reported.

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Not Reported.

01 ☐ V. BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Not Reported.

01 ☐ W. GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Not Reported.

01 ☐ X. FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
During operating years there was probably a fire control system common to refinery facilities.

01 ☐ Y. LEACHATE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Not Reported.

01 ☐ Z. AREA EVACUATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
Not Reported.

01 ☐ 1. ACCESS TO SITE RESTRICTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
No fence that is secure.

01 ☐ 2. POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
None reported.

01 ☐ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
None known.

III. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

Field observations, E&E-FIT, 9/12 and 13/85, File R8-8505-10.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
WY	D980951602

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ☒ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

None reported.

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA FORM 2070-13 (7-81)

REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

Case No. 4951/1930H Project No. _____

Site Standard Oil - Laramie

Contractor Laboratory BMAL

Data Reviewer A Roberts Date of Review 2/17/86

Sample Matrix Medium Soil

Analysis Metals

Sample No. MHC271 _____ _____ _____

MHC272 _____ _____ _____

_____ _____ _____ _____

_____ _____ _____ _____

_____ _____ _____ _____

(✓) Data are acceptable for use

( ) Data are acceptable for use with qualification noted

( ) Data are preliminary - pending action or verification

( ) Data are unacceptable

Action required by DPO?

No ✓ Yes ____ Following items require action _____

Action required by Project Officer (PO)?

No ✓ Yes ____

FORM A

Inorganic Data Completeness Checklist

✓ Inorganic analysis data sheets

✓ Initial calibration and calibration verification results

✓ Continuing calibration verification

✓ Instrument Detection limits

✓ Duplicate results

✓ Spike results

✓ ICP interference check sample

✓ Blank results

✓ Serial Dilution Results

✓ Raw data for calibration standards

✓ Raw data for blanks

✓ Raw data for samples

✓ Raw data for duplicates

✓ Raw data for spikes

✓ Raw data for furnace AA

✓ Percent solids calculation - soils only

✓ Traffic Reports

FORM B

Initial calibration data were reviewed. Initial calibration data were included in the package and met all contract requirements.

YES ✓ NO _____

Comments:

Continuing calibration data were reviewed and these data met all contract requirements.

YES ✓ NO _____

Comments:

A blank was run with every twenty samples or less per case.

YES ✓ NO _____

Comments:

How many elements were detected above the required detection limit? 0

How many elements were detected at greater than one half the amount detected in any sample? 0

Comments:

FORM C

The interference check sample was run twice per eight hour shift. No massive interferences were present.

YES ✓ NO_____

Comments:

All matrix spike requirements were met.

YES ✓ NO_____

Comments:

A duplicate sample was run with every twenty or fewer samples of a similar matrix, or one per case, whichever is more frequent.

YES ✓ NO_____

The RPD's were tabulated.

YES ✓ NO_____

Comments:

all soil duplicates less than 35 RPD.

All inorganic detection limits met the contract requirements.

YES ✓ NO_____

Comments:

FORM D

All Laboratory Control Samples met specified contract limits.

YES ✓ NO_____

Comments:

Serial Dilution requirements were met.

YES ✓ NO_____

Zinc flagged with E by lab. However, no E is required. The 1/10 dilution did not contain zinc at 10X the IDL.

The Furnace Atomic Absorption Analysis Scheme was followed correctly.

YES ✓ NO_____

All holding times were met.

YES ✓ NO_____

Comments:

Rec'd 10/21/85

4951/1930H
RMA

I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

Date 10-18-85

COVER PAGE
INORGANIC ANALYSIS DATA PACKAGE

Lab Name ROCKY MOUNTAIN ANALYTICAL
SOW No. 784

Case No. 4951/1930H
QC Report No. 55280

Sample Numbers

EPA No.	Lab ID No.	EPA No.	Lab ID No.
MHC271			
MHC272			
[MHC999]			

Comments: 2 MEDIUM SOILS TASK 1&2 ONLY
SERIAL DILUTION OF SAMPLE MHC272 IDENTIFIED AS [MHC999]

Interference noted on Serial Dilution for Zn.

ICP Interelement and background corrections applied? Yes X No ___
If yes, corrections applied before X or after ___ generation of raw data.

Footnotes:

NR - not required by contract at this time
Form I:
Value - If the result is a value greater than or equal to the instrument detection limit but less than the contract required detection limit, report the value in brackets (i.e., [10]). Indicate the method used with P (for ICP/Flame AA) or F (for furnace).
U - Indicates element was analyzed for but not detected. Report with the detection limit value (e.g., 10U).
E - Indicates a value estimated or not reported due to the presence of interference. Explanatory note included on cover page.
S - Indicates value determined by Method of Standard Addition.
N - Indicates spike sample recovery is not within control limits.
* - Indicates duplicate analysis is not within control limits.
+ - Indicates the correlation coefficient for method of standard addition is Less than 0.995
CV - Indicates Cold Vapor
AS - Indicates Automated Spectrophotometric

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MHC271

Date 10-18-85

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 4951/1930H
QC REPORT NO. 55280

Elements Identified and Measured

Concentration: Low ____ Medium X
Matrix: Water ____ Soil X Sludge ____ Other ____

mg/kg dry weight

1.	ALUMINUM	1760	P	13.	MAGNESIUM	[1640]	P
2.	ANTIMONY	18U	P	14.	MANGANESE	211	P
3.	ARSENIC	8.3	F	15.	MERCURY	0.48	CV ~~X~~
4.	BARIUM	[80]	P	16.	NICKEL	[17]	P
5.	BERYLLIUM	[0.31]	P	17.	POTASSIUM	[890]	P
6.	CADMIUM	2.4U	P	18.	SELENIUM	3U	F
7.	CALCIUM	14300	P	19.	SILVER	1.8U	P
8.	CHROMIUM	[5.5]	P	20.	SODIUM	[605]	P
9.	COBALT	2.4U	P	21.	THALLIUM	1.8U	F
10.	COPPER	33	P	22.	TIN	[13]	P
11.	IRON	5660	P	23.	VANADIUM	[11]	P
12.	LEAD	237	P	24.	ZINC	276	P ~~X~~

Cyanide NR Percent Solids (%) 84

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MHC272

Date 10-18-85

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 4951/1930H
QC REPORT NO. 55280

Elements Identified and Measured

Concentration: Low ____ Medium X
Matrix: Water ____ Soil X Sludge ____ Other ____

mg/kg dry weight

1.	ALUMINUM	1670	P	13.	MAGNESIUM	[837]	P
2.	ANTIMONY	17U	P	14.	MANGANESE	81	P
3.	ARSENIC	9.9	F	15.	MERCURY	0.2	CV ~~X~~ no flag
4.	BARIUM	[34]	P	16.	NICKEL	[21]	P
5.	BERYLLIUM	0.16U	P	17.	POTASSIUM	[575]	P
6.	CADMIUM	2.2U	P	18.	SELENIUM	2.7U	F
7.	CALCIUM	5150	P	19.	SILVER	1.6U	P
8.	CHROMIUM	[3.3]	P	20.	SODIUM	324U	P
9.	COBALT	[2.5]	P	21.	THALLIUM	1.6U	F
10.	COPPER	17	P	22.	TIN	9.3U	P
11.	IRON	7280	P	23.	VANADIUM	[9.8]	P
12.	LEAD	56	P	24.	ZINC	51	P ~~X~~ ~~E~~ no flag

Cyanide NR Percent Solids (%) 91

dR 2/17/

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager [signature]

REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

Case No. 4951 Project No. _____

Site Standard Oil - Laramie

Contractor Laboratory Weyerhaeuser

Data Reviewer J. Robert Date of Review 2/17/86

Sample Matrix Water and Soil

Analysis Metals

Sample No. MHE262 MHE274 _____ _____

MHE265 MHE275 _____ _____

MHE268 MHE276 _____ _____

MHE269 _____ _____ _____

MHE270 _____ _____ _____

(✓) Data are acceptable for use

( ) Data are acceptable for use with qualification noted

( ) Data are preliminary - pending action or verification

( ) Data are unacceptable

Action required by DPO?

No ✓ Yes _____ Following items require action _____

Action required by Project Officer (PO)?

No ✓ Yes _____

Following are our findings:

The data are acceptable for use with the qualifications notes. These are listed on Forms C and D. The manganese result for the water samples may be greater than actual due to a matrix effect. The arsenic result for the soil samples may be less than actual due to a matrix effect. Results flagged with qualifiers should be considered estimates.

The pH of the surface water samples (MH268 - MH270) was determined by lab personnel upon receipt to be 6. Apparently these samples were not acidified in the field.

FORM A

Inorganic Data Completeness Checklist

✓ Inorganic analysis data sheets

✓ Initial calibration and calibration verification results

✓ Continuing calibration verification

✓ Instrument Detection limits

✓ Duplicate results

✓ Spike results

✓ ICP interference check sample

✓ Blank results

✓ Serial Dilution Results

✓ Raw data for calibration standards

✓ Raw data for blanks

✓ Raw data for samples

✓ Raw data for duplicates

✓ Raw data for spikes

✓ Raw data for furnace AA

✓ Percent solids calculation - soils only

✓ Traffic Reports

FORM B

Initial calibration data were reviewed. Initial calibration data were included in the package and met all contract requirements.

YES ✓ NO_____

Comments:

Continuing calibration data were reviewed and these data met all contract requirements.

YES ✓ NO_____

Comments:

A blank was run with every twenty samples or less per case.

YES ✓ NO_____

Comments:

How many elements were detected above the required detection limit? 0

How many elements were detected at greater than one half the amount detected in any sample? 0

Comments:

FORM C

The interference check sample was run twice per eight hour shift. No massive interferences were present.

YES ✓ NO_____

Comments:

All matrix spike requirements were met.

YES_____ NO ✓

Comments:

Water Mn 152%
Se 61%

Control limit is 75-125% Recovery. Results flagged with an "R."

A duplicate sample was run with every twenty or fewer samples of a similar matrix, or one per case, whichever is more frequent.

YES ✓ NO_____

The RPD's were tabulated.

YES ✓ NO_____

Comments:

Soil Barium 37 RPD
Sodium 37 RPD
Water aluminum 50 RPD

Control limit is 35 RPD Results flagged with an "*".

All inorganic detection limits met the contract requirements.

YES ✓ NO_____

Comments:

FORM D

All Laboratory Control Samples met specified contract limits.

YES_____ NO ✓

Comments:

Water Sodium 122 %R

Soil Arsenic 24 %R

Vanadium 65 %R

These results are reported with a J (estimate).

Serial Dilution requirements were met.

YES ✓ NO_____

See note included by lab.

The Furnace Atomic Absorption Analysis Scheme was followed correctly.

YES ✓ NO_____

All holding times were met.

YES ✓ NO_____

Comments:

In Reference to Case No(s):
4951
Metals

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM
Telephone Record Log

Date of Call: 2/18/86

Laboratory Name: Weyerhaeuser

Lab Contact: M. Ke Shelton

Region: VIII

Regional Contact: Lynn Roberts

Call Initiated By: ___ Laboratory X Region

In reference to data for the following sample number(s):

MHC 268, 269, 270

Summary of Questions/Issues Discussed:

Lab personnel noted the pH of the samples on the cover sheet. The pH of the above samples was 6. Please confirm this.

Summary of Resolution:

The pH of the samples was determined upon receipt.

Apparently, sampling personnel did not acidify the surface water samples listed above.

Lynn M Roberts
Signature

2/18/86
Date

Distribution: (1) Lab Copy, (2) Region Copy, (3) SMO Copy

11-05-85

7751

I

Weyerhaeuser Company

Tacoma, Washington 98477
(206) 924-2345

October 29, 1985

Mr. John Tilstra
USEPA Region VIII
Building 53, Room 2707
Denver Federal Center
Denver CO 80225

Dear Mr. Tilstra:

The enclosed data was missed during the copying process. It is the ICP data for spiked water samples. Please insert in after page 90 in the raw data, case 4951.

Sorry for any inconvenience this may have caused.

Sincerely,

Mike Shelton

Mike Shelton
Weyerhaeuser Analytical
and Testing Services

MS:pd22/1119/a44

Enclosure

Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

Date 9/17/85

Weyer.

Inv

COVER PAGE
INORGANIC ANALYSES DATA PACKAGE

Lab Name Weyerhaeuser

Case No. 4951

SOW No. 784

Q.C. Report No. 12765

Sample Numbers

EPA No.		pH	Lab ID No.	EPA No.	Lab ID No.
* MHC 262	WATERS	<2	72375		
MHC 265	WATERS	<2	72376		
MHC 268	WATERS	6	72377		
MHC 269	WATERS	6	72378		
MHC 270	WATERS	6	72379		
MHC 274	SOILS		72380		
MHC 275	SOILS		72381		
MHC 276	SOILS		72382		

Comments: * 1 SAMPLE IN 3 CONTAINERS
TOTAL METALS
Samples may be identified by last three digit of Lab ID.

ICP Interelement and background corrections applied? Yes X No ___.

If yes, corrections applied before X or after ___ generation of raw data.

Footnotes:

NR - not required by contract at this time

Form I:

Value - If the result is a value greater than or equal to the instrument detection limit but less than the contract required detection limit, report the value in brackets (i.e., [10]). Indicate the analytical method used with P (for ICP/Flame AA) or F (for furnace).

U - Indicates element was analyzed for but not detected. Report with the detection limit value (e.g., 10U).

E - Indicates a value estimated or not reported due to the presence of interference. Explanatory note included on cover page.

s - Indicates value determined by Method of Standard Addition.

R - Indicates spike sample recovery is not within control limits.

* - Indicates duplicate analysis is not within control limits.

+ - Indicates the correlation coefficient for method of standard addition is less than 0.995

C = Hg by Flameless AA

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria VA 22313
(703) 557-2490 FTS: 8-557-2490

EPA Sample No. MHC 268

Date: 10/21/85

INORGANIC ANALYSES DATA SHEET

Lab Name Weyerhaeuser

Case No. 4951

SOW No. 784

Lab Sample ID No. 72377

QC Report No. 12765

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

µg/L or mg/kg dry weight (Circle One)

1.	Aluminum	369 ~~X~~	P	13.	Magnesium	36 000	P
2.	Antimony	[50U]	P	14.	Manganese	107 R	P
3.	Arsenic	[6U]	F	15.	Mercury	0.2U	C
4.	Barium	[53]	P	16.	Nickel	[20U]	P
5.	Beryllium	[4U]	P	17.	Potassium	[2400]	P
6.	Cadmium	[2U]	P	18.	Selenium	[4U] R	F
7.	Calcium	78 300	P	19.	Silver	[4U]	P
8.	Chromium	[5U]	P	20.	Sodium	50200 J	P
9.	Cobalt	[4U]	P	21.	Thallium	[3U]	F
10.	Copper	[6U]	P	22.	Tin	[22U]	P
11.	Iron	516	P	23.	Vanadium	[5]	P
12.	Lead	[3U]	F	24.	Zinc	[4]	P

Cyanide ____ Percent Solids (%) ____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager [signature]

1/22/1107/d10

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria VA 22313
(703) 557-2490 FTS: 8-557-2490

EPA Sample No. MHC 269

Date: 10/21/85

INORGANIC ANALYSES DATA SHEET

Lab Name Weyerhaeuser Case No. 4951

SOW No. 784

Lab Sample ID No. 72378 QC Report No. 12765

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

µg/L or mg/kg dry weight (Circle One)

1.	Aluminum	273 *	P	13.	Magnesium	36 700	P
2.	Antimony	[50U]	P	14.	Manganese	93 R	P
3.	Arsenic	[6U]	F	15.	Mercury	0.2U	C
4.	Barium	[51]	P	16.	Nickel	[20U]	P
5.	Beryllium	[4U]	P	17.	Potassium	2 490	P
6.	Cadmium	[2U]	P	18.	Selenium	5U R	F
7.	Calcium	78 500	P	19.	Silver	[3U]	P
8.	Chromium	[5U]	P	20.	Sodium	50 900 J	P
9.	Cobalt	[4U]	P	21.	Thallium	10U	F
10.	Copper	[5]	P	22.	Tin	[22U]	P
11.	Iron	333	P	23.	Vanadium	[4]	P
12.	Lead	[3U]	F	24.	Zinc	[4]	P

Cyanide ____ Percent Solids (%) ____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager [signature]

1482/1103/d10

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria VA 22313
(703) 557-2490 FTS: 8-557-2490

EPA Sample No. MHC270

Date: 10/21/85

INORGANIC ANALYSES DATA SHEET

Lab Name Weyerhaeuser

Case No. 4951

SOW No. 784

Lab Sample ID No. 72379

QC Report No. 12765

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

µg/L or mg/kg dry weight (Circle One)

1.	Aluminum	287 X	P AR	13.	Magnesium	36 300	P
2.	Antimony	[50U]	P	14.	Manganese	99 R	P
3.	Arsenic	[6U]	F	15.	Mercury	0.2U	C
4.	Barium	[51]	P	16.	Nickel	[20U]	P
5.	Beryllium	[4U]	P	17.	Potassium	[2410]	P
6.	Cadmium	[2U]	P	18.	Selenium	[4U] R	P AR
7.	Calcium	78 200	P	19.	Silver	4	P
8.	Chromium	[5U]	P	20.	Sodium	50 500 J	P AR
9.	Cobalt	[4U]	P	21.	Thallium	[3U]	P
10.	Copper	[6]	P	22.	Tin	[22U]	P
11.	Iron	364	P	23.	Vanadium	[4]	P
12.	Lead	[3U]	F	24.	Zinc	[4]	P

Cyanide ____

Percent Solids (%) ____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager [signature]

lt22/1107/d10

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria VA 22313
(703) 557-2490 FTS: 8-557-2490

EPA Sample No. MHC-265

Date: 10/21/85

INORGANIC ANALYSES DATA SHEET

Lab Name Weyerhaeuser

Case No. 4951

SOW No. 784

Lab Sample ID No. 72376

QC Report No. 12765

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

µg/L or mg/kg dry weight (Circle One)

1.	Aluminum	48200 K	P K	13.	Magnesium	114000	P
2.	Antimony	50U	P	14.	Manganese	3710 R	P K
3.	Arsenic	28	F	15.	Mercury	0.2U	C
4.	Barium	1520	P	16.	Nickel	102	P
5.	Beryllium	[4U]	P	17.	Potassium	19000	P
6.	Cadmium	[2]	P	18.	Selenium	5U R	F K
7.	Calcium	447000	P	19.	Silver	4U	P
8.	Chromium	64	P	20.	Sodium	49400 J	P K
9.	Cobalt	51	P	21.	Thallium	[3U]	F
10.	Copper	68	P	22.	Tin	[22U]	P
11.	Iron	47300	P	23.	Vanadium	96	P
12.	Lead	8	F	24.	Zinc	304	P

Cyanide ____

Percent Solids (%) ____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Due to slight matrix interference Al, Ca, Fe, Mg, Mn and Zn were reported using the 1-10 serial dilution values.

Lab Manager [signature]

It22/1107/d10
11/18/85-2

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria VA 22313
(703) 557-2490 FTS: 8-557-2490

EPA Sample No. MHC 262

Date: 10/21/85

INORGANIC ANALYSES DATA SHEET

Lab Name Weyerhaeuser

Case No. 4951

SOW No. 784

Lab Sample ID No. 72375

QC Report No. 12765

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

µg/L or mg/kg dry weight (Circle One)

1.	Aluminum	[34] ~~X~~	P sh	13.	Magnesium	39200	P
2.	Antimony	[50U]	P	14.	Manganese	110 R	P
3.	Arsenic	[6U]	F	15.	Mercury	0.2U	C
4.	Barium	[48]	P	16.	Nickel	[20U]	P
5.	Beryllium	[4U]	P	17.	Potassium	[2760]	P
6.	Cadmium	[2U]	P	18.	Selenium	5U R	F sh
7.	Calcium	116000	P	19.	Silver	[3U]	P
8.	Chromium	[5U]	P	20.	Sodium	40000 J	P sh
9.	Cobalt	[4U]	P	21.	Thallium	[3U]	F
10.	Copper	76	P	22.	Tin	[22]	P
11.	Iron	1240	P	23.	Vanadium	[4U]	P
12.	Lead	[3U]	F	24.	Zinc	106	P

Cyanide ____

Percent Solids (%) ____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager [signature]

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria VA 22313
(703) 557-2490 FTS: 8-557-2490

EPA Sample No. MHC-274

Date: 10/21/85

INORGANIC ANALYSES DATA SHEET

Lab Name Weyerhaeuser

Case No. 4951

SOW No. 784

Lab Sample ID No. 72 380

QC Report No. 12765

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water ____ Soil X Sludge ____ Other ____

µg/L or mg/kg dry weight (Circle One)

1.	Aluminum	3270	P	13.	Magnesium	2400	P
2.	Antimony	[28U]	P	14.	Manganese	177	P
3.	Arsenic	6 U J	F	15.	Mercury	<0.06	C
4.	Barium	[56] *	P	16.	Nickel	[11U]	P
5.	Beryllium	[3U]	P	17.	Potassium	[525]	P
6.	Cadmium	[2U]	P	18.	Selenium	[3U]	F
7.	Calcium	10500	P	19.	Silver	[2U]	P
8.	Chromium	26	P	20.	Sodium	[119] *	P
9.	Cobalt	[2.9]	P	21.	Thallium	[2U]	P
10.	Copper	[6.7]	P	22.	Tin	[12U]	P
11.	Iron	7220	P	23.	Vanadium	[13] J	P
12.	Lead	8.6	F	24.	Zinc	23	P

Cyanide ____

Percent Solids (%) 78.2

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager [signature]

lt22/1107/d10

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria VA 22313
(703) 557-2490 FTS: 8-557-2490

EPA Sample No. MHC-275

Date: 10/21/85

INORGANIC ANALYSES DATA SHEET

Lab Name Weyerhaeuser

Case No. 4951

SOW No. 784

Lab Sample ID No. 72381

QC Report No. 12765

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water ____ Soil X Sludge ____ Other ____

µg/L or mg/kg dry weight (Circle One)

1.	Aluminum	1170	P	13.	Magnesium	[697]	P
2.	Antimony	[304]	P	14.	Manganese	96	P
3.	Arsenic	[34] J	F JR	15.	Mercury	<0.07	C
4.	Barium	[22] *	P JR	16.	Nickel	[124]	P
5.	Beryllium	[34]	P	17.	Potassium	[2304]	P
6.	Cadmium	[24]	P	18.	Selenium	[34]	F
7.	Calcium	2850	P	19.	Silver	[24]	P
8.	Chromium	[4.0]	P	20.	Sodium	[137] *	P JR
9.	Cobalt	[34]	P	21.	Thallium	[24]	P
10.	Copper	[44]	P	22.	Tin	[134]	P
11.	Iron	2490	P	23.	Vanadium	[34] J	P JR
12.	Lead	[3]	F	24.	Zinc	[9]	P

Cyanide ____

Percent Solids (%) 76.8

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager [signature]

lt22/1107/d10

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria VA 22313
(703) 557-2490 FTS: 8-557-2490

EPA Sample No. MHC-276

Date: 10/21/85

INORGANIC ANALYSES DATA SHEET

Lab Name Weyerhaeuser

Case No. 4951

SOW No. 784

Lab Sample ID No. 72382

QC Report No. 12765

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water ____ Soil X Sludge ____ Other ____

µg/L or mg/kg dry weight (Circle One)

1.	Aluminum	1730	P	13.	Magnesium	1630	P
2.	Antimony	[10 U]	P	14.	Manganese	392	P
3.	Arsenic	[1] S	P M	15.	Mercury	<0.06	C
4.	Barium	56 X	P	16.	Nickel	[4 U]	P
5.	Beryllium	[0.6 U]	P	17.	Potassium	[466]	P
6.	Cadmium	[0.4 U]	P	18.	Selenium	[1 U]	P
7.	Calcium	3690	P	19.	Silver	[1]	P
8.	Chromium	[2.5]	P	20.	Sodium	[69] X	P M
9.	Cobalt	[1.7]	P	21.	Thallium	[0.6 U]	P
10.	Copper	[2.6]	P	22.	Tin	[4.5 U]	P
11.	Iron	3440	P	23.	Vanadium	[5.2] S	P M
12.	Lead	[3]	F	24.	Zinc	10	P

Cyanide ____

Percent Solids (%) 82.2

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: ____

Lab Manager [signature]

1t22/1107/d10

REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

Case No. 4951/1930H Project No. _____

Site Standard Oil - Ceramic

Contractor Laboratory RMA

Data Reviewer L. Roberts Date of Review _____

Sample Matrix Low Water

Analysis Metals

Sample No. MHC 263 _____ _____ _____

MHC 264 _____ _____ _____

_____ _____ _____ _____

_____ _____ _____ _____

_____ _____ _____ _____

( ) Data are acceptable for use

(✓) Data are acceptable for use with qualification noted

( ) Data are preliminary - pending action or verification

( ) Data are unacceptable

Action required by DPO?

No ✓ Yes ____ Following items require action _____

_____

Action required by Project Officer (PO)?

No ✓ Yes ____

Following are our findings:

The selenium results are unusable (See Form C)

FORM A

Inorganic Data Completeness Checklist

✓ Inorganic analysis data sheets

✓ Initial calibration and calibration verification results

✓ Continuing calibration verification

✓ Instrument Detection limits

✓ Duplicate results

✓ Spike results

✓ ICP interference check sample

✓ Blank results

✓ Serial Dilution Results

✓ Raw data for calibration standards

✓ Raw data for blanks

✓ Raw data for samples

✓ Raw data for duplicates

✓ Raw data for spikes

✓ Raw data for furnace AA

NR Percent solids calculation - soils only

✓ Traffic Reports

FORM B

Initial calibration data were reviewed. Initial calibration data were included in the package and met all contract requirements.

YES ✓ NO_____

Comments:

Continuing calibration data were reviewed and these data met all contract requirements.

YES ✓ NO_____

Comments:

A blank was run with every twenty samples or less per case.

YES ✓ NO_____

Comments:

How many elements were detected above the required detection limit? 0

How many elements were detected at greater than one half the amount detected in any sample? 0

Comments:

FORM C

The interference check sample was run twice per eight hour shift. No massive interferences were present.

YES ✓ NO_____

Comments:

All matrix spike requirements were met.

YES_____ NO ✓

Comments:

Aluminum	185 % Recovery	Manganese	56 %	① Unreadable
Antimony	33 % ②	Nickel	61 %	② Neutron bias may be present
Beryllium	62 %	Selenium	0 % ①	
Cobalt	62 %	Thallium	50 % ②	A flag required for these elements.
Copper	63 %			

A duplicate sample was run with every twenty or fewer samples of a similar matrix, or one per case, whichever is more frequent.

YES ✓ NO_____

The RPD's were tabulated.

YES ✓ NO_____

Comments:

All inorganic detection limits met the contract requirements.

YES ✓ NO_____

Comments:

FORM D

All Laboratory Control Samples met specified contract limits.

YES ✓ NO_____

Comments:

Serial Dilution requirements were met.

YES ✓ NO_____

interference noted for sodium (E flag applied).

The Furnace Atomic Absorption Analysis Scheme was followed correctly.

YES ✓ NO_____

All holding times were met.

YES ✓ NO_____

Comments:

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

Date 10-9-85

COVER PAGE
INORGANIC ANALYSIS DATA PACKAGE

Lab Name ROCKY MOUNTAIN ANALYTICAL
SOW No. 784

Case No. 4951/1930H
QC Report No. 55281

Sample Numbers

55281-8-4951/1930H-3

EPA No.	Lab	EPA No.	Lab ID No.
MHC263			
MHC264			
[MHC999]			

Comments: 2 MEDIUM OILY WATERS TASK 1&2 ONLY
SERIAL DILUTION OF SAMPLE MHC264 IS IDENTIFIED AS [MHC999]

Samples prepared @ 5X dilution

Interference noted on 10X ICAP serial dilution for Sodium.

ICP Interelement and background corrections applied? Yes X No
If yes, corrections applied before X or after ___ generation of raw data.

Footnotes:

NR - not required by contract at this time
Form I:
Value - If the result is a value greater than or equal to the instrument detection limit but less than the contract required detection limit, report the value in brackets (i.e., [10]). Indicate the method used with P (for ICP/Flame AA) or F (for furnace).
U - Indicates element was analyzed for but not detected. Report with the detection limit value (e.g., 10U).
E - Indicates a value estimated or not reported due to the presence of interference. Explanatory note included on cover page.
S - Indicates value determined by Method of Standard Addition.
R - Indicates spike sample recovery is not within control limits.
* - Indicates duplicate analysis is not within control limits.
+ - Indicates the correlation coefficient for method of standard addition is less than 0.995
CV - Indicates Cold Vapor
AS - Indicates Automated Spectrophotometric

2

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MHC263

Date 10-9-85

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 4951/1930H
QC REPORT NO. 55281

Elements Identified and Measured

Concentration: Low X Medium ____
Matrix: Water X Soil ____ Sludge ____ Other ____

UG/L

1.	ALUMINUM	14400	P	R	13.	MAGNESIUM	161000	P	
2.	ANTIMONY	155U	P	R	14.	MANGANESE	988	P	R
3.	ARSENIC	80	F		15.	MERCURY	0.5U	CV	
4.	BARIUM	[425]	P		16.	NICKEL	[44]	P	R
5.	BERYLLIUM	[2.1]	P	R	17.	POTASSIUM	[10500]	P	
6.	CADMIUM	20U	P		18.	SELENIUM	25U	F	R (1)
7.	CALCIUM	248000	P		19.	SILVER	15U	P	
8.	CHROMIUM	56	P		20.	SODIUM	176000	P	E
9.	COBALT	20U	P	R	21.	THALLIUM	50U	F	R
10.	COPPER	129	P	R	22.	TIN	85U	P	
11.	IRON	33900	P		23.	VANADIUM	[127]	P	R
12.	LEAD	27	F		24.	ZINC	330	P	R

Cyanide NR Percent Solids (%) ____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Sample prepared @ 5x dilution
(1) Unreadable

Lab Manager [signature]

3

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No. MHC264

Date 10-9-85

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 4951/1930H
QC REPORT NO. 55281

Elements Identified and Measured

Concentration: Low X Medium ____
Matrix: Water X Soil ____ Sludge ____ Other ____

UG/L

1.	ALUMINUM	30300	P R	13.	MAGNESIUM	303000	P
2.	ANTIMONY	155U	P R	14.	MANGANESE	2520	P R
3.	ARSENIC	70	F	15.	MERCURY	0.5U	CV
4.	BARIUM	[550]	P	16.	NICKEL	[54]	P R
5.	BERYLLIUM	[2.9]	P R	17.	POTASSIUM	[16100]	P
6.	CADMIUM	20U	P	18.	SELENIUM	150U	F R ①
7.	CALCIUM	365000	P	19.	SILVER	15U	P
8.	CHROMIUM	64	P	20.	SODIUM	311000	P E
9.	COBALT	[23]	P R	21.	THALLIUM	50U	F R
10.	COPPER	[92]	P R	22.	TIN	85U	P
11.	IRON	49700	P	23.	VANADIUM	[115]	P R
12.	LEAD	25U	F	24.	ZINC	307	P R

Cyanide NR Percent Solids (%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Sample prepared @ 5x dilution
① Unuseable JP

Lab Manager JW

REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

Case No. 4951 / 1930H Project No. R8-8602-14

Site Standard Oil Refinery

Contractor Laboratory IT Analytical Services

Data Reviewer Randy Greaves Date of Review 3/17/86

Sample Matrix 1 low soil, 1 medium soil

Sample No. HB103 (med. soil)

HB287 (low soil.)

( ) Data are acceptable for use

(✓) Data are acceptable for use with qualification noted below.

( ) Data are preliminary - pending action or verification

( ) Data are unacceptable

Action required by DPO?

No ✓ Yes ____ Following items require action ____

Action required by Project Officer (PO)?

No ✓ Yes ____

Following are our findings:

None of the low soil surrogates were recovered from the samples. The matrix spike and matrix spike duplicate analysis also showed poor recovery of spiked compounds. A large number of continuing calibration compounds were also outside the QC limits. Because of the low surrogate recoveries, all of the identified compounds in sample HB287 were qualified with a "J." Most of these compounds were already qualified, however, because they were present below the laboratories detection limits. Laboratory detection limits and the poor surrogate recoveries were both a result of dilution of the sample.

No pesticide analysis was performed on these samples. GC/MS tuning, holding times and mass spectra were all OK and satisfied the contract specifications. See the notes below on the attached sheets for other details.

DFTPP and BFB Performance Results

The DFTPP performance results were all included and found to be within the specified criteria.

Yes ✓ No _____

Comments:

The BFB performance results were all included and found to be within the specified criteria.

Yes ✓ No _____

Comments:

The (DFTPP/BFB) performance result(s) was/were reviewed and the following abundance were found to fall outside the specified criteria:

Date	Compound	m/z	Required Abundance	Actual Abundance

None

All samples were extracted and analyzed within contract holding times

Yes ✓ No _____

Comments:

Initial calibration data were reviewed. Initial calibration data were included in the package and met all contract requirements.

Yes ✓ No ____

Comments:

11/5/85

4-chloroaniline 60%
3-nitroaniline 69%
N-nitrosodiphenylamine 30%

9/23/85

chloromethane 37%

10/1/85

chloromethane 31%
acetone 82%

10/9/85

4-chloroaniline 51%
acenaphthalene 33
3-nitroaniline 60
3,3'-dichlorobenzidine 35%

For the above compounds,
%RSD > 30% J ⇒ Pos., UJ ⇒ Neg.

Continuing calibration data were reviewed and this data met all contract requirements.

Yes ____ No ____

Comments:

11/8/85

1,3-dichlorobenzene 28%
benzyl alcohol 47%
4-chloroaniline 77%
3-nitroaniline 0.004%D
2,4-dinitrotoluene 36 %
2,6-dinitrotoluene 26 %
4-nitroaniline 54 %
butylbenzyl phthalate 28%
3,3'-dichlorobenzidine 46%
benzo(a)anthracene 36%
chrysene 30%

9/23/85

[illegible]

11/13/85, 7:30

benzyl alcohol 28%
hexachloroethane 26%
2,4-dimethylphenol 26%
4-chloroaniline 0.042
2-nitroaniline 28%
3-nitroaniline 63 %
2,4-dinitrophenol 40 %
4-nitroaniline 47%
benzo(a)anthracene 27%
chrysene 27%

9/24/85

acetone 69%

10/3/85

[illegible]

10/15/85, 8:44

Isophorone 26%
4-chloroaniline 0.026
2-nitroaniline 34 %
3-nitroaniline 71 %
2,4-dinitrophenol 44%
4-nitrophenol 51%
2,4-dinitrotoluene 29 %
4-nitroaniline 71 %
4,6-dinitro-o-cresol 29%
3,3'-dichlorobenzidine 56%

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SITE/SITE ASSESSMENT SASOOO

Surrogate recoveries were reviewed. The recoveries were all within the contract limits.

Yes _____ No. ✓

Comments: VOA Medium analysis, 0 out of 12 compounds outside QC limits for Soil.

Low Soil VOA – 10/30 outside QC limits
Low Soil BNA – 30/63 outside QC limits

Several VOA + BNA compounds were outside of the contract required recovery limits. Samples were reanalyzed according to the contract requirements but the surrogate recoveries were still outside of the specified limits. All of the Low Soil BNA + VOA compounds will be qualified R for negative values and J for positive values. Medium BNA + VOA compounds will not be qualified. Surrogates were not recovered because of dilution.

The matrix spike recovery data were reviewed. The Matrix spikes were performed and all data met contract requirements.
Yes _____ No ✓

Comments:

MS/MSD for Medium VOA soil Analysis; 0 out of 12 compounds were outside of the QC limits.
Low Soil VOA – 3/10 out of control limits
Low Soil BNA – 23/24 were out of control.

The low MS/MSD data above confirms the qualifications that were added to the data as a result of the surrogates. These qualifiers will be added to samples HB287 only. MS/MSD compounds were not recovered due to dilution.

PESTICIDES

The laboratory met the pesticide linearity check criteria.
Yes _____ No _____

Comments:

NA

The % breakdown of 4,4DDT and of Endrin was less than 20%.
Yes _____ No _____

Comments:

NA

The dibutylchlorendate retention time shift was within the specified limits.
Yes _____ No _____

Comments:

NA

The pesticide standard compounds showed a % D of the calibration factor of no more than 15% for the quantitation runs and 20% for the confirmation runs.
Yes _____ No _____

Comments:

NA

BLANK ANALYSIS RESULTS

The blank analysis were reviewed. The contaminants in the blank are listed below: (*Indicates amounts above CRDL)

Sample	Date	Compound	Conc.	Samples Associated with this Blank CRDL
OA, soil, med,	10/3	Methylene Chloride	850 µg/kg	500
		Acetone	1900	1000
		2-Butanone	5200	1000
		Total Xylenes	120	500
BHA, soil, low	10/15	None Detected.	—	—
WA, polar, soil, low, N/B		No HSL Compounds Detected.	—	—

Remarks:

8

DATA QUALIFIER DEFINITIONS
Region 8

For the purposes of this data review document the following code letters and associated definitions are provided.

U - The material was analyzed for, but was not detected. The associated numerical value is the estimated sample quantitation limit.

J - The associated numerical value is an estimated quantity because the amount detected is below the required limits or because quality control criteria were not met.

UB - Estimated sample quantitation limit increased. Amount found in sample reported. Compound detected at <5 X the amount in blank (<10 X for methylene chloride, acetone, toluene and phthalates).

UJ - Detection limit is estimated because quality control criteria were not met.

JB - The value is an estimated amount detected below required limits and also detected in the blank.

B - Compound was detected in the blank. Quantity reported is >5 X the amount found in the blank (>10 X for methylene chloride, acetone, toluene, and phthalates).

R - Quality Control indicates that data is <u>not</u> usable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

Z - No analytical result.

N - Presumptive evidence of presence of material (tentative identification).

COMPOUNDS IDENTIFIED

Sample No. HB-103 med. soil

Hazardous Substances List (HSL) Compounds Detected:

	Compound Name	Amount (µg/kg)	Qualifier (if needed)	Comments
VOA	Methylene Chloride	140	UB	compound found in the Blank
	Acetone	210	UB	" " "
	Toluene	1200		
B A	Pyrene	1.4(10)5	J	Surrogate Recovery
	Benzo[a]anthracene	3.1(10)4	J	conc. below det. limit.
	Chrysene	6.4(10)4	J	" "
	Benzo[B+K]fluoranthene	1.3(10)4	J	" "
	Benzo[a]pyrene	2.4(10)4	J	" "
	Benzo[ghi]perylene	2.1(10)4	J	" "
A'BA Polar	No Compounds Detected.			

No Pesticide Analysis

Tentatively Identified Compounds Detected: see the attached sheet 14 & 17

Spectra Matching Quality

✓ The spectra were examined and found to be of good matching quality.
____ The spectra were examined and found to be of poor matching quality due to:

Remarks: Compound recoveries were low because of the dilution of the sample. Above BNA results are reported on a wet weight basis.

(10)

COMPOUNDS IDENTIFIED

Sample No. HB 287 low soil

Hazardous Substances List (HSL) Compounds Detected:

	Compound Name	Amount (µg/kg)	Qualifier (if needed)	Comments
VOA	Methylene Chloride	230	UB	compounds det. in the Blank
	Acetone	240	UB	" " "
	2-Butanone	140	UB	" " "
	Toluene	1000		
BNA	2-methylnaphthalene	1.0(10)4	J	conc. below detection limit
	phenanthrene	1.8(10)4	J	" "
	pyrene	9.1(10)4	J	- surrogate recovery -
	chrysene	4.9(10)4	J	below det. limit
	Benzo[b&k] fluoranthene	1.3(10)4	J	"
	Benzo[A] pyrene	2.4(10)4	J	"
	Benzo[g,h,i] perylene	1.6(10)4	J	"
	— No Compounds Detected —			
VOA polar				
	No Pesticide Analysis			

Tentatively Identified Compounds Detected: see attached sheet. 20 + 23

Spectra Matching Quality

✓ The spectra were examined and found to be of good matching quality.
___ The spectra were examined and found to be of poor matching quality due to:

Remarks: Compound recoveries were low because of the dilutions of the sample. BNA results are reported on a "wet" weight basis.

(11)

DATA COMPLETENESS CHECKLIST

✓ Included; no problems
✓* Included; problems noted in review
O Not Included

✓ Case Narrative

✓ Quality Control Summary Package
- ✓ Surrogate Recovery Summary (Form II)
- ✓ MS/MSD Summary (Form III)
- ✓ Reagent Blank Summary (Form IV)
- NA GC/MS Tuning and Mass Calibration (Form V)

✓ Sample Data Package
- ✓ Holding Times (EMD Sample Traffice Reports)
- ✓ Organic Analysis Data Sheets (Form I; all four pages for each sample, arranged in increasing EMD number order)
- Reconstructed Ion Chromatogram(s) (RIC)
- NA GC/EC Chromatograms
- ✓ Quantitation Reports
- ✓ Mass Spectral Data
- ✓ EPA/NIH Mass Spectral Library Search for TIC's

✓ Standards Data Package
- ✓ Current List of Laboratory/Instrumental Detection Limits
- ✓ Initial Calibration Data (Form VI) for each instrument
- ✓ Continuing Calibration Data (Form VII) for each instrument
- NA Pesticide Evaluation Standards Summary (Form VIII)
- NA Pesticide/PCB Standards Summary (Form IX)
- NA Pesticide/PCB Identification (Form X; if any positive results)
- ✓ VOA and BNA Standards Reconstruction Ion Chromatograms (RIC)
- ✓ VOA and BNA Standards Quantitation Reports
- NA Pesticide/PCB Standard Chromatograms and Data System Printouts

✓ Raw QC Data Package
- ✓ DFTPP and BFB mass spectra and mass listings
- ✓ Reagent Blank Data
  - ✓ Organic Analysis Data Sheets (Form I)
  - ✓ Reconstructed Ion Chromatograms (RIC)
  - ✓ Quantitation Reports
  - ✓ Mass Spectral Data
  - ✓ EPA/NIH Library Search of TIC's
  - NA GC/EC Chromatograms and Data System Printouts

✓ Matrix Spike and Matrix Spike Duplicate Data
- ✓ Organic Analysis Data Sheets (Form I)
- ✓ Reconstructed Ion Chromatograms (RIC)
- ✓ Quantitation Reports
- ✓ Mass Spectral Data
- ✓ EPA/NIH Library Search of TIC's
- NA GC/EC Chromatograms and Data System Printouts

ORGANICS ANALYSIS DATA SHEET SAMPLE #: HB103

Rev (12) 3/20/86

LABORATORY: IT/CERR
LABORATORY ID: 34453F4
MATRIX: SOIL

CASE #/SAS #: 4951/1930H
QC REPORT #: 6962-211
CONTRACT #: 68-01-6962/SAS
DATE RECEIVED: 09/18/85

DATA RELEASE AUTHORIZED BY: Cheryl [illegible]

SEMIVOLATILE COMPOUNDS (PAGE 1)

LEVEL:	LOW	GPC	Y_ N✓
DATE EXT/PREP:	09/20/85	SEP. FUNNEL	Y_ N✓
DATE ANALYZED:	10/15/85	CONT. EXT.	Y_ N✓
SPL-->EXTRACT:	50.07G:10ML--333UL:10ML---0.5ml:1ml		
PH:	7.0		
% MOISTURE (NOT DEC.):	17.11		
% MOISTURE (DEC.):	Not Analyzed		
STANDARD ID:	BNAZ334		
SENSITIVITY ID:	SENS731		
UNITS:	UG/KG		

PP #	CAS #		CONC
65A	108-95-2	PHENOL	100000. U
18B	111-44-4	BIS (2-CHLOROETHYL) ETHER	100000. U
24A	95-57-8	2-CHLOROPHENOL	100000. U
26B	541-73-1	1,3-DICHLOROBENZENE	100000. U
27B	106-46-7	1,4-DICHLOROBENZENE	100000. U
6H	100-51-6	BENZYL ALCOHOL	100000. U
25B	95-50-1	1,2-DICHLOROBENZENE	100000. U
2H	95-48-7	2-METHYLPHENOL	100000. U
42B	39638-32-9	BIS (2-CHLOROISOPROPYL) ETHER	100000. U
3H	106-44-5	4-METHYLPHENOL	100000. U
63B	621-64-7	N-NITROSO-DI-N-PROPLYAMINE	100000. U
12B	67-72-1	HEXACHLOROETHANE	100000. U
56B	98-95-3	NITROBENZENE	100000. U
54B	78-59-1	ISOPHORONE	100000. ● UJ
57A	88-75-5	2-NITROPHENOL	100000. U
34A	105-67-9	2,4-DIMETHYLPHENOL	100000. U
1H	65-85-0	BENZOIC ACID	600000. U
43B	111-91-1	BIS (2-CHLOROETHOXY) METHANE	100000. U
31A	120-33-2	2,4-DICHLOROPHENOL	100000. U
8B	120-82-1	1,2,4-TRICHLOROBENZENE	100000. U
55B	91-20-3	NAPHTHALENE	100000. U
7H	106-47-8	4-CHLOROANILINE	100000. ● UJ
52B	87-68-3	HEXACHLOROBUTADIENE	100000. U
22A	59-50-7	4-CHLORO-3-METHYLPHENOL	100000. U
9H	91-57-6	2-METHYLNAPHTHALENE	100000. U
53B	77-47-4	HEXACHLOROCYCLOPENTADIENE	100000. U
21A	88-06-2	2,4,6-TRICHLOROPHENOL	100000. U
4H	95-95-4	2,4,5-TRICHLOROPHENOL	600000. U
20B	91-58-7	2-CHLORONAPHTHALENE	100000. U
10H	88-74-4	2-NITROANILINE	600000. ● UJ
71B	131-11-3	DIMETHYLPHTHALATE	100000. U
77B	208-96-8	ACENAPHTHALENE	100000. U
11H	99-09-2	3-NITROANILINE	600000. ● UJ
1B	83-32-9	ACENAPHTHENE	100000. ● UJ
59A	51-28-5	2,4-DINITROPHENOL	600000. ● UJ

ORGANICS ANALYSIS DATA SHEET SAMPLE #: HB103

(13) 9/20

LABORATORY: IT/CERR
LABORATORY ID: 34453F4
MATRIX: SOIL

CASE #/SAS #: 4951/1930H
QC REPORT #: 6962-211
CONTRACT #: 68-01-6962/SAS
DATE RECEIVED: 09/18/85

DATA RELEASE AUTHORIZED BY: Cheryl Wesche

SEMIVOLATILE COMPOUNDS (PAGE 2)

LEVEL:	LOW	GPC	Y_ N✓
DATE EXT/PREP:	09/20/85	SEP. FUNNEL	Y_ N✓
DATE ANALYZED:	10/15/85	CONT. EXT.	Y_ N✓
SPL-->EXTRACT:	50.07G:10ML--333UL:10ML--0.5ml:1ml		
PH:	7.0		
% MOISTURE (NOT DEC.):	17.11		
% MOISTURE (DEC.):	Not Analyzed		
STANDARD ID:	BNAZ334		
SENSITIVITY ID:	SENS731		
UNITS:	UG/KG		

PP #	CAS #		CONC
58A	100-02-7	4-NITROPHENOL	600000.@UJ
8H	132-64-9	DIBENZOFURAN	100000.U
35B	121-14-2	2,4-DINITROTOLUENE	100000.U
36B	606-20-2	2,6-DINITROTOLUENE	100000.U
70B	84-66-2	DIETHYLPHTHALATE	100000.U
40B	7005-72-3	4-CHLOROPHENYLPHENYL ETHER	100000.U
80B	86-73-7	FLUORENE	100000.U
12H	100-01-6	4-NITROANILINE	600000.U
60A	534-52-1	4,6-DINITRO-O-CRESOL	600000.@UJ
62B	86-30-6	N-NITROSODIPHENYLAMINE	100000.@UJ
41B	101-55-3	4-BROMOPHENOXYBENZENE	100000.U
9B	118-74-1	HEXACHLOROBENZENE	100000.U
64A	87-86-5	PENTACHLOROPHENOL	600000.U
81B	85-01-8	PHENANTHRENE	100000.U
78B	120-12-7	ANTHRACENE	100000.U
68B	84-74-2	DI-N-BUTYLPHTHALATE	100000.U
39B	206-44-0	FLUORANTHENE	100000.U
84B	129-00-0	PYRENE	140000.
67B	85-68-7	BUTYLBENZYLPHTHALATE	100000.U
28B	91-94-1	3,3'-DICHLOROBENZIDINE	200000.@UJ
72B	56-55-3	BENZO (A) ANTHRACENE	31000. J
66B	117-81-7	BIS (2-ETHYLHEXYL) PHTHALATE	100000.U
76B	218-01-9	CHRYSENE	64000. J
69B	117-84-0	DI-N-OCTYLPHTHALATE	100000.U
74B	205-99-2	BENZO (B & K) FLUORANTHENE	13000. J
73B	50-32-8	BENZO (A) PYRENE	24000. J
83B	193-39-5	INDENO-1,2,3 (C,D) PYRENE	100000.U
82B	53-70-3	DIBENZO (A,H) ANTHRACENE	100000.U
79B	191-24-2	BENZO (G,H,I) PERYLENE	21000. J

ALL RESULTS ARE REPORTED ON A WET WEIGHT BASIS.

LABORATORY: IT/CERR
LABORATORY ID: 34453F4
MATRIX: SOIL

CASE #/SAS #: 4931/193DH (14)
QC REPORT #: 6962-211
CONTRACT #: 68-01-6962/SAS
DATE RECEIVED: 09/18/85

DATA RELEASE AUTHORIZED BY: Cheryl Wright

SEMIVOLATILE COMPOUNDS
SURROGATE SPIKE RECOVERIES

LEVEL:	LOW	GPC	Y_ N✓
DATE EXT/PREP:	09/20/85	SEP. FUNNEL	Y_ N✓
DATE ANALYZED:	10/15/85	CONT. EXT.	Y_ N✓
SPL-->EXTRACT:	50.07G:10ML--333UL:10ML--0.5ml:1ml		
PH:	3.0		
% MOISTURE (NOT DEC.):	13.11		
% MOISTURE (DEC.):	Not Analyzed		
STANDARD ID:	BNAZ334		
SENSITIVITY ID:	SENS731		
UNITS:	UG/KG		

LAB ID	COMPOUND	SAMPLE	SPIKED	% RECOVERY
	NITROBENZENE-D5	100,000.U	10200.	0 *#
	2-FLUOROBIPHENYL	100,000.U	10400.	0 *#
34453F4	P-TERPHENYL-D14	100,000 U	10300.	0 *
	PHENOL-D5	100,000.U	10500.	0 *#
	2-FLUOROPHENOL	100,000.U	10900.	0 *#
	2,4,6-TRIBROMOPHENOL	100,000.U	10100.	0 *#
	PHENOL-D10	15760.J	10100.	156

* - ASTERISKED VALUES ARE OUTSIDE QC LIMITS NS - NOT SPIKED
# - low RECOVERIES DUE TO DILUTION
@ - _____ RECOVERIES DUE TO MATRIX EFFECTS

TENTATIVELY IDENTIFIED COMPOUNDS

	CAS #	COMPOUND NAME	SCAN #	CONC(J)
1	—	alkyl substituted 1,1-biphenyl	1051	50,000
2		unknown	1178	50,000
3	—	polycyclic aromatic hydrocarbon	1220	50,000
4	—	alkyl substituted phenanthrene	1302	50,000
5	—	methyl pyrene	1419	100,000
6	—	methyl pyrene	1432	90,000
7	—	unknown	1454	50,000
8	—	unknown	1477	50,000
9	—	unknown	1487	50,000
10	—	unknown	1491	50,000
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

(15) 3/4/86

ORGANICS ANALYSIS DATA SHEET SAMPLE #: HB103 POLAR

LABORATORY: IT/CERR
LABORATORY ID: 34493B5
MATRIX: SOIL

CASE #/SAS #: 4951/1930H
QC REPORT #: 6962-211
CONTRACT #: 68-01-6962/SAS
DATE RECEIVED: 09/18/85

DATA RELEASE AUTHORIZED BY: Cheryl Wesche

SEMIVOLATILE COMPOUNDS (PAGE 1)

LEVEL:	LOW	GPC	Y_ N✓
DATE EXT/PREP:	09/20/85	SEP. FUNNEL	Y_ N✓
DATE ANALYZED:	11/08/85	CONT. EXT.	Y_ N✓
SPL-->EXTRACT:	50.07G:10ML::0.33ML:10ML		
PH:	3.0		
% MOISTURE (NOT DEC.):	17.11		
% MOISTURE (DEC.):	Not Analyzed		
STANDARD ID:	BNA747		
SENSITIVITY ID:	FSS495		
UNITS:	UG/KG		

PP #	CAS #		CONC
65A	108-95-2	PHENOL	60000.U
18B	111-44-4	BIS (2-CHLOROETHYL) ETHER	60000.U
24A	95-57-8	2-CHLOROPHENOL	60000.U
26B	541-73-1	1,3-DICHLOROBENZENE	60000.UJ
27B	106-46-7	1,4-DICHLOROBENZENE	60000.U
6H	100-51-6	BENZYL ALCOHOL	60000.UJ
25B	95-50-1	1,2-DICHLOROBENZENE	60000.U
2H	95-48-7	2-METHYLPHENOL	60000.U
42B	39638-32-9	BIS (2-CHLOROISOPROPYL) ETHER	60000.U
3H	106-44-5	4-METHYLPHENOL	60000.U
63B	621-64-7	N-NITROSO-DI-N-PROPLYAMINE	60000.U
12B	67-72-1	HEXACHLOROETHANE	60000.U
56B	98-95-3	NITROBENZENE	60000.U
54B	78-59-1	ISOPHORONE	60000.U
57A	88-75-5	2-NITROPHENOL	60000.U
34A	105-67-9	2,4-DIMETHYLPHENOL	60000.U
1H	65-85-0	BENZOIC ACID	300000.U
43B	111-91-1	BIS (2-CHLOROETHOXY) METHANE	60000.U
31A	120-33-2	2,4-DICHLOROPHENOL	60000.U
8B	120-82-1	1,2,4-TRICHLOROBENZENE	60000.U
55B	91-20-3	NAPHTHALENE	60000.U
7H	106-47-8	4-CHLOROANILINE	60000.UJ
52B	87-68-3	HEXACHLOROBUTADIENE	60000.U
22A	59-50-7	4-CHLORO-3-METHYLPHENOL	60000.U
9H	91-57-6	2-METHYLNAPHTHALENE	60000.U
53B	77-47-4	HEXACHLOROCYCLOPENTADIENE	60000.U
21A	88-06-2	2,4,6-TRICHLOROPHENOL	60000.U
4H	95-95-4	2,4,5-TRICHLOROPHENOL	300000.U
20B	91-58-7	2-CHLORONAPHTHALENE	60000.U
10H	88-74-4	2-NITROANILINE	300000.U
71B	131-11-3	DIMETHYLPHTHALATE	60000.U
77B	208-96-8	ACENAPHTHALENE	60000.U
11H	99-09-2	3-NITROANILINE	300000.UJ
1B	83-32-9	ACENAPHTHENE	60000.UJ
59A	51-28-5	2,4-DINITROPHENOL	300000.U

(16) [illegible] 3/20/86

ORGANICS ANALYSIS DATA SHEET SAMPLE #: HB103 POLAR

LABORATORY:	IT/CERR	CASE #/SAS #:	4951/1930H
LABORATORY ID:	34453B5	QC REPORT #:	6962-211
MATRIX:	SOIL	CONTRACT #:	68-01-6962/SAS
		DATE RECEIVED:	09/18/85

DATA RELEASE AUTHORIZED BY: [signature]

SEMIVOLATILE COMPOUNDS (PAGE 2)

LEVEL:	LOW	GPC	Y_ N✓
DATE EXT/PREP:	09/20/85	SEP. FUNNEL	Y_ N✓
DATE ANALYZED:	11/08/85	CONT. EXT.	Y_ N✓
SPL-->EXTRACT:	50.07G:10ML::0.33ML:10ML		
PH:	7.0		
% MOISTURE (NOT DEC.):	17.11		
% MOISTURE (DEC.):	Not Analyzed		
STANDARD ID:	BNA747		
SENSITIVITY ID:	FSS495		
UNITS:	UG/KG		

PP #	CAS #		CONC
58A	100-02-7	4-NITROPHENOL	300000.U
8H	132-64-9	DIBENZOFURAN	60000.U
35B	121-14-2	2,4-DINITROTOLUENE	60000.● UJ
36B	606-20-2	2,6-DINITROTOLUENE	60000.● UJ
70B	84-66-2	DIETHYLPHTHALATE	60000.U
10B	7005-72-3	4-CHLOROPHENYLPHENYL ETHER	60000.U
30B	86-73-7	FLUORENE	60000.U
12H	100-01-6	4-NITROANILINE	300000.● UJ
60A	534-52-1	4,6-DINITRO-O-CRESOL	300000.U
62B	86-30-6	N-NITROSODIPHENYLAMINE	60000.U
41B	101-55-3	4-BROMOPHENOXYBENZENE	60000.U
9B	118-74-1	HEXACHLOROBENZENE	60000.U
64A	87-86-5	PENTACHLOROPHENOL	300000.U
81B	85-01-8	PHENANTHRENE	60000.U
78B	120-12-7	ANTHRACENE	60000.U
68B	84-74-2	DI-N-BUTYLPHTHALATE	60000.U
39B	206-44-0	FLUORANTHENE	60000.U
84B	129-00-0	PYRENE	60000.U
67B	85-68-7	BUTYLBENZYLPHTHALATE	60000.● UJ
28B	91-94-1	3,3'-DICHLOROBENZIDINE	100000.● UJ
72B	56-55-3	BENZO (A) ANTHRACENE	60000.● UJ
66B	117-81-7	BIS (2-ETHYLHEXYL) PHTHALATE	60000.U
76B	218-01-9	CHRYSENE	60000.● UJ
69B	117-84-0	DI-N-OCTYLPHTHALATE	60000.U
74B	205-99-2	BENZO (B & K) FLUORANTHENE	60000.U
73B	50-32-8	BENZO (A) PYRENE	60000.U
83B	193-39-5	INDENO-1,2,3 (C,D) PYRENE	60000.U
82B	53-70-3	DIBENZO (A,H) ANTHRACENE	60000.U
79B	191-24-2	BENZO (G,H,I) PERYLENE	60000.U

ALL RESULTS ARE REPORTED ON A WET WEIGHT BASIS.

ORGANICS ANALYSIS DATA SHEET SAMPLE #: HB103 POLAR (17)

LABORATORY: IT/CERR
LABORATORY ID: 34453B5
MATRIX: SOIL

CASE #/SAS #: 4951/1930H
QC REPORT #: 6962-211
CONTRACT #: 68-01-6962/SAS
DATE RECEIVED: 09/18/85

DATA RELEASE AUTHORIZED BY: Cheryl Wesohl

SEMIVOLATILE COMPOUNDS
SURROGATE SPIKE RECOVERIES

LEVEL:	LOW	GPC	Y_ N✓
DATE EXT/PREP:	09/20/85	SEP. FUNNEL	Y_ N✓
DATE ANALYZED:	11/08/85	CONT. EXT.	Y_ N✓
SPL-->EXTRACT:	50.07G:10ML::0.33ML:10ML		
PH:	7.0		
% MOISTURE (NOT DEC.):	17.11		
% MOISTURE (DEC.):	Not Analyzed		
STANDARD ID:	BNA747		
SENSITIVITY ID:	FSS495		
UNITS:	UG/KG		

LAB ID	COMPOUND	SAMPLE	SPIKED	% RECOVERY
	NITROBENZENE-D5	60000.U	306000.	0 *
	2-FLUOROBIPHENYL	60000.U	315000.	0 *
34453B5	P-TERPHENYL-D14	60000.U	309000.	0 *
	PHENOL-D5	209000.	315000.	66
	2-FLUOROPHENOL	60000.U	327000.	0 *
	2,4,6-TRIBROMOPHENOL	60000.U	303000.	0 *
	PYRENE-d10	60000.U	300000.	0 *

* - ASTERISKED VALUES ARE OUTSIDE QC LIMITS NS - NOT SPIKED
\# - _____ RECOVERIES DUE TO DILUTION
\. - _____ RECOVERIES DUE TO MATRIX EFFECTS

TENTATIVELY IDENTIFIED COMPOUNDS

	CAS #	COMPOUND NAME	SCAN #	CONC(J)
1	—	unknown	420	40,000
2	—	hydrocarbon	717	50,000
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

ORGANICS ANALYSIS DATA SHEET SAMPLE #: HB287

(18) 3/20/86

LABORATORY: IT/CERR
LABORATORY ID: 34453F5
MATRIX: SOIL

CASE #/SAS #: 4951/1930H
QC REPORT #: 6962-211
CONTRACT #: 68-01-6962/SAS
DATE RECEIVED: 09/18/85

DATA RELEASE AUTHORIZED BY: Cheryl Wehl

SEMIVOLATILE COMPOUNDS (PAGE 1)

LEVEL:	LOW	GPC	Y_ N✓
DATE EXT/PREP:	09/20/85	SEP. FUNNEL	Y_ N✓
DATE ANALYZED:	10/15/85	CONT. EXT.	Y_ N✓
SPL-->EXTRACT:	50.04G:10ML--500UL:10ML--0.5ml:1ml		
PH:	7.5		
% MOISTURE (NOT DEC.):	9.76		
% MOISTURE (DEC.):	Not Analyzed		
STANDARD ID:	BNAZ334		
SENSITIVITY ID:	SENS731		
UNITS:	UG/KG		

PP #	CAS #		CONC	
65A	108-95-2	PHENOL	80000. U	UJ
18B	111-44-4	BIS (2-CHLOROETHYL) ETHER	80000. U	
24A	95-57-8	2-CHLOROPHENOL	80000. U	
26B	541-73-1	1,3-DICHLOROBENZENE	80000. U	
27B	106-46-7	1,4-DICHLOROBENZENE	80000. U	
6H	100-51-6	BENZYL ALCOHOL	80000. U	
25B	95-50-1	1,2-DICHLOROBENZENE	80000. U	
2H	95-48-7	2-METHYLPHENOL	80000. U	
42B	39638-32-9	BIS (2-CHLOROISOPROPYL) ETHER	80000. U	
3H	106-44-5	4-METHYLPHENOL	80000. U	
63B	621-64-7	N-NITROSO-DI-N-PROPLYAMINE	80000. U	
12B	67-72-1	HEXACHLOROETHANE	80000. U	
56B	98-95-3	NITROBENZENE	80000. U	
54B	78-59-1	ISOPHORONE	80000. U	UJ
57A	88-75-5	2-NITROPHENOL	80000. U	
34A	105-67-9	2,4-DIMETHYLPHENOL	80000. U	
1H	65-85-0	BENZOIC ACID	400000. U	
43B	111-91-1	BIS (2-CHLOROETHOXY) METHANE	80000. U	
31A	120-33-2	2,4-DICHLOROPHENOL	80000. U	
8B	120-82-1	1,2,4-TRICHLOROBENZENE	80000. U	
55B	91-20-3	NAPHTHALENE	80000. U	
7H	106-47-8	4-CHLOROANILINE	80000. U	UJ
52B	87-68-3	HEXACHLOROBUTADIENE	80000. U	
22A	59-50-7	4-CHLORO-3-METHYLPHENOL	80000. U	
9H	91-57-6	2-METHYLNAPHTHALENE	10000. J	
53B	77-47-4	HEXACHLOROCYCLOPENTADIENE	80000. U	UJ
21A	88-06-2	2,4,6-TRICHLOROPHENOL	80000. U	
4H	95-95-4	2,4,5-TRICHLOROPHENOL	400000. U	
20B	91-58-7	2-CHLORONAPHTHALENE	80000. U	
10H	88-74-4	2-NITROANILINE	400000. U	UJ
71B	131-11-3	DIMETHYLPHTHALATE	80000. U	
77B	208-96-8	ACENAPHTHALENE	80000. U	
11H	99-09-2	3-NITROANILINE	400000. U	UJ
1B	83-32-9	ACENAPHTHENE	80000. U	UJ
59A	51-28-5	2,4-DINITROPHENOL	400000. U	UJ

ORGANICS ANALYSIS DATA SHEET SAMPLE #: HD287

(17) 4/6 3/6/88

LABORATORY: IT/CERR
LABORATORY ID: 34453F5
MATRIX: SOIL

CASE #/BAS #: 4951/1930H
QC REPORT #: 6962-211
CONTRACT #: 68-01-6962/SAS
DATE RECEIVED: 09/18/85

DATA RELEASE AUTHORIZED BY: Cheryl Wilhelm

SEMIVOLATILE COMPOUNDS (PAGE 2)

LEVEL:	LOW	GPC	Y_ N✓
DATE EXT/PREP:	09/20/85	SEP. FUNNEL	Y_ N✓
DATE ANALYZED:	10/15/85	CONT. EXT.	Y_ N✓
SPL-->EXTRACT:	30.040:10ML--500UL:10ML--0.5mL:1mL		
PH:	7.5		
% MOISTURE (NOT DEC.):	9.76		
% MOISTURE (DEC.):	Not Analyzed		
STANDARD ID:	BNAZ334		
SENSITIVITY ID:	SENS731		
UNITS:	UG/KG		

PP #	CAS #		CONC
58A	100-02-7	4-NITROPHENOL	400000.● UJ
8H	132-64-9	DIBENZOFURAN	80000. U
35B	121-14-2	2,4-DINITROTOLUENE	80000. U
36B	606-20-2	2,6-DINITROTOLUENE	80000. U
70B	84-66-2	DIETHYLPHTHALATE	80000. U
40B	7005-72-3	4-CHLOROPHENYLPHENYL ETHER	80000. U
80B	86-73-7	FLUORENE	80000. U
12H	100-01-6	4-NITROANILINE	400000. U
60A	534-52-1	4,6-DINITRO-O-CRESOL	400000.● UJ
62B	86-30-6	N-NITROSODIPHENYLAMINE	80000.● UJ
41B	101-55-3	4-BROMOPHENOXYBENZENE	80000. U
9B	118-74-1	HEXACHLOROBENZENE	80000. U
64A	87-86-5	PENTACHLOROPHENOL	400000. U
81B	85-01-8	PHENANTHRENE	18000. J
78B	120-12-7	ANTHRACENE	80000. U UJ
68B	84-74-2	DI-N-BUTYLPHTHALATE	80000. U
39B	206-44-0	FLUORANTHENE	80000. U
84B	129-00-0	PYRENE	91000.
67B	85-68-7	BUTYLBENZYLPHTHALATE	80000. U UJ
28B	91-94-1	3,3'-DICHLOROBENZIDINE	200000.● UJ
72B	56-55-3	BENZO (A) ANTHRACENE	80000. U
66B	117-81-7	BIS (2-ETHYLHEXYL) PHTHALATE	80000. U
76B	218-01-9	CHRYSENE	44000. J
69B	117-84-0	DI-N-OCTYLPHTHALATE	80000. U UJ
74B	205-99-2	BENZO (B & K) FLUORANTHENE	13000. J
73B	50-32-8	BENZO (A) PYRENE	24000. J
83B	193-39-5	INDENO-1,2,3 (C,D) PYRENE	80000. U UJ
82B	53-70-3	DIBENZO (A,H) ANTHRACENE	80000. U UJ
79B	191-24-2	BENZO (G,H,I) PERYLENE	16000. J

ALL RESULTS ARE REPORTED ON A WET WEIGHT BASIS.

ORGANICS ANALYSIS DATA SHEET

SAMPLE #: [illegible] (29)

LABORATORY: IT/CERR
LABORATORY ID: 34453F5
MATRIX: SOIL

CASE #/SAS #: [illegible]
QC REPORT #: 6962-211
CONTRACT #: 68-01-6962/SAS
DATE RECEIVED: 09/18/85

DATA RELEASE AUTHORIZED BY: [illegible]

SEMIVOLATILE COMPOUNDS
SURROGATE SPIKE RECOVERIES

LEVEL:	LOW	GPC	Y_	N✓
DATE EXT/PREP:	09/20/85	SEP. FUNNEL	Y_	N✓
DATE ANALYZED:	10/15/85	CONT. EXT.	Y_	N✓
SPL-->EXTRACT:	30.040:10ML--500UL:10ML ... 0.5 ml : 1 ml			
PH:	7.9			
% MOISTURE (NOT DEC.):	9.76			
% MOISTURE (DEC.):	Not Analyzed			
STANDARD ID:	BNAZ334			
SENSITIVITY ID:	SENS731			
UNITS:	UG/KG			

LAB ID	COMPOUND	SAMPLE	SPIKED	% RECOVERY
	NITROBENZENE-D5	8000 0.U	10200.	0 * #
	2-FLUOROBIPHENYL	80000.U	10400.	0 * #
34453F5	P-TERPHENYL-D14	80000.U	10300.	0 * #
	PHENOL-D5	80000.U	10500.	0 * #
	2-FLUOROPHENOL	80000.U	10900.	0 * #
	2,4,6-TRIBROMOPHENOL	80000.U	10100.	0 * #
	PYRENE-D10	80000.U	10100.	0 * #

* - ASTERISKED VALUES ARE OUTSIDE QC LIMITS NS - NOT SPIKED
# - LOW RECOVERIES DUE TO DILUTION
$ - _____ RECOVERIES DUE TO MATRIX EFFECTS

TENTATIVELY IDENTIFIED COMPOUNDS

	CAS #	COMPOUND NAME	SCAN #	CONC(J)
1	-	unknown	1081	30,000
2	-	polynuclear aromatic hydrocarbon	1277	30,000
3	-	dimethyl phenanthrene	1302	40,000
4	-	unknown	1372	100,000
5	-	polynuclear aromatic hydrocarbon	1421	30,000
6	-	polynuclear aromatic hydrocarbon	1434	100,000
7	-	unknown	1456	30,000
8		unknown	1472	40,000
9	-	unknown	1486	40,000
10	-	unknown	1496	30,000
11	-	unknown	1532	30,000
12	-	unknown	1662	40,000
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

ORGANICS ANALYSIS DATA SHEET SAMPLE #: HS287 POLAR

(21) 46

LABORATORY: IT/CERR
LABORATORY ID: 34453B6
MATRIX: SOIL

CASE #/SAS #: 4951/1930H
QC REPORT #: 6962-211
CONTRACT #: 68-01-6962/SAS
DATE RECEIVED: 09/18/85

DATA RELEASE AUTHORIZED BY: Chrysler Buhl

SEMIVOLATILE COMPOUNDS (PAGE 1)

LEVEL:	LOW	GPC	Y_ N✓
DATE EXT/PREP:	09/20/85	SEP. FUNNEL	Y_ N✓
DATE ANALYZED:	11/08/85	CONT. EXT.	Y_ N✓
SPL-->EXTRACT:	50.040:10ML::0.5ML:10ML		
PH:	7.5		
% MOISTURE (NOT DEC.):	9.36		
% MOISTURE (DEC.):	Not Analyzed		
STANDARD ID:	BNA747		
SENSITIVITY ID:	FSS495		
UNITS:	UG/KG		

PP #	CAS #		CONC	
65A	108-95-2	PHENOL	40000.U	UJ
18B	111-44-4	BIS (2-CHLOROETHYL) ETHER	40000.U	
24A	95-57-8	2-CHLOROPHENOL	40000.U	
26B	541-73-1	1,3-DICHLOROBENZENE	40000.U	
27B	106-46-7	1,4-DICHLOROBENZENE	40000.U	
6H	100-51-6	BENZYL ALCOHOL	40000.U	
25B	95-50-1	1,2-DICHLOROBENZENE	40000.U	
2H	95-48-7	2-METHYLPHENOL	40000.U	
42B	39638-32-9	BIS (2-CHLOROISOPROPYL) ETHER	40000.U	
3H	106-44-5	4-METHYLPHENOL	40000.U	
63B	621-64-7	N-NITROSO-DI-N-PROPLYAMINE	40000.U	
12B	67-72-1	HEXACHLOROETHANE	40000.U	
56B	98-95-3	NITROBENZENE	40000.U	
54B	78-59-1	ISOPHORONE	40000.U	
57A	88-75-5	2-NITROPHENOL	40000.U	
34A	105-67-9	2,4-DIMETHYLPHENOL	40000.U	
1H	65-85-0	BENZOIC ACID	200000.U	
43B	111-91-1	BIS (2-CHLOROETHOXY) METHANE	40000.U	
31A	120-33-2	2,4-DICHLOROPHENOL	40000.U	
8B	120-82-1	1,2,4-TRICHLOROBENZENE	40000.U	
55B	91-20-3	NAPHTHALENE	40000.U	
7H	106-47-8	4-CHLOROANILINE	40000.U	UJ
52B	87-68-3	HEXACHLOROBUTADIENE	40000.U	
22A	59-50-7	4-CHLORO-3-METHYLPHENOL	40000.U	
9H	91-57-6	2-METHYLNAPHTHALENE	40000.U	
53B	77-47-4	HEXACHLOROCYCLOPENTADIENE	40000.U	
21A	88-06-2	2,4,6-TRICHLOROPHENOL	40000.U	
4H	95-95-4	2,4,5-TRICHLOROPHENOL	200000.U	
20B	91-58-7	2-CHLORONAPHTHALENE	40000.U	
10H	88-74-4	2-NITROANILINE	200000.U	
71B	131-11-3	DIMETHYLPHTHALATE	40000.U	
77B	208-96-8	ACENAPHTHALENE	40000.U	
11H	99-09-2	3-NITROANILINE	200000.U	UJ
1B	83-32-9	ACENAPHTHENE	40000.U	UJ
59A	51-28-5	2,4-DINITROPHENOL	200000.U	UJ

ORGANICS ANALYSIS DATA SHEET SAMPLE #: HS207 POLAR

LABORATORY:	IT/CERR	CASE #/SAS #:	4951/1930H
LABORATORY ID:	34453B6	QC REPORT #:	6962-211
MATRIX:	SOIL	CONTRACT #:	68-01-6962/SAS
		DATE RECEIVED:	09/18/85

DATA RELEASE AUTHORIZED BY: [illegible]

SEMIVOLATILE COMPOUNDS (PAGE 2)

LEVEL:	LOW	GPC	Y_	N✓
DATE EXT/PREP:	09/20/85	SEP. FUNNEL	Y_	N✓
DATE ANALYZED:	11/08/85	CONT. EXT.	Y_	N✓
SPL-->EXTRACT:	90.04G::10ML::0.5ML:10ML			
PH:	7.5			
% MOISTURE (NOT DEC.):	9.7%			
% MOISTURE (DEC.):	Not Analyzed			
STANDARD ID:	BNA747			
SENSITIVITY ID:	FSS495			
UNITS:	UG/KG			

TP #	CAS #		CONC
58A	100-02-7	4-NITROPHENOL	200000. U ~J
8H	132-64-9	DIBENZOFURAN	40000. U
5B	121-14-2	2,4-DINITROTOLUENE	40000. U UJ
56B	606-20-2	2,6-DINITROTOLUENE	40000. U UJ
70B	84-66-2	DIETHYLPHTHALATE	40000. U
0B	7005-72-3	4-CHLOROPHENYLPHENYL ETHER	40000. U
0B	86-73-7	FLUORENE	40000. U
12H	100-01-6	4-NITROANILINE	200000. U UJ
0A	934-52-1	4,6-DINITRO-O-CRESOL	200000. U
2B	86-30-6	N-NITROSODIPHENYLAMINE	40000. U
41B	101-55-3	4-BROMOPHENOXYBENZENE	40000. U
9B	118-74-1	HEXACHLOROBENZENE	40000. U
4A	87-86-5	PENTACHLOROPHENOL	200000. U
81B	85-01-8	PHENANTHRENE	40000. U
78B	120-12-7	ANTHRACENE	40000. U
8B	84-74-2	DI-N-BUTYLPHTHALATE	40000. U
59B	206-44-0	FLUORANTHENE	40000. U
84B	129-00-0	PYRENE	40000. U
7B	85-68-7	BUTYLBENZYLPHTHALATE	40000. U UJ
8B	91-94-1	3,3'-DICHLOROBENZIDINE	80000. U UJ
72B	56-55-3	BENZO (A) ANTHRACENE	40000. U UJ
6B	117-81-7	BIS (2-ETHYLHEXYL) PHTHALATE	40000. U
6B	218-01-9	CHRYSENE	40000. U UJ
69B	117-84-0	DI-N-OCTYLPHTHALATE	40000. U
74B	205-99-2	BENZO (B & K) FLUORANTHENE	40000. U
3B	50-32-8	BENZO (A) PYRENE	40000. U
83B	193-39-5	INDENO-1,2,3 (C,D) PYRENE	40000. U
82B	53-70-3	DIBENZO (A,H) ANTHRACENE	40000. U
9B	191-24-2	BENZO (G,H,I) PERYLENE	40000. U

ALL RESULTS ARE REPORTED ON A WET WEIGHT BASIS.

ORGANICS ANALYSIS DATA SHEET SAMPLE #: HB287 POLAR

23

ABORATORY: IT/CERR
ABORATORY ID: 34453B6
MATRIX: SOIL

CASE #/SAS #: 4951/1930H
QC REPORT #: 6962-211
CONTRACT #: 68-01-6962/SAS
DATE RECEIVED: 09/18/85

ATA RELEASE AUTHORIZED BY: Cheryl Wesuhl

SEMIVOLATILE COMPOUNDS
SURROGATE SPIKE RECOVERIES

LEVEL:	LOW	GPC	Y_ N✓
DATE EXT/PREP:	09/20/85	SEP. FUNNEL	Y_ N✓
DATE ANALYZED:	11/08/85	CONT. EXT.	Y_ N✓
SPL-->EXTRACT:	50.04G:10ML::0.5ML:10ML		
PH:	7.5		
% MOISTURE (NOT DEC.):	9.76		
% MOISTURE (DEC.):	Not Analyzed		
STANDARD ID:	BNA747		
SENSITIVITY ID:	FSS495		
UNITS:	UG/KG		

LAB ID	COMPOUND	SAMPLE	SPIKED	% RECOVERY
	NITROBENZENE-D5	40000.U	204000.	0 *
	2-FLUOROBIPHENYL	40000.U	210000.	0 *
4453B6	P-TERPHENYL-D14	40000.U	206000.	0 *
	PHENOL-D5	147000.	210000.	70
	2-FLUOROPHENOL	40000.U	218000.	0 *
	2,4,6-TRIBROMOPHENOL	40000.U	202000.	0 *
	PYRENE-d10	40000.U	200000.	0 *

* - ASTERISKED VALUES ARE OUTSIDE QC LIMITS NS - NOT SPIKED
\- _____ RECOVERIES DUE TO DILUTION
\- _____ RECOVERIES DUE TO MATRIX EFFECTS

TENTATIVELY IDENTIFIED COMPOUNDS

	CAS #	COMPOUND NAME	SCAN #	CONC(J)
1	—	unknown	473	30,000
2	—	hydrocarbon	716	50,000
3				
4				
5				
6				
7				
8				
9				
0				
1				
12				
3				
4				
15				
16				
7				
18				
19				
0				
21				
22				

REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

Case No. 4951/1930 H Project No. R8-8602-14

Site Standard Oil Refinery

Contractor Laboratory IT Analytical Services

Data Reviewer Randy Greaves Date of Review 4/14/86

Sample Matrix

Sample No. HB003

HB004

(✓) Data are acceptable for use

( ) Data are acceptable for use with qualification noted above

( ) Data are preliminary - pending action or verification

( ) Data are unacceptable

Action required by DFO?

No ✓ Yes ____ Following items require action

Action required by Project Officer (PO)?

No ✓ Yes ____

Following are our findings:

This was a well organized and complete data package. Holding time, mass spectrometer tuning, surrogates and matrix spikes were all performed within contract limits. Other comments are listed on the sheets below.

DFTPP and BFP Performance Results

The DFTPP performance results were all included and found to be within the specified criteria.

Yes ✓ No _____

Comments:

The BFB performance results were all included and found to be within the spedified criteria.

Yes ✓ No _____

Comments:

The (DFTPP/BFB) performance result(s) was/were reviewed and the following abundance were found to fall outside the specified criteria:

Date	Compound	m/z	Required Abundance	Actual Abundance

None

All samples were extracted and analyzed within contract holding times

Yes ✓ No _____

Comments:

Initial calibration data were reviewed. Initial calibration data were included in the package and met all contract requirements.

Yes ✓ No _____

Comments:

9/23/85, VOA

chloromethane % RSD = 37

10/9/85, BNA

4-chloroaniline 51 % RSD
acenaphthalene 33 %
3-nitroaniline 60 %
3,3'-dichlorobenzidine 35 %

Continuing calibration data were reviewed and this data met all contract requirements.

Yes ✓ No _____

Comments:

9/23/85, VOA

No Compounds

10/11/85, BNA

4-methylphenol 27 %
benzoic acid 42 %
2,4-dichlorophenol 25 %
4-chloroaniline 66 %
2-nitroaniline 29 %
acenaphthalene 30 %
3-nitroaniline 63 %
2,4-Dinitrophenol 55 %
4-nitrophenol 44 %

10/11/85, BNA continued

4-nitroaniline 60 %
4,6-Dinitro-o-cresol 35 %
3,3'-Dichlorobenzidine 41 %

10/14/85, BNA

benzoic Acid 33 %
4-Chloroaniline 76 %
2-nitroaniline 27 %
3-nitroaniline 59 %
2,4-dinitrophenol 40 %
4-nitrophenol 35 %
2,4-dinitrotoluene 38 %

10/14/85 cont.

4-nitroaniline
4,6-dinitro-o-cresol
3,3'-dichlorobenzidine

Surrogate recoveries were reviewed. The recoveries were all within the contract limits.

Yes _____ No. ✓

Comments: Low water VOA : 0/15 compounds outside QC limits.

Low water BNA : 8/48 compounds outside QC limits.

Two BNA compounds were outside the QC limits for sample HB004. This sample should have been reanalyzed.

The matrix spike recovery data were reviewed. The Matrix spikes were performed and all data met contract requirements.

Yes ✓ No _____

Comments: Low water VOA : 0/10 compounds outside QC limits.

Low water BNA : 2/24 compounds outside QC limits.

Most of the MS/MSD compounds were recovered within contract limits. Based on the results of the MS/MSD analysis, the analytical system was operating properly.

PESTICIDES

The laboratory met the pesticide linearity check criteria.
Yes _____ No _____

Comments:

NA

The % breakdown of 4,4DDT and of Endrin was less than 20%.
Yes _____ No _____

Comments:

NA

The dibutychlorendate retention time shift was within the specified limits.
Yes _____ No _____

Comments:

NA

The pesticide standard compounds showed a % D of the calibration factor of no more than 15% for the quantitation runs and 20% for the confirmation runs.
Yes _____ No _____

Comments:

NA

7

BLANK ANALYSYS RESULTS - Water

The blank analysis were reviewed. The contaminants in the blank are listed below: (*Indicates amounts above CRDL)

Sample	Date	Compound	µg/l Conc.	Samples Associated with this Blank
				CRDL
VCA, H_2O,	9/23/85	Methylene Chloride	12	5
		Acetone	7	10
BNA, H_2O,	10/11/85	None Found	—	—

Remarks:

(8)

DATA QUALIFIER DEFINITIONS
Region 8

For the purposes of this data review document the following code letters and associated definitions are provided.

U - The material was analyzed for, but was not detected. The associated numerical value is the estimated sample quantitation limit.

J - The associated numerical value is an estimated quantity because the amount detected is below the required limits or because quality control criteria were not met.

UB - Estimated sample quantitation limit increased. Amount found in sample reported. Compound detected at <5 X the amount in blank (<10 X for methylene chloride, acetone, toluene and phthalates).

UJ - Detection limit is estimated because quality control criteria were not met.

JB - The value is an estimated amount detected below required limits and also detected in the blank.

B - Compound was detected in the blank. Quantity reported is >5 X the amount found in the blank (>10 X for methylene chloride, acetone, toluene, and phthalates).

R - Quality Control indicates that data is <u>not</u> usable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

Z - No analytical result.

N - Presumptive evidence of presence of material (tentative identification).

COMPOUNDS IDENTIFIED

Sample No. HB 003 - Low water

Hazardous Substances List (HSL) Compounds Detected:

	Compound Name	Amount (µg/l)	Qualifier (if needed)	Comments
VOA	Methylene Chloride	1000	B	
	Acetone	14000	B	
BNA	Di-n-butyl phthalate	97	J	
	butyl benzyl phthalate	59	J	
	bis(2-ethylhexyl) phthalate	34	J	
Pest	No Pesticide	Analysis		

Tentatively Identified Compounds Detected: see the attached sheet 15 + 16.

No VOA Compound Detected

Several hydrocarbons observed in the BNA fraction.

Spectra Matching Quality

✓ The spectra were examined and found to be of good matching quality.
___ The spectra were examined and found to be of poor matching quality due to:

Remarks: Very unusual GC/MS total ion chromatogram. A broad range of homologous compounds.

COMPOUNDS IDENTIFIED

Sample No. HB 004 - Low-water

Hazardous Substances List (HSL) Compounds Detected:

	Compound Name	Amount (µg/l)	Qualifier (if needed)	Comments
VOA	Methylene Chloride	21	UB	
BNA	Di-n-butyl phthalate	2	J	
	butyl benzyl phthalate	2	J	
	bis(2-ethylhexyl)phthalate	21		
	— No Pesticide Analysis —			

Tentatively Identified Compounds Detected: see the attached sheet. 20 + 21

Several hydrocarbons	in the VOA	fraction	
Several hydrocarbons	in the BNA	fraction	

Spectra Matching Quality

✓ The spectra were examined and found to be of good matching quality.
___ The spectra were examined and found to be of poor matching quality due to:

Remarks:

DATA COMPLETENESS CHECKLIST

✓ Included; no problems
* Included; problems noted in review
O Not Included

✓ Case Narrative

✓ Quality Control Summary Package
- ✓ Surrogate Recovery Summary (Form II)
- ✓ MS/MSD Summary (Form III)
- ✓ Reagent Blank Summary (Form IV)
- ✓ GC/MS Tuning and Mass Calibration (Form V)

✓ Sample Data Package
- ✓ Holding Times (SMO Sample Traffice Reports)
- ✓ Organic Analysis Data Sheets (Form I; all four pages for each sample, arranged in increasing SMO number order)
- Reconsrtructed Ion Chromatogram(s) (RIC)
- N/A GC/EC Chromatograms
- ✓ Quantitation Reports
- ✓ Mass Spectral Data
- ✓ EPA/NIH Mass Spectral Library Search for TIC's

✓ Standards Data Package
- ✓ Current List of Laboratory/Instrumental Detection Limits
- ✓ Initial Calibration Data (Form VI) for each instrument
- ✓ Continuing Calibration Data (Form VII) for each instrument
- N/A Pesticide Evaluation Standards Summary (Form VIII)
- N/A Pesticide/PCB Standards Summary (Form IX)
- N/A Pesticide/PCB Identification (Form X; if any positive results)
- ✓ VOA and BNA Standards Reconstruction Ion Chromatograms (RIC)
- ✓ VOA and BNA Standards Quantitation Reports
- N/A Pesticide/PCB Standard Chromatograms and Data System Printouts

✓ Raw QC Data Package
- ✓ DFTPP and BFB mass spectra and mass listings
- ✓ Reagent Blank Data
  - ✓ Organic Analysis Data Sheets (Form I)
  - ✓ Reconstructed Ion Chromatograms (RIC)
  - ✓ Quantitation Reports
  - ✓ Mass Spectral Data
  - ✓ EPA/NIH Library Search of TIC's
  - N/A GC/EC Chromatograms and Data System Printouts

- ✓ Matrix Spike and Matrix Spike Duplicate Data
  - ✓ Organic Analysis Data Sheets (Form I)
  - ✓ Reconstructed Ion Chromatograms (RIC)
  - ✓ Quantitation Reports
  - ✓ Mass Spectral Data
  - ✓ EPA/NIH Library Search of TIC's
  - N/A GC/EC Chromatograms and Data System Printouts

ORGANICS ANALYSIS DATA SHEET SAMPLE #: HB003

(12)
Plan
4/14/86

LABORATORY: IT/CERR
L BORATORY ID: 34451N2
M..TRIX: WATER

CASE #/SAS #: 4951/1930H
QC REPORT #: 6962-210
CONTRACT #: 68-01-6962SAS
DATE RECEIVED: 09/18/85

D TA RELEASE AUTHORIZED BY:

VOLATILE COMPOUNDS

LEVEL:	LOW
DATE EXT/PREP:	09/23/85
DATE ANALYZED:	09/23/85
SPL-->EXTRACT:	50UL:5ML
PH:	NA
% MOISTURE (NOT DEC.):	/
% MOISTURE (DEC.):	/
STANDARD ID:	VOA398
SENSITIVITY ID:	BFD335
UNITS:	UG/L

P #	CAS #		CONC	
45V	74-87-3	CHLOROMETHANE	1000. U	
4 V	74-83-9	BROMOMETHANE	1000. U	
8 V	75-01-4	VINYL CHLORIDE	1000. U	
16V	75-00-3	CHLOROETHANE	1000. U	
44V	75-09-2	METHYLENE CHLORIDE	1000.	B
1 H	67-64-1	ACETONE	14000.	B
1 H	75-15-0	CARBON DISULFIDE	500. U	
29V	75-35-4	1,1-DICHLOROETHENE	500. U	
1 V	75-34-3	1,1-DICHLOROETHANE	500. U	
3 V	156-60-5	TRANS-1,2-DICHLOROETHENE	500. U	
23V	67-66-3	CHLOROFORM	500. U	
1 V	107-06-2	1,2-DICHLOROETHANE	500. U	
1 H	78-93-3	2-BUTANONE	1000. U	
11V	71-55-6	1,1,1-TRICHLOROETHANE	500. U	
6V	56-23-5	CARBON TETRACHLORIDE	500. U	
1 H	108-05-4	VINYL ACETATE	1000. U	
4 V	75-27-4	BROMODICHLOROMETHANE	500. U	
32V	78-87-5	1,2-DICHLOROPROPANE	500. U	
3 VT	10061-02-6	TRANS-1,3-DICHLOROPROPENE	500. U	
8 V	79-01-6	TRICHLOROETHENE	500. U	
51V	124-48-1	CHLORODIBROMOMETHANE	500. U	
1 V	79-00-5	1,1,2-TRICHLOROETHANE	500. U	
V	71-43-2	BENZENE	500. U	
33VC	10061-01-5	CIS-1,3-DICHLOROPROPENE	500. U	
1 V	110-75-8	2-CHLOROETHYLVINYL ETHER	1000. U	
4 V	75-25-2	BROMOFORM	500. U	
16H	519-78-6	2-HEXANONE	1000. U	
17H	108-10-1	4-METHYL-2-PENTANONE	1000. U	
8 V	127-18-4	TETRACHLOROETHENE	500. U	
1 V	79-34-5	1,1,2,2-TETRACHLOROETHANE	500. U	
86V	108-88-3	TOLUENE	500. U	
V	108-90-7	CHLOROBENZENE	500. U	
3 V	100-41-4	ETHYLBENZENE	500. U	
18H	100-42-5	STYRENE	500. U	
2 H	95-47-6	TOTAL XYLENES	500. U	

ALL RESULTS ARE REPORTED ON A WET WEIGHT BASIS.

ORGANICS ANALYSIS DATA SHEET SAMPLE #: HB003

(13)

LABORATORY: IT/CERR
LABORATORY ID: 34451F6
MATRIX: WATER

CASE #/SAS #: 4951/1930H
GC REPORT #: 6962-210
CONTRACT #: 68-01-6962/SAS
DATE RECEIVED: 09/18/85

DATA RELEASE AUTHORIZED BY:

SEMIVOLATILE COMPOUNDS (PAGE 1)

LEVEL:	LOW	GPC	Y_	N X
DATE EXT/PREP:	09/22/85	SEP. FUNNEL	Y_	N X
DATE ANALYZED:	10/14/85	CONT. EXT.	Y X	N_
SPL-->EXTRACT:	1L:10ML--2ML:1ML--500UL:1ML			
PH:	NA			
% MOISTURE (NOT DEC.):				
% MOISTURE (DEC.):				
STANDARD ID:	BNAZ333			
SENSITIVITY ID:	SENS730			
UNITS:	UG/L			

PP #	CAS #		CONC
65A	108-95-2	PHENOL	100. U
18B	111-44-4	BIS (2-CHLOROETHYL) ETHER	100. U
24A	95-57-8	2-CHLOROPHENOL	100. U
26B	541-73-1	1,3-DICHLOROBENZENE	100. U
27B	106-46-7	1,4-DICHLOROBENZENE	100. U
6H	100-51-6	BENZYL ALCOHOL	100. U
25B	95-50-1	1,2-DICHLOROBENZENE	100. U
2H	95-48-7	2-METHYLPHENOL	100. U
42B	39638-32-9	BIS (2-CHLOROISOPROPYL) ETHER	100. U
3H	106-44-5	4-METHYLPHENOL	100. U
63B	621-64-7	N-NITROSO-DI-N-PROPLYAMINE	100. U
12B	67-72-1	HEXACHLOROETHANE	100. U
56B	98-95-3	NITROBENZENE	100. U
54B	78-59-1	ISOPHORONE	100. U
57A	88-75-5	2-NITROPHENOL	100. U
34A	105-67-9	2,4-DIMETHYLPHENOL	100. U
1H	65-85-0	BENZOIC ACID	500. U
43B	111-91-1	BIS (2-CHLOROETHOXY) METHANE	100. U
31A	120-33-2	2,4-DICHLOROPHENOL	100. U
8B	120-82-1	1,2,4-TRICHLOROBENZENE	100. U
55B	91-20-3	NAPHTHALENE	100. U
7H	106-47-8	4-CHLOROANILINE	100. U
52B	87-68-3	HEXACHLOROBUTADIENE	100. U
22A	59-50-7	4-CHLORO-3-METHYLPHENOL	100. U
9H	91-57-6	2-METHYLNAPHTHALENE	100. U
53B	77-47-4	HEXACHLOROCYCLOPENTADIENE	100. U
21A	88-06-2	2,4,6-TRICHLOROPHENOL	100. U
4H	95-95-4	2,4,5-TRICHLOROPHENOL	500. U
20B	91-58-7	2-CHLORONAPHTHALENE	100. U
10H	88-74-4	2-NITROANILINE	500. U
71B	131-11-3	DIMETHYLPHTHALATE	100. U
77B	208-96-8	ACENAPHTHALENE	100. U
11H	99-09-2	3-NITROANILINE	500. U
1B	83-32-9	ACENAPHTHENE	100. U
59A	51-28-5	2,4-DINITROPHENOL	500. U

ORGANICS ANALYSIS DATA SHEET SAMPLE #: MB003

(14)
TB
4/14/86

LABORATORY: IT/CERR
LABORATORY ID: 34451F6
MATRIX: WATER

CASE #/SAS #: 4951/1930H
QC REPORT #: 6962-210
CONTRACT #: 68-01-6962/SAS
DATE RECEIVED: 09/18/85

DATA RELEASE AUTHORIZED BY:

SEMIVOLATILE COMPOUNDS (PAGE 2)

LEVEL:	LOW	GPC	Y_	N X
DATE EXT/PREP:	09/22/85	SEP. FUNNEL	Y_	N X
DATE ANALYZED:	10/14/85	CONT. EXT.	Y X	N_
SPL-->EXTRACT:	1L:10ML--2ML:1ML--500UL:1ML			
PH:	NA			
% MOISTURE (NOT DEC.):	/			
% MOISTURE (DEC.):	/			
STANDARD ID:	BNAZ333			
SENSITIVITY ID:	SENS730			
UNITS:	UG/L			

PP #	CAS #		CONC
58A	100-02-7	4-NITROPHENOL	500. U
8H	132-64-9	DIBENZOFURAN	100. U
35B	121-14-2	2,4-DINITROTOLUENE	100. U
36B	606-20-2	2,6-DINITROTOLUENE	100. U
70B	84-66-2	DIETHYLPHTHALATE	100. U
40B	7005-72-3	4-CHLOROPHENYLPHENYL ETHER	100. U
80B	86-73-7	FLUORENE	100. U
12H	100-01-6	4-NITROANILINE	500. U
60A	534-52-1	4,6-DINITRO-O-CRESOL	500. U
62B	86-30-6	N-NITROSODIPHENYLAMINE	100. U
41B	101-55-3	4-BROMOPHENOXYBENZENE	100. U
9B	118-74-1	HEXACHLOROBENZENE	100. U
64A	87-86-5	PENTACHLOROPHENOL	500. U
81B	85-01-8	PHENANTHRENE	100. U
78B	120-12-7	ANTHRACENE	100. U
68B	84-74-2	DI-N-BUTYLPHTHALATE	97. J
39B	206-44-0	FLUORANTHENE	100. U
84B	129-00-0	PYRENE	100. U
67B	85-68-7	BUTYLBENZYLPHTHALATE	59. J
28B	91-94-1	3,3'-DICHLOROBENZIDINE	200. U
72B	56-55-3	BENZO (A) ANTHRACENE	100. U
66B	117-81-7	BIS (2-ETHYLHEXYL) PHTHALATE	34. J
76B	218-01-9	CHRYSENE	100. U
69B	117-84-0	DI-N-OCTYLPHTHALATE	100. U
74B	205-99-2	BENZO (B & K) FLUORANTHENE	100. U
73B	50-32-8	BENZO (A) PYRENE	100. U
83B	193-39-5	INDENO-1,2,3 (C,D) PYRENE	100. U
82B	53-70-3	DIBENZO (A,H) ANTHRACENE	100. U
79B	191-24-2	BENZO (G,H,I) PERYLENE	100. U

ALL RESULTS ARE REPORTED ON A WET WEIGHT BASIS.

ORGANICS ANALYSIS DATA SHEET #: HB003

LABORATORY: IT/CERR
LABORATORY ID: 34451N2
M TRIX: WATER

/SAS #: 4861/1930
ORT #: 6962-210
CT #: 68-01-6962 SAS
CEIVED: 09/18/85

TLG 4/14/86

DATA RELEASE AUTHORIZED BY:

VOLATILE COMPOU

SURROGATE SPIKE RECO

LEVEL:
DATE EXT/PREP:
DATE ANALYZED:
SPL-->EXTRACT:
PH:
% MOISTURE (NOT DEC.):
% MOISTURE (DEC.):
STANDARD ID:
SENSITIVITY ID:
UNITS:

AB ID	COMPOUND	S	PIKED	% RECOVE
	TOLUENE-D8		5000.	103
451N2	4-BROMOFLUOROBENZENE		5000.	104
	1,2-DICHLOROETHANE-D4		5000.	101

* - ASTERISKED VALUES ARE OUTSIDE QC LI - NOT SPIKED
\# - _____ RECOVERIES DUE TO DILUTION
$ - _____ RECOVERIES DUE TO MATRIX EF

TENTATIVELY IDENTIF S

	CAS #	COMPOUND NAME	SCAN #	CONC(
1		NONE FOUND		
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

ORGANICS ANALYSIS DATA SHEET SAMPLE #: MB003

(16)

LABORATORY: IT/CERR
LABORATORY ID: 34451F6
MATRIX: WATER

CASE #/SAS #: 4951/1930H
QC REPORT #: 6962-210
CONTRACT #: 68-01-6962/S
DATE RECEIVED: 09/18/85

DATA RELEASE AUTHORIZED BY: [signature]

4/14/86

SEMIVOLATILE COMPOUNDS
SURROGATE SPIKE RECOVERIES

LEVEL:	LOW	GPC	Y_	N X
DATE EXT/PREP:	09/22/85	SEP. FUNNEL	Y_	N X
DATE ANALYZED:	10/14/85	CONT. EXT.	Y X	N_
SPL-->EXTRACT:	1L:10ML--2ML:1ML--500UL:1ML			
PH:	NA			
% MOISTURE (NOT DEC.):				
% MOISTURE (DEC.):				
STANDARD ID:	BNAZ333			
SENSITIVITY ID:	SENS730			
UNITS:	UG/L			

LAB ID	COMPOUND	SAMPLE	SPIKED	% RECOVERY
	NITROBENZENE-D5	30.J	51.	59
	2-FLUOROBIPHENYL	31.J	52.	60
34451F6	P-TERPHENYL-D14	37J	104.	36
	PHENOL-D5	20.U	52.	0 *
	2-FLUOROPHENOL	15.J	54.	28
	2,4,6-TRIBROMOPHENOL	10.J	50.	20
	PYRENE-D10	13.J	51.	25

* - ASTERISKED VALUES ARE OUTSIDE QC LIMITS NS - NOT SPIKED
\# - _____ RECOVERIES DUE TO DILUTION
\$ - _____ RECOVERIES DUE TO MATRIX EFFECTS

TENTATIVELY IDENTIFIED COMPOUNDS

	CAS #	COMPOUND NAME	SCAN #	CONC(J)
1	–	hydrocarbon for matrix characterization	986	–
2	–	hydrocarbon for matrix characterization	1074	–
3	–	hydrocarbon for matrix characterization	1301	–
~~4~~	~~–~~	~~Total hydrocarbon matrix~~	~~958-1500~~	~~3000~~
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

No Good

ORGANICS ANALYSIS DATA SHEET SAMPLE #: HB004

(17)

LABORATORY: IT/CERR
LABORATORY ID: 34451N4
MATRIX: WATER

CASE #/SAS #: 4957/1930H
QC REPORT #: 0462-210
CONTRACT #: 68-01-6962SAS
DATE RECEIVED: 09/18/85

DATA RELEASE AUTHORIZED BY:

VB 4/14/86

VOLATILE COMPOUNDS

LEVEL:	LOW
DATE EXT/PREP:	09/23/85
DATE ANALYZED:	09/23/85
SPL-->EXTRACT:	5ML
PH:	NA
% MOISTURE (NOT DEC.):	/
% MOISTURE (DEC.):	/
STANDARD ID:	VOA398
SENSITIVITY ID:	BFD335
UNITS:	UG/L

P #	CAS #		CONC
45V	74-87-3	CHLOROMETHANE	10. U
4[illegible]V	74-83-9	BROMOMETHANE	10. U
E[illegible]V	75-01-4	VINYL CHLORIDE	10. U
16V	75-00-3	CHLOROETHANE	10. U
44V	75-09-2	METHYLENE CHLORIDE	21. UB
1[illegible]H	67-64-1	ACETONE	10. U
1[illegible]H	75-15-0	CARBON DISULFIDE	5. U
29V	75-35-4	1,1-DICHLOROETHENE	5. U
1[illegible]V	75-34-3	1,1-DICHLOROETHANE	5. U
[illegible]V	156-60-5	TRANS-1,2-DICHLOROETHENE	5. U
23V	67-66-3	CHLOROFORM	5. U
1[illegible]V	107-06-2	1,2-DICHLOROETHANE	5. U
1[illegible]H	78-93-3	2-BUTANONE	10. U
11V	71-55-6	1,1,1-TRICHLOROETHANE	5. U
[illegible]4V	56-23-5	CARBON TETRACHLORIDE	5. U
1[illegible]H	108-05-4	VINYL ACETATE	10. U
48V	75-27-4	BROMODICHLOROMETHANE	5. U
32V	78-87-5	1,2-DICHLOROPROPANE	5. U
[illegible]VT	10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. U
E[illegible]V	79-01-6	TRICHLOROETHENE	5. U
51V	124-48-1	CHLORODIBROMOMETHANE	5. U
1[illegible]V	79-00-5	1,1,2-TRICHLOROETHANE	5. U
[illegible]V	71-43-2	BENZENE	5. U
33VC	10061-01-5	CIS-1,3-DICHLOROPROPENE	5. U
1[illegible]V	110-75-8	2-CHLOROETHYLVINYL ETHER	10. U
4[illegible]V	75-25-2	BROMOFORM	5. U
16H	519-78-6	2-HEXANONE	10. U
17H	108-10-1	4-METHYL-2-PENTANONE	10. U
E[illegible]V	127-18-4	TETRACHLOROETHENE	5. U
1[illegible]V	79-34-5	1,1,2,2-TETRACHLOROETHANE	5. U
86V	108-88-3	TOLUENE	5. U
[illegible]V	108-90-7	CHLOROBENZENE	5. U
[illegible]JV	100-41-4	ETHYLBENZENE	5. U
18H	100-42-5	STYRENE	5. U
[illegible]H	95-47-6	TOTAL XYLENES	5. U

ALL RESULTS ARE REPORTED ON A WET WEIGHT BASIS.

ORGANICS ANALYSIS DATA SHEET SAMPLE #: MB004

(18)

LABORATORY: IT/CERR
LABORATORY ID: 34451F7
MATRIX: WATER

CASE #/SAS #: 4951/1930H
GC REPORT #: VG62-210
CONTRACT #: 68-01-6962/SAS
DATE RECEIVED: 09/18/85

DATA RELEASE AUTHORIZED BY:

SEMIVOLATILE COMPOUNDS (PAGE 1)

LEVEL:	LOW	GPC	Y_	N X
DATE EXT/PREP:	09/22/85	SEP. FUNNEL	Y_	N X
DATE ANALYZED:	10/14/85	CONT. EXT.	Y X	N_
SPL-->EXTRACT:	1L:2ML			
PH:	NA			
% MOISTURE (NOT DEC.):				
% MOISTURE (DEC.):				
STANDARD ID:	BNAZ333			
SENSITIVITY ID:	SENS730			
UNITS:	UG/L			

PP #	CAS #		CONC
65A	108-95-2	PHENOL	20. U
18B	111-44-4	BIS (2-CHLOROETHYL) ETHER	20. U
24A	95-57-8	2-CHLOROPHENOL	20. U
26B	541-73-1	1,3-DICHLOROBENZENE	20. U
27B	106-46-7	1,4-DICHLOROBENZENE	20. U
6H	100-51-6	BENZYL ALCOHOL	20. U
25B	95-50-1	1,2-DICHLOROBENZENE	20. U
2H	95-48-7	2-METHYLPHENOL	20. U
42B	39638-32-9	BIS (2-CHLOROISOPROPYL) ETHER	20. U
3H	106-44-5	4-METHYLPHENOL	20. U
63B	621-64-7	N-NITROSO-DI-N-PROPLYAMINE	20. U
12B	67-72-1	HEXACHLOROETHANE	20. U
56B	98-95-3	NITROBENZENE	20. U
54B	78-59-1	ISOPHORONE	20. U
57A	88-75-5	2-NITROPHENOL	20. U
34A	105-67-9	2,4-DIMETHYLPHENOL	20. U
1H	65-85-0	BENZOIC ACID	100. U
43B	111-91-1	BIS (2-CHLOROETHOXY) METHANE	20. U
31A	120-33-2	2,4-DICHLOROPHENOL	20. U
8B	120-82-1	1,2,4-TRICHLOROBENZENE	20. U
55B	91-20-3	NAPHTHALENE	20. U
7H	106-47-8	4-CHLOROANILINE	20. U
52B	87-68-3	HEXACHLOROBUTADIENE	20. U
22A	59-50-7	4-CHLORO-3-METHYLPHENOL	20. U
9H	91-57-6	2-METHYLNAPHTHALENE	20. U
53B	77-47-4	HEXACHLOROCYCLOPENTADIENE	20. U
21A	88-06-2	2,4,6-TRICHLOROPHENOL	20. U
4H	95-95-4	2,4,5-TRICHLOROPHENOL	100. U
20B	91-58-7	2-CHLORONAPHTHALENE	20. U
10H	88-74-4	2-NITROANILINE	100. U
71B	131-11-3	DIMETHYLPHTHALATE	20. U
77B	208-96-8	ACENAPHTHALENE	20. U
11H	99-09-2	3-NITROANILINE	100. U
1B	83-32-9	ACENAPHTHENE	20. U
59A	51-28-5	2,4-DINITROPHENOL	100. U

(19)

TL 4/14/86

ORGANICS ANALYSIS DATA SHEET SAMPLE #: MB004

LABORATORY: IT/CERR
LABORATORY ID: 34491F7
MATRIX: WATER

CASE #/SAS #: 4951/1930H
QC REPORT #: 6962-210
CONTRACT #: 68-01-6962/SAS
DATE RECEIVED: 09/18/85

DATA RELEASE AUTHORIZED BY:

SEMIVOLATILE COMPOUNDS (PAGE 2)

LEVEL:	LOW	GPC	Y_	N X
DATE EXT/PREP:	09/22/85	SEP. FUNNEL	Y_	N X
DATE ANALYZED:	10/14/85	CONT. EXT.	Y X	N_
SPL-->EXTRACT:	1L:2ML			
PH:	NA			
% MOISTURE (NOT DEC.):				
% MOISTURE (DEC.):				
STANDARD ID:	BNAZ333			
SENSITIVITY ID:	SENS730			
UNITS:	UG/L			

PP #	CAS #		CONC
58A	100-02-7	4-NITROPHENOL	100. U
8H	132-64-9	DIBENZOFURAN	20. U
35B	121-14-2	2,4-DINITROTOLUENE	20. U
36B	606-20-2	2,6-DINITROTOLUENE	20. U
70B	84-66-2	DIETHYLPHTHALATE	20. U
40B	7005-72-3	4-CHLOROPHENYLPHENYL ETHER	20. U
80B	86-73-7	FLUORENE	20. U
12H	100-01-6	4-NITROANILINE	100. U
60A	534-52-1	4,6-DINITRO-O-CRESOL	100. U
62B	86-30-6	N-NITROSODIPHENYLAMINE	20. U
41B	101-55-3	4-BROMOPHENOXYBENZENE	20. U
9B	118-74-1	HEXACHLOROBENZENE	20. U
64A	87-86-5	PENTACHLOROPHENOL	100. U
81B	85-01-8	PHENANTHRENE	20. U
78B	120-12-7	ANTHRACENE	20. U
68B	84-74-2	DI-N-BUTYLPHTHALATE	2. J
39B	206-44-0	FLUORANTHENE	20. U
84B	129-00-0	PYRENE	20. U
67B	85-68-7	BUTYLBENZYLPHTHALATE	2. J
28B	91-94-1	3,3'-DICHLOROBENZIDINE	40. U
72B	56-55-3	BENZO (A) ANTHRACENE	20. U
66B	117-81-7	BIS (2-ETHYLHEXYL) PHTHALATE	21.
76B	218-01-9	CHRYSENE	20. U
69B	117-84-0	DI-N-OCTYLPHTHALATE	20. U
74B	205-99-2	BENZO (B & K) FLUORANTHENE	20. U
73B	50-32-8	BENZO (A) PYRENE	20. U
83B	193-39-5	INDENO-1,2,3 (C,D) PYRENE	20. U
82B	53-70-3	DIBENZO (A,H) ANTHRACENE	20. U
79B	191-24-2	BENZO (G,H,I) PERYLENE	20. U

ALL RESULTS ARE REPORTED ON A WET WEIGHT BASIS.

LABORATORY: IT/CERR
LABORATORY ID: 34451N4
MATRIX: WATER

CASE #/SAS #: 4451/1930H
QC REPORT #: 62-210
CONTRACT #: 68-01-6962SAS
DATE RECEIVED: 09/18/85

20
9/14/86

DATA RELEASE AUTHORIZED BY:

VOLATILE COMPOUNDS

SURROGATE SPIKE RECOVERIES

LEVEL:	LOW
DATE EXT/PREP:	09/23/85
DATE ANALYZED:	09/23/85
SPL-->EXTRACT:	5ML
PH:	NA
% MOISTURE (NOT DEC.):	
% MOISTURE (DEC.):	
STANDARD ID:	VOA398
SENSITIVITY ID:	BFD335
UNITS:	UG/L

LAB ID	COMPOUND	SAMPLE	SPIKED	% RECOVERY
	TOLUENE-D8	47.	50.	94
34451N4	4-BROMOFLUOROBENZENE	51.	50.	102
	1,2-DICHLOROETHANE-D4	50.	50.	100

* - ASTERISKED VALUES ARE OUTSIDE QC LIMITS NS - NOT SPIKED
D - _____ RECOVERIES DUE TO DILUTION
E - _____ RECOVERIES DUE TO MATRIX EFFECTS

TENTATIVELY IDENTIFIED COMPOUNDS

	CAS #	COMPOUND NAME	SCAN #	CONC(J)
1	—	Trimethylcyclopentane isomers	354	50
2	—	unknown hydrocarbon	388	20
3	—	unknown	407	30
4	6876-23-9	Trans-1,2-Dimethylcyclohexane	423	100
5	3073-66-3	1,1,3-Trimethylcyclohexane	462	200
6	7094-26-0	1,1,2-Trimethylcyclohexane	480	50
7	1678-81-5	1,2,3-Trimethylcyclohexane	495	60
8	—	unknown hydrocarbon	512	60
9	2404-35-5	Bromocycloheptane	523	70
10	—	Ethylmethylcyclohexane isomers	560	40
11	—	unknown hydrocarbon	589	60
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

ORGANICS ANALYSIS DATA SHEET SAMPLE #: MB004

(21)

LABORATORY: IT/CERR
LABORATORY ID: 34451F7
MATRIX: WATER

CASE #/SAS #: 4751/1930H
QC REPORT #: 6962-210
CONTRACT #: 68-01-6962/SAS
DATE RECEIVED: 09/18/85

DATA RELEASE AUTHORIZED BY:

4/14/92

SEMIVOLATILE COMPOUNDS
SURROGATE SPIKE RECOVERIES

LEVEL:	LOW	GPC	Y_	N X
DATE EXT/PREP:	09/22/85	SEP. FUNNEL	Y_	N X
DATE ANALYZED:	10/14/85	CONT. EXT.	Y X	N_
SPL-->EXTRACT:	1L:2ML			
PH:	NA			
% MOISTURE (NOT DEC.):	/			
% MOISTURE (DEC.):	/			
STANDARD ID:	BNAZ333			
SENSITIVITY ID:	SENS730			
UNITS:	UG/L			

LAB ID	COMPOUND	SAMPLE	SPIKED	% RECOVERY
	NITROBENZENE-D5	31.	51.	61
	2-FLUOROBIPHENYL	23.	52.	44
34451F7	P-TERPHENYL-D14	24.	104.	23 *
	PHENOL-D5	20.4	53.	0 *
	2-FLUOROPHENOL	19.J	55.	35
	2,4,6-TRIBROMOPHENOL	15.J	51.	29
	PYRENE-D10	17.J	51.	33

* - ASTERISKED VALUES ARE OUTSIDE QC LIMITS NS - NOT SPIKED
\# - _____ RECOVERIES DUE TO DILUTION
$ - _____ RECOVERIES DUE TO MATRIX EFFECTS

TENTATIVELY IDENTIFIED COMPOUNDS

	CAS #	COMPOUND NAME	SCAN #	CONC(J)
1	-	Unknown	409	10
2	-	Hydrocarbon	491	10
3	2958-76-1	Decahydro-2-methyl naphthalene	584	8
4	-	Unknown	602	20
5	-	Hydrocarbon	680	20
6	-	Unknown	712	8
7	62016-34-6	2,3,7-Trimethyl octane	735	30
8	-	Hydrocarbon	755	8
9	-	Hydrocarbon	773	8
10	-	Hydrocarbon	796	9
11	-	Hydrocarbon	825	40
12	-	Unknown	842	20
13	-	Hydrocarbon	893	60
14	-	Unknown	925	10
15	-	Unknown	968	10
16	-	Hydrocarbon	1034	30
17	-	Hydrocarbon	1075	60
18	-	Hydrocarbon	1149	20
19	-	Hydrocarbon	1203	8
20	-	unknown	410	9
21				
22				

release 4/28/86

REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

Case No. 4951 Project No. RS-8602-65

Site Standard Oil Ref

Contractor Laboratory Laucks

Data Reviewer Randy Greaves Date of Review 3/17/86

Sample Matrix 7 water samples, 3 soil samples

Sample No. HB 002 (H2O) HB 284 (H2O) HB 281 (H2O)

HB 101 (H2O) HB 285 (H2O)

HB 102 (H2O) HB 288 (soil)

HB 282 (H2O) HB 289 (soil)

HB 283 (H2O) HB 299 (soil)

( ) Data are acceptable for use

(✓) Data are acceptable for use with qualification noted ~~above~~ below

( ) Data are preliminary - pending action or verification

( ) Data are unacceptable

Action required by DPO?

No ✓ Yes ____ Following items require action ____

Action required by Project Officer (PO)?

No ✓ Yes ____

Following are our findings:

This was a well organized and complete data package. Holding times, mass spectrometer tuning, surrogates and matrix spikes were all performed within contract limits. Several compounds listed below on the continuing calibration sheet were outside the contract limits because of the drift in response factors between the initial and continuing calibrations. These compounds were qualified accordingly. Pesticides were not analyzed on these samples.

Blank compounds in the soil and water include methylene chloride, acetone, bis(2-ethylhexyl)phthalate and di-n-octylphthalate. These are the same blank compounds that have been observed in several previous laboratory blank analyses. Many of the qualifiers listed on the "compounds identified" sheet were a result of the above blank compounds.

The % RSD was calculated with an "n" rather than "n-1" but no data was qualified as a result of this mistake.

DFTPP and BFB Performance Results

The DFTPP performance results were all included and found to be within the specified criteria.

Yes ✓ No ____

Comments:

The BFB performance results were all included and found to be within the specified criteria.

Yes ✓ No ____

Comments:

The (DFTPP/BFB) performance result(s) was/were reviewed and the following abundance were found to fall outside the specified criteria:

Date	Compound	m/z	Required Abundance	Actual Abundance

None

All samples were extracted and analyzed within contract holding times

Yes ✓ No ____

Comments:

Initial calibration data were reviewed. Initial calibration data were included in the package and met all contract requirements.

Yes _____ No _____

Comments: 9/6 - 9/7

Methylene chloride %RSD ~42.9

Acetone 38.1% RSD

7/23

2-Butanone 0.022 RF

2-chloroethylvinylether Z

8/18/85

Benzidine 82.8% RSD

Continuing calibration data were reviewed and this data met all contract requirements.

Yes _____ No _____

Comments:

7/23 - 7/ 9/22

chloromethane %D 31.8%
acetone 29
2-butanone 0.031
1,1,1-trichloroethane 33.2%
carbon tetrachloride 35.6
bromodichloromethane 38.3
trans-1,3-dichloropropene 31.2
dibromochloromethane 38.9
1,1,2-trichloroethane 40.7
cis-1,3-dichloropropene 31.6
bromoform 58.5

9/21

chloromethane 38.7
bromomethane 50.8
chloroethane 54.5
acetone 74.5

9/21

2-butanone 0.39
benzene 29%
bromoform 48.3

9/22

chloromethane 32.8
bromomethane 57.2
chloroethane 32.6
methylene chloride 29
acetone 48
carbon disulfide 44
2-butanone 55%
carbon tetrachloride 32
vinyl acetate 48%

10/4

benzyl alcohol 58%
benzoic acid 34%

10/9

benzyl Alcohol 58
benzoic acid 54
benzidine 41%

10/14

benzyl alcohol 56
benzoic acid 50
benzidine 74
3,3-dichlorobenzidine 78

quality of the document being filmed
SITE/SITE ASSESSMENT

Surrogate recoveries were reviewed. The recoveries were all within the contract limits.

Yes _____ No. ✓

Comments:

Soil Surrogates: 0/32 BNA compounds were outside the QC limits. (medium) No VOA or Pesticide soil surrogates at the medium concentration level.

Soil Surrogates: Low conc. level. {0 out 21} {0 out 40} compounds were outside QC limits.

All surrogate recoveries for Soil analysis were within the contract limits

The water surrogate recoveries were 0 out of 45 outside limits for VOAs, 3 out of 56 outside the QC limits for BNA compounds. No Pesticides. The 3 surrogate recoveries that were out of control were the phenol compounds in the sample HB-102. HB-102 was re-analyzed as per contract requirements but the phenol recoveries were still outside the specified recovery limits. No qualifiers will be added to the data as a result of surrogate recoveries.

The matrix spike recovery data were reviewed. The Matrix spikes were performed and all data met contract requirements.

Yes ✓ No _____

Comments: The % recovery for pyrene in the soil matrix was below the contract limits for one analysis. By itself, the poor recovery of pyrene is not sufficient to justify its qualification.

Most of the other MS/MSD recoveries were OK. NO data will be qualified as a result of poor MS/MSD results.

6

PESTICIDES

The laboratory met the pesticide linearity check criteria.
Yes _____ No _____

Comments:

N.A.

The % breakdown of 4,4DDT and of Endrin was less than 20%.
Yes _____ No _____

Comments:

N.A.

The dibutychlorendate retention time shift was within the specified limits.
Yes _____ No _____

Comments:

N.A.

The pesticide standard compounds showed a % D of the calibration factor of no more than 15% for the quantitation runs and 20% for the confirmation runs.
Yes _____ No _____

Comments:

N.A.

BLANK ANALYSIS RESULTS

The blank analysis were reviewed. The contaminants in the blank are listed below: (*Indicates amounts above CRDL)

Sample	Date	Compound	Conc.	Samples Associated with this Blank	CRDL	
V A, soil, OWAI	9/22	Methylene Chloride	13 µg/kg	5	HB288 - HB299	
		Acetone	12 "	10	"	
BNA, soil, HUEY	10/4	bis(2-ethylhexyl) phthalate	34	330	HB288 - HB-299	
V A, water, OWAI	9/20	Methylene Chloride	7 µg/L	5	HB002 - HB283	
		Acetone	16	10		
		Benzene	5	5		
		2-Hexanone	10	10		
		4-Methyl-2-Pentanone	10	10		
V A, water, OWAI	9/21	Methylene Chloride	10	5	HB-284 - HB225	
		Acetone	10	10	"	
BNA, water, HUEY	10/3	bis(2-ethylhexyl) phthalate	5	10	HB002 - HB221	
		di-n-octylphthalate	2	10	"	
BNA, water HUEY	10/14	bis(2-ethylhexyl) phthalate	5	10	HB282 - HB299	
VOA, water, OWAI	9/20	Methylene Chloride	9	5		
		Acetone	16	10		

REMARKS: ONLY HSL Compounds determined in the Blank are listed above.

DATA QUALIFIER DEFINITIONS
Region 8

For the purposes of this data review document the following code letters and associated definitions are provided.

U - The material was analyzed for, but was not detected. The associated numerical value is the estimated sample quantitation limit.

J - The associated numerical value is an estimated quantity because the amount detected is below the required limits or because quality control criteria were not met.

UB - Estimated sample quantitation limit increased. Amount found in sample reported. Compound detected at <5 X the amount in blank (<10 X for methylene chloride, acetone, toluene and phthalates).

UJ - Detection limit is estimated because quality control criteria were not met.

JB - The value is an estimated amount detected below required limits and also detected in the blank.

B - Compound was detected in the blank. Quantity reported is >5 X the amount found in the blank (>10 X for methylene chloride, acetone, toluene, and phthalates).

R - Quality Control indicates that data is <u>not</u> usable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

E - No analytical result.

N - Presumptive evidence of presence of material (tentative identification).

COMPOUNDS IDENTIFIED

Sample No. HB 002 low water

Hazardous Substances List (HSL) Compounds Detected:

	Compound Name	Amount (µg/L)	Qualifier (if needed)	Comments
VOA	Methylene Chloride	8	UB	found in the Blank.
	Acetone	17	UB	found in the Blank.
BNA	None detected.	—	—	

No Pesticide Analysis

Tentatively Identified Compounds Detected: See attached sheet #24.

— No TICs Detected —

Spectra Matching Quality

✓ The spectra were examined and found to be of good matching quality.

___ The spectra were examined and found to be of poor matching quality due to:

Remarks:

COMPOUNDS IDENTIFIED

Sample No. HB 101 low water

Hazardous Substances List (HSL) Compounds Detected:

	Compound Name	Amount (µg/l)	Qualifier (if needed)	Comments
VOA	Methylene chloride	23	uB	found in the Blank.
	Acetone	14	uB	" "
BNA	bis(2-ethylhexyl)phthalate	61	uB	" "
	di-n-octylphthalate	171	uB	" "

No Pesticide Analysis

Tentatively Identified Compounds Detected: See attached sheet #29 & #28.

No VOA compounds.

Disregard the BNA DATA

Spectra Matching Quality

✓ The spectra were examined and found to be of good matching quality.
___ The spectra were examined and found to be of poor matching quality due to:

Remarks:

COMPOUNDS IDENTIFIED

Sample No. HB 102 low water

Hazardous Substances List (HSL) Compounds Detected:

	Compound Name	Amount (µg/l)	Qualifier (if needed)	Comments
VOA	Methylene Chloride	19	UB	compound found in the Blank
	Acetone	8700	B	"
BNA	bis (2-ethylhexyl) phthalate	24	UB	"
	Di-n-octyl phthalate	2	JB	"

No Pesticide Analysis

Tentatively Identified Compounds Detected: See attached sheet #33

— No Compounds Detected —

Spectra Matching Quality

✓ The spectra were examined and found to be of good matching quality.

____ The spectra were examined and found to be of poor matching quality due to:

Remarks:

COMPOUNDS IDENTIFIED

Sample No. HB 231 low water

Hazardous Substances List (HSL) Compounds Detected:

	Compound Name	Amount (µg/L)	Qualifier (if needed)	Comments
VOA	Methylene Chloride	910	B	
	Acetone	9300	B	

No BNAs Analysis

No Pesticide Analysis

Tentatively Identified Compounds Detected: see attached sheet #37.

— No Compounds Detected —

Spectra Matching Quality

✓ The spectra were examined and found to be of good matching quality.

___ The spectra were examined and found to be of poor matching quality due to:

Remarks:

(13)

COMPOUNDS IDENTIFIED

Sample No. HB 282 low water

Hazardous Substances List (HSL) Compounds Detected:

	Compound Name	Amount (µg/l)	Qualifier (if needed)	Comments
VOA	Methylene chloride	10	UB	
	Acetone	88	B	
	— No BNA Analysis —			
	— No Pesticide Analysis —			

Tentatively Identified Compounds Detected: see attached sheet #41.

tetrahydro-furan. —

Spectra Matching Quality

✓ The spectra were examined and found to be of good matching quality.
___ The spectra were examined and found to be of poor matching quality due to:

Remarks:

(4)

COMPOUNDS IDENTIFIED

Sample No. HB 283 low water

Hazardous Substances List (HSL) Compounds Detected:

	Compound Name	Amount (µg/l)	Qualifier (if needed)	Comments
VOA	Methylene Chloride	9	UB	compound in the lab blank
	Acetone	15	UB	" "
BNA	bis (2-ethylhexyl)phthalate	24	UB	" "

No Pesticide Analysis

Tentatively Identified Compounds Detected: See attached sheet #45 & #46.

— No Compounds Detected in the TICs —
— Disregard the TIC / BNA compounds. —

Spectra Matching Quality

✓ The spectra were examined and found to be of good matching quality.
___ The spectra were examined and found to be of poor matching quality due to:

Remarks:

COMPOUNDS IDENTIFIED

Sample No. HB284 low water

Hazardous Substances List (HSL) Compounds Detected:

	Compound Name	Amount (µg/L)	Qualifier (if needed)	Comments
VOA	Methylene chloride	9	UB	
	Acetone	12	UB	
BNA	bis(2-ethylhexyl)phthalate	19	UB	
	di-n-octyl phthalate	18	UB	

No Pesticide Analysis

Tentatively Identified Compounds Detected: See attached sheet 50 & 51.

No VOA TIC's
Disregard the BNA/TICs.

Spectra Matching Quality

✓ The spectra were examined and found to be of good matching quality.
____ The spectra were examined and found to be of poor matching quality due to:

Remarks:

(16)

COMPOUNDS IDENTIFIED

Sample No. HB 285

Hazardous Substances List (HSL) Compounds Detected:

	Compound Name	Amount (µg/l)	Qualifier (if needed)	Comments
VOA	Methylene Chloride	10	u B	compound Found in Blank
	Acetone	10	u B	" "
BNA	bis (2-ethylhexyl) phthalate	3	J B	" "

No Pesticide Analysis

Tentatively Identified Compounds Detected: See attached sheet #55

— No TIC Compounds observed. —

Spectra Matching Quality

✓ The spectra were examined and found to be of good matching quality.
___ The spectra were examined and found to be of poor matching quality due to:

Remarks:

COMPOUNDS IDENTIFIED

Sample No. HB288 low soil

Hazardous Substances List (HSL) Compounds Detected:

	Compound Name	Amount (µg/L)	Qualifier (if needed)	Comments
VOA	Methylene chloride	650	B	blank compound
	Acetone	430	B	" "
	chloroform	5	J	
	Toluene	980		
BNA	Phenanthrene	11000	J	estimated concentration.
	Anthracene	4500	J	
	Fluoranthene	24000	J	
	pyrene	17000	J	
	Benzo[a]anthracene	7100	J	
	chrysene	6400	J	
	Benzo[b]fluoranthene	2900	J	
	Benzo(K) fluoranthene	2900	J	
	Benzo[a] pyrene	4200	J	
	di-n-butylphthalate	3600	J	
	bis-(2-ethylhexyl)phthalate	7400	KB	compound found in the Blank

No Pesticide Analysis

Tentatively Identified Compounds Detected: See attached sheet #59 + 60.

Spectra Matching Quality

✓ The spectra were examined and found to be of good matching quality.
___ The spectra were examined and found to be of poor matching quality due to:

Remarks:

COMPOUNDS IDENTIFIED

Sample No. HB 289 soil

Hazardous Substances List (HSL) Compounds Detected:

	Compound Name	Amount (µg/L)	Qualifier (if needed)	Comments
VOA	Methylene chloride	240	B	
	Acetone	660	B	
BNA	bis(2-ethylhexyl)phthalate	1300	JB	
	Di-n-octyl phthalate	240	JB	
	No Pesticide Analysis			

Tentatively Identified Compounds Detected: See attached sheet #63. & 64.

Spectra Matching Quality

✓ The spectra were examined and found to be of good matching quality.
____ The spectra were examined and found to be of poor matching quality due to:

Remarks:

(19)

COMPOUNDS IDENTIFIED

Sample No. HB 299 soil

Hazardous Substances List (HSL) Compounds Detected:

	Compound Name	Amount (µg/L)	Qualifier (if needed)	Comments
(VOA)	Methylene Chloride	350	B	compounds found in the Blank
	Acetone	520	B	" "
BNA	bis(2-ethylhexyl)phthalate	1100	uB	

No Pesticide Analysis

Tentatively Identified Compounds Detected: See attached sheet #67 & #68.

Spectra Matching Quality

✓ The spectra were examined and found to be of good matching quality.
___ The spectra were examined and found to be of poor matching quality due to:

Remarks:

DATA COMPLETENESS CHECKLIST

✓ Included; no problems
✓ Included; problems noted in review
O Not Included

✓ Case Narrative

✓ Quality Control Summary Package
- ✓ Surrogate Recovery Summary (Form II)
- ✓ MS/MSD Summary (Form III)
- ✓ Reagent Blank Summary (Form IV)
- ✓ GC/MS Tuning and Mass Calibration (Form V)

✓ Sample Data Package
- ✓ Holding Times (EMD Sample Traffice Reports)
- ✓ Organic Analysis Data Sheets (Form I; all four pages for each sample, arranged in increasing EMD number order)
- ✓ Reconstructed Ion Chromatogram(s) (RIC)
- NA GC/EC Chromatograms
- ✓ Quantitation Reports
- ✓ Mass Spectral Data
- ✓ EPA/NIH Mass Spectral Library Search for TIC's

✓ Standards Data Package
- ✓ Current List of Laboratory/Instrumental Detection Limits
- ✓ Initial Calibration Data (Form VI) for each instrument
- ✓ Continuing Calibration Data (Form VII) for each instrument
- NA Pesticide Evaluation Standards Summary (Form VIII)
- NA Pesticide/PCB Standards Summary (Form IX)
- NA Pesticide/PCB Identification (Form X; if any positive results)
- ✓ VOA and BNA Standards Reconstruction Ion Chromatograms (RIC)
- ✓ VOA and BNA Standards Quantitation Reports
- NA Pesticide/PCB Standard Chromatograms and Data System Printouts

✓ Raw QC Data Package
- ✓ DFTPP and BFB mass spectra and mass listings
- ✓ Reagent Blank Data
  - ✓ Organic Analysis Data Sheets (Form I)
  - ✓ Reconstructed Ion Chromatograms (RIC)
  - ✓ Quantitation Reports
  - ✓ Mass Spectral Data
  - ✓ EPA/NIH Library Search of TIC's
  - NA GC/EC Chromatograms and Data System Printouts

- ✓ Matrix Spike and Matrix Spike Duplicate Data
  - ✓ Organic Analysis Data Sheets (Form I)
  - ✓ Reconstructed Ion Chromatograms (RIC)
  - ✓ Quantitation Reports
  - ✓ Mass Spectral Data
  - ✓ EPA/NIH Library Search of TIC's
  - NA GC/EC Chromatograms and Data System Printouts

Environmental Protection Agency CLP Sample Management Office
PO Box 818, Alexandria, VA 22313 703/557-2490

Laucks Testing Laboratories
Seattle, WA 206/767-5060

SAMPLE
HB002

21

PG 4/1/86

VOLATILE COMPOUNDS

CONCENTRATION: LOW MEDIUM (Circle one)
Date extracted/prepared ..N/A.....
Date analyzed .....9/20/85.....
Conc/dil factor ...1.....pH..N/A.....
Percent moisture:.....N/A.....
Percent moisture (decanted)..N/A....

CAS NUMBER		ug/l or ug/kg (circle one)	CAS NUMBER		ug/l or ug/kg (circle one)
74-87-3	Chloromethane	10U	79-34-5	1,1,2,2-Tetrachloroethane	5U
74-83-9	Bromomethane	10U	78-87-5	1,2-Dichloropropane	5U
75-01-4	Vinyl Chloride	10U	10061-02-6	Trans-1,3-Dichloropropene	[illegible] 5 UJ
75-00-3	Chloroethane	10U	78-01-6	Trichloroethene	5U
75-09-2	Methylene Chloride	8 uB [illegible]	124-48-1	Dibromochloromethane	[illegible] 5 UJ
67-64-1	Acetone	17 uB [illegible]	79-00-5	1,1,2-Trichloroethane	[illegible] 5 UJ
75-15-0	Carbon Disulfide	5 UJ [illegible]	71-43-2	Benzene	5U
75-35-4	1,1-Dichloroethane	5U	10061-01-5	cis-1,3-Dichloropropene	[illegible] 5 UJ
75-35-3	1,1-Dichloroethane	5U	110-75-8	2-Chloroethylvinylether	[illegible] 10 Z
156-60-5	Trans-1,2-Dichloroethene	5U	75-25-2	Bromoform	[illegible] 5 UJ
67-66-3	Chloroform	5U	591-78-6	2-Hexanone	10U
107-06-2	1,2-Dichloroethane	5U	108-10-1	4-Methyl-2-Pentanone	10U
78-93-3	2-Butanone	10 R [illegible]	127-18-4	Tetrachloroethene	5U
71-55-6	1,1,1-Trichloroethane	5 UJ [illegible]	108-88-3	Toluene	5U
56-23-5	Carbon Tetrachloride	5U	108-90-7	Chlorobenzene	5U
108-05-4	Vinyl Acetate	10U	100-41-4	Ethylbenzene	5U
75-27-4	Bromodichloromethane	5 UJ [illegible]	100-42-5	Styrene	5U
				Total Xylenes	5U

DATA REPORTING QUALIFIERS

For reporting results to EPA the following results qualifiers are used
Additional flags or footnotes explaining results are encouraged.
However, the definition of each flag must be specific.

Value If the result is a value greater than or equal to the detection limit.

U Indicates the compound was analyzed but not detected.

J Indicates an estimated value.

C GC/MS confirmation of a pesticide.

B Indicates that this compound was detected in the reagent blank.

(22)

xlo 4/9/86

Environmental Protection Agency ELP Sample Management Office
PO Box 818, Alexandria, VA 22313 703/557-2490

Laucks Testing Laboratories
Seattle, WA 206/767-5060

SAMPLE NUMBER
(MB002)

ORGANICS ANALYSIS DATA SHEET
(Page 2)

SEMIVOLATILE COMPOUNDS

Concentration..... low
Date extracted/prepared.....9/19/85
Date analyzed.....10/3/85
Dilution Factor..... 1

CAS NUMBER		ug/l	CAS NUMBER		ug/l
62-75-9	N-Nitrosodimethylamine	100 U	83-32-9	Acenaphthene	10 U
108-95-2	Phenol	100 U	51-28-5	2,4-Dinitrophenol	50 U
62-53-3	Aniline	10 U	100-02-7	4-Nitrophenol	50 U
111-44-4	bis(2-Chloroethyl)Ether	10 U	132-64-9	Dibenzofuran	10 U
95-57-8	2-Chlorophenol	10 U	121-14-2	2,4-Dinitrotoluene	10 U
541-73-1	1,3-Dichlorobenzene	10 U	606-20-2	2,6-Dinitrotoluene	10 U
106-46-7	1,4-Dichlorobenzene	10 U	84-66-2	Diethylphthalate	10 U
100-51-6	Benzyl Alcohol 10 UJ		7005-72-3	4-Chlorophenyl-phenylether	10 U
95-50-1	1,2-Dichlorobenzene	10 U	86-73-7	Fluorene	10 U
95-48-7	2-Methylphenol	10 U	100-01-6	4-Nitroaniline	50 U
39638-32-9	bis(2-chloroisopropyl)Ether	10 U	534-52-1	4,6-Dinitro-2-Methylphenol	50 U
106-44-5	4-Methylphenol	10 U	86-30-6	N-Nitrosodiphenylamine (1)	10 U
621-64-7	N-Nitroso-Di-n-propylamine	10 U	101-55-3	4-Bromophenyl-phenylether	10 U
67-72-1	Hexachloroethane	10 U	118-74-1	Hexachlorobenzene	10 U
98-95-3	Nitrobenzene	10 U	87-86-5	Pentachlorophenol	50 U
78-59-1	Isophorone	10 U	85-01-8	Phenanthrene	10 U
88-75-5	2-Nitrophenol	10 U	120-12-7	Anthracene	10 U
105-67-9	2,4-Dimethylphenol	10 U	84-74-2	Di-n-Butylphthalate	10 U
65-85-0	Benzoic Acid 50 UJ		206-44-0	Fluoranthene	10 U
111-91-1	bis(2-Chloroethoxy)Methane	10 U	92-87-5	Benzidine	50 @ UJ
120-83-2	2,4-Dichlorophenol	10 U	129-00-0	Pyrene	10 U
120-82-1	1,2,4-Trichlorobenzene	10 U	85-68-7	Butylbenzylphthalate	10 U
91-20-3	Naphthalene	10 U	91-94-1	3,3'Dichlorobenzidine	20 U UJ
106-47-8	4-Chloroaniline	10 U	56-55-3	Benzo(a)anthracene	10 U
87-68-3	Hexachlorobutadiene	10 U	117-81-7	bis(2-Ethylhexyl)Phthalate .	40 JB
59-50-7	4-Chloro-3-Methylphenol	10 U	218-01-9	Chrysene	10 U
91-57-6	2-Methylnaphthalene	10 U	117-84-0	Di-n-Octyl Phthalate	10 JB
77-47-4	Hexachlorocyclopentadiene	10 U	205-99-2	Benzo(b)Fluoranthene	10 U
88-06-2	2,4,6-Trichlorophenol	10 U	207-08-9	Benzo(k)Fluoranthene	10 U
95-95-4	2,4,5-Trichlorophenol	50 U	50-32-8	Benzo(a)Pyrene	10 U
91-58-7	2-Chloronaphthalene	10 U	193-39-5	Indeno(1,2,3-cd)Pyrene	10 U
88-74-4	2-Nitroaniline	50 U	53-70-3	Dibenz(a,h)Anthracene	10 U
131-11-3	Dimethyl Phthalate	10 U	191-24-2	Benzo(g,h,i)Perylene	10 U
208-96-8	Acenaphthylene	10 U			
99-09-2	3-Nitroaniline	50 U			

(1) cannot be separated from diphenylamine

(23)

TLW 4/9/86

Environmental Protection Agency, CLP Sample Management Office
P.O. Box 818, Alexandria, VA 22313 703 557-2490

SAMPLE

HB002

Laucks Testing Laboratories
Seattle, WA 206/767-5060

ORGANICS ANALYSIS DATA SHEET
(Page 3)

PESTICIDES/PCBs
CONCENTRATION: LOW MEDIUM (Circle one)
Date extracted/prepared .....
Date analyzed .....
Concentration/dilution factor 1

CAS NUMBER		ug/L (circle one)
319-84-6	Alpha-BHC	0.05U
319-85-7	Beta-BHC	0.05U
319-86-8	Delta-BHC	0.05U
58-89-9	Gamma-BHC(lindane)	0.05U
76-44-8	Heptachlor	0.05U
309-00-2	Aldrin	0.05U
1024-57-3	Heptachlor Epoxide	0.05U
959-98-8	Endosulfan I	0.05U
60-57-1	Dieldrin	0.10U
72-55-9	4,4'-DDE	0.10U
72-20-8	Endrin	0.10U
33213-65-9	Endsulfan II	0.10U
72-54-8	4,4'-DDD	0.10U
7421-93-4	Endrin Aldehyde	0.10U
1031-07-8	Endosulfan Sulfate	0.10U
50-29-3	4,4'-DDT	0.10U
72-43-5	Methoxychlor	0.5U
53494-70-5	Endrin Ketone	0.5U
57-74-9	Chlordane	0.5U
8001-35-2	Toxaphene	1.0U
12674-11-2	Aroclor-1016	0.5U
11104-28-2	Aroclor-1221	0.5U
11141-16-5	Aroclor-1232	0.5U
53469-21-9	Aroclor-1242	0.5U
12672-29-6	Aroclor-1248	0.5U
11097-69-1	Aroclor-1254	1.0U
11096-82-5	Aroclor-1260	1.0U

Vi =Volume of extract injected (ml)
Vo =Volume of water extracted (ml)
Vt =Volume of total extract (ml)

Vo = 1000 ml Vt = 10,000 ml Vi = 1.0 ml

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Frac.	Scan No	Estimated Concentration (ug/l - ug/kg)
1.		VOA		
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.	No tentatively			
14.	identified compounds -			
15.	(any unknown peaks			
16.	less than 10% std)			
17.				
18.				
19.				
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22.				
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27.				
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29.				
30.				

..ronmental Protection Agency CLP Sample Management Office
PO Box 818, Alexandria, VA 22313 703/557-2490

Laucks Testing Laboratories
Seattle, WA 206/767-5060

SAMPLE
HB101

(5)
4/9/85

VOLATILE COMPOUNDS

CONCENTRATION: LOW MEDIUM (Circle one)
Date extracted/prepared ..~~9/2/85~~ N/A
Date analyzed .....9/20/85.....
Conc/dil factor ...1....pH. N/A.....
Percent moisture:.....N/A.....
Percent moisture (decanted)..N/A.....

CAS NUMBER		ug/L or ug/kg (circle one)	CAS NUMBER		ug/L or ug/kg (circle on
74-87-3	Chloromethane	10U	79-34-5	1,1,2,2-Tetrachloroethane	5U
74-83-9	Bromomethane	10U	78-87-5	1,2-Dichloropropane	5U
75-01-4	Vinyl Chloride	10U	10061-02-6	Trans-1,3-Dichloropropene	~~5U~~ 5 UJ
75-00-3	Chloroethane	10U	78-01-6	Trichloroethene	5U
75-09-2	Methylene Chloride	23uB ~~[illegible]~~	124-48-1	Dibromochloromethane	~~5U~~ 5 UJ
67-64-1	Acetone	14uB ~~[illegible]~~	79-00-5	1,1,2-Trichloroethane	~~5U~~ 5 UJ
75-15-0	Carbon Disulfide	5 UJ ~~5U~~	71-43-2	Benzene	5U
75-35-4	1,1-Dichloroethane	5U	10061-01-5	cis-1,3-Dichloropropene	~~5U~~ 5 UUJ
75-35-3	1,1-Dichloroethane	5U	110-75-8	2-Chloroethylvinylether	~~10U~~ 10 Z
156-60-5	Trans-1,2-Dichloroethene	5U	75-25-2	Bromoform	~~5U~~ 5 UJ
67-66-3	Chloroform	5U	591-78-6	2-Hexanone	10U
107-06-2	1,2-Dichloroethane	5U	108-10-1	4-Methyl-2-Pentanone	10U
78-93-3	2-Butanone	10 UJ ~~10U~~	127-18-4	Tetrachloroethene	5U
71-55-6	1,1,1-Trichloroethane	5 UJ ~~5U~~	108-88-3	Toluene	5U
56-23-5	Carbon Tetrachloride	5U	108-90-7	Chlorobenzene	5U
108-05-4	Vinyl Acetate	10U	100-41-4	Ethylbenzene	5U
75-27-4	Bromodichloromethane	5 UJ ~~5U~~	100-42-5	Styrene	5U
				Total Xylenes	5U

DATA REPORTING QUALIFIERS

For reporting results to EPA the following results qualifiers are used
Additional flags or footnotes explaining results are encouraged.
However, the definition of each flag must be specific.

Value If the result is a value greater than or equal to the detection limit.

U Indicates the compound was analyzed but not detected.

J Indicates an estimated value.

C GC/MS confirmation of a pesticide.

B Indicates that this compound was detected in the reagent blank.

(26)
4/9/86

Environmental Protection Agency CLP Sample Management Office
PO Box 818, Alexandria, VA 22313 703/557-2490

Laucks Testing Laboratories
Seattle, WA 206/767-5060

SAMPLE NUMBER
(HB101)

ORGANICS ANALYSIS DATA SHEET
(Page 2)

SEMIVOLATILE COMPOUNDS

Concentration..... low
Date extracted/prepared.....9/19/85
Date analyzed.....10/3/85
Dilution Factor..... 1

CAS NUMBER		ug/l	CAS NUMBER		ug/l
62-75-9	N-Nitrosodimethylamine	100 U	83-32-9	Acenaphthene	10 U
108-95-2	Phenol	100 U	51-28-5	2,4-Dinitrophenol	50 U
62-53-3	Aniline	10 U	100-02-7	4-Nitrophenol	50 U
111-44-4	bis(2-Chloroethyl)Ether	10 U	132-64-9	Dibenzofuran	10 U
95-57-8	2-Chlorophenol	10 U	121-14-2	2,4-Dinitrotoluene	10 U
541-73-1	1,3-Dichlorobenzene	10 U	606-20-2	2,6-Dinitrotoluene	10 U
106-46-7	1,4-Dichlorobenzene	10 U	84-66-2	Diethylphthalate	10 U
100-51-6	Benzyl Alcohol	10 UJ	7005-72-3	4-Chlorophenyl-phenylether	10 U
95-50-1	1,2-Dichlorobenzene	10 U	86-73-7	Fluorene	10 U
95-48-7	2-Methylphenol	10 U	100-01-6	4-Nitroaniline	50 U
39638-32-9	bis(2-chloroisopropyl)Ether	10 U	534-52-1	4,6-Dinitro-2-Methylphenol	50 U
106-44-5	4-Methylphenol	10 U	86-30-6	N-Nitrosodiphenylamine (1)	10 U
621-64-7	N-Nitroso-Di-n-propylamine	10 U	101-55-3	4-Bromophenyl-phenylether	10 U
67-72-1	Hexachloroethane	10 U	118-74-1	Hexachlorobenzene	10 U
98-95-3	Nitrobenzene	10 U	87-86-5	Pentachlorophenol	50 U
78-59-1	Isophorone	10 U	85-01-8	Phenanthrene	10 U
88-75-5	2-Nitrophenol	10 U	120-12-7	Anthracene	10 U
105-67-9	2,4-Dimethylphenol	10 U	84-74-2	Di-n-Butylphthalate	10 U
65-85-0	Benzoic Acid	50 UJ	206-44-0	Fluoranthene	10 U
111-91-1	bis(2-Chloroethoxy)Methane	10 U	92-87-5	Benzidine	50 UJ
120-83-2	2,4-Dichlorophenol	10 U	129-00-0	Pyrene	10 U
120-82-1	1,2,4-Trichlorobenzene	10 U	85-68-7	Butylbenzylphthalate	10 U
91-20-3	Naphthalene	10 U	91-94-1	3,3'Dichlorobenzidine	20 UJ
106-47-8	4-Chloroaniline	10 U	56-55-3	Benzo(a)anthracene	10 U
87-68-3	Hexachlorobutadiene	10 U	117-81-7	bis(2-Ethylhexyl)Phthalate	61 UB
59-50-7	4-Chloro-3-Methylphenol	10 U	218-01-9	Chrysene	10 U
91-57-6	2-Methylnaphthalene	10 U	117-84-0	Di-n-Octyl Phthalate	17 UB
77-47-4	Hexachlorocyclopentadiene	10 U	205-99-2	Benzo(b)Fluoranthene	10 U
88-06-2	2,4,6-Trichlorophenol	10 U	207-08-9	Benzo(k)Fluoranthene	10 U
95-95-4	2,4,5-Trichlorophenol	50 U	50-32-8	Benzo(a)Pyrene	10 U
91-58-7	2-Chloronaphthalene	10 U	193-39-5	Indeno(1,2,3-cd)Pyrene	10 U
88-74-4	2-Nitroaniline	50 U	53-70-3	Dibenz(a,h)Anthracene	10 U
131-11-3	Dimethyl Phthalate	10 U	191-24-2	Benzo(g,h,i)Perylene	10 U
208-96-8	Acenaphthylene	10 U			
99-09-2	3-Nitroaniline	50 U			

(1) cannot be separated from diphenylamine

Environmental Protection Agency CLP Sample Management Office
[illegible] S1E, Alexandria, VA 22310 [illegible]/557-2490

SAMPLE
HB101

Laucks Testing Laboratories
Seattle, WA 206/767-5060

ORGANICS ANALYSIS DATA SHEET
(Page 3)

PESTICIDES/PCBs
CONCENTRATION: LOW MEDIUM (Circle one)
Date extracted/prepared .....
Date analyzed .....
Concentration/dilution factor 1

CAS NUMBER		ug/L (circle one)
319-84-6	Alpha-BHC	0.05U
319-85-7	Beta-BHC	0.05U
319-86-8	Delta-BHC	0.05U
58-89-8	Gamma-BHC(lindane)	0.05U
76-44-8	Heptachlor	0.05U
309-00-2	Aldrin	0.05U
1024-57-3	Heptachlor Epoxide	0.05U
959-98-8	Endosulfan I	0.05U
60-57-1	Dieldrin	0.10U
72-55-9	4,4'-DDE	0.10U
72-20-8	Endrin	0.10U
33213-65-9	Endsulfan II	0.10U
72-54-8	4,4'-DDD	0.10U
7421-93-8	Endrin Aldehyde	0.10U
1031-07-8	Endosulfan Sulfate	0.10U
50-29-3	4,4'-DDT	0.10U
72-43-5	Methoxychlor	0.5U
53494-70-5	Endrin Ketone	0.5U
57-74-9	Chlordane	0.5U
8001-35-2	Toxaphene	1.0U
12674-11-2	Aroclor-1016	0.5U
11104-28-2	Aroclor-1221	0.5U
11141-16-5	Aroclor-1232	0.5U
53469-21-9	Aroclor-1242	0.5U
12672-29-6	Aroclor-1248	0.5U
11097-69-1	Aroclor-1254	1.0U
11096-82-5	Aroclor-1260	1.0U

Vi =Volume of extract injected (ul)
Vs =Volume of water extracted (ml)
Vt =Volume of total extract (ul)

Vs = 1000 ml Vt = 10,000 ul Vi = 1.0 ul

[illegible] Harney Street, Seattle WA 98108
(206) 767-5060

Sample Number
HE01

28
4/9/86

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Frac.	Scan No	Estimated Concentration (ug/l - ug/kg
1.		VOA		
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.	No tentatively			
14.	identified compounds -			
15.	(any unknown peaks			
16.	less than 10% std)			
17.				
18.				
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29.				
30.				

(19)
4/9/96

LAUCKS Testing Laboratories, Inc
940 S. Harney St, Seattle, WA 98108
(206) 767-5060

Sample Number
< HB101 >

Organics Analysis Data Sheet
(Page 4)
Tentatively Identified Compounds

	CAS Number	Compound Name	Frac	Scan No	Estimated Concentration (ug/l - ug/kg)	
1	67641	2-propanone	ABN	217	25	J
2	3648213	1,2-benzenedicarboxylic acid,	ABN	1516	22	J
3		diheptyl ester	ABN			J
4	3648213	1,2-benzenedicarboxylic acid,	ABN	1522	70	J
5		diheptyl ester	ABN			J
6	3648213	1,2-benzenedicarboxylic acid,	ABN	1556	119	J
7		diheptyl ester	ABN			J
8	131157	1,2-benzenedicarboxylic acid,	ABN			J
9		bis(1-methylheptyl)ester	ABN	1582	18	J
10	3648213	1,2-benzenedicarboxylic acid,	ABN			J
11		diheptyl ester	ABN	1588	17	J
12	3648213	1,2-benzenedicarboxylic acid,	ABN			J
13		diheptyl ester	ABN	1601	19	J
14	3648213	1,2-benzenedicarboxylic acid,	ABN			J
15		diheptyl ester	ABN	1614	79	J
16	3648213	1,2-benzenedicarboxylic acid,	ABN			J
17		diheptyl ester	ABN	1619	65	J
18	117828	1,2-benzenedicarboxylic acid,	ABN			J
19		bis(2-methoxyethyl)ester	ABN	1704	104	J
20	117828	1,2-benzenedicarboxylic acid,	ABN			J
21		bis(2-methoxyethyl)ester	ABN	1711	66	J
22	3648213	1,2-benzenedicarboxylic acid,	ABN			J
23		diheptyl ester	ABN	1741	160	J
24	131157	1,2-benzenedicarboxylic acid,	ABN			J
25		bis(1-methylheptyl)ester	ABN	1796	38	J
26	117828	1,2-benzenedicarboxylic acid,	ABN			J
27		bis(2-methoxyethyl)ester	ABN	1799	48	J
28		unknown	ABN	1843	112	J
29	117828	1,2-benzenedicarboxylic acid,	ABN	1916	35	J
30	117828	1,2-benzenedicarboxylic acid,	ABN	1981	51	J
						J

Disregard

No

Don't use this data

Form I, Part B

Environmental Protection Agency CLP Sample Management Office
PO Box 818, Alexandria, VA 22313 703/557-2490

Laucks Testing Laboratories
Seattle, WA 206/767-5060

SAMPLE
HB102

Jg (30)
4/9/86

VOLATILE COMPOUNDS

CONCENTRATION: LOW MEDIUM (Circle one)
Date extracted/prepared ..9/20/85 N/A
Date analyzed .....9/20/85.....
Conc/dil factor ...1.....pH. N/A.....
Percent moisture:.....N/A.....
Percent moisture (decanted)..N/A....

CAS NUMBER		ug/L or ug/kg (circle one)	CAS NUMBER		ug/L or ug/kg (circle on
74-87-3	Chloromethane	10U	79-34-5	1,1,2,2-Tetrachloroethane	5U
74-83-9	Bromomethane	10U	78-87-5	1,2-Dichloropropane	5U
75-01-4	Vinyl Chloride	10U	10061-02-6	Trans-1,3-Dichloropropene	5 UJ
75-00-3	Chloroethane	10U	78-01-6	Trichloroethene	5U
75-09-2	Methylene Chloride	19 UB ~~5U~~	124-48-1	Dibromochloromethane	5UJ
67-64-1	Acetone	8700B ~~10U~~	79-00-5	1,1,2-Trichloroethane	5UJ
75-15-0	Carbon Disulfide	5UJ	71-43-2	Benzene	5U
75-35-4	1,1-Dichloroethane	5U	10061-01-5	cis-1,3-Dichloropropene	5 UJ
75-35-3	1,1-Dichloroethane	5U	110-75-8	2-Chloroethylvinylether	10 Z
156-60-5	Trans-1,2-Dichloroethene	5U	75-25-2	Bromoform	5 UJ
67-66-3	Chloroform	5U	591-78-6	2-Hexanone	10U
107-06-2	1,2-Dichloroethane	5U	108-10-1	4-Methyl-2-Pentanone	10U
78-93-3	2-Butanone	10 R	127-18-4	Tetrachloroethene	5U
71-55-6	1,1,1-Trichloroethane	5UJ	108-88-3	Toluene	5U
56-23-5	Carbon Tetrachloride	5U	108-90-7	Chlorobenzene	5U
108-05-4	Vinyl Acetate	10U	100-41-4	Ethylbenzene	5U
75-27-4	Bromodichloromethane	5UJ	100-42-5	Styrene	5U
				Total Xylenes	5U

DATA REPORTING QUALIFIERS

For reporting results to EPA the following results qualifiers are used
Additional flags or footnotes explaining results are encouraged.
However, the definition of each flag must be specific.

Value If the result is a value greater than or equal to the detection limit.

U Indicates the compound was analyzed but not detected.

J Indicates an estimated value.

C GC/MS confirmation of a pesticide.

B Indicates that this compound was detected in the reagent blank.

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4/8/86

Environmental Protection Agency CLP Sample Management Office
PO Box 818, Alexandria, VA 22313 703/557-2490

SAMPLE NUMBER
< NB102 >

Laucks Testing Laboratories
Seattle, WA 206/767-5060

ORGANICS ANALYSIS DATA SHEET
(Page 2)

SEMIVOLATILE COMPOUNDS

Concentration..... low
Date extracted/prepared.....9/19/85
Date analyzed.....10/3/85
Dilution Factor..... 1

CAS NUMBER		mg/l
62-75-9	N-Nitrosodimethylamine	
108-95-2	Phenol	
62-53-3	Aniline	
111-44-4	bis(2-Chloroethyl)Ether	
95-57-8	2-Chlorophenol	
541-73-1	1,3-Dichlorobenzene	
106-46-7	1,4-Dichlorobenzene	
100-51-6	Benzyl Alcohol	10 UJ
95-50-1	1,2-Dichlorobenzene	
95-48-7	2-Methylphenol	
39638-32-9	bis(2-chloroisopropyl)Ether	
106-44-5	4-Methylphenol	
624-64-7	N-Nitroso-Di-n-propylamine	
67-72-1	Hexachloroethane	
98-95-3	Nitrobenzene	
78-59-1	Isophorone	
88-75-5	2-Nitrophenol	
105-67-9	2,4-Dimethylphenol	
65-85-0	Benzoic Acid	50 UJ
111-91-1	bis(2-Chloroethoxy)Methane	
120-83-2	2,4-Dichlorophenol	
120-82-1	1,2,4-Trichlorobenzene	
91-20-3	Naphthalene	
106-47-8	4-Chloroaniline	
87-68-3	Hexachlorobutadiene	
59-50-7	4-Chloro-3-Methylphenol	
91-57-6	2-Methylnaphthalene	
77-47-4	Hexachlorocyclopentadiene	
88-06-2	2,4,6-Trichlorophenol	
95-95-4	2,4,5-Trichlorophenol	
91-58-7	2-Chloronaphthalene	
88-74-4	2-Nitroaniline	
131-11-3	Dimethyl Phthalate	
208-96-8	Acenaphthylene	
99-09-2	3-Nitroaniline	

mg/l	CAS NUMBER		mg/l
100 U	83-32-9	Acenaphthene	10 U
100 U	51-28-5	2,4-Dinitrophenol	50 U
10 U	100-02-7	4-Nitrophenol	50 U
10 U	132-64-9	Dibenzofuran	10 U
10 U	121-14-2	2,4-Dinitrotoluene	10 U
10 U	606-20-2	2,6-Dinitrotoluene	10 U
10 U	84-66-2	Diethylphthalate	10 U
[illegible]	7005-72-3	4-Chlorophenyl-phenylether	10 U
10 U	86-73-7	Fluorene	10 U
10 U	100-01-6	4-Nitroaniline	50 U
10 U	534-52-1	4,6-Dinitro-2-Methylphenol	50 U
10 U	86-30-6	N-Nitrosodiphenylamine (1)	10 U
10 U	101-55-3	4-Bromophenyl-phenylether	10 U
10 U	118-74-1	Hexachlorobenzene	10 U
10 U	87-86-5	Pentachlorophenol	50 U
10 U	85-01-8	Phenanthrene	10 U
10 U	120-12-7	Anthracene	10 U
10 U	84-74-2	Di-n-Butylphthalate	10 U
[illegible]	206-44-0	Fluoranthene	10 U
10 U	92-87-5	Benzidine	[illegible] 50 UJ
10 U	129-00-0	Pyrene	10 U
10 U	85-68-7	Butylbenzylphthalate	10 U
10 U	91-94-1	3,3'Dichlorobenzidine	[illegible] 20 UJ
10 U	56-55-3	Benzo(a)anthracene	10 U
10 U	117-81-7	bis(2-Ethylhexyl)Phthalate	[illegible] 24 JB
10 U	218-01-9	Chrysene	10 U
10 U	117-84-0	Di-n-Octyl Phthalate	[illegible] 2 JB
10 U	205-99-2	Benzo(b)Fluoranthene	10 U
10 U	207-08-9	Benzo(k)Fluoranthene	10 U
50 U	50-32-8	Benzo(a)Pyrene	10 U
10 U	193-39-5	Indeno(1,2,3-cd)Pyrene	10 U
50 U	53-70-3	Dibenz(a,h)Anthracene	10 U
10 U	191-24-2	Benzo(g,h,i)Perylene	10 U
10 U			

50 U (1) cannot be separated from diphenylamine

Environmental Protection Agency CLP Sample Management Office
PO Box 818, Alexandria, VA 22313 703/557-2490

SAMPLE
HB102

Lab Testing Laboratories
Seattle, WA 206/767-5060

ORGANICS ANALYSIS DATA SHEET
(Page 3)

PESTICIDES/PCBs
CONCENTRATION: LOW
Date extracted/prepared .....
Date analyzed .....
Concentration/dilution factor 1

CAS NUMBER		ug/kg
319-84-6	Alpha-BHC	8.0 U
319-85-7	Beta-BHC	8.0 U
319-86-8	Delta-BHC	8.0 U
58-89-8	Gamma-BHC(lindane)	8.0 U
76-44-8	Heptachlor	8.0 U
309-00-2	Aldrin	8.0 U
1024-57-3	Heptachlor Epoxide	8.0 U
959-98-8	Endosulfan I	8.0 U
60-57-1	Dieldrin	16.0 U
72-55-9	4,4'-DDE	16.0 U
72-20-8	Endrin	16.0 U
33213-65-9	Endsulfan II	16.0 U
72-54-8	4,4'-DDD	16.0 U
7421-93-8	Endrin Aldehyde	16.0 U
1031-07-8	Endosulfan Sulfate	16.0 U
50-29-3	4,4'-DDT	16.0 U
72-43-5	Methoxychlor	80.0 U
53494-70-5	Endrin Ketone	16.0 U
57-74-9	Chlordane	80.0 U
8001-35-2	Toxaphene	160.0 U
12674-11-2	Aroclor-1016	80.0 U
11104-28-2	Aroclor-1221	80.0 U
11141-16-5	Aroclor-1232	80.0 U
53469-21-9	Aroclor-1242	80.0 U
12672-29-6	Aroclor-1248	80.0 U
11097-69-1	Aroclor-1254	160.0 U
11096-82-5	Aroclor-1260	160.0 U

Vi =Volume of extract injected (ul)
Ws =Weight of sample extracted (g)
Vt =Volume of total extract (ul)

Ws = 1.5 Vt = 1000 Vi = 1.0

40 S. Harney Street, Seattle WA 98108
(206) 767-5060

Sample Number
HB102

33 RH
4/9/86

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Frac.	Scan No	Estimated Concentration (ug/l - ug/kg)
1.		VOA		
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.	No tentatively			
14.	identified compounds -			
15.	(any unknown peaks			
16.	less than 10% std)			
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
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27.				
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29.				
30.				

R/RA

Environmental Protection Agency CLP Sample Management Office
PO Box 818, Alexandria, VA 22313 703/557-2490

Lancis Testing Laboratories
Seattle, WA 206/767-5060

SAMPLE
HB281

16-39
4/9/86

VOLATILE COMPOUNDS

CONCENTRATION: LOW MEDIUM (Circle one)
Date extracted/prepared ...9/26/85....
Date analyzed .....9/26/85....
Conc/dil factor 1:100...pH. N/A.....
Percent moisture:.....N/A.....
Percent moisture (decanted)..N/A....

CAS NUMBER		ug/l or ug/kg (circle one)	CAS NUMBER		ug/l or ug/kg (circle one)
74-87-3	Chloromethane	10U	79-34-5	1,1,2,2-Tetrachloroethane	5U
74-83-9	Bromomethane	10U	78-87-5	1,2-Dichloropropane	5U
75-01-4	Vinyl Chloride	10U	10061-02-6	Trans-1,3-Dichloropropene	~~10U~~ 5UJ
75-00-3	Chloroethane	9JOB 10U	79-01-6	Trichloroethene	5U
75-09-2	Methylene Chloride	~~[illegible]~~ ~~[illegible]~~	124-48-1	Dibromochloromethane	~~10U~~ 5UJ
67-64-1	Acetone	~~[illegible]~~ ~~[illegible]~~	79-00-5	1,1,2-Trichloroethane	~~10U~~ 5UJ
75-15-0	Carbon Disulfide	9240B 5U	71-43-2	Benzene	5U
75-35-4	1,1-Dichloroethene	5U	10061-01-5	cis-1,3-Dichloropropene	~~10U~~ 5UJ
75-34-3	1,1-Dichloroethane	5U	110-75-8	2-Chloroethylvinylether	~~10U~~ 10R
156-60-5	Trans-1,2-Dichloroethene	5U	75-25-2	Bromoform	~~10U~~ 5UJ
67-66-3	Chloroform	5U	591-78-6	2-Hexanone	10U
107-06-2	1,2-Dichloroethane	5U	108-10-1	4-Methyl-2-Pentanone	10U
78-93-3	2-Butanone	10R ~~10U~~	127-18-4	Tetrachloroethene	5U
71-55-6	1,1,1-Trichloroethane	5UJ ~~10U~~	108-88-3	Toluene	5U
56-23-5	Carbon Tetrachloride	5U	108-90-7	Chlorobenzene	5U
108-05-4	Vinyl Acetate	10U	100-41-4	Ethylbenzene	5U
75-27-4	Bromodichloromethane	5UJ ~~10U~~	100-42-5	Styrene	5U
				Total Xylenes	5U

DATA REPORTING QUALIFIERS

For reporting results to EPA the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be specific.

Value If the result is a value greater than or equal to the detection limit.

U Indicates the compound was analyzed but not detected.

J Indicates an estimated value.

C GC/MS confirmation of a pesticide.

B Indicates that this compound was detected in the reagent blank.

Fb (35)

4/9/86

Environmental Protection Agency CLP Sample Management Office
PO Box 818, Alexandria, VA 22313 703/557-2490

SAMPLE
HB281

Laucks Testing Laboratories
Seattle, WA 206/767-5060

ORGANICS ANALYSIS DATA SHEET
(Page 2)

SEMIVOLATILE COMPOUNDS

CONCENTRATION: LOW MEDIUM (Circle one)
Date extracted/prepared .....
Date analyzed .....
Concentration/dilution factor .....

CAS NUMBER		ug/L (circle one)	CAS NUMBER		ug/L (circle one)
62-75-9	N-Nitrosodimethylamine	10U	83-[illegible]-9	Acenaphthene	10U
108-95-2	Phenol	10U	51-28-[illegible]	2,4-Dinitrophenol	50U
62-53-3	Aniline	10U	100-02-7	4-Nitrophenol	50U
111-44-4	bis(-2-Chloroethyl)Ether	10U	132-64-9	Dibenzofuran	10U
95-57-8	2-Chlorophenol	10U	121-14-2	2,4-Dinitrotoluene	10U
541-73-1	1,3-Dichlorobenzene	10U	606-20-2	2,6-Dinitrotoluene	10U
106-46-7	1,4-Dichlorobenzene	10U	84-66-2	Diethylphthalate	10U
100-51-6	Benzyl Alcohol	10U	7005-72-3	4-Chlorophenyl-phenylether	10U
95-50-1	1,2-Dichlorobenzene	10U	86-73-7	Fluorene	10U
95-48-7	2-Methylphenol	10U	100-[illegible]	4-Nitroaniline	50U
39638-32-9	bis(2-chloroisopropyl)Ether	10U	534-[illegible]2-1	4,6-Dinitro-2-Methylphenol	50U
106-44-5	4-Methylphenol	10U	[illegible]-30-6	N-Nitrosodiphenylamine (1)	10U
621-64-7	N-Nitroso-Di-n-propylamine	10U	101-55-3	4-Bromophenyl-phenylether	10U
67-72-1	Hexachloroethane	10U	118-74-1	Hexachlorobenzene	10U
98-65-3	Nitrobenzene	10U	87-86-5	Pentachlorophenol	50U
78-59-1	Isophorone	[illegible]U	85-01-8	Phenanthrene	10U
88-75-5	2-Nitrophenol	10U	120-12-7	Anthracene	[illegible]
105-67-9	2,4-Dimethylphenol	10U	84-74-2	Di-n-Butylphthalate	10U
65-85-0	Benzoic Acid	50U	206-44-0	Fluoranthene	10U
111-91-1	bis(2-Chloroethoxy)Methane	10U	92-87-5	Benzidine	50U
120-83-2	2,4-Dichlorophenol	10U	129-00-0	Pyrene	10U
120-82-1	1,2,4-Trichlorobenzene	10U	85-68-7	Butylbenzylphthalate	10U
91-20-3	Naphthalene	10U	91-94-1	3,3'-Dichlorobenzidine	20U
106-47-8	4-Chloroaniline	10U	56-55-3	Benzo(a)anthracene	10U
87-63-3	Hexachlorobutadiene	10U	117-81-7	bis(2-Ethylhexyl)Phthalate	10U
59-50-7	4-Chloro-3-Methylphenol	10U	218-01-9	Chrysene	10U
91-57-6	2-Methylnaphthalene	10U	117-84-0	Di-n-OctylPhthalate	10U
77-47-4	Hexachlorocyclopentadiene	10U	205-99-2	Benzo(b)Fluoranthene	10U
88-06-2	2,4,6-Trichlorophenol	10U	207-08-9	Benzo(k)Fluoranthene	10U
95-95-4	2,4,5-Trichlorophenol	50U	50-32-8	Benzo(a)Pyrene	10U
91-58-7	2-Chloronaphthalene	10U	193-39-5	Indeno(1,2,3-cd)Pyrene	10U
88-74-[illegible]	2-Nitroaniline	50U	53-70-3	Dibenz(a,h)Anthracene	10U
131-[illegible]1-3	Dimethyl Phthalate	10U	191-24-2	Benzo(g,h,i)Perylene	10U
2[illegible]-96-8	Acenaphthylene	10U			
[illegible]-49-2	3-Nitroaniline	50U			

(1) cannot be separated from diphenylamine

Tb (3C)
4/9/86

Environmental Protection Agency CLP Sample Management Office
PO Box 516, Alexandria, VA 22313 703/557-2490

SAMPLE
HB281

Laucks Testing Laboratories
Seattle, WA 206/767-5060

ORGANICS ANALYSIS DATA SHEET
(Page 3)

PESTICIDES/PCBs
CONCENTRATION: LOW MEDIUM (Circle one)
Date extracted/prepared .....
Date analyzed .....
Concentration/dilution factor 1

CAS NUMBER		ug/L (circle one)
319-84-6	Alpha-BHC	0.05U
319-85-7	Beta-BHC	0.05U
319-86-8	Delta-BHC	0.05U
58-89-9	Gamma-BHC(lindane)	0.05U
76-44-8	Heptachlor	0.05U
309-00-2	Aldrin	0.05U
1024-57-3	Heptachlor Epoxide	0.05U
959-98-8	Endosulfan I	0.05U
60-57-1	Dieldrin	0.10U
72-55-9	4,4'-DDE	0.10U
72-20-8	Endrin	0.10U
33213-65-9	Endsulfan II	0.10U
72-54-8	4,4'-DDD	0.10U
7421-93-4	Endrin Aldehyde	0.10U
1031-07-8	Endosulfan Sulfate	0.10U
50-29-3	4,4'-DDT	0.10U
72-43-5	Methoxychlor	0.5U
53494-70-5	Endrin Ketone	0.10U
57-74-9	Chlordane	0.5U
8001-35-2	Toxaphene	1.0U
12674-11-2	Aroclor-1016	0.5U
11104-28-2	Aroclor-1221	0.5U
11141-16-5	Aroclor-1232	0.5U
53469-21-9	Aroclor-1242	0.5U
12672-29-6	Aroclor-1248	0.5U
11097-69-1	Aroclor-1254	1.0U
11096-82-5	Aroclor-1260	1.0U

Vi =Volume of extract injected (ml)
Vs =Volume of water extracted (ml)
Vt =Volume of total extract (ml)

Vs = 1000 ml Vt = 10,000 ml Vi = 1.0 ml

[illegible] S. Harney Street, Seattle WA 98108
(206) 767-5060

Sample Number
H8281

37 [illegible]
4/9/86

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Frac.	Scan No	Estimated Concentration (ug/l - ug/kg)
1.		VOA		
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.	No tentatively			
14.	identified compounds -			
15.	(any unknown peaks			
16.	less than 10% std)			
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

R/RA [illegible]

Environmental Protection Agency CLP Sample Management Office
PO Box 818, Alexandria, VA 22313 703/557-2490

Lancto Testing Laboratories
Seattle, WA 206/767-5848

SAMPLE
HB282

19 (38)
4/9/91

VOLATILE COMPOUNDS

CONCENTRATION: (LOW) MEDIUM (Circle one)
Date extracted/prepared ..N/A.....
Date analyzed .....9/20/85.....
Conc/dil factor ...1.....pH.N/A.....
Percent moisture:.....N/A.....
Percent moisture (decanted)...N/A...

CAS NUMBER		(ug/L) or ug/kg (circle one)	CAS NUMBER		(ug/L) or ug/kg (circle one)
74-87-3	Chloromethane	10U	79-34-5	1,1,2,2-Tetrachloroethane	5U
74-83-9	Bromomethane	10U	78-87-5	1,2-Dichloropropane	5U
75-01-4	Vinyl Chloride	10U	10061-02-6	Trans-1,3-Dichloropropene	5 UJ
75-00-3	Chloroethane	10U	79-01-6	Trichloroethene	5U
75-09-2	Methylene Chloride	108-5U	124-48-1	Dibromochloromethane	5 UJ
67-64-1	Acetone	588-10U	79-00-5	1,1,2-Trichloroethane	5 UJ
75-15-0	Carbon Disulfide	5 UJ	71-43-2	Benzene	5U
75-35-4	1,1-Dichloroethene	5U	10061-01-5	cis-1,3-Dichloropropene	5 UJ
75-34-3	1,1-Dichloroethane	5U	110-75-8	2-Chloroethylvinylether	10 R
156-60-5	Trans-1,2-Dichloroethene	5U	75-25-2	Bromoform	5 UJ
67-66-3	Chloroform	5U	591-78-6	2-Hexanone	10U
107-06-2	1,2-Dichloroethane	5U	108-10-1	4-Methyl-2-Pentanone	10U
78-93-3	2-Butanone	10 R	127-18-4	Tetrachloroethene	5U
71-55-6	1,1,1-Trichloroethane	5 UJ	108-88-3	Toluene	5U
56-23-5	Carbon Tetrachloride	5U	108-90-7	Chlorobenzene	5U
108-05-4	Vinyl Acetate	10U	100-41-4	Ethylbenzene	5U
75-27-4	Bromodichloromethane	5 UJ	100-42-5	Styrene	5U
				Total Xylenes	5U

DATA REPORTING QUALIFIERS

For reporting results to EPA the following results qualifiers are used
Additional flags or footnotes explaining results are encouraged.
However, the definition of each flag must be specific.

Value If the result is a value greater than or equal to the detection limit.

U Indicates the compound was analyzed but not detected.

J Indicates an estimated value.

C GC/MS confirmation of a pesticide.

B Indicates that this compound was detected in the reagent blank.

Environmental Protection Agency CLP Sample Management Office
P.O. Box 818, Alexandria, VA 22313 703/557-2490

Lauren Testing Laboratories
Seattle, WA 206/367-5060

SAMPLE
HB282

ORGANICS ANALYSIS DATA SHEET
(Page 2)

SEMIVOLATILE COMPOUNDS

CONCENTRATION: LOW MEDIUM (Circle one)
Date extracted/prepared .....
Date analyzed .....
Concentration/dilution factor .....

CAS NUMBER		ug/L (circle one)
62-75-9	N-Nitrosodimethylamine	10U
108-95-2	Phenol	10U
62-53-3	Aniline	10U
111-44-4	bis(-2-Chloroethyl)Ether	10U
95-57-8	2-Chlorophenol	10U
541-73-1	1,3-Dichlorobenzene	10U
106-46-7	1,4-Dichlorobenzene	10U
100-51-6	Benzyl Alcohol	10U
95-50-1	1,2-Dichlorobenzene	10U
95-48-7	2-Methylphenol	10U
39638-32-9	bis(2-chloroisopropyl)Ether	10U
106-44-5	4-Methylphenol	10U
621-64-7	N-Nitroso-Di-n-propylamine	10U
67-72-1	Hexachloroethane	10U
98-95-3	Nitrobenzene	10U
78-59-1	Isophorone	10U
88-75-5	2-Nitrophenol	10U
105-67-9	2,4-Dimethylphenol	10U
65-85-0	Benzoic Acid	50U
111-91-1	bis(2-Chloroethoxy)Methane	10U
120-83-2	2,4-Dichlorophenol	10U
120-82-1	1,2,4-Trichlorobenzene	10U
91-20-3	Naphthalene	10U
106-47-8	4-Chloroaniline	10U
87-68-3	Hexachlorobutadiene	10U
59-50-7	4-Chloro-3-Methylphenol	10U
91-57-6	2-Methylnaphthalene	10U
77-47-4	Hexachlorocyclopentadiene	10U
88-06-2	2,4,6-Trichlorophenol	10U
95-95-4	2,4,5-Trichlorophenol	50U
91-58-7	2-Chloronaphthalene	10U
88-74-4	2-Nitroaniline	50U
131-11-3	Dimethyl Phthalate	10U
208-96-8	Acenaphthylene	10U
99-09-2	3-Nitroaniline	50U

CAS NUMBER		ug/L (circle one)
83-32-9	Acenaphthene	10U
51-28-5	2,4-Dinitrophenol	50U
100-02-7	4-Nitrophenol	50U
132-64-9	Dibenzofuran	10U
121-14-2	2,4-Dinitrotoluene	10U
606-20-2	2,6-Dinitrotoluene	10U
84-66-2	Diethylphthalate	10U
7005-72-3	4-Chlorophenyl-phenylether	10U
86-73-7	Fluorene	10U
100-01-6	4-Nitroaniline	50U
534-52-1	4,6-Dinitro-2-Methylphenol	50U
86-30-6	N-Nitrosodiphenylamine (1)	10U
101-55-3	4-Bromophenyl-phenylether	10U
118-74-1	Hexachlorobenzene	10U
87-86-5	Pentachlorophenol	50U
85-01-8	Phenanthrene	10U
120-12-7	Anthracene	10U
84-74-2	Di-n-Butylphthalate	10U
206-44-0	Fluoranthene	10U
92-87-5	Benzidine	50U
129-00-0	Pyrene	10U
85-68-7	Butylbenzylphthalate	10U
91-94-1	3,3'-Dichlorobenzidine	20U
56-55-3	Benzo(a)anthracene	10U
117-81-7	bis(2-Ethylhexyl)Phthalate	10U
218-01-9	Chrysene	10U
117-84-0	Di-n-OctylPhthalate	10U
205-99-2	Benzo(b)Fluoranthene	10U
207-08-9	Benzo(k)Fluoranthene	10U
50-32-8	Benzo(a)Pyrene	10U
193-39-5	Indeno(1,2,3-cd)Pyrene	10U
53-70-3	Dibenz(a,h)Anthracene	10U
191-24-2	Benzo(g,h,i)Perylene	10U

(1) cannot be separated from diphenylamine

4/9/82 (40)

Environmental Protection Agency CLP Sample Management Office
P.O. Box 818, Alexandria, VA 22313 703/557-2490

SAMPLE
HB282

Laucks Testing Laboratories
Seattle, WA 206/767-5060

ORGANICS ANALYSIS DATA SHEET
(Page 3)

PESTICIDES/PCBs
CONCENTRATION: LOW MEDIUM (Circle one)
Date extracted/prepared .....
Date analyzed .....
Concentration/dilution factor 1

CAS NUMBER		ug/L (circle one)
319-84-6	Alpha-BHC	0.05U
319-85-7	Beta-BHC	0.05U
319-86-8	Delta-BHC	0.05U
58-89-9	Gamma-BHC(lindane)	0.05U
76-44-8	Heptachlor	0.05U
309-00-2	Aldrin	0.05U
1024-57-3	Heptachlor Epoxide	0.05U
959-98-8	Endosulfan I	0.05U
60-57-1	Dieldrin	0.10U
72-55-9	4,4'-DDE	0.10U
72-20-8	Endrin	0.10U
33213-65-9	Endsulfan II	0.10U
72-54-8	4,4'-DDD	0.10U
7421-93-4	Endrin Aldehyde	0.10U
1031-07-8	Endosulfan Sulfate	0.10U
50-29-3	4,4'-DDT	0.10U
72-43-5	Methoxychlor	0.5U
53494-70-5	Endrin Ketone	0.5U
57-74-9	Chlordane	0.5U
8001-35-2	Toxaphene	1.0U
12674-11-2	Aroclor-1016	0.5U
11104-28-2	Aroclor-1221	0.5U
11141-16-5	Aroclor-1232	0.5U
53469-21-9	Aroclor-1242	0.5U
12672-29-6	Aroclor-1248	0.5U
11097-69-1	Aroclor-1254	1.0U
11096-82-5	Aroclor-1260	1.0U

Vi =Volume of extract injected (ul)
Vs =Volume of water extracted (ml)
Vt =Volume of total extract (ul)

Vs = 1000 ml Vt = 10,000 ul Vi = 1.0 ul

Harney Street, Seattle WA 98108
767-5060

Sample Number
H6282

TM
4/9/91 (41)

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Frac.	Scan No	Estimated Concentration (ug/l - ug/kg)
1. 109-99-9	Furan, Tetrahydro-	VOA	256	6J
2.				
3.				
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Environmental Protection Agency CLP Sample Management Office
PO Box 818, Alexandria, VA 22313 703/557-2490

Lewis Testing Laboratories
Seattle, WA 206/767-3860

SAMPLE
H6283

44 (42)
4/2/84

VOLATILE COMPOUNDS

CONCENTRATION: (LOW) MEDIUM (Circle one)
Date extracted/prepared ....N/A....
Date analyzed .....4/2/85.....
Conc/dil factor ....1.....pH..N/A....
Percent moisture:.....N/A....
Percent moisture (decanted)..N/A....

CAS NUMBER		(ug/l) or ug/kg (circle one)	CAS NUMBER		(ug/L) or ug/kg (circle one)
74-87-3	Chloromethane	10U	79-34-5	1,1,2,2-Tetrachloroethane	5U
74-83-9	Bromomethane	10U	78-87-5	1,2-Dichloropropane	5U
75-01-4	Vinyl Chloride	10U	10061-02-6	Trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	10U	79-01-6	Trichloroethene	5U
75-09-2	Methylene Chloride 9 UB	30	124-48-1	Dibromochloromethane	5U
67-64-1	Acetone 15 UB	100	79-00-5	1,1,2-Trichloroethane	5U
75-15-0	Carbon Disulfide 5 U		71-43-2	Benzene	5U
75-35-4	1,1-Dichloroethene	5U	10061-01-5	cis-1,3-Dichloropropene	5U
75-35-3	1,1-Dichloroethane	5U	110-75-8	2-Chloroethylvinylether	10U
156-60-5	Trans-1,2-Dichloroethene	5U	75-25-2	Bromoform	5U
67-66-3	Chloroform	5U	591-78-6	2-Hexanone	10U
107-06-2	1,2-Dichloroethane	5U	108-10-1	4-Methyl-2-Pentanone	10U
78-93-3	2-Butanone	10 R	127-18-4	Tetrachloroethene	5U
71-55-6	1,1,1-Trichloroethane	5U	108-88-3	Toluene	5U
56-23-5	Carbon Tetrachloride	5U	108-90-7	Chlorobenzene	5U
108-05-4	Vinyl Acetate	10U	100-41-4	Ethylbenzene	5U
75-27-4	Bromodichloromethane	5U	100-42-5	Styrene	5U
				Total Xylenes	5U

DATA REPORTING QUALIFIERS

For reporting results to EPA the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be specific.

Value If the result is a value greater than or equal to the detection limit.

U Indicates the compound was analyzed but not detected.

J Indicates an estimated value.

C GC/MS confirmation of a pesticide.

B Indicates that this compound was detected in the reagent blank.

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4/2/86

Environmental Protection Agency CLP Sample Management Office
PO Box 818, Alexandria, VA 22313 703/557-2490

Laucks Testing Laboratories
Seattle, WA 206/767-5060

SAMPLE NUMBER
(NB283)

ORGANICS ANALYSIS DATA SHEET
(Page 2)

SEMIVOLATILE COMPOUNDS

Concentration..... low
Date extracted/prepared.....9/19/85
Date analyzed.....10/4/85
Dilution Factor..... 1

CAS NUMBER		ug/l	CAS NUMBER		ug/l
62-75-9	N-Nitrosodimethylamine	100 U	83-32-9	Acenaphthene	10 U
108-95-2	Phenol	100 U	51-28-5	2,4-Dinitrophenol	50 U
62-53-3	Aniline	10 U	100-02-7	4-Nitrophenol	50 U
111-44-4	bis(-2-Chloroethyl)Ether	10 U	132-64-9	Dibenzofuran	10 U
95-57-8	2-Chlorophenol	10 U	121-14-2	2,4-Dinitrotoluene	10 U
541-73-1	1,3-Dichlorobenzene	10 U	606-20-2	2,6-Dinitrotoluene	10 U
106-46-7	1,4-Dichlorobenzene	10 U	84-66-2	Diethylphthalate	10 U
100-51-6	Benzyl Alcohol	(0 UJ 10 U	7005-72-3	4-Chlorophenyl-phenylether	10 U
95-50-1	1,2-Dichlorobenzene	10 U	86-73-7	Fluorene	10 U
95-48-7	2-Methylphenol	10 U	100-01-6	4-Nitroaniline	50 U
39638-32-9	bis(2-chloroisopropyl)Ether	10 U	534-52-1	4,6-Dinitro-2-Methylphenol	50 U
106-44-5	4-Methylphenol	10 U	86-30-6	N-Nitrosodiphenylamine (1)	10 U
621-64-7	N-Nitroso-Di-n-propylamine	10 U	101-55-3	4-Bromophenyl-phenylether	10 U
67-72-1	Hexachloroethane	10 U	118-74-1	Hexachlorobenzene	10 U
98-95-3	Nitrobenzene	10 U	87-86-5	Pentachlorophenol	50 U
78-59-1	Isophorone	10 U	85-01-8	Phenanthrene	10 U
88-75-5	2-Nitrophenol	10 U	120-12-7	Anthracene	10 U
105-67-9	2,4-Dimethylphenol	10 U	84-74-2	Di-n-Butylphthalate	10 U
65-85-0	Benzoic Acid 50 UJ		206-44-0	Fluoranthene	10 U
111-91-1	bis(2-Chloroethoxy)Methane	10 U	92-87-5	Benzidine	30 UJ
120-83-2	2,4-Dichlorophenol	10 U	129-00-0	Pyrene	10 U
120-82-1	1,2,4-Trichlorobenzene	10 U	85-68-7	Butylbenzylphthalate	10 U
91-20-3	Naphthalene	10 U	91-94-1	3,3'Dichlorobenzidine	20 U UJ
106-47-8	4-Chloroaniline	10 U	56-55-3	Benzo(a)anthracene	10 U
87-63-3	Hexachlorobutadiene	10 U	117-81-7	bis(2-Ethylhexyl)Phthalate	27 UB
59-50-7	4-Chloro-3-Methylphenol	10 U	218-01-9	Chrysene	10 U
91-57-6	2-Methylnaphthalene	10 U	117-84-0	Di-n-Octyl Phthalate	10 UB
77-47-4	Hexachlorocyclopentadiene	10 U	205-99-2	Benzo(b)Fluoranthene	10 U
88-06-2	2,4,6-Trichlorophenol	10 U	207-08-9	Benzo(k)Fluoranthene	10 U
95-95-4	2,4,5-Trichlorophenol	50 U	50-32-8	Benzo(a)Pyrene	10 U
91-58-7	2-Chloronaphthalene	10 U	193-39-5	Indeno(1,2,3-cd)Pyrene	10 U
88-74-4	2-Nitroaniline	50 U	53-70-3	Dibenz(a,h)Anthracene	10 U
131-11-3	Dimethyl Phthalate	10 U	191-24-2	Benzo(g,h,i)Perylene	10 U
208-96-8	Acenaphthylene	10 U			
99-09-2	3-Nitroaniline	50 U			

(1) cannot be separated from diphenylamine

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Environmental Protection Agency, CLP Sample Management Office
P.O. Box 818, Alexandria, VA 22313 703/557-2490

SAMPLE
HB283

Laucks Testing Laboratories
Seattle, WA 206/767-5060

ORGANICS ANALYSIS DATA SHEET
(Page 3)

PESTICIDES/PCBs
CONCENTRATION: LOW MEDIUM (Circle one)
Date extracted/prepared .....
Date analyzed .....
Concentration/dilution factor 1

CAS NUMBER		ug/L (circle one)
319-84-6	Alpha-BHC	0.05U
319-85-7	Beta-BHC	0.05U
319-86-8	Delta-BHC	0.05U
58-89-9	Gamma-BHC(lindane)	0.05U
76-44-8	Heptachlor	0.05U
309-00-2	Aldrin	0.05U
1024-57-3	Heptachlor Epoxide	0.05U
959-98-8	Endosulfan I	0.05U
60-57-1	Dieldrin	0.10U
72-55-9	4,4'-DDE	0.10U
72-20-8	Endrin	0.10U
33213-65-9	Endsulfan II	0.10U
72-54-8	4,4'-DDD	0.10U
7421-93-4	Endrin Aldehyde	0.10U
1031-07-8	Endosulfan Sulfate	0.10U
50-29-3	4,4'-DDT	0.10U
72-43-5	Methoxychlor	0.5U
53494-70-5	Endrin Ketone	0.5U
57-74-9	Chlordane	0.5U
8001-35-2	Toxaphene	1.0U
12674-11-2	Aroclor-1016	0.5U
11104-28-2	Aroclor-1221	0.5U
11141-16-5	Aroclor-1232	0.5U
53469-21-9	Aroclor-1242	0.5U
12672-29-6	Aroclor-1248	0.5U
11097-69-1	Aroclor-1254	1.0U
11096-82-5	Aroclor-1260	1.0U

Vi =Volume of extract injected (ml)
Vw =Volume of water extracted (ml)
Vt =Volume of total extract (ml)

Vw = 1000 ml Vt = 10,000 ml Vi = 1.0 ml

40 S. Harney Street, Seattle WA 98108
(206) 767-5060

HB 283
Ptn 45
4/9/86

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Frac.	Scan No	Estimated Concentration (ug/l) ug/kg
1.		VOA		
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.	No tentatively			
14.	identified compounds -			
15.	(any unknown peaks			
16.	less than 10% std)			
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

4/26/96

LAUCKS Testing Laboratories, Inc
940 S. Harney St, Seattle, WA 98108
(206) 767-5060

Sample Number
< HB283 >

Organics Analysis Data Sheet
(Page 4)
Tentatively Identified Compounds

	CAS Number	Compound Name	Frac	Scan No	Estimated Concentration (ug/l - ug/kg)	
1	67641	2-propanone	ABN	218	23	J
2	123795	hexanedioic acid, dioctyl ester	ABN	1483	17	J
3			ABN			J
4			ABN			J
5			ABN			J
6			ABN			J
7			ABN			J
8			ABN			J
9			ABN			J
10			ABN			J
11			ABN			J
12			ABN			J
13			ABN			J
14			ABN			J
15			ABN			J
16			ABN			J
17			ABN			J
18			ABN			J
19			ABN			J
20			ABN			J
21			ABN			J
22			ABN			J
23			ABN			J
24			ABN			J
25			ABN			J
26			ABN			J
27						J
28						J
29						J
30						J

Form I, Part B

Environmental Protection Agency CLP Sample Management Office
PO Box 818, Alexandria, VA 22313 703/557-2490

Laucks Testing Laboratories
Seattle, WA 206/767-5060

SAMPLE
HB284

4/9/86

VOLATILE COMPOUNDS

CONCENTRATION: LOW MEDIUM (Circle one)
Date extracted/prepared ....N/A.....
Date analyzed .....9/21/85.....
Conc/dil factor ....1.....pH..N/A....
Percent moisture:.....N/A.....
Percent moisture (decanted)..N/A....

CAS NUMBER		ug/L or ug/kg (circle one)	CAS NUMBER		ug/L or ug/kg (circle on
74-87-3	Chloromethane	10U	79-34-5	1,1,2,2-Tetrachloroethane	5U
74-83-9	Bromomethane	10U	78-87-5	1,2-Dichloropropane	5U
75-01-4	Vinyl Chloride	10U	10061-02-6	Trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	10U	78-01-6	Trichloroethene	5U
75-09-2	Methylene Chloride 9UB	~~5U~~	124-48-1	Dibromochloromethane	5U
67-64-1	Acetone 12UB	~~10U~~	79-00-5	1,1,2-Trichloroethane	5U
75-15-0	Carbon Disulfide 5UJ	[illegible]	71-43-2	Benzene	5U
75-35-4	1,1-Dichloroethane	5U	10061-01-5	cis-1,3-Dichloropropene	5U
75-35-3	1,1-Dichloroethane	5U	110-75-8	2-Chloroethylvinylether	10U
156-60-5	Trans-1,2-Dichloroethene	5U	75-25-2	Bromoform	5U
67-66-3	Chloroform	5U	591-78-6	2-Hexanone	10U
107-06-2	1,2-Dichloroethane	5U	108-10-1	4-Methyl-2-Pentanone	10U
78-93-3	2-Butanone	[illegible] 10U	127-18-4	Tetrachloroethene	5U
71-55-6	1,1,1-Trichloroethane 5UJ	[illegible] 5U	108-88-3	Toluene	5U
56-23-5	Carbon Tetrachloride	5U	108-90-7	Chlorobenzene	5U
108-05-4	Vinyl Acetate	10U	100-41-4	Ethylbenzene	5U
75-27-4	Bromodichloromethane 5UJ	[illegible] 5U	100-42-5	Styrene	5U
				Total Xylenes	5U

DATA REPORTING QUALIFIERS

For reporting results to EPA the following results qualifiers are used
Additional flags or footnotes explaining results are encouraged.
However, the definition of each flag must be specific.

Value If the result is a value greater than or equal to the detection limit.

U Indicates the compound was analyzed but not detected.

J Indicates an estimated value.

C GC/MS confirmation of a pesticide.

B Indicates that this compound was detected in the reagent blank.

FM (48)
4/8/86

Environmental Protection Agency CLP Sample Management Office
PO Box 818, Alexandria, VA 22313 703/557-2490

Lancks Testing Laboratories
Seattle, WA 206/767-5060

SAMPLE NUMBER
(MD284)

ORGANICS ANALYSIS DATA SHEET
(Page 2)

SEMIVOLATILE COMPOUNDS

Concentration..... low
Date extracted/prepared.....9/19/85
Date analyzed.....10/4/85
Dilution Factor..... 1

CAS NUMBER		ug/l	CAS NUMBER		ug/l
62-75-9	N-Nitrosodimethylamine	100 U	83-32-9	Acenaphthene	10 U
108-95-2	Phenol	100 U	51-28-5	2,4-Dinitrophenol	50 U
62-53-3	Aniline	10 U	100-02-7	4-Nitrophenol	50 U
111-44-4	bis(2-Chloroethyl)Ether	10 U	132-64-9	Dibenzofuran	10 U
95-57-8	2-Chlorophenol	10 U	121-14-2	2,4-Dinitrotoluene	10 U
541-73-1	1,3-Dichlorobenzene	10 U	606-20-2	2,6-Dinitrotoluene	10 U
106-46-7	1,4-Dichlorobenzene	10 U	84-66-2	Diethylphthalate	10 U
100-51-6	Benzyl Alcohol 10 uJ	[illegible]	7005-72-3	4-Chlorophenyl-phenylether	10 U
95-50-1	1,2-Dichlorobenzene	10 U	86-73-7	Fluorene	10 U
95-48-7	2-Methylphenol	10 U	100-01-6	4-Nitroaniline	50 U
39638-32-9	bis(2-chloroisopropyl)Ether	10 U	534-52-1	4,6-Dinitro-2-Methylphenol	50 U
106-44-5	4-Methylphenol	10 U	86-30-6	N-Nitrosodiphenylamine (1)	10 U
621-64-7	N-Nitroso-Di-n-propylamine	10 U	101-55-3	4-Bromophenyl-phenylether	10 U
67-72-1	Hexachloroethane	10 U	118-74-1	Hexachlorobenzene	10 U
98-95-3	Nitrobenzene	10 U	87-86-5	Pentachlorophenol	50 U
78-59-1	Isophorone	10 U	85-01-8	Phenanthrene	10 U
88-75-5	2-Nitrophenol	10 U	120-12-7	Anthracene	10 U
105-67-9	2,4-Dimethylphenol	10 U	84-74-2	Di-n-Butylphthalate	10 U
65-85-0	Benzoic Acid 50 uJ	[illegible]	206-44-0	Fluoranthene	10 U
111-91-1	bis(2-Chloroethoxy)Methane	10 U	92-87-5	Benzidine	[illegible] 50 uJ
120-83-2	2,4-Dichlorophenol	10 U	129-00-0	Pyrene	10 U
120-82-1	1,2,4-Trichlorobenzene	10 U	85-68-7	Butylbenzylphthalate	10 U
91-20-3	Naphthalene	10 U	91-94-1	3,3'Dichlorobenzidine	[illegible] 20 uJ
106-47-8	4-Chloroaniline	10 U	56-55-3	Benzo(a)anthracene	10 U
87-68-3	Hexachlorobutadiene	10 U	117-81-7	bis(2-Ethylhexyl)Phthalate	[illegible] 19 uB
59-50-7	4-Chloro-3-Methylphenol	10 U	218-01-9	Chrysene	10 U
91-57-6	2-Methylnaphthalene	10 U	117-84-0	Di-n-Octyl Phthalate	[illegible] 18 uB
77-47-4	Hexachlorocyclopentadiene	10 U	205-99-2	Benzo(b)Fluoranthene	10 U
88-06-2	2,4,6-Trichlorophenol	10 U	207-08-9	Benzo(k)Fluoranthene	10 U
95-95-4	2,4,5-Trichlorophenol	50 U	50-32-8	Benzo(a)Pyrene	10 U
91-58-7	2-Chloronaphthalene	10 U	193-39-5	Indeno(1,2,3-cd)Pyrene	10 U
88-74-4	2-Nitroaniline	50 U	53-70-3	Dibenz(a,h)Anthracene	10 U
131-11-3	Dimethyl Phthalate	10 U	191-24-2	Benzo(g,h,i)Perylene	10 U
208-96-8	Acenaphthylene	10 U			
99-09-2	3-Nitroaniline	50 U			

(1) cannot be separated from diphenylamine

Environmental Protection Agency CLP Sample Management Office
Suite 818, Alexandria, VA 22313 703/557-2490

Laucks Testing Laboratories
Seattle, WA 206/767-5060

SAMPLE
HB284

ORGANICS ANALYSIS DATA SHEET
(Page 3)

PESTICIDES/PCBs

CONCENTRATION: LOW MEDIUM (Circle one)
Date extracted/prepared .....
Date analyzed .....
Concentration/dilution factor 1

CAS NUMBER		ug/L (circle one)
319-84-6	Alpha-BHC	0.05U
319-85-7	Beta-BHC	0.05U
319-86-8	Delta-BHC	0.05U
58-89-9	Gamma-BHC(lindane)	0.05U
76-44-8	Heptachlor	0.05U
309-00-2	Aldrin	0.05U
1024-57-3	Heptachlor Epoxide	0.05U
959-98-8	Endosulfan I	0.05U
60-57-1	Dieldrin	0.10U
72-55-9	4,4'-DDE	0.10U
72-20-8	Endrin	0.10U
33213-65-9	Endosulfan II	0.10U
72-54-8	4,4'-DDD	0.10U
7421-93-4	Endrin Aldehyde	0.10U
1031-07-8	Endosulfan Sulfate	0.10U
50-29-3	4,4'-DDT	0.10U
72-43-5	Methoxychlor	0.5U
53494-70-5	Endrin Ketone	0.10U
57-74-9	Chlordane	0.5U
8001-35-2	Toxaphene	1.0U
12674-11-2	Aroclor-1016	0.5U
11104-28-2	Aroclor-1221	0.5U
11141-16-5	Aroclor-1232	0.5U
53469-21-9	Aroclor-1242	0.5U
12672-29-6	Aroclor-1248	0.5U
11097-69-1	Aroclor-1254	1.0U
11096-82-5	Aroclor-1260	1.0U

Vi =Volume of extract injected (ml)
Ve =Volume of water extracted (ml)
Vt =Volume of total extract (ml)

Vo = 1000 ml VR = 10,000 ml Vi = 1.0 ml

00 S. Harney Street, Seattle WA 98108
(206) 767-5060

Sample number
HB284
14 (50)
4/9/86

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Frac.	Scan No	Estimated Concentration (ug/l) - ug/kg
1.		VOA		
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.	No tentatively			
14.	identified compounds -			
15.	(any unknown peaks			
16.	less than 10% std)			
17.				
18.				
19.				
20.				
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22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

Pk (51)
4/2/96

LAUCKS Testing Laboratories, Inc
940 S. Harney St, Seattle, WA 98108
(206) 767-5060

Sample Number
< HB284 >

Organics Analysis Data Sheet
(Page 4)
Tentatively Identified Compounds

	CAS Number	Compound Name	Frac	Scan No	Estimated Concentration (ug/l - ug/kg)	
1		unknown	ABN	215	17	J
2	3648213	1,2-benzenedicarboxylic acid,	ABN	1556	10	J
3		diheptyl ester	ABN			J
4	119073	1,2-benzenedicarboxylic acid,	ABN	1741	18	J
5		decyl octyl ester	ABN			J
6	119073	1,2-benzenedicarboxylic acid,	ABN	1844	10	J
7		decyl octyl ester	ABN			J
8		unknown	ABN	1326	18	J
9			ABN			J
10			ABN			J
11			ABN			J
12			ABN			J
13			ABN			J
14			ABN			J
15			ABN			J
16			ABN			J
17			ABN			J
18			ABN			J
19			ABN			J
20			ABN			J
21			ABN			J
22			ABN			J
23			ABN			J
24			ABN			J
25			ABN			J
26			ABN			J
27						J
28						J
29						J
30						J

Environmental Protection Agency CLP Sample Management Office
PO Box 818, Alexandria, VA 22313 703/557-2490

Lewis Testing Laboratories
Seattle, WA 206/767-5060

SAMPLE
H6255

14/53
4/9/86

VOLATILE COMPOUNDS

CONCENTRATION: LOW MEDIUM (Circle one)
Date extracted/prepared ....N/A.....
Date analyzed .....9/21/85.....
Conc/dil factor ....1....pH....N/A...
Percent moisture:.....N/A...
Percent moisture (decanted)....N/A..

CAS NUMBER		ug/l or ug/kg (circle one)	CAS NUMBER		ug/l or ug/kg (circle one)
74-87-3	Chloromethane	10 UJ	79-34-5	1,1,2,2-Tetrachloroethane	5U
74-83-9	Bromomethane	10 UJ	78-87-5	1,2-Dichloropropane	5U
75-01-4	Vinyl Chloride	10U	10061-02-6	Trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	10 UJ	79-01-6	Trichloroethene	5U
75-09-2	Methylene Chloride	10UB	124-48-1	Dibromochloromethane	5U
67-64-1	Acetone	10 UB	79-00-5	1,1,2-Trichloroethane	5U
75-15-0	Carbon Disulfide	5U	71-43-2	Benzene	5 UJ
75-35-4	1,1-Dichloroethene	5U	10061-01-5	cis-1,3-Dichloropropene	5U
75-35-3	1,1-Dichloroethane	5U	110-75-8	2-Chloroethylvinylether	10U
156-60-5	Trans-1,2-Dichloroethene	5U	75-25-2	Bromoform	5UJ
67-66-3	Chloroform	5U	591-78-6	2-Hexanone	10U
107-06-2	1,2-Dichloroethane	5U	108-10-1	4-Methyl-2-Pentanone	10U
78-93-3	2-Butanone	10 R	127-18-4	Tetrachloroethene	5U
71-55-6	1,1,1-Trichloroethane	5U	108-88-3	Toluene	5U
56-23-5	Carbon Tetrachloride	5U	108-90-7	Chlorobenzene	5U
108-05-4	Vinyl Acetate	10U	100-41-4	Ethylbenzene	5U
75-27-4	Bromodichloromethane	5U	100-42-5	Styrene	5U
				Total Xylenes	5U

DATA REPORTING QUALIFIERS

For reporting results to EPA the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be specific.

Value If the result is a value greater than or equal to the detection limit.

U Indicates the compound was analyzed but not detected.

J Indicates an estimated value.

C GC/MS confirmation of a pesticide.

B Indicates that this compound was detected in the reagent blank.

Tor (53)
4/2/86

Environmental Protection Agency CLP Sample Management Office
PO Box 818, Alexandria, VA 22313 703/557-2490

SAMPLE NUMBER
(MB285)

Laucks Testing Laboratories
Seattle, WA 206/767-5060

ORGANICS ANALYSIS DATA SHEET
(Page 2)

SEMIVOLATILE COMPOUNDS

Concentration..... low
Date extracted/prepared.....9/19/85
Date analyzed.....10/4/85
Dilution Factor..... 1

CAS NUMBER		mg/l	CAS NUMBER		mg/l
62-75-9	N-Nitrosodimethylamine	100 U	83-32-9	Acenaphthene	10 U
108-95-2	Phenol	100 U	51-28-5	2,4-Dinitrophenol	50 U
62-53-3	Aniline	10 U	100-02-7	4-Nitrophenol	50 U
111-44-4	bis(-2-Chloroethyl)Ether	10 U	132-64-9	Dibenzofuran	10 U
95-57-8	2-Chlorophenol	10 U	121-14-2	2,4-Dinitrotoluene	10 U
541-73-1	1,3-Dichlorobenzene	10 U	606-20-2	2,6-Dinitrotoluene	10 U
106-46-7	1,4-Dichlorobenzene	10 U	84-66-2	Diethylphthalate	10 U
100-51-6	Benzyl Alcohol	10 U	7005-72-3	4-Chlorophenyl-phenylether	10 U
95-50-1	1,2-Dichlorobenzene	10 U	86-73-7	Fluorene	10 U
95-48-7	2-Methylphenol	10 U	100-01-6	4-Nitroaniline	50 U
39638-32-9	bis(2-chloroisopropyl)Ether	10 U	534-52-1	4,6-Dinitro-2-Methylphenol	50 U
106-44-5	4-Methylphenol	10 U	86-30-6	N-Nitrosodiphenylamine (1)	10 U
621-64-7	N-Nitroso-Di-n-propylamine	10 U	101-55-3	4-Bromophenyl-phenylether	10 U
67-72-1	Hexachloroethane	10 U	118-74-1	Hexachlorobenzene	10 U
98-95-3	Nitrobenzene	10 U	87-86-5	Pentachlorophenol	50 U
78-59-1	Isophorone	10 U	85-01-8	Phenanthrene	10 U
88-75-5	2-Nitrophenol	10 U	120-12-7	Anthracene	10 U
105-67-9	2,4-Dimethylphenol	10 U	84-74-2	Di-n-Butylphthalate	10 U
65-85-0	Benzoic Acid 50 U.J		206-44-0	Fluoranthene	10 U
111-91-1	bis(2-Chloroethoxy)Methane	10 U	92-87-5	Benzidine	50 U.J
120-83-2	2,4-Dichlorophenol	10 U	129-00-0	Pyrene	10 U
120-82-1	1,2,4-Trichlorobenzene	10 U	85-68-7	Butylbenzylphthalate	10 U
91-20-3	Naphthalene	10 U	91-94-1	3,3'Dichlorobenzidine	20 U
106-47-8	4-Chloroaniline	10 U	56-55-3	Benzo(a)anthracene	10 U
87-63-3	Hexachlorobutadiene	10 U	117-81-7	bis(2-Ethylhexyl)Phthalate	3 JB
59-50-7	4-Chloro-3-Methylphenol	10 U	218-01-9	Chrysene	10 U
91-57-6	2-Methylnaphthalene	10 U	117-84-0	Di-n-Octyl Phthalate	10 U
77-47-4	Hexachlorocyclopentadiene	10 U	205-99-2	Benzo(b)Fluoranthene	10 U
88-06-2	2,4,6-Trichlorophenol	10 U	207-08-9	Benzo(k)Fluoranthene	10 U
95-95-4	2,4,5-Trichlorophenol	50 U	50-32-8	Benzo(a)Pyrene	10 U
91-58-7	2-Chloronaphthalene	10 U	193-39-5	Indeno(1,2,3-cd)Pyrene	10 U
88-74-4	2-Nitroaniline	50 U	53-70-3	Dibenz(a,h)Anthracene	10 U
131-11-3	Dimethyl Phthalate	10 U	191-24-2	Benzo(g,h,i)Perylene	10 U
208-96-8	Acenaphthylene	10 U			
99-09-2	3-Nitroaniline	50 U			

(1) cannot be separated from diphenylamine

Environmental Protection Agency CLP Sample Management Office
P.O. Box 818, Alexandria, VA 22313 703/557-2490

SAMPLE
HB285

Laucks Testing Laboratories
Seattle, WA 206/767-5060

ORGANICS ANALYSIS DATA SHEET
(Page 3)

PESTICIDES/PCBs
CONCENTRATION: LOW MEDIUM (Circle one)
Date extracted/prepared .....
Date analyzed .....
Concentration/dilution factor 1

CAS NUMBER		ug/L (circle one)
319-84-6	Alpha-BHC	0.05U
319-85-7	Beta-BHC	0.05U
319-86-8	Delta-BHC	0.05U
58-89-9	Gamma-BHC(lindane)	0.05U
76-44-8	Heptachlor	0.05U
309-00-2	Aldrin	0.05U
1024-57-3	Heptachlor Epoxide	0.05U
959-98-8	Endosulfan I	0.05U
60-57-1	Dieldrin	0.10U
72-55-9	4,4'-DDE	0.10U
72-20-8	Endrin	0.10U
33213-65-9	Endsulfan II	0.10U
72-54-8	4,4'-DDD	0.10U
7421-93-4	Endrin Aldehyde	0.10U
1031-07-8	Endosulfan Sulfate	0.10U
50-29-3	4,4'-DDT	0.10U
72-43-5	Methoxychlor	0.5U
53494-70-5	Endrin Ketone	0.10U
57-74-9	Chlordane	0.5U
8001-35-2	Toxaphene	1.0U
12674-11-2	Aroclor-1016	0.5U
11104-28-2	Aroclor-1221	0.5U
11141-16-5	Aroclor-1232	0.5U
53469-21-9	Aroclor-1242	0.5U
12672-29-6	Aroclor-1248	0.5U
11097-69-1	Aroclor-1254	1.0U
11096-82-5	Aroclor-1260	1.0U

Vi =Volume of extract injected (ul)
Vo =Volume of water extracted (ml)
Vt =Volume of total extract (ul)

Vo = 1000 ml Vt = 10,000 ul Vi = 1.0 ul

[illegible] S. Harney Street, Seattle WA 98108
(206) 767-5060

Sample Number
HB285

Tkg 55
4/9/86

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Frac.	Scan No	Estimated Concentration (ug/l - ug/kg)
1.		VOA		
2.				
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No tentatively identified compounds - (any unknown peaks less than 10% std)

R/RA [illegible]

Environmental Protection Agency CLP Sample Management Office
PO Box 818, Alexandria, VA 22313 703/557-2490

Lewis Testing Laboratories
Seattle, WA 206/767-5060

SAMPLE
HB288

56
4/9/86

VOLATILE COMPOUNDS

CONCENTRATION: LOW MEDIUM (Circle one)
Date extracted/prepared ...N/A.....
Date analyzed .....9/22/85.....
Conc/dil factor .....1....pH....6.6....
Percent moisture:.....40.8.....
Percent moisture (decanted)...N/A...

CAS NUMBER		ug/L or ug/kg (circle one)	CAS NUMBER		ug/L or ug/kg (circle one)
74-87-3	Chloromethane	10 UJ ~~10U~~	79-34-5	1,1,2,2-Tetrachloroethane	5U
74-83-9	Bromomethane	10 UJ 10U	78-87-5	1,2-Dichloropropane	5U
75-01-4	Vinyl Chloride	10U	10061-02-6	Trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	10 UJ ~~10U~~	78-01-6	Trichloroethene	5U
75-09-2	Methylene Chloride	650B ~~5U~~	124-48-1	Dibromochloromethane	5U
67-64-1	Acetone	430B ~~10U~~	79-00-5	1,1,2-Trichloroethane	5U
75-15-0	Carbon Disulfide	5U	71-43-2	Benzene	~~5U~~ 5UJ
75-35-4	1,1-Dichloroethane	5U	10061-01-5	cis-1,3-Dichloropropene	5U
75-35-3	1,1-Dichloroethane	5U	110-75-8	2-Chloroethylvinylether	10U
156-60-5	Trans-1,2-Dichloroethene	5U	75-25-2	Bromoform	~~5U~~ 5UJ
67-66-3	Chloroform	5J ~~5U~~	591-78-6	2-Hexanone	10U
107-06-2	1,2-Dichloroethane	5U	108-10-1	4-Methyl-2-Pentanone	10U
78-93-3	2-Butanone	10 R ~~10U~~	127-18-4	Tetrachloroethene	5U
71-55-6	1,1,1-Trichloroethane	5U	108-88-3	Toluene	380 ~~5U~~
56-23-5	Carbon Tetrachloride	5U	108-90-7	Chlorobenzene	5U
108-05-4	Vinyl Acetate	10U	100-41-4	Ethylbenzene	5U
75-27-4	Bromodichloromethane	5U	100-42-5	Styrene	5U
				Total Xylenes	5U

DATA REPORTING QUALIFIERS

For reporting results to EPA the following results qualifiers are used
Additional flags or footnotes explaining results are encouraged.
However, the definition of each flag must be specific.

Value If the result is a value greater than or equal to the detection limit.

U Indicates the compound was analyzed but not detected.

J Indicates an estimated value.

C GC/MS confirmation of a pesticide.

B Indicates that this compound was detected in the reagent blank.

Mg (57)
4/9/86

Environmental Protection Agency CLP Sample Management Office
PO Box 818, Alexandria, VA 22313 703/557-2498

Laucks Testing Laboratories
Seattle, WA 206/767-5060

SAMPLE NUMBER
< HB288 >

ORGANICS ANALYSIS DATA SHEET
(Page 2)

SEMIVOLATILE COMPOUNDS

Concentration..... medium
Date extracted/prepared.....9/20/85
Date analyzed.....10/4/85
Dilution Factor..... 1

CAS NUMBER		ug/kg	CAS NUMBER		ug/kg
62-75-9	N-Nitrosodimethylamine	25376 U	83-32-9	Acenaphthene	25376 U
108-95-2	Phenol	25376 U	51-28-5	2,4-Dinitrophenol	123037 U
62-53-3	Aniline	25376 U	100-02-7	4-Nitrophenol	123037 U
111-44-4	bis(-2-Chloroethyl)Ether	25376 U	132-64-9	Dibenzofuran	25376 U
95-57-8	2-Chlorophenol	25376 U	121-14-2	2,4-Dinitrotoluene	25376 U
541-73-1	1,3-Dichlorobenzene	25376 U	606-20-2	2,6-Dinitrotoluene	25376 U
106-46-7	1,4-Dichlorobenzene	25376 U	84-66-2	Diethylphthalate	25376 U
100-51-6	Benzyl Alcohol	25000 UJ [redacted]	7005-72-3	4-Chlorophenyl-phenylether	25376 U
95-50-1	1,2-Dichlorobenzene	25376 U	86-73-7	Fluorene	25376 U
95-48-7	2-Methylphenol	25376 U	100-01-6	4-Nitroaniline	123037 U
39638-32-9	bis(2-chloroisopropyl)Ether	25376 U	534-52-1	4,6-Dinitro-2-Methylphenol	123037 U
106-44-5	4-Methylphenol	25376 U	86-30-6	N-Nitrosodiphenylamine (1)	25376 U
624-64-7	N-Nitroso-Di-n-propylamine	25376 U	101-55-3	4-Bromophenyl-phenylether	25376 U
67-72-1	Hexachloroethane	25376 U	118-74-1	Hexachlorobenzene	25376 U
98-65-3	Nitrobenzene	25376 U	87-86-5	Pentachlorophenol	123037 U
78-59-1	Isophorone	25376 U	85-01-8	Phenanthrene	10658 J
88-75-5	2-Nitrophenol	25376 U	120-12-7	Anthracene	4492 J
105-67-9	2,4-Dimethylphenol	25376 U	84-74-2	Di-n-Butylphthalate	3578 J
65-85-0	Benzoic Acid 120,000 UJ	[redacted]	206-44-0	Fluoranthene	23904 J
111-91-1	bis(2-Chloroethoxy)Methane	25376 U	92-87-5	Benzidine	[redacted] 120000 UJ
120-83-2	2,4-Dichlorophenol	25376 U	129-00-0	Pyrene	16596 J
120-82-1	1,2,4-Trichlorobenzene	25376 U	85-68-7	Butylbenzylphthalate	25376 U
91-20-3	Naphthalene	25376 U	91-94-1	3,3'Dichlorobenzidine	50753 U
106-47-8	4-Chloroaniline	25376 U	56-55-3	Benzo(a)anthracene	7156 J
87-63-3	Hexachlorobutadiene	25376 U	117-81-7	bis(2-Ethylhexyl)Phthalate	[redacted] 7400 [redacted] UB
59-50-7	4-Chloro-3-Methylphenol	25376 U	218-01-9	Chrysene	6369 J
91-57-6	2-Methylnaphthalene	25376 U	117-84-0	Di-n-OctylPhthalate	25376 U
77-47-4	Hexachlorocyclopentadiene	25376 U	205-99-2	Benzo(b)Fluoranthene	2893 J
88-06-2	2,4,6-Trichlorophenol	25376 U	207-08-9	Benzo(k)Fluoranthene	2918 J
95-95-4	2,4,5-Trichlorophenol	123037 U	50-32-8	Benzo(a)Pyrene	4187 J
91-58-7	2-Chloronaphthalene	25376 U	193-39-5	Indeno(1,2,3-cd)Pyrene	25376 U
88-74-4	2-Nitroaniline	123037 U	53-70-3	Dibenz(a,h)Anthracene	25376 U
131-11-3	Dimethyl Phthalate	25376 U	191-24-2	Benzo(g,h,i)Perylene	25376 U
208-96-8	Acenaphthylene	25376 U			
99-09-2	3-Nitroaniline	123037 U			

(1) cannot be separated from diphenylamine

Environmental Protection Agency CLP Sample Management Office
P.O. Box 818, Alexandria, VA 22313 703 557-2490

SAMPLE
H8288

4/9/86

Laucks Testing Laboratories
Seattle, WA 206/767-5060

ORGANICS ANALYSIS DATA SHEET
(Page 3)

PESTICIDES/PCBs
CONCENTRATION: MEDIUM
Date extracted/prepared .....
Date analyzed .....
Concentration/dilution factor 1

CAS NUMBER		ug/kg
319-84-6	Alpha-BHC	120 U
319-85-7	Beta-BHC	120 U
319-86-8	Delta-BHC	120 U
58-89-8	Gamma-BHC(lindane)	120 U
76-44-8	Heptachlor	120 U
309-00-2	Aldrin	120 U
1024-57-3	Heptachlor Epoxide	120 U
959-98-8	Endosulfan I	120 U
60-57-1	Dieldrin	240 U
72-55-9	4,4'-DDE	240 U
72-20-8	Endrin	240 U
33213-65-9	Endsulfan II	240 U
72-54-8	4,4'-DDD	240 U
7421-93-8	Endrin Aldehyde	240 U
1031-07-8	Endosulfan Sulfate	240 U
50-29-3	4,4'-DDT	240 U
72-43-5	Methoxychlor	1,200 U
53494-70-5	Endrin Ketone	240 U
57-74-9	Chlordane	1,200 U
8001-35-2	Toxaphene	2,400 U
12674-11-2	Aroclor-1016	1,200 U
11104-28-2	Aroclor-1221	1,200 U
11141-16-5	Aroclor-1232	1,200 U
53469-21-9	Aroclor-1242	1,200 U
12672-29-6	Aroclor-1248	1,200 U
11097-69-1	Aroclor-1254	2,400 U
11096-82-5	Aroclor-1260	2,400 U

Vi =Volume of extract injected (ul)
Ws =weight of sample extracted (g)
Vt =Volume of total extract (ul)

Ws = 1.000 Vt = 10,000 Vi = 1.0

Testing Laboratories, Inc.
Harney Street, Seattle WA 98108
) 767-5060

Sample Number
H6288

Fb 59
4/9/86

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Frac.	Scan No	Estimated Concentration (ug/l - ug/kg)
1. 76-13-1	Ethane, 1,1,2-Trichloro-1,2,2-Trifluoro-	VOA	291	500J
2. 110-54-3	Hexane		434	38J
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Harney Street, Seattle WA 98108
) 767-5060

HB288

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Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Frac.	Scan No	Estimated Concentration (ug/l - ug/kg)
1. 76-13-1	Ethane, 1,1,2-Trichloro-1,2,2-Trifluoro-	VOA	291	500J
2. 110-54-3	Hexane		434	38J
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Environmental Protection Agency CLP Sample Management Office
PO Box 818, Alexandria, VA 22313 703/557-2490

Laucks Testing Laboratories
Seattle, WA 206/767-5060

SAMPLE
HB289

pm
61
4/9/86

VOLATILE COMPOUNDS

CONCENTRATION: LOW MEDIUM (Circle one)
Date extracted/prepared ...N/A.....
Date analyzed .....9/22/85.....
Conc/dil factor ....1....pH....6.7.....
Percent moisture:.....24.1.....
Percent moisture (decanted)..N/A.....

CAS NUMBER		ug/L or ug/kg (circle one)	CAS NUMBER		ug/L or ug/kg (circle one)
74-87-3	Chloromethane	10 UJ ~~10U~~	79-34-5	1,1,2,2-Tetrachloroethane	5U
74-83-9	Bromomethane	10 UJ ~~10U~~	78-87-5	1,2-Dichloropropane	5U
75-01-4	Vinyl Chloride	10U	10061-02-6	Trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	10 UJ ~~10U~~	78-81-6	Trichloroethene	5U
75-09-2	Methylene Chloride	24 ~~5U~~	124-48-1	Dibromochloromethane	5U
67-64-1	Acetone	660B ~~10U~~	79-00-5	1,1,2-Trichloroethane	5U
75-15-0	Carbon Disulfide	44 UJ ~~5U~~	71-43-2	Benzene	5U
75-35-4	1,1-Dichloroethane	5U	10061-01-5	cis-1,3-Dichloropropene	5U
75-35-3	1,1-Dichloroethane	5U	110-75-8	2-Chloroethylvinylether	~~10U~~ 10 ~~2~~
156-60-5	Trans-1,2-Dichloroethene	5U	75-25-2	Bromoform	5U
67-66-3	Chloroform	5U	591-78-6	2-Hexanone	10U
107-06-2	1,2-Dichloroethane	5U	108-10-1	4-Methyl-2-Pentanone	10U
78-93-3	2-Butanone	10 UJ ~~10U~~	127-18-4	Tetrachloroethene	5U
71-55-6	1,1,1-Trichloroethane	5U	108-88-3	Toluene	5U
56-23-5	Carbon Tetrachloride	5 UJ ~~5U~~	108-90-7	Chlorobenzene	5U
108-05-4	Vinyl Acetate	10 UJ ~~10U~~	100-41-4	Ethylbenzene	5U
75-27-4	Bromodichloromethane	5U	100-42-5	Styrene	5U
				Total Xylenes	5U

DATA REPORTING QUALIFIERS

For reporting results to EPA the following results qualifiers are used
Additional flags or footnotes explaining results are encouraged.
However, the definition of each flag must be specific.

Value If the result is a value greater than or equal to the detection limit.

U Indicates the compound was analyzed but not detected.

J Indicates an estimated value.

C GC/MS confirmation of a pesticide.

B Indicates that this compound was detected in the reagent blank.

TLG (62) 11/9/86

Environmental Protection Agency CLP Sample Management Office
PO Box 818, Alexandria, VA 22313 703/557-2490

Laucks Testing Laboratories
Seattle, WA 206/767-5060

SAMPLE NUMBER
(HB289)

ORGANICS ANALYSIS DATA SHEET
(Page 2)

SEMIVOLATILE COMPOUNDS

Concentration..... low
Date extracted/prepared.....9/19/85
Date analyzed.....10/4/85
Dilution Factor..... 1

CAS NUMBER		ug/kg	CAS NUMBER		ug/kg
62-75-9	N-Nitrosodimethylamine	435 U	83-32-9	Acenaphthene	435 U
108-95-2	Phenol	435 U	51-28-5	2,4-Dinitrophenol	2100 U
62-53-3	Aniline	435 U	100-02-7	4-Nitrophenol	2100 U
111-44-4	bis(2-Chloroethyl)Ether	435 U	132-64-9	Dibenzofuran	435 U
95-57-8	2-Chlorophenol	435 U	121-14-2	2,4-Dinitrotoluene	435 U
541-73-1	1,3-Dichlorobenzene	435 U	606-20-2	2,6-Dinitrotoluene	435 U
106-46-7	1,4-Dichlorobenzene	435 U	84-66-2	Diethylphthalate	435 U
100-51-6	Benzyl Alcohol 400 J	~~435 U~~	7005-72-3	4-Chlorophenyl-phenylether	435 U
95-50-1	1,2-Dichlorobenzene	435 U	86-73-7	Fluorene	435 U
95-48-7	2-Methylphenol	435 U	100-01-6	4-Nitroaniline	2100 U
39638-32-9	bis(2-chloroisopropyl)Ether	435 U	534-52-1	4,6-Dinitro-2-Methylphenol	2100 U
106-44-5	4-Methylphenol	435 U	86-30-6	N-Nitrosodiphenylamine (1)	435 U
621-64-7	N-Nitroso-Di-n-propylamine	435 U	101-55-3	4-Bromophenyl-phenylether	435 U
67-72-1	Hexachloroethane	435 U	118-74-1	Hexachlorobenzene	435 U
98-95-3	Nitrobenzene	435 U	87-86-5	Pentachlorophenol	2100 U
78-59-1	Isophorone	435 U	85-01-8	Phenanthrene	435 U
88-75-5	2-Nitrophenol	435 U	120-12-7	Anthracene	435 U
105-67-9	2,4-Dimethylphenol	435 U	84-74-2	Di-n-Butylphthalate	435 U
65-85-0	Benzoic Acid 2100 J	~~2100 U~~	206-44-0	Fluoranthene	435 U
111-91-1	bis(2-Chloroethoxy)Methane	435 U	92-87-5	Benzidine	~~435 U~~ 2100 J
120-83-2	2,4-Dichlorophenol	435 U	129-00-0	Pyrene	435 U
120-82-1	1,2,4-Trichlorobenzene	435 U	85-68-7	Butylbenzylphthalate	435 U
91-20-3	Naphthalene	435 U	91-94-1	3,3'Dichlorobenzidine	870 J J B
106-47-8	4-Chloroaniline	435 U	56-55-3	Benzo(a)anthracene	435 U
87-68-3	Hexachlorobutadiene	435 U	117-81-7	bis(2-Ethylhexyl)Phthalate	1315 J J B
59-50-7	4-Chloro-3-Methylphenol	435 U	218-01-9	Chrysene	435 U
91-57-6	2-Methylnaphthalene	435 U	117-84-0	Di-n-OctylPhthalate	236 J J B
77-47-4	Hexachlorocyclopentadiene	435 U	205-99-2	Benzo(b)Fluoranthene	435 U
88-06-2	2,4,6-Trichlorophenol	435 U	207-08-9	Benzo(k)Fluoranthene	435 U
95-95-4	2,4,5-Trichlorophenol	2100 U	50-32-8	Benzo(a)Pyrene	435 U
91-58-7	2-Chloronaphthalene	435 U	193-39-5	Indeno(1,2,3-cd)Pyrene	435 U
88-74-4	2-Nitroaniline	2100 U	53-70-3	Dibenz(a,h)Anthracene	435 U
131-11-3	Dimethyl Phthalate	435 U	191-24-2	Benzo(g,h,i)Perylene	435 U
208-96-8	Acenaphthylene	435 U			
99-09-2	3-Nitroaniline	2100 U			

(1) cannot be separated from diphenylamine

. Testing Laboratories, Inc.
s. Harney Street, Seattle WA 98108
.36) 767-5060

Sample Number
H6289

TM (63)
4/9/86

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Frac.	Scan No	Estimated Concentration (ug/l - ug/kg)
1. 76-13-1	Ethane, 1,1,2-Trichloro 1,2,2-Trifluoro-	VOA	290	180J
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TY 69
4/2/86

LAUCKS Testing Laboratories, Inc
940 S. Harney St, Seattle, WA 98108
(206) 767-5060

Sample Number
< HB289 >

Organics Analysis Data Sheet
(Page 4)
Tentatively Identified Compounds

	CAS Number	Compound Name	Frac	Scan No	Estimated Concentration (ug/l - ug/kg)	
1	3648213	1,2-benzenedicarboxylic acid, diheptyl	ABN	1737	308	J
2		ester	ABN			J
3		unknown	ABN	1793	389	J
4		unknown	ABN	1802	380	J
5	131157	1,2-benzenedicarboxylic acid, bis-	ABN	1839	247	J
6		(methylheptyl) ester	ABN			J
7		unknown	ABN	46	3170	J
8	108883	benzene, methyl	ABN	66	93300	J
9	141797	3-penten-2-one, 4-methyl-	ABN	119	4950	J
10	108214	acetic acid, 1-methylethyl ester	ABN	169	30700	J
11		unknown	ABN	219	614000	J
12	110123	2-hexanone, 5-methyl-	ABN	229	1600	J
13	4160752	2-propanone, 1-cyclopropyl-	ABN	307	9610	J
14		unknown	ABN	870	387	J
15	630035	nonacosane	ABN	1053	154	J
16	483783	napthalene, 1,6-dimethyl-4-	ABN	1073	161	J
17		(1-methylethyl)-	ABN			J
18	112958	eicosane	ABN	1122	168	J
19	629925	nonadecane	ABN	1189	202	J
20	630079	pentatriacontane	ABN	1252	355	J
21	544763	hexadecane	ABN	1313	416	J
22	630079	pentatriacontane	ABN	1425	287	J
23	123795	hexadecanoic acid, dioctyl ester	ABN	1480	3590	J
24		unknown	ABN	1493	188	J
25		unknown	ABN	1501	226	J
26		unknown	ABN	1533	346	J
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Environmental Protection Agency CLP Sample Management Office
PO Box 818, Alexandria, VA 22313 703/557-2490

Laucks Testing Laboratories
Seattle, WA 206/767-5060

SAMPLE
HB299

74 (65)
4/4/86

VOLATILE COMPOUNDS

CONCENTRATION: (LOW) MEDIUM (Circle one)
Date extracted/prepared ...N/A.....
Date analyzed .....9/22/85....
Conc/dil factor ...1.....pH....6.7....
Percent moisture:.....14.7.....
Percent moisture (decanted)..N/A....

CAS NUMBER		ug/L or (ug/kg) (circle one)	CAS NUMBER		ug/L or (ug/kg) (circle on
74-87-3	Chloromethane	10 UJ ~~10U~~	79-34-5	1,1,2,2-Tetrachloroethane	5U
74-83-9	Bromomethane	10 UJ 10U	78-87-5	1,2-Dichloropropane	5U
75-01-4	Vinyl Chloride	10U	10061-02-6	Trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	10 UJ ~~10U~~	78-01-6	Trichloroethene	5U
75-09-2	Methylene Chloride	3502 ~~5U~~	124-48-1	Dibromochloromethane	5U
67-64-1	Acetone	5208 ~~10U~~	79-00-5	1,1,2-Trichloroethane	5U
75-15-0	Carbon Disulfide	5 UJ ~~5U~~	71-43-2	Benzene	5U
75-35-4	1,1-Dichloroethane	5U	10061-01-5	cis-1,3-Dichloropropene	5U
75-35-3	1,1-Dichloroethane	5U	110-75-8	2-Chloroethylvinylether	~~10U~~ 10 E
156-60-5	Trans-1,2-Dichloroethene	5U	75-25-2	Bromoform	5U
67-66-3	Chloroform	5U	591-78-6	2-Hexanone	10U
107-06-2	1,2-Dichloroethane	5U	108-10-1	4-Methyl-2-Pentanone	10U
78-93-3	2-Butanone	10 R ~~10U~~	127-18-4	Tetrachloroethene	5U
71-55-6	1,1,1-Trichloroethane	5U	108-88-3	Toluene	5U
56-23-5	Carbon Tetrachloride	5 UJ ~~5U~~	108-90-7	Chlorobenzene	5U
108-05-4	Vinyl Acetate	10 UJ ~~10U~~	100-41-4	Ethylbenzene	5U
75-27-4	Bromodichloromethane	5U	100-42-5	Styrene	5U
				Total Xylenes	5U

DATA REPORTING QUALIFIERS

For reporting results to EPA the following results qualifiers are used
Additional flags or footnotes explaining results are encouraged.
However, the definition of each flag must be specific.

Value If the result is a value greater than or equal to the detection limit.

U Indicates the compound was analyzed but not detected.

J Indicates an estimated value.

C GC/MS confirmation of a pesticide.

B Indicates that this compound was detected in the reagent blank.

44 (66)
4/9/82

Environmental Protection Agency CLP Sample Management Office
PO Box 818, Alexandria, VA 22313 703/557-2498

SAMPLE NUMBER
(MB299)

Laucks Testing Laboratories
Seattle, WA 206/767-5060

ORGANICS ANALYSIS DATA SHEET
(Page 2)

SEMIVOLATILE COMPOUNDS

Concentration..... low
Date extracted/prepared.....9/19/85
Date analyzed.....10/9/85
Dilution Factor..... 1

CAS NUMBER		ug/kg	CAS NUMBER		ug/kg
62-75-9	N-Nitrosodimethylamine	387 U	83-32-9	Acenaphthene	387 U
108-95-2	Phenol	387 U	51-28-5	2,4-Dinitrophenol	1876 U
62-53-3	Aniline	387 U	100-02-7	4-Nitrophenol	1876 U
111-44-4	bis(2-Chloroethyl)Ether	387 U	132-64-9	Dibenzofuran	387 U
95-57-8	2-Chlorophenol	387 U	121-14-2	2,4-Dinitrotoluene	387 U
541-73-1	1,3-Dichlorobenzene	387 U	606-20-2	2,6-Dinitrotoluene	387 U
106-46-7	1,4-Dichlorobenzene	387 U	84-66-2	Diethylphthalate	387 U
100-51-6	Benzyl Alcohol 400 uJ	[illegible]	7005-72-3	4-Chlorophenyl-phenylether	387 U
95-50-1	1,2-Dichlorobenzene	387 U	86-73-7	Fluorene	387 U
95-48-7	2-Methylphenol	387 U	100-01-6	4-Nitroaniline	1876 U
39638-32-9	bis(2-chloroisopropyl)Ether	387 U	534-52-1	4,6-Dinitro-2-Methylphenol	1876 U
106-44-5	4-Methylphenol	387 U	86-30-6	N-Nitrosodiphenylamine (1)	387 U
621-64-7	N-Nitroso-Di-n-propylamine	387 U	101-55-3	4-Bromophenyl-phenylether	387 U
67-72-1	Hexachloroethane	387 U	118-74-1	Hexachlorobenzene	387 U
98-95-3	Nitrobenzene	387 U	87-86-5	Pentachlorophenol	1876 U
78-59-1	Isophorone	387 U	85-01-8	Phenanthrene	387 U
88-75-5	2-Nitrophenol	387 U	120-12-7	Anthracene	387 U
105-67-9	2,4-Dimethylphenol	387 U	84-74-2	Di-n-Butylphthalate	387 U
65-85-0	Benzoic Acid 2000 uJ	[illegible] U	206-44-0	Fluoranthene	387 U
111-91-1	bis(2-Chloroethoxy)Methane	387 U	92-87-5	Benzidine	[illegible] 2000 uJ
120-83-2	2,4-Dichlorophenol	387 U	129-00-0	Pyrene	387 U
120-82-1	1,2,4-Trichlorobenzene	387 U	85-68-7	Butylbenzylphthalate	387 U
91-20-3	Naphthalene	387 U	91-94-1	3,3'Dichlorobenzidine	[illegible] 800 uJ
106-47-8	4-Chloroaniline	387 U	56-55-3	Benzo(a)anthracene	387 U
87-63-3	Hexachlorobutadiene	387 U	117-81-7	bis(2-Ethylhexyl)Phthalate	1121 B 1100 uB
59-50-7	4-Chloro-3-Methylphenol	387 U	218-01-9	Chrysene	387 U
91-57-6	2-Methylnaphthalene	387 U	117-84-0	Di-n-OctylPhthalate	447 U
77-47-4	Hexachlorocyclopentadiene	387 U	205-99-2	Benzo(b)Fluoranthene	387 U
88-06-2	2,4,6-Trichlorophenol	387 U	207-08-9	Benzo(k)Fluoranthene	387 U
95-95-4	2,4,5-Trichlorophenol	1876 U	50-32-8	Benzo(a)Pyrene	387 U
91-58-7	2-Chloronaphthalene	387 U	193-39-5	Indeno(1,2,3-cd)Pyrene	387 U
88-74-4	2-Nitroaniline	1876 U	53-70-3	Dibenz(a,h)Anthracene	387 U
131-11-3	Dimethyl Phthalate	387 U	191-24-2	Benzo(g,h,i)Perylene	387 U
208-96-8	Acenaphthylene	387 U			
99-09-2	3-Nitroaniline	1876 U			

(1) cannot be separated from diphenylamine

Testing Laboratories, Inc.
3. Harney Street, Seattle WA 98108
(206) 767-5060

Sample Number
HB299

TLG (67)
4/9/82

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Frac.	Scan No	Estimated Concentration (ug/l - ug/kg)
1. 76-13-1	Ethane, 1,1,2-Trichloro-1,2,2-Trifluoro	VOA	291	1705
2. 110-54-3	Hexane	↓	434	375
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TM (68)
4/21/86

LAUCKS Testing Laboratories, Inc
940 S. Harney St, Seattle, WA 98108
(206) 767-5060

Sample Number
< HB299 >

Organics Analysis Data Sheet
(Page 4)
Tentatively Identified Compounds

	CAS Number	Compound Name	Frac	Scan No	Estimated Concentration (ug/l - ug/kg)
1		2-butanone	ABN	47	402
2	108883	benzene, methyl	ABN	68	4590
3	4127473	cyclopropane, 1,1,2,2-tetramethyl-	ABN	119	714
4	108214	acetic acid, 1-methylethyl ester	ABN	174	835
5		unknown	ABN	220	7180
6	110123	2-hexanone, 5-methyl-	ABN	225	441
7	106978	butane	ABN	306	996
8		unknown	ABN	870	308
9	112958	eicosane	ABN	1052	1360
10	54852743	benzene, ethylphenoxy-	ABN	1073	280
11	630035	nonacosane	ABN	1122	206
12	629925	nonadecane	ABN	1188	380
13	7098228	tetratetracontane	ABN	1251	488
14	630079	pentatriacontane	ABN	1312	555
15	630079	pentatriacontane	ABN	1424	738
16		unknown	ABN	1492	641
17		unknown	ABN	1500	698
18	131157	1,2-benzenedicarboxylic acid, bis(1-me	ABN	1698	261
19	131157	1,2-benzenedicarboxylic acid, bis(1-me	ABN	1735	394
20		unknown	ABN	1793	438
21		unknown	ABN	1802	386
22	131157	1,2-benzenedicarboxylic acid, bis(1-me	ABN	1838	316
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Standard Oil Ref., 4951, Lawrence. 9/17/86

I. Holding Time. — Dates from the analytical data sheets.

DFTPP	BFB	Sample #	VTSR	VOA	BNA EXT	BNA ANA	Notes
10/3	9/20	HB 002	9/13/85	9/20	9/19	10/3	OK
10/3	"	HB101		"	"	"	OK
10/3	"	HB 102		"	"	"	OK
N/A	"	HB 282		"	—	—	OK but BNA?
10/4	"	HB 283		9/21	9/19	10/4	8 days VOA
10/4	9/21	HB 284		9/21	"	"	"
10/4	9/21	HB 285		"	"	"	"
10/4	9/22	HB 288 (soil)		9/22	9/20	10/4	OK
10/4	9/22	HB 289 (soil)		9/22	"	"	OK
10/9	9/22	HB 299 (soil)	9/13/85	"	9/19	10/9	OK.
N/A	9/20	HB 281	"	9/20	—	—	BNAs?

HB 283, 284 & 285 had ~~8 day~~ 7 day holding times from VTSR but the analysis were probably ok. For samples HB 281 and HB 282 the BNA analysis could not be found in the regular sample data package.

II. Tuning of the GC/MS system.

DFTPP — All values were within BFB contract specifications.

BFB — All summary sheet values were within contract limits.

(12)

Calibrations — calib. date = 9/6/85 to 9/7/85.

Initial —

1,1-Dichloroethene

0.882	−	0.774	=	0.108,
0.845	−	"	=	0.071,
0.715	−	"	=	0.059,
0.696	−	"	=	0.078,
0.730	−	"	=	0.044,
0.774				

$\Sigma x^2 = 0.028206$

$\sqrt{\frac{\Sigma x_\Delta^2}{n-1}} = 0.0839 = \sigma_{(n-1)}$ $\boxed{\%RSD = 10.8}$

$\sqrt{\frac{\Sigma (x-\bar{x})^2}{n}} = \sigma_n$ %RSD = 9.70

%RSD was calculated with "n" but it should be calculated by "(n−1)". Incorrect calculation of %RSD.

chromatographic & mass spectral inspections: