

GW - 75

WORK PLANS

HOMCO International, Inc.

Bellaire, Texas

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OCT 15 1990

OIL CONSERVATION DIV.
SANTA FE

ENSR

Proposed Closure/Remedial
Action Plan for
HOMCO International, Inc.
Facility No. 135
Hobbs, New Mexico

Submitted to:

State of New Mexico
Energy, Minerals, and Natural
Resources Department
Oil Conservation Division

ENSR Consulting and Engineering

October 1990

Document Number 3519-003-135



Formerly ERT

October 12, 1990

ENSR Consulting
and Engineering
3000 Richmond Avenue
Houston, Texas 77098
(713) 520-9900

Mr. Roger Anderson
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

RECEIVED

Re: Preliminary Site Assessment II/Proposed Closure/Remedial
Action Plan for HOMCO International Inc.
3000 West County Road, Hobbs, New Mexico, Lea County

OCT 15 1990

OIL CONSERVATION DIV.
SANTA FE

Dear Roger:

ENSR submits this Preliminary Site Assessment (II) and Proposed Closure/Remedial Action Plan for the referenced HOMCO International, Inc. site pursuant to our understanding and review of applicable federal and state regulations and ENSR's conversations with the New Mexico Oil Conservation Division. Attached, you will find a copy of ENSR's authorization to act on behalf of HOMCO, International, Inc.

ENSR/HOMCO International, Inc. requests that the New Mexico Oil Conservation Division (NM-OCD) review the enclosed report and issue approvals as appropriate.

Based on the enclosed supporting data ENSR/HOMCO International, Inc. requests the following NM-OCD approvals:

- Permission to excavate UHT and Leachpit components, and associated piping and surrounding soils.
- Permission to stockpile soils excavated in association with the remediation of the UHT, leachpit, and piping, until results of proposed analytical tests are received and a disposal/remediation option is selected by ENSR/HOMCO and approved by the NM-OCD.
- Permission to dispose of wastewater recycling byproducts at the referenced facilities:
 - Oils: Chemical Handling Corporation
 - Sludges: Control Recovery, Inc.
- Permission to dispose of TPH contaminated soils from stained areas and former waste disposal area.



Mr. Roger Anderson
October 12, 1990
Page 2

Should you have any questions, please contact me, Mr. Scott Laidlaw, or Mr. Jim Baker at 713-520-9900.

Sincerely,

A handwritten signature in black ink, reading 'H. Darlene Venable'. The signature is written in a cursive style with a long horizontal line extending from the end.

H. Darlene Venable
Staff Geologist

HDV/ls:3519-003

Attachment

ATTACHMENT

10/12/90

ENSR

HOMCO

HOMCO INTERNATIONAL, INC.
P.O. BOX 2442
HOUSTON, TEXAS 77252
713/663-6444

Robert J. Medlar
Director-Environmental and Safety

September 7, 1990
Mr. Manuel A. Sirgo, Jr.
ENSR Consulting and Engineering
3000 Richmond Avenue
Houston, Texas 77252

Re: Request for Authorization to Act on Behalf of HOMCO
International Inc. in Discussions with NM-OCG and NM-EID

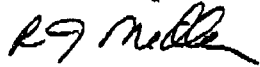
Dear Manny:

HOMCO authorizes ENSR to act on our behalf in discussions with the
New Mexico Oil Conservation Division and the New Mexico
Environmental Improvement Division.

ENSR is authorized to prepare and submit required forms and
correspondence during notification and negotiations with these
agencies to obtain regulatory approvals and provide data and
information required to complete the remediation of the Hobbs, New
Mexico facility.

Please contact us if you require any additional assistance.

Sincerely,



R. J. Medlar
Director, Environmental & Safety

HOMCO International, Inc.

Bellaire, Texas

Proposed Closure/Remedial
Action Plan for
HOMCO International, Inc.
Facility No. 135
Hobbs, New Mexico

Submitted to:

State of New Mexico
Energy, Minerals, and Natural
Resources Department
Oil Conservation Division

ENSR Consulting and Engineering

October 1990

Document Number 3519-003-135

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1.0 INTRODUCTION

1.1 BASIS OF SUBMITTAL

This Preliminary Site Assessment (PSA) II and Proposed Remedial Action Plan (PRAP) has been prepared pursuant to the requirements of New Mexico's Oil Conservation Division (NM-OCD), as described during multiple telephone conversations between ENSR Consulting and Engineering, authorized representatives of HOMCO International, Inc. and Mr. Roger Anderson of the NM-OCD.

In telephone conversations during the months of August, September and October, Ms. H.D. Venable, of ENSR, informed Mr. Anderson of HOMCO's desire to remove an active wastewater disposal system consisting of a concrete underground holding tank (UHT #1), discontinuous cinder block lined leachpit drain and associated piping. HOMCO proposed to replace the wastewater disposal system with a new system which would not discharge into the subsurface.

Based on our understanding of the regulations and our conversations with Mr. Anderson of the NM-OCD, ENSR made the following recommendations to HOMCO:

- HOMCO was advised to stop using the existing wastewater disposal system.
- HOMCO was advised to bore and obtain soil samples around the exterior sidewalls of the UHT #1 and the leachpit to evaluate the integrity of UHT #1 and to assess the condition of the subsurface soils surrounding the UHT #1 and the leachpit.
- HOMCO was advised to analyze the soil samples for the following parameters:
 - BTEX (Benzene, Toluene, Ethyl benzene, and Xylene)
 - TPH (Total Petroleum Hydrocarbons)
 - TCLP (metals).

TCLP Volatile, Semivolatile, and metals analyses will be required prior to landfill disposal after September 20, 1990.

- HOMCO was advised that the State of New Mexico has set the following "action" levels:

Benzene - soil	10 ppm
Benzene - groundwater	10 ppb
BTEX - soil	50 ppm
TPH - soil	100 ppm
- HOMCO was advised that should analyses characterize the surrounding soils as "hazardous waste" as defined by Resource Conservation and Recovery Act (RCRA), regulatory jurisdiction will be transferred to the New Mexico Environmental Improvement (NM-EID) and/or the United States Environmental Protection Agency (EPA). HOMCO would then be required to comply with all applicable NM-EID and/or EPA regulations with respect to onsite characterization or clean-up of contaminated soils and/or groundwater resulting from the release of hazardous constituents into the subsurface.
- HOMCO was advised that the NM-OCD will within one year require all oil field service companies to submit to the NM-OCD for approval, a Discharge Plan. Guidelines for the Discharge Plan have not yet been fully defined by the OCD.
- HOMCO was advised that the NM-OCD would like the opportunity to review and approve the design and installation plans for the proposed replacement wastewater recycling system. The NM-OCD approved the installation of a "Water Maze" wastewater recycling system on September 12, 1990. (Appendix A).
- HOMCO was advised that the installation of new below grade tanks/sumps are regulated by the NM-OCD and will be required to have a NM-OCD inspection and an approved monitoring system installed during the construction.

ENSR submits this document, on behalf of HOMCO International, Inc. in accordance with and in response to the previously summarized communications.

1.2 SITE DESCRIPTION: OWNERSHIP, LOCATION, SIZE, USE

1.2.1 Facility Owner

- Name: HOMCO International, Inc.
- Address: P.O. Box 2442
Houston, Texas 77252
- Phone No.: (713) 663-6444

1.2.2 Site Location References

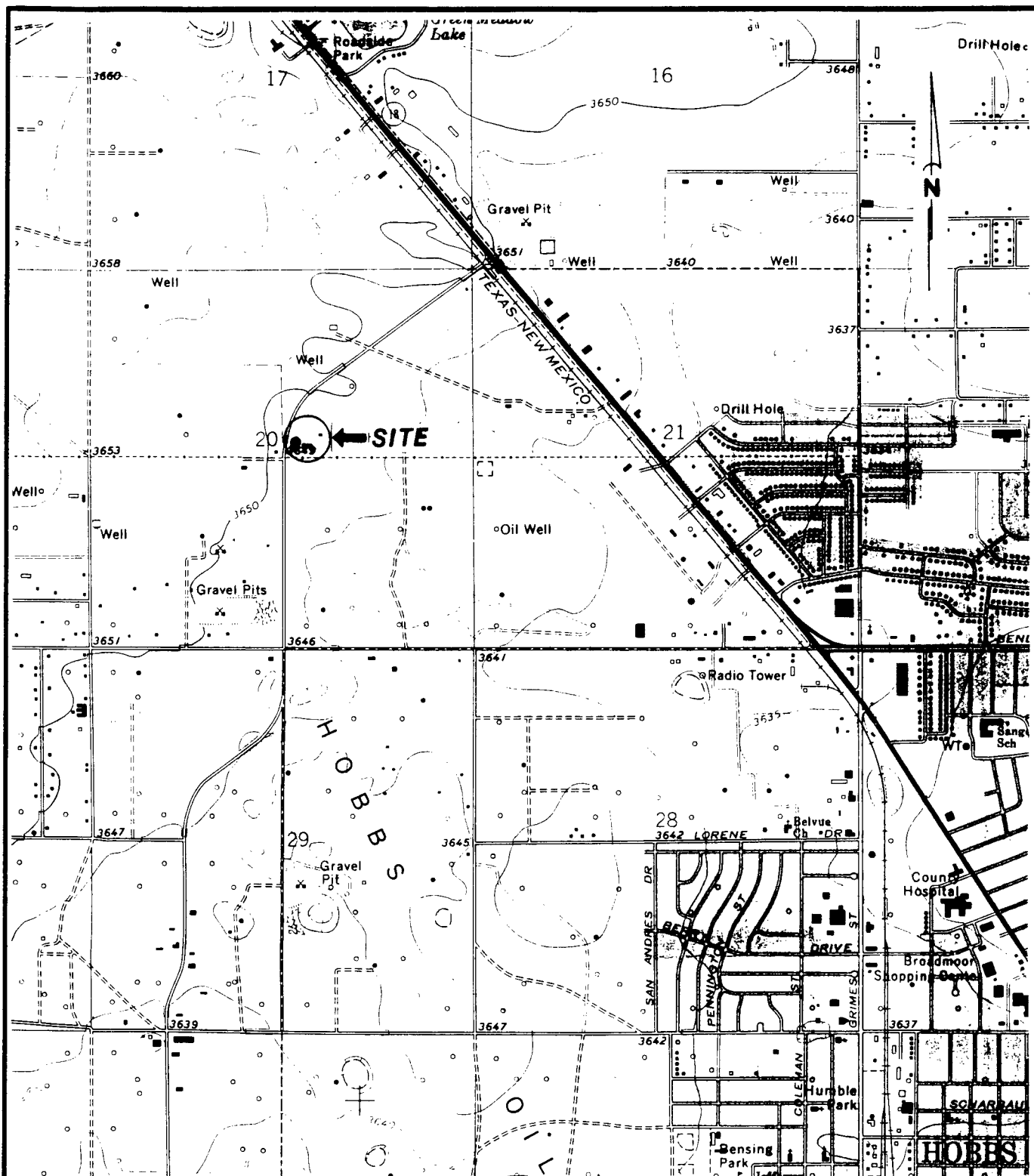
- Address: 3000 West County Road
Hobbs, New Mexico 88240
- County: Lea
- U.S.G.S.
Quad Map: Hobbs West, New Mexico
- Township 18 South Range 38 East,
SW 1/4 of SW 1/4 of NE 1/4 of Section 20
(see Figure 1 - Site Location Map)

1.2.3 Acreage

- Approximately 10 acres

1.2.4 Estimated % of Site Covered by Buildings and Pavement

- 15%



0 2000 4000
Scale in Feet

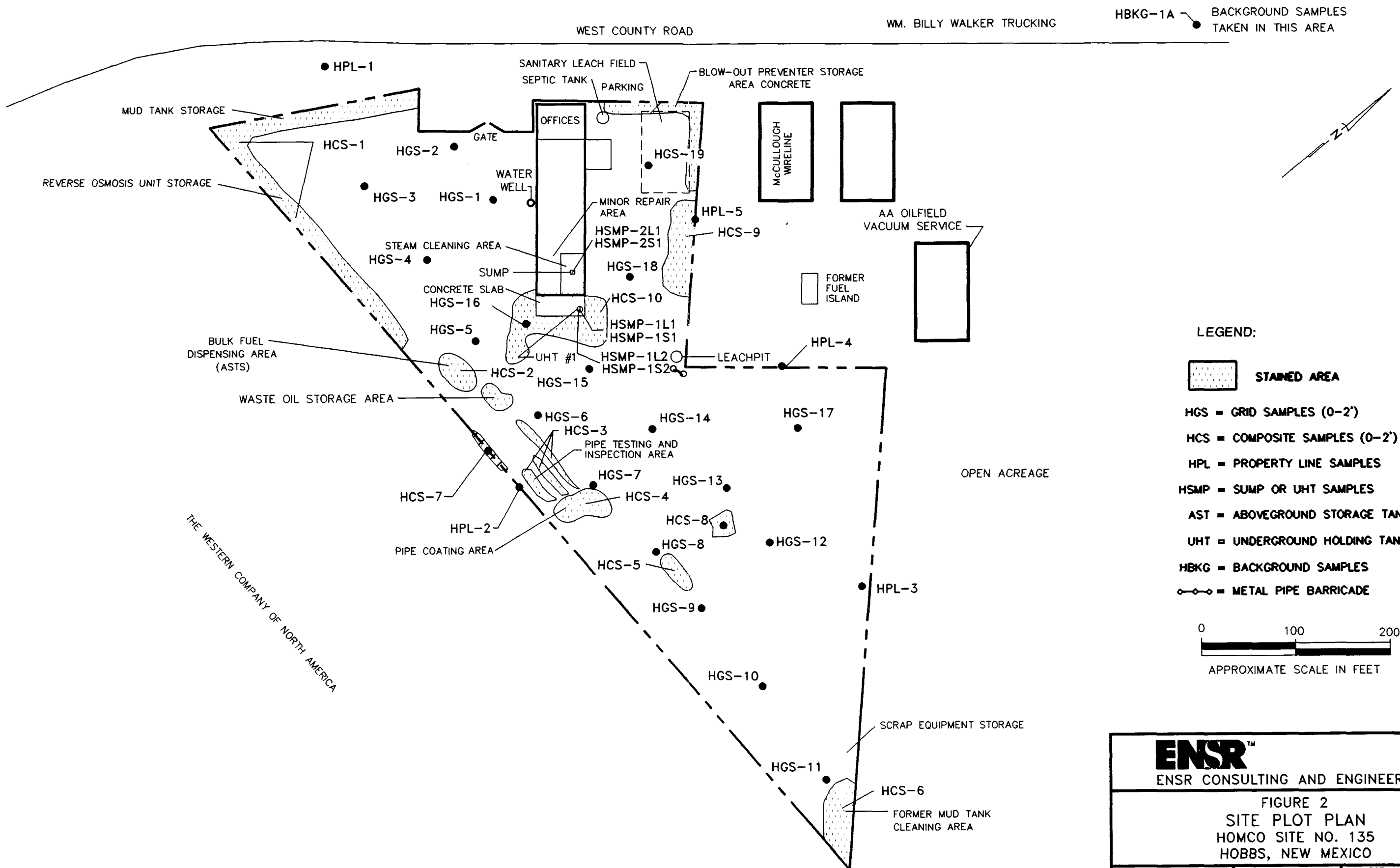
Ref.: USGS Hobbs West, N. Mex. Quadrangle Map, 1979.

ENSRTM

ENSR CONSULTING AND ENGINEERING

FIGURE 1
SITE LOCATION MAP
HOMCO SITE NO. 135
HOBBS, NEW MEXICO

DRAWN BY: S.SAWYERS	DATE: 6-26-90	PROJECT NUMBER:
CHK'D BY:	REVISED:	3519-001-135



1.2.5 Summary Description of Site Usage

HOMCO International, Inc. provides on and off-site support services to the oil and natural gas industry. On-site services include the maintenance and storage of a variety of rental equipment, including fishing and cutting tools. HOMCO's inventory of rental tools includes, but is not limited to blowout preventers, drill pipe, drill collars, washover pipe, kelleys, slips, elevators, jars, pumping units, accumulator tanks, and reverse osmosis units.

Onsite high pressure steam cleaning is performed on the tools subsequent to each rental usage. Steam cleaning produces steam which removes residual soils, crude oils, and drilling fluids from the used rental tools. Prior to September 25, 1990, HOMCO's wastewater disposal system consisted of an interior concrete-lined sump, a concrete flow-through underground tank, a discontinuous/cinder block lined leachpit, and associated piping.

1.3 PHASE I PRELIMINARY SITE ASSESSMENT: SAMPLING AND ANALYSES SUMMARY

A preliminary site assessment was performed in July of 1990. A 100-foot grid system was laid. North-south, east-west transects were located at 100 foot intervals. A grid sample point was selected at each transect. Composite sample points were collected from the visibly stained areas that might have been impacted by the facility operations. A background sample was obtained in an area located near the subject property which was deemed to have had the least industrial impact. Six samples were collected from the on-site sump and underground holding tank. A liquid phase and a solid phase sample was collected from the sump and each side of the underground holding tank.

Soil samples were obtained from depths of 3 to 18 inches below ground surface using a truck mounted drilling rig equipped with a 3-inch split spoon sampler or a 4-inch diameter stainless steel hand auger depending upon equipment accessibility.

Sample ID numbers, parameters listed, regulatory limits and results are summarized in Table 1. Figure 2 Phase I - Site Plot Plan shows sample point locations. The analytical data package for Phase I will be made available upon written request.

Table 1
Homco Phase I Audit
Analytical Test Results
Hobbs, N.M.
Site #135

			Total**	EP Toxicity Metals *							
Sample I.D.		Matrix	Petroleum Hydrocarbon	Ag	As	Ba	Cd	Cr	Hg	Pb	Se
EPA Regulatory Limits			:	5	5	100	1	5	0.2	5	1
HGS-1B	%	Soil	NA	BDL	0.006	0.7	BDL	BDL	BDL	BDL	BDL
HGS-1C		Soil	BDL	NA	NA	NA	NA	NA	NA	NA	NA
HGS-2A		Soil	6900	NA	NA	NA	NA	NA	NA	NA	NA
HGS-2B		Soil	5300	BDL	0.009	0.6	BDL	0.02	BDL	BDL	BDL
HGS-2C		Soil	BDL	NA	NA	NA	NA	NA	NA	NA	NA
HGS-3B	%	Soil	52	BDL	0.01	0.5	BDL	BDL	BDL	BDL	BDL
HGS-3C		Soil	BDL	NA	NA	NA	NA	NA	NA	NA	NA
HGS-4A		Soil	510	NA	NA	NA	NA	NA	NA	NA	NA
HGS-4B	#	Soil	BDL	BDL	0.008	0.7	BDL	BDL	BDL	BDL	BDL
HGS-5B	&	Soil	BDL	BDL	0.004	0.6	BDL	BDL	BDL	BDL	BDL
HGS-6B	&	Soil	NA	BDL	0.005	0.7	BDL	BDL	BDL	BDL	BDL
DUPE #1		Soil	NA	BDL	0.02	0.8	BDL	BDL	BDL	BDL	BDL
HGS-7A		Soil	BDL	NA	NA	NA	NA	NA	NA	NA	NA
HGS-7B		Soil	BDL	BDL	0.004	0.6	BDL	BDL	BDL	BDL	BDL
HGS-7C		Soil	BDL	NA	NA	NA	NA	NA	NA	NA	NA
HGS-8B	%	Soil	BDL	BDL	0.003	1.0	BDL	BDL	BDL	BDL	BDL
DUPE #2		Soil	NA	BDL	0.005	0.9	BDL	BDL	BDL	BDL	BDL
HGS-8C		Soil	BDL	NA	NA	NA	NA	NA	NA	NA	NA
HGS-9B	%	Soil	NA	BDL	0.008	0.8	BDL	BDL	BDL	BDL	BDL
HGS-9C		Soil	460	NA	NA	NA	NA	NA	NA	NA	NA
HGS-10B	&	Soil	NA	BDL	0.02	0.7	BDL	BDL	BDL	BDL	BDL
HGS-11A		Soil	BDL	NA	NA	NA	NA	NA	NA	NA	NA
HGS-11B		Soil	BDL	BDL	0.03	0.6	BDL	BDL	BDL	BDL	BDL
HGS-11C		Soil	BDL	NA	NA	NA	NA	NA	NA	NA	NA
HGS-12B	&	Soil	NA	BDL	0.006	0.7	BDL	BDL	BDL	BDL	BDL
DUPE #3		Soil	NA	BDL	0.02	0.7	BDL	BDL	BDL	BDL	BDL
HGS-13A		Soil	BDL	BDL	0.02	0.7	BDL	BDL	BDL	BDL	BDL
HGS-13B		Soil	BDL	NA	NA	NA	NA	NA	NA	NA	NA
HGS-13C		Soil	BDL	NA	NA	NA	NA	NA	NA	NA	NA
HGS-14B	&	Soil	NA	BDL	0.006	0.7	BDL	BDL	BDL	BDL	0.002
HGS-15B	&	Soil	NA	BDL	0.008	0.7	BDL	BDL	BDL	BDL	BDL
DUPE #4		Soil	NA	BDL	0.006	0.7	BDL	BDL	BDL	BDL	BDL
HGS-16A		Soil	120	NA	NA	NA	NA	NA	NA	NA	NA
HGS-16B		Soil	150	BDL	0.006	0.7	BDL	BDL	BDL	0.04	BDL
HGS-16C		Soil	300	NA	NA	NA	NA	NA	NA	NA	NA
HGS-17A	@	Soil	NA	BDL	0.006	0.7	BDL	BDL	BDL	BDL	BDL
HGS-18A		Soil	4600	NA	NA	NA	NA	NA	NA	NA	NA
HGS-18B		Soil	2700	BDL	0.006	0.6	BDL	BDL	BDL	BDL	BDL
HGS-18C		Soil	BDL	NA	NA	NA	NA	NA	NA	NA	NA
HGS-19B	&	Soil	NA	BDL	0.008	0.6	BDL	BDL	BDL	BDL	BDL

NOTES: * Measured in MG/L ** Measured in MG/KG NA = not analyzed for this parameter
BDL = below detection limit
@= Samples "B" and "C" not taken.
#= Sample "C" collected and held in lab. No analysis.
+= Sample "C" not collected.
&= Samples "A" and "C" collected and are on hold. No analysis done.
%= Sample "A" collected and is on hold.
\$= Sample "B" collected and is on hold. Sample "C" was not collected.

Table 1 continued...
Homco Phase I Audit
Analytical Test Results
Hobbs, N.M.
Site #135

		Total** Petroleum Hydrocarbon	EP Toxicity Metals *							
Sample I.D.	Matrix		Ag	As	Ba	Cd	Cr	Hg	Pb	Se
EPA Regulatory Limits			5	5	100	1	5	0.2	5	1
HCS-1A	Soil	7300	NA	NA	NA	NA	NA	NA	NA	NA
HCS-2A	Soil	570	NA	NA	NA	NA	NA	NA	NA	NA
HCS-2B	Soil	BDL	BDL	0.003	0.8	BDL	0.04	BDL	BDL	0.002
HCS-2C	Soil	4400	NA	NA	NA	NA	NA	NA	NA	NA
HCS-3A	Soil	770	NA	NA	NA	NA	NA	NA	NA	NA
HCS-3B	Soil	BDL	BDL	0.004	0.7	BDL	0.006	BDL	BDL	0.002
HCS-3C	Soil	BDL	NA	NA	NA	NA	NA	NA	NA	NA
HCS-4A	Soil	160	NA	NA	NA	NA	NA	NA	NA	NA
HCS-4B	Soil	BDL	BDL	0.006	0.8	BDL	BDL	BDL	BDL	BDL
HCS-4C	Soil	BDL	NA	NA	NA	NA	NA	NA	NA	NA
HCS-6A	Soil	2.1%	BDL	0.007	0.8	BDL	0.08	BDL	0.06	BDL
HCS-6B	Soil	3.3%	NA	NA	NA	NA	NA	NA	NA	NA
HCS-7A	Soil	NA	BDL	0.03	0.6	BDL	0.05	BDL	BDL	BDL
HCS-8B	Soil	NA	BDL	0.02	0.7	BDL	0.04	BDL	BDL	BDL
DUPE #7	Soil	BDL	BDL	0.008	0.7	BDL	0.03	BDL	BDL	BDL
HCS-8C	Soil	BDL	NA	NA	NA	NA	NA	NA	NA	NA
HCS-9B	Soil	NA	BDL	0.03	0.8	BDL	0.06	BDL	BDL	BDL
HCS-10A	Soil	700	NA	NA	NA	NA	NA	NA	NA	NA
HCS-10B	Soil	5300	BDL	0.03	1.8	BDL	0.04	BDL	BDL	BDL
DUPE #8	Soil	2600	BDL	0.01	1.3	BDL	0.06	BDL	BDL	0.003
HCS-10C	Soil	BDL	NA	NA	NA	NA	NA	NA	NA	NA
HPLS-1A	Soil	NA	BDL	0.03	1.2	BDL	0.04	BDL	BDL	BDL
HPLS-2A	Soil	NA	BDL	0.01	0.9	BDL	0.03	BDL	BDL	BDL
HPLS-3A	Soil	NA	BDL	0.03	0.7	BDL	0.03	BDL	BDL	BDL
HPLS-4A	Soil	NA	BDL	0.06	0.8	BDL	0.03	BDL	BDL	BDL
HPLS-5A	Soil	NA	BDL	0.009	1.0	BDL	0.04	BDL	BDL	BDL
HPLS-5B	Soil	BDL	NA	NA	NA	NA	NA	NA	NA	NA
HBKG-1A	Soil	NA	BDL	0.007	1.2	BDL	0.02	BDL	BDL	BDL
HSMP-1-S1	Sludge	10.8%	BDL	0.002	0.8	BDL	0.04	BDL	0.08	BDL
HSMP-1-S2	Sludge	20.1%	BDL	BDL	0.6	BDL	0.05	BDL	BDL	BDL
HSMP-2-S1	Sludge	14.8%	BDL	0.003	0.5	BDL	0.08	BDL	0.02	BDL
FIELD BLANK	Liquid	BDL	BDL	0.002	BDL	BDL	BDL	BDL	BDL	BDL

Sample I.D.	Matrix	Total** Petroleum Hydrocarbon	Total Metals *							
			Ag	As	Ba	Cd	Cr	Hg	Pb	Se
HSMP-1-L1	Liquid	3.5 %	BDL	0.04	0.09	0.03	0.06	BDL	1.00	BDL
HSMP-1-L2	Liquid	1300	BDL	0.006	0.09	0.02	0.06	BDL	0.90	0.004
HSMP-2-L1	Liquid	250	BDL	0.02	0.1	0.06	0.1	BDL	1.00	0.005

NOTES: * Measured in MG/L ** Measured in MG/KG NA = not analyzed for this parameter
BDL = below detection limit
@= Samples "B" and "C" not taken.
#= Sample "C" collected and held in lab. No analysis.
+= Sample "C" not collected.
&= Samples "A" and "C" collected and are on hold. No analysis done.
%= Sample "A" collected and is on hold.

1.4 OVERVIEW OF SAMPLING ACTIVITIES - PHASE II

ENSR has developed and performed preliminary subsurface sampling in the UHT #1 and leachpit disposal area. This work was performed in accordance with our understanding of the State and Federal regulations and with the verbal direction offered by the NM-OCD as described in Section 1.1.

1.4.1 Sampling Locations

Soil samples were obtained from the subsurface in the following areas:

- Underground Holding Tank
- Leachpit
- Former Mud Tank Cleaning Area
- Composite of stained areas
- Background sample

1.4.2 Sampling Methodology

Samples at the Hobs, N.M. Homco facility were collected using the following tools:

- 3" split-spoon sampler,
- 5' extended jar sampler,
- teflon bailer.

Soil samples were collected by advancing a split spoon sampler which had been decontaminated prior to and in between sampling at each location. Samples were collected approximately 1 foot below the bottom of visible contamination in the stained soils. Composite samples were collected in the areas adjacent to the leachpit, underground holding tank, and former mud tank disposal area.

Sludge samples collected during this phase of work were collected out of the underground holding tank by the use of an extended jar sampler, which allowed samples to be collected directly for the bottom of the underground holding tank.

Liquid samples from both the underground holding tank and the industrial leachpit were collected by using a decontaminated teflon bailer.

Decontamination procedures were followed to insure sample integrity. The sample collection tools were decontaminated in the following manner:

- Scrub tool with non-phosphate detergent/water solution,
- Rinse tool with tap water,
- Rinse tool with acetone (removes organics); and
- Rinse tool with deionized water.

All borings were grouted to the surface upon completion.

1.4.3 Health and Safety

A Health and Safety Plan was provided and enforced by ENSR during Phase I and Phase II site activities. The original Health and Safety Plan will be modified to suit Phase III Remediation needs and will be made available to NM-OCD upon written request.

2.0 PRELIMINARY SUBSURFACE ASSESSMENT - PHASE II

2.1 SITE PLOT PLAN

Boring and sample locations, stained areas, UHT and leachpit locations are shown in Figure 3.

2.2 GEOLOGY

2.2.1 Regional Geology

U.S.G.S. Groundwater Report 6, "Geology and Groundwater Conditions in Southern Lea County, New Mexico" (Ref. No. 1) shows that the subject site is located within the High Plains (Llano Estacado) physiographic subdivision of southern Lea County, New Mexico. The Mescalero Ridge marks the southwestern limit of the High Plains in New Mexico. The ridge or cliff is capped by a thick layer of caliche (caprock) which underlies the High Plains. The topography of the High Plains is uniformly flat.

2.2.2 Groundwater

Potable groundwater in the High Plains physiographic subdivision is derived from two principal geologic units: the Ogallala formation and Quaternary alluvium. The saturated thickness of the Ogallala formation ranges from 25 to 175 feet within the High Plains (Ref. 1) and provides the drinking water supplies to the City of Hobbs, New Mexico.

2.2.3 On-site Water Analyses, State of New Mexico Documented Well Data, Groundwater Literature Search

An on-site water well provides drinking and process water to the subject site. A driller's log was not available for the on-site water well. The onsite water well is reportedly 180 feet below ground surface with the top of the pump set at 80 feet below ground surface. A tap water

10-9-90
ce351962

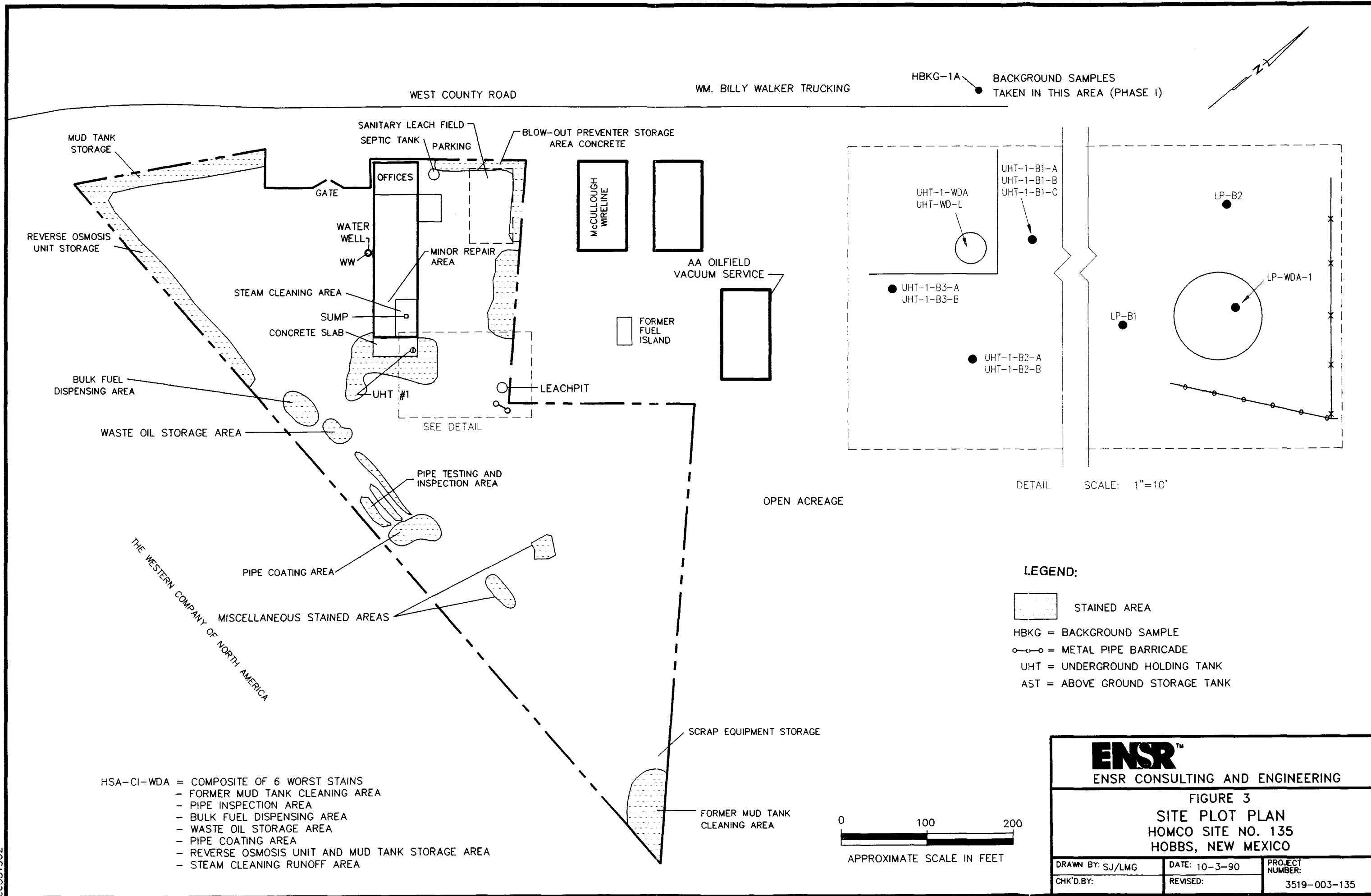


TABLE 2

ANALYTICAL RESULTS FOR CHARACTERIZATION OF WELL WATER

HOMCO INTERNATIONAL, INC. - SITE No. 135 HOBBS, NM

Analytical Parameter	(units)	EPA Regulatory Limits	Sample ID WW
* Total Metals	(ppm)		
Arsenic		0.05	0.007
Barium		1.00	0.06
Cadmium		0.01	<0.010
Chromium		0.05	<0.02
Lead		0.05	<0.025
Mercury		0.002	<0.001
Selenium		0.01	<0.002
Silver		0.05	<0.01
* Volatiles	(ppb)		-
Methylene Chloride			6 B
Acetone			16 B
Herbicides	(ppb)		-
Pesticides	(ppb)		-
Other Analyses			
Chloride	(ppm)	250	240
Fluoride	(ppm)	4.0	1.3
Nitrate-Nitrite as Nitrogen	(ppm)		2.0
Nitrate as Nitrogen	(ppm)	10	2.1
Sulfate	(ppm)	250	180
Turbidity	(NTU)		<1
pH	(units)	6.5 - 8.5	7.0

- Below detection limit

* Summary of detected compounds (see Appendix B for complete analytical data)

B Compound was detected in QC Blank

sample was obtained and analyzed for the following primary and secondary Drinking Water Standards as presented in 40 CFR Parts 141, 142 and 143:

Total Metals
Volatile Organics
Herbicides
Pesticides
Chloride
Fluoride
Nitrate - Nitrite as Nitrogen
Sulfate
Turbidity
pH

Analytical results show the onsite tap water to be below the EPA regulatory limits for these parameters. Table 2 presents a summary of the analytical results. Figure 2 and 3 shows the approximate location of the onsite water well. Appendix B provides a complete analytical data package including QA/QC information.

Mr. Keith O'Hare of the New Mexico State Engineer Office (District II) stated that Well No. L476 is located on property adjacent to the subject site (Township 18 South - Range 38 East, Section 20). The Western Company of North America permitted Well No. L476 in 1975.

The following presents the driller's log of subsurface conditions at that location:

<u>Depth (feet)</u>	<u>Description</u>
0 - 2	Topsoil
2 - 20	Caliche
20 - 55	Sand
55 - 125	Water Sand

Plate 1 "Geologic Map of Southern Lea County, New Mexico" and Plate 2 "Groundwater Map of Southern Lea County, New Mexico" of the U.S.G.S. Groundwater Report 6, verifies that the subject site is indeed in the Ogallala formation and that the water table is situated at an elevation of approximately 3,600 feet Above Mean Sea Level (AMSL). The Hobbs West USGS Topographic Map shows the elevation of the subject site to be approximately 3,649 feet AMSL, placing groundwater at approximately 49 feet below ground surface.

The general stratigraphy for the subject site at a 0-10' depth interval was observed by ENSR to be as follows:

<u>Depth (feet)</u>	<u>Description</u>
0 - 1.5	Fill, crushed caliche base
1.5 - 10'	Caliche caprock

2.3 FORMER WASTEWATER DISPOSAL SYSTEM

2.3.1 General Description

As stated in Section 1.2.5 prior to September 25, 1990, HOMCO's wastewater disposal system consisted of the following:

- interior sump
 - construction: concrete, metal grated cover
 - dimensions: 2x6x3 feet
 - volume: approximately 200 gallons
 - integrity: no visible cracks
- exterior underground holding tank (UHT #1)
 - construction: concrete, wire in center, metal covered manway
 - dimensions: 8 feet deep (length and width unknown)
 - volume: unknown
 - integrity: visual assessment cannot be made due to the construction of the UHT

- leachpit
 - construction: sidewalls are lined with discontinue cinderblock; no structural bottom concrete cap
 - dimensions: 8 foot diameter
 - volume: unknown
 - integrity: Non-applicable (see construction)
- associated piping

2.3.2 Characterization of UHT and Leachpit Contents

The contents of UHT #1 contained two distinct phases; a liquid phase and a solid phase. The liquid phase consisted of oily wastewater with minimum suspended solids. The solid phases appeared to be an oily sludge. Samples were obtained from each phase of UHT #1 to characterize for future disposal or treatment.

A boring was drilled through the concrete cap to gain access to the leachpit contents. A PVC teflon baler was lowered into the leachpit and a sample of the leachpit contents (wastewater) was retrieved. Samples were obtained from the leachpit to classify the disposal unit for future disposal or treatment.

The UHT #1 (liquid and solid phases) and leachpit contents were analyzed for the following parameters:

Analyses

TCLP Metals

TCLP Volatiles

TCLP Semivolatiles

TPH (Total Petroleum Hydrocarbons)

Reactivity

- HCN

- H₂S

Corrosivity

pH

Ignitability

Results of these analyses are presented in Table 3. Regulatory limits are also presented for comparison purposes. Figure 3 shows the location of UHT #1 and the leachpit. Appendix B provides the complete analytical data package, including QA/QC information.

2.3.3 Characterization of Subsurface Soils Surrounding the UHT and the Leachpit

Section 1.4 - Overview of Sampling Activities describes the sampling methodology used to obtain subsurface soil samples surrounding UHT #1 and the leachpit. Figure 3 shows the location of each boring. Accessibility and drilling difficulties limited the number of borings to those listed in Table 4. As per discussions with the OCD, each sample was analyzed for the following parameters:

Analyses

BTEX (Benzene, Toluene, Ethyl Benzene, and Xylene)

TPH

TCLP Lead

TCLP Benzene will be performed as a part of a complete suite of waste disposal analyses after the side walls of the UHT and leachpit have been excavated and securely stockpiled on a plastic liner.

Table 4 presents the results of these analyses and depths of each sample. Regulatory limits are also presented for comparison purposes. Figure 3 shows the location of each boring. Appendix B provides the complete analytical data package, including QA/QC information.

TABLE 3

ANALYTICAL RESULTS FOR CHARACTERIZATION OF
UNDERGROUND HOLDING TANK AND LEACH PIT CONTENTS

HOMCO INTERNATIONAL, INC. - SITE No. 135 HOBBS, NM

Analytical Parameters (units)	EPA Regulatory Limits	Underground Holding Tank		Leach Pit
		UHT-1-WDA Sludge	UHT-WD-L Liquid	LP-WDA-1 Liquid
* TCLP Metals (ppm)				
Arsenic	5	0.005	0.003	-
Barium	100	1.1	0.1	0.7
Chromium	5	0.03	-	-
Lead	5	0.09	0.1	-
Selenium	1	-	0.004	0.003
* TCLP Volatiles (ppb)				
Benzene	500	8	-	-
2-Butanone	200,000	11	-	-
* TCLP Semivolatiles (ppb)		-	-	-
Ignitability - Flashpoint (F)	<140	>210	>150	>180
Reactivity - Total Available				
Hydrogen Sulfide (mg/kg)	500	31	<50	<50
Hydrocyanic Acid (mg/kg)	250	<0.40	<50	<50
Corrosivity (mmpy)	>6.35	<6.35	<6.35	<6.35
pH (units)	2<pH<12.5	8.1	7.5	7.2
TPH (%)	100 ppm (NM)	17%	78%	29%

- Below detection limit

* Summary of Detected Compounds (See Appendix B for complete analytical data)

2.3.4 Conclusions

- UHT and Leachpit Contents

Phase I and Phase II analytical results show that the liquid and solid phases of the UHT contents are below the EPA regulatory limits for the parameters tested as specified in Tables 1 and 3. Phase II analytical results show that the contents of the leachpit are below the EPA regulatory limits for the parameters tested as specified in Table 3. On that basis ENSR/HOMCO requests that the NM-OCD classify the UHT and leachpit contents as non-hazardous for the purposes of remediation and/or disposal.

ENSR/HOMCO is aware that the contents of the leachpit/UHT exhibits elevated levels of TPH and that NM-OCD approval may be required prior to disposal or treatment of this material.

- UHT and Leachpit - Surrounding Soils

As shown in Table 4, the soils within the borings surrounding the UHT and leachpit show levels below the EPA and New Mexico regulatory limits for ten parameters tested. On this basis, ENSR/HOMCO requests that the NM-OCD classify the soils surrounding the UHT and leachpit as non-hazardous for the purposes of remediation.

2.4 STAINED AREAS

2.4.1 Description

Multiple surface stains exist throughout the site as indicated on the site plot plan (Figure 2-3). Stains are associated with the bulk fuel (diesel) dispensing area, waste oil storage area, equipment storage areas, steam cleaning runoff area, and pipe inspection and coating areas, and former mud tank cleaning area.

TABLE 4

ANALYTICAL RESULTS FOR CHARACTERIZATION OF SOILS SURROUNDING THE UNDERGROUND HOLDING TANK AND LEACH PIT
HOMCO INTERNATIONAL, INC. - SITE No. 135 HOBBS, NM

Parameter	Depth (ft)	TCLP Lead (ppm)	TPH (ppm)	Benzene (ppb)	Ethyl- benzene (ppb)	Toluene (ppb)	Xylene (ppb)	Total BTEX (ppb)
Regulatory limits		5.0 (EPA)	100 (NM)	10,000 (NM)	-	-	-	50,000 (NM)
Sample ID								
UHT#1-B1-A	1.5-6.0	0.05	6,400	<125	760	<125	1,000	1,700
Dupe #4 (1)	1.5-6.0	<0.025	5,300	<125	740	<125	930	1,670
UHT#1-B1-B	6.0-9.0	0.05	12,000	<125	3,800	170	7,600	11,530
Dupe #5 (2)	6.0-9.0	0.07	14,000	<125	4,800	170	11,000	15,970
UHT#1-B1-C	9.0-10.5	0.01	9,600	<125	4,100	200	9,300	13,600
UHT#1-B2-A	1.5-6.0	0.04	10,000	<125	2,600	150	4,700	7,450
UHT#1-B2-B	6.0-9.0	0.1	22,000	<250	5,700	360	12,000	18,060
UHT#1-B3-A	1.5-6.0	<0.025	230	<125	150	<125	<125	150
Dupe #6 (3)	1.5-6.0	<0.025	68	<125	230	<125	<125	230
UHT#1-B3-B	6.0-7.5	<0.025	66	<125	1,000	<125	<125	<125
LP-B1	0-15	<0.025	3,200	<125	1,000	290	3,000	4,290
Dupe #7 (4)	0-15	<0.025	3,300	<125	590	<125	1,800	2,090
LP-B2	0-15	<0.025	3,800	<125	470	<125	880	1,350

(1) Duplicate of UHT#1-B1-A

(2) Duplicate of UHT#1-B1-B

(3) Duplicate of UHT#1-B3-A

(4) Duplicate of LP-B1

- Not established by the State or Federal Agency

2.4.2 Characterization of Stained Surface Soils

A composite sample was obtained from the six worst visibly stained areas and analyzed for the following parameters:

- TCLP Metals*
- TCLP Volatiles
- TCLP Semivolatiles*
- TPH*
- Reactivity
 - HCN
 - H₂S
- Corrosivity
- pH
- Ignitability

* Analytical data for these parameters have been QA/QC'd, but are not final.

Results of these analyses are presented in Table 5. Regulatory limits are also presented for comparison purposes. Figures 2 and 3 show the approximate location of the stained areas and sampling points. Appendix B provides a complete analytical data package, including QA/QC information.

2.4.3 Conclusions

Phase II analytical results show that the stained areas are below the EPA regulatory limits for the parameters tested as specified in Table 5. ENSR/HOMCO requests that the NM/OCD classify in the stained area soils as non-hazardous for the purposes of remediation and/or disposal.

TABLE 5

ANALYTICAL RESULTS FOR CHARACTERIZATION OF STAINED SURFACE SOILS

HOMCO INTERNATIONAL, INC. - SITE No. 135 HOBBS, NM

Analytical Parameter (units)	EPA Regulatory Limits	Sample ID HSA-C1-WDA
* TCLP Metals (ppm)		
Arsenic	5	-
Barium	100	0.5
Cadmium	1	0.02
Chromium	5	-
Lead	5	1.19
Mercury	0.2	-
Selenium	1	-
Silver	5	-
* TCLP Volatiles (ppb)		-
* TCLP Semivolatiles (ppb)		-
Ignitability - Flashpoint (F)	<140	>180
Reactivity - Total Available		
Hydrogen Sulfide (mg/kg)	500	<58
Hydrocyanic Acid (mg/kg)	250	<58
Corrosivity (mmpy)	>6.35	NA
pH (units)	2<pH<12.5	7.5
TPH	100 ppm (NM)	6.1%

- Below detection limit

* Summary of Detected Compounds (See Appendix B for complete analytical data)

NA Unable to analyze due to sample matrix

2.5 FORMER MUD TANK CLEANING AREA

2.5.1 Description

The former "Mud Tank Cleaning Area" has dimensions of approximately 100x40x7 feet (estimate). This area is and has been inactive for approximately 6 years and was formerly used to accept runoff from on-site mud (drilling fluid) tank cleaning operations. The area was formerly bermed and was closed by collapsing the earthen berm, filling, and leveling to existing grade.

2.5.2 Characterization of Soils

Fill was encountered to depths of 7 feet during preliminary drilling operations. Refusal was encountered at 5 feet. A composite sample was obtained from the most visibly stained depth (3-5 feet) and analyzed for the following parameters:

- TCLP Metals
- TCLP Volatiles
- TCLP Semivolatiles
- Ignitability
- Reactivity
 - H₂S
 - HCN
- pH
- Corrosivity

Results of these analyses are presented in Table 6. Regulatory limits are also presented for comparison purposes. Figure 2-3 shows the approximate location of the former mud tank cleaning area and sampling point locations. Appendix B provides a complete analytical data package, including QA/QC information.

TABLE 6

ANALYTICAL RESULTS FOR CHARACTERIZATION OF
FORMER MUD TANK CLEANING AREA SOILS

HOMCO INTERNATIONAL, INC. - SITE No. 135 HOBBS, NM

Analytical Parameter (units)	EPA Regulatory Limits	Sample ID HCS-6-WDB (3-5 ft. of depth)
* TCLP Metals (ppm)		
Arsenic	5	0.003
Barium	100	1.1
Cadmium	1	-
Chromium	5	-
Lead	5	0.1
Mercury	0.2	-
Selenium	1	-
Silver	5	-
* TCLP Volatiles (ppb)		-
* TCLP Semivolatiles (ppb)		-
Ignitability - Flashpoint (F)	<140	>180
Reactivity - Total Available		
Hydrogen Sulfide (mg/k)	500	<54
Hydrocyanic Acid (mg/k)	250	<54
Corrosivity (mmpy)	>6.35	NA
pH (units)	2<pH<12.5	8.2
TPH	100 ppm (NM)	2.6%

- Below detection limit

* Summary of Detected Compounds (See Appendix B for complete analytical data)

NA Unable to analyze due to sample matrix

2.5.3 Conclusions

Phase II analytical results show that the former mud tank cleaning area is below the EPA regulatory limits as specified in Table 6 for the parameters tested. ENSR/HOMCO requests that the NM/OCD classify the Former Mud Tank Cleaning Area soils as non-hazardous for the purpose of remediation and/or disposal.

2.6 SUMMARY OF ANALYTICAL RESULTS

2.6.1 Former Wastewater Disposal System

The contents of the former wastewater disposal system exhibited detectable levels for the following constituents:

<u>Parameter</u>	<u>(Units)</u>	<u>Range</u>
• TCLP Metals	(ppm)	
Arsenic		0.003 - 0.003
Barium		0.1 - 1.1
Chromium		0.03
Lead		0.09 - 0.1
Selenium		0.003 - 0.004
• TCLP Volatiles	(ppb)	
Benzene		8
2-Butanone		11
• TCLP Semivolatile	(ppb)	Below detectable limits
• Ignitability	(F)	> 150 - > 210

<u>Parameter</u>	<u>(Units)</u>	<u>Range</u>
• Reactivity	(mg/kg)	
H ₂ S		31 - <660
HCN		<0.40 - <660
• Corrosivity	(mmpy)	<6.35
• pH	(units)	72 - 8.1
• TPH	(%)	17 - 78%

The soils surrounding the UHT and Leachpit exhibited detectable levels for the following constituents:

<u>Parameter</u>	<u>(Units)</u>	<u>Range</u>
• TCLP Lead	(ppm)	<0.025 - .1
• TPH	(ppm)	66 - 22,000
• Benzene	(ppb)	< 125
• Ethyl Benzene	(ppb)	< 125 - 5700
• Toluene	(ppb)	< 125 - 360
• Xylene	(ppb)	< 125 - 12,000
• Total BTEX	(ppb)	< 125 - 18,060

2.6.2 Stained Areas and Former Mud Tank Cleaning Area

The soils within the stained areas of the subject site exhibited detectable levels for the following constituents:

<u>Parameter</u>	<u>(Units)</u>	<u>Results</u>
• TCLP Metals	(ppm)	
Barium		0.5
Cadmium		0.02
Lead		1.19

- TCLP Volatiles (ppb) Below detection limits
- TCLP Semivolatiles (ppb) Below detection limits
- Ignitability (F) > 180
- Reactivity (mg/kg)
 - H₂S < 54 - < 58
 - HCN < 54 - < 58
- Corrosivity (mmpy) unable to analyze due to matrix
- pH (units) 7.5 - 8.2
- TPH % 2.6 - 6.2

3.0 PROPOSED REMEDIATION

3.1 FORMER WASTEWATER DISPOSAL SYSTEM REMOVAL AND DISPOSITION

3.1.1 UHT and Leachpit Contents

- Removal and Treatment

The liquid contents of the UHT and leachpit will be pumped out and recycled through the previously NM-OCD approved "Water/Maze" wastewater recycling system. Oils and solids will be separated from the UHT and leachpit water by the "Water Maze" System.

- Approximate Quantity - Unknown
- Disposition of Solids and Oils

The oils and solid by-products generated during the wastewater recycling process shall be disposed of as follows:

Oils: Chemical Handling Corporation
 5940 Midway park Boulevard, #B
 Albuquerque, NM 87109
 (505) 344-6090
 (providing that oils have minimum required BTUs)

Solids: Control Recovery, Inc.
(fixated 5600 Carlsbad Highway
sludges) Hobbs, NM 88241
 New Mexico, OCD Order No. 9882
 (505) 393-1079
 (Non-hazardous)

Texas Ecologists, Inc.
P.O. Box 307, Petronilla Road
Robstown, Texas 78380
EPA ID No.: TXD069452340
Permit No.: HW-50052-001
(Hazardous)

U.S. Pollution Control, Inc.
Lone Mountain Site
R.R. #2, Box 180-A
Waynoka, OK 73860
EPA ID No.: OKD065438376
(Hazardous)

- Recycled Water: reused during subsequent steam-cleaning operations.

3.1.2 UHT, Leachpit, and Piping Components

- Cleaning and Removal

The interior of the UHT shall be steam cleaned prior to its removal. Rinsate shall be collected and recycled through the on-site "Water Maze" wastewater recycling system and components disposed of as described in Section 3.1.1. Leachpit cinderblock sidewalls and piping shall be removed and steam-cleaned after contents have been pumped out.

- Approximate Quantity: Unknown

- Disposition

The cleared concrete debris and piping generated during the UHT and leachpit removal shall be disposed of as follows:

- UHT Concrete;
Leachpit, and Associated Piping: Waste Control of New Mexico
2608 Covington Highway
Hobbs, New Mexico 88240
(505) 392-6571

3.2 AFFECTED SOILS: EXCAVATION AND DISPOSITION

3.2.1 Excavation

- Onsite Assessments

All remediation/excavation shall be performed using visual and olfactory assessments and a Photoionizer Detection (PID) device. Soils shall be excavated at a minimum of 1 foot beyond visual and olfactory indications of affected soils in both vertical and horizontal directions.

- Verification Sampling and Analyses shall be performed as follows:

- UHT, Leachpit, and Former Mud Tank Cleaning Area:

<u>Area</u>	<u>Frequency</u>	<u>Total</u>	<u>Analyses</u>
Sidewalls	1 composite per sidewall	4	TPH
Bottom	1 composite	1	TPH

<u>Area</u>	<u>Frequency</u>	<u>Total</u>	<u>Analyses</u>
- Stained Areas:			
Bottom per 8 stains	1 composite	To be determined in field	TPH

- Approximate Quantities of Soil to be Disposed of or Remediated

<u>Area</u>	<u>Approximate Quantity (Cubic Yards)</u>
- UHT #1 and Leachpit	Unknown (to be determined during excavation)
- Former Mud Tank Cleaning Area	1400 - 2400
- Stained Soils	3000 - 4500

- Backfilling

The UHT, Leachpit, and former Mud Tank Cleaning Area shall be lined with plastic and backfilled with clean fill until verification samples are obtained and results indicate levels of TPH suitable for NM-OCD clean-closure approval (≤ 100 ppm). Should TPH analytical results be > 100 ppm, the "clean" fill shall be removed, additional excavation and sampling performed, excavation lined with plastic and backfilled with "clean fill" until results are known. The stained area excavations shall be addressed individually based on field conditions.

3.2.2 Excavated Soils

- Temporary Storage, Testing, and Analyses

Soils excavated from the UHT and Leachpit are to be temporarily segregated, stored on, and covered with a 6 millimeter plastic liner until final disposition is selected. A composite sample shall be obtained from the stockpile and analyzed for the following parameters prior to selecting a disposal/treatment option:

TCLP Metals

TCLP

TCLP Semivolatile

Reactivity

- H₂S

- HCN

Ignitability

pH

Corrosivity

Soils excavated from the former Mud Tank Cleaning Area and stained areas has been characterized for disposal/treatment during Phase II activities. Options shall be evaluated prior to selecting a disposal facility or alternate treatment method.

- Disposition and/or Treatment

Excavated soils may be handled in one of the following manners:

- Off-site Disposal:

Control Recovery, Inc.

P.O. Box 369

Hobbs, NM 88241

(505) 393-1079

- On- or Off-Site Bioremediation

NM-OCD approval permit required prior to commencing project.

4.0 SUMMARY OF NM-OCD REQUESTED APPROVALS

The following summarizes the NM-OCD approvals requested by ENSR/HOMCO:

- Permission to excavate UHT and Leachpit components, and associated piping and surrounding soils.
- Permission to stockpile soils excavated in association with the remediation of the UHT, leachpit, and piping, until results of proposed analytical tests are received and a disposal/remediation option is selected by ENSR/HOMCO and approved by the NM-OCD.
- Permission to dispose of wastewater recycling byproducts at the referenced facilities:
 - Oils: Chemical Handling Corporation
 - Sludges: Control Recovery, Inc.
- Permission to dispose of TPH contaminated soils from stained areas and former mud tank cleaning area.

ENSR/HOMCO requests that the NM-OCD review the data and issue approvals as appropriate. Should you have any questions, please contact me, Scott Laidlaw or Jim Baker at (713) 520-9900.

APPENDIX A
NM-OCD WATER MAZE INSTALLATION APPROVAL

10/12/90

ENSR



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

September 12, 1990

CERTIFIED MAIL
RETURN RECEIPT NO. P-918-402-482

Ms. Darlene Venable
ENSR Consulting and Engineering
3000 Richmond Avenue
Houston, Texas 77098

RE: Wastewater Recycling/Disposal System
Homco International Facility
Lea County, New Mexico

Dear Ms. Venable:

The Oil Conservation Division (OCD) has received your application, dated September 10, 1990, for the installation of a closed loop wastewater recycling/disposal system at the above referenced facility.

The proposed system will afford reasonable protection to ground water and the environment and is approved for installation. This approval is for the installation of the wastewater system and does not include the closure and/or remediation, if required, of the old system. A closure proposal with analytical data must be submitted to the OCD for review.

Please be advised approval of this system does not relieve Homco of liability should their operation result in actual pollution of ground or surface waters or the environment actionable under other laws and/or regulations.

If you have any questions, please contact me at (505) 827-5884.

Sincerely,

Roger C. Anderson
Environmental Engineer

cc: Hobbs District Office



Formerly ERT

September 10, 1990

Mr. Roger Anderson
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

ENSR Consulting
and Engineering
3000 Richmond Avenue
Houston, Texas 77098
(713) 520-9900

Re: New Mexico Oil Conservation Division - Approval for
Installation of Wastewater Recycling/Disposal System

Dear Roger:

Pursuant to our conversation during the week of August 13-17,
1990, ENSR submits the following for your review and approval:

- Facility Name: HOMCO International, Inc.
- Location: 3000 West County Road
Hobbs, New Mexico
Lea County
- Owner: HOMCO International, Inc.
P.O. Box 2442
Houston, Texas 77252
- Proposed Unit: Water Maze, Landa, Inc.
(see attachments)
- Disposition of sludges: Sludges shall be analyzed and
characterized for treatment or disposal to an
appropriately permitted offsite facility.

Should sludges be characterized as hazardous, they will
be fixated if necessary and manifested to one of the
following two disposal facilities (upon approval by
client and facilities).

Texas Ecologists, Inc.
P.O. Box 307 - Petronilla Road
Robstown, Texas 78380

EPA ID No.: TXD069452340
Permit No.: HW-50052-001

or



Mr. Roger Anderson
September 10, 1990
Page 2

U.S. Pollution Control, Inc.
Lone Mountain Site
R.R. #2
Box 180-A
Waynoka, OK 73860

EPA ID No.: OKD065438376

To ensure a timely start date, your prompt attention would be appreciated as we hope to have the new system installed and operating prior to September 25, 1990.

If you approve of the proposed wastewater recycling/disposal system, please sign in the space provided at the bottom of this letter and return it to me by fax at (713) 520-6802.

Please contact me or Cly Baylor at (713) 520-9900 if you have any questions regarding this matter.

Sincerely,

ENSR Consulting and Engineering

Darlene Venable
Staff Geologist

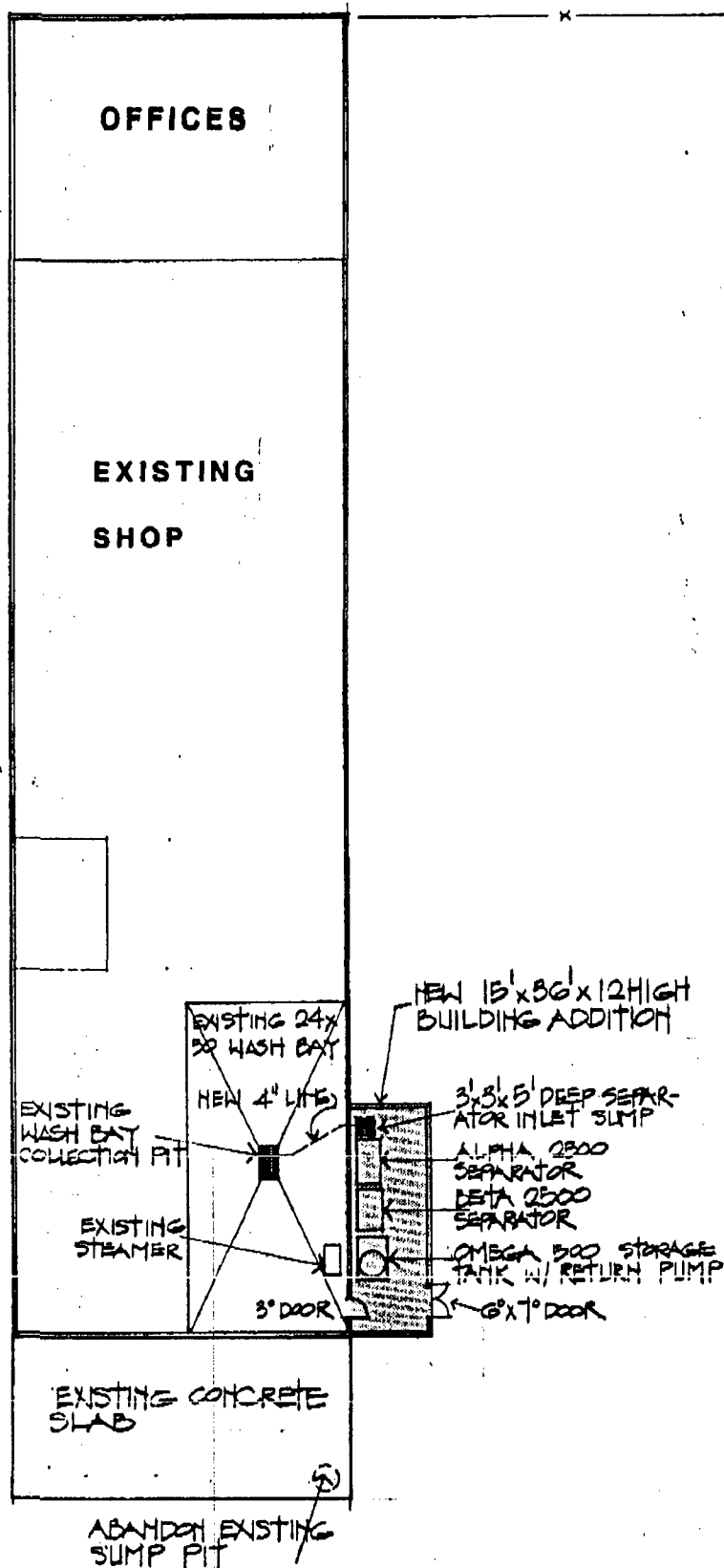
DV:mm:3519-003-135

Attachments

APPROVAL BY:

Roger Anderson
New Mexico Oil Conservation Division

Date



WATER TREATMENT SYSTEM PLAN

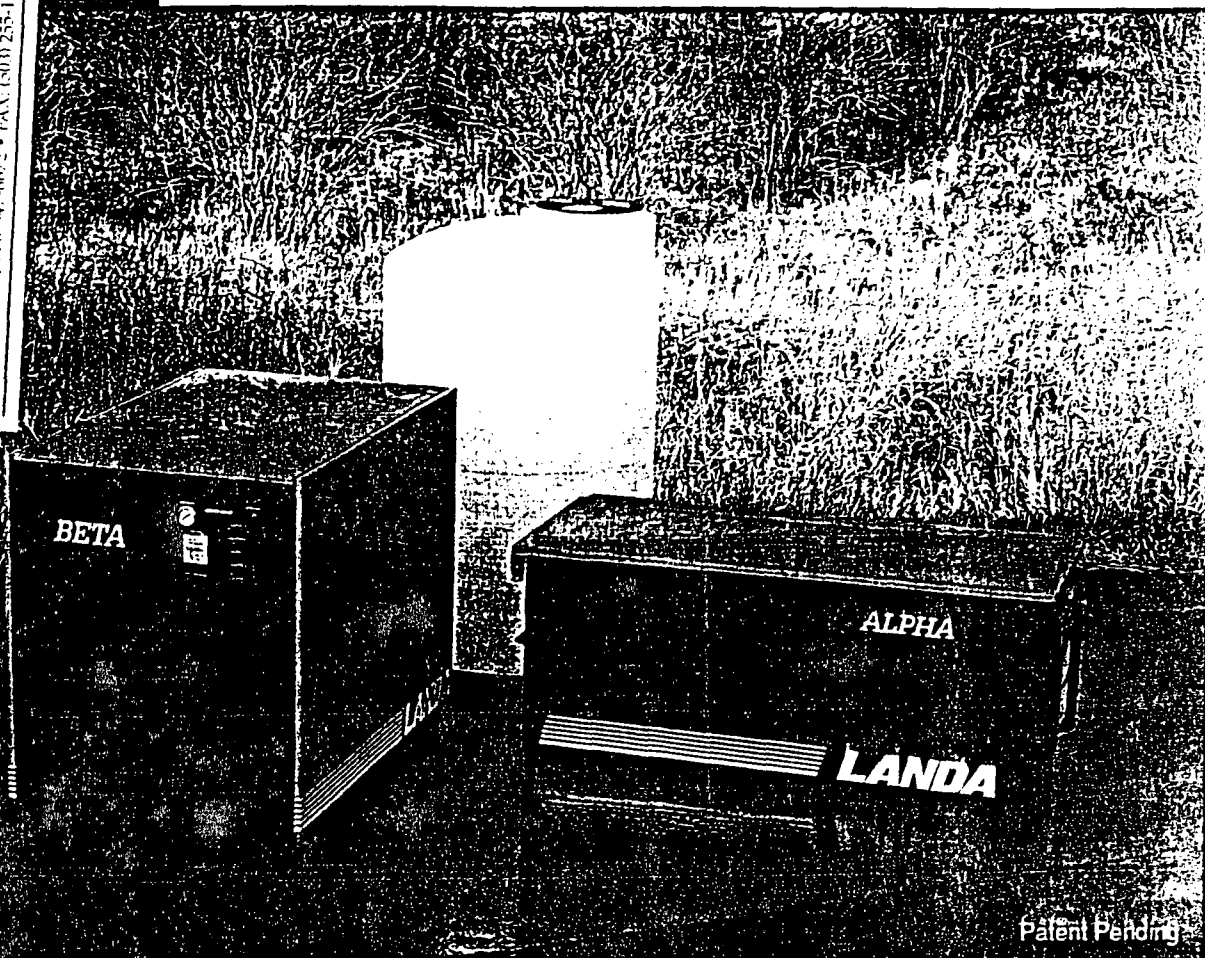


WATER MAZE®
Water Treatment Systems, by Landa, Inc.

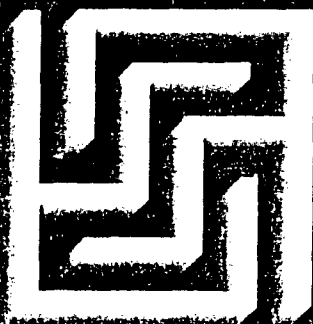
Ron Carruth
Sales Engineer
1-800-547-8672 Ext. *183

13705 NE Airport Way • Portland, OR 97230-1048
(503) 255-5980 • 1-800-547-8672 • FAX: (503) 255-1509

WATER MAZE®



Water Treatment Systems



A Division of LANDA, Inc.

The water
treatment
solution
is clear

For years, the job of cleaning up dirty or contaminated water was always someone else's problem...someone else like U.S. Steel, Dow Chemical and the large Northwest paper mills.

That was before the Environmental Protection Agency turned its big guns on the little guy.

Today dirty water discharge is an albatross to thousands of middle and small U.S. businesses—from paving contractors and trucking companies to machine shops and auto dealerships—now under EPA scrutiny.

That's why engineers at Landa, America's largest manufacturer of pressure washers, went to work on a solution.

The result: Landa's Water Maze!

Landa



En route to becoming America's largest manufacturer of pressure washers, Landa, Inc. has established a new standard of quality in the industry.

Landa, headquartered in Portland, Oregon, and represented by dealers throughout the U.S. and Canada, celebrated its 20th anniversary in 1989 with record sales of nearly \$30 million.

Among its biggest successes: A \$1.5 million contract for 100 specially designed machines to assist in the cleanup of the world's worst oil spill at Prince William Sound, Valdez, Alaska.

Landa boasts the nation's largest line of pressure cleaning equipment—96 models—including hot and cold water pressure washers, carpet cleaners,

sand blasters, and its latest engineering feat: America's most advanced Water Treatment System, the Water Maze.

Landa employs about 250 people, most of them located in the corporate headquarters—a two-story, 100,000-square-foot manufacturing plant in Portland, OR.

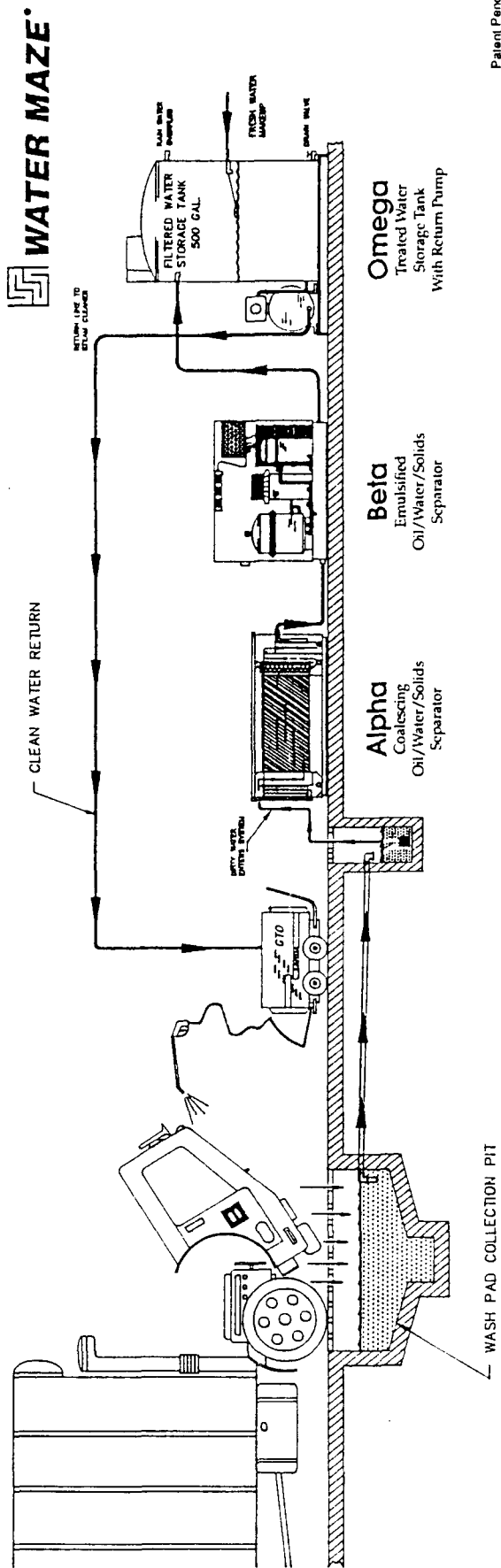
Sales have grown at an annual rate of better than 40 percent. The company has never experienced a red-ink year and has never suffered a decline in annual sales.



WATER MAZE®
13705 NE Airport Way,
Portland, OR 97230-1048
1-800-547-8672

Form #96-034 • 1/90 • Printed in U.S.A. by Landa, Inc.

The Complete Water Treatment System



Problem

The Enforcer

While the 1970's and 1980's were "Decades of Environmentalism," it's becoming apparent the 1990's will be the "Decade of Environmental Enforcement."

The EPA, with its beefed-up force of investigators, is ushering in a new era for American businesses—one of strict environmental controls. And it's not just an attack on major industrial corporations.

The EPA is cracking down on all businesses that discharge waste water containing oil, pesticides, or other contaminants of only 10 parts per million—a literal drop in the bucket.

Many states and cities are following suit by enacting even tighter regulations and conducting more frequent inspections.

The Target

Thousands of businesses, including those which use pressure washers to clean equipment or vehicles, are now subject to stiff fines or even closure should the wash water being discharged into the ground or sewer violate government standards.

The Solution

Landa's revolutionary Water Maze® separates, adsorbs and filters oil, dirt, and trace amounts of various chemicals, leaving water clean enough to exceed even the toughest EPA standards. For both large and small businesses, the solution to waste water treatment is now clear: Landa's Water Maze®.

Solution

Landa's Water Maze: The Clear Solution

Water Maze is available in three separate units—Alpha, Beta, and Omega—or it can be installed as one totally closed-loop system. ♦ Discharge from the Water Maze exceeds current federal, state and city minimum requirements. ♦ Fully automated packaged system. ♦ Flow range of 1 - 25 gpm. ♦ Minimal maintenance. ♦ Fully assembled modular units, simple to install. ♦ Removes trace amounts of solvents, hydrocarbons, and dirt. ♦

Alpha:

PURPOSE: To separate free oil and dirt from the waste water.

- Vertical 20 sq. ft. liquid separator unit with 150 sq. ft. solids separator area
- Polysiloxane oil coalescing pack with 850 sq. ft. of oil coalescing area
- High density adsorption filter for removal of very small oil droplets
- Engineered flow baffling to enhance the oil/water separator

Beta:

PURPOSE: To remove fine dirt particles and remaining hydrocarbons in the effluent of Alpha.

- A 300 sq. ft. 20 micron quad cartridge filter
- Decasable adsorbent media filter for filtration down to 5 microns
- Patented Duron pump filter
- 100 lbs. carbon filter for removal of trace contaminants
- Self contained rugged metal thermostatically controlled freeze protected flow monitor

Omega:

PURPOSE: 500 gallon holding tank and transfer pump for recycling of water.

- Corrosion proof Polyethylene tank 1 1/2" thick
- Centrifugal pump with surge tank and switch to draw clean water from holding tank for reuse by pressure cleaner
- Level control valve for monitoring proper recycled water level
- Overboard drain system



WATER MAZE® Fact Sheet

BOTTOM LINE: WATER MAZE PRICE LIST

**PRICES EFFECTIVE
JANUARY 1, 1990**

Alpha 2500\$ 4,995.00

Includes the following:

- 150 sq. ft. Vertical Coalescing Plates
- 850 sq. ft. Inclined Coalescing Plates
- Hydrocarbon Adsorbtion Cartridge
- Industrial Automatic Sump Pump
- Flow-operated Oil Skimmer

Beta 2500.....\$12,995.00

Includes the following:

- Quad Filter: 300 sq. ft. Cartridge Filter
- D.E.C. Filter: Emulsified Oil Removal
- V.A.C. Filter: 150 lb. Activated Carbon, DOT
drum container for heavy metal and trace
hydrocarbon removal
- B.F. Filter: Compaction container for DEC Filter
spent media
- Filter Pump: 1 hp Centrifugal Pump
- Liquid-filled pressure gauge and switch for
filter monitoring
- Chlorination Dispenser
- Control Panel with indicating lights and
audible alarm
- Enclosed weather-resistant heated cabinet

Omega 500\$ 3,995.00

Includes the following:

- 500 gal. Polyethelene Water Storage Tank
- 30 gal. Pressurized Water Storage Tank
- Industrial 1/2 hp Jet Pump

Total Closed-Loop System.....\$21,985.00

NOTE: Due to continual product improvement and modifications, Systems Specifications and Prices are subject to change without notice.





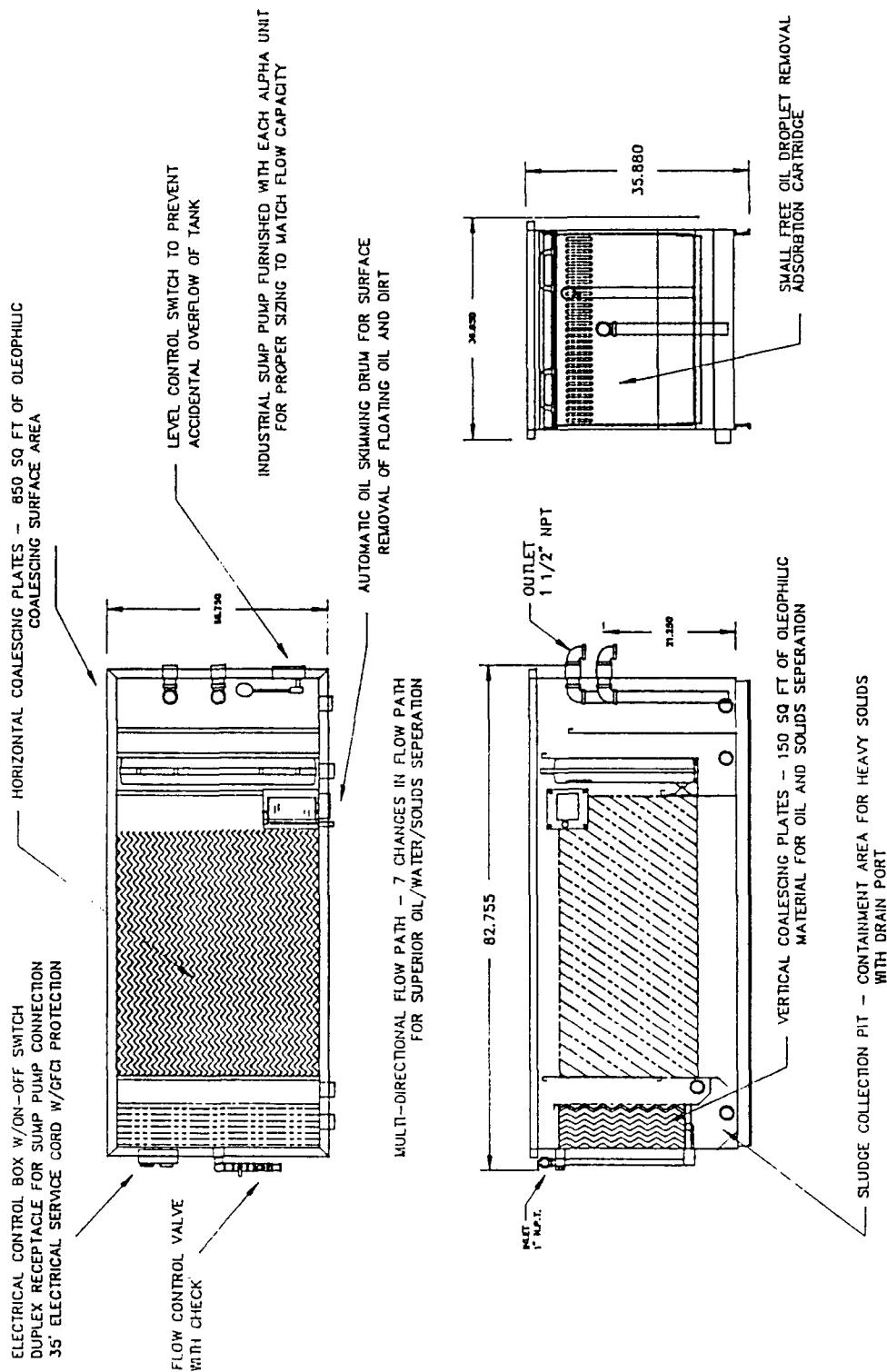
WATER MAZE®

a division of UNICA INC.

WASH WATER RECLAIM SYSTEMS

ALPHA

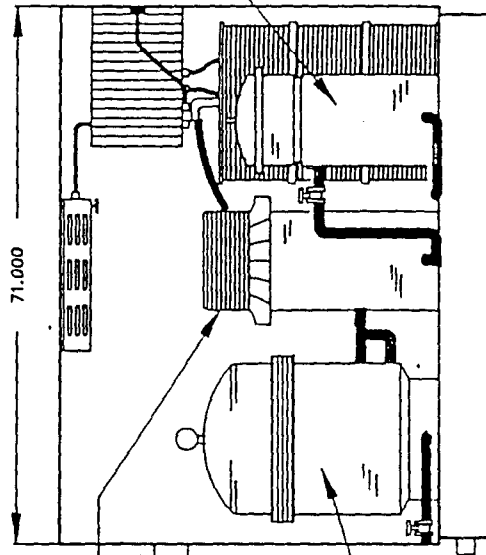
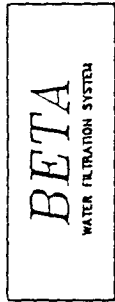
OIL WATER SEPARATOR





WATER MAZE® — Wash Water Reclaim Systems

A Division of LANDA, Inc.

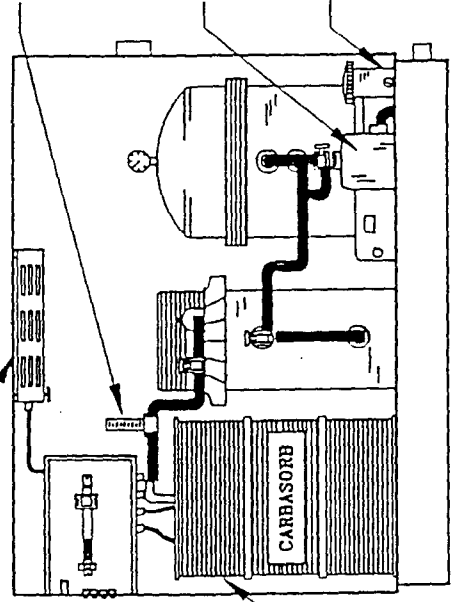


D.E.C. BUMP FILTER—EXCLUSIVE FILTERING PROCESS THAT COMBINES A SPECIAL BLEND OF INGREDIENTS THAT POSSESS EXCELLENT OLEOPHILIC (OIL LOVING) AND FINE DIRT HOLDING PROPERTIES. REGENERATES WITH EACH FILTER CYCLE.

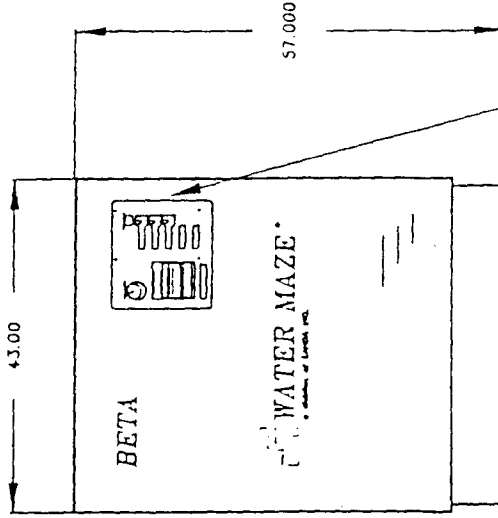
B.F. FILTER—SOLIDS AND SPENT MEDIA COMPACTION FILTER TO SYMPHY AND REDUCE DISPOSAL COSTS.

QUAO FILTER—HEAVY DUTY CLEANABLE POLYESTER CARTRIDGE ELEMENTS (4) WITH A TOTAL FILTERING AREA OF 300 SQ. FT.

ENCLOSED CABINET—POLYESTER POWDER COAT PAINTED STEEL CABINET WITH THERMOSTATICALLY CONTROLLED HEATER TO HELP IN PROTECTING FROM FREEZING TEMPERATURES.



1. FILTER—150 LBS OF VIRGIN ACTIVATED CARBON IN D.O.T. APPROVED DISPOSABLE CONTAINER DESIGNED FOR HEAVY METAL, SOLVENTS, TRACE HYDROCARBON REMOVAL



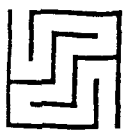
CONTROL PANEL—COMPLETE INSTRUMENTATION THAT INCLUDES: ON-OFF SWITCHES FOR PUMP AND CABINET HEATER, INDICATING LIGHTS FOR PUMP HEATER, PROPER VOLTAGE, AND FILTER MAINTENANCE, PRESSURE GAUGE, AND SWITCH THAT ACTIVATES AN AUDIBLE ALARM WHEN FILTERS NEED CLEANING OR MAINTENANCE. ELAPSED TIME HOUR METER AND ENCLOSED ELECTRICAL BOX PROTECTED BY A GROUND FAULT INTERRUPTER.

FLOW RATE MONITOR—INLINE LIQUID INDICATOR ALLOWS THE OPERATOR TO ADJUST THE FLOW FOR OPTIMUM PERFORMANCE AND CALCULATE AMOUNT PROCESSED.

FILTER PUMP—CENTRIFUGAL PUMP THAT AUTOMATICALLY DRAWS WATER FROM ALPHA THROUGH FILTERS, CHLORINATOR, pH CONTROLLER, AND DEPOSITS CLEAN WATER IN COLLECTION TANK FOR RECYCLING.

CHLORINATION DISPENSER—TROUBLEFREE TABLET CHLORINATION IS MADE THROUGH AN INLINE CARTRIDGE CANNISTER THAT FREES THE WATER OF OFFENSIVE ODORS.

#BETA



WATER MAZE® Fact Sheet

DETAILED SPECIFICATIONS: ALPHA 2500

THE COALESCING OIL/WATER/SOLIDS SEPARATOR

- ✓ **Vertical Coalescing Plates:** 150 sq. ft. of oleophilic (oil loving) material for oil and solids separation. Easily removed for periodic cleaning.
- ✓ **Inclined Coalescing Plates:** 850 sq. ft. of oleophilic surface area for oil, water, dirt, separation. Removable for cleaning and reuse.
- ✓ **Adsorbition Cartridge:** Oleophilic material enclosed within a removable cartridge that attracts small free oil droplets.
- ✓ **Multi-Directional Flow Path:** 7 changes in flow path for superior oil/water/solids separation.
- ✓ **Epoxy Coated Steel Tank:** Electrostatically applied powder epoxy paint baked on at 400° F for excellent corrosion resistance.
- ✓ **Sludge Collection Pit:** Heavy solids collection area for convenient removal of sludge deposits.
- ✓ **Industrial Sump Pump:** Properly sized pump with fittings, hose quick connects, level control switch, check valve, and flow control valve provided with each unit.
- ✓ **Oil Surface Skimmer:** Revolving oleophilic tube skimmer automatically removes and deposits free floating oil and dirt in collection vessel.
- ✓ **Control Panel:** Provided with each unit is a simplified, pre-wired electrical panel that includes sump pump and level control plug-ins, and on-off switch.
- ✓ **Limit Switch:** A float activated limit switch is installed to shut off the pump to protect against system overflows either from plugged discharge lines, dirty filters, or excess-capacity sump pump.

Quick Facts

Flow Range0-25 gpm
Nominal Flow10-15 gpm
Holding Capacity250 gal.
Sump Pump1/3 hp 120 v
w/ level control
Oil SkimmerFlow actua-
ted with timer
Electrical120 v 15 amp
Dimensions86" L x 40" W
X 37" H
Dry Weight550 lbs.
Consumable ItemsAdsorbition
Cartridge

NOTE: Due to continual product improvement and modifications, Systems Specifications and Prices are subject to change without notice.





WATER MAZE® Fact Sheet

DETAILED SPECIFICATIONS: BETA 2500

**3-STAGE FILTERING
PROCESS FOR
REMOVAL OF
EMULSIFIED HYDRO-
CARBONS AND
PARTICULATES DOWN
TO 5 MICRONS
—SUITABLE FOR
DISCHARGE OR
RECYCLING.**

Quick Facts

Flow Range0-25 gpm
Nominal Flow.....10-15 gpm
Holding Capacity100 gal.
Filter Pump.....1 hp 120 v
w/ level control
pH Metering Pump.....1/10 hp 120 v
(optional) w/ sensing probe
Electrical Requirem.120 v 20 amp
Dimensions.....71" L x 43" W
X 57" H
Dry Weight.....650 lbs.
Consumable ItemsQuad Car-
tridges,
D.E.C. Media,
V.A.C. Filter,
Chlorine
Tablets

- ✓ **Quad-Filter:** Heavy duty cleanable polyester cartridge elements (4) with a combined total of more than 300 sq. ft. of filtering area for greater dirt holding capacity, and longer filter cycles. Filter housing consists of a patented Duralon structure that contains all elements within one vessel for ease of removal and cleaning.
- ✓ **D.E.C. Filter:** An exclusive filtering process that combines a special blend of ingredients that possess excellent oleophilic (oil loving) and fine dirt holding properties. Emulsified oil and solids adsorption removal to 5 microns. Automatic regeneration with each filtering cycle.
- ✓ **V.A.C. Filter:** 150 lbs. of Virgin Activated Carbon in DOT approved disposable container designed to allow even and complete dispersal of waste water throughout. Excellent filtering process for the removal of heavy metals, pesticides, fine hydrocarbons, and solvents.
- ✓ **B.F. Filter:** Solids and spent media compaction filter to simplify and reduce disposal costs.
- ✓ **Filter Pump:** Centrifugal pump that automatically draws water from Alpha through filters, chlorinator, pH controller, and deposits, clean water in collection tank for reuse.
- ✓ **Control Panel:** Complete instrumentation that includes: On-Off switches for filter pump and cabinet heater; indicating lights for pumps, heater, proper voltage, and filter maintenance; silicone dampened pressure gauge for monitoring filter pressure; pressure switch that activates lights and audible alarm when filter cleaning and maintenance is needed; elapsed time hour meter to record total operational time; all electrical connections and components are pre-wired and housed in an enclosed electrical box that is protected by a Ground Fault Circuit Interrupter which simplifies installation and protects the operator.
- ✓ **Enclosed Heated Cabinet:** Polyester powder coat painted steel cabinet protects filtering processes from the weather and unauthorized personnel. A thermostatically controlled heater is placed within the cabinet to aid in protecting the system from freezing temperatures.
- ✓ **Chlorination Dispenser:** Trouble-free tablet chlorination is provided through an in-line cartridge cannister that frees the water of offensive odors and algae growth.
- ✓ **Flow Rate Indicator:** This in-line indicator allows the operator to better calculate the amount of water processed and thus get maximum filter efficiency.
- ✓ **Total Volume and Batch Totalizer:** (Optional) Computer generated LED readout of total accumulated gallons of water processed and resettable batch total since last maintenance services performed.
- ✓ **pH Monitor/Pump:** (Optional) Automatically maintains proper pH to meet specific municipal discharge requirements.

NOTE: Due to continual product improvement and modifications, Systems Specifications and Prices are subject to change without notice.





WATER MAZE® Fact Sheet

DETAILED SPECIFICATIONS: OMEGA 500

**500-GALLON WATER
HOLDING TANK WITH
TRANSFER PUMP AND
SURGE TANK FOR
RECYCLING WATER TO
POINT OF USE**

- ✓ **Polyethylene Construction:** 1/4-inch thick polyethylene is used in the construction to reduce weight and provide a rust- and corrosion- proof tank.
- ✓ **Transfer Pump:** Centrifugal pump with surge tank and switch that draws clean water from the holding tank and provides water to the pressure washer or steam cleaner.
- ✓ **Level Control Valve:** Maintains proper recycled water level and allows fresh water to enter making up for evaporation and carryoff.
- ✓ **Overload Drain:** Should the system become flooded from rain water or outside sources an overflow port is provided that expels the excess water to city or customer drainage system.

Quick Facts

Material.....	Polyethylene
Transfer Pump.....	1/2 hp 120 v w/ pressure switch
Capacity	500 gal.
Dimensions.....	75" L x 50" W X 80" H
Dry Weight.....	225 lbs.
Consumable Items	None

NOTE: Due to continual product improvement and modifications, Systems Specifications and Prices are subject to change without notice.



APPENDIX B
ANALYTICAL RESULTS

10/12/90

ENSR

ENSR Labs-Houston

Preliminary Summary

10/11/90 15:42

Homco - Hobbs, New Mexico

Project Number: 3519-003-135

Lab Number: A4928

Date Received: 09/25/90

PRELIMINARY

Lab ID Field ID	1 LP-WDA-1	3 HSA-C1-WDA	2T UBT #1-WDA/ TCLP TCLP TCLP EXT ()	3T HSA-C1-WDA/ TCLP TCLP TCLP EXT ()
Matrix (C/G)	LIQUID (G)	SOIL (C)		
Date/Time Sampled	09/24/90 1322	09/24/90 1430	/ / 0	/ / 0
Se - -TCL-NDE (0.00 DAYS)				<0.05 MG/L (0.05) / / 0 NDE
Date & Time Analyzed				
Analyst & Date Extracted				
Holding Time Expired				
Bill Code & Rush & Cost				-75 35.00
TPH - - -HOU (28.00 DAYS)	350			
TOTAL PETROLEUM HYDROCARBONS	MG/L			
EPA 600: 418.1	(20)			
Date & Time Analyzed	10/01/90 1100			
Analyst & Date Extracted	EME			
Holding Time Expired	10/23/90			
Bill Code & Rush & Cost	50 35.00			
TPH -3- -HOU (0.00 DAYS)		6.1		
TOTAL PET. HYDROCARBONS/SOLID		PERCENT		
EPA 600:418.1, SW-846:9071		(0.37)		
Date & Time Analyzed		10/01/90 1100		
Analyst & Date Extracted		EME		
Holding Time Expired				
Bill Code & Rush & Cost		50 45.00		

Approval: _____

Date: _____

ENSR Labs-Houston

Preliminary Summary

10/11/90 15:42

Homco - Hobbs, New Mexico

Project Number: 3519-003-135

Lab Number: A4928

Date Received: 09/25/90

PRELIMINARY

Lab ID	1	3	2T	3T
Field ID	LP-WDA-1	HSA-C1-WDA	UNT #1-WDA/ TCLP TCLP	HSA-C1-WDA/ TCLP TCLP
Matrix (C/G)	LIQUID (G)	SOIL (C)	TCLP EXT ()	TCLP EXT ()
Date/Time Sampled	09/24/90 1322	09/24/90 1430	/ / 0	/ / 0
Cd - -TCL-NDR (0.00 DAYS)	---	---	---	0.02 MG/L (0.01) / / 0 NDR
Date & Time Analyzed				
Analyst & Date Extracted				
Holding Time Expired				
Bill Code & Rush & Cost				-75 15.00
Cr - -TCL-NDR (0.00 DAYS)	---	---	---	<0.05 MG/L (0.05) / / 0 NDR
Date & Time Analyzed				
Analyst & Date Extracted				
Holding Time Expired				
Bill Code & Rush & Cost				-75 15.00
Hg - -TCL-NDR (0.00 DAYS) TCLP MERCURY EPA SW-846: 7470, COLD VAPOR	---	---	---	<0.001 MG/L (0.001) / / 0 NDR
Date & Time Analyzed				
Analyst & Date Extracted				
Holding Time Expired				
Bill Code & Rush & Cost				-75 35.00
Pb - -TCL-NDR (0.00 DAYS)	---	---	---	1.19 MG/L (0.02) / / 0 NDR
Date & Time Analyzed				
Analyst & Date Extracted				
Holding Time Expired				
Bill Code & Rush & Cost				-75 15.00

Approval: _____

Date: _____

***** CONTINUED *****

Preliminary Summary
10/11/90 15:41

Homco - Hobbs, New Mexico
Project Number: 3519-003-135
Lab Number: A4928
Date Received: 09/25/90

PRELIMINARY

Lab ID	1	3	2T	3T
Field ID	LP-WDA-1	HSA-C1-WDA	UHT #1-WDA/ TCLP TCLP	HSA-C1-WDA/ TCLP TCLP
Matrix (C/G)	LIQUID (G)	SOIL (C)	TCLP EXT ()	TCLP EXT ()
Date/Time Sampled	09/24/90 1322	09/24/90 1430	/ / 0	/ / 0
Ag - -TCL-NDR (0.00 DAYS)				<0.01 MG/L (0.01) / / 0 NDR
Date & Time Analyzed				
Analyst & Date Extracted				
Holding Time Expired				
Bill Code & Rush & Cost				-75 35.00
Aa - -TCL-NDR (0.00 DAYS)				<0.05 MG/L (0.05) / / 0 NDR
Date & Time Analyzed				
Analyst & Date Extracted				
Holding Time Expired				
Bill Code & Rush & Cost				-75 35.00
BNA - - -NDR (0.00 DAYS)			ATTACHED #1 MG/L () / / 0 NDR	ATTACHED #2 MG/L () / / 0 NDR
Date & Time Analyzed				
Analyst & Date Extracted				
Holding Time Expired				
Bill Code & Rush & Cost			100 425.00	-75 425.00
1 SEE NDR ID#24420				
2 SEE NDR ID#24421				
Ba - -TCL-NDR (0.00 DAYS)				0.5 MG/L (0.1) / / 0 NDR
Date & Time Analyzed				
Analyst & Date Extracted				
Holding Time Expired				
Bill Code & Rush & Cost				-75 15.00

Approval: _____

Date: _____

***** CONTINUED *****

HERO LABORATORIES, INC.
GC/MS QUANTITATION REPORT
TOXICITY CHARACTERISTIC LEACHATE PROCEDURE

EPA 8270
EXTRACTABLE ORGANICS

DATE RECEIVED: 27-SEP-1990

REPORT NUMBER: D90-24420
REPORT DATE: 27-SEP-1990

SAMPLE SUBMITTED BY: ENSR Consulting and Engineering
ADDRESS: 2925 Richmond Avenue
Houston, Texas 77098
ATTENTION: Mr. MEG Millican

SAMPLE MATRIX: SLUDGE
ID MARKS: UHCH1-WGA
Project 3519-003-115

PRELIMINARY

REPORT NUMBER: D90-24421

Page 2

MASS SPECTROMETRY LABORATORY
GC/MS QUANTITATION REPORT

EPA 8270
EXTRACTABLE ORGANICS

PARAMETER	DETECTION LIMIT (mg/L)	AMOUNT DETECTED (mg/L)
o-Cresol.....	0.02	< 0.02
m-Cresol.....	0.02	< 0.02
p-Cresol.....	0.02	< 0.02
2,4-Dinitrotoluene.....	0.01	< 0.01
Hexachlorobenzene.....	0.01	< 0.01
Hexachlorobutadiene.....	0.01	< 0.01
Hexachloroethane.....	0.01	< 0.01
Nitrobenzene.....	0.01	< 0.01
Pentachlorophenol.....	0.05	< 0.05
Pyridine.....	0.01	< 0.01
2,4,5-Trichlorophenol.....	0.01	< 0.01
2,4,6-Trichlorophenol.....	0.01	< 0.01

PRELIMINARY

REPORT NUMBER: D90-24421

Page 3

GC/MS QUANTITATION REPORT
QUALITY CONTROL DATA

SURROGATE COMPOUND	SPIKE LEVEL (µg/L)	PERCENT RECOVERED
EXTRACTABLE ORGANICS		
Nitrobenzene-d5(SS)	50	41.4
2-Fluorobiphenyl(SS)	50	51.6
Terphenyl-d14(SS)	50	42.2
Phenol-d6(SS)	100	24.9
2-Fluorophenol(SS)	100	34.5
2,4,6-Tribromophenol(SS)	100	60.3

SAMPLE BLANKS

Semi-Volatiles

Acceptable

PRELIMINARY

NSFC LABORATORIES, INC.
GC/MS QUANTITATION REPORT
TOXICITY CHARACTERISTIC LEACHATE PROCEDURE

EPA 8270
EXTRACTABLE ORGANICS

DATE RECEIVED: 27-SEP-1990

REPORT NUMBER: D90-24421
REPORT DATE: 27-SEP-1990

SAMPLE SUBMITTED BY: ENSR Consulting and Engineering
ADDRESS: 2925 Richmond Avenue
Houston, Texas 77092
ATTENTION: Mr. Mike Millican

SAMPLE MATRIX: SOIL
ID MARKS: HSA-CI-WDA
Project 3519-003-135

PRELIMINARY
RESULTS
10/11/90

REPORT NUMBER: D90-24420

Page 2

MASS SPECTROMETRY LABORATORY
GC/MS QUANTITATION REPORT

EPA 8270
EXTRACTABLE ORGANICS

PARAMETER	DETECTION LIMIT (mg/L)	AMOUNT DETECTED (mg/L)
o-Cresol.....	0.02	< 0.02
m-Cresol.....	0.02	< 0.02
p-Cresol.....	0.02	< 0.02
2,4-Dinitrotoluene.....	0.01	< 0.01
Hexachlorobenzene.....	0.01	< 0.01
Hexachlorobutadiene.....	0.01	< 0.01
Hexachloroethane.....	0.01	< 0.01
Nitrobenzene.....	0.01	< 0.01
Pentachlorophenol.....	0.05	< 0.05
Pyridine.....	0.01	< 0.01
2,4,5-Trichlorophenol.....	0.01	< 0.01
2,4,6-Trichlorophenol.....	0.01	< 0.01

11/12/90 14:14

REPORT NUMBER: D90-24420

Page 3

GC/MS QUANTITATION REPORT
QUALITY CONTROL DATA

SURROGATE COMPOUND	SPIKE LEVEL (ug/L)	PERCENT RECOVERED
EXTRACTABLE ORGANICS		
Nitrobenzene-d5 (SS)	50	49.1
2-Fluorobiphenyl (SS)	50	46.7
Terphenyl-d14 (SS)	50	28.3
Phenol-d6 (SS)	100	30.4
2-Fluorophenol (SS)	100	40.8
2,4,6-Tribromophenol (SS)	100	68.3

SAMPLE BLANKS

Semi-Volatiles

Acceptable

Printed on 07/28/94
11:22 AM

MAKESHIFT TRAVELER

EPA600:418.1 SW846:9071

QC <i>Ans</i> 10 2-90
Entry <i>TD</i> 10 - 3 -

PROBATIONARY

Expires:
Due Date:

Status: Blank-Normal In Progress at HOU R-Rush S-At Subcontractor



Formerly ERT

DATE: 09/11/90

TO: Jim Baker

FROM: Bo Blankfield, *BB* Laboratory Director

PROJ. NO.: 3519-003-135 LAB NO.: A4760

ENSR Consulting
and Engineering

3000 Richmond Avenue
Houston, Texas 77098
(713) 520-9900

Attached are reports of chemical analyses of samples received August 29, 1990. These analyses are:

Count	Test Code	Test Name	Test Method	Sampled	Matrix
1	NO3 - -	-HOU NITRATE	EPA 600:353.2,Cd REDUCT.,AUTOMATED	08/28/90	LIQUID
1	TURB - -	-WQS TURBIDITY	SM: 214, NEPHELOMETRIC	08/28/90	LIQUID
1	pH - -	-HOU pH (HYDROGEN ION)	EPA SW-846: 9040, ELECTRODE	08/28/90	LIQUID

Data contained in this report reflect a full quality control review and have met all applicable standards established by ENSR. ENSR quality assurance protocols are in accordance with EPA guidelines.

Should you have any questions, do not hesitate to contact me at (713) 520-9900.

BB/lis

Enclosures: Analytical Summary, Analytical Report, Chain of Custody, Sample Receipt Checklist, Quality Control Logs, Billing Summary

cc: Darlene Venable, Steve Beck

LAB NO. A4760

PROJECT 3519-003-135 Homco - Hobbs, New Mexico

Analysis Request and Chain of Custody Record

[illegible]



ENSR LABORATORIES®
SAMPLE RECEIPT CHECKLIST

Client Homco Project Number 3519-003-135 Laboratory Number A4760

- 1 ☒ Shipped Notes: Fedex Express #8068044670
☐ Hand Delivered
- 2 ☒ COC Present on Receipt Notes: _____
☐ No COC
- 3 ☒ COC Tape on Shipping Container Notes: Tape Intact
☐ No COC Tape on Shipping Container Notes: _____
- 4 ☐ Samples Broken/Leaking Notes: _____
☒ Sample Intact on Receipt
☐ Other (See Notes)
- 5 ☐ Ambient on Receipt Notes: _____
☒ Chilled on Receipt
- 6 ☐ Samples Preserved Correctly Notes: _____
☐ Improper Preservatives
☒ N/A (None Recommended)
☐ Other (See Notes)
- 7 ☒ Received Within Holding Time Notes: _____
☐ Not Received Within Holding Time
☐ N/A (None Recommended)
☐ Other (See Notes)
- 8 ☐ COC Tapes on Samples Notes: _____
☒ No COC Tapes on Samples
- 9 ☐ Discrepancies Between COC and Sample Labels Notes: _____
☒ No Discrepancies Noted
☐ N/A (No COC Received)

Additional Comments: _____

Inspected and Logged in by: The Maharaja Date/Time 8/29/90-0925

ENSR Labs-Houston

Analytical Summary

09/11/90 10:33

Lab Number: A4760	
Project: 3519-003-135	
Homco - Hobbs, New Mexico	
Lab ID	1
Field ID	WW
Test /Matrix	LIQUID
NO3 - - -HOU	2.1
(MDL)	MG/L
	(0.5)
TURB - - -WQS	<1
(MDL)	NTU
	(1)*
pH - - -HOU	7.0
(MDL)	UNITS
	(0.1)

✓

✓

✓

* Please see attached Analytical Report for remarks.

Signatures of approval indicate quality assurance-quality control verification of analytical results, billing and enclosed documentation.

Approvals: James Basal Date: 9/12/90 B. R. H. H. Date: 9-12-90

ENSR

ENSR Labs-Houston

Analytical Report
09/11/90 10:33

Homco - Hobbs, New Mexico
Proj. No.: 3519-003-135
Lab No.: A4760

Field ID: WW
Lab ID: 1
Matrix: LIQUID (GRAB)

Date Sampled: 08/28/90
Time Sampled: 1450
Date Received: 08/29/90

(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
NO3 - - -HOU NITRATE EPA 600:353.2, Cd REDUCT., AUTOMATED	2.1 ✓	MG/L	0.5	08/29/90 1221
TURB - - -WQS TURBIDITY SM: 214, NEPHELOMETRIC	<1 *1 ✓	NTU	1	08/31/90 1520
pH - - -HOU pH (HYDROGEN ION) EPA SW-846: 9040, ELECTRODE	7.0 ✓	UNITS	0.1	08/29/90 1515

*1 HOLDING TIME EXPIRED BEFORE ANALYSIS

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ENSR Labs-Houston

QUALITY CONTROL LOG

Page: 1 of 1Parameter: NitrateMatrix: LiquidMethod of Analysis: EPA 600:353.2Date/Time: 8-29-90 / 1221

Lab Numbers	Detection Limits	Calibration Stds./Blk	Reading: ppm	Check Standards	Concentration Found/True
A4760-1	0.5mg/L	Std 0.02 ppm	0.028	Sample Blank	
		0.05	0.046	Method Blank	<0.05 ppm
		0.10	0.094	P.E. Std. EPA 378-5	0.87/0.82 ppm
		0.20	0.204	Internal Std. 0.02 ppm	0.025 ppm
		0.50	0.504	0.25	0.239
		1.00	0.998	1.00	1.004
		Correlation Coefficient: 0.99990		Check 0.1 ppm	0.100 ppm
		Comments:			

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result	Sample Result	Spike Added	Percent Recovery
A4760-1	0.207	0.203	0.004	2.0	0.549	0.104	0.5	99%

Analyst: Lien NguyenQA/QC Approval: DeAnna M. Seneg

ENSR Labs-Houston
QUALITY CONTROL LOG

Page: 1 of 1

Parameter: Nitrite

Matrix: _____

Method of Analysis: EPA 600/353.2

Date/Time: 8-29-90 / 1044

Lab Numbers	Detection Limits
A4760-1	0.02mg/L

Calibration Stds./Blk	Reading: ppm
Std 1.0	0.999
0.50	0.502
0.20	0.201
0.10	0.100
0.05	0.051
0.02	0.019
Correlation Coefficient: 0.99999	

Comments:

Check Standards	Concentration Found/True
Sample Blank	
Method Blank	<0.02 ppm
P.E. Std.	ppm
Internal Std. 0.02 ppm	0.021 ppm
1.00	1.002
0.25	0.251
Check 0.1 ppm	0.103 ppm

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result	Sample Result	Spike Added	Percent Recovery
A4760-1	<0.02	<0.02	*	*	0.499	*	0.5	100%

Analyst: Leon Nguyen

QA/QC Approval: DeAnna K. Sene

QUALITY CONTROL LOG

Method of Analysis:

of

Liquid

Date/Time:

8-29-90/1550

[illegible]

Analyst:

QA/QC Approval:

Analyst: Deanna Koff

QA/QC Approval: De Anna M. Senega



WATER
QUALITY
SERVICES

17459 VILLAGE GREEN DRIVE
HOUSTON, TEXAS 77040
(713) 466-0958

ENVIRONMENTAL TESTING SPECIALISTS

September 6, 1990

ENSR
2925 Richmond Ave
Houston, TX 77098

LABORATORY REPORT

Liquid sample received 08/29/90. Project No. 3519-003-135
WQS ID 4775

Sample ID
A-4760-1

Turbidity, NTU

<1

✓

Quality Control

Analysis	Turb.
Date	08/31/90
Time	1520
Analyst	AF
Dup 1,	<1
Dup 2,	<1
Method*	2130B
MDL	1

*Standard Methods for the Examination of Water and Wastewater,
17th Ed.

WATER QUALITY SERVICES

Anne Fidelman
General Manager

DATA PACKAGE CHECKLIST

Lab No. 24731 Project Name Alamogordo-Hobbs, New Mexico Project No. 3519-003-135

Copies to: Jim Baker Project Manager
Daniene Venable Client
Steve Beck Other (1)
 Other (2)

Signature Release	File Copy D / I	PM Copy D / I	Client D / I	Other (1) D / I	Other (2) D / I
Disposal Letter	✓	9-17-90		9-17-90	9-17-90
Chain of Custody	✓	✓		✓	✓
Sample Receipt Checklist	✓	✓		✓	✓
Analytical Summary	✓	✓ ✓		✓	✓
Analytical Report	✓	✓		✓	✓
QC Logs/ Sur, WQS	✓	✓		✓	✓
QC Logs Subcontract	✓	✓		✓	✓
VOA	✓	✓		✓	✓
BNA					
st/PCBs	✓	✓		✓	✓
Other 1. KEG (TECH)	✓	✓		✓	✓
Other 2.					
Other 3.					
Narrative Log					
Billing Summary	✓	✓		✓	✓

Internal QC Checklist					
Preliminary Summary	✓				
Travelers	✓				
Federal Express Bill	✓				
Subcontract Chain of Custody	✓				
Subcontract Invoice					
Corrective Action Report					
Other 1. FAX - WQS Sur	✓				
Other 2. 300 Verification	✓				

DB 91-190

DATE: 09/17/90

TO: Jim Baker

FROM: Bo Blankfield, Laboratory Director

PROJ. NO.: 3519-003-135 LAB NO.: A4731

ENSR Consulting
and Engineering

3000 Richmond Avenue
Houston, Texas 77098
(713) 520-9900

Attached are reports of chemical analyses of samples received August 24, 1990. These analyses are:

Count	Test Code	Test Name	Test Method	Sampled	Matrix
1	Ag - - -HOU	SILVER	EPA SW-846: 7760, ATOMIC ABSORPTION	08/21/90	LIQUID
1	Ag - -TCL-HOU	TCLP SILVER	EPA SW-846: 7760, ATOMIC ABSORPTION		TCLP EXT
1	As - -GFA-HOU	ARSENIC	EPA SW-846: 7060, GRAPHITE FURNACE	08/21/90	LIQUID
1	As - -TCL-WQS	TCLP ARSENIC	EPA SW-846: 7060, GRAPHITE FURNACE		TCLP EXT
1	Ba - -ICP-HOU	BARIUM	EPA SW-846: 6010, ICP	08/21/90	LIQUID
1	Ba - -TCL-HOU	TCLP BARIUM	EPA SW-846: 6010, ICP		TCLP EXT
1	CORR -S- -HOU	CORROSIVITY ON SOLID	EPA SW-846: 1110, NACE STEEL COUPON	08/21/90	SLUDGE
1	Cd - -ICP-HOU	CADMIUM	EPA SW-846: 6010, ICP	08/21/90	LIQUID
1	Cd - -TCL-HOU	TCLP CADMIUM	EPA SW-846: 6010, ICP		TCLP EXT
1	Cl- - - -HOU	CHLORIDE	SM: 407B	08/21/90	LIQUID
1	Cr - -ICP-HOU	CHROMIUM	EPA SW-846: 6010, ICP	08/21/90	LIQUID
1	Cr - -TCL-HOU	TCLP CHROMIUM	EPA SW-846: 6010, ICP		TCLP EXT
1	F- - - -HOU	FLUORIDE	EPA 600: 340.2, ELECTRODE	08/21/90	LIQUID
1	FP -S-COC-SPP	IGNITABILITY (FLASH POINT)	ASTM: D92, CLEVELAND OPEN CUP	08/21/90	SLUDGE
1	H2S -S-REA-SWL	HYDROGEN SULFIDE, REACTIVE/SLD	EPA SW-846: 7.3.4.2, 9030	08/21/90	SLUDGE
1	HCN -S-REA-SWL	HYDROCYANIC ACID, REACTIVE/SLD	EPA SW-846: 7.3.3.2, 9010	08/21/90	SLUDGE
1	HERB - - -KEY	HERBICIDES	EPA 615	08/21/90	LIQUID
1	Hg - - -HOU	MERCURY	EPA SW-846: 7470, COLD VAPOR	08/21/90	LIQUID
1	Hg - -TCL-HOU	TCLP MERCURY	EPA SW-846: 7470, COLD VAPOR		TCLP EXT
1	N-N - - -HOU	NITRATE-NITRITE AS NITROGEN	SM: 418F, AUTOMATED Cd REDUCTION	08/21/90	LIQUID
1	PEST - - -HOU	PESTICIDES	EPA SW-846: 3520,8080, LLE,GC	08/21/90	LIQUID
1	Pb - -ICP-HOU	LEAD	EPA SW-846: 6010, ICP	08/21/90	LIQUID
1	Pb - -TCL-HOU	TCLP LEAD	EPA SW-846: 6010, ICP		TCLP EXT
1	SO4 - - -HOU	SULFATE	EPA SW-846: 9038	08/21/90	LIQUID
1	Se - -GFA-HOU	SELENIUM	EPA SW-846: 7740, GRAPHITE FURNACE	08/21/90	LIQUID
1	Se - -TCL-WQS	TCLP SELENIUM	EPA SW-846: 7740, GRAPHITE FURNACE		TCLP EXT
12	TPH -S- -HOU	TOTAL PET. HYDROCARBONS/SOLID	EPA 600:418.1, SW-846:9071	08/21/90	SLUDGE
				08/22/90	SOIL
2	VOA - - -HOU	VOLATILE ORGANIC ANALYSES	EPA SW-846: 8240, GC/MS	08/21/90	LIQUID
					TCLP EXT
1	pH -S-COR-HOU	pH CORROSION ON SOLID	EPA SW-846: 9045	08/21/90	SLUDGE

Data contained in this report reflect a full quality control review and have met all applicable standards established by ENSR. ENSR quality assurance protocols are in accordance with EPA guidelines.

Should you have any questions, do not hesitate to contact me at (713) 520-9900.

BB/lis

Enclosures: Analytical Summary, Analytical Report, Chain of Custody, Sample Receipt Checklist, Quality Control Logs, ENSR ID #A4731-1, ENSR ID #A4731-2T, KEYSTONE ID #H90-08.179-002, Billing Summary

cc: Darlene Venable, Steve Beck

LAB NO. A4731
PROJECT 3519-003-135 Homco - Hobbs, New Mexico

ENSR LABORATORIES® SAMPLE RECEIPT CHECKLIST

Client <u>Homco</u>	Project Number <u>3519-003-135</u>	Laboratory Number <u>A4731</u>
1 ☒ Shipped	Notes: <u>Federal Express #8068044703</u>	
☐ Hand Delivered		
2 ☒ COC Present on Receipt	Notes: _____	
☐ No COC		
3 ☒ COC Tape on Shipping Container	Notes: <u>Tape Intact #37950</u>	
☐ No COC Tape on Shipping Container	Notes: _____	
4 ☐ Samples Broken/Leaking	Notes: <u>Samples Intact, but cap was broken on the sample submitted for TCLP vocs on sample UHT1-WDA.</u>	
☒ Sample Intact on Receipt	Notes: _____	
☒ Other (See Notes)		
5 ☐ Ambient on Receipt	Notes: _____	
☒ Chilled on Receipt		
6 ☒ Samples Preserved Correctly	Notes: _____	
☐ Improper Preservatives		
☐ N/A (None Recommended)		
☐ Other (See Notes)		
7 ☐ Received Within Holding Time	Notes: <u>Sample WW - coliform & turbidity sample not received w/in H.T. H.T. was popped before receipt of sample at lab. Also for pH analyses on</u>	
☒ Not Received Within Holding Time	Notes: <u>Sample WW.</u>	
☐ N/A (None Recommended)		
☐ Other (See Notes)		
8 ☒ COC Tapes on Samples	Notes: _____	
☐ No COC Tapes on Samples		
9 ☐ Discrepancies Between COC and Sample Labels	Notes: _____	
☒ No Discrepancies Noted		
☐ N/A (No COC Received)		

Additional Comments: Turbidity, Coliform and pH analyses cancelled due to popped holding time. Steve Beck will resample and submit samples on separate COC.

Inspected and Logged in by: TheCmchwe Date/Time 8/24/90 -1011

Project no. 3519-003-135		Client/Project Name HOMCO		Project Location Hobbs, N.M.		Project Location			
Lab ID No	Field Sample No./ Identification	Date and Time	g	g	Sample Container (Size/Mat'l)	Sample Type (Liquid Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
2	UHT1-WDA	8/21/90 1730	X		16oz 95Wm	Sludge	40	Reactivity, ignitability, corrosivity, pH, corrosion	(Rush)
1			X		32oz Amber			TCLP metals	(Rush)
			X		16 oz 95Wm			TCLP Prelim	(Rush)
			X		2x 4oz FAIL			TCLP volatiles	(Rush)
3	HCS-1-51	8/22/90 0900	X		8oz 95Wm	Soil	40	Total Petroleum hydrocarbons	
4	HCS-1-52	8/22/90 0908							
5	HCS-1-53	8/22 0918							
6	HCS-1-54	8/22 0930							
7	HCS-1-55	8/22 0950							
8	HCS-2-51	8/22 1030							
Samplers: (Signature) Steve Beck			Relinquished by: (Signature) [Signature]		Date 8/22/90 Time 1700		Received by: (Signature)		Date: Time: 37950
Affiliation ENSR			Relinquished by: (Signature)		Date: Time:		Received by: (Signature)		Date: Time:
REMARKS: 8/24/90-UHT1-WDA sample submitted. Cap was broken upon receipt. Cap was replaced 8/28			Relinquished by: (Signature)		Date: Time:		Received by: (Signature) Darlene Venable		Date: Time: 8/24/90 0915
							Data Results To: 1. Jim Baker 2. Darlene Venable		Laboratory No. A4731

CONSULTING AND ENGINEERING
2925 RICHMOND AVENUE HOUSTON, TX 77098 (713) 520-1100

Analysis Request and Chain of Custody Record

[illegible]

ENSR Labs-Houston

Analytical Summary

09/17/90 12:16

Lab Number: A4731
Project: 3519-003-135
Homco - Hobbs, New Mexico

Lab ID Field ID Test /Matrix	1 WW LIQUID	2 UHT1- WDA SLUDGE	3 HCS-1- S1 SOIL	4 HCS-1- S2 SOIL	5 HCS-1- S3 SOIL	6 HCS-1- S4 SOIL	7 HCS-1- S5 SOIL	8 HCS-2- S1 SOIL
Ag ~ - -HOU (MDL)	<0.01 MG/L (0.01)	--	--	--	--	--	--	--
As ~ -GFA-HOU (MDL)	0.007 MG/L (0.005)	--	--	--	--	--	--	--
Ba ~ -ICP-HOU (MDL)	0.06 MG/L (0.02)	--	--	--	--	--	--	--
CORR ~S- -HOU (MDL)	--	<6.35 MMPY (6.35)	--	--	--	--	--	--
Cd ~ -ICP-HOU (MDL)	<0.010 MG/L (0.010)	--	--	--	--	--	--	--
Cl- ~ - -HOU (MDL)	240 MG/L (5)	--	--	--	--	--	--	--
Cr ~ -ICP-HOU (MDL)	<0.02 MG/L (0.02)	--	--	--	--	--	--	--
F- ~ - -HOU (MDL)	1.3 MG/L (0.05)	--	--	--	--	--	--	--
FP ~S-COC-SPP (MDL)	--	>210 °F ()	--	--	--	--	--	--

Signatures of approval indicate quality assurance-quality control verification of analytical results, billing and enclosed documentation.

Approvals:

Brenda F. Laide

Date:

9/17/90

Becky H. H. H.

Date:

9-17-90

***** CONTINUED *****

ENSR

ENSR Labs-Houston

Analytical Summary

09/17/90 12:57

Lab Number: A4731
 Project: 3519-003-135
 Homco - Hobbs, New Mexico

Lab ID Field ID Test /Matrix	1 WW LIQUID	2 UHT1- WDA SLUDGE	3 HCS-1- S1 SOIL	4 HCS-1- S2 SOIL	5 HCS-1- S3 SOIL	6 HCS-1- S4 SOIL	7 HCS-1- S5 SOIL	8 HCS-2- S1 SOIL
H2S -S-REA-SWL (MDL)	--	31 MG/KG* (20)*	--	--	--	--	--	--
HCN -S-REA-SWL (MDL)	--	<0.40 MG/KG* (0.40)*	--	--	--	--	--	--
HERB - - -KEY (MDL)	ATTACHED UG/L ()*	--	--	--	--	--	--	--
Hg - - -HOU (MDL)	<0.001 MG/L (0.001)	--	--	--	--	--	--	--
N-N - - -HOU (MDL)	2.0 MG/L (0.02)	--	--	--	--	--	--	--
PEST - - -HOU (MDL)	ATTACHED UG/L ()*	--	--	--	--	--	--	--
Pb - - -ICP-HOU (MDL)	<0.025 MG/L (0.025)	--	--	--	--	--	--	--
SO4 - - -HOU (MDL)	180 MG/L (50)	--	--	--	--	--	--	--
Se - - -GFA-HOU (MDL)	<0.002 MG/L (0.002)	--	--	--	--	--	--	--

* Please see attached Analytical Report for remarks.

Signatures of approval indicate quality assurance-quality control verification of analytical results, billing and enclosed documentation.

Approvals: Frederic P. Seale

Date: 9/17/90

David Bluff

Date: 9-17-90

***** CONTINUED *****

ENSR

ENSR Labs-Houston

Analytical Summary

09/17/90 12:16

Lab Number: A4731

Project: 3519-003-135

Homco - Hobbs, New Mexico

Lab ID Field ID Test /Matrix	1 WW LIQUID	2 UHT1- WDA SLUDGE	3 HCS-1- S1 SOIL	4 HCS-1- S2 SOIL	5 HCS-1- S3 SOIL	6 HCS-1- S4 SOIL	7 HCS-1- S5 SOIL	8 HCS-2- S1 SOIL
TPH -S- -HOU (MDL)	--	17 PERCENT (1.0)	<40 MG/KG (40)	170 MG/KG (40)	82 MG/KG (40)	<40 MG/KG (40)	<40 MG/KG (40)	1.3 PERCENT (0.08)
VOA - - -HOU (MDL)	ATTACHED UG/L (*)	--	--	--	--	--	--	--
pH -S-COR-HOU (MDL)	--	8.1 UNITS (0.1)	--	--	--	--	--	--

* Please see attached Analytical Report for remarks.

Signatures of approval indicate quality assurance-quality control verification of analytical results, billing and enclosed documentation.

Approvals:

Linda P. Basile

Date:

*9/17/90**B. Bluff*

Date:

9-17-90

***** CONTINUED *****

ENSR

ENSR Labs-Houston

Analytical Summary
09/17/90 12:16

Lab Number: A4731 Project: 3519-003-135 Homco - Hobbs, New Mexico						
Lab ID	9	10	11	12	13	2T
Field ID	HCS-2-S2	HCS-2-S3	HGS-16-S1	HCS-3-S3	DUPE #1	UHT1-WDA/TCLP
Test /Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	TCLP EXT
Ag - -TCL-HOU (MDL)	--	--	--	--	--	<0.01 MG/L (0.01)
As - -TCL-WQS (MDL)	--	--	--	--	--	0.005 MG/L (0.002)
Ba - -TCL-HOU (MDL)	--	--	--	--	--	1.1 MG/L (0.02)
Cd - -TCL-HOU (MDL)	--	--	--	--	--	<0.010 MG/L (0.010)
Cr - -TCL-HOU (MDL)	--	--	--	--	--	0.03 MG/L (0.02)
Hg - -TCL-HOU (MDL)	--	--	--	--	--	<0.001 MG/L (0.001)
Pb - -TCL-HOU (MDL)	--	--	--	--	--	0.09 MG/L (0.025)
Se - -TCL-WQS (MDL)	--	--	--	--	--	<0.002 MG/L (0.002)

Signatures of approval indicate quality assurance-quality control verification of analytical results, billing and enclosed documentation.

Approvals:

Brenda L. Saville

Date:

9/17/90

De Bl. L. L.

Date:

9-17-90

***** CONTINUED *****

ENSR

ENSR Labs-Houston

Analytical Summary

09/17/90 12:16

Lab Number: A4731 Project: 3519-003-135 Homco - Hobbs, New Mexico						
Lab ID	9	10	11	12	13	2T
Field ID	HCS-2-S2	HCS-2-S3	HGS-16-S1	HCS-3-S3	DUPE #1	UHT1-WDA/TCLP
Test /Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	TCLP EXT
TPH -S- -HOU	<40 MG/KG (MDL)	70 MG/KG (40)	<40 MG/KG (40)	110 MG/KG (40)	<40 MG/KG (40)	--
VOA - - -HOU	--	--	--	--	--	ATTACHED UG/L (*)*

* Please see attached Analytical Report for remarks.

Signatures of approval indicate quality assurance-quality control verification of analytical results, billing and enclosed documentation.

Approvals:

Brenda P. Saville

Date:

9/17/90

B. Bl. h. d.

Date:

9-17-90

ENSR

ENSR Labs-Houston

Analytical Report

09/17/90 12:15

Homco - Hobbs, New Mexico		Field ID: WW	Date Sampled: 08/21/90	
Proj. No.: 3519-003-135		Lab ID: 1	Time Sampled: 1645	
Lab No.: A4731		Matrix: LIQUID (GRAB)	Date Received: 08/24/90	
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
Ag - - -HOU SILVER EPA SW-846: 7760, ATOMIC ABSORPTION	<0.01	MG/L	0.01	08/30/90 1230
As - -GFA-HOU ARSENIC EPA SW-846: 7060, GRAPHITE FURNACE	0.007	MG/L	0.005	08/30/90 730
Ba - -ICP-HOU BARIUM EPA SW-846: 6010, ICP	0.06	MG/L	0.02	08/31/90 700
Cd - -ICP-HOU CADMIUM EPA SW-846: 6010, ICP	<0.010	MG/L	0.010	08/31/90 700
Cl- - - -HOU CHLORIDE SM: 407B	240	MG/L	5	08/28/90 1520
Cr - -ICP-HOU CHROMIUM EPA SW-846: 6010, ICP	<0.02	MG/L	0.02	09/10/90 730
F- - - -HOU FLUORIDE EPA 600: 340.2, ELECTRODE	1.3	MG/L	0.05	08/30/90 1400
HERB - - -KEY HERBICIDES EPA 615	ATTACHED *1	UG/L		Ext.: 08/28/90 Anal.: 09/02/90
Hg - - -HOU MERCURY EPA SW-846: 7470, COLD VAPOR	<0.001	MG/L	0.001	08/28/90 1054

1 SEE KEYSTONE ID #H90-08.179-002

***** CONTINUED *****

ENSR

ENSR Labs-Houston

Analytical Report

09/17/90 12:15

Homco - Hobbs, New Mexico
 Proj. No.: 3519-003-135
 Lab No.: A4731

Field ID: WW
 Lab ID: 1
 Matrix: LIQUID (GRAB)

Date Sampled: 08/21/90
 Time Sampled: 1645
 Date Received: 08/24/90

Parameter (Test Code) (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
N-N - - -HOU NITRATE-NITRITE AS NITROGEN SM: 418F, AUTOMATED Cd REDUCTION	2.0	MG/L	0.02	08/24/90 1327
PEST - - -HOU PESTICIDES EPA SW-846: 3520,8080, LLE,GC	ATTACHED *1	UG/L		Ext.: 08/28/90 Anal.: 08/30/90
Pb - -ICP-HOU LEAD EPA SW-846: 6010, ICP	<0.025	MG/L	0.025	08/31/90 700
SO4 - - -HOU SULFATE EPA SW-846: 9038	180	MG/L	50	08/29/90 850
Se - -GFA-HOU SELENIUM EPA SW-846: 7740, GRAPHITE FURNACE	<0.002	MG/L	0.002	09/07/90 800
VOA - - -HOU VOLATILE ORGANIC ANALYSES EPA SW-846: 8240, GC/MS	ATTACHED *1	UG/L		08/24/90

*1 SEE ENSR ID #A4731-1

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ENSR Labs-Houston

Analytical Report

09/17/90 12:56

Homco - Hobbs, New Mexico
 Proj. No.: 3519-003-135
 Lab No.: A4731

Field ID: UHT1-WDA
 Lab ID: 2
 Matrix: SLUDGE (GRAB)

Date Sampled: 08/21/90
 Time Sampled: 1730
 Date Received: 08/24/90

(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
CORR -S- -HOU CORROSIVITY ON SOLID EPA SW-846: 1110, NACE STEEL COUPON	<6.35	MMPY	6.35	08/29/90 1500
FP -S-COC-SPP IGNITABILITY (FLASH POINT) ASTM: D92, CLEVELAND OPEN CUP	>210	°F		09/11/90
H2S -S-REA-SWL HYDROGEN SULFIDE, REACTIVE/SLD EPA SW-846: 7.3.4.2, 9030	31 *1	MG/KG*	20	09/11/90
HCN -S-REA-SWL HYDROCYANIC ACID, REACTIVE/SLD EPA SW-846: 7.3.3.2, 9010	<0.40 *2	MG/KG*	0.40	09/11/90
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	17	PERCENT	1.0	08/29/90 1000
pH -S-COR-HOU pH CORROSION ON SOLID EPA SW-846: 9045	8.1	UNITS	0.1	08/28/90 1400

*1 *TOTAL AVAILABLE H2S

*2 *TOTAL AVAILABLE HCN

ENSR

ENSR Labs-Houston

Analytical Report

09/17/90 12:15

Homco - Hobbs, New Mexico

Field ID: HCS-1-S1

Date Sampled: 08/22/90

Proj. No.: 3519-003-135

Lab ID: 3

Time Sampled: 900

Lab No.: A4731

Matrix: SOIL (GRAB)

Date Received: 08/24/90

(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	<40	MG/KG	40	08/29/90 1000

ENSR Labs-Houston

Analytical Report

09/17/90 12:15

Homco - Hobbs, New Mexico	Field ID: HCS-1-S2	Date Sampled: 08/22/90
Proj. No.: 3519-003-135	Lab ID: 4	Time Sampled: 908
Lab No.: A4731	Matrix: SOIL (GRAB)	Date Received: 08/24/90

(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	170	MG/KG	40	08/29/90 1000

ENSR Labs-Houston

Analytical Report

09/17/90 12:15

Homco - Hobbs, New Mexico
Proj. No.: 3519-003-135
Lab No.: A4731

Field ID: HCS-1-S3
Lab ID: 5
Matrix: SOIL (GRAB)

Date Sampled: 08/22/90
Time Sampled: 918
Date Received: 08/24/90

Parameter (Test Code) (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	82	MG/KG	40	08/29/90 1000

ENSR Labs-Houston

Analytical Report

09/17/90 12:15

Homco - Hobbs, New Mexico
Proj. No.: 3519-003-135
Lab No.: A4731

Field ID: HCS-1-S4
Lab ID: 6
Matrix: SOIL (GRAB)

Date Sampled: 08/22/90
Time Sampled: 930
Date Received: 08/24/90

(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	<40	MG/KG	40	08/29/90 1000

ENSR Labs-Houston

Analytical Report

09/17/90 12:15

Homco - Hobbs, New Mexico	Field ID: HCS-1-S5	Date Sampled: 08/22/90
Proj. No.: 3519-003-135	Lab ID: 7	Time Sampled: 950
Lab No.: A4731	Matrix: SOIL (GRAB)	Date Received: 08/24/90

(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	<40	MG/KG	40	08/29/90 1000

ENSR Labs-Houston

Analytical Report

09/17/90 12:15

Homco - Hobbs, New Mexico	Field ID: HCS-2-S1	Date Sampled: 08/22/90
Proj. No.: 3519-003-135	Lab ID: 8	Time Sampled: 1030
Lab No.: A4731	Matrix: SOIL (GRAB)	Date Received: 08/24/90

(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	1.3	PERCENT	0.08	08/29/90 1000

ENSR Labs-Houston

Analytical Report

09/17/90 12:15

Homco - Hobbs, New Mexico
Proj. No.: 3519-003-135
Lab No.: A4731

Field ID: HCS-2-S2
Lab ID: 9
Matrix: SOIL (GRAB)

Date Sampled: 08/22/90
Time Sampled: 1050
Date Received: 08/24/90

(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	<40	MG/KG	40	08/29/90 1000

ENSR Labs-Houston

Analytical Report

09/17/90 12:15

Homco - Hobbs, New Mexico	Field ID: HCS-2-S3	Date Sampled: 08/22/90
Proj. No.: 3519-003-135	Lab ID: 10	Time Sampled: 1110
Lab No.: A4731	Matrix: SOIL (GRAB)	Date Received: 08/24/90

(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	70	MG/KG	40	08/29/90 1000

ENSR Labs-Houston

Analytical Report

09/17/90 12:15

Homco - Hobbs, New Mexico

Proj. No.: 3519-003-135

Lab No.: A4731

Field ID: HGS-16-S1

Lab ID: 11

Matrix: SOIL (GRAB)

Date Sampled: 08/22/90

Time Sampled: 1124

Date Received: 08/24/90

(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	<40	MG/KG	40	08/29/90 1000

ENSR Labs-Houston

Analytical Report

09/17/90 12:15

Homco - Hobbs, New Mexico
Proj. No.: 3519-003-135
Lab No.: A4731

Field ID: HCS-3-S3
Lab ID: 12
Matrix: SOIL (GRAB)

Date Sampled: 08/22/90
Time Sampled: 1155
Date Received: 08/24/90

Parameter (Test Name) (Test Code) (Test Method)	Concen- tration	Units	Method	Date/Time
			Detection Limit	Analysis Performed
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	110	MG/KG	40	08/29/90 1000

ENSR Labs-Houston

Analytical Report

09/17/90 12:15

Homco - Hobbs, New Mexico		Field ID: DUPE #1	Date Sampled: / /	
Proj. No.: 3519-003-135		Lab ID: 13	Time Sampled:	
Lab No.: A4731		Matrix: SOIL (GRAB)	Date Received: 08/24/90	
(Test Code)			Method	Date/Time
Parameter (Test Name)	Concen-		Detection	Analysis
(Test Method)	tration	Units	Limit	Performed
TPH -S- -HOU	<40	MG/KG	40	08/29/90
TOTAL PET. HYDROCARBONS/SOLID				1000
EPA 600:418.1, SW-846:9071				

ENSR Labs-Houston

Analytical Report

09/17/90 12:15

Homco - Hobbs, New Mexico		Field ID: UHT1-WDA/TCLP	Date Sampled: / /	
Proj. No.: 3519-003-135		Lab ID: 2T	Time Sampled:	
Lab No.: A4731		Matrix: TCLP EXT	Date Received: 08/24/90	
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
Ag - -TCL-HOU TCLP SILVER EPA SW-846: 7760, ATOMIC ABSORPTION	<0.01	MG/L	0.01	09/06/90 1400
As - -TCL-WQS TCLP ARSENIC EPA SW-846: 7060, GRAPHITE FURNACE	0.005	MG/L	0.002	09/07/90 1115
Ba - -TCL-HOU TCLP BARIUM EPA SW-846: 6010, ICP	1.1	MG/L	0.02	09/06/90 730
Cd - -TCL-HOU TCLP CADMIUM EPA SW-846: 6010, ICP	<0.010	MG/L	0.010	09/06/90 730
Cr - -TCL-HOU TCLP CHROMIUM EPA SW-846: 6010, ICP	0.03	MG/L	0.02	09/06/90 730
Hg - -TCL-HOU TCLP MERCURY EPA SW-846: 7470, COLD VAPOR	<0.001	MG/L	0.001	09/07/90 1030
Pb - -TCL-HOU TCLP LEAD EPA SW-846: 6010, ICP	0.09	MG/L	0.025	09/06/90 730
Se - -TCL-WQS TCLP SELENIUM EPA SW-846: 7740, GRAPHITE FURNACE	<0.002	MG/L	0.002	09/07/90 950
VOA - - -HOU VOLATILE ORGANIC ANALYSES EPA SW-846: 8240, GC/MS	ATTACHED *1	UG/L		09/06/90

*1 SEE ENSR ID #A4731-2T

ENSR

QUALITY CONTROL LOG

Parameter: Silver: AgPage: 1 of 2Method of Analysis: EPAS 846.1-7760-A.AMatrix: SOLID AND LIQUIDDate/Time: Aug 30, 1990 1230

Lab Numbers	Detection Limits	Calibration Stds./Blk	Absorbance/Conc.	Check Standards	Concentration Found/True
A4762-1	0.01 mg/L	BLANK	0.000/0.001	Sample Blank A4762	0.008 ppm
A4731-1	0.01 mg/L	0.500 ppm	0.010/0.510	Method Blank	0.001 ppm
A4755-1	0.01 mg/L	1.00 ppm	0.020/1.010	P.E. Std. ERA#2	1.007/1.00 ppm
A4758-1	0.01 mg/L	2.00 ppm	0.040/2.003	Internal Std. 2.75 ppm	0.754/0.75 ppm
A4725-7210	1 mg/L			0.04 ppm	0.037/0.040
A4703-1	0.01 mg/L			0.02 ppm	0.020/0.020
A4693-4761	0.01 mg/L	Correlation Coefficient:			
		Comments:			

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result	Sample Result	Spike Added	Percent Recovery
100 → 25 A4762-1	<0.04	<0.04	*	*	0.988	*	50% FB 2 ppm	99%
100 → 25 A4731-1	<0.04	<0.04	*	*	0.088	*	+0.1 ppm	88%
700 100 → 25 A4755-1	<0.04	<0.04	*	*	0.090	*	+0.1 ppm	90%
100 → 25 A4758-1	<0.04	<0.04	*	*	0.971	*	50% FB 2 ppm	97%
25 → 100 A4725-9	<0.02	<0.02	*	*	0.978	*	50% FB 2 ppm	98%
100 → 25 A4703-1	<0.04	<0.04	*	*	0.987	*	50% FB 2 ppm	99%

Analyst: Michelle SavoeQA/QC Approval: DeAnna M. Senegre

QUALITY CONTROL LOG

Date/Time: Aug 30, 1990 1230

[illegible]QA/QC Approval: D. Anna M. Senega

ENSR Labs-Houston
QUALITY CONTROL LOG

Page: 7 of 2

Matrix: TCLP, Water

Date/Time: 06 Sept. 90/1400

Parameter: Silver - Ag

Method of Analysis: SW846: 7760 AA

Lab Numbers	Detection Limits	Calibration Stds./Blk	Absorbance/Conc.	Check Standards	Concentration Found/True
A4773-13	0.01mg/l	Blank	0.000 0.003	A4773 Sample Blank	0.008 ppm
A4731-2T		0.50 ppm	0.010 0.506	Method Blank	0.002 ppm
A4735-105/11T		1.00 ppm	0.019 1.001	EEA-2 P.E. Std.	1.028 ppm
A4742-1T		2.00 ppm	0.038 2.002	CCVS Internal Std.	0.742 0.75 ppm
A4783-1				0.02 ppm	0.022 0.02
A4788-1					
A4776-1(3)	✓				
		Correlation Coefficient:			
		Comments:			

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result	Sample Result	Spike Added	Percent Recovery
A4773-3	<0.02	<0.02	*	*	0.973	*	50% of 2.00	97%
A4731-2T		↓	↓	↓	0.928	↓	↓	93%
A4735-10T		—	—	—	0.977	↓	↓	98%
A4735-11T		<0.02	*	*	0.975	*	↓	98%
A4742-1T		↓	↓	↓	0.971	↓	↓	97%
A4783-1	↓	↓	↓	↓	—	—	—	—

Analyst: James Math

QA/QC Approval: DeAnna M. Senega

ENSR LABS-HOUSTON
QUALITY CONTROL LOG

PARAMETER: Silver - Ag DATE/TIME: 06 Sept. 20/1400 PAGE 2 OF 2
INTERNAL QUALITY CONTROL DUPLICATES AND SPIKES

* BELOW MDL

[illegible]

ANALYST:

QA/QC APPROVAL:

QA/QC APPROVAL: DeAnna M. Seney

ENSR Labs-Houston

QUALITY CONTROL LOG

Parameter: Arsenic - AS

Page: 1 of 2

Method of Analysis: SW-846, 7060 GFAA

Matrix: SOIL, TCLP, WATER

Date/Time: 30 AUG 90/0730

Lab Numbers	Detection Limits	Calibration Stds./Blk	CONC./ABSORB	Check Standards	Concentration Found/True
A4725-770	1.25 mg/kg	BLANK	-0.0005 / 0.003	Sample Blank A4725-BLK	-0.0003 ppm
A4693-IT76T	0.005 mg/L	0.010 ppm	0.0092 / 0.044	Method Blank	-0.0005 ppm
A4731-1	↓	0.020 ppm	0.0190 / 0.090	P.E. Std. EPA 207E-4	0.0244 / 0.0250 ppm
A4755-1T	↓	0.050 ppm	0.0488 / 0.0200	CCV Internal Std. 0.025 ppm	0.0234 / 0.025 ppm
A4758-1	↓			0.005 ppm	0.0045 / 0.005
A4761-1716	↓			A4693-BLK	-0.0007
A4773-173	↓			A4731-BLK	-0.0002
		Correlation Coefficient:		A4761-BLK	-0.0004
		Comments:		A4773-BLK	-0.0002

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result	Sample Result	Spike Added	Percent Recovery
A4725-BLK	<0.005	—	—	—	0.0397	*	0.04	99
A4725-7	0.0171	0.0173	0.002	1.16	0.0326	0.085	50% of 0.05	96
A4693-BLK	<0.005	—	—	—	0.0391	*	0.04	98
A4693-1T	0.0321	—	—	—	0.0421	0.0160	50% of 0.05	104
A4693-2T	0.0211	—	—	—	0.0368	0.0106	↓	105
A4693-3T	0.0277	—	—	—	0.0380	0.0138	↓	97

Analyst: LeRR. McKelvey TM

QA/QC Approval: DeAnna M. Senegal

**ENSR LABS-HOUSTON
QUALITY CONTROL LOG**

PARAMETER: Arsenic - As DATE/TIME: 30 AUG 90 / 0730 PAGE 2 OF 2
INTERNAL QUALITY CONTROL DUPLICATES AND SPIKES

* BELOW MDL

LAB NO. - SAMPLE	SAMPLE CONC.	DUPLICATE CONC.	RANGE	PERCENT RPD	SPIKED RESULT	SAMPLE RESULT	SPIKE ADDED	PERCENT RECOVERY
A4693-4T	0.0135	—	—	—	0.0538	0.0135	0.04	101
A4693-5T	0.0177	I	I	I	0.0524	0.0177	↓	87
A4693-6T	<0.005	I	I	I	0.0254	*	50% 0.05	102
A4731-BLK	<0.005	—	—	—	0.0398	*	0.04	100
A4731-1	0.0071	0.0069	0.002	2.86	0.0490	0.0071	↓	105
A4755-1T	<0.005	—	—	—	0.0420	*	↓	105
A4758-1	0.008	—	—	—	0.0465	0.0080	↓	96
A4761-BLK	<0.005	—	—	—	0.0186	*	0.02	93
A4761-4	<0.005	<0.005	*	*	0.0206	↓	↓	103
A4761-14	<0.005	<0.005	*	*	0.0184	↓	↓	92
A4773-BLK	<0.005	—	—	—	0.0172	↓	↓	86
A4773-1	0.0957	0.0898	0.059	6.36	0.1370	0.0957	0.04	103

ANALYST:

J. D. McKelvey

QA/QC APPROVAL:

DeAnna L. Senegal

Date: 31 Aug 1990

ENSR Labs-Houston

Page 1 of 4Time: 0700

ICAP Quality Control Logs

Method EPA SW-846:6010, 3rd Ed.

Calibration, Standard and Blank Information

Parameter	MDL	Zn	Pb	Cd	Ni	Cr	Be	Cu	Ba		
		0.04	0.100	0.04	0.04	0.04	0.04	0.04	0.04		
C A L I B R A T I O N	BLANK	0.001	-0.008	0.000	0.000	-0.001	0.000	0.001	-0.000		
	5.00 ppm	4.94	4.94	4.92	4.91	4.97	4.98	4.99	4.93		
	1.00 ppm	1.09	0.976	1.03	0.999	0.983	1.01	1.01	0.990		
	0.100 ppm	—	0.090	—	—	—	—	—	—		
	0.08 ppm	0.080	—	0.077	0.076	0.080	0.079	0.079	0.077		
	0.04 ppm	0.044	—	0.039	0.044	0.038	0.039	0.044	0.038		
S T D / B L K											

C L E A N I N G / S T D	ERA #3	0.993 1.00	0.940 1.00	0.986 1.00	0.981 1.00	0.984 1.00	0.990 1.00	1.01 1.00	0.971 1.00		
										FOUND	
										TRUE	

S A M P L E B L A N K S	A4773-BLK	0.036	0.007	-0.000	-0.001	0.000	0.000	0.009	—		
	A4763-BLK	—	0.002	—	—	—	—	—	—		
	A4693-BLK	—	0.004	0.000	0.004	0.006	—	—	0.002		
	A4737-BLK	0.062	0.008	0.000	—	0.001	—	0.025	0.003		
	A4758-BLK	—	0.008	0.002	—	-0.000	—	—	0.002		
	A4762-BLK	0.002	-0.003	0.000	0.000	0.001	—	0.013	—		

Analyst: Michelle Savore QA/QC Approval: DeAnna M. Senegal

Date: 31 Aug 1990

Time: 0100

ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information

* Below MDL

Parameter MDL	Zn 0.04	Pb 0.100	Cd 0.04	Ni 0.04	Cr 0.04	Be 0.04	Cu 0.04	Ba 0.04		
A4773-BLK	0.036	0.007	-0.000	-0.001	0.000	0.000	0.009	T		
Duplicate	—	—	—	—	—	—	—	T		
% RPD	—	—	—	—	—	—	—	T		
Spike	1.00	0.909	0.087	0.900	0.174	0.084	0.211	T		
% Recovery	86%	91%	87%	90%	87%	84%	106%	↓		
A4773 -3	T	0.013	0.000	T	0.006	0.000	0.011	T		
Duplicate	T	0.005	0.001	T	0.005	0.000	0.012	T		
% RPD	T	*	*	T	*	*	*	T		
Spike	T	0.874	0.090	T	0.191	0.087	0.226	T		
% Recovery	↓	87%	90%	↓	96%	87%	91%	↓		
A4743 -2	T	T	T	T	T	T	T	106		
Duplicate	T	T	T	T	T	T	T	101		
% RPD	T	T	T	T	T	T	T	4.83		
Spike	T	T	T	T	T	T	T	103		
% Recovery	↓	↓	↓	↓	↓	↓	↓	106%		
A4743 -13	T	0.638	T	T	T	T	T	T		
Duplicate	T	0.619	T	T	T	T	T	T		
% RPD	T	3.02	T	T	T	T	T	T		
Spike	T	1.64	T	T	T	T	T	T		
% Recovery	↓	100%	↓	↓	↓	↓	↓	↓		
A4763-BLK	T	0.002	T	T	T	T	T	T		
Duplicate	T	—	T	T	T	T	T	T		
% RPD	T	—	T	T	T	T	T	T		
Spike	T	0.885	T	T	T	T	T	T		
% Recovery	↓	88%	↓	↓	↓	↓	↓	↓		

Analyst:

Michelle Savore

QA/QC Approval:

DeAnna M. Penegaz

Date: 31 Aug. 1990Time: 0700

ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information

* Below MDL

Parameter MDL	Zn 0.04	Pb 0.100	Cd 0.04	Ni 0.04	Cr 0.04	Be 0.04	Cu 0.04	Ba 0.04		
³ →100 A4763-3	—	2.63	—	—	—	—	—	—		
Duplicate	—	3.05	—	—	—	—	—	—		
% RPD	—	14.8	—	—	—	—	—	—		
Spike	—	3.64	—	—	—	—	—	—		
% Recovery	✓	101%	✓	✓	✓	✓	✓	✓		
²³ →100 A4693-BLK	—	0.004	0.000	0.004	0.006	—	—	0.002		
Duplicate	—	—	—	—	—	—	—	—		
% RPD	—	—	—	—	—	—	—	—		
Spike	—	0.862	0.087	0.899	0.183	—	—	—		
% Recovery	✓	86%	87%	90%	92%	✓	✓	—		
²³ →100 A4693-2	—	0.357	0.036	0.448	0.809	—	—	—		
Duplicate	—	0.414	0.036	0.409	0.814	—	—	—		
% RPD	—	14.8	0.00	9.10	0.616	—	—	—		
Spike	—	1.26	0.123	1.30	0.998	—	—	—		
% Recovery	✓	90%	87%	85%	94%	✓	✓	✓		
¹⁰⁰ →25 A4737-BLK	0.062	0.008	0.000	—	0.001	—	0.025	0.003		
Duplicate	—	—	—	—	—	—	—	—		
% RPD	—	—	—	—	—	—	—	—		
Spike BLK SPK	1.18	1.01	0.107	—	0.195	—	—	2.15		
% Recovery	93%	101%	107%	✓	98%	✓	—	108%		
A4731-1	—	0.001	0.000	—	—	—	—	0.065		
Duplicate	—	0.006	0.000	—	—	—	—	0.065		
% RPD	—	*	*	—	—	—	—	0.00		
Spike	—	1.09	0.109	—	—	—	—	2.23		
% Recovery	✓	109%	109%	✓	✓	✓	✓	98%		

Analyst:

Michelle Savie

QAQC Approval:

DeAnna M. Senega

Date: 31 Aug 1990

Time: 0700

ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information

* Below MDL

Parameter MDL	Zn 0.04	Pb 0.100	Cd 0.04	Ni 0.04	Cr 0.04	Be 0.04	Cu 0.04	Ba 0.04		
① 100 → 25 A4755-1	—	0.002	-0.000	—	0.000	—	—	0.104		
Duplicate	—	0.004	0.000	—	0.003	—	—	0.099		
% RPD	—	*	*	—	*	—	—	4.93		
Spike	—	1.14	0.104	—	0.213	—	—	2.40		
% Recovery	↓	114%	104%	↓	106%	↓	↓	99%		
① 100 → 25 A4758-BLK	—	0.008	0.002	—	-0.000	—	—	0.002		
Duplicate	—	—	—	—	—	—	—	—		
% RPD	—	—	—	—	—	—	—	—		
Spike BLK SPK	—	1.13	0.086	—	0.224	—	—	1.96		
% Recovery	↓	113%	86%	↓	112%	↓	↓	98%		
① 100 → 25 A4758-1	—	0.009	0.001	—	0.029	—	—	0.104		
Duplicate	—	-0.002	0.002	—	0.030	—	—	0.105		
% RPD	—	*	*	—	3.39	—	—	0.956		
Spike	—	0.953	0.093	—	0.287	—	—	2.24		
% Recovery	↓	95%	93%	↓	86%	↓	↓	91%		
① 100 → 25 A4762-BLK	0.002	-0.003	0.000	0.000	0.001	—	0.013	—		
Duplicate	—	—	—	—	—	—	—	—		
% RPD	—	—	—	—	—	—	—	—		
Spike BLK SPK	0.903	0.855	0.087	0.905	—	—	0.214	—		
% Recovery	90%	86%	87%	90%	—	↓	81%	↓		
100 → 25 A4762-1	—	0.005	0.000	0.000	0.001	—	0.008	—		
Duplicate	—	0.009	0.000	0.000	0.000	—	0.006	—		
% RPD	—	*	*	*	*	—	*	—		
Spike * Bench	—	* 2.29	0.089	0.911	0.183	—	* 2.39	—		
% Recovery	↓	92%	89%	91%	92%	↓	96%	↓		

Analyst: Michelle Savari

QAQC Approval:

De Anna M. Penney

Time: 0730

ICAP Quality Control Logs
Method EPA SW-846:6010, 3rd Ed.
Calibration, Standard and Blank Information

Parameter MDL	Zn	Pb	Cd	Ni	Mn	Fe	Cr	Be	Cu	Ba
	0.08	0.100	0.04	0.08	0.08	0.08	0.08	0.08	0.08	0.08
CALIBRATION STANDARD / BLK	BLANK	-0.001	0.000	0.000	0.000	-0.000	-0.000	0.000	-0.000	-0.000
	5.00 ppm	4.88	4.93	5.01	5.03	5.01	5.01	4.98	4.99	4.88
	1.00 ppm	1.07	1.01	1.02	1.02	1.01	0.997	1.00	1.00	0.978
	0.100 ppm	—	0.105	—	—	—	—	—	—	—
	0.08 ppm	0.078	—	0.079	0.080	0.079	0.080	0.078	0.077	0.075
	0.04 ppm	0.038	—	0.038	0.042	0.038	0.040	0.039	0.038	0.036
	100 ppm	—	101	—	—	—	—	—	—	—

CHECK STD	ERA #3	1.00 1.00	0.996 1.00	1.00 1.00	0.997 1.00	1.00 1.00	9.98 10.0	1.00 1.00	1.00 1.00	0.963 1.00	0.949 1.00

SAMPLE BLANKS	A4743-BLK	—	-0.000	0.000	—	—	—	0.000	—	—	0.001
	A4778-BLK	—	-0.008	—	—	—	—	—	—	—	—

Analyst: Michelle Savoe QA/QC Approval: DeAnna M. Penegal

Date: 6 Sept 90Time: 0730ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information

* Below MD

Parameter MDL	Zn 0.08	Pb 0.100	Cd 0.04	Ni 0.08	Mn 0.08	Fe 0.08	Cr 0.08	Be 0.08	Cu 0.08	Ba 0.08
TCLP 100-925 A4743-BLK	—	-0.000	0.000	—	—	—	0.000	—	—	0.00
Duplicate	—	—	—	—	—	—	—	—	—	—
% RPD	—	—	—	—	—	—	—	—	—	—
Spike BLK SPK	—	0.885	0.088	—	—	—	0.207	—	—	1.81
% Recovery	↓	88%	88%	↓	↓	↓	104%	↓	↓	90%
-14T	—	0.051	—	—	—	—	—	—	—	—
Duplicate	—	—	—	—	—	—	—	—	—	—
% RPD	—	—	—	—	—	—	—	—	—	—
Spike	—	1.21	—	—	—	—	—	—	—	—
% Recovery	—	101%	—	—	—	—	—	—	—	—
-15T	—	-0.000	—	—	—	—	—	—	—	—
Duplicate	—	—	—	—	—	—	—	—	—	—
% RPD	—	—	—	—	—	—	—	—	—	—
Spike	—	0.845	—	—	—	—	—	—	—	—
% Recovery	—	84%	—	—	—	—	—	—	—	—
-16T	—	0.123	—	—	—	—	—	—	—	—
Duplicate	—	—	—	—	—	—	—	—	—	—
% RPD	—	—	—	—	—	—	—	—	—	—
Spike	—	1.34	—	—	—	—	—	—	—	—
% Recovery	—	85%	—	—	—	—	—	—	—	—
-17T	—	-0.000	—	—	—	—	—	—	—	—
Duplicate	—	—	—	—	—	—	—	—	—	—
% RPD	—	—	—	—	—	—	—	—	—	—
Spike	—	0.983	—	—	—	—	—	—	—	—
% Recovery	—	98%	—	—	—	—	—	—	—	—

Analyst:

Michelle Savri

QAQC Approval:

DeAnna M. Senegal

Date: 6 Sept 90Time: 0730ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information

* Below MDL

Parameter MDL	Zn 0.08	Pb 0.100	Cd 0.04	Ni 0.08	Mn 0.08	Fe 0.08	Cr 0.08	Be 0.08	Cu 0.08	Ba 0.08
A4743-18T		11.9								
Duplicate		—								
% RPD		—								
Spike Bench		68.1								
% Recovery		89%								
-19T		0.011								
Duplicate		—								
% RPD		—								
Spike		0.854								
% Recovery		85%								
-20T		0.450								
Duplicate		—								
% RPD		—								
Spike		2.88								
% Recovery		108%								
-21T		0.008								
Duplicate		0.003								
% RPD		*								
Spike		0.898								
% Recovery		90%								
-22T		10.2								
Duplicate		—								
% RPD		—								
Spike		41.7								
% Recovery		90%								

Analyst:

Michelle Savore

QAQC Approval:

DeAnna M. Penegal

Date: 6 Sept 90Time: 0730ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information

* Below MD

Parameter MDL	Cu 0.08	Pb 0.100	Cd 0.04	Ni 0.08	Mn 0.08	Fe 0.08	Cr 0.08	Bz 0.08	Cu 0.08	Ba 0.08
A4743-23T		-0.002								
Duplicate		—								
% RPD		—								
Spike		0.060								
% Recovery		86%								
A4731-2T		0.093	0.008				0.026			1.07
Duplicate		0.106	0.007				0.027			1.08
% RPD		13.1	*				3.77			0.93
Spike		1.37	0.110				0.315			6.07
% Recovery		100%	110%				106%			90%
A4735-10T		0.097	0.003				0.003			1.12
Duplicate		—	—				—			—
% RPD		—	—				—			—
Spike		1.37	0.109				0.205			6.19
% Recovery		98%	109%				102%			86%
-11T		-0.008	-0.000				0.001			0.71
Duplicate		-0.001	0.000				0.001			0.70
% RPD		*	*				*			0.56
Spike		0.863	0.084				0.175			4.70
% Recovery		86%	84%				88%			93%
A4742-1T		0.125	0.002				0.006			0.098
Duplicate		0.126	0.001				0.004			0.094
% RPD		0.797	*				*			4.17
Spike		1.38	0.105				0.194			2.31
% Recovery		88%	105%				97%			96%

Analyst:

Michelle Laverie

QAQC Approval:

DeAnna M. Senegal

Date: 6 Sept 90Time: 0730

ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information

* Below MDL

Parameter MDL	Zn 0.08	Pb 0.100	Cd 0.04	Ni 0.02	Mn 0.08	Fe 0.08	Cr 0.08	Be 0.08	Cu 0.08	Ba 0.08
<u>D 23 → 100</u> A4778-2		0.788								
Duplicate		0.787								
% RPD		0.127								
Spike Bench		2.59								
% Recovery		88%								
<u>D 23 → 100</u> A4801-5		5.42								
Duplicate		5.44								
% RPD		0.308								
Spike Bench		5.37								
% Recovery		106%								
-14		1.99								
Duplicate		1.93								
% RPD		3.06								
Spike Bench		3.23								
% Recovery		89%								
-19		3.56								
Duplicate		3.35								
% RPD		6.08								
Spike		4.61								
% Recovery		105%								
Duplicate										
% RPD										
Spike										
% Recovery										

Analyst:

Michelle Savari

QAQC Approval:

DeAnna M. Penegal

QUALITY CONTROL LOG

Date/Time: 8-29-90/1500

[illegible]QA/QC Approval: DeAnna M. Senec

QUALITY CONTROL LOG

Page: 1 of 1

Matrix: liquid / sludge

Date/Time: 8-28-90/1520

[illegible]

Rebecca Hunt

DeAnna M. Senegal

Time: 0730

ICAP Quality Control Logs
Method EPA SW-846:6010, 3rd Ed.
Calibration, Standard and Blank Information

Parameter	MDL	Pb	Cd	Ni	Cr	Ba				
		0.100	0.04	0.08	0.08	0.08				
C A L I B R A T I O N	BLANK	0.004	-0.000	0.002	0.001	-0.000				
	5.00 ppm	5.00	5.01	4.99	5.03	4.94				
	1.00 ppm	1.03	1.02	1.00	1.00	0.975				
	0.100 ppm	0.094	—	—	—	—				
	0.08 ppm	—	0.082	0.077	0.081	0.075				
	0.04 ppm	—	0.038	0.036	0.040	0.037				
S T D / B L K										

C H E C K S T D	ERA #3	0.988 1.00	0.996 1.00	0.983 1.00	1.00 1.00	0.962 1.00				
			Found True							

S A M P L E B L A N K S	TCLP 106-725 A4755-BLK	0.006	—	—	—	—				
	29-100 A4693-BLK	—	—	0.003	—	—				
	TCLP BLK FL1	0.002	-0.000	—	0.006	0.001				
	TCLP BLK FL2	0.007	0.000	—	0.003	0.000				

Analyst: Michelle Lanni QA/QC Approval: DoAnnus M. Senegal

Date: 10 Sept 90Time: 0730ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information*
Below MDL

Parameter MDL	Pb 0.100	Cd 0.04	Ni 0.08	Cr 0.08	Ba 0.08					
A4755-BLK	0.006									
Duplicate	—									
% RPD	—									
Spike BLK SPK	0.873									
% Recovery	87%									
-4T	0.048									
Duplicate	—									
% RPD	—									
Spike	1.06									
% Recovery	87%									
-5T	0.004									
Duplicate	—									
% RPD	—									
Spike	1.04									
% Recovery	104%									
-6T	0.054									
Duplicate	0.053									
% RPD	1.87									
Spike	1.26									
% Recovery	104%									
-7T	0.072									
Duplicate	—									
% RPD	—									
Spike	1.25									
% Recovery	96%									

Analyst:

Michelle Savore

QAQC Approval:

DeAnna M. Senegal

Date: 10 Sept 90Time: 0730ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information*
Below MDL

Parameter MDL	Pb 0.100	Cd 0.04	Ni 0.08	Cr 0.08	Ba 0.08					
^{TEL 100→25} A4755-8T	0.105									
Duplicate	—									
% RPD	—									
Spike	1.35									
% Recovery	93%									
-9T	0.043									
Duplicate	—									
% RPD	—									
Spike	1.07									
% Recovery	90%									
^{25→100} A4693-BLK			0.003							
Duplicate			—							
% RPD			—							
Spike BLK SPL			0.855							
% Recovery			86%							
^{25→100} A4693-6			1.14							
Duplicate			—							
% RPD			—							
Spike Bench			2.85							
% Recovery			91%							
^{100→25} A4731-1				0.002						
Duplicate				0.002						
% RPD				*						
Spike				0.206						
% Recovery				103%						

Analyst: Michelle Savari

QAQC Approval:

DeAnna M. Senegal

Date: 10 Sept 90Time: 0730

ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information

* Below MDL

Parameter MDL	Pb 0.100	Cd 0.04	Ni 0.08	Cr 0.08	Ba 0.08					
TCLP100 → 25 BLANK FLUID 1	0.002	-0.000	—	0.006	0.001					
Duplicate	—	—	—	—	—					
% RPD	—	—	—	—	—					
Spike BLK SPK	0.876	0.094	—	0.197	—					
% Recovery	88%	94%	↓	98%	—					
TCLP100 → 25 BLANK FLUID 2	0.007	0.000	—	0.003	0.000					
Duplicate	—	—	—	—	—					
% RPD	—	—	—	—	—					
Spike	—	0.101	—	0.171	1.85					
% Recovery	—	101%	↓	86%	92%					
Duplicate										
% RPD										
Spike										
% Recovery										
Duplicate										
% RPD										
Spike										
% Recovery										
Duplicate										
% RPD										
Spike										
% Recovery										

Analyst:

Michelle Savore

QAQC Approval:

DeAnna M. Senegal

QUALITY CONTROL LOG

Parameter: Fluoride
Method of Analysis: DPA 600-340.2

Page: 1 of 1
Matrix: Liquid
Date/Time: 8-30-96/1400

Lab Numbers	Detection Limits	Calibration Stds./Blk	Absorbance/Conc.	Check Standards	Concentration Found/True
A4731-1	0.05mg/L	0.10ppm	0.0947	Sample Blank	FFM
		1.00 ppm	0.955	Method Blank	FFM
				P.E. Std. DPA 1188/1288	0.93/1.0 FFM
				Internal Std.	FFM
				0.05 ppm	0.05/0.05 ppm
				0.50	0.48/0.50
				2.00	1.9/2.0
		Correlation Coefficient:			
		Comments:			

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result	Sample Result	Spike Added	Percent Recovery
A4731-1	1.31	1.28	0.03	2.3	0.838	1.655	0.25	73.2

Analyst: Deanna Viret

QA/QC Approval: DeAnna M. Senega

QUALITY CONTROL LOG

Parameter: Mercury-HgPage: 1 of 2

Method of Analysis: SW-846; 7470/7471

Matrix: TCLP/EPTOX/H₂O/Soil

Date/Time: 28 AUG 90/1054

[illegible]

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result	Sample Result	Spike Added	Percent Recovery
-BLK SPIKE	<0.001	—	—	—	0.0060	*	0.005	120
A4703-1	<0.001	<0.001	*	*	0.0060	*	↓	120
A4693-1T	0.0011	—	—	—	0.0050	0.0011	500 ppm 0.0010ppm	94
-2T	0.0010	—	—	—	0.0063	0.0010	↓	106
-3T	<0.001	—	—	—	0.0055	*	↓	110
-4T	<0.001	—	—	—	0.0051	*	↓	102

Analyst: LeDR McKelvey

QA/QC Approval: DeAnna M. Seneg

ENSR LABS-HOUSTON
QUALITY CONTROL LOG

PARAMETER: Mercury - Hg DATE/TIME: 28 AUG 90/1054 PAGE 2 OF 2
INTERNAL QUALITY CONTROL DUPLICATES AND SPIKES

* BELOW MDL

[illegible]

ANALYST: LESLIE M. KELLEY Name 9/16/10 QA/QC APPROVAL: DeAnna M. Sene

ENSR Labs-Houston

QUALITY CONTROL LOG

Page: 1 of 2

Parameter: Mercury Hg

Matrix: TELP, Water

Method of Analysis: SW846-7470

Date/Time: 07 Sept. 90/1030

Lab Numbers	Detection Limits	Calibration Stds./Blk	Absorbance/Conc.	Check Standards	Concentration Found/True
A4758-1	0.001 mg/l	Blank	0.000 0.0000	Sample Blank	ppm
A4755-1T		0.002 ppm	0.018 0.0019	Method Blank	0.0000 ppm
A4735-10T, 11T		0.005 ppm	0.044 0.0048	P, E7-Std.	0.0081 0.0087 ppm
A4719-1T, 5T, 10T		0.010 ppm	0.087 0.0100	LEVS Internal Std.	0.0072 0.0075 ppm
A4726-6T				0.001 ppm	0.0009 0.001 ppm
A4742-1T					
A4726-(10T)		Correlation Coefficient:			
A4731-2T		Comments:			
A4732-(8-10T)					
A4773-(1-3)					
A4776-(1-3)					

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result	Sample Result	Spike Added	Percent Recovery
Blank	<0.001 mg/l				0.0050	*	0.005	100%
A4758-1	0.0040	0.0038	0.0002	5.13%				
A4735-11T	<0.001				0.0041	*	0.005	82%
A4719-1T	<0.001				0.0046	*	50% of 0.010	92
A4719-5T	<0.001				0.0048	*	50% of 0.010	96%
A4719-18T	<0.001	<0.001	*	*	0.0048	*	0.005	96%

Analyst: James M. Alth

QA/QC Approval: DeAnna M. Perce

**ENSR LABS-HOUSTON
QUALITY CONTROL LOG**

PARAMETER: Mercury Hg DATE/TIME: 07 Sept. 90 / 1030 PAGE 2 OF 2
INTERNAL QUALITY CONTROL DUPLICATES AND SPIKES

* BELOW MDL

LAB NO. - SAMPLE	SAMPLE CONC.	DUPLICATE CONC.	RANGE	PERCENT RPD	SPIKED RESULT	SAMPLE RESULT	SPIKE ADDED	PERCENT RECOVERY
A4726-7T	<0.001	_____	_____	_____	0.0091	*	0.005	82%
A4742-1T	<0.001	_____	_____	_____	0.0044	*	0.005	88
A4726-1T	'	_____	_____	_____	0.0042	*	50% of 0.010	84
A4726-2T		<0.0010	*	*	0.0043	*	0.005	86%
A4726-3T		_____	_____	_____	0.0041	*	0.005	82%
A4726-4T		_____	_____	_____	0.0044	*	0.005	88
A4726-5T		_____	_____	_____	0.0042	*	50% of 0.010	84
A4731-2T	✓	<0.001	*	*	0.0096	*	0.005	92
A4732-8T	0.0012	_____	_____	_____	0.0057	0.0006	50% of 0.010	90
A4732-10T	0.0027	_____	_____	_____	0.0063	0.00135	50% of 0.010	99
A4732-9T	<0.001	_____	_____	_____	0.0052	*	50% of 0.010	104
A4773-2	0.0030	_____	_____	_____	0.0081	0.0030	0.005	102
A4776-2	<0.001	<0.001	*	*	0.0048	*	50% of 0.010	96
A4755-1T	<0.001	<0.001	*	*	0.0044	*	0.005	88

ANALYST:

Jama Matter

QA/QC APPROVAL:

DeAnna M. Perez

QUALITY CONTROL LOG

Parameter: NO₂ (Nitrite)
 Method of Analysis: EPA 400: 353.3

Page: 1 of 1

Matrix: Liquid

Date/Time: 8-24-90/1010

Lab Numbers	Detection Limits
A4731-1	0.02mg/L

Calibration Stds./Blk	Reading: ppm
Std 1.0 ppm	1.000
0.50	0.500
0.20	0.200
0.101	0.101
0.05	0.050
0.02	0.019
Correlation Coefficient: 1.0000	

Comments:

Check Standards	Concentration Found/True
Sample Blank	
Method Blank	<0.02 ppm
P.E. Std.	ppm
Internal Std. 0.02 mg/L	0.02 ppm
1.00	0.996
0.25	0.252
Check std 0.1mg/L	0.101 ppm

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result	Sample Result	Spike Added	Percent Recovery
A4731-1	<0.02	<0.02	*	*	0.499	*	0.5	100%

Analyst: Lien Nguyen

QA/QC Approval: DeAnna M. Senega

QUALITY CONTROL LOG

Parameter: Nitrate-Nitrite as NitrogenPage: 1 of 1Method of Analysis: EPA 6.00: 253.3Matrix: LiquidDate/Time: 8-24-90/1327

Lab Numbers	Detection Limits	Calibration Stds./Blk	Reading: ppm	Check Standards	Concentration Found/True
A4731-1	0.02 mg/L	Std		Sample Blank	
		0.02 ppm	0.017	Method Blank	< 0.02 ppm
		0.05	0.055	P.E. Std. EPA 378-5	0.88/0.82 ppm
		0.10	0.098	Internal Std. 0.02 ppm	0.016 ppm
		0.20	0.208	0.25	0.239
		0.50	0.511	1.00	1.000
		1.00	0.994	Check Std 0.1 ppm	0.106 ppm
		Correlation Coefficient: 0.99987			
		Comments:			

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result	Sample Result	Spike Added	Percent Recovery
A4731-1	0.205	0.205	0	0	0.620	0.102	0.5	104%

Analyst: Lien NguyenQA/QC Approval: DeAnna L. Senega

ENSR Labs-Houston
QUALITY CONTROL LOG

Parameter: Pb Lead
Method of Analysis: ^{EPA} SW 846 : 7421 GFA

Page: 1 of 1
Matrix: Water LIDWID
Date/Time: 31 Aug 1990 0630

Lab Numbers	Detection Limits	Calibration Stds./Blk	Absorbance/Conc.	Check Standards	Concentration Found/True
@110 A4684-1→7	0.025 mg/L	BLANK	0.000 / -0.0001	Sample Blank	-0.000 / FFm
@11 A4684-8	0.0025 mg/L	0.010 ppm	0.055 / 0.0109	Method Blank A4684	0.0131 FFm
@12 A4731-1	0.0025 mg/L	0.020 ppm	0.092 / 0.0181	P.E. Std. EPA 19 @ 1/40	0.0264 / 0.025 FFm
		0.050 ppm	0.238 / 0.0510	Internal Std. 0.025 ppm	0.6264 / 0.025 FFm
				0.005 ppm	0.0051 ppm
		Correlation Coefficient:			
		Comments:			

Internal Quality Control Duplicates and Spikes								
* Below MDL								
Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result	Sample Result	Spike Added	Percent Recovery
A4684-BLK	0.0131	—	—	—	0.0300	0.0131	+0.02	84%
A4731-BLK	0.0030	—	—	—	0.0231	0.0030	+0.02	100%
A4684-5	<0.005	<0.005	*	*	0.0274	*	50% 0.050 ppm	110%
A4731-1	0.0025	—	—	—	0.0262	*	50% 0.050 ppm	105%

Analyst: Michelle Savore QA/QC Approval: DeAnna M. Seneca

QUALITY CONTROL LOG

Parameter: SulfatePage: 1 of 1Method of Analysis: EPA SW-846: 9038Matrix: LiquidDate/Time: 8-29-90/0850

Lab Numbers	Detection Limits	Calibration Stds./Blk	Absorbance/Conc.	Check Standards	Concentration Found/True
A4731-1	50mg/l	Blank	0.000 / <10	Sample Blank	ppm
		Std 10 ppm	0.060 / 10.1	Method Blank	<10.0 ppm
		20	0.145 / 19.6	P.E. Std. EPA 1188/1288	19/20 ppm
		30	0.243 / 30.6	Internal Std. 25 ppm	25 ppm
		40	0.325 / 39.7	Check 25 ppm	26 ppm
		(IS) 25	0.193 / 25.0		
		Correlation Coefficient: 0.9994			
		Comments:			

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result	Sample Result	Spike Added	Percent Recovery
A4731-1	37.05	36.6	0.45	1.2	32	18.5	15	90%

Analyst: Lien NguyenQA/QC Approval: DeAnna M. Perez

QUALITY CONTROL LOG

Parameter: Se Selenium

Page: 1 of 1

Method of Analysis: EPA SW-846 7740 GFA

Matrix: Liquid

Date/Time: 7 Sept 90 0800

Lab Numbers	Detection Limits	Calibration Stds./Blk	Absorbance/Conc.	Check Standards	Concentration Found/True
A4731-1	0.002 ^{ng/L}	BLANK	-0.001/0.0008	Sample Blank A4731	0.0006 ppm
A4773-1	0.002 ^{ng/L}	0.010 ppm	0.022/0.0107	Method Blank 1	0.0008 ppm
A4758-1	0.002 ^{ng/L}	0.020 ppm	0.043/0.0194	P.E. Std. ECAP 190/40	0.0242 ppm 0.025 ppm
A4755-1	0.005 ^{ng/L}	0.050 ppm	0.088/0.0517	Internal Std. 0.025 ppm	0.0251 ppm 0.0250 ppm
				0.005 ppm	0.0047 ppm
				0.002 ppm	0.0018 ppm
		Correlation Coefficient:			
		Comments:			

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result	Sample Result	Spike Added	Percent Recovery
A4731-1	<0.002	<0.002	*	*	0.0244	*	50% ^{SB} 0.050 ppm	98%
A4773-1	<0.002	<0.002	*	*	0.0214	*	50% ^{SB} 0.050 ppm	86%
A4758-1	<0.002	<0.002	*	*	0.0266	*	50% ^{SB} 0.050 ppm	106%
TCUP 50-750 A4755-1	<0.005	<0.005	*	*	0.0235	*	+0.020	118%

Analyst: Michelle Savore

QA/QC Approval: DeAnna M. Seneg

ENSR Labs-Houston

QUALITY CONTROL LOG

Parameter: Total Petroleum Hydrocarbons-Soil

Page: 1 of 1

Method of Analysis: EPA600/418-1 SW-846/9071

Matrix: Soil

Date/Time: 8-29-90/1500

Lab Numbers	Detection Limits	Calibration Stds./Blk	Absorbance/Conc.	Check Standards	Concentration Found/True
A4708(1-5)	40 ^{ms} /kg	2.1	0.0743/1.81	Sample Blank	
A4710-15	70 ^{ms} /kg	4.2	0.1012/3.81	Method Blank	Abs. 0.0176
A4731-2	1.0%	8.5	0.1575/7.97	P.E. Std.	
A4731(3-7) (4-13)	40 ^{ms} /kg	17.0	0.3007/14.6	Internal Std.	23.4/21.3
A4731-8	0.08%	42.5	0.6153/41.9	IS 21.3	23.0/21.3
A4735(1-3,5) (7-9)	40 ^{ms} /kg	IS 21.3	0.3666/23.4		
A4735-10	0.18%	Correlation Coefficient: 0.9984			
		Comments:			

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result (mg)	Sample Result (mg)	Spike Added (mg)	Percent Recovery (mg)
A4708-1	240	240	*	*	9.8	0.8	8.5	106%
A4710-15	782	854	72	8.9%	←	Diluted out	→	
A4731-4	168	145	23	14.7%	12.0	4.1	8.5	93%
A4731-7	240	240	*	*	8.0	2.2	8.5	94%
A4735-9	198	203	5	2.5%	13.7	5.3	8.5	99%

Analyst: Emek Ndubuisi

QA/QC Approval: DeAnna M. Senega

QUALITY CONTROL LOG

Parameter: PH COOLING

Method of Analysis: QPR SW-846:9040

Page: / of /

Matrix: *land*

Date/Time: 8-28-90 11400

[illegible]

Internal Quality Control Duplicates and Spikes

* Below MDL

[illegible]

Analyst:

QA/QC Approval:

QUALITY CONTROL LOG

Date/Time: 8-28-90/1400

[illegible]QA/QC Approval: DeAnna M. Seneca

REV. 0.02, 15/10/0.4088

DEF HCN

METHOD OF ANALYSIS § 846 73.4.1 PARAMETER

CN.W MATRIX H₂O

ANALYST

J. A. UEN DATE 11 SEP 1971 TIME 1300

CALIBRATION STANDARDS/BLANK

570	0.03	3.75
	0.05	9.25
	0.10	18.50
	0.50	85.0
score LR, 999899		

568656 27 2008

LAB NUMBERS/SAMPLE ID NUMBERS IN THIS RUN:

Ref HCN 90-08-105-1 : 09-070-4

CN 90-09-096-11

STANDARDS	CONCENTRATION	CONCENTRATION	RECOVERY
1	1.00M	1.00M	100%
2	0.50M	0.50M	100%
3	0.25M	0.25M	100%
4	0.125M	0.125M	100%
5	0.0625M	0.0625M	100%
6	0.03125M	0.03125M	100%
7	0.015625M	0.015625M	100%
8	0.0078125M	0.0078125M	100%
9	0.00390625M	0.00390625M	100%
10	0.001953125M	0.001953125M	100%
11	0.0009765625M	0.0009765625M	100%
12	0.00048828125M	0.00048828125M	100%
13	0.000244140625M	0.000244140625M	100%
14	0.0001220703125M	0.0001220703125M	100%
15	0.00006103515625M	0.00006103515625M	100%
16	0.000030517578125M	0.000030517578125M	100%
17	0.0000152587890625M	0.0000152587890625M	100%
18	0.00000762939453125M	0.00000762939453125M	100%
19	0.000003814697265625M	0.000003814697265625M	100%
20	0.0000019073486328125M	0.0000019073486328125M	100%
21	0.00000095367431640625M	0.00000095367431640625M	100%
22	0.000000476837158203125M	0.000000476837158203125M	100%
23	0.0000002384185791015625M	0.0000002384185791015625M	100%
24	0.00000011920928955078125M	0.00000011920928955078125M	100%
25	0.000000059604644775390625M	0.000000059604644775390625M	100%
26	0.0000000298023223876953125M	0.0000000298023223876953125M	100%
27	0.00000001490116119384765625M	0.00000001490116119384765625M	100%
28	0.000000007450580596923828125M	0.000000007450580596923828125M	100%
29	0.0000000037252902984619140625M	0.0000000037252902984619140625M	100%
30	0.00000000186264514923095703125M	0.00000000186264514923095703125M	100%
31	0.000000000931322574615478515625M	0.000000000931322574615478515625M	100%
32	0.0000000004656612873077392578125M	0.0000000004656612873077392578125M	100%
33	0.00000000023283064365386962890625M	0.00000000023283064365386962890625M	100%
34	0.000000000116415321826934814453125M	0.000000000116415321826934814453125M	100%
35	0.0000000000582076609134674072265625M	0.0000000000582076609134674072265625M	100%
36	0.00000000002910383045673370361328125M	0.00000000002910383045673370361328125M	100%
37	0.000000000014551915228366851806640625M	0.000000000014551915228366851806640625M	100%
38	0.0000000000072759576141834259033203125M	0.0000000000072759576141834259033203125M	100%
39	0.00000000000363797880709171295166015625M	0.00000000000363797880709171295166015625M	100%
40	0.000000000001818989403545856475830078125M	0.000000000001818989403545856475830078125M	100%
41	0.0000000000009094947017729282379150390625M	0.0000000000009094947017729282379150390625M	100%
42	0.00000000000045474735088646411895751953125M	0.00000000000045474735088646411895751953125M	100%
43	0.000000000000227373675443232059478759765625M	0.000000000000227373675443232059478759765625M	100%
44	0.0000000000001136868377216160297393798828125M	0.0000000000001136868377216160297393798828125M	100%
45	0.00000000000005684341886080801486968994140625M	0.00000000000005684341886080801486968994140625M	100%
46	0.000000000000028421709430404007434844970703125M	0.000000000000028421709430404007434844970703125M	100%
47	0.000000000000014210854715		

BLANK				
570 0.10	0.100	0.1044	104	
0.50	0.500	0.4904	98	
METHOD BLANK				

LETWOOD BLANK

QUALITY CONTROL, DUPLICATES AND SPIKES

PERCENT RECOVERY CALCULATION:

$$\frac{\text{SPIKED SAMPLE} - \text{SAMPLE}}{\text{THEORETICAL}} \times 100$$

SPIKED

[illegible][illegible]

SAMPLES RUN BY NDA:

PRECISION 2 -	FIRST CONC. - REPLICATE CONC.		x 100
	MEAN		
1	100	100	100
2	100	100	100
3	100	100	100
4	100	100	100
5	100	100	100
6	100	100	100
7	100	100	100
8	100	100	100
9	100	100	100
10	100	100	100
11	100	100	100
12	100	100	100
13	100	100	100
14	100	100	100
15	100	100	100
16	100	100	100
17	100	100	100
18	100	100	100
19	100	100	100
20	100	100	100
21	100	100	100
22	100	100	100
23	100	100	100
24	100	100	100
25	100	100	100
26	100	100	100
27	100	100	100
28	100	100	100
29	100	100	100
30	100	100	100
31	100	100	100
32	100	100	100
33	100	100	100
34	100	100	100
35	100	100	100
36	100	100	100
37	100	100	100
38	100	100	100
39	100	100	100
40	100	100	100
41	100	100	100
42	100	100	100
43	100	100	100
44	100	100	100
45	100	100	100
46	100	100	100
47	100	100	100
48	100	100	100
49	100	100	100
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69	100	100	100
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82	100	100	100
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85	100	100	100
86	100	100	100
87	100	100	100
88	100	100	100
89	100	100	100
90	100	100	100
91	100	100	100
92	100	100	100
93	100	100	100
94	100	100	100
95	100	100	100
96	100	100	

I.Q.A.C. APPROVAL.

September 7, 1990

Ms. Dayna Bocca
ENSR Laboratories
2925 Richmond Ave
Houston, TX 77098

LABORATORY REPORT

TCLP extract samples received 09/04/90. Project #3519-003-135.

Sample ID	Arsenic, mg/l	Selenium, mg/l	WQS ID
2T	0.005	<0.002	4897
10T	0.003	<0.001	4898
11T	<0.002	0.003	4899
1T	0.003	0.004	4900
TCLP Blank	<0.002	0.003	4901

Quality Control

Analysis	Arsenic	Selenium
Method	7060	7741
Analyst	MD	MD
Date	09/07/90	09/07/90
Time	1115	0950
MDL	0.002	0.001
Dup-1	<0.002	0.002
Dup-2	<0.002	0.003
Spike	90	91

WATER QUALITY SERVICES


Anne Fidelman
General Manager



SOUTHERN PETROLEUM LABORATORIES, INC.

CERTIFICATE OF ANALYSIS NUMBER 181320

PROJECT NO.: 3519-003-135

DATE: SEPTEMBER 14, 1990

SAMPLE ID.: 2 UHT-WDA SLUDGE
08/21/90 @ 17:30 Hrs.

LAB. NO.: A4731

FOR: ERT LABORATORIES
AN ENSR COMPANY
3000 RICHMOND AVENUE
HOUSTON, TEXAS 77098

ATTN: TOMMYE PENTECOST

ASTM D-93
FLASH POINT, P.M.

> 210 DEG. F.

(RUN 09/11/90)

SOUTHERN PETROLEUM LABORATORIES, INC.

J. C. WINFREY

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ENSR LAB-Hou
Lab Sample ID: A4731-1
Client Sample ID: WW

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: 100.0

Date Extracted: 08/24/90
Date Analyzed: 08/24/90
Dilution Factor: 1.0

VOLATILE COMPOUNDS

CAS Number		UG/L	CAS Number		UG/L
74-87-3	Chloromethane	10 <	78-87-5	1,2-Dichloropropane . . .	5 <
74-83-9	Bromomethane	10 <	10061-01-5	cis-1,3-Dichloropropene .	5 <
75-01-4	Vinyl Chloride	10 <	79-01-6	Trichloroethene	5 <
75-00-3	Chloroethane	10 <	124-48-1	Dibromochloromethane . . .	5 <
75-09-2	Methylene Chloride	6 B	79-00-5	1,1,2-Trichloroethane . .	5 <
67-64-1	Acetone	16 B	71-43-2	Benzene	5 <
75-15-0	Carbon Disulfide	5 <	10061-02-6	trans-1,3-Dichloropropene	5 <
75-35-4	1,1-Dichloroethene	5 <	110-75-8	2-Chloroethylvinylether .	10 <
75-34-3	1,1-Dichloroethane	5 <	75-25-2	Bromoform	5 <
156-60-5	trans-1,2-Dichloroethene .	5 <	108-10-1	4-Methyl-2-Pentanone . . .	10 <
67-66-3	Chloroform	5 <	591-78-6	2-Hexanone	10 <
107-06-2	1,2-Dichloroethane	5 <	127-18-4	Tetrachloroethene	5 <
78-93-3	2-Butanone	10 <	79-34-5	1,1,2,2-Tetrachloroethane	5 <
71-55-6	1,1,1-Trichloroethane . .	5 <	108-88-3	Toluene	5 <
56-23-5	Carbon Tetrachloride . . .	5 <	108-90-7	Chlorobenzene	5 <
108-05-4	Vinyl Acetate	10 <	100-41-4	Ethylbenzene	5 <
75-27-4	Bromodichloromethane . . .	5 <	100-42-5	Styrene	5 <
			1330-20-7	Xylene (Total)	5 <

The Lab ID for data on this page is A47311.

B - Compound was detected in the QC blank.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

Form I

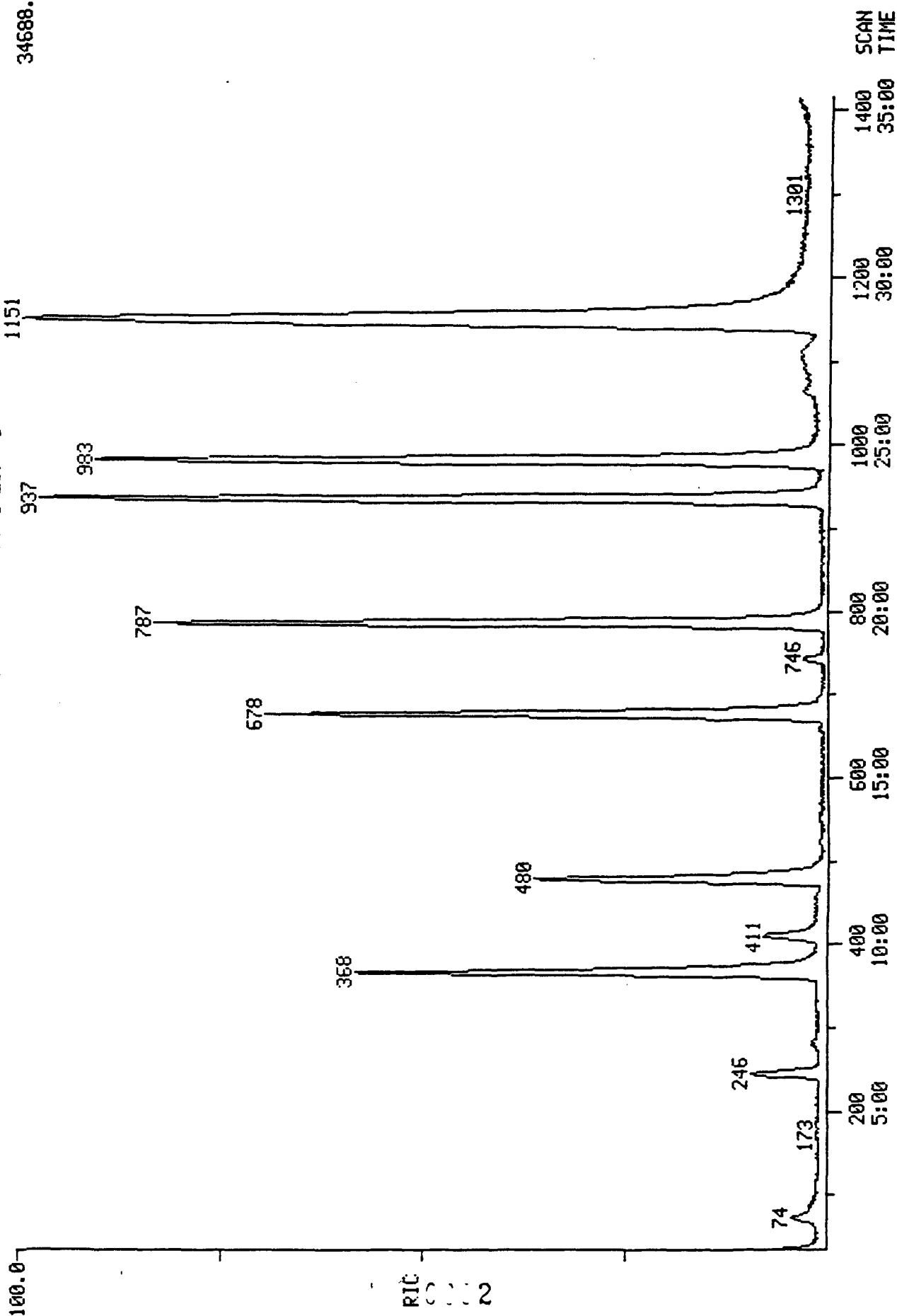
RIC
08/24/90 21:23:00
SAMPLE: MW
CONDS.: I50C
RANGE: G 1.1420

DATA: A47311 #1
CALI: A47311 #3

SCANS 35 TO 1415

LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

34688.



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ENSR LAB-Hou
 Lab Sample ID: A4731-2T
 Client Sample ID: UHT1-WDA-TCLP

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: 100.0

Date Extracted: 09/06/90
 Date Analyzed: 09/06/90
 Dilution Factor: 1.0

TCLP VOLATILES

CAS Number	UG/L	CAS Number	UG/L
110-86-1 Pyridine	50 <	56-23-5 Carbon Tetrachloride . . .	5 <
75-01-4 Vinyl Chloride	10 <	79-01-6 Trichloroethene	5 <
75-35-4 1,1-Dichloroethene	5 <	71-43-2 Benzene	8
67-66-3 Chloroform	5 <	127-18-4 Tetrachloroethene	5 <
107-06-2 1,2-Dichloroethane	5 <	108-90-7 Chlorobenzene	5 <
78-93-3 2-Butanone	11		

The Lab ID for data on this page is A47312T.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

Form I

100013

RIC

09/06/90 15:26:00

SAMPLE: UHT1-MDA, TCLP

CONDS.: 150C

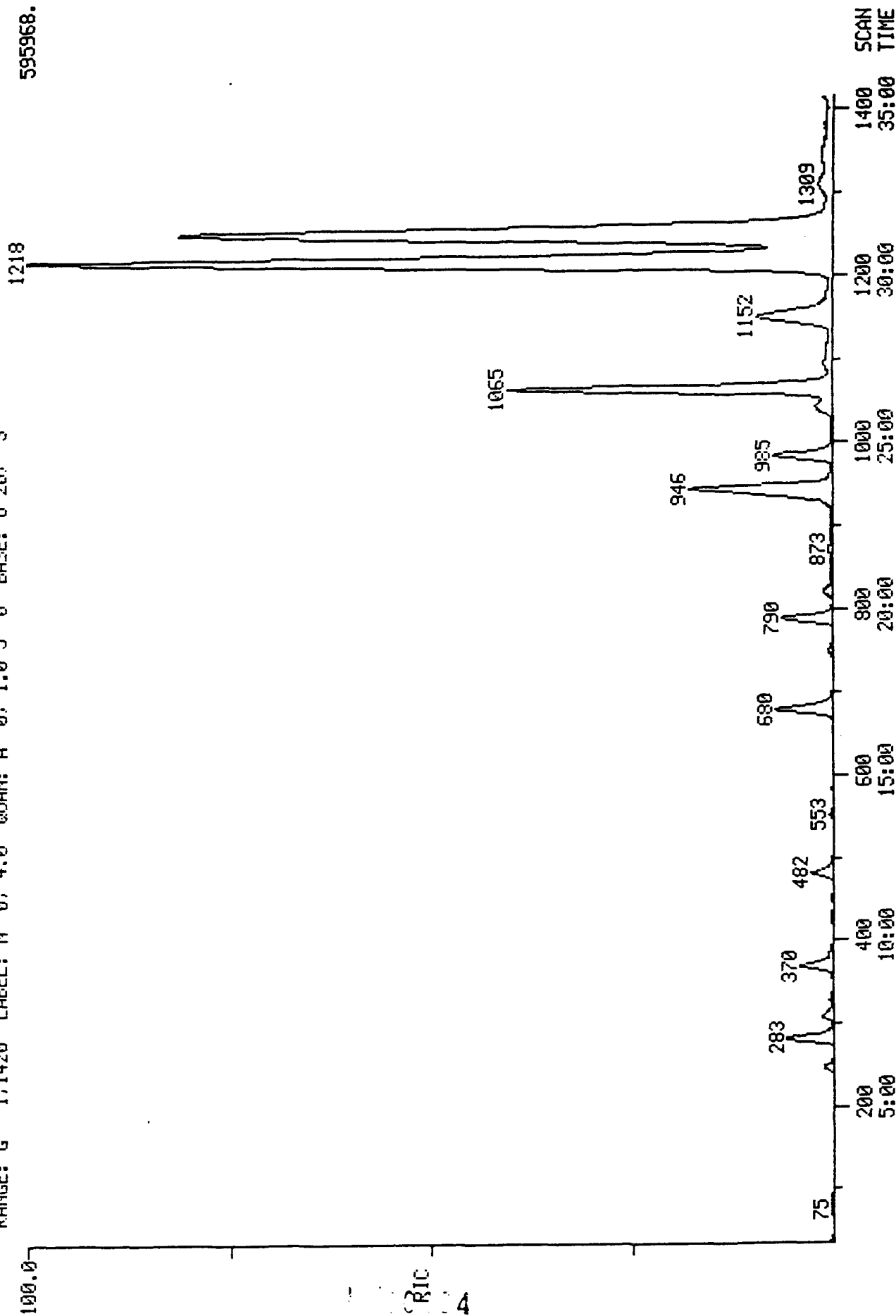
RANGE: G 1.1420 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20. 3

DATA: A47312T #1

CALI: A47312T #3

SCANS 35 TO 1415

100.0 595968.



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ENSR LAB-Hou
Lab Sample ID: A4731-0T
Client Sample ID: TCLP BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: 100.0

Date Extracted: 09/06/90
Date Analyzed: 09/06/90
Dilution Factor: 1.0

TCLP VOLATILES

CAS Number		UG/L		CAS Number		UG/L	
110-86-1	Pyridine	50	<	56-23-5	Carbon Tetrachloride . . .	5	<
75-01-4	Vinyl Chloride	10	<	79-01-6	Trichloroethene	5	<
75-35-4	1,1-Dichloroethene	5	<	71-43-2	Benzene	5	<
67-66-3	Chloroform	5	<	127-18-4	Tetrachloroethene	5	<
107-06-2	1,2-Dichloroethane	5	<	108-90-7	Chlorobenzene	5	<
78-93-3	2-Butanone	10	<				

The Lab ID for data on this page is A47310.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

Form I

RIC

09/06/90 14:32:00

SAMPLE: TCLP BLANK

COND.: 150C

RANGE: G 1.1420 LABEL: N 0. 4.0 QUAN: A 0. 1.0 J 0 BASE: U 20. 3

DATA: A47310 #1

CALI: A47310 #3

SCANS 35 TO 1415

100.0

553

RIC

6

1154

940

681

791

283

370

482

874

614

1340

1222

1041

200

400

600

800

1000

1200

1400

SCAN

5:00

10:00

15:00

20:00

25:00

30:00

35:00

TIME

217600.

BROMOFLUOROBENZENE

Tuning Report

08/24/90 13:09:00 + 7:21

Instrument: I50C

#279 to #310 averaged - #316

Case Number:

Data: BF082490C1 # 294

Cali: BF082490C1 # 3

Analyst: BPB

Laboratory:

Base m/z: 95

RIC: 4656.

Acct. No.: 8506-090

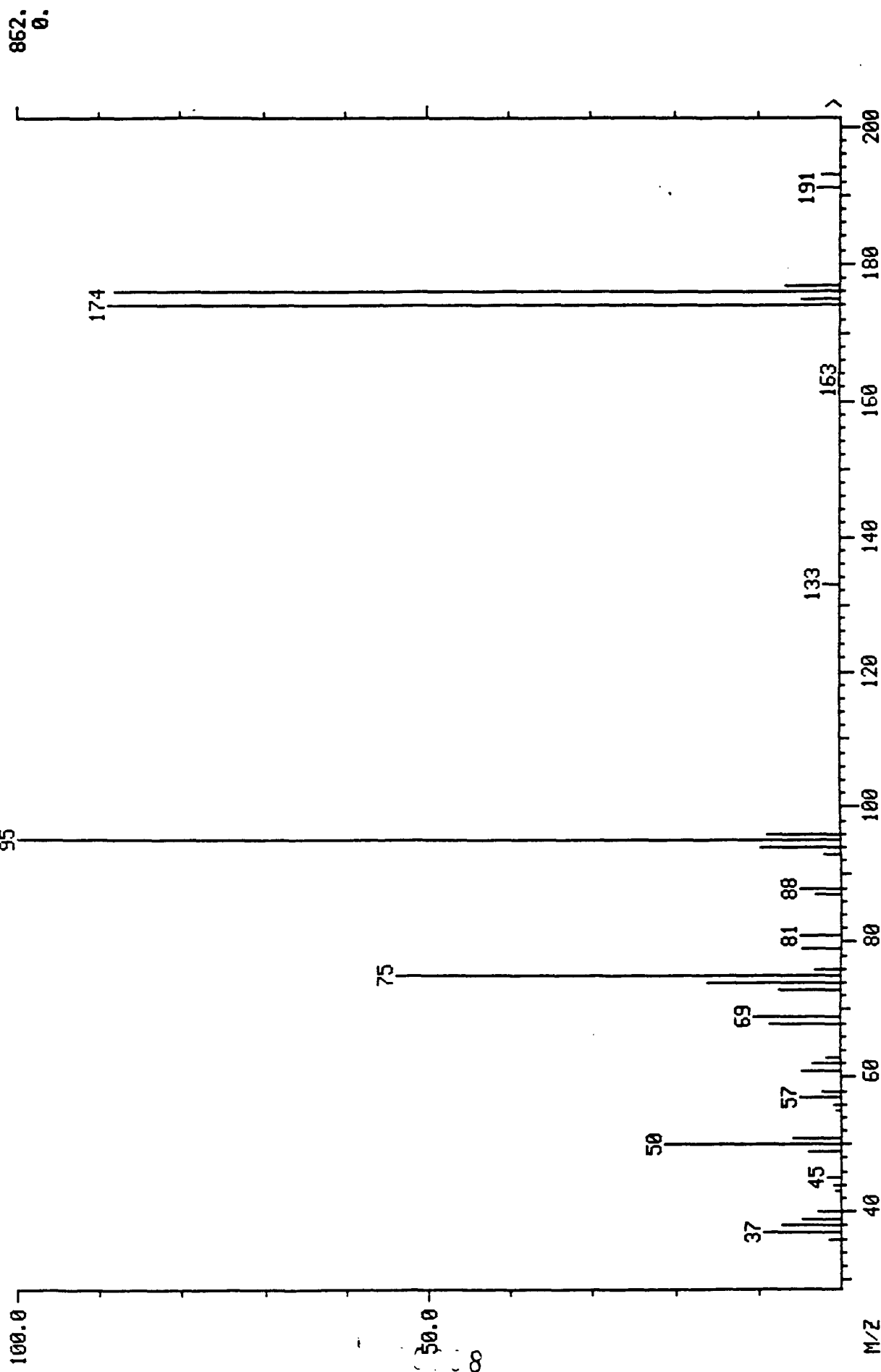
Contract:

m/z	Intensity	% RA	Ion Abundance Criteria			Actual	Status
			Min %	Max %	Mass		
50	183.	21.2	15.0	40.0	95	21.2	PASS
75	465.	53.9	30.0	60.0	95	53.9	PASS
95	862.	100.0	100.0	---	---	100.0	PASS
96	76.	8.8	5.0	9.0	95	8.8	PASS
173	0.	0.0	---	2.0	174	0.0	PASS
174	767.	89.0	50.0	---	95	89.0	PASS
175	41.	4.8	5.0	9.0	174	5.3	PASS
176	760.	88.2	95.0	101.0	174	99.1	PASS
177	56.	6.5	5.0	9.0	176	7.4	PASS

100007

MASS SPECTRUM
08/24/90 13:09:00 + 7:21
SAMPLE: BFB CALIBRATION
CONDS.: 150C
TEMP: 225 DEG. C
#279 TO #310 AVERAGED - #316 - #273 TO #274

DATA: BF082490C1 #294
CALI: BF082490C1 #3
BASE M/Z: 95
RIC: 4656.



Mass List
08/24/90 13:09:00 + 7:21
Sample: BFB CALIBRATION
Conds.: I50C

Data: BF082490C1 # 294
Cali: BF082490C1 # 3

Base m/z: 93
RIC: 4656.

#279 to #310 averaged - #316

36 209 Mass		0.00 % RA	0. Inten.	Minima Maxima	Min Inten: # 0	0.
36?	S	1.51	13.			
37?	S	9.51	82.			
38?	S	7.08	61.			
39?	S	4.64	40.			
40?	S	2.67	23.			
43?	S	0.58	5.			
44?	S	0.81	7.			
45?	S	1.74	15.			
49?	S	3.83	33.			
50?	S	21.23	183.			
51?	S	5.68	49.			
55?	S	0.58	5.			
56?	S	0.81	7.			
57?	S	5.10	44.			
58?	S	2.20	19.			
61?	S	4.76	41.			
62?	S	3.25	28.			
63?	S	1.74	15.			
68?	S	8.58	74.			
69	S	10.44	90.			
73	S	7.42	64.			
74	S	16.01	138.			
75	S	53.94	465.			
76	S	3.13	27.			
79	S	4.64	40.			
81	S	4.87	42.			
87	S	3.13	27.			
88	S	5.10	44.			
93	S	1.97	17.			
94	S	9.63	83.			
95	S	100.00	862.			
96	S	8.82	76.			
133	S	1.86	16.			
163	S	0.12	1.			
174	S	88.98	767.			
175	S	4.76	41.			
176	S	88.17	760.			
177	S	6.50	56.			
191	S	2.90	25.			
193	S	2.20	19.			
207	S	20.65	178.			
208	S	5.22	45.			
209	S	2.32	20.			

BROMOFLUOROBENZENE

Tuning Report

08/28/90 12:34:00 + 7:18

Instrument: I50C

#283 to #301 averaged - #302

Case Number:

Data: BF082890C1 # 292

Cali: BF082890C1 # 3

Analyst: BPB

Laboratory:

Base m/z: 95

RIC: 6528.

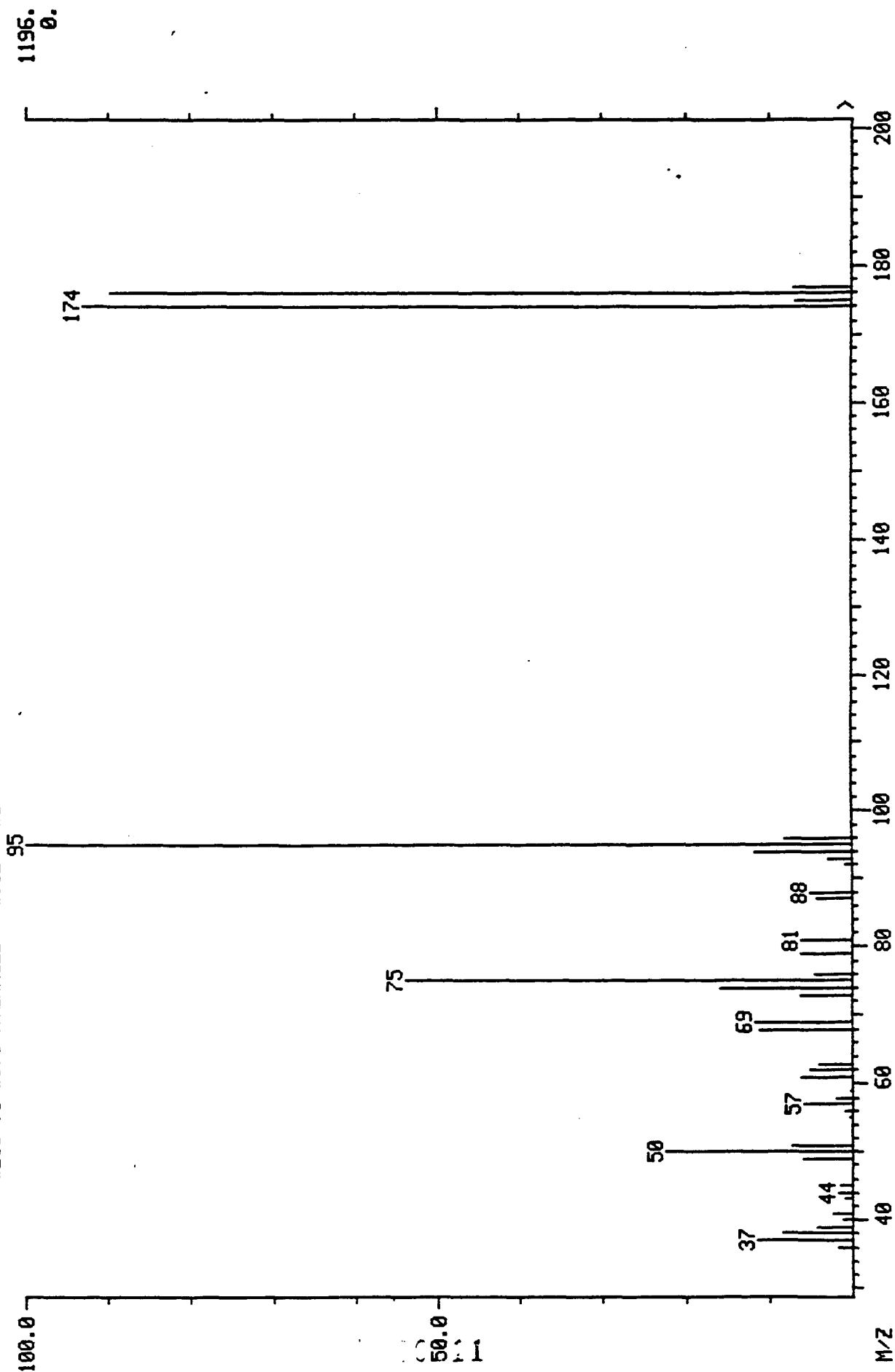
Acct. No.: 8506-090

Contract:

m/z	Intensity	% RA	Ion Abundance Criteria			Actual	Status
			Min %	Max %	Mass		
50	267.	22.3	15.0	40.0	95	22.3	PASS
75	643.	53.8	30.0	60.0	95	53.8	PASS
95	1196.	100.0	100.0	---	---	100.0	PASS
96	96.	8.0	5.0	9.0	95	8.0	PASS
173	0.	0.0	---	2.0	174	0.0	PASS
174	1112.	93.0	50.0	---	95	93.0	PASS
175	79.	6.6	5.0	9.0	174	7.1	PASS
176	1074.	89.8	95.0	101.0	174	96.6	PASS
177	83.	6.9	5.0	9.0	176	7.7	PASS

MASS SPECTRUM
08/28/90 12:34:00 + 7:18
SAMPLE: BFB CALIBRATION
CONDS.: I50C
TEMP: 225 DEG. C
#283 TO #301 AVERAGED - #302 - #271 TO #272

DATA: BF082890C1 #292
CALI: BF082890C1 #3
BASE M/Z: 95
RIC: 6528.



Mass List
08/28/90 12:34:00 + 7:18
Sample: BFB CALIBRATION
Conds.: I50C

Data: BF082890C1 # 292
Cali: BF082890C1 # 3

Base m/z: 95
RIC: 6528.

#283 to #301 averaged - #302

36	0.00	0.	Minima	Min Inten:	0.
208			Maxima	#	0
Mass	% RA	Inten.			
36?	S	1.67			20.
37?	S	11.37			136.
38?	S	8.28			99.
39?	S	4.26			51.
40?	S	1.00			12.
41?	S	2.26			27.
43?	S	0.84			10.
44?	S	1.76			21.
45?	S	1.42			17.
49?	S	5.69			68.
50?	S	22.32			267.
51?	S	7.19			86.
55?	S	0.33			4.
56?	S	0.92			11.
57?	S	5.94			71.
58?	S	1.84			22.
59?	S	0.25			3.
61?	S	6.02			72.
62?	S	5.10			61.
63?	S	3.76			45.
68?	S	11.04			132.
69	S	11.54			138.
73	S	6.19			74.
74	S	15.80			189.
75	S	53.76			643.
76	S	4.52			54.
79	S	6.02			72.
81	S	6.19			74.
87	S	4.10			49.
88	S	5.02			60.
92	S	0.84			10.
93	S	2.84			34.
94	S	11.62			139.
95	S	100.00			1196.
96	S	8.03			96.
174	S	92.98			1112.
175	S	6.61			79.
176	S	89.80			1074.
177	S	6.94			83.
207	S	8.86			106.
208	S	0.50			6.

BROMOFLUOROBENZENE

Tuning Report

09/06/90 12:16:00 + 7:16

Instrument: I50C

#291 to #292 averaged - #319

Case Number:

Data: BF090690C1 # 291

Cali: CALTAB # 3

Analyst: BPB

Laboratory:

Base m/z: 95

RIC: 12240.

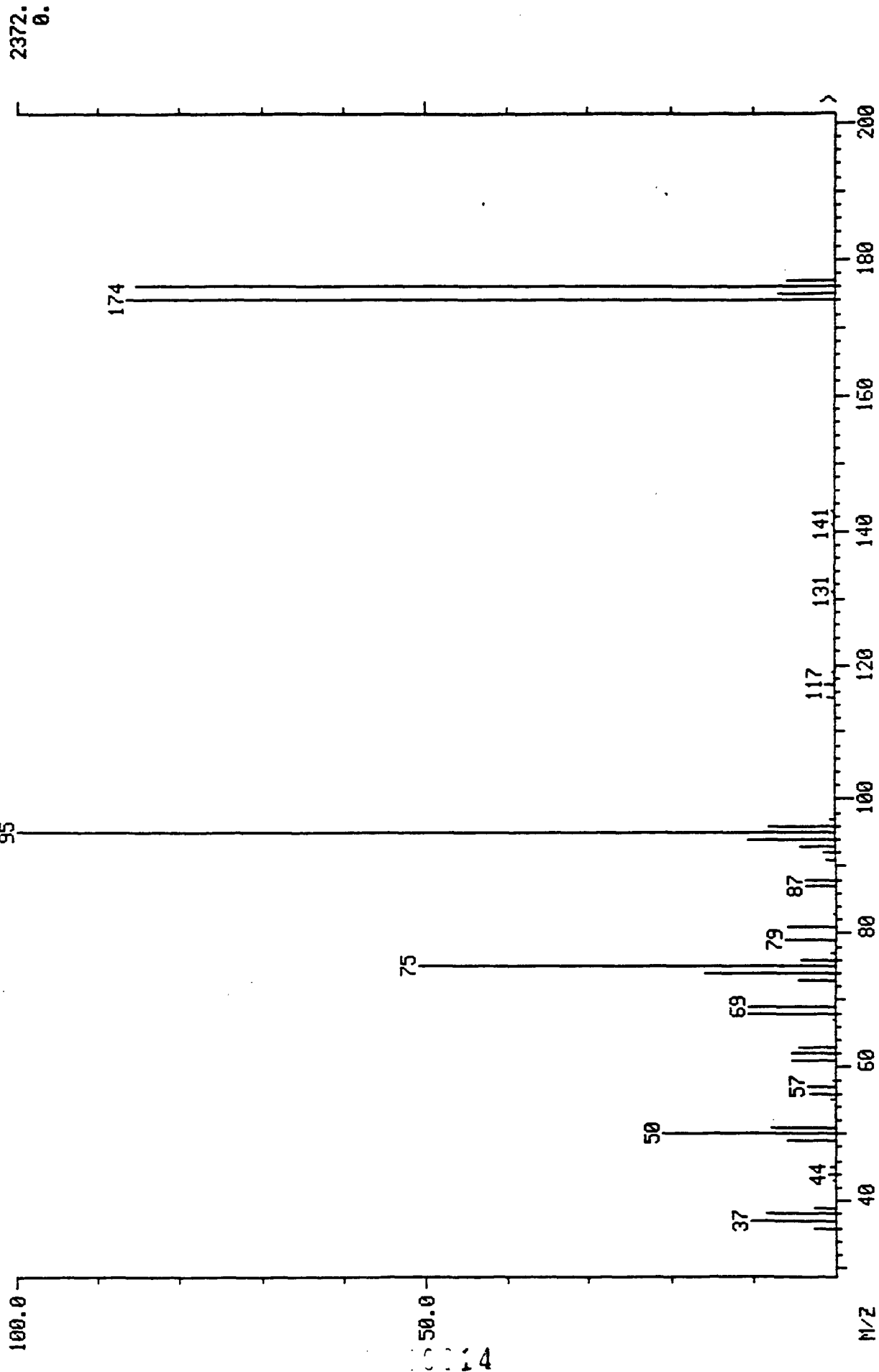
Acct. No.: 8506-090

Contract:

m/z	Intensity	% RA	Ion Abundance Criteria			Actual	Status
			Min %	Max %	Mass		
50	500.	21.1	15.0	40.0	95	21.1	PASS
75	1206.	50.8	30.0	60.0	95	50.8	PASS
95	2372.	100.0	100.0	---	---	100.0	PASS
96	193.	8.1	5.0	9.0	95	8.1	PASS
173	0.	0.0	---	2.0	174	0.0	PASS
174	2052.	86.5	50.0	---	95	86.5	PASS
175	161.	6.8	5.0	9.0	174	7.8	PASS
176	2028.	85.5	95.0	101.0	174	98.8	PASS
177	136.	5.7	5.0	9.0	176	6.7	PASS

MASS SPECTRUM
09/06/90 12:16:00 + 7:16
SAMPLE: BFB CALIBRATION
CONDS.: 150C
TEMP: 225 DEG. C
#291 TO #292 AVERAGED - #319 - #273 TO #274

DATA: BF090630C1 #291
CALI: CALTAB #3
BASE M/Z: 95
RIC: 12240.



Mass List
09/06/90 12:16:00 + 7:16
Sample: BFB CALIBRATION
Conds.: I50C

Data: BF090690C1 # 291
Cali: CALTAB # 3

Base m/z: 95
RIC: 12240.

#291 to #292 averaged - #319

36	0.00	0.	Minima	Min Inten:	0.
207			Maxima	# 0	
Mass	% RA	Inten.			
36?	S 2.36	56.			
37?	S 10.16	241.			
38?	S 8.22	195.			
39?	S 2.40	57.			
43?	S 0.21	5.			
44?	S 0.89	21.			
45?	S 0.42	10.			
49?	S 5.73	136.			
50?	S 21.08	500.			
51?	S 7.72	183.			
55?	S 0.46	11.			
56?	S 2.99	71.			
57?	S 3.37	80.			
58?	S 0.25	6.			
61?	S 5.35	127.			
62?	S 5.31	126.			
63?	S 4.51	107.			
67?	S 0.21	5.			
68?	S 10.46	248.			
69	S 10.50	249.			
73	S 4.55	108.			
74	S 15.81	375.			
75	S 50.84	1206.			
76	S 4.17	99.			
77	S 0.55	13.			
79	S 6.16	146.			
81	S 5.69	135.			
83	S 0.17	4.			
87	S 3.71	88.			
88	S 3.58	85.			
91	S 1.05	25.			
92	S 1.39	33.			
93	S 4.17	99.			
94	S 10.41	247.			
95	S 100.00	2372.			
96	S 8.14	193.			
97	S 0.42	10.			
115	S 0.84	20.			
117	S 1.22	29.			
119	S 0.38	9.			
131	S 0.34	8.			
141	S 0.38	9.			
143	S 0.34	8.			
174	S 86.51	2052.			
175	S 6.79	161.			
176	S 85.50	2028.			
177	S 5.73	136.			
207	S 3.41	81.			

**CONTINUING CALIBRATION CHECK
VOLATILE HSL COMPOUNDS**

Case No: CALIB
Contractor: ENSR LAB-Hou
Contract No:
Instrument ID: I50C

Region:

Calibration Date: 08/24/90
Time: 13:23
Laboratory ID: CC082490C1
Initial Cali. Date: 08/23/90

Minimum RF for SPCC is 0.300 (1)

Maximum %D for CCC is 25%

Compound	AVE RF	RF(50)	% D	CCC	SPCC
Chloromethane	1.252	1.347	-7.6		* *
Bromomethane	1.365	1.487	-8.9		
Vinyl Chloride	1.225	1.394	-13.8	*	
Chloroethane	0.753	0.831	-10.4		
Methylene Chloride	1.763	1.788	-1.4		
Acetone	0.328	0.288	12.2		
Carbon Disulfide	3.160	3.479	-10.1		
1,1-Dichloroethene	1.416	1.485	-4.9	*	
1,1-Dichloroethane	3.103	3.240	-4.4		* *
trans-1,2-Dichloroethene	1.462	1.442	1.4		
Chloroform	3.417	3.268	4.4	*	
1,2-Dichloroethane	2.375	2.264	4.7		
2-Butanone	0.015	0.018	-20.0		
1,1,1-Trichloroethane	0.688	0.744	-8.1		
Carbon Tetrachloride	0.666	0.706	-6.0		
Vinyl Acetate	0.284	0.543	-91.2		
1,2-Dichloromethane	0.663	0.667	-0.6		
1,2-Dichloropropane	0.453	0.454	-0.2	*	
cis-1,3-Dichloropropene	0.515	0.521	-1.2		
Trichloroethene	0.562	0.516	8.2		
Dibromochloromethane	0.558	0.561	-0.5		
1,1,2-Trichloroethane	0.343	0.342	0.3		
Benzene	1.027	1.042	-1.5		
trans-1,3-Dichloropropene	0.455	0.430	5.5		
2-Chloroethylvinylether	0.207	0.198	4.3		
Bromoform	0.416	0.403	3.1		* *
4-Methyl-2-Pentanone	0.300	0.131	56.3		
2-Hexanone	0.085	0.160	-88.2		
Tetrachloroethene	0.642	0.669	-4.2		
1,1,2,2-Tetrachloroethane	0.462	0.539	-16.7		* *
Toluene	0.806	0.804	0.2	*	
Chlorobenzene	1.139	1.156	-1.5		* *
Ethylbenzene	0.552	0.549	0.5	*	
Styrene	0.876	0.869	0.8		
Xylene (Total)	0.538	0.550	-2.2		

RF(50) - Response Factor from daily standard file at
50 ug/l

AVE RF - Average Response Factor from initial
calibration Form VI

%D - - - Percent Difference

CCC - - - Calibration Check Compounds (*)

SPCC - - - System Performance Check Compounds (**)

(1) - - - Minimum RF for Bromoform is 0.250

RIC

08/24/90 13:23:00

SAMPLE: CONTINUING CALIBRATION

CONDS.: I50C

RANGE: G 1.1420 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: CC082490C1 #1

CALI: CC082490C1 #3

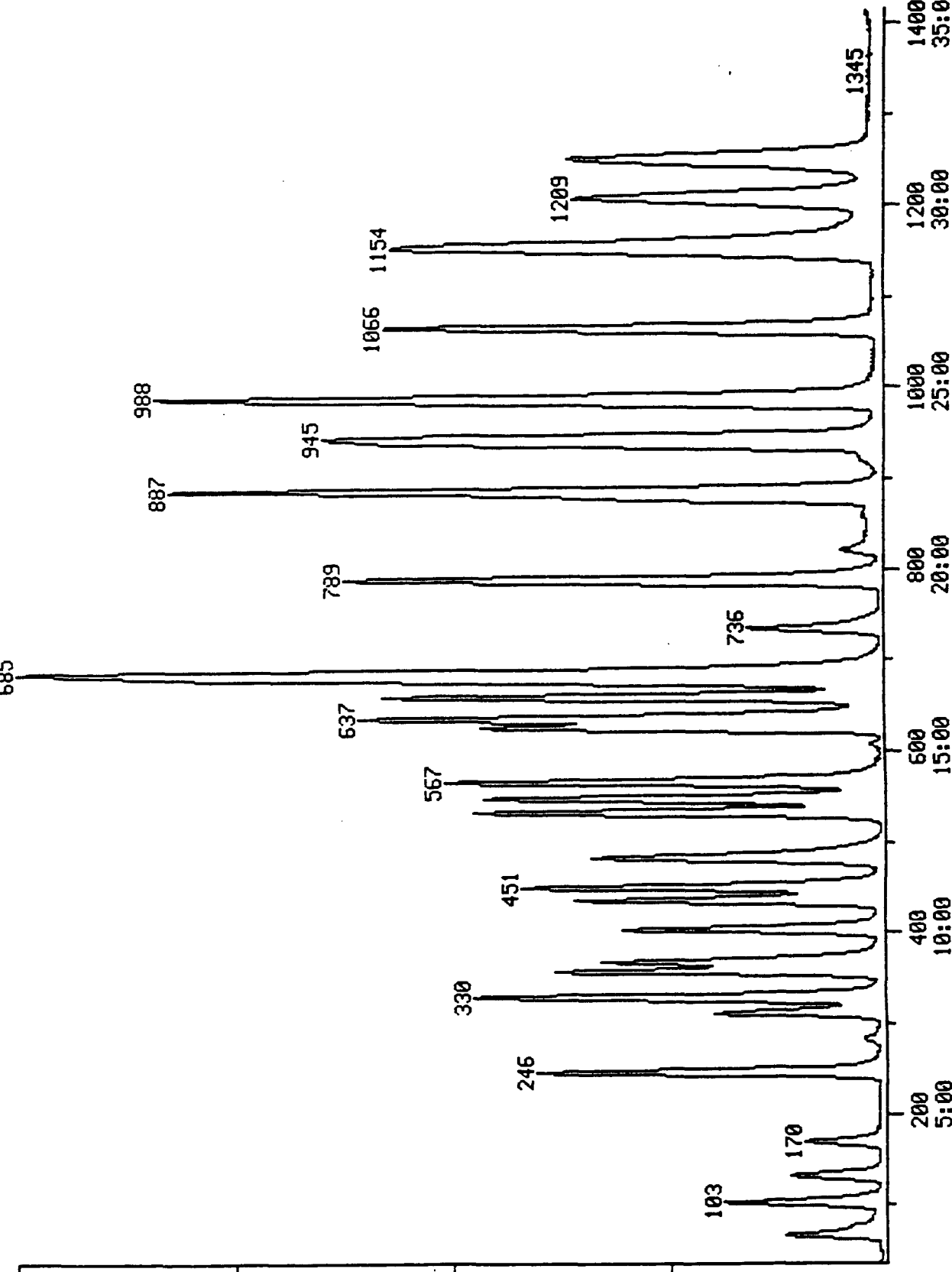
SCANS

35 TO 1415

100.0

RIC

00017



SCAN
TIME

1200
30:00

1000
25:00

800
20:00

600
15:00

400
10:00

200
5:00

**CONTINUING CALIBRATION CHECK
VOLATILE HSL COMPOUNDS**

Case No: CALIB
Contractor: ENSR LAB-Hou
Contract No:
Instrument ID: I50C

Region:

Calibration Date: 08/28/90
Time: 12:53
Laboratory ID: CC082890C1
Initial Cali. Date: 08/23/90

Minimum RF for SPCC is 0.300 (1)

Maximum %D for CCC is 25%

Compound	AVE RF	RF(50)	% D	CCC	SPCC
Chloromethane	1.252	1.196	4.5		* *
Bromomethane	1.365	1.314	3.7		
Vinyl Chloride	1.225	1.193	2.6	*	
Chloroethane	0.753	0.731	2.9		
Methylene Chloride	1.763	1.791	-1.6		
Acetone	0.328	0.780	-137.8		
Carbon Disulfide	3.160	3.027	4.2		
1,1-Dichloroethene	1.416	1.342	5.2	*	
1,1-Dichloroethane	3.103	2.961	4.6		* *
trans-1,2-Dichloroethene	1.462	1.329	9.1		
Chloroform	3.417	3.152	7.8	*	
1,2-Dichloroethane	2.375	2.049	13.7		
2-Butanone	0.015	0.017	-13.3		
1,1,1-Trichloroethane	0.688	0.682	0.9		
Carbon Tetrachloride	0.666	0.677	-1.7		
Vinyl Acetate	0.284	0.453	-59.5		
Bromodichloromethane	0.663	0.636	4.1		
1,2-Dichloropropane	0.453	0.424	6.4	*	
cis-1,3-Dichloropropene	0.515	0.483	6.2		
Trichloroethene	0.562	0.507	9.8		
Dibromochloromethane	0.558	0.539	3.4		
1,1,2-Trichloroethane	0.343	0.326	5.0		
Benzene	1.027	0.999	2.7		
trans-1,3-Dichloropropene	0.455	0.395	13.2		
2-Chloroethylvinylether	0.207	0.192	7.2		
Bromoform	0.416	0.376	9.6		* *
4-Methyl-2-Pentanone	0.300	0.100	66.7		
2-Hexanone	0.085	0.143	-68.2		
Tetrachloroethene	0.642	0.619	3.6		
1,1,2,2-Tetrachloroethane	0.462	0.508	-10.0		* *
Toluene	0.806	0.746	7.4	*	
Chlorobenzene	1.139	1.082	5.0		* *
Ethylbenzene	0.552	0.504	8.7	*	
Styrene	0.876	0.803	8.3		
Xylene (Total)	0.538	0.516	4.1		

RF(50) - Response Factor from daily standard file at
50 ug/l

AVE RF - Average Response Factor from initial
calibration Form VI

%D - - - Percent Difference

CCC - - - Calibration Check Compounds (*)

SPCC - - - System Performance Check Compounds (**)

(1) - - - Mininum RF for Bromoform is 0.250

0018-

RIC

08/28/90 12:53:00

SAMPLE: CONTINUING CALIBRATION

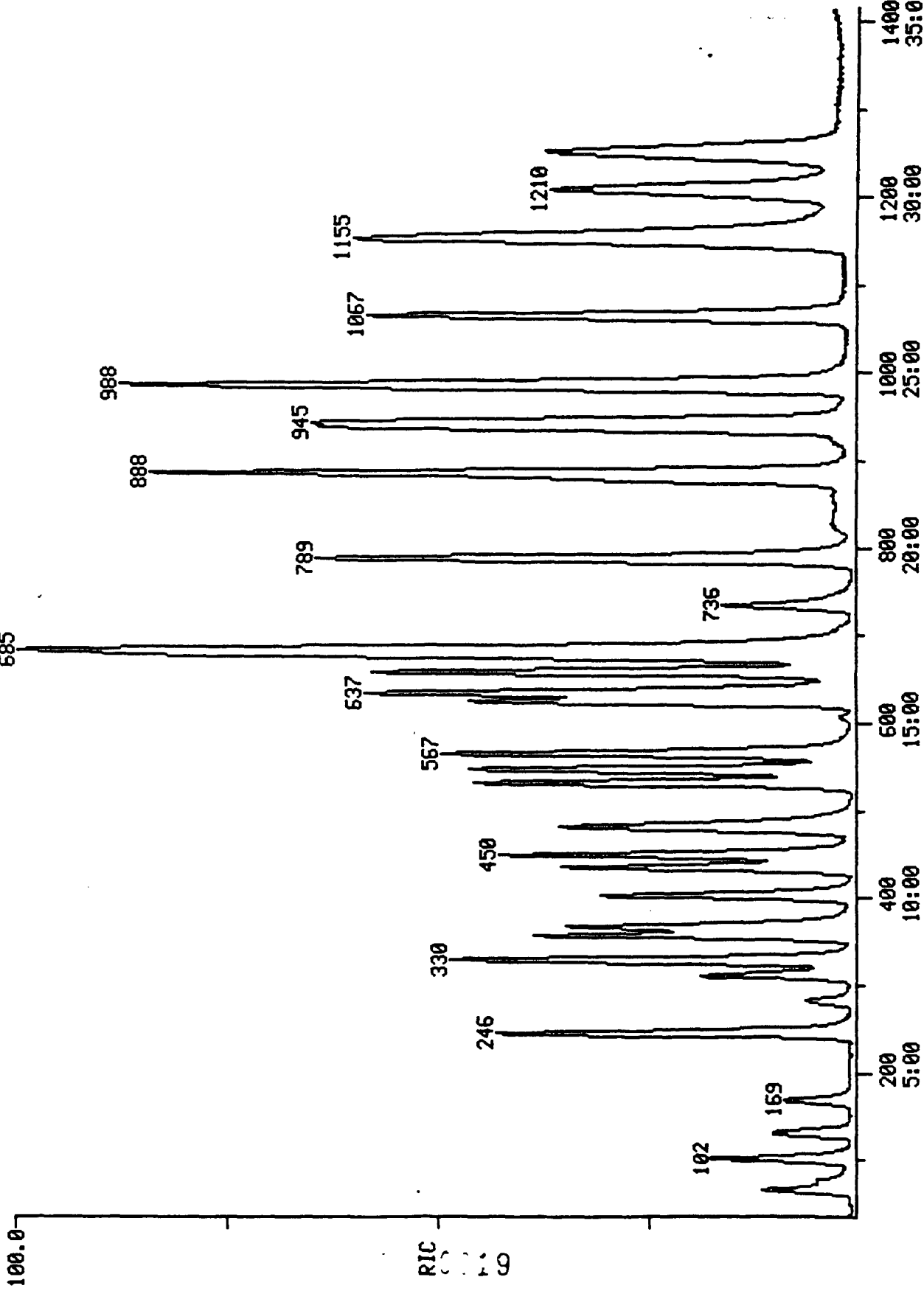
CONDS.: I50C

RANGE: G 1.1420 LABEL: N 0.4.0 QUAN: A 0.1.0 J 0 BASE: U 20. 3

DATA: CC082890C1 #1
CALI: CC082890C1 #3

SCANS 35 TO 1415

100.0 71296.



**CONTINUING CALIBRATION CHECK
VOLATILE HSL COMPOUNDS**

Case No: CALIB
Contractor: ENSR LAB-Hou
Contract No:
Instrument ID: I50C

Region:

Calibration Date: 09/06/90
Time: 12:46
Laboratory ID: CC090690C1
Initial Cali. Date: 08/23/90

Minimum RF for SPCC is 0.300 (1)

Maximum %D for CCC is 25%

Compound	AVE RF	RF(50)	% D	CCC	SPCC
Chloromethane	1.252	1.231	1.7		* *
Bromomethane	1.365	1.237	9.4		
Vinyl Chloride	1.225	1.130	7.8	*	
Chloroethane	0.753	0.706	6.2		
Methylene Chloride	1.763	1.619	8.2		
Acetone	0.328	0.225	31.4		
Carbon Disulfide	3.160	2.639	16.5		
1,1-Dichloroethene	1.416	1.348	4.8	*	
1,1-Dichloroethane	3.103	2.807	9.5		* *
trans-1,2-Dichloroethene	1.462	1.365	6.6		
Chloroform	3.417	3.189	6.7	*	
1,2-Dichloroethane	2.375	2.014	15.2		
2-Butanone	0.015	0.018	-20.0		
1,1,1-Trichloroethane	0.688	0.588	14.5		
Carbon Tetrachloride	0.666	0.570	14.4		
Vinyl Acetate	0.284	0.290	-2.1		
Bromodichloromethane	0.663	0.570	14.0		
1,2-Dichloropropane	0.453	0.376	17.0	*	
cis-1,3-Dichloropropene	0.515	0.417	19.0		
Trichloroethene	0.562	0.498	11.4		
Dibromochloromethane	0.558	0.478	14.3		
1,1,2-Trichloroethane	0.343	0.315	8.2		
Benzene	1.027	0.892	13.1		
trans-1,3-Dichloropropene	0.455	0.370	18.7		
2-Chloroethylvinylether	0.207	0.188	9.2		
Bromoform	0.416	0.359	13.7		* *
4-Methyl-2-Pentanone	0.300	0.241	19.7		
2-Hexanone	0.085	0.063	25.9		
Tetrachloroethene	0.642	0.567	11.7		
1,1,2,2-Tetrachloroethane	0.462	0.476	-3.0		* *
Toluene	0.806	0.655	18.7	*	
Chlorobenzene	1.139	1.009	11.4		* *
Ethylbenzene	0.552	0.488	11.6	*	
Styrene	0.876	0.827	5.6		
Xylene (Total)	0.538	0.469	12.8		

RF(50) - Response Factor from daily standard file at
50 ug/l

AVE RF - Average Response Factor from initial
calibration Form VI

%D - - - Percent Difference

CCC - - - Calibration Check Compounds (*)

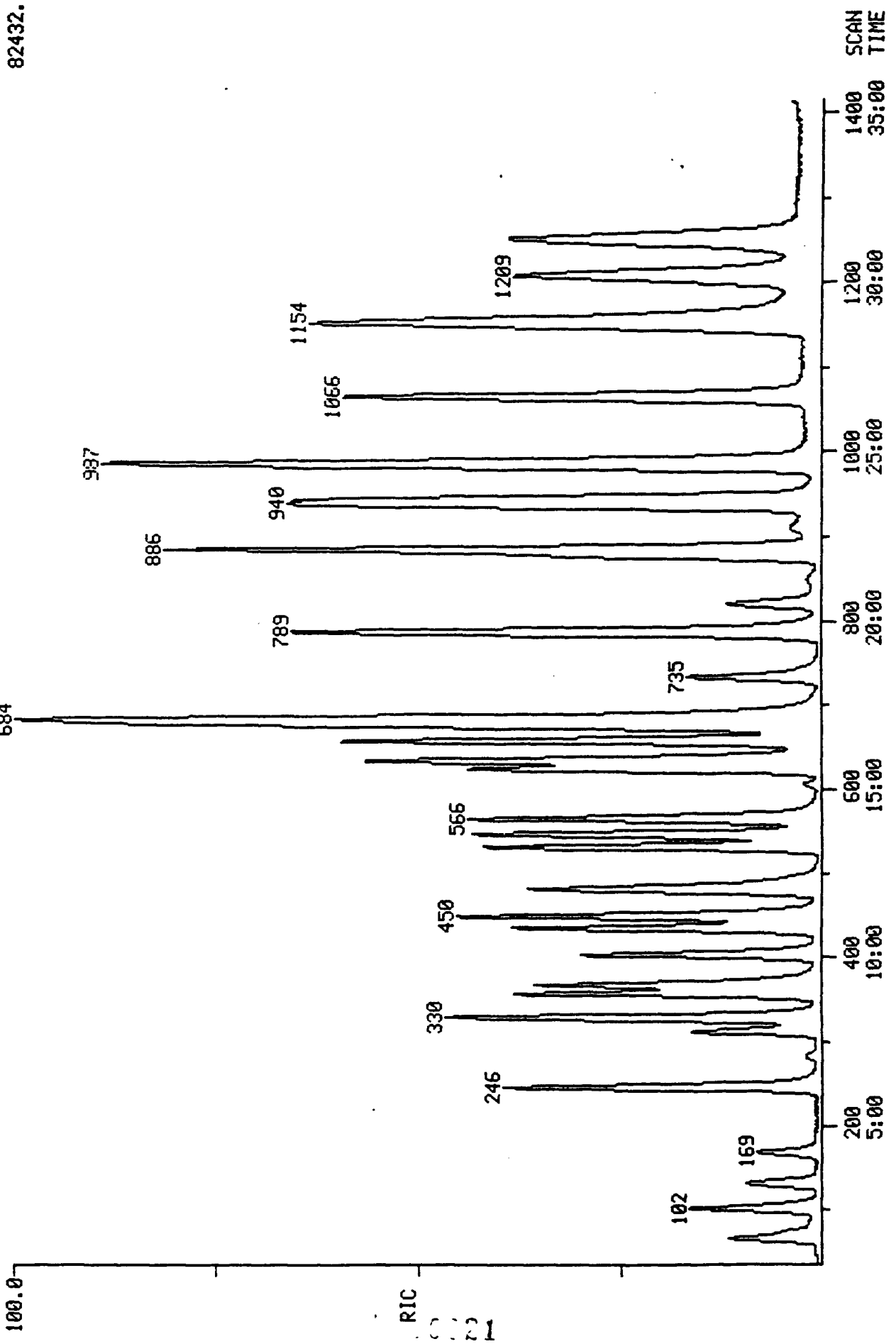
SPCC - - - System Performance Check Compounds (**)

(1) - - - Minimum RF for Bromoform is 0.250

10020 Form VII

RIC
09/05/90 12:45:00
SAMPLE: CONTINUING CALIBRATION
CONDS.: 150C
RANGE: G 1.1420 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3
DATA: CC090690C1 #1
CALI: CC090690C1 #3
SCANS 35 TO 1415

82432.



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ENSR LAB-Hou
 Lab Sample ID: MB082490C1
 Client Sample ID: MB082490C1

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: 100.0

Date Extracted: 08/24/90
 Date Analyzed: 08/24/90
 Dilution Factor: 1.0

VOLATILE COMPOUNDS

CAS Number		UG/L	CAS Number		UG/L
74-87-3	Chloromethane	10 <	78-87-5	1,2-Dichloropropane . . .	5 <
74-83-9	Bromomethane	10 <	10061-01-5	cis-1,3-Dichloropropene .	5 <
75-01-4	Vinyl Chloride	10 <	79-01-6	Trichloroethene	5 <
75-00-3	Chloroethane	10 <	124-48-1	Dibromochloromethane . . .	5 <
75-09-2	Methylene Chloride	8	79-00-5	1,1,2-Trichloroethane . .	5 <
67-64-1	Acetone	29	71-43-2	Benzene	5 <
75-15-0	Carbon Disulfide	5 <	10061-02-6	trans-1,3-Dichloropropene	5 <
75-35-4	1,1-Dichloroethene	5 <	110-75-8	2-Chloroethylvinylether .	10 <
75-34-3	1,1-Dichloroethane	5 <	75-25-2	Bromoform	5 <
156-60-5	trans-1,2-Dichloroethene .	5 <	108-10-1	4-Methyl-2-Pentanone . . .	10 <
67-66-3	Chloroform	5 <	591-78-6	2-Hexanone	10 <
107-06-2	1,2-Dichloroethane	5 <	127-18-4	Tetrachloroethene	5 <
78-93-3	2-Butanone	10 <	79-34-5	1,1,2,2-Tetrachloroethane	5 <
71-55-6	1,1,1-Trichloroethane . .	5 <	108-88-3	Toluene	5 <
56-23-5	Carbon Tetrachloride . . .	5 <	108-90-7	Chlorobenzene	5 <
108-05-4	Vinyl Acetate	10 <	100-41-4	Ethylbenzene	5 <
75-27-4	Bromodichloromethane . . .	5 <	100-42-5	Styrene	5 <
			1330-20-7	Xylene (Total)	5 <

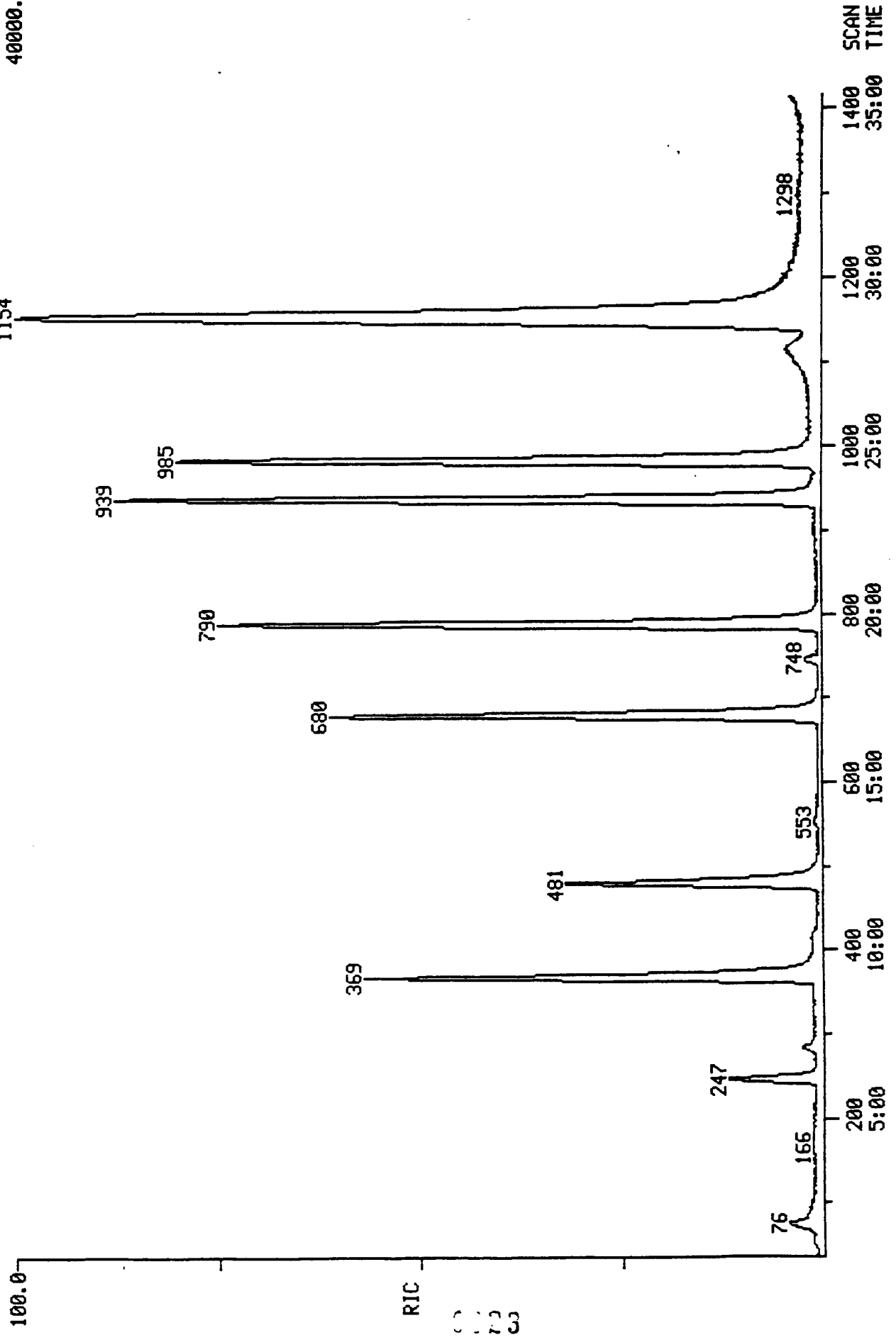
The Lab ID for data on this page is MB082490C1.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

Form I

10122

RIC
08/24/90 14:21:00
SAMPLE: METHOD BLANK
COND5.: 150C
RANGE: G 1.1420 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3
DATA: MB082490C1 #1
CALI: MB082490C1 #3
SCANS 35 TO 1415
40000.



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ENSR LAB-Hou
Lab Sample ID: MB082890C1
Client Sample ID: MB082890C1

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: 100.0

Date Extracted: 08/28/90
Date Analyzed: 08/28/90
Dilution Factor: 1.0

VOLATILE COMPOUNDS

CAS Number		UG/L	CAS Number		UG/L
74-87-3	Chloromethane	10 <	78-87-5	1,2-Dichloropropane . . .	5 <
74-83-9	Bromomethane	10 <	10061-01-5	cis-1,3-Dichloropropene .	5 <
75-01-4	Vinyl Chloride	10 <	79-01-6	Trichloroethene	5 <
75-00-3	Chloroethane	10 <	124-48-1	Dibromochloromethane . . .	5 <
75-09-2	Methylene Chloride	10	79-00-5	1,1,2-Trichloroethane . .	5 <
67-64-1	Acetone	28	71-43-2	Benzene	5 <
75-15-0	Carbon Disulfide	5 <	10061-02-6	trans-1,3-Dichloropropene	5 <
75-35-4	1,1-Dichloroethene	5 <	110-75-8	2-Chloroethylvinylether .	10 <
75-34-3	1,1-Dichloroethane	5 <	75-25-2	Bromoform	5 <
156-60-5	trans-1,2-Dichloroethene .	5 <	108-10-1	4-Methyl-2-Pentanone . . .	10 <
67-66-3	Chloroform	5 <	591-78-6	2-Hexanone	10 <
107-06-2	1,2-Dichloroethane	5 <	127-18-4	Tetrachloroethene	5 <
78-93-3	2-Butanone	10 <	79-34-5	1,1,2,2-Tetrachloroethane	5 <
71-55-6	1,1,1-Trichloroethane . .	5 <	108-88-3	Toluene	5 <
56-23-5	Carbon Tetrachloride . . .	5 <	108-90-7	Chlorobenzene	5 <
108-05-4	Vinyl Acetate	10 <	100-41-4	Ethylbenzene	5 <
75-27-4	Bromodichloromethane . . .	5 <	100-42-5	Styrene	5 <
			1330-20-7	Xylene (Total)	5 <

The Lab ID for data on this page is MB082890C1.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

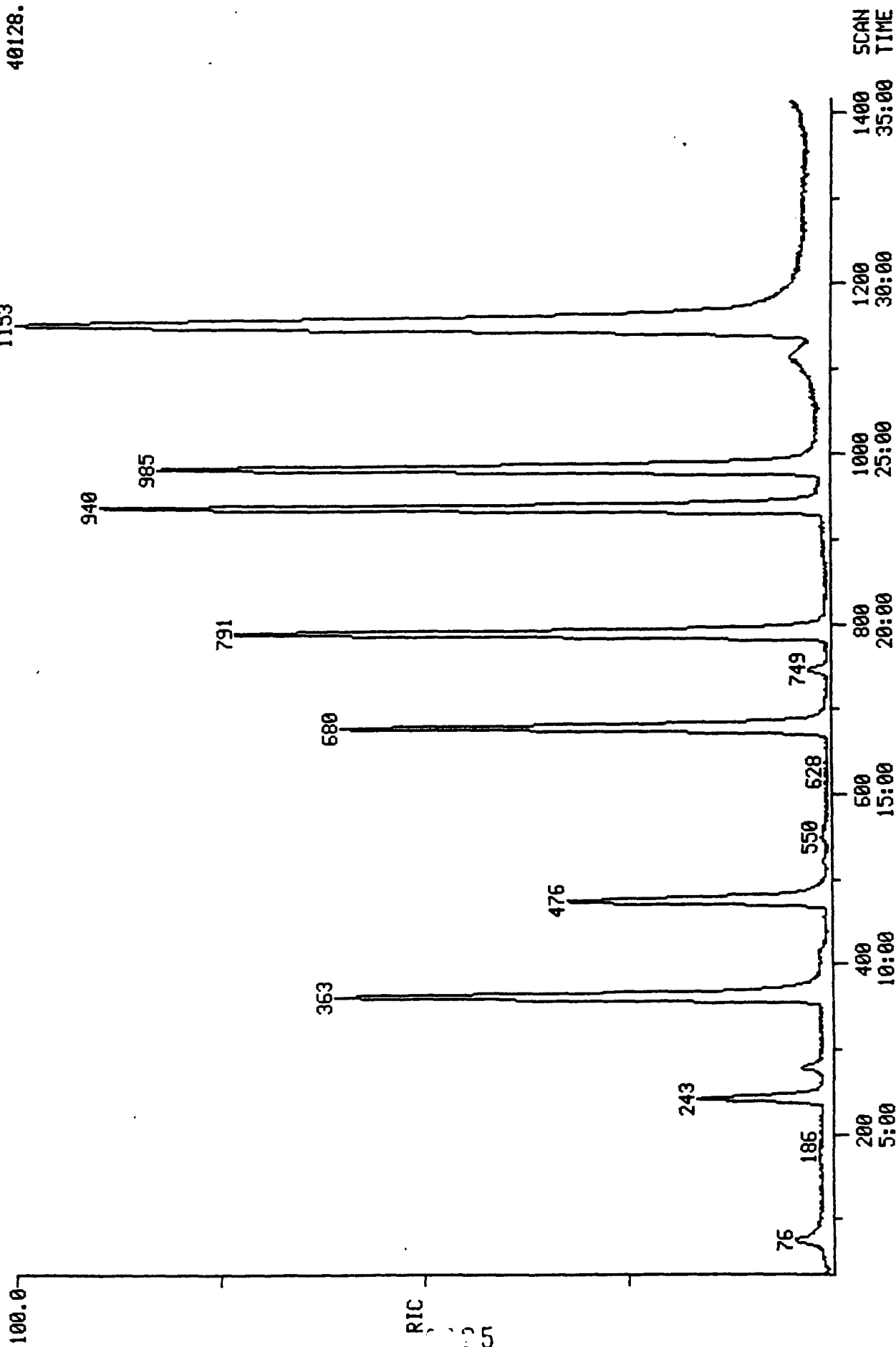
Form I

DATA: MB082890C1 #1
CALI: MB082890C1 #3

RIC
08/28/90 13:56:00
SAMPLE: METHOD BLANK
COND5.: 150C
RANGE: G 1,1420 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

SCANS 35 TO 1415

40128.



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ENSR LAB-Hou
Lab Sample ID: MB090690C1
Client Sample ID: MB090690C1

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: 100.0

Date Extracted: 09/06/90
Date Analyzed: 09/06/90
Dilution Factor: 1.0

VOLATILE COMPOUNDS

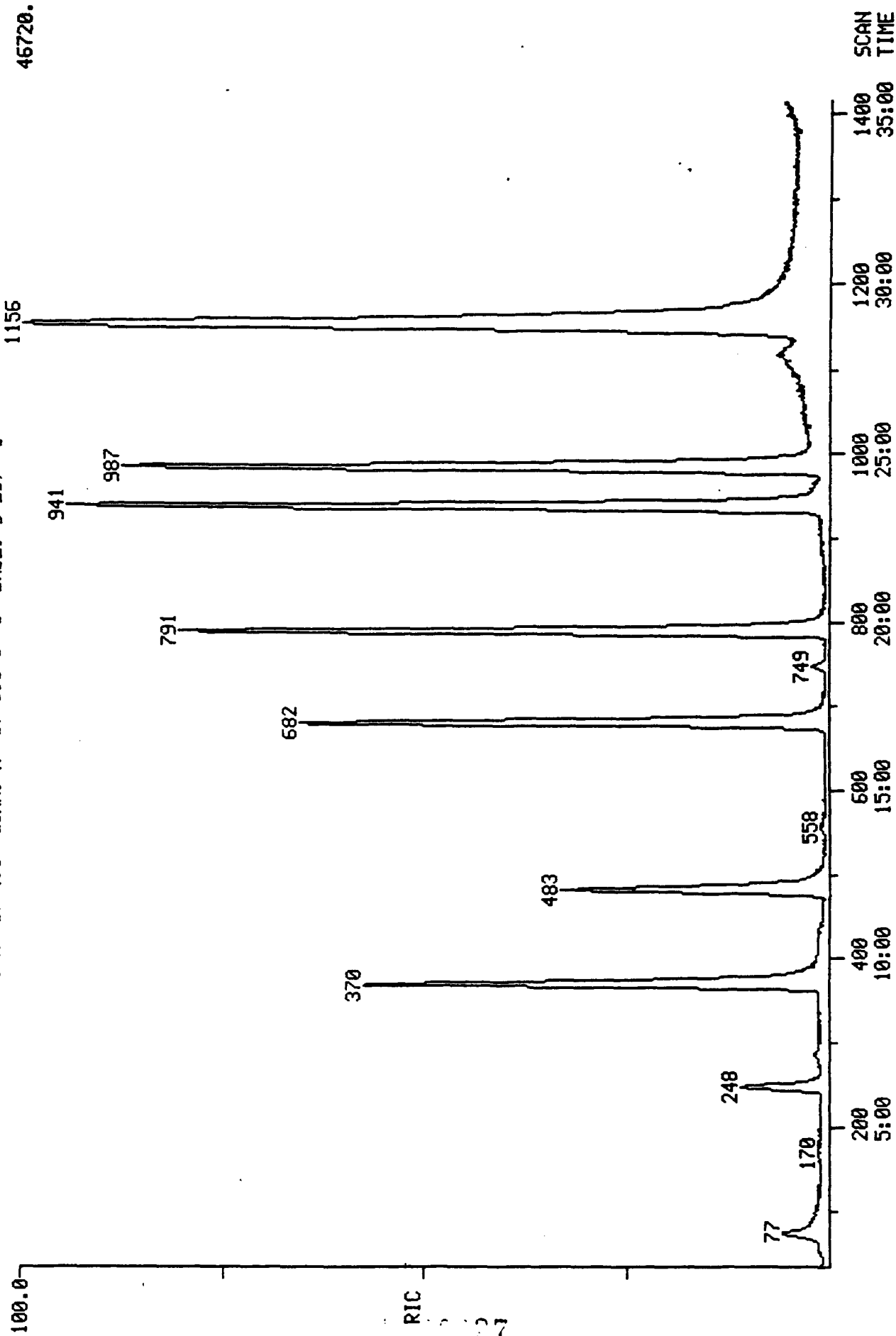
CAS Number		UG/L	CAS Number		UG/L
74-87-3	Chloromethane	10 <	78-87-5	1,2-Dichloropropane	5 <
74-83-9	Bromomethane	10 <	10061-01-5	cis-1,3-Dichloropropene	5 <
75-01-4	Vinyl Chloride	10 <	79-01-6	Trichloroethene	5 <
75-00-3	Chloroethane	10 <	124-48-1	Dibromochloromethane	5 <
75-09-2	Methylene Chloride	7	79-00-5	1,1,2-Trichloroethane	5 <
67-64-1	Acetone	12	71-43-2	Benzene	5 <
75-15-0	Carbon Disulfide	5 <	10061-02-6	trans-1,3-Dichloropropene	5 <
75-35-4	1,1-Dichloroethene	5 <	110-75-8	2-Chloroethylvinylether	10 <
75-34-3	1,1-Dichloroethane	5 <	75-25-2	Bromoform	5 <
156-60-5	trans-1,2-Dichloroethene	5 <	108-10-1	4-Methyl-2-Pentanone	10 <
67-66-3	Chloroform	5 <	591-78-6	2-Hexanone	10 <
107-06-2	1,2-Dichloroethane	5 <	127-18-4	Tetrachloroethene	5 <
78-93-3	2-Butanone	10 <	79-34-5	1,1,2,2-Tetrachloroethane	5 <
71-55-6	1,1,1-Trichloroethane	5 <	108-88-3	Toluene	5 <
56-23-5	Carbon Tetrachloride	5 <	108-90-7	Chlorobenzene	5 <
108-05-4	Vinyl Acetate	10 <	100-41-4	Ethylbenzene	5 <
75-27-4	Bromodichloromethane	5 <	100-42-5	Styrene	5 <
			1330-20-7	Xylene (Total)	5 <

The Lab ID for data on this page is MB090690C1.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

Form I

RIC
 09/06/90 13:31:00
 SAMPLE: METHOD BLANK
 CONDS.: I50C
 RANGE: G 1.1420 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3
 DATA: MB090690C1 #1
 CALI: MB090690C1 #3
 SCANS 35 TO 1415
 46720.



WATER SURROGATE PERCENT RECOVERY SUMMARY
VOLATILE
(Page 1)

Case No. A4731

Contract Laboratory ENSR LAB-Hou

Contract No.

[illegible]

* VALUES ARE OUTSIDE OF CONTRACT
REQUIRED QC LIMITS

Volatiles:	0	out of	20;	outside of QC limits
Semi-Volatiles:	0	out of	0;	outside of QC limits
Pesticides:	0	out of	0;	outside of QC limits

Comments:

FORM II

11128

3A
WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: _____ Contract: _____
 Lab Code: _____ Case No.: A4731 SAS No.: _____ SDG No.: _____
 Matrix Spike - EPA Sample No.: A4731-1

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50	0	6.63	13*	61-145
Trichloroethene	50	0	35.2	70*	71-120
Benzene	50	0	33.2	66*	76-127
Toluene	50	0	43.3	81	76-125
Chlorobenzene	50	0	48.8	98	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD REC.
1,1-Dichloroethene	50	6.43	13*	0	14 61-145
Trichloroethene	50	36.6	73	-4	14 71-120
Benzene	50	33.8	68*	-3	11 76-127
Toluene	50	44.3	89	-3	13 76-125
Chlorobenzene	50	48.8	98	0	13 75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
 Spike Recovery: 5 out of 10 outside limits

COMMENTS: _____

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ENSR LAB-Hou
Lab Sample ID: A4731-1MS
Client Sample ID: WW-MS

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: 100.0

Date Extracted: 08/28/90
Date Analyzed: 08/28/90
Dilution Factor: 1.0

VOLATILE COMPOUNDS

CAS Number		UG/L	CAS Number		UG/L
74-87-3	Chloromethane	10 <	78-87-5	1,2-Dichloropropane . . .	5 <
74-83-9	Bromomethane	10 <	10061-01-5	cis-1,3-Dichloropropene .	5 <
75-01-4	Vinyl Chloride	10 <	79-01-6	Trichloroethene	35
75-00-3	Chloroethane	10 <	124-48-1	Dibromochloromethane . . .	5 <
75-09-2	Methylene Chloride	11 B	79-00-5	1,1,2-Trichloroethane . .	5 <
67-64-1	Acetone	35 B	71-43-2	Benzene	33
75-15-0	Carbon Disulfide	5 <	10061-02-6	trans-1,3-Dichloropropene	5 <
75-35-4	1,1-Dichloroethene	7	110-75-8	2-Chloroethylvinylether .	10 <
75-34-3	1,1-Dichloroethane	5 <	75-25-2	Bromoform	5 <
156-60-5	trans-1,2-Dichloroethene .	5 <	108-10-1	4-Methyl-2-Pentanone . . .	10 <
67-66-3	Chloroform	5 <	591-78-6	2-Hexanone	10 <
107-06-2	1,2-Dichloroethane	5 <	127-18-4	Tetrachloroethene	5 <
78-93-3	2-Butanone	10 <	79-34-5	1,1,2,2-Tetrachloroethane	5 <
71-55-6	1,1,1-Trichloroethane . .	5 <	108-88-3	Toluene	43
56-23-5	Carbon Tetrachloride . . .	5 <	108-90-7	Chlorobenzene	49
108-05-4	Vinyl Acetate	10 <	100-41-4	Ethylbenzene	5 <
75-27-4	Bromodichloromethane . . .	5 <	100-42-5	Styrene	5 <
			1330-20-7	Xylene (Total)	5 <

The Lab ID for data on this page is A47311MS.

B - Compound was detected in the QC blank.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

Form I

0030

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ENSR LAB-Hou
 Lab Sample ID: A4731-1MSD
 Client Sample ID: WW-MSD

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: 100.0

Date Extracted: 08/28/90
 Date Analyzed: 08/28/90
 Dilution Factor: 1.0

VOLATILE COMPOUNDS

CAS Number		UG/L	CAS Number		UG/L
74-87-3	Chloromethane	10 <	78-87-5	1,2-Dichloropropane . . .	5 <
74-83-9	Bromomethane	10 <	10061-01-5	cis-1,3-Dichloropropene .	5 <
75-01-4	Vinyl Chloride	10 <	79-01-6	Trichloroethene	37
75-00-3	Chloroethane	10 <	124-48-1	Dibromochloromethane . . .	5 <
75-09-2	Methylene Chloride	10 B	79-00-5	1,1,2-Trichloroethane . .	5 <
67-64-1	Acetone	33 B	71-43-2	Benzene	34
75-15-0	Carbon Disulfide	5 <	10061-02-6	trans-1,3-Dichloropropene	5 <
75-35-4	1,1-Dichloroethene	6	110-75-8	2-Chloroethylvinylether .	10 <
75-34-3	1,1-Dichloroethane	5 <	75-25-2	Bromoform	5 <
156-60-5	trans-1,2-Dichloroethene .	5 <	108-10-1	4-Methyl-2-Pentanone . . .	10 <
67-66-3	Chloroform	5 <	591-78-6	2-Hexanone	10 <
107-06-2	1,2-Dichloroethane	5 <	127-18-4	Tetrachloroethene	5 <
78-93-3	2-Butanone	10 <	79-34-5	1,1,2,2-Tetrachloroethane	5 <
71-55-6	1,1,1-Trichloroethane . .	5 <	108-88-3	Toluene	44
56-23-5	Carbon Tetrachloride . . .	5 <	108-90-7	Chlorobenzene	49
108-05-4	Vinyl Acetate	10 <	100-41-4	Ethylbenzene	5 <
75-27-4	Bromodichloromethane . . .	5 <	100-42-5	Styrene	5 <
			1330-20-7	Xylene (Total)	5 <

The Lab ID for data on this page is A47311MSD.

B - Compound was detected in the QC blank.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

Form I

10131

**INITIAL CALIBRATION DATA
VOLATILE HSL COMPOUNDS**

Use No: CALIB
Contractor: ENSR LAB-Hou
Contract No:

Region:

Instrument ID: I50C
Calibration Date: 08/23/90

Min AVE RF for SPCC is 0.300 (1)

Max %RSD for CCC is 30%

Laboratory ID	IC0823020C1	IC0823100C1	IC0823200C1						CCC*
	IC0823050C1	IC0823150C1							SPCC**
Compound	RF(20)	RF(50)	RF(100)	RF(150)	RF(200)	AVE RF	% RSD		
Chloromethane	1.382	1.119	1.252	1.367	1.138	1.252	9.9	* *	
Bromomethane	1.579	1.262	1.357	1.446	1.179	1.365	11.4		
Vinyl Chloride	1.386	1.129	1.238	1.316	1.055	1.225	11.0	*	
Chloroethane	0.807	0.723	0.766	0.803	0.666	0.753	7.9		
Methylene Chloride	2.498	1.577	1.600	1.717	1.421	1.763	24.1		
Acetone	0.724	0.292	0.210	0.228	0.184	0.328	68.7		
Carbon Disulfide	2.901	2.625	3.281	3.706	3.285	3.160	13.1		
1,1-Dichloroethene	1.514	1.261	1.407	1.568	1.330	1.416	8.9	*	
1,1-Dichloroethane	3.163	2.724	3.198	3.443	2.987	3.103	8.6	* *	
trans-1,2-Dichloroethene	1.545	1.297	1.462	1.629	1.378	1.462	9.0		
Chloroform	3.330	2.976	3.459	3.924	3.395	3.417	9.9	*	
1,2-Dichloroethane	2.370	2.123	2.415	2.696	2.270	2.375	8.9		
2-Butanone	0.012	0.015	0.017	0.017	0.016	0.015	13.5		
1,1,1-Trichloroethane	0.712	0.611	0.722	0.750	0.644	0.688	8.4		
Carbon Tetrachloride	0.654	0.572	0.710	0.742	0.653	0.666	9.7		
Vinyl Acetate	0.493	0.142	0.386	0.327	0.074	0.284	61.0		
Bromodichloromethane	0.625	0.566	0.711	0.753	0.658	0.663	11.0		
1,2-Dichloropropane	0.476	0.410	0.476	0.476	0.428	0.453	7.0	*	
cis-1,3-Dichloropropene	0.463	0.441	0.557	0.581	0.533	0.515	11.7		
Trichloroethene	0.529	0.522	0.569	0.577	0.615	0.562	6.8		
Dibromochloromethane	0.479	0.476	0.604	0.633	0.597	0.558	13.4		
1,1,2-Trichloroethane	0.370	0.297	0.353	0.366	0.331	0.343	8.8		
Benzene	1.073	0.920	1.083	1.094	0.963	1.027	7.7		
trans-1,3-Dichloropropene	0.440	0.386	0.477	0.508	0.464	0.455	10.0		
2-Chloroethylvinylether	0.202	0.183	0.211	0.230	0.211	0.207	8.2		
Bromoform	0.326	0.345	0.438	0.496	0.473	0.416	18.4	* *	
4-Methyl-2-Pentanone	0.348	0.139	0.268	0.390	0.355	0.300	33.5		
2-Hexanone	0.121	0.108	0.073	0.096	0.028	0.085	42.9		
Tetrachloroethene	0.688	0.577	0.666	0.692	0.589	0.642	8.6		
1,1,2,2-Tetrachloroethane	0.503	0.387	0.509	0.543	0.366	0.462	17.2	* *	
Toluene	0.863	0.716	0.830	0.873	0.747	0.806	8.8	*	
Chlorobenzene	1.180	1.032	1.180	1.234	1.070	1.139	7.4	* *	
Ethylbenzene	0.606	0.499	0.558	0.590	0.509	0.552	8.6	*	
Styrene	0.878	0.808	0.942	0.940	0.810	0.876	7.5		
Xylene (Total)	0.586	0.487	0.572	0.555	0.491	0.538	8.6		

Response Factor (number is the amount of ug/L)

AVE RF - Average Response Factor

%RSD - - Percent Relative Standard Deviation

CCC - - Calibration Check Compounds (*)

SPCC - - System Performance Check Compounds (**)

(1) - - Minimum AVE RF for Bromoform is 0.250

Form VI

10132

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ENSR LAB-HOU
Sample ID: A4731-1
Client Sample ID: WW

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: 100.0

Date Extracted: 08/28/90
Date Analyzed: 08/30/90
Dilution Factor: 10

PESTICIDE/PCB COMPOUNDS

CAS Number		UG/L	CAS Number		UG/L
319-84-6	alpha-BHC	0.05<	1031-07-8	Endosulfan sulfate	0.05<
319-85-7	beta-BHC	0.05<	50-29-3	4,4'-DDT	0.05<
319-86-8	delta-BHC	0.05<	72-43-5	Methoxychlor	0.05<
58-89-9	gamma-BHC (Lindane)	0.05<	7421-93-4	Endrin aldehyde	0.05<
77-44-8	Heptachlor	0.05<	57-74-9	Chlordane (technical)	0.05<
309-00-2	Aldrin	0.05<	8001-35-2	Toxaphene	1 <
1024-57-3	Heptachlor epoxide	0.05<	12674-11-2	Aroclor-1016	1 <
959-98-8	Endosulfan I	0.05<	11104-28-2	Aroclor-1221	1 <
60-57-1	Dieldrin	0.05<	11141-16-5	Aroclor-1232	1 <
72-55-9	4,4'-DDE	0.05<	53469-21-9	Aroclor-1242	1 <
72-20-8	Endrin	0.05<	12672-29-6	Aroclor-1248	1 <
33213-65-9	Endosulfan II	0.05<	11097-69-1	Aroclor-1254	1 <
72-54-8	4,4'-DDD	0.05<	11096-82-5	Aroclor-1260	1 <

The Lab ID for data on this page is A47311P.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

ENSR LABORATORIES-HOUSTON
QUALITY CONTROL LOG

946: 8080; PESTICIDE/PCB ANALYSIS
MIX SPIKE RESULTS - WATER

SAMPLE: FB1900LL

ANALYTE	SPIKE (UG/L)	CONC MS	Z REC	%REC
LINDANE	1.0	1	118	156-123
HEPTACHLD	1.0	1	108	140-131
ALDRIN	1.0	1	113	140-120
DIELDRIN	2.5	3	124	152-126
ENDRIN	2.5	3	125	156-121*
4,4'-DDT	2.5	3	130	138-127*

* Outside suggested QC Limit.

K. Louise Ophium 09-04-90 *Wallace Long* 9/7/90
ANALYST DATE QA/QC COORDINATOR DATE

ENSR LABORATORIES-HOUSTON
QUALITY CONTROL LOG
SW 846: 8080; PESTICIDE/PCB ANALYSIS

LOGATE RECOVERY:

BLANK EXTRACTION DATE: 08/28/90

LAB NO.	CALC AMT(UG)	PERCENT RECOVERY (20-150%)
MB1899LL	0.59	119
FR1900LL	0.58	115
A4731-1	0.60	120

NO PESTICIDE/PCBS DETECTED AT STATED
METHOD DETECTION LIMITS

Marjorie Behlman 09-04-90
ANALYST DATE
Wallace D. King 9/7/90
QA/QC COORDINATOR DATE

Lab Name: KEYSTONE ENV. RESOURCES, INC.
Client: ENSR CONSULTING AND ENGINEERING
Lab No: H90-08.179-002

Work Order: H90-08.179
Client ID: A4731-1
P. O. No.: A4731

ORGANIC ANALYSIS DATA SHEET
METHOD 8150
Chlorinated Herbicides

Conc: Low
Date Extracted: 08/28/90
Date Analyzed: 09/02/90
Dilution Factor: 20
Percent Moisture (Decanted):

GPC Cleanup ☐ Yes ☒ No
Sep. Funnel Ext. ☐ Yes
Cont. Liquid Ext. ☐ Yes

CAS #	PARAMETER	DETECTION LIMIT UG/L	AMOUNT FOUND UG/L
94-75-7	2,4-D	18.00 U	
93-76-5	2,4,5-T	1.00 U	
93-72-1	2,4,5 TP (SILVEX)	1.00 U	
1918-00-9	DICAMBA	1.00 U	

Ve = 500 Volume of water extracted (ml)
Vt = 2000 Volume of total extract (ul)
Vi = 1 Volume of extract injected (ul)

1st Column Inst.: VA6000B / DB 5 Capillary Column
2nd Column Inst.: VA6000A / DB 1701 Capillary Column

U= UNDETECTED AT THE LISTED DETECTION LIMIT.
J= COMPOUND IS PRESENT, BUT BELOW THE LISTED DETECTION LIMIT.
B= COMPOUND IS ALSO FOUND IN BLANK.

⊗

Lab Name: KEYSTONE ENV. RESOURCES, INC.
Client: ENSR CONSULTING AND ENGINEERING
Lab No: H90-08.179-001

Work Order: H90-08.179
Client ID: LAB BLANK
P. O. No.: A4731

ORGANIC ANALYSIS DATA SHEET
METHOD 8150
Chlorinated Herbicides

Conc: Low
Date Extracted: 08/28/90
Date Analyzed: 09/02/90
Dilution Factor: 20
Percent Moisture (Decanted):

GFC Cleanup _Yes /No
Sep. Funnel Ext. _Yes
Cont. Liquid Ext. _Yes

CAS #	PARAMETER	DETECTION	AMOUNT
		LIMIT UG/L	FOUND UG/L
94-75-7	2,4-D	18.00 U	
93-76-5	2,4,5-T	1.00 U	
93-72-1	2,4,5 TP (SILVEX)	1.00 U	
1918-00-9	DICAMBA	1.00 U	

Ve = 500 Volume of water extracted (ml)
Vt = 2000 Volume of total extract (ul)
Vi = 1 Volume of extract injected (ul)

1st Column Inst.: VA6000B / DB 5 Capillary Column
2nd Column Inst.: VA6000A / DB 1701 Capillary Column

U= UNDETECTED AT THE LISTED DETECTION LIMIT.
J= COMPOUND IS PRESENT, BUT BELOW THE LISTED DETECTION LIMIT.
B= COMPOUND IS ALSO FOUND IN BLANK.

⊗

ENSR Labs-Houston

Billing Summary

09/17/90 12:14

Homco - Hobbs, New Mexico

Project No.: 3519-003-135

Lab Number: A4731

	Test Code	Description	Number	Cost	Total
1.	Ag - - -HOU	SILVER	1	15.00	15.00
2.	Ag - -TCL-HOU	TCLP SILVER	1	35.00	35.00
		Rush Premium (100 %)	1	35.00	35.00
3.	As - -GFA-HOU	ARSENIC	1	25.00	25.00
4.	As - -TCL-WQS	TCLP ARSENIC	1	35.00	35.00
		Rush Premium (100 %)	1	35.00	35.00
5.	Ba - -ICP-HOU	BARIUM	1	15.00	15.00
6.	Ba - -TCL-HOU	TCLP BARIUM	1	15.00	15.00
		Rush Premium (100 %)	1	15.00	15.00
7.	CORR -S- -HOU	CORROSIVITY ON SOLID	1	60.00	60.00
8.	Cd - -ICP-HOU	CADMIUM	1	15.00	15.00
9.	Cd - -TCL-HOU	TCLP CADMIUM	1	15.00	15.00
		Rush Premium (100 %)	1	15.00	15.00
10.	Cl- - - -HOU	CHLORIDE	1	12.00	12.00
11.	Cr - -ICP-HOU	CHROMIUM	1	15.00	15.00
12.	Cr - -TCL-HOU	TCLP CHROMIUM	1	15.00	15.00
		Rush Premium (100 %)	1	15.00	15.00
13.	F- - - -HOU	FLUORIDE	1	20.00	20.00
14.	FP -S-COC-SPP	IGNITABILITY (FLASH POINT)	1	35.00	35.00
		No Premium Charged-Rush Date Not Met.	1	0.00	0.00
15.	H2S -S-REA-SWL	HYDROGEN SULFIDE, REACTIVE/SLD	1	35.00	35.00
		Rush Premium (100 %)	1	35.00	35.00
16.	HCN -S-REA-SWL	HYDROCYANIC ACID, REACTIVE/SLD	1	35.00	35.00
		Rush Premium (100 %)	1	35.00	35.00
17.	HERB - - -KEY	HERBICIDES	1	180.00	180.00
18.	Hg - - -HOU	MERCURY	1	30.00	30.00
19.	Hg - -TCL-HOU	TCLP MERCURY	1	35.00	35.00
		Rush Premium (100 %)	1	35.00	35.00
20.	N-N - - -HOU	NITRATE-NITRITE AS NITROGEN	1	25.00	25.00
21.	PEST - - -HOU	PESTICIDES	1	175.00	175.00
22.	Pb - -ICP-HOU	LEAD	1	15.00	15.00
23.	Pb - -TCL-HOU	TCLP LEAD	1	15.00	15.00
		Rush Premium (100 %)	1	15.00	15.00
24.	SO4 - - -HOU	SULFATE	1	20.00	20.00
25.	Se - -GFA-HOU	SELENIUM	1	25.00	25.00
26.	Se - -TCL-WQS	TCLP SELENIUM	1	35.00	35.00
		Rush Premium (100 %)	1	35.00	35.00
27.	TCLP -S- -NUS	TOXICITY CHAR. LEACH. PROC.	1	100.00	100.00
		Rush Premium (100 %)	1	100.00	100.00
28.	TPH -S- -HOU	TOTAL PET. HYDROCARBONS/SOLID	12	45.00	540.00
29.	VOA - - -HOU	VOLATILE ORGANIC ANALYSES	2	250.00	500.00
		Rush Premium (100 %)	1	250.00	250.00
30.	ZHE -S- -NUS	ZERO HEADSPACE EXTRACTION	1	150.00	150.00
		Rush Premium (100 %)	1	150.00	150.00
31.	pH -S-COR-HOU	pH CORROSION ON SOLID	1	10.00	10.00
	Total:				3022.00

Ordered 9-17-90

ENSR

DATA PACKAGE CHECKLIST -

Lab A4735 Project Name Homco-Holby New Mexico Project No. 3519-003-135

Copies to: Cym Baker Project Manager

Client

Other (1)

Other (2)

Signature	Release	File Copy D / I	PM Copy D / I	Client D / I	Other (1) D / I	Other (2) D / I
Disposal Letter		✓	✓ 9-25-90		✓ 9-25-90	✓ 9-25-90
Chain of Custody		✓	✓		✓	✓
Sample Receipt		✓	✓		✓	✓
Checklist		✓	✓		✓	✓
Analytical Summary		✓	✓		✓	✓
Analytical Report		✓	✓		✓	✓
QC Logs/ <u>WQS</u>		✓	✓		✓	✓
QC Logs Subcontract		✓	✓		✓	✓
VOA		✓	✓		✓	✓
QA		✓	✓		✓	✓
Pest/PCBs						
Other 1.						
Other 2.						
Other 3.						
Narrative Log						
Billing Summary		✓	✓		✓	✓
Internal QC Checklist						
Preliminary Summary		✓				
Travelers		✓				
Federal Express Bill						
Subcontract Chain of Custody		✓				
Subcontract Invoice						
Corrective Action Report						
Other 1.						
Other 2.						

9-19-90/GAH

DATE: 09/19/90

TO: Jim Baker

FROM: Bo Blankfield, Laboratory Director

PROJ. NO.: 3519-003-135 LAB NO.: A4735

ENSR Consulting

and Engineering

3000 Richmond Avenue

Houston, Texas 77098

(713) 520-9900

Attached are reports of chemical analyses of samples received August 24, 1990. These analyses are:

Count	Test Code	Test Name	Test Method	Sampled	Matrix
2	Ag - -TCL-HOU	TCLP SILVER	EPA SW-846: 7760, ATOMIC ABSORPTION		TCLP EXT
2	As - -TCL-WQS	TCLP ARSENIC	EPA SW-846: 7060, GRAPHITE FURNACE		TCLP EXT
2	BNA - - -HOU	SEMIVOLATILE ORGANICS	EPA SW-846: 3520, 8270, LLE, GC/MS		TCLP EXT
2	Ba - -TCL-HOU	TCLP BARIUM	EPA SW-846: 6010, ICP		TCLP EXT
3	CORR -S- -HOU	CORROSIVITY ON SOLID	EPA SW-846: 1110, NACE STEEL COUPON	08/22/90	SOIL LIQUID*
2	Cd - -TCL-HOU	TCLP CADMIUM	EPA SW-846: 6010, ICP		TCLP EXT
2	Cr - -TCL-HOU	TCLP CHROMIUM	EPA SW-846: 6010, ICP		TCLP EXT
3	FP -S- -AKM	IGNITABILITY ON SOLID	EPA SW-846: 1010, PENSKEY MARTIN	08/22/90	SOIL LIQUID*
3	H2S -S-REA-AKM	HYDROGEN SULFIDE, REACTIVE/SLD	EPA SW-846: 7.3.4.2, 9030	08/22/90	SOIL LIQUID*
3	HCN -S-REA-AKM	HYDROCYANIC ACID, REACTIVE/SLD	EPA SW-846: 7.3.3.2, 9010	08/22/90	SOIL LIQUID*
2	Hg - -TCL-HOU	TCLP MERCURY	EPA SW-846: 7470, COLD VAPOR		TCLP EXT
2	Pb - -TCL-HOU	TCLP LEAD	EPA SW-846: 6010, ICP		TCLP EXT
2	Se - -TCL-WQS	TCLP SELENIUM	EPA SW-846: 7740, GRAPHITE FURNACE		TCLP EXT
8	TPH -S- -HOU	TOTAL PET. HYDROCARBONS/SOLID	EPA 600:418.1, SW-846:9071	08/22/90	SOIL
4	VOA - - -HOU	VOLATILE ORGANIC ANALYSES	EPA SW-846: 8240, GC/MS		LIQUID TCLP EXT
3	pH -S-COR-HOU	pH CORROSION ON SOLID	EPA SW-846: 9045	08/22/90	SOIL LIQUID*

Data contained in this report reflect a full quality control review and have met all applicable standards established by ENSR. ENSR quality assurance protocols are in accordance with EPA guidelines.

Should you have any questions, do not hesitate to contact me at (713) 520-9900.

BB/lis

Enclosures: Analytical Summary, Analytical Report, Chain of Custody, Sample Receipt Checklist, Quality Control Logs, ENSR ID #A4735-10T, ENSR ID #A4735-11T, ENSR ID #A4735-4, ENSR ID #A4735-6T, Billing Summary

cc: Darlene Venable, Steve Beck

LAB NO. A4735
PROJECT 3519-003-135 Homco - Hobbs, New Mexico

Ice Chest #2 + #3

Page 1 of 3

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CONSULTING AND ENGINEERING

2925 RICHMOND AVENUE HOUSTON, TX 77098 (713) 520-1495

Analysis Request and Chain of Custody Record

Project no.		Client/Project Name				Project Location	
3519-003-135		Homco				Hobbs, N.M.	
Lab ID No	Field Sample No./ Identification	Date and Time	Sample Container (Size/Mat'l)	Sample Type (Liquid Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
1	HCS-3-S2	8/24/00	8oz 55wm	Soil	4°C	Total Petroleum Hydrocarbon	
2	HCS-3-S1	12/26					
3	HCS-3-S4	12/45					
4	Tip Blank	—	2 x 40ml VOA	Liquid		Volatiles	
5	HCS-4-S1	1309	8oz 55wm	Soil		Total Petroleum hydrocarbon	
6	HSA-C1-WP	1320	32oz Amber			TCLP metals	TCLP Pentadum - not performed - (see seal)
			32oz Amber			TCLP Semi-volatiles	
			2 x 40z TAIL			TCLP Volatiles	(Rush)
			16 oz 55wm			Corrosion, Reactivity, Ignitability	
7	HGS-9-BG	1410	8oz 55wm	Soil		TPH	
Samplers: (Signature)		Relinquished by: (Signature)		Date: 8/23/00 Time: 1700		COC Seal No. 37937	
Steve Beck		Steve Beck				37939	
Affiliation		Relinquished by: (Signature)		Date: Time:		Date: Time:	
ENSR						Date: 8/24/00 Time: 0905	
REMARKS:		Relinquished by: (Signature)		Date: Time:		Laboratory No. A4735	
						1. Jim Baker	
						2. Darlene Uenabie	

ENSR
LABORATORIES ©**CONSULTING AND ENGINEERING**

2925 RICHMOND AVENUE HOUSTON, TX 77098 (713) 520-1495

Analysis Request and Chain of Custody Record

Project no. 3519-003-135		Client/Project Name Homco			Project Location Hobbs, N.M.		
Lab ID No	Field Sample No./ Identification	Date and Time	Sample Container (Size/Mat'l)	Sample Type (Liquid Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
10	HCS-6-WDA	8/22/90	2x 4oz tall	Soil	40C	TCLP Volatiles (Rush)	
↓	↓	↓	16oz 55mm	Soil	↓	Corrosion, Reactivity, Ignitibility (Rush)	
11	LP-WDA-1	1800	16oz Amb	oily liquid	40C	TPH (Rush) Broken	
↓	↓	↓	32oz Amb	↓	↓	TCLP metals (Rush)	
↓	↓	↓	32oz Amb	↓	↓	TCLP Semi volatiles (Rush)	
↓	↓	↓	2x 4oz Tall	↓	↓	TCLP Volatiles (Rush)	
↓	↓	↓	16oz 55mm	↓	↓	Reactivity, Ignitibility (Rush)	
↓	↓	↓	↓	↓	↓	Corrosion, Corrosion pH (Rush)	
↓	↓	↓	16oz 55mm	oily liquid	40C	TCLP Prelim (Rush)	
Samplers: (Signature) Steve Beck			Relinquished by: (Signature) [Signature]		Date: 8/23/90 Time: 1700	Received by: (Signature) [Signature]	Date: [Blank] Time: [Blank]
Affiliation ENSR			Relinquished by: (Signature) [Signature]		Date: [Blank] Time: [Blank]	Received by: (Signature) [Signature]	Date: [Blank] Time: [Blank]
REMARKS: 8/24 - Talk to B. B. told him that we can't get the results until 8/31, and that with the holidays we can't get results until 9/7. He said OK do the best you can.			Relinquished by Laboratory: (Signature) [Signature]		Date: 8/24/90 Time: 1745	Received by: (Signature) [Signature]	Date: [Blank] Time: [Blank]
Data Results To: 1. Jim Baker 2. Darlene Venable						Laboratory No. A4735	

ENSR
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2925 RICHMOND AVENUE HOUSTON, TX 77098 (713) 520-1495

Analysis Request and Chain of Custody Record

Project no.		Client/Project Name				Project Location		LABORATORY REMARKS	
3519-003-135		Hemco				Hobbs, N.M.			
Lab ID No	Field Sample No./ Identification	Date and Time	Sample Container (Size/Mat'l)	Sample Type (Liquid Sludge, Etc.)	Preservative	ANALYSIS REQUESTED			
8	HG59-RZ	8/32 1410	8oz 55wm	Soil	4°C	Total Petroleum Hydrocarbon			
9	Dupe #2	8/22 1410	8oz 55wm						
10	HG56-WDA	1602	32oz Amb			TCLP metals (Hold)			
			2x 4oz Tall			TCLP Volatiles (Hold)			
			32oz Amb			TCLP Semivolatiles (Hold)			
			16oz 55wm			Corrosion, Ignitibility, Reactivity (Hold)			
			8oz 55wm			TPH (Rush)			
			32oz 55wm			TCLP metals (Rush)			
						TCLP Semivolatiles (Rush)			
Samplers: (Signature)		Relinquished by: (Signature)		Date: 8/23/90 Time: 1700		Received by: (Signature)		Date: Time: COC Seal No. 37937	
Steve Beck						Received by: (Signature)		Date: Time: 37939	
Affiliation		Relinquished by: (Signature)				Received by Laboratory: (Signature)		Date: Time: Contact: 8/24/90	
ENSR		Relinquished by: (Signature)				Data Results To:		Laboratory No.	
REMARKS:						1. Tim Baker		A4735	
						2. Darlene Venable			



ENSR LABORATORIES ®
SAMPLE RECEIPT CHECKLIST

Client Omco Project Number 359-003-135 Laboratory Number A4735

- 1 ☒ Shipped Notes: Federal Express
☐ Hand Delivered (2 codes)
- 2 ☒ COC Present on Receipt Notes: _____
☐ No COC
- 3 ☒ COC Tape on Shipping Container Notes: Tape intact # 37937 & 37939
☐ No COC Tape on Shipping Container Notes: _____
- 4 ☒ Samples Broken/Leaking Notes: Sample LP-WDA-1 (only sample)
☐ Sample Intact on Receipt 11 oz amber for TPH analysis broken
☐ Other (See Notes) in transit
- 5 ☐ Ambient on Receipt Notes: _____
☒ Chilled on Receipt
- 6 ☐ Samples Preserved Correctly Notes: _____
☐ Improper Preservatives
☒ N/A (None Recommended)
☐ Other (See Notes)
- 7 ☒ Received Within Holding Time Notes: _____
☐ Not Received Within Holding Time
☐ N/A (None Recommended)
☐ Other (See Notes)
- 8 ☐ COC Tapes on Samples Notes: _____
☒ No COC Tapes on Samples
- 9 ☐ Discrepancies Between COC and Sample Labels Notes: _____
☒ No Discrepancies Noted
☐ N/A (No COC Received)

Additional Comments: Sample LP-WDA-1: Samples submitted do not appear to be the same. Have 1 set of samples that are very oily/sludgy and have 1 set that is a much clearer liquid yet they are all labeled LP-WDA-1.

9-14- Inspected and Logged in by: Theresa Lowe Date/Time 8/24/90-1045
TEP extract not performed due to LAB error
Project management notified & decided to re-sample. ok per D. Venable
T. Pontecost / D. Barra

ENSR Labs-Houston

Analytical Summary

10/12/90 14:57

Lab Number: A4735 Project: 3519-003-135 Homco - Hobbs, New Mexico								
Lab ID Field ID Test /Matrix	1 HCS-3-S2 SOIL	2 HCS-3-S1 SOIL	3 HCS-3-S4 SOIL	4 TRIP BLANK LIQUID	5 HCS-4-S1 SOIL	6 HSA-C1-WD SOIL	7 HGS-9-BC1 SOIL	8 HGS-9-BC2 SOIL
CORR -S- -HOU (MDL)	--	--	--	--	--	SEE REM* ()*	--	--
FP -S- -AKM (MDL)	--	--	--	--	--	>180 °F ()	--	--
H2S -S-REA-AKM (MDL)	--	--	--	--	--	<58 MG/KG* (58)*	--	--
HCN -S-REA-AKM (MDL)	--	--	--	--	--	<58 MG/KG* (58)*	--	--
TPH -S- -HOU (MDL)	200 MG/KG (40)	<40 MG/KG (40)	<40 MG/KG (40)	--	<40 MG/KG (40)	--	<40 MG/KG (40)	160 MG/KG (40)
VOA - - -HOU (MDL)	--	--	--	ATTACHED UG/L ()*	--	--	--	--
pH -S-COR-HOU (MDL)	--	--	--	--	--	7.5 UNITS (0.1)	--	--

* Please see attached Analytical Report for remarks.

Signatures of approval indicate quality assurance-quality control verification of analytical results, billing and enclosed documentation.

Approvals: Joan Mitchell Date: 9/21/90 B. B. Field Date: 9-21-90

***** CONTINUED *****

ENSR

ENSR Labs-Houston

Analytical Summary

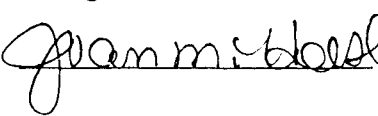
10/12/90 14:57

Lab Number: A4735 Project: 3519-003-135 Homco - Hobbs, New Mexico						
Lab ID Field ID Test /Matrix	9 DUPE #2 SOIL	10 HCS-6- WDB SOIL	11 LP-WDA- 1 LIQUID*	6T HSA-C1- WD/TCLP TCLP EXT	10T HCS-6- WDB/ TCLP TCLP EXT	11T LP-WDA- 1/TCLP TCLP EXT
Ag -- -TCL-HOU (MDL)	--	--	--	--	<0.01 MG/L (0.01)	<0.01 MG/L (0.01)
As -- -TCL-WQS (MDL)	--	--	--	--	0.003 MG/L (0.002)	<0.002 MG/L (0.002)
BNA -- - -HOU (MDL)	--	--	--	--	ATTACHED UG/L (*)	ATTACHED UG/L (*)
Ba -- -TCL-HOU (MDL)	--	--	--	--	1.1 MG/L (0.02)	0.7 MG/L (0.02)
CORR -S- -HOU (MDL)	--	SEE REM* (*)	<6.35 MMPY (6.35)*	--	--	--
Cd -- -TCL-HOU (MDL)	--	--	--	--	<0.010 MG/L (0.010)	<0.010 MG/L (0.010)
Cr -- -TCL-HOU (MDL)	--	--	--	--	<0.02 MG/L (0.02)	<0.02 MG/L (0.02)
FP -S- -AKM (MDL)	--	>180 °F ()	>180 °F ()*	--	--	--

* Please see attached Analytical Report for remarks.

Signatures of approval indicate quality assurance-quality control verification of analytical results, billing and enclosed documentation.

Approvals:



Date:

9/21/90



Date:

9-21-90

***** CONTINUED *****

ENSR

ENSR Labs-Houston

Analytical Summary

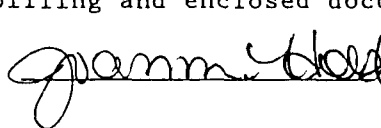
10/12/90 14:58

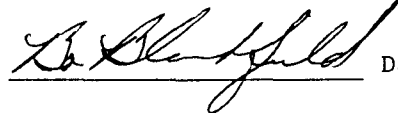
Lab Number: A4735 Project: 3519-003-135 Homco - Hobbs, New Mexico						
Lab ID Field ID Test /Matrix	9 DUPE #2 SOIL	10 HCS-6- WDB SOIL	11 LP-WDA- 1 LIQUID*	6T HSA-C1- WD/TCLP TCLP EXT	10T HCS-6- WDB/ TCLP TCLP EXT	11T LP-WDA- 1/TCLP TCLP EXT
H2S -S-REA-AKM (MDL)	--	<54 MG/KG* (54)*	<50* MG/KG* (50)*	--	--	--
HCN -S-REA-AKM (MDL)	--	<54 MG/KG* (54)*	<50* MG/KG* (50)*	--	--	--
Hg - -TCL-HOU (MDL)	--	--	--	--	<0.001 MG/L (0.001)	<0.001 MG/L (0.001)
Pb - -TCL-HOU (MDL)	--	--	--	--	0.1 MG/L (0.025)	<0.025 MG/L (0.025)
Se - -TCL-WQS (MDL)	--	--	--	--	<0.001 MG/L (0.001)	0.003 MG/L (0.001)
TPH -S- -HOU (MDL)	200 MG/KG (40)	2.6 PERCENT (0.18)	--	--	--	--
VOA - - -HOU (MDL)	--	--	--	ATTACHED UG/L (*)	ATTACHED UG/L (*)	ATTACHED UG/L (*)
pH -S-COR-HOU (MDL)	--	8.2 UNITS (0.1)	7.2 UNITS (0.1)*	--	--	--

* Please see attached Analytical Report for remarks.

Signatures of approval indicate quality assurance-quality control verification of analytical results, billing and enclosed documentation.

Approvals:


 Date: 9-21-90


 Date: 9-21-90

ENSR

ENSR Labs-Houston

Analytical Report

09/19/90 09:09

Homco - Hobbs, New Mexico		Field ID: HCS-3-S2	Date Sampled: 08/22/90	
Proj. No.: 3519-003-135		Lab ID: 1	Time Sampled: 1212	
Lab No.: A4735		Matrix: SOIL (GRAB)	Date Received: 08/24/90	
(Test Code)			Method	Date/Time
Parameter (Test Name)	Concen-		Detection	Analysis
(Test Method)	tration	Units	Limit	Performed
TPH -S- -HOU	200	MG/KG	40	08/29/90
TOTAL PET. HYDROCARBONS/SOLID				1000
EPA 600:418.1, SW-846:9071				

ENSR Labs-Houston

Analytical Report

09/19/90 09:09

Homco - Hobbs, New Mexico		Field ID: HCS-3-S1	Date Sampled: 08/22/90	
Proj. No.: 3519-003-135		Lab ID: 2	Time Sampled: 1236	
Lab No.: A4735		Matrix: SOIL (GRAB)	Date Received: 08/24/90	
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	<40	MG/KG	40	08/29/90 1000

ENSR Labs-Houston

Analytical Report
09/19/90 09:09

Homco - Hobbs, New Mexico		Field ID: HCS-3-S4	Date Sampled: 08/22/90		
Proj. No.: 3519-003-135		Lab ID: 3	Time Sampled: 1245		
Lab No.: A4735		Matrix: SOIL (GRAB)	Date Received: 08/24/90		
(Test Code) Parameter (Test Name) (Test Method)		Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071		<40	MG/KG	40	08/29/90 1000

ENSR Labs-Houston

Analytical Report

09/19/90 09:09

Homco - Hobbs, New Mexico		Field ID: TRIP BLANK		Date Sampled: / /	
Proj. No.: 3519-003-135		Lab ID: 4		Time Sampled:	
Lab No.: A4735		Matrix: LIQUID (GRAB)		Date Received:08/24/90	
(Test Code)	Concen-		Method	Date/Time	
Parameter (Test Name)	tration	Units	Detection	Analysis	
(Test Method)			Limit	Performed	
VOA - - -HOU	ATTACHED	UG/L		08/24/90	
VOLATILE ORGANIC ANALYSES	*1				
EPA SW-846: 8240, GC/MS					

*1 SEE ENSR ID #A4735-4

ENSR Labs-Houston

Analytical Report

09/19/90 09:09

Homco - Hobbs, New Mexico		Field ID: HCS-4-S1	Date Sampled: 08/22/90	
Proj. No.: 3519-003-135		Lab ID: 5	Time Sampled: 1309	
Lab No.: A4735		Matrix: SOIL (GRAB)	Date Received: 08/24/90	
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	<40	MG/KG	40	08/29/90 1000

ENSR Labs-Houston

Analytical Report

09/19/90 09:09

Homco - Hobbs, New Mexico		Field ID: HSA-C1-WD	Date Sampled: 08/22/90	
Proj. No.: 3519-003-135		Lab ID: 6	Time Sampled: 1320	
Lab No.: A4735		Matrix: SOIL (COMPOSITE)	Date Received: 08/24/90	
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
CORR -S- -HOU CORROSIVITY ON SOLID EPA SW-846: 1110, NACE STEEL COUPON	SEE REM* *1			/ /
FP -S- -AKM IGNITABILITY ON SOLID EPA SW-846: 1010, PENSKEY MARTIN	>180	°F		09/03/90
H2S -S-REA-AKM HYDROGEN SULFIDE, REACTIVE/SLD EPA SW-846: 7.3.4.2, 9030	<58 *2	MG/KG*	58	08/30/90
HCN -S-REA-AKM HYDROCYANIC ACID, REACTIVE/SLD EPA SW-846: 7.3.3.2, 9010	<58 *3	MG/KG*	58	08/30/90
pH -S-COR-HOU pH CORROSION ON SOLID EPA SW-846: 9045	7.5	UNITS	0.1	08/28/90 1400

- *1 *UNABLE TO ANALYZE DUE TO MATRIX
 *2 *TOTAL AVAILABLE H2S
 *3 *TOTAL AVAILABLE HCN

ENSR Labs-Houston

Analytical Report

09/19/90 09:09

Homco - Hobbs, New Mexico		Field ID: HGS-9-BC1	Date Sampled: 08/22/90	
Proj. No.: 3519-003-135		Lab ID: 7	Time Sampled: 1410	
Lab No.: A4735		Matrix: SOIL (COMPOSITE)	Date Received: 08/24/90	
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	<40	MG/KG	40	08/29/90 1000

ENSR Labs-Houston

Analytical Report

09/19/90 09:09

Homco - Hobbs, New Mexico		Field ID: HGS-9-BC2	Date Sampled: 08/22/90	
Proj. No.: 3519-003-135		Lab ID: 8	Time Sampled: 1410	
Lab No.: A4735		Matrix: SOIL	(COMPOSITE)	Date Received: 08/24/90
(Test Code) Parameter (Test Name) (Test Method)		Concen- tration	Units	Method Detection Limit Date/Time Analysis Performed
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071		160	MG/KG	40 08/29/90 1000

ENSR Labs-Houston

Analytical Report

09/19/90 09:09

Homco - Hobbs, New Mexico		Field ID: DUPE #2	Date Sampled: 08/22/90	
Proj. No.: 3519-003-135		Lab ID: 9	Time Sampled: 1410	
Lab No.: A4735		Matrix: SOIL	(COMPOSITE)	Date Received:08/24/90
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	200	MG/KG	40	08/29/90 1000

ENSR Labs-Houston

Analytical Report

09/19/90 09:09

Homco - Hobbs, New Mexico		Field ID: HCS-6-WDB	Date Sampled: 08/22/90	
Proj. No.: 3519-003-135		Lab ID: 10	Time Sampled: 1622	
Lab No.: A4735		Matrix: SOIL (COMPOSITE)	Date Received: 08/24/90	
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
CORR -S- -HOU CORROSIVITY ON SOLID EPA SW-846: 1110, NACE STEEL COUPON	SEE REM* *1			/ /
FP -S- -AKM IGNITABILITY ON SOLID EPA SW-846: 1010, PENSKEY MARTIN	>180	°F		09/03/90
H2S -S-REA-AKM HYDROGEN SULFIDE, REACTIVE/SLD EPA SW-846: 7.3.4.2, 9030	<54 *2	MG/KG*	54	08/30/90
HCN -S-REA-AKM HYDROCYANIC ACID, REACTIVE/SLD EPA SW-846: 7.3.3.2, 9010	<54 *3	MG/KG*	54	08/30/90
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	2.6	PERCENT	0.18	08/29/90 1000
pH -S-COR-HOU pH CORROSION ON SOLID EPA SW-846: 9045	8.2	UNITS	0.1	08/28/90 1400

- *1 *UNABLE TO ANALYZE DUE TO MATRIX
 *2 *TOTAL AVAILABLE H2S
 *3 *TOTAL AVAILABLE HCN

ENSR Labs-Houston

Analytical Report
10/12/90 14:57

Homco - Hobbs, New Mexico		Field ID: LP-WDA-1	Date Sampled: 08/22/90	
Proj. No.: 3519-003-135		Lab ID: 11	Time Sampled: 1800	
Lab No.: A4735		Matrix: LIQUID* (GRAB)	Date Received: 08/24/90	
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
CORR -S- -HOU CORROSIVITY ON SOLID EPA SW-846: 1110, NACE STEEL COUPON	<6.35 *1	MMPY	6.35	08/29/90 1500
FP -S- -AKM IGNITABILITY ON SOLID EPA SW-846: 1010, PENSKEY MARTIN	>180 *1	° F		09/03/90
H2S -S-REA-AKM HYDROGEN SULFIDE, REACTIVE/SLD EPA SW-846: 7.3.4.2, 9030	<50* *1,2,3	MG/KG*	50	08/30/90
HCN -S-REA-AKM HYDROCYANIC ACID, REACTIVE/SLD EPA SW-846: 7.3.3.2, 9010	<50* *1,2,4	MG/KG*	50	08/30/90
pH -S-COR-HOU pH CORROSION ON SOLID EPA SW-846: 9045	7.2 *1	UNITS	0.1	08/28/90 1400

- *1 *MATRIX CONT.: OILY WASTE
- *2 *WET WEIGHT BASIS
- *3 *TOTAL AVAILABLE H2S
- *4 *TOTAL AVAILABLE HCN

ENSR Labs-Houston

Analytical Report

09/19/90 09:10

Homco - Hobbs, New Mexico		Field ID: HSA-C1-WD/TCLP	Date Sampled: / /	
Proj. No.: 3519-003-135		Lab ID: 6T	Time Sampled:	
Lab No.: A4735		Matrix: TCLP EXT	Date Received: 08/24/90	
(Test Code) Parameter (Test Name) (Test Method)		Concen- tration	Units	Method Detection Limit
VOA - - -HOU VOLATILE ORGANIC ANALYSES EPA SW-846: 8240, GC/MS		ATTACHED *1	UG/L	09/06/90

*1 SEE ENSR ID #A4735-6T

ENSR Labs-Houston

Analytical Report

09/19/90 09:10

Homco - Hobbs, New Mexico		Field ID: HCS-6-WDB/TCLP	Date Sampled: / /	
Proj. No.: 3519-003-135		Lab ID: 10T	Time Sampled:	
Lab No.: A4735		Matrix: TCLP EXT	Date Received: 08/24/90	
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
Ag - -TCL-HOU TCLP SILVER EPA SW-846: 7760, ATOMIC ABSORPTION	<0.01	MG/L	0.01	09/06/90 1400
As - -TCL-WQS TCLP ARSENIC EPA SW-846: 7060, GRAPHITE FURNACE	0.003	MG/L	0.002	09/07/90 1115
BNA - - -HOU SEMIVOLATILE ORGANICS EPA SW-846: 3520,8270, LLE,GC/MS	ATTACHED *1	UG/L		Ext.: 09/06/90 Anal.: 09/07/90
Ba - -TCL-HOU TCLP BARIUM EPA SW-846: 6010, ICP	1.1	MG/L	0.02	09/06/90 730
Cd - -TCL-HOU TCLP CADMIUM EPA SW-846: 6010, ICP	<0.010	MG/L	0.010	09/06/90 730
Cr - -TCL-HOU TCLP CHROMIUM EPA SW-846: 6010, ICP	<0.02	MG/L	0.02	09/06/90 730
Hg - -TCL-HOU TCLP MERCURY EPA SW-846: 7470, COLD VAPOR	<0.001	MG/L	0.001	09/07/90 1030
Pb - -TCL-HOU TCLP LEAD EPA SW-846: 6010, ICP	0.1	MG/L	0.025	09/06/90 730
Se - -TCL-WQS TCLP SELENIUM EPA SW-846: 7740, GRAPHITE FURNACE	<0.001	MG/L	0.001	09/07/90 950

*1 SEE ENSR ID #A4735-10T

***** CONTINUED *****

ENSR

ENSR Labs-Houston

Analytical Report

09/19/90 09:10

Homco - Hobbs, New Mexico	Field ID: HCS-6-WDB/TCLP	Date Sampled: / /		
Proj. No.: 3519-003-135	Lab ID: 10T	Time Sampled:		
Lab No.: A4735	Matrix: TCLP EXT	Date Received:08/24/90		
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
VOA - - -HOU VOLATILE ORGANIC ANALYSES EPA SW-846: 8240, GC/MS	ATTACHED *1	UG/L		09/06/90

*1 SEE ENSR ID #A4735-10T

ENSR

ENSR Labs-Houston

Analytical Report

09/19/90 09:10

Homco - Hobbs, New Mexico		Field ID: LP-WDA-1/TCLP	Date Sampled: / /	
Proj. No.: 3519-003-135		Lab ID: 11T	Time Sampled:	
Lab No.: A4735		Matrix: TCLP EXT	Date Received:08/24/90	
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
Ag - -TCL-HOU TCLP SILVER EPA SW-846: 7760, ATOMIC ABSORPTION	<0.01	MG/L	0.01	09/06/90 1400
As - -TCL-WQS TCLP ARSENIC EPA SW-846: 7060, GRAPHITE FURNACE	<0.002	MG/L	0.002	09/07/90 1115
BNA - - -HOU SEMIVOLATILE ORGANICS EPA SW-846: 3520,8270, LLE,GC/MS	ATTACHED *1	UG/L		Ext.: 09/06/90 Anal.:09/07/90
Ba - -TCL-HOU TCLP BARIUM EPA SW-846: 6010, ICP	0.7	MG/L	0.02	09/06/90 730
Cd - -TCL-HOU TCLP CADMIUM EPA SW-846: 6010, ICP	<0.010	MG/L	0.010	09/06/90 730
Cr - -TCL-HOU TCLP CHROMIUM EPA SW-846: 6010, ICP	<0.02	MG/L	0.02	09/06/90 730
Hg - -TCL-HOU TCLP MERCURY EPA SW-846: 7470, COLD VAPOR	<0.001	MG/L	0.001	09/07/90 1030
Pb - -TCL-HOU TCLP LEAD EPA SW-846: 6010, ICP	<0.025	MG/L	0.025	09/06/90 730
Se - -TCL-WQS TCLP SELENIUM EPA SW-846: 7740, GRAPHITE FURNACE	0.003	MG/L	0.001	09/07/90 950

*1 SEE ENSR ID #A4735-11T

***** CONTINUED *****

ENSR

ENSR Labs-Houston

Analytical Report

09/19/90 09:10

Homco - Hobbs, New Mexico		Field ID: LP-WDA-1/TCLP	Date Sampled: / /	
Proj. No.: 3519-003-135		Lab ID: 11T	Time Sampled:	
Lab No.: A4735		Matrix: TCLP EXT	Date Received:08/24/90	
(Test Code) Parameter (Test Name) (Test Method)		Concen- tration	Units	Method Detection Limit
VOA - - -HOU VOLATILE ORGANIC ANALYSES EPA SW-846: 8240, GC/MS		ATTACHED *1	UG/L	Date/Time Analysis Performed 09/06/90

*1 SEE ENSR ID #A4735-11T

ENSR

WQS

WATER
QUALITY
SERVICES

17459 VILLAGE GREEN DRIVE
HOUSTON, TEXAS 77040
(713) 466-0958

ENVIRONMENTAL TESTING SPECIALISTS

September 7, 1990

Ms. Dayna Bocca
ENSR Laboratories
2925 Richmond Ave
Houston, TX 77098

LABORATORY REPORT

TCLP extract samples received 09/04/90. Project #3519-003-135.

Sample ID	Arsenic, mg/l	Selenium, mg/l	WQS ID
2T	0.005	<0.002	4897
A4735-10T	0.003	<0.001	4898
A4735-11T	<0.002	0.003	4899
1T	0.003	0.004	4900
TCLP Blank	<0.002	0.003	4901

Quality Control

Analysis	Arsenic	Selenium
Method	7060	7741
Analyst	MD	MD
Date	09/07/90	09/07/90
Time	1115	0950
MDL	0.002	0.001
Dup-1	<0.002	0.002
Dup-2	<0.002	0.003
Spike	90	91

WATER QUALITY SERVICES

Anne Fiedelman
Anne Fiedelman

ENSR Labs-Houston

QUALITY CONTROL LOG

Page: 7 of 2

Parameter: Silver - Ag

Matrix: TCLP, Water

Method of Analysis: SW846: 7760 AA

Date/Time: 06 Sept. 90/1400

Lab Numbers	Detection Limits	Calibration Stds./Blk	Absorbance/Conc.	Check Standards	Concentration Found/True
A4773-1+3	0.01 mg/l	Blank	0.000 0.003	A4773 Sample Blank	0.008 FTM
A4731-2T		0.50 ppm	0.010 0.506	Method Blank	0.002 FTM
A4735-10T/11T		1.00 ppm	0.019 1.001	ERA-2 P.E. Std.	1.028 FTM
A4742-1T		2.00 ppm	0.038 2.002	CCVS Internal Std.	0.742 1.00 FTM
A4783-1				0.02 ppm	0.75 FTM
A4788-1					0.022 0.02
A4776 (1+3)	✓	Correlation Coefficient:			
		Comments:			

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result	Sample Result	Spike Added	Percent Recovery
A4773-3	<0.02	<0.02	*	*	A4773	*	50% of 2.00	97%
A4731-2T		↓	↓	↓	0.928	↓		93%
A4735-10T		—	—	—	0.977	↓		98%
A4735-11T		<0.02	*	*	0.975	*		98%
A4742-1T		↓	↓	↓	0.971	↓		97%
A4783-1	↓	↓	↓	↓	—	—	—	—

Analyst: James Hatcher

QA/QC Approval: DeAnna M. Senegal

ENSR LABS-HOUSTON
QUALITY CONTROL LOG

PARAMETER: Silver - Ag DATE/TIME: 06 Sept. 20/1400 PAGE 2 OF 2
INTERNAL QUALITY CONTROL DUPLICATES AND SPIKES

* BELOW MDL

[illegible]

ANALYST:

QA/QC APPROVAL:

QA/QC APPROVAL: DeAnna M. Senega

Date: 6 Sept 90

ENSR Labs-Houston

Page 1 of 5Time: 0730ICAP Quality Control Logs
Method EPA SW-846:6010, 3rd Ed.

Calibration, Standard and Blank Information

Parameter MDL		Zn	Pb	Cd	Ni	Mn	Fe	Cr	Be	Cu	Ba
		0.08	0.100	0.04	0.08	0.08	0.08	0.08	0.08	0.08	0.08
CALIBRATION STANDARD / BLK	BLANK	-0.001	0.000	0.000	0.000	-0.000	-0.000	0.000	-0.000	-0.000	-0.000
	5.00 ppm	4.88	4.93	5.01	5.03	5.01	5.01	4.98	4.99	4.88	4.88
	1.00 ppm	1.07	1.01	1.02	1.02	1.01	0.997	1.00	1.00	0.978	0.969
	0.100 ppm	—	0.105	—	—	—	—	—	—	—	—
	0.08 ppm	0.078	—	0.079	0.080	0.079	0.080	0.078	0.078	0.077	0.075
	0.04 ppm	0.038	—	0.038	0.042	0.038	0.040	0.039	0.038	0.038	0.036
	100 ppm	—	101	—	—	—	—	—	—	—	—

CHECK STD	ERA #3	1.00 1.00	0.996 1.00	1.00 1.00	0.997 1.00	1.00 1.00	9.98 10.0	1.00 1.00	1.00 1.00	0.963 1.00	0.949 1.00

SAMPLE BLANKS	A4743-BLK	—	-0.000	0.000	—	—	—	0.000	—	—	0.001
	A4778-BLK	—	-0.008	—	—	—	—	—	—	—	—

Analyst: Michelle SavoeQA/QC Approval: DeAnna M. Penegal

ENSR Labs-Houston

2 of 5 pgs.

Date: 6 Sept 90

Time: 0730

ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information

* Below MD

Parameter MDL	Zn 0.08	Pb 0.100	Cd 0.04	Ni 0.08	Mn 0.08	Fe 0.08	Cr 0.08	Be 0.08	Cu 0.08	Ba 0.08
TCLP 100-705 A4743-BLK	T	-0.000	0.000	T	T	T	0.000	T	T	0.001
Duplicate	T	—	—	T	T	T	—	T	T	—
% RPD	T	—	—	T	T	T	—	T	T	—
Spike BLK SPK	T	0.885	0.088	T	T	T	0.207	T	T	1.81
% Recovery	↓	88%	88%	↓	↓	↓	104%	↓	↓	90%
-14T		0.051								
Duplicate		—								
% RPD		—								
Spike		1.21								
% Recovery		101%								
-15T		-0.000								
Duplicate		—								
% RPD		—								
Spike		0.845								
% Recovery		84%								
-16T		0.123								
Duplicate		—								
% RPD		—								
Spike		1.34								
% Recovery		85%								
-17T		-0.000								
Duplicate		—								
% RPD		—								
Spike		0.983								
% Recovery		98%								

Analyst: Michelle Savic

QAQC Approval: Delanna M. Senegal

Date: 6 Sept 90Time: 0730ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information

* Below MD

Parameter MDL	Zn 0.08	Pb 0.100	Cd 0.04	Ni 0.08	Mn 0.08	Fe 0.08	Cr 0.08	Be 0.08	Cu 0.08	B 0.08
A4743-18T		11.9								
Duplicate		—								
% RPD		—								
Spike Bench		68.1								
% Recovery		89%								
-19T		0.011								
Duplicate		—								
% RPD		—								
Spike		0.854								
% Recovery		85%								
-20T		0.450								
Duplicate		—								
% RPD		—								
Spike		2.88								
% Recovery		108%								
-21T		0.008								
Duplicate		0.003								
% RPD		*								
Spike		0.898								
% Recovery		90%								
-22T		10.2								
Duplicate		—								
% RPD		—								
Spike		41.7								
Recovery		96%								

Analyst:

Michelle Savore

QA/QC Approval:

DeAnna M. Senegal

ENSR Labs-Houston

4 of 5 pgs.

Date: 6 Sept 90

Time: 0730

ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information

* Below MD

Parameter MDL	Cu 0.08	Pb 0.100	Cd 0.04	Ni 0.08	Mn 0.08	Fe 0.08	Cr 0.08	Bz 0.08	Cu 0.08	Ba 0.08
A4743-23T		-0.002								
Duplicate		—								
% RPD		—								
Spike		0.860								
% Recovery		86%								
A4731-2T		0.093	0.008				0.026			1.05
Duplicate		0.106	0.007				0.027			1.08
% RPD		13.1	*				3.77			0.93
Spike		1.37	0.110				0.315			6.07
% Recovery		100%	110%				106%			90%
A4735-10T		0.097	0.003				0.003			1.12
Duplicate		—	—				—			—
% RPD		—	—				—			—
Spike		1.37	0.109				0.205			6.15
% Recovery		98%	109%				102%			86%
-11T		-0.008	-0.000				0.001			0.7
Duplicate		-0.001	0.000				0.001			0.70
% RPD		*	*				*			0.56
Spike		0.863	0.084				0.175			4.75
% Recovery		86%	84%				88%			92%
A4742-1T		0.125	0.002				0.006			0.052
Duplicate		0.126	0.001				0.004			0.054
% RPD		0.797	*				*			4.15
Spike		1.38	0.105				0.194			2.3
% Recovery		88%	105%				97%			96%

Analyst:

Michelle Laverie

QAQC Approval:

DeAnna M. Senegal

Date: 6 Sept 90Time: 0730ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information

* Below MDL

Parameter MDL	Zn 0.08	Pb 0.100	Cd 0.04	Ni 0.02	Mn 0.08	Fe 0.08	Cr 0.02	Be 0.08	Cu 0.08	Ba 0.08
<u>D₂₅ → 100</u> <u>A4778-2</u>		0.788								
Duplicate		0.787								
% RPD		0.127								
Spike Bench		2.59								
% Recovery		88%								
<u>D₂₅ → 100</u> <u>A4801-5</u>		5.42								
Duplicate		5.44								
% RPD		0.368								
Spike Bench		5.37								
% Recovery		106%								
<u>-14</u>		1.99								
Duplicate		1.93								
% RPD		3.06								
Spike Bench		3.23								
% Recovery		89%								
<u>-19</u>		3.56								
Duplicate		3.35								
% RPD		6.08								
Spike		4.61								
% Recovery		105%								
Duplicate										
% RPD										
Spike										
Recovery										

Analyst:

Michelle Savari

QAQC Approval:

DeAnna M. Senegal

ENSR Labs-Houston
QUALITY CONTROL LOG

Parameter: Mercury Hg
Method of Analysis: SW846-7470

Page: 1 of 2
Matrix: TELP, Water
Date/Time: 07 Sept. 90/1030

Lab Numbers	Detection Limits
A4758-1	0.001 mg/L
A4755-1T	
A4735-10T, 11T	
A4719-1T, 5T, 11T	
A4726-6T	
A4742-1T	
A4726-(1+2)	
A4731-2T	
A4732-(8+10T)	
A4773-(1+3)	
A4776-(1+3)	
	↓

Calibration Stds./Blk	Absorbance/Conc.
Blank	0.000 0.0000
0.002 ppm	0.018 0.0019
0.005 ppm	0.044 0.0048
0.010 ppm	0.087 0.0100
Correlation Coefficient:	
Comments:	

Check Standards	Concentration Found/True
Sample Blank	ppm
Method Blank	0.0000 ppm
PE Std. 487-2	0.0081 0.0087 ppm
CCVS Internal Std.	0.0072 0.0077 ppm
0.001 ppm	0.0009 0.001 ppm

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result	Sample Result	Spike Added	Percent Recovery
Blank	<0.001 mg/L				0.0050	*	0.005	100%
A4758-1	0.0040	0.0038	0.0002	5.13%				
A4735-11T	<0.001				0.0041	*	0.005	82%
A4719-11T	<0.001				0.0046	*	50% of 0.010	92
A4719-5T	<0.001				0.0048	*	50% of 0.010	96%
A4719-18T	<0.001	<0.001	*	*	0.0048	*	0.005	96%

Analyst: Jane M. Alth

QA/QC Approval: DeAnna M. Senegal

**ENSR LABS-HOUSTON
QUALITY CONTROL LOG**

PARAMETER: Mercury Hg DATE/TIME: 07 Sept. 90/1030 PAGE 2 OF 2
INTERNAL QUALITY CONTROL DUPLICATES AND SPIKES

* BELOW MDL

LAB NO. - SAMPLE	SAMPLE CONC.	DUPLICATE CONC.	RANGE	PERCENT RPD	SPIKED RESULT	SAMPLE RESULT	SPIKE ADDED	PERCENT RECOVERY
A4726-6T	<0.001	_____	_____	_____	0.0091	*	0.005	82%
A4742-1T	<0.001	_____	_____	_____	0.0044	*	0.005	88
A4726-1T	'	_____	_____	_____	0.0042	*	50% of 0.010	84
A4726-2T		<0.0010	*	*	0.0043	*	0.005	86%
A4726-3T		_____	_____	_____	0.0091	*	0.005	82%
A4726-4T		_____	_____	_____	0.0044	*	0.005	88
A4726-5T		_____	_____	_____	0.0042	*	50% of 0.010	84
A4731-2T	↓	<0.001	*	*	0.0046	*	0.005	92
A4732-8T	0.0012	_____	_____	_____	0.0057	0.0006	50% of 0.010	90
A4732-10T	0.0027	_____	_____	_____	0.0063	0.00135	50% of 0.010	99
A4732-9T	<0.001	_____	_____	_____	0.0052	*	50% of 0.010	104
A4773-2	0.0030	_____	_____	_____	0.0081	0.0030	0.005	102
A4776-2	<0.001	<0.001	*	*	0.0048	*	50% of 0.010	96
A4755-1T	<0.001	<0.001	*	*	0.0044	*	0.005	88

ANALYST:

Jana Mather

QA/QC APPROVAL:

DeAnna M. Peraz

ENSR Labs-Houston

QUALITY CONTROL LOG

Parameter: Total Petroleum Hydrocarbon-Soil

Page: 1 of 1

Method of Analysis: EPA 600/418-1 SW-846/9071

Matrix: Soil

Date/Time: 8-29-90/1000

Lab Numbers	Detection Limits	Calibration Stds./Blk	Absorbance/Conc.	Check Standards	Concentration Found/True
A4708(1-5)	40 ^{ms} /kg	2.1	0.0743/1.81	Sample Blank	
A4710-15	70 ^{ms} /kg	4.2	0.1012/3.81	Method Blank	Abs. 0.0176
A4731-2	1.0%	8.5	0.1575/7.97	P.E. Std.	
A4731(3-7)	40 ^{ms} /kg	17.0	0.3007/14.6	Internal Std.	23.4/21.3
A4731-8	0.08%	42.5	0.6153/41.9	IS 21.3	23.0/21.3
A4735(1-3,5)	40 ^{ms} /kg	IS 21.3	0.3666/23.4		
A4735-10	0.18%	Correlation Coefficient:	0.9984		
		Comments:			

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result (mg)	Sample Result (mg)	Spike Added (mg)	Percent Recovery (mg)
A4708-1	240	240	*	*	9.8	0.8	8.5	106%
A4710-15	782	854	72	8.9%	←	Diluted out		→
A4731-4	168	145	23	14.7%	12.0	4.1	8.5	93%
A4731-7	240	240	*	*	8.0	2.2	8.5	94%
A4735-9	198	203	5	2.5%	13.7	5.3	8.5	99%

Analyst:

Eunice Williams

QA/QC Approval:

DeAnna M. Senega

ENSR Labs-Houston

QUALITY CONTROL LOG

Parameter: pH correction on solid

Method of Analysis: LPA SW 846-9040

Page: 1 of 1

Matrix: soil/sediment

Date/Time: 8-28-90/1400

Lab Numbers	Detection Limits
A4735-6	0.12umol/L
-10	↓
A4731-2	↓

Calibration Stds./Blk	^{u.r.t.d} Absorbance/Conc.
Beckman 100	10.0
40	4.0
Correlation Coefficient:	

Comments:

Check Standards	Concentration Found/True
Sample Blank	EFM
Method Blank	EFM
P.E. Std.	EFM
Internal Std.	EFM
7.0 Leffick	7.0/7.0umol

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result	Sample Result	Spike Added	Percent Recovery
A4735-10	8.2	8.3	0.1	1.2	-	-	-	-
A4731-2	8.1	8.1	0	0	-	-	-	-

Analyst: Theresa M. Wynn

QA/QC Approval: DeAnna M. Senega

V. Analytical ResultsReactivity

The observations for Reactivity were as follows:

- . The sample(s) did not undergo violent changes under normal conditions.
- . The sample(s) did not react violently or form a potentially explosive mixture with water.
- . The sample(s) did not appear readily capable of detonation, explosive decomposition or reaction at standard temperature or pressure.
- . The sample(s) did not generate toxic gases, vapors or fumes when exposed to pH conditions between 2 and 12.5.
- . The results for reactive sulfide and cyanide are as follows:

<u>Parameter</u>	<u>Method Blank</u>	<u>Sample Designation</u>		
		<u>A22661-1 HSA-C1-WD</u>	<u>A22661-2 HCS-6-WDB</u>	<u>A22661-3 LP-WDA-1</u>
Reactivity-Sulfide	<50	<58	<54	<660
Reactivity-Cyanide	<50	<58	<54	<660
Units	(mg/kg)	(mg/kg dw)	(mg/kg dw)	(mg/kg dw)

<u>Parameter</u>	<u>Method Blank</u>	<u>Sample Designation</u>		
		<u>A22661-1 HSA-C1-WD</u>	<u>A22661-2 HCS-6-WDB</u>	<u>A22661-3 LP-WDA-1</u>
Total Solids, %	< 0.1	86	92	7.6
Flashpoint, closed cup, °F	--	>180	>180	>180

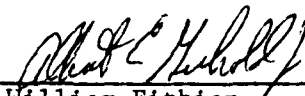
IV. Laboratory Chronicle

	<u>DATE</u>
Sampling Date	<u>8/22/90</u>
Receipt/Refrigeration	<u>8/27/90</u>

	<u>Date of Extraction</u>	<u>Date of Analysis</u>
Reactivity-Sulfide	<u>--</u>	<u>8/30/90</u>
Reactivity-Cyanide	<u>--</u>	<u>8/30/90</u>
Flashpoint	<u>--</u>	<u>9/03/90</u>
Solids	<u>--</u>	<u>8/31/90</u>

Laboratory Manager
Review & Approval

(Signature)
(Printed Name)
(Date)

 for
William Fithian
9-14-90

Test Report No. A22661
Page 2

II. Sample Designations

<u>AnalytiKEM Designation</u>	<u>Client Designation</u>	<u>Matrix</u>	<u>Date Sampled</u>
A22661-1	HSA-C1-WD	Nonaqueous	8/22/90
A22661-2	HCS-6-WDB	Nonaqueous	8/22/90
A22661-3	LP-WDA-1	Nonaqueous	8/22/90

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ENSR LAB-Hou
 Lab Sample ID: A4735-4
 Client Sample ID: TRIP BLANK

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: 100.0

Date Extracted: 08/24/90
 Date Analyzed: 08/24/90
 Dilution Factor: 1.0

VOLATILE COMPOUNDS

CAS Number		UG/L	CAS Number		UG/L
74-87-3	Chloromethane	10 <	78-87-5	1,2-Dichloropropane . . .	5 <
74-83-9	Bromomethane	10 <	10061-01-5	cis-1,3-Dichloropropene .	5 <
75-01-4	Vinyl Chloride	10 <	79-01-6	Trichloroethene	5 <
75-00-3	Chloroethane	10 <	124-48-1	Dibromochloromethane . . .	5 <
75-09-2	Methylene Chloride	7 B	79-00-5	1,1,2-Trichloroethane . .	5 <
67-64-1	Acetone	12 B	71-43-2	Benzene	5 <
75-15-0	Carbon Disulfide	5 <	10061-02-6	trans-1,3-Dichloropropene	5 <
75-35-4	1,1-Dichloroethene	5 <	110-75-8	2-Chloroethylvinylether .	10 <
75-34-3	1,1-Dichloroethane	5 <	75-25-2	Bromoform	5 <
156-60-5	trans-1,2-Dichloroethene .	5 <	108-10-1	4-Methyl-2-Pentanone . . .	10 <
67-66-3	Chloroform	5 <	591-78-6	2-Hexanone	10 <
107-06-2	1,2-Dichloroethane	5 <	127-18-4	Tetrachloroethene	5 <
78-93-3	2-Butanone	10 <	79-34-5	1,1,2,2-Tetrachloroethane	5 <
71-55-6	1,1,1-Trichloroethane . .	5 <	108-88-3	Toluene	5 <
56-23-5	Carbon Tetrachloride . . .	5 <	108-90-7	Chlorobenzene	5 <
105-05-4	Vinyl Acetate	10 <	100-41-4	Ethylbenzene	5 <
75-27-4	Bromodichloromethane . . .	5 <	100-42-5	Styrene	5 <
			1330-20-7	Xylene (Total)	5 <

The Lab ID for data on this page is A47354.

B - Compound was detected in the QC blank.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

Form I

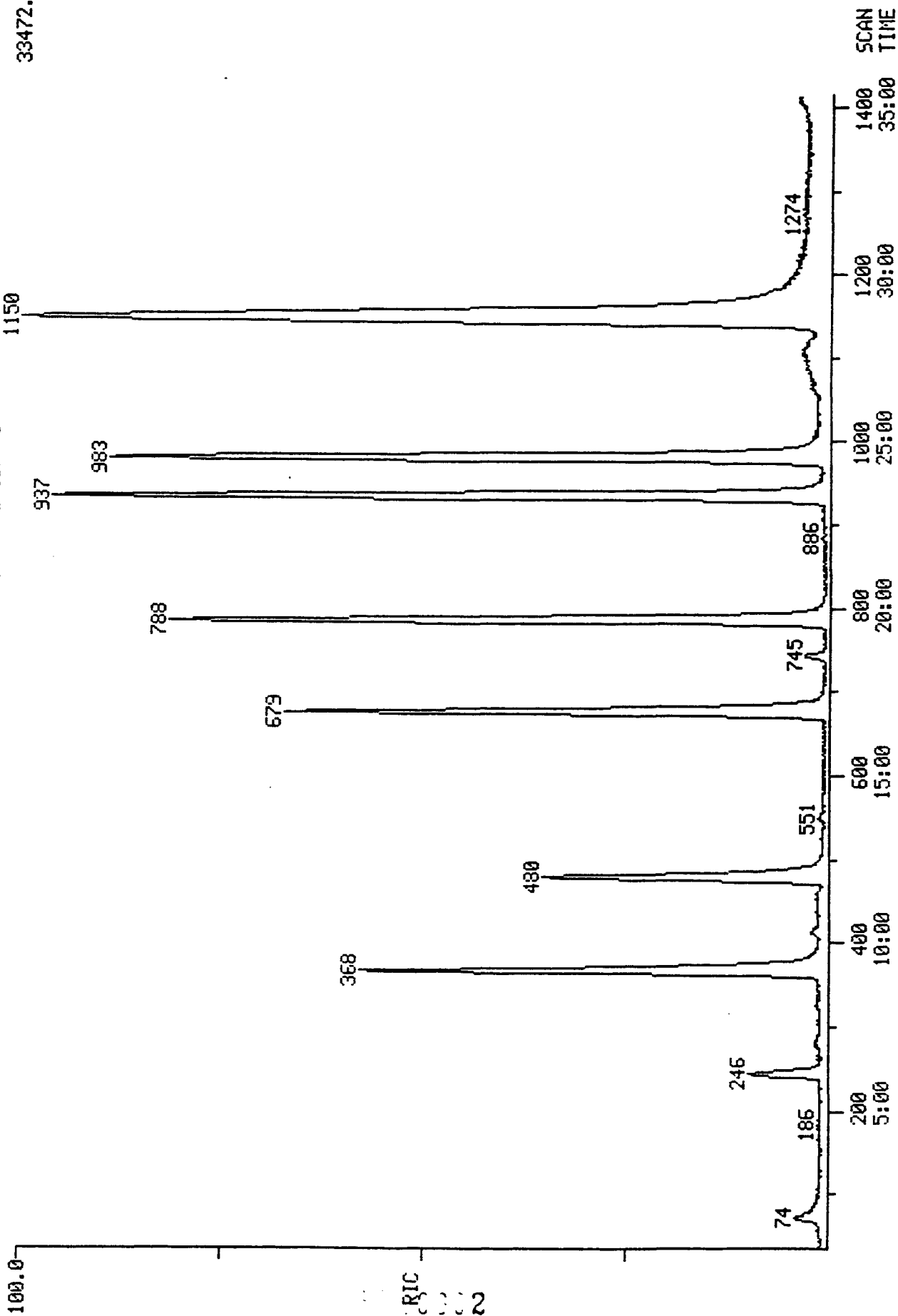
RIC
08/24/90 22:07:00
SAMPLE: TRIP BLANK
CONDS.: 150C
RANGE: G 1.1420

DATA: A47354 #1
CALI: A47354 #3

SCANS 35 TO 1415

LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

33472.



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ENSR LAB-Hou
 Lab Sample ID: A4735-6T
 Client Sample ID: HSA-ClWD-TCLP

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: 100.0

Date Extracted: 09/06/90
 Date Analyzed: 09/06/90
 Dilution Factor: 1.0

TCLP VOLATILES

CAS Number		UG/L	CAS Number		UG/L
110-86-1	Pyridine	50 <	56-23-5	Carbon Tetrachloride	5 <
75-01-4	Vinyl Chloride	10 <	79-01-6	Trichloroethene	5 <
75-35-4	1,1-Dichloroethene	5 <	71-43-2	Benzene	5 <
67-66-3	Chloroform	5 <	127-18-4	Tetrachloroethene	5 <
107-06-2	1,2-Dichloroethane	5 <	108-90-7	Chlorobenzene	5 <
78-93-3	2-Butanone	10 <			

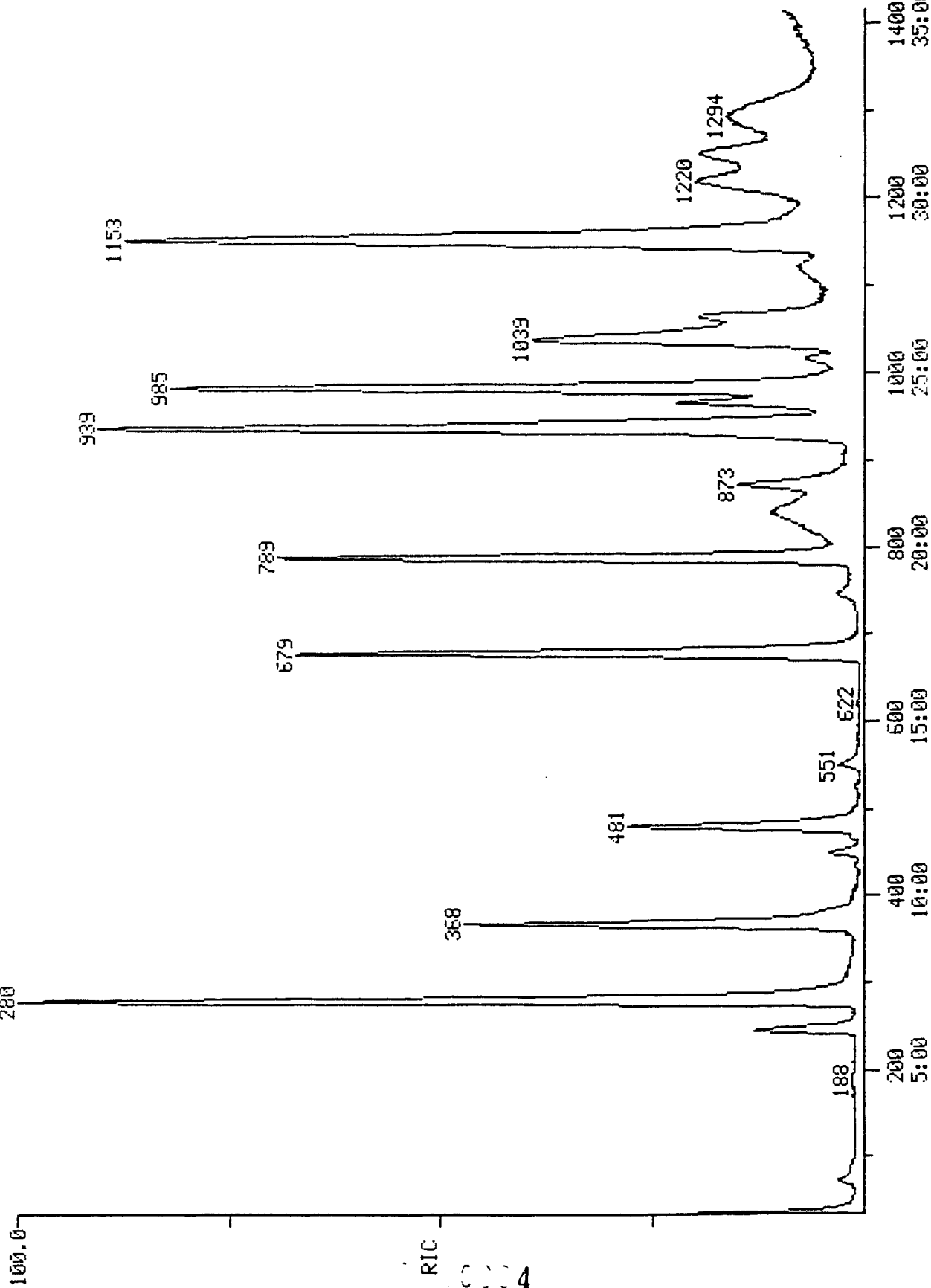
The Lab ID for data on this page is A47356T.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

Form I

RIC
 09/06/90 16:03:00
 SAMPLE: HSA-C1-WD, TCLP
 CONDS.: 150C
 RANGE: G 1.1420 LABEL: N 0. 4.0 QUANT: A 0. 1.0 J 0 BASE: U 20, 3
 DATA: A47356T #1
 CALI: A47356T #3
 SCANS 35 TO 1415

58496.



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ENSR LAB-Hou
 Lab Sample ID: A4735-10T
 Client Sample ID: HCS-6WDB-TCLP

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: 100.0

Date Extracted: 09/06/90
 Date Analyzed: 09/06/90
 Dilution Factor: 1.0

TCLP VOLATILES

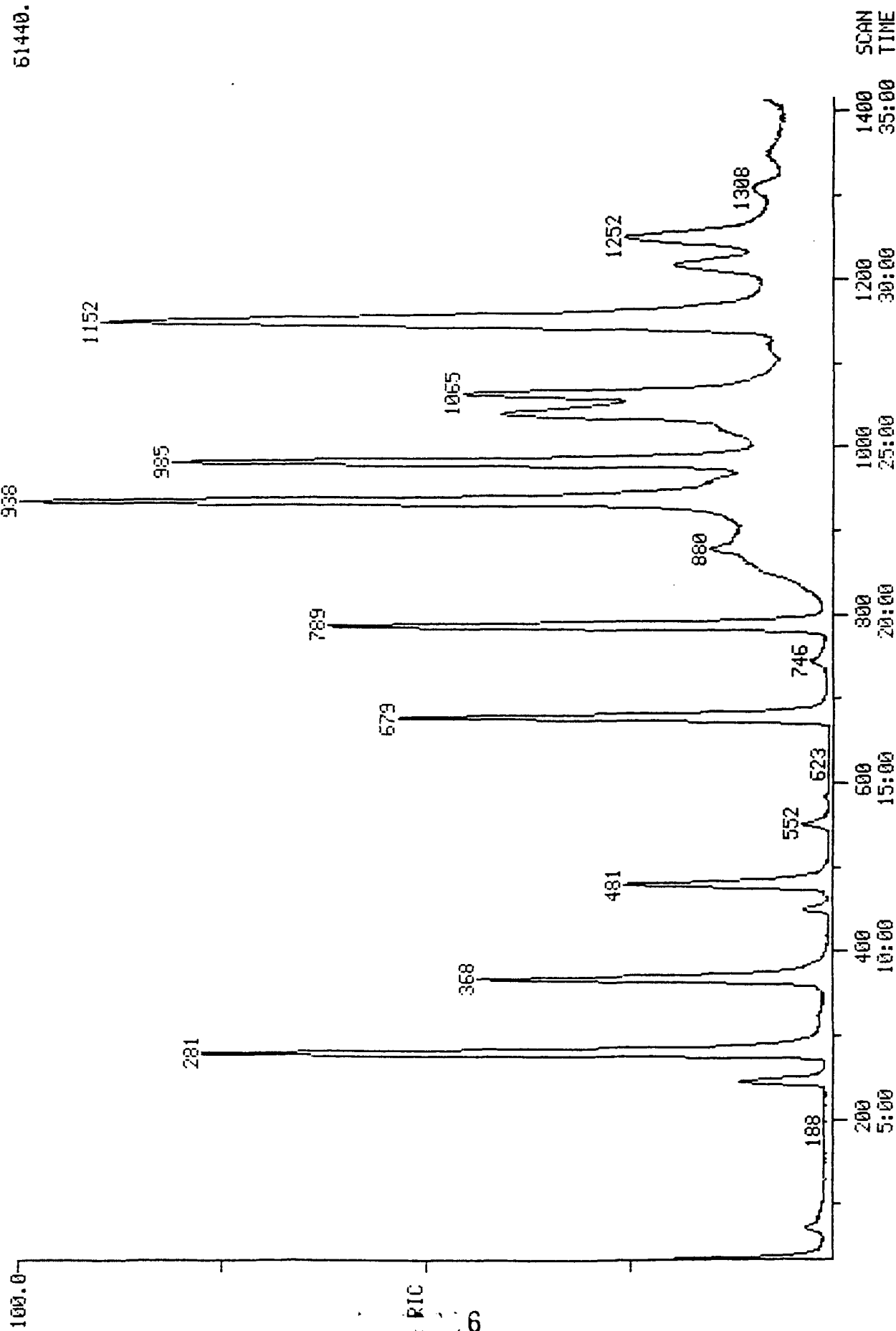
CAS Number		UG/L	CAS Number		UG/L
110-86-1	Pyridine	50 <	56-23-5	Carbon Tetrachloride . . .	5 <
75-01-4	Vinyl Chloride	10 <	79-01-6	Trichloroethene	5 <
75-35-4	1,1-Dichloroethene	5 <	71-43-2	Benzene	5 <
67-66-3	Chloroform	5 <	127-18-4	Tetrachloroethene	5 <
107-06-2	1,2-Dichloroethane	5 <	108-90-7	Chlorobenzene	5 <
78-93-3	2-Butanone	10 <			

The Lab ID for data on this page is A473510T.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

Form I

RIC
09/06/90 16:45:00
SAMPLE: HCS-6-MDB.TCLP
CONDS.: 150C
RANGE: G 1.1420 LABEL: N 0. 4.0 QUAN: A 0. 1.0 J 0 BASE: U 20. 3
DATA: A473510T #1
CALL: A473510T #3
SCANS 35 TO 1415



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ENSR LAB-Hou
 Lab Sample ID: A4735-11T
 Client Sample ID: LP-WDA-1-TCLP

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: 100.0

Date Extracted: 09/06/90
 Date Analyzed: 09/06/90
 Dilution Factor: 1.0

TCLP VOLATILES

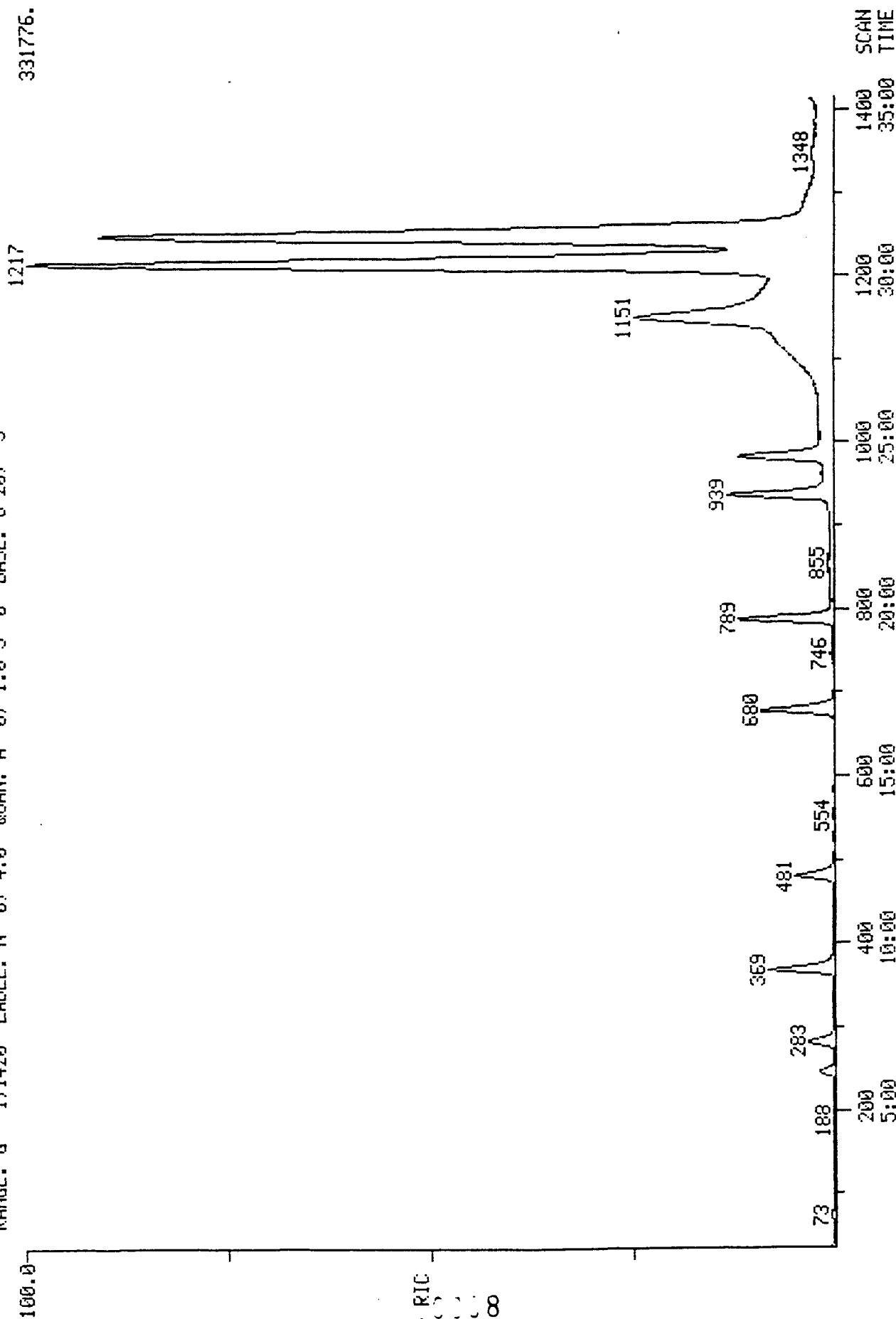
CAS Number		UG/L	CAS Number		UG/L
110-86-1	Pyridine	50 <	56-23-5	Carbon Tetrachloride . . .	5 <
75-01-4	Vinyl Chloride	10 <	79-01-6	Trichloroethene	5 <
75-35-4	1,1-Dichloroethene	5 <	71-43-2	Benzene	5 <
67-66-3	Chloroform	5 <	127-18-4	Tetrachloroethene	5 <
107-06-2	1,2-Dichloroethane	5 <	108-90-7	Chlorobenzene	5 <
78-93-3	2-Butanone	10 <			

The Lab ID for data on this page is A473511T.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

Form I

RIC
09/06/90 17:28:00
SAMPLE: LP-MDA-1, TCLP
CONDS.: 150C
RANGE: G 1.1420 LABEL: N 0. 4.0 QUAN: A 0. 1.0 J 0 BASE: U 20. 3
DATA: A473511T #1
CALI: A473511T #3
SCANS 35 TO 1415



BROMOFLUOROBENZENE

Tuning Report

08/24/90 13:09:00 + 7:21

Instrument: I50C

#279 to #310 averaged - #316

Case Number:

Data: BF082490C1 # 294

Cali: BF082490C1 # 3

Analyst: BPB

Laboratory:

Base m/z: 95

RIC: 4656.

Acct. No.: 8506-090

Contract:

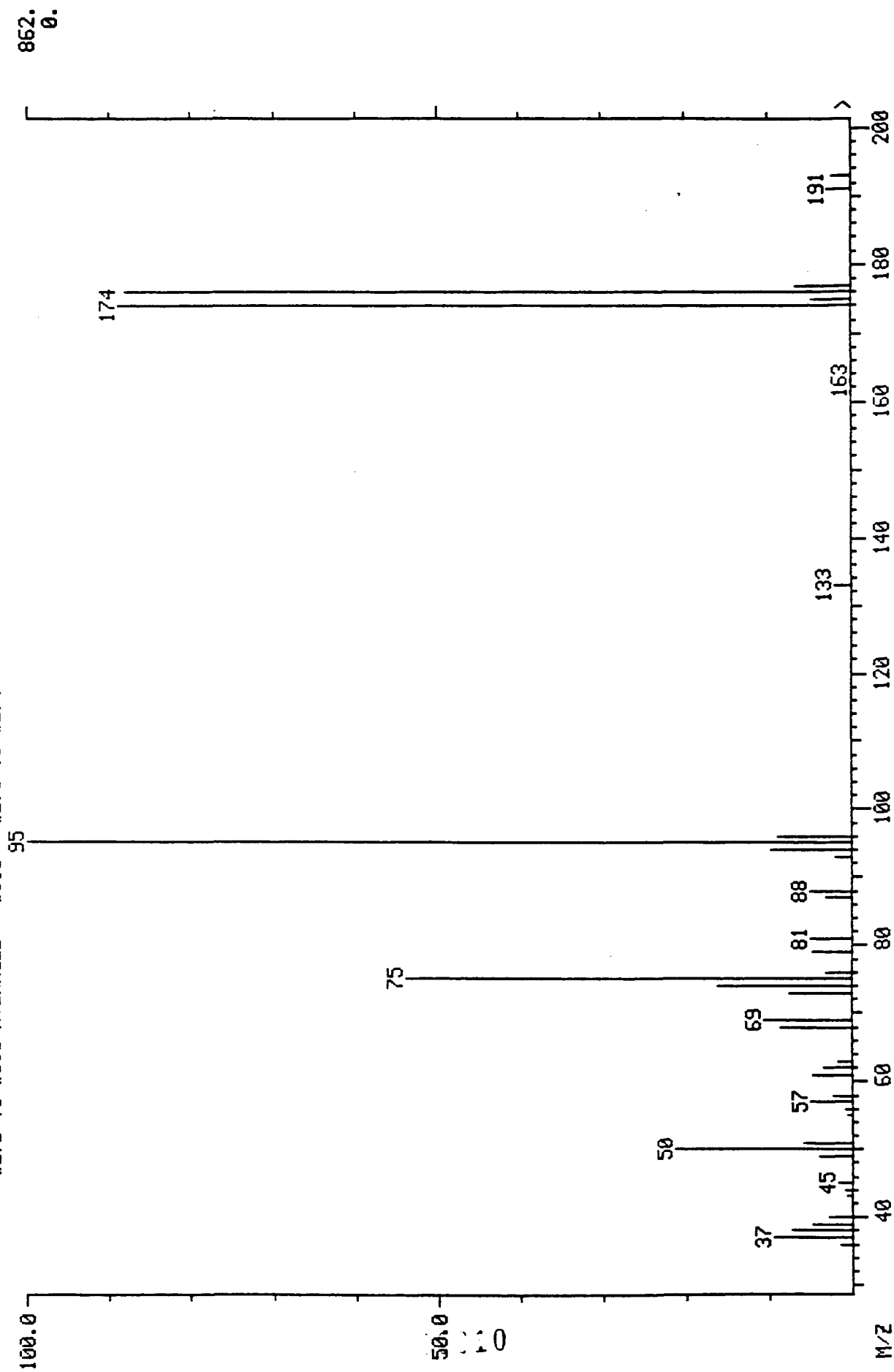
m/z	Intensity	% RA	Ion Abundance Criteria			Actual	Status
			Min %	Max %	Mass		
50	183.	21.2	15.0	40.0	95	21.2	PASS
75	465.	53.9	30.0	60.0	95	53.9	PASS
95	862.	100.0	100.0	---	---	100.0	PASS
96	76.	8.8	5.0	9.0	95	8.8	PASS
173	0.	0.0	---	2.0	174	0.0	PASS
174	767.	89.0	50.0	---	95	89.0	PASS
175	41.	4.8	5.0	9.0	174	5.3	PASS
176	760.	88.2	95.0	101.0	174	99.1	PASS
177	56.	6.5	5.0	9.0	176	7.4	PASS

MASS SPECTRUM
08/24/90 13:09:00 + 7:21
SAMPLE: BFB CALIBRATION
CONDS.: 150C

TEMP: 225 DEG. C
#279 TO #310 AVERAGED - #316 - #273 TO #274

DATA: BF082490C1 #294
CALI: BF082490C1 #3

BASE M/Z: 95
RIC: 4656.



Mass List

08/24/90 13:09:00 + 7:21

Data: BF082490C1 # 294

Base m/z: 95

Cali: BF082490C1 # 3

RIC: 4656.

Sample: BFB CALIBRATION

Conds.: I50C

#279 to #310 averaged - #316

36	0.00	0.	Minima	Min Inten:	0.
209			Maxima	#	0
Mass	% RA	Inten.			
36?	S	1.51	13.		
37?	S	9.51	82.		
38?	S	7.08	61.		
39?	S	4.64	40.		
40?	S	2.67	23.		
43?	S	0.58	5.		
44?	S	0.81	7.		
45?	S	1.74	15.		
49?	S	3.83	33.		
50?	S	21.23	183.		
51?	S	5.68	49.		
55?	S	0.58	5.		
56?	S	0.81	7.		
57?	S	5.10	44.		
58?	S	2.20	19.		
61?	S	4.76	41.		
62?	S	3.25	28.		
63?	S	1.74	15.		
68?	S	8.58	74.		
69	S	10.44	90.		
73	S	7.42	64.		
74	S	16.01	138.		
75	S	53.94	465.		
76	S	3.13	27.		
79	S	4.64	40.		
81	S	4.87	42.		
87	S	3.13	27.		
88	S	5.10	44.		
93	S	1.97	17.		
94	S	9.63	83.		
95	S	100.00	862.		
96	S	8.82	76.		
133	S	1.86	16.		
163	S	0.12	1.		
174	S	88.98	767.		
175	S	4.76	41.		
176	S	88.17	760.		
177	S	6.50	56.		
191	S	2.90	25.		
193	S	2.20	19.		
207	S	20.65	178.		
208	S	5.22	45.		
209	S	2.32	20.		

BROMOFLUOROBENZENE

Tuning Report

09/06/90 12:16:00 + 7:16

Instrument: I50C

#291 to #292 averaged - #319

Case Number:

Data: BF090690C1 # 291

Cali: CALTAB # 3

Analyst: BPB

Laboratory:

Base m/z: 95

RIC: 12240.

Acct. No.: 8506-090

Contract:

m/z	Intensity	% RA	Ion Abundance Criteria			Actual	Status
			Min %	Max %	Mass		
50	500.	21.1	15.0	40.0	95	21.1	PASS
75	1206.	50.8	30.0	60.0	95	50.8	PASS
95	2372.	100.0	100.0	---	---	100.0	PASS
96	193.	8.1	5.0	9.0	95	8.1	PASS
173	0.	0.0	---	2.0	174	0.0	PASS
174	2052.	86.5	50.0	---	95	86.5	PASS
175	161.	6.8	5.0	9.0	174	7.8	PASS
176	2028.	85.5	95.0	101.0	174	98.8	PASS
177	136.	5.7	5.0	9.0	176	6.7	PASS

MASS SPECTRUM

09/06/90 12:16:00 + 7:16

SAMPLE: BFB CALIBRATION

CONDS.: 150C

TEMP: 225 DEG. C

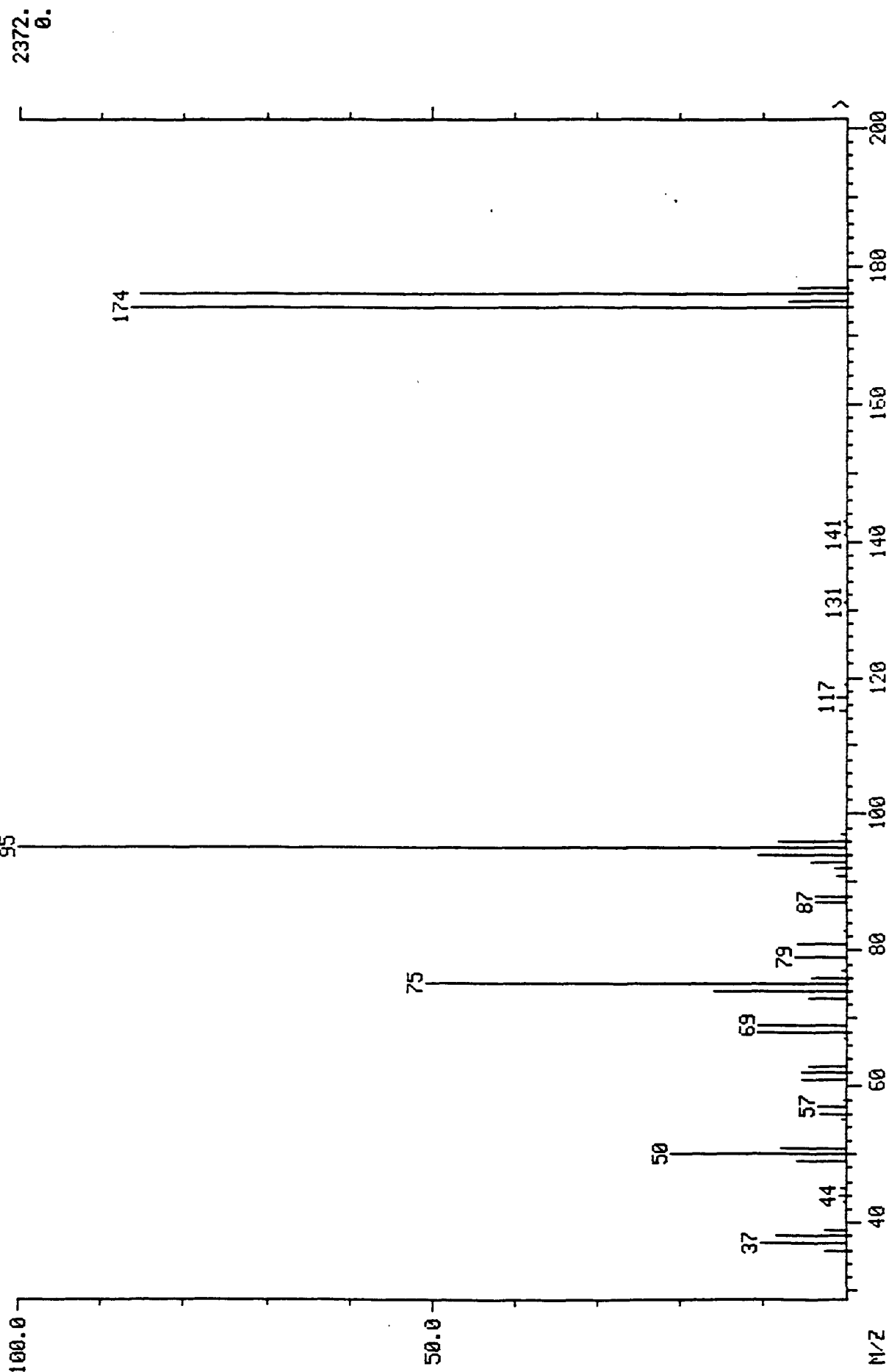
#291 TO #292 AVERAGED - #319 - #273 TO #274

DATA: BF090690C1 #291

BASE M/Z: 95

CALI: CALTAB #3

RIC: 12240.



Mass List
09/06/90 12:16:00 + 7:16
Sample: BFB CALIBRATION
Conds.: I50C

Data: BF090690C1 # 291
Cali: CALTAB # 3

Base m/z: 93
RIC: 12240.

#291 to #292 averaged - #319

36	0.00	0.	Minima	Min Inten:	0.
207			Maxima	# 0	
Mass	% RA	Inten.			
36?	S 2.36	56.			
37?	S 10.16	241.			
38?	S 8.22	195.			
39?	S 2.40	57.			
43?	S 0.21	5.			
44?	S 0.89	21.			
45?	S 0.42	10.			
49?	S 5.73	136.			
50?	S 21.08	500.			
51?	S 7.72	183.			
55?	S 0.46	11.			
56?	S 2.99	71.			
57?	S 3.37	80.			
58?	S 0.25	6.			
61?	S 5.35	127.			
62?	S 5.31	126.			
63?	S 4.51	107.			
67?	S 0.21	5.			
68?	S 10.46	248.			
69	S 10.50	249.			
73	S 4.55	108.			
74	S 15.81	375.			
75	S 50.84	1206.			
76	S 4.17	99.			
77	S 0.55	13.			
79	S 6.16	146.			
81	S 5.69	135.			
83	S 0.17	4.			
87	S 3.71	88.			
88	S 3.58	85.			
91	S 1.05	25.			
92	S 1.39	33.			
93	S 4.17	99.			
94	S 10.41	247.			
95	S 100.00	2372.			
96	S 8.14	193.			
97	S 0.42	10.			
115	S 0.84	20.			
117	S 1.22	29.			
119	S 0.38	9.			
131	S 0.34	8.			
141	S 0.38	9.			
143	S 0.34	8.			
174	S 86.51	2052.			
175	S 6.79	161.			
176	S 85.50	2028.			
177	S 5.73	136.			
207	S 3.41	81.			

**CONTINUING CALIBRATION CHECK
VOLATILE HSL COMPOUNDS**

Case No: CALIB
Contractor: ENSR LAB-Hou
Contract No:
Instrument ID: I50C

Region:

Calibration Date: 08/24/90
Time: 13:23
Laboratory ID: CC082490C1
Initial Cali. Date: 08/23/90

Minimum RF for SPCC is 0.300 (1)

Maximum %D for CCC is 25%

Compound	AVE RF	RF(50)	% D	CCC	SPCC
Chloromethane	1.252	1.347	-7.6		* *
Bromomethane	1.365	1.487	-8.9		
Vinyl Chloride	1.225	1.394	-13.8	*	
Chloroethane	0.753	0.831	-10.4		
Methylene Chloride	1.763	1.788	-1.4		
Acetone	0.328	0.288	12.2		
Carbon Disulfide	3.160	3.479	-10.1		
1,1-Dichloroethene	1.416	1.485	-4.9	*	
1,1-Dichloroethane	3.103	3.240	-4.4		* *
trans-1,2-Dichloroethene	1.462	1.442	1.4		
Chloroform	3.417	3.268	4.4	*	
1,2-Dichloroethane	2.375	2.264	4.7		
2-Butanone	0.015	0.018	-20.0		
1,1-Trichloroethane	0.688	0.744	-8.1		
Carbon Tetrachloride	0.666	0.706	-6.0		
Vinyl Acetate	0.284	0.543	-91.2		
Bromodichloromethane	0.663	0.667	-0.6		
1,2-Dichloropropane	0.453	0.454	-0.2	*	
cis-1,3-Dichloropropene	0.515	0.521	-1.2		
Trichloroethene	0.562	0.516	8.2		
Dibromochloromethane	0.558	0.561	-0.5		
1,1,2-Trichloroethane	0.343	0.342	0.3		
Benzene	1.027	1.042	-1.5		
trans-1,3-Dichloropropene	0.455	0.430	5.5		
2-Chloroethylvinylether	0.207	0.198	4.3		
Bromoform	0.416	0.403	3.1		* *
4-Methyl-2-Pentanone	0.300	0.131	56.3		
2-Hexanone	0.085	0.160	-88.2		
Tetrachloroethene	0.642	0.669	-4.2		
1,1,2,2-Tetrachloroethane	0.462	0.539	-16.7		* *
Toluene	0.806	0.804	0.2	*	
Chlorobenzene	1.139	1.156	-1.5		* *
Ethylbenzene	0.552	0.549	0.5	*	
Styrene	0.876	0.869	0.8		
Xylene (Total)	0.538	0.550	-2.2		

RF(50) - Response Factor from daily standard file at
50 ug/l

AVE RF - Average Response Factor from initial
calibration Form VI

%D - - - Percent Difference

CCC - - - Calibration Check Compounds (*)

SPCC - - - System Performance Check Compounds (**)

(1) - - - Minimum RF for Bromoform is 0.250

Form VII

RIC

08/24/90 13:23:00

SAMPLE: CONTINUING CALIBRATION

CONDS.: I50C

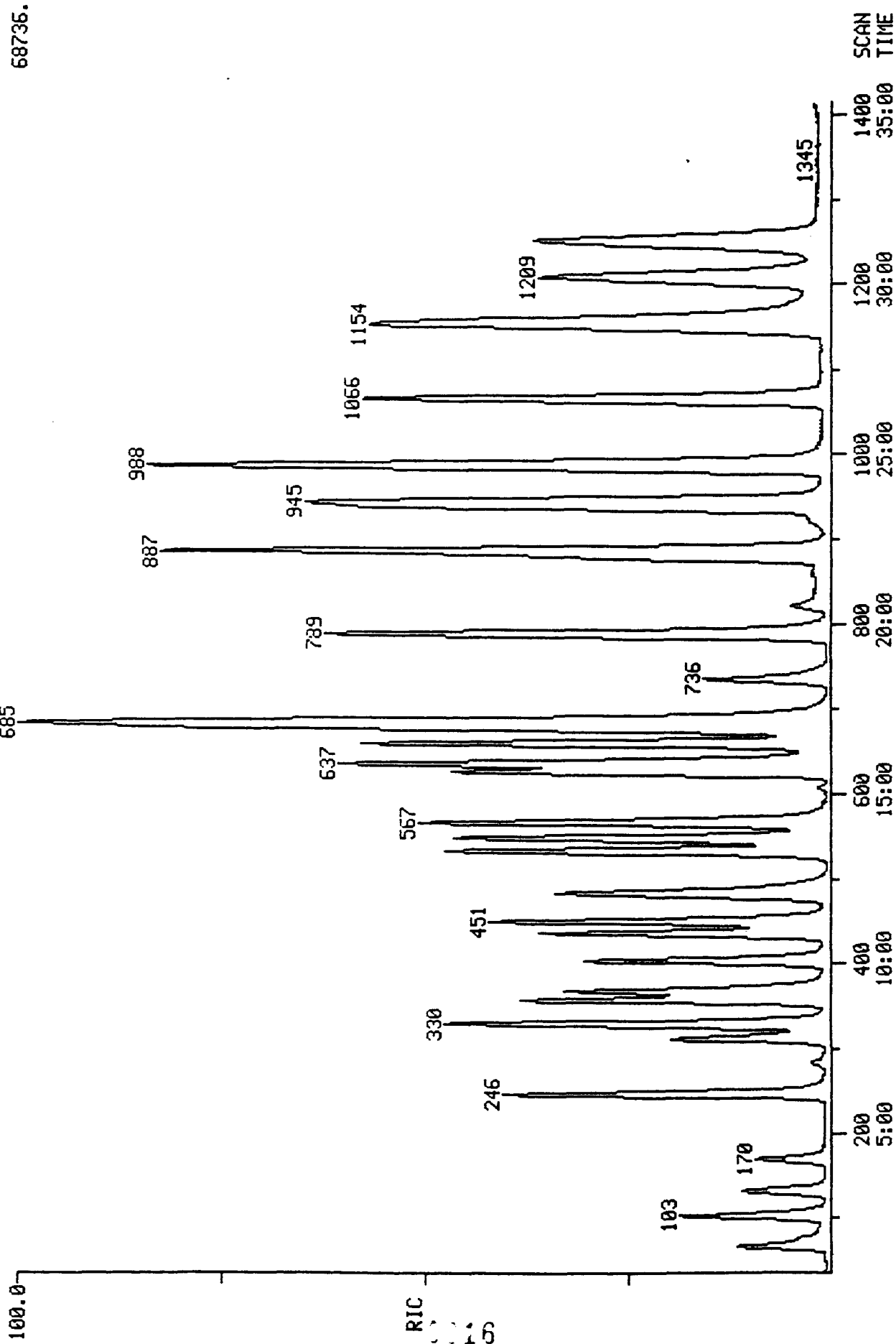
RANGE: G 1.1420 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: CC082490C1 #1

CALI: CC082490C1 #3

SCANS 35 TO 1415

68735.



**CONTINUING CALIBRATION CHECK
VOLATILE HSL COMPOUNDS**

Case No: CALIB
Contractor: ENSR LAB-Hou
Contract No:
Instrument ID: I50C

Region:

Calibration Date: 09/06/90
Time: 12:46
Laboratory ID: CC090690C1
Initial Cali. Date: 08/23/90

Minimum RF for SPCC is 0.300 (1)

Maximum %D for CCC is 25%

Compound	AVE RF	RF(50)	% D	CCC	SPCC
Chloromethane	1.252	1.231	1.7		* *
Bromomethane	1.365	1.237	9.4		
Vinyl Chloride	1.225	1.130	7.8	*	
Chloroethane	0.753	0.706	6.2		
Methylene Chloride	1.763	1.619	8.2		
Acetone	0.328	0.225	31.4		
Carbon Disulfide	3.160	2.639	16.5		
1,1-Dichloroethene	1.416	1.348	4.8	*	
1,1-Dichloroethane	3.103	2.807	9.5		* *
trans-1,2-Dichloroethene	1.462	1.365	6.6		
Chloroform	3.417	3.189	6.7	*	
1,2-Dichloroethane	2.375	2.014	15.2		
2-Butanone	0.015	0.018	-20.0		
1,1,1-Trichloroethane	0.688	0.588	14.5		
Carbon Tetrachloride	0.666	0.570	14.4		
Vinyl Acetate	0.284	0.290	-2.1		
Bromodichloromethane	0.663	0.570	14.0		
1,2-Dichloropropane	0.453	0.376	17.0	*	
cis-1,3-Dichloropropene	0.515	0.417	19.0		
Trichloroethene	0.562	0.498	11.4		
Dibromochloromethane	0.558	0.478	14.3		
1,1,2-Trichloroethane	0.343	0.315	8.2		
Benzene	1.027	0.892	13.1		
trans-1,3-Dichloropropene	0.455	0.370	18.7		
2-Chloroethylvinylether	0.207	0.188	9.2		
Bromoform	0.416	0.359	13.7		* *
4-Methyl-2-Pentanone	0.300	0.241	19.7		
2-Hexanone	0.085	0.063	25.9		
Tetrachloroethene	0.642	0.567	11.7		
1,1,2,2-Tetrachloroethane	0.462	0.476	-3.0		* *
Toluene	0.806	0.655	18.7	*	
Chlorobenzene	1.139	1.009	11.4		* *
Ethylbenzene	0.552	0.488	11.6	*	
Styrene	0.876	0.827	5.6		
Xylene (Total)	0.538	0.469	12.8		

RF(50) - Response Factor from daily standard file at
50 ug/l

AVE RF - Average Response Factor from initial
calibration Form VI

%D - - - Percent Difference

CCC - - Calibration Check Compounds (*)

SPCC - - System Performance Check Compounds (**)

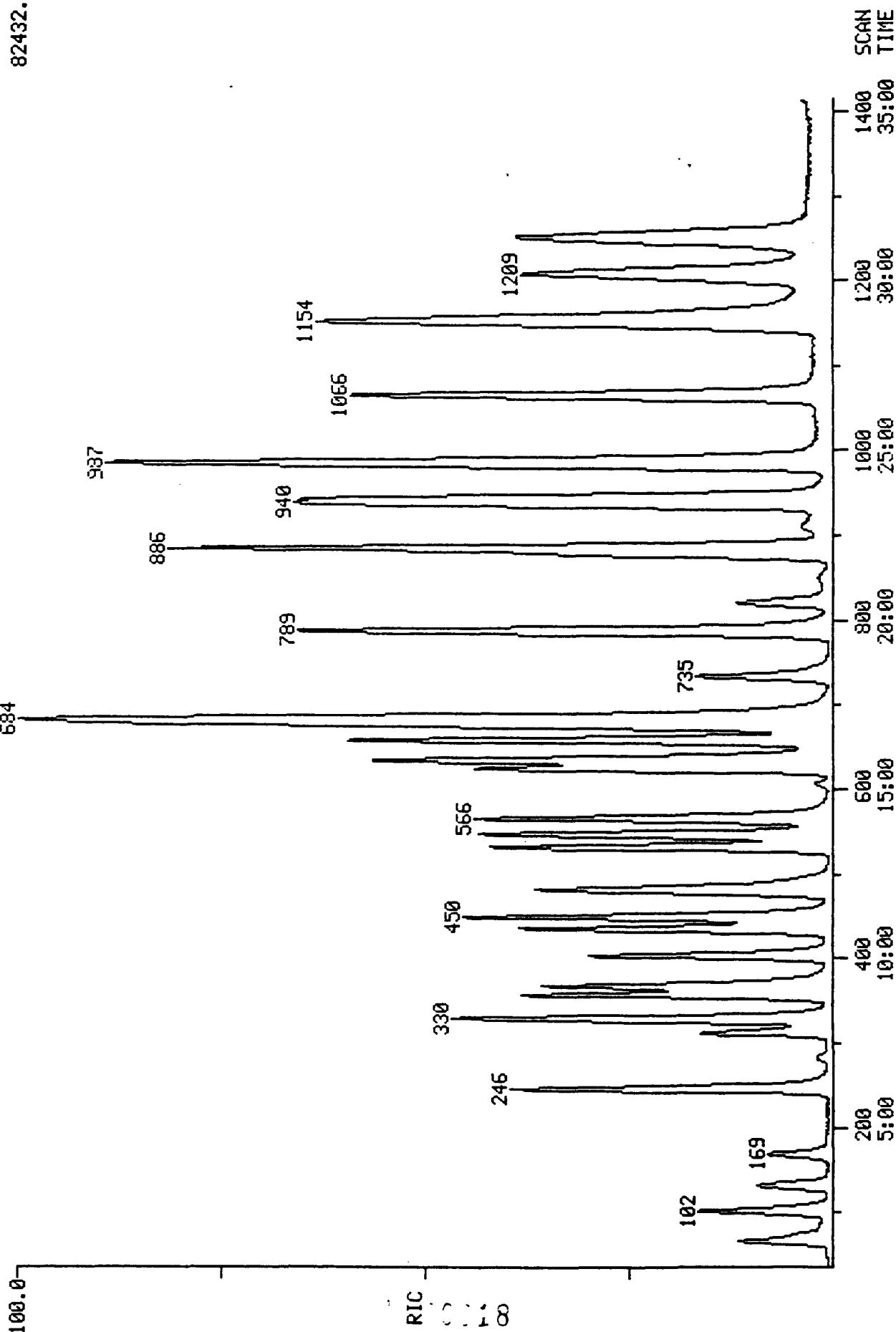
(1) - - Mininum RF for Bromoform is 0.250

017 Form VII

DATA: CC090690C1 #1
CALI: CC090690C1 #3

09/06/90 12:46:00
SAMPLE: CONTINUING CALIBRATION
CONDS.: I50C
RANGE: G 1.1420 LABEL: N 0.4.0 QUAN: A 0.1.0 J 0 BASE: U 20. 3

82432.



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ENSR LAB-Hou
 Lab Sample ID: MB082490C1
 Client Sample ID: MB082490C1

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: 100.0

Date Extracted: 08/24/90
 Date Analyzed: 08/24/90
 Dilution Factor: 1.0

VOLATILE COMPOUNDS

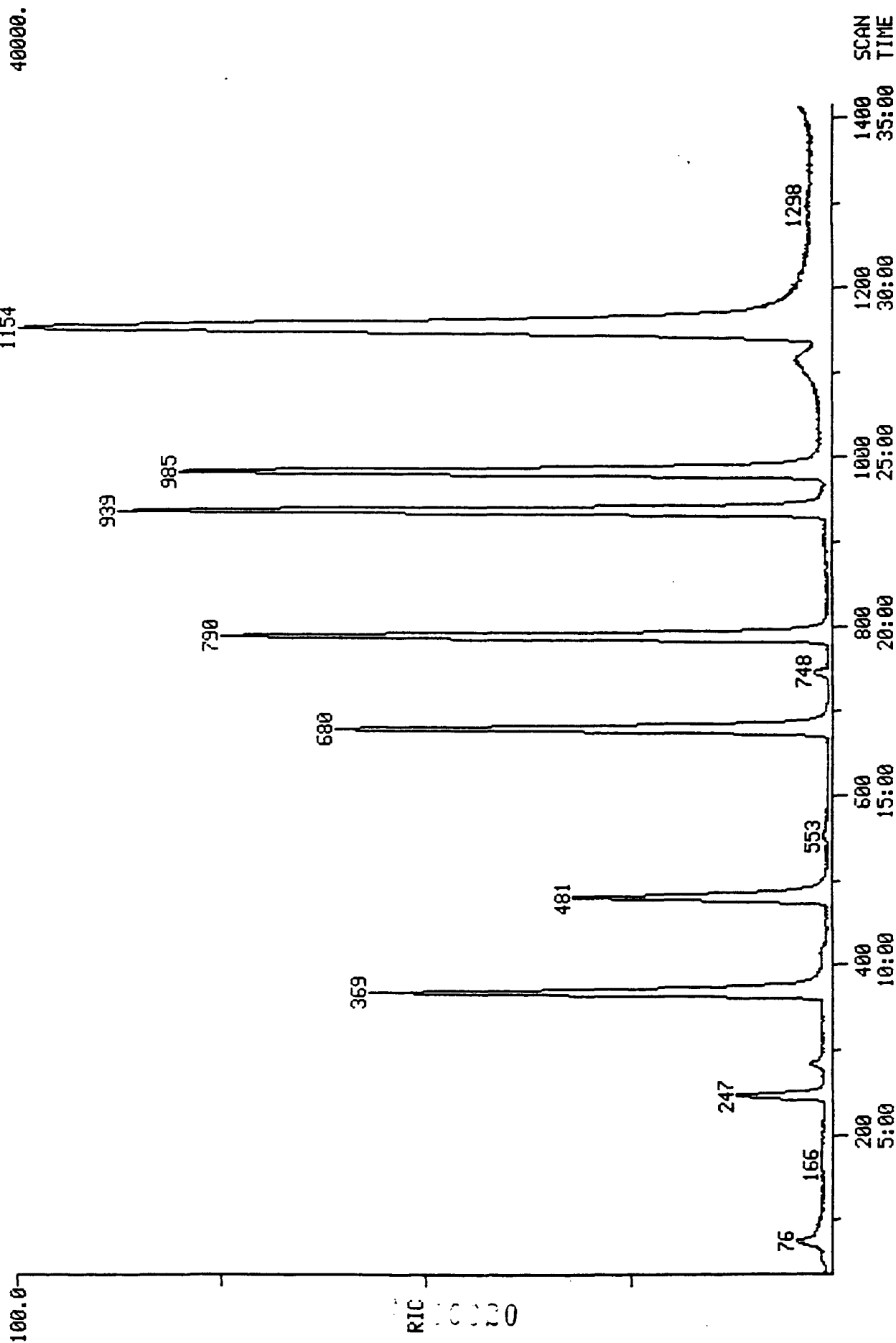
CAS Number		UG/L		CAS Number		UG/L	
74-87-3	Chloromethane	10	<	78-87-5	1,2-Dichloropropane	5	<
74-83-9	Bromomethane	10	<	10061-01-5	cis-1,3-Dichloropropene . .	5	<
75-01-4	Vinyl Chloride	10	<	79-01-6	Trichloroethene	5	<
75-00-3	Chloroethane	10	<	124-48-1	Dibromochloromethane	5	<
75-09-2	Methylene Chloride	8		79-00-5	1,1,2-Trichloroethane . . .	5	<
67-64-1	Acetone	29		71-43-2	Benzene	5	<
75-15-0	Carbon Disulfide	5	<	10061-02-6	trans-1,3-Dichloropropene	5	<
75-35-4	1,1-Dichloroethene	5	<	110-75-8	2-Chloroethylvinylether . .	10	<
75-34-3	1,1-Dichloroethane	5	<	75-25-2	Bromoform	5	<
156-60-5	trans-1,2-Dichloroethene . .	5	<	108-10-1	4-Methyl-2-Pentanone . . .	10	<
67-66-3	Chloroform	5	<	591-78-6	2-Hexanone	10	<
107-06-2	1,2-Dichloroethane	5	<	127-18-4	Tetrachloroethene	5	<
78-93-3	2-Butanone	10	<	79-34-5	1,1,2,2-Tetrachloroethane	5	<
71-55-6	1,1,1-Trichloroethane . . .	5	<	108-88-3	Toluene	5	<
56-23-5	Carbon Tetrachloride	5	<	108-90-7	Chlorobenzene	5	<
98-05-4	Vinyl Acetate	10	<	100-41-4	Ethylbenzene	5	<
7-27-4	Bromodichloromethane	5	<	100-42-5	Styrene	5	<
				1330-20-7	Xylene (Total)	5	<

The Lab ID for data on this page is MB082490C1.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

Form I

RIC
08/24/90 14:21:00
SAMPLE: METHOD BLANK
COND.: I50C
RANGE: G 1.1420 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3
DATA: MB082490C1 #1
CALI: MB082490C1 #3
SCANS 35 TO 1415



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ENSR LAB-Hou
 Lab Sample ID: MB090690C1
 Client Sample ID: MB090690C1

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: 100.0

Date Extracted: 09/06/90
 Date Analyzed: 09/06/90
 Dilution Factor: 1.0

VOLATILE COMPOUNDS

CAS Number		UG/L	CAS Number		UG/L
74-87-3	Chloromethane	10 <	78-87-5	1,2-Dichloropropane	5 <
74-83-9	Bromomethane	10 <	10061-01-5	cis-1,3-Dichloropropene	5 <
75-01-4	Vinyl Chloride	10 <	79-01-6	Trichloroethene	5 <
75-00-3	Chloroethane	10 <	124-48-1	Dibromochloromethane	5 <
75-09-2	Methylene Chloride	7	79-00-5	1,1,2-Trichloroethane	5 <
67-64-1	Acetone	12	71-43-2	Benzene	5 <
75-15-0	Carbon Disulfide	5 <	10061-02-6	trans-1,3-Dichloropropene	5 <
75-35-4	1,1-Dichloroethene	5 <	110-75-8	2-Chloroethylvinylether	10 <
75-34-3	1,1-Dichloroethane	5 <	75-25-2	Bromoform	5 <
156-60-5	trans-1,2-Dichloroethene	5 <	108-10-1	4-Methyl-2-Pentanone	10 <
67-66-3	Chloroform	5 <	591-78-6	2-Hexanone	10 <
107-06-2	1,2-Dichloroethane	5 <	127-18-4	Tetrachloroethene	5 <
78-93-3	2-Butanone	10 <	79-34-5	1,1,2,2-Tetrachloroethane	5 <
71-55-6	1,1,1-Trichloroethane	5 <	108-88-3	Toluene	5 <
56-23-5	Carbon Tetrachloride	5 <	108-90-7	Chlorobenzene	5 <
133-05-4	Vinyl Acetate	10 <	100-41-4	Ethylbenzene	5 <
75-27-4	Bromodichloromethane	5 <	100-42-5	Styrene	5 <
			1330-20-7	Xylene (Total)	5 <

The Lab ID for data on this page is MB090690C1.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

Form I

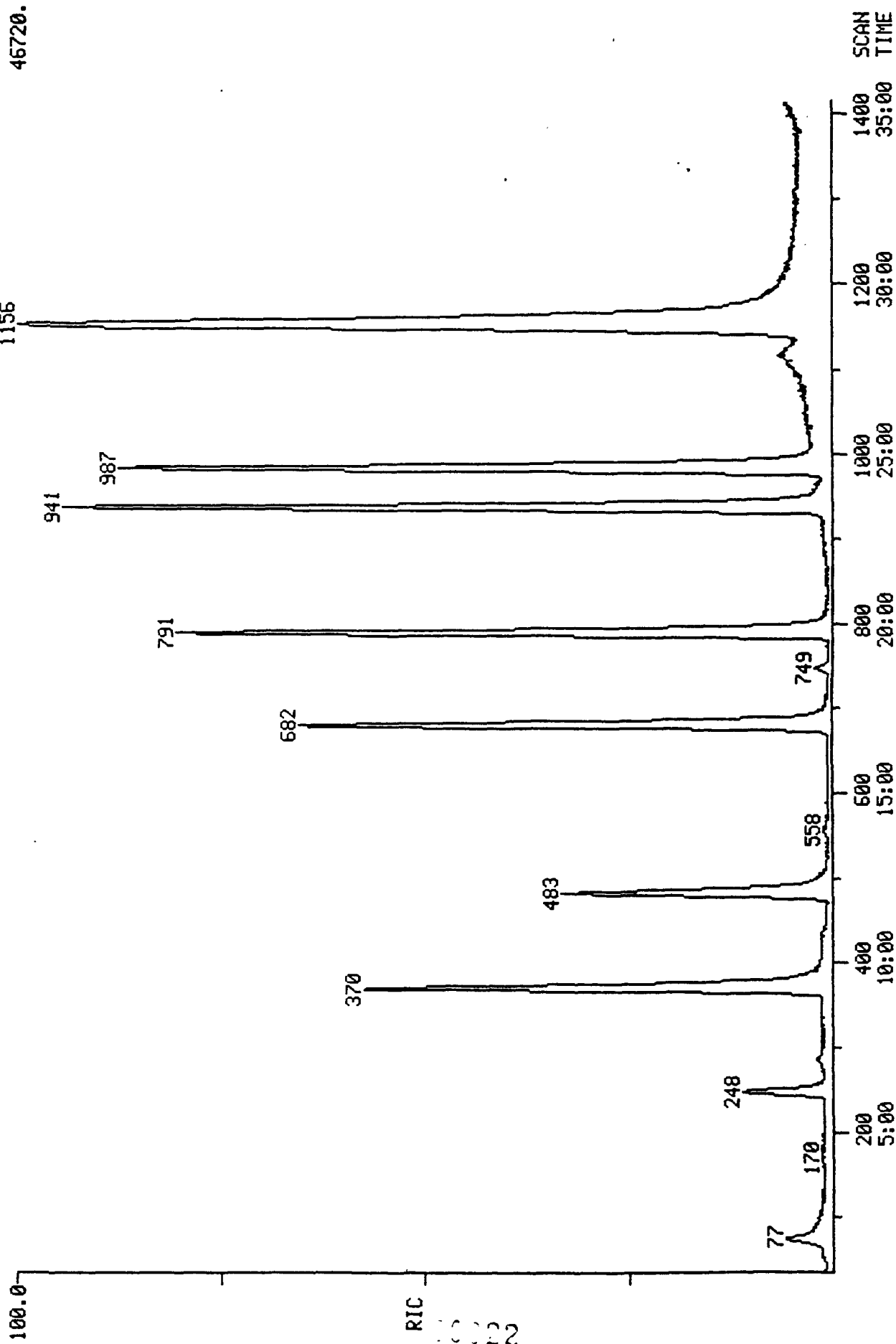
RIC
09/06/90 13:31:00
SAMPLE: METHOD BLANK
CONDS.: 150C
RANGE: G 1.1420

DATA: MB090690C1 #1
CALI: MB090690C1 #3

SCANS 35 TO 1415

LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

46720.



VOLATILE

(Page 1)

Contract Laboratory ENSR LAB-Hou

Contract No.

SMO
TRAFFIC
NO.

Volatiles:	1	out of	16;	outside of QC limits
Semi-Volatiles:	0	out of	0;	outside of QC limits
Pesticides:	0	out of	0;	outside of QC limits

Comments:

703

INITIAL CALIBRATION DATA
VOLATILE HSL COMPOUNDS

Case No: CALIB
Contractor: ENSR LAB-Hou
Contract No:

Region:

Instrument ID: I50C
Calibration Date: 08/23/90

Min AVE RF for SPCC is 0.300 (1)

Max %RSD for CCC is 30%

Laboratory ID	IC0823020C1		IC0823100C1		IC0823200C1		AVE RF	% RSD	CCC*
Compound	RF(20)	RF(50)	RF(100)	RF(150)	RF(200)				SPCC**
Chloromethane	1.382	1.119	1.252	1.367	1.138	1.252	9.9	*	*
Bromomethane	1.579	1.262	1.357	1.446	1.179	1.365	11.4		
Vinyl Chloride	1.386	1.129	1.238	1.316	1.055	1.225	11.0	*	
Chloroethane	0.807	0.723	0.766	0.803	0.666	0.753	7.9		
Methylene Chloride	2.498	1.577	1.600	1.717	1.421	1.763	24.1		
Acetone	0.724	0.292	0.210	0.228	0.184	0.328	68.7		
Carbon Disulfide	2.901	2.625	3.281	3.706	3.285	3.160	13.1		
1,1-Dichloroethene	1.514	1.261	1.407	1.568	1.330	1.416	8.9	*	
1,1-Dichloroethane	3.163	2.724	3.198	3.443	2.987	3.103	8.6	*	*
trans-1,2-Dichloroethene	1.545	1.297	1.462	1.629	1.378	1.462	9.0		
Chloroform	3.330	2.976	3.459	3.924	3.395	3.417	9.9	*	
1,2-Dichloroethane	2.370	2.123	2.415	2.696	2.270	2.375	8.9		
2-Butanone	0.012	0.015	0.017	0.017	0.016	0.015	13.5		
1,1,1-Trichloroethane	0.712	0.611	0.722	0.750	0.644	0.688	8.4		
Carbon Tetrachloride	0.654	0.572	0.710	0.742	0.653	0.666	9.7		
Vinyl Acetate	0.493	0.142	0.386	0.327	0.074	0.284	61.0		
Bromodichloromethane	0.625	0.566	0.711	0.753	0.658	0.663	11.0		
1,2-Dichloropropane	0.476	0.410	0.476	0.476	0.428	0.453	7.0	*	
cis-1,3-Dichloropropene	0.463	0.441	0.557	0.581	0.533	0.515	11.7		
Trichloroethene	0.529	0.522	0.569	0.577	0.615	0.562	6.8		
Dibromochloromethane	0.479	0.476	0.604	0.633	0.597	0.558	13.4		
1,1,2-Trichloroethane	0.370	0.297	0.353	0.366	0.331	0.343	8.8		
Benzene	1.073	0.920	1.083	1.094	0.963	1.027	7.7		
trans-1,3-Dichloropropene	0.440	0.386	0.477	0.508	0.464	0.455	10.0		
2-Chloroethylvinylether	0.202	0.183	0.211	0.230	0.211	0.207	8.2		
Bromoform	0.326	0.345	0.438	0.496	0.473	0.416	18.4	*	*
4-Methyl-2-Pentanone	0.348	0.139	0.268	0.390	0.355	0.300	33.5		
2-Hexanone	0.121	0.108	0.073	0.096	0.028	0.085	42.9		
Tetrachloroethene	0.688	0.577	0.666	0.692	0.589	0.642	8.6		
1,1,2,2-Tetrachloroethane	0.503	0.387	0.509	0.543	0.366	0.462	17.2	*	*
Toluene	0.863	0.716	0.830	0.873	0.747	0.806	8.8	*	
Chlorobenzene	1.180	1.032	1.180	1.234	1.070	1.139	7.4	*	*
Ethylbenzene	0.606	0.499	0.558	0.590	0.509	0.552	8.6	*	
Styrene	0.878	0.808	0.942	0.940	0.810	0.876	7.5		
Xylene (Total)	0.586	0.487	0.572	0.555	0.491	0.538	8.6		

Response Factor (number is the amount of ug/L)

AVE RF - Average Response Factor

%RSD - - Percent Relative Standard Deviation

CCC - - Calibration Check Compounds (*)

SPCC - - System Performance Check Compounds (**)

(1) - - Minimum AVE RF for Bromoform is 0.250

Form VI

10024

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ENSR LAB-HOU
Lab Sample ID: A4735-10T
Client Sample ID: HCS-6-WDB TCL

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: 100.0

Date Extracted: 09/06/90
Date Analyzed: 09/07/90
Dilution Factor: 1.0

TCLP SEMIVOLATILES

CAS Number		UG/L	CAS Number		UG/L
110-86-1	Pyridine	50 <	98-95-3	Nitrobenzene	10 <
106-46-7	1,4-Dichlorobenzene . . .	10 <	87-68-3	Hexachlorobutadiene . . .	10 <
95-48-7	2-Methylphenol	10 <	88-06-2	2,4,6-Trichlorophenol . .	10 <
106-44-5	4-Methylphenol	10 <	95-95-4	2,4,5-Trichlorophenol . .	50 <
108-39-4	3-Methylphenol	10 <	121-14-2	2,4-Dinitrotoluene	10 <
67-72-1	Hexachloroethane	10 <	118-74-1	Hexachlorobenzene	10 <
			87-86-5	Pentachlorophenol	50 <

The Lab ID for data on this page is A473510T.

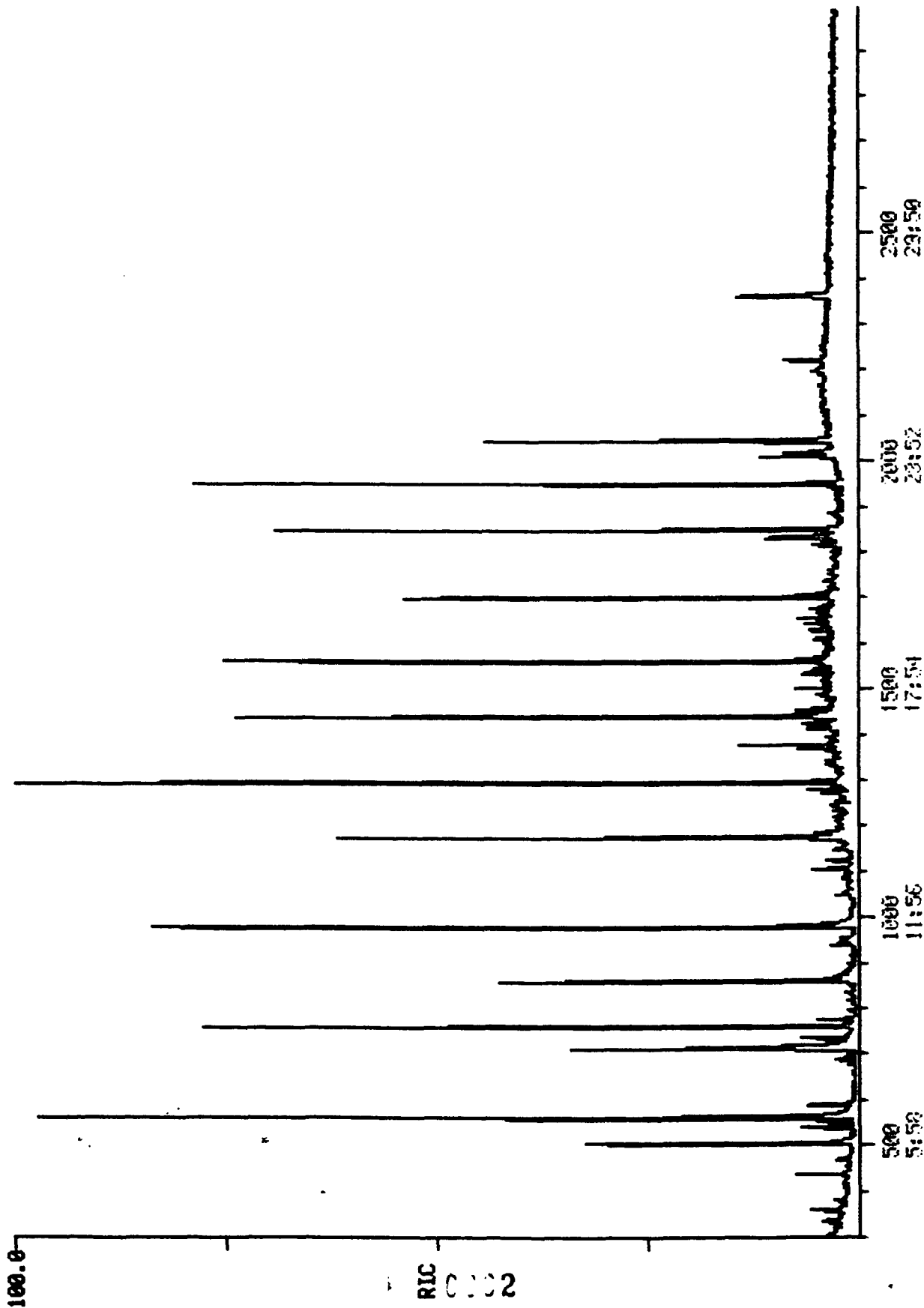
< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

000001

RIC
09/07/90 12:36:00
SAMPLE: HCS-6-H08/TOLP
CONDS.: 150E
RANGE: G 1.2992 LABEL: N 0. 4.0 QUAN: A 0. 1.0 J 0 BASE: U 20. 3

DATA: A473510T #1
CALI: A473510T #3

SCANS 300 TO 2992



38336.

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ENSR LAB-HOU
Lab Sample ID: A4735-11T
Client Sample ID: LP-WDA-1 TCLP

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: 100.0

Date Extracted: 09/06/90
Date Analyzed: 09/07/90
Dilution Factor: 5.4

TCLP SEMIVOLATILES

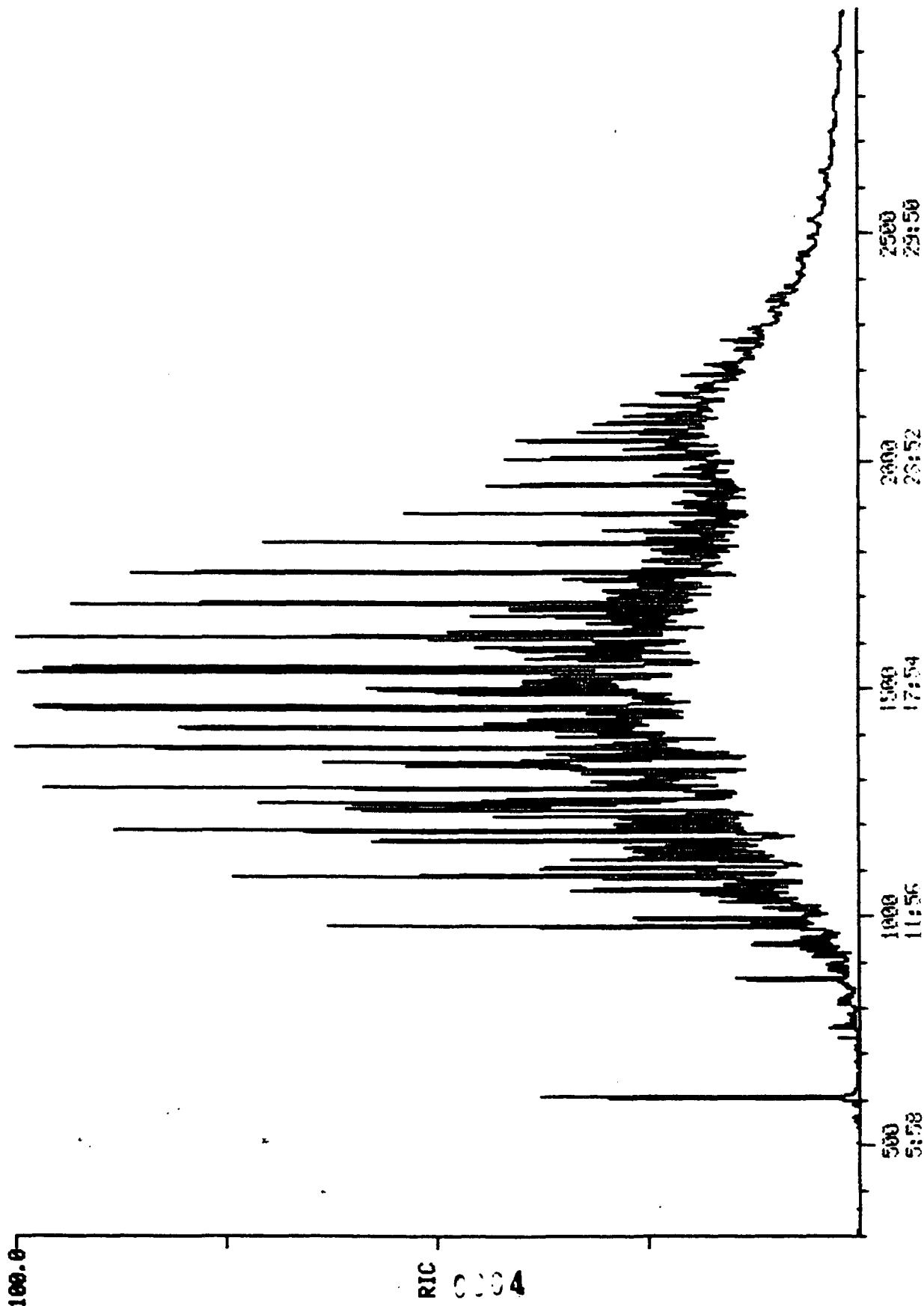
CAS Number		UG/L		CAS Number		UG/L
110-86-1	Pyridine	270	<	98-95-3	Nitrobenzene	54 <
106-46-7	1,4-Dichlorobenzene . . .	54	<	87-68-3	Hexachlorobutadiene . . .	54 <
95-48-7	2-Methylphenol	54	<	88-06-2	2,4,6-Trichlorophenol . .	54 <
106-44-5	4-Methylphenol	54	<	95-95-4	2,4,5-Trichlorophenol . .	270 <
108-39-4	3-Methylphenol	54	<	121-14-2	2,4-Dinitrotoluene	54 <
67-72-1	Hexachloroethane	54	<	118-74-1	Hexachlorobenzene	54 <
				87-86-5	Pentachlorophenol	69 w

The Lab ID for data on this page is A473511T.

w - Reported value is less than the detection limit.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC 09/07/90 14:05:00 DATA: A473511T #1 SCANS 300 TO 2992
SAMPLE: LP-WDA-1/TCLP 500UL/1 ML/5 ML FU CALI: A473511T #3
CONDS.: ISOE
RANGE: G 1,2992 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



837632.

DECAFLUOROTRIPHENYLPHOSPHINE

Tuning Report

09/07/90 8:48:00 + 7:50

Instrument: FINN

#656 - #664

Case Number:

Data: DF090790E1 # 656

Cali: DF090790E1 # 3

Analyst: BPB

Laboratory:

Base m/z: 198

RIC: 59904.

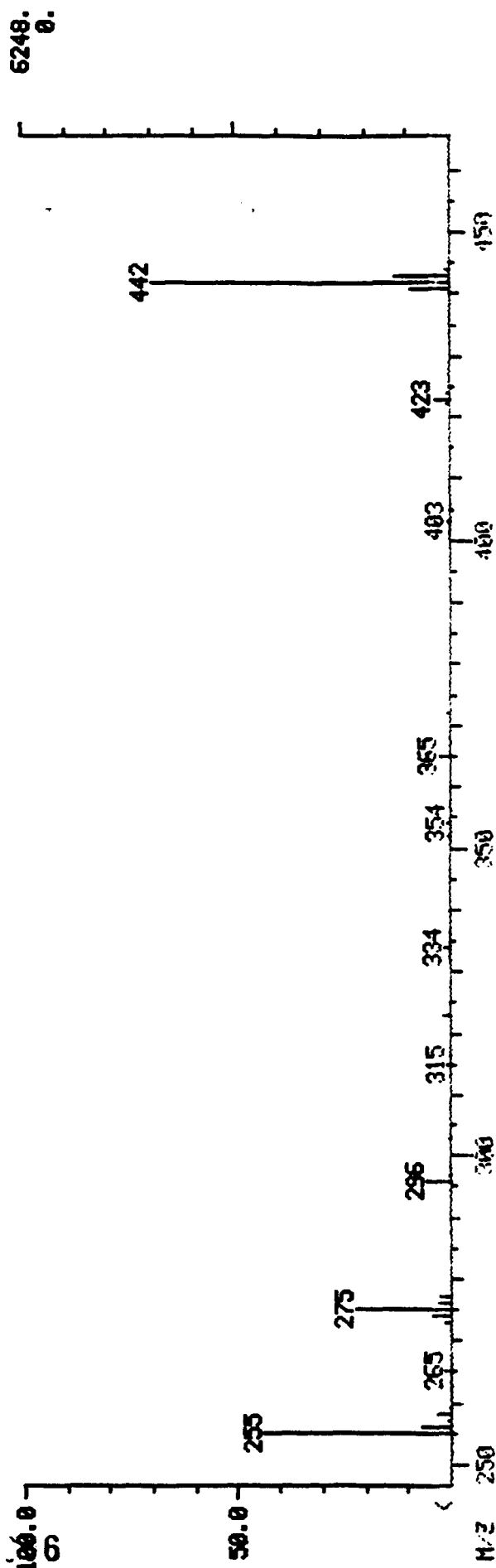
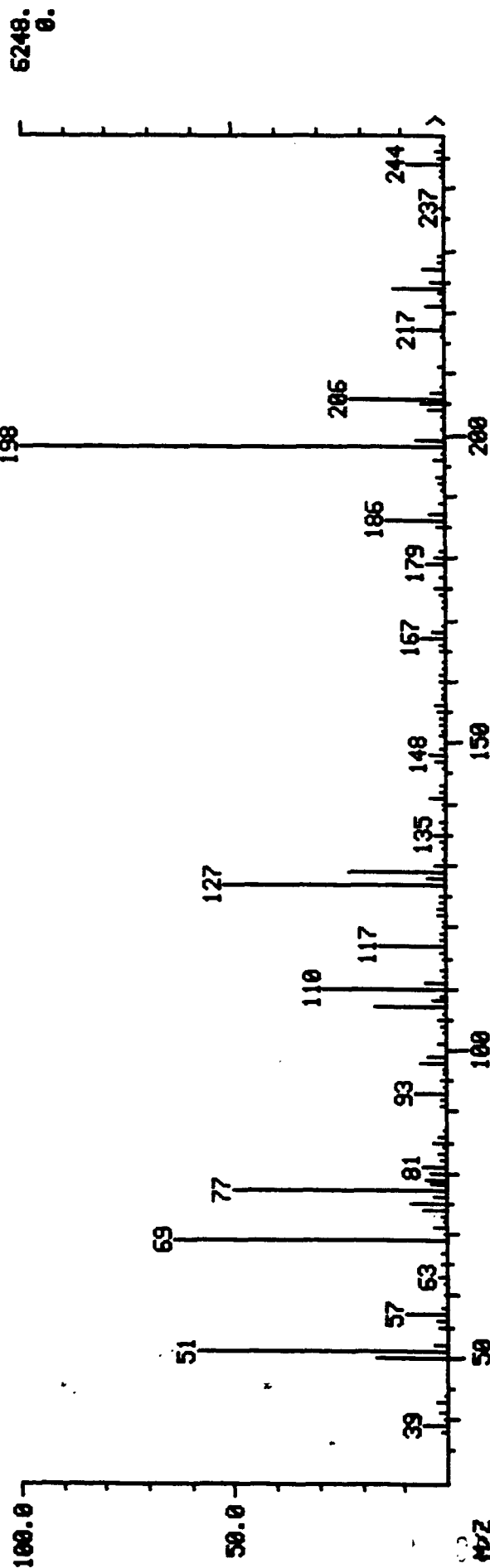
Acct. No.: 8506-090

Contract:

m/z	Intensity	Z RA	Ion Abundance Criteria			Actual	Status
			Min Z	Max Z	Mass		
51	3672.	58.8	30.0	60.0	198	58.8	PASS
68	0.	0.0	—	2.0	69	0.0	PASS
69	4016.	64.3	—	—	—	64.3	PASS
70	48.	0.8	—	2.0	69	1.2	PASS
127	3264.	52.2	40.0	60.0	198	52.2	PASS
197	24.	0.4	—	1.0	198	0.4	PASS
198	6248.	100.0	100.0	—	—	100.0	PASS
199	402.	6.4	5.0	9.0	198	6.4	PASS
275	1390.	22.2	10.0	30.0	198	22.2	PASS
365	168.	2.7	1.0	—	198	2.7	PASS
441	562.	9.0	—	100.0	443	72.1	PASS
442	4336.	69.4	40.0	—	198	69.4	PASS
443	780.	12.5	17.0	23.0	442	18.0	PASS

MASS SPECTRUM
09/07/90 8:48:00 + 7:50
SAMPLE: DFTPP CALIBRATION 50 NG
CONDS.: 150E
TEMP: 249 DEG. C
#656 - #664

DATA: DF090798E1 #656
CALI: DF090798E1 #3
BASE M/Z: 198
RIC: 59840.



Mass List

09/07/90 8:48:00 + 7:50

Sample: DFTPP CALIBRATION 50 NG

Conds.: I50E

#656 - #664

Data: DF090790E1 # 656

Cali: DF090790E1 # 3

Base m/z: 198

RIC: 59904.

38 444 Mass	0.00	0.	Minima Maxima Mass	Min Inten: # 0	77. Inten.
	% RA	Inten.		% RA	Inten.
387	1.25	78.	137	1.47	92.
397	S 5.25	328.	141	3.71	232.
417	S 2.08	130.	147	2.30	144.
437	S 2.14	134.	148	3.84	240.
507	16.61	1038.	149	1.28	80.
517	58.77	3672.	155	2.02	126.
527	3.04	190.	156	2.46	154.
557	S 1.73	108.	165	1.34	84.
567	S 2.66	166.	167	5.31	332.
577	S 9.80	612.	168	2.85	178.
637	1.98	124.	175	2.18	136.
657	1.44	90.	179	3.94	246.
69	S 64.28	4016.	180	2.66	166.
71	S 3.17	198.	185	1.76	110.
73	S 1.47	92.	186	13.86	866.
74	5.22	326.	187	3.81	238.
75	8.48	530.	193	1.54	96.
76	3.04	190.	196	2.43	152.
77	S 50.26	3140.	198	100.00	6248.
78	3.62	226.	199	6.43	402.
79	S 4.55	284.	204	3.49	218.
80	3.49	218.	205	5.12	320.
81	S 5.31	332.	206	22.15	1384.
83	S 1.60	100.	207	3.27	204.
85	S 2.82	176.	217	5.92	370.
86	1.63	102.	221	4.13	258.
91	S 1.28	80.	224	11.84	740.
93	S 7.23	452.	225	3.07	192.
95	S 1.41	88.	227	5.09	318.
98	S 6.11	382.	229	1.25	78.
99	S 4.48	280.	244	8.55	534.
101	2.02	126.	245	1.38	86.
104	1.41	88.	246	1.66	104.
105	S 1.76	110.	255	43.73	2732.
107	16.97	1060.	256	6.63	414.
108	2.88	180.	258	2.75	172.
109	S 1.34	84.	273	1.47	92.
110	S 28.68	1792.	274	4.00	250.
111	S 4.67	292.	275	22.25	1390.
117	15.75	984.	276	2.98	186.
118	1.47	92.	277	2.21	138.
119	1.28	80.	296	5.47	342.
122	1.73	108.	323	2.05	128.
123	S 1.95	122.	365	2.69	168.
125	S 1.25	78.	423	3.59	224.
127	S 52.24	3264.	441	8.99	562.
128	4.19	262.	442	69.40	4336.
129	S 22.66	1416.	443	12.48	780.
130	2.30	144.			
135	2.43	152.			

00007

SEMIVOLATILE HSL COMPOUNDS

(Page 1)

Case No: CAL Region: Calibration Date: 09/07/90
 Contractor: ENSR LAB-HOU Time: 09:05
 Contract No: Laboratory ID: CC090790E1
 Instrument ID: FINN Initial Cali. Date: 08/17/90

Minimum RF for SPCC is 0.050

Maximum %D for CCC is 30%

Compound	AVE RF	RF(50)	% D	CCC	SPCC
Phenol	1.597	1.632	-2.2	*	
bis(2-Chloroethyl)Ether . . .	1.221	1.280	-4.8		
2-Chlorophenol	1.308	1.378	-5.4		
1,3-Dichlorobenzene	1.551	1.412	9.0		
1,4-Dichlorobenzene	1.618	1.482	8.4	*	
Benzyl Alcohol	0.517	0.226	56.3		
1,2-Dichlorobenzene	1.473	1.330	9.7		
2-Methylphenol	1.047	1.054	-0.7		
bis(2-Chloroisopropyl)Ether .	1.695	1.624	4.2		
4-Methylphenol	1.085	0.983	9.4		
N-Nitroso-Di-n-Propylamine . .	0.942	0.929	1.4		* *
Hexachloroethane	0.628	0.561	10.7		
Nitrobenzene	0.340	0.320	5.9		
Isophorone	0.592	0.517	12.7		
2-Nitrophenol	0.188	0.184	2.1	*	
2,4-Dimethylphenol	0.296	0.278	6.1		
Benzoic Acid x	0.158	0.121	23.4		
bis(2-Chloroethoxy)Methane . .	0.406	0.391	3.7		
2,4-Dichlorophenol	0.274	0.254	7.3	*	
2,4-Trichlorobenzene	0.325	0.265	18.5		
Phthalene	1.017	0.916	9.9		
4-Chloroaniline	0.249	0.173	30.5		
Hexachlorobutadiene	0.155	0.137	11.6	*	
4-Chloro-3-Methylphenol . . .	0.274	0.252	8.0	*	
2-Methylnaphthalene	0.655	0.513	21.7		
Hexachlorocyclopentadiene . .	0.233	0.033	85.8		* *
2,4,6-Trichlorophenol	0.333	0.366	-9.9	*	
2,4,5-Trichlorophenol x	0.347	0.348	-0.3		
2-Chloronaphthalene	1.148	1.108	3.5		
2-Nitroaniline x	0.346	0.359	-3.8		
Dimethyl Phthalate	1.243	1.178	5.2		
Acenaphthylene	1.748	1.512	13.5		
2,6-Dinitrotoluene	0.298	0.279	6.4		
3-Nitroaniline x	0.151	0.220	-45.7		
Acenaphthene	1.053	1.053	0.0	*	
2,4-Dinitrophenol x	0.104	0.083	20.2		* *
4-Nitrophenol x	0.129	0.144	-11.6		* *

RF(50) - Response Factor from daily standard file at
concentration indicated (50 total nanograms)

AVE RF - Average Response Factor from initial
calibration Form VI

%D - - - Percent Difference

x - - - Due to low response analyze
at 80 total nanograms

CCC - - Calibration Check Compounds (*)

SPCC - - System Performance Check Compounds (**)

Form VII

00008

SEMIVOLATILE HSL COMPOUNDS

(Page 2)

Case No: CAL Region: _____ Calibration Date: 09/07/90
 Contractor: ENSR LAB-HOU Time: 09:05
 Contract No: _____ Laboratory ID: CC090790E1
 Instrument ID: FINN Initial Cali. Date: 08/17/90

Minimum RF for SPCC is 0.050

Maximum %D for CCC is 30%

Compound	AVE RF	RF(50)	% D	CCC	SPCC
Dibenzofuran	1.478	1.367	7.5		
2,4-Dinitrotoluene	0.332	0.316	4.8		
Diethylphthalate	1.269	1.319	-3.9		
4-Chlorophenyl phenyl ether	0.604	0.622	-3.0		
Fluorene	1.297	1.418	-9.3		
4-Nitroaniline x	0.099	0.092	7.1		
4,6-Dinitro-2-Methylphenol x	0.129	0.107	17.1		
N-Nitrosodiphenylamine (1)	0.564	0.462	18.1	*	
4-Bromophenyl phenyl ether	0.217	0.174	19.8		
Hexachlorobenzene	0.244	0.200	18.0		
Pentachlorophenol x	0.134	0.101	24.6	*	
Phenanthrene	1.205	0.925	23.2		
Anthracene	1.108	0.743	32.9		
Di-n-Butylphthalate	1.507	1.272	15.6		
Fluoranthene	1.112	0.867	22.0	*	
Pyrene	1.628	0.875	46.3		
Butylbenzylphthalate	0.824	0.431	47.7		
3,3'-Dichlorobenzidine	0.146	0.112	23.3		
Benzo(a)Anthracene	1.145	0.702	38.7		
Is(2-Ethylhexyl)Phthalate	1.226	0.918	25.1		
Pyrene	1.005	0.702	30.1		
Di-n-Octyl Phthalate	2.932	2.070	29.4	*	
Benzo(b)Fluoranthene	1.594	1.149	27.9		
Benzo(k)Fluoranthene	1.574	1.204	23.5		
Benzo(a)Pyrene	1.317	0.937	28.9	*	
Indeno(1,2,3-cd)Pyrene	1.228	1.027	16.4		
Dibenz(a,h)Anthracene	1.011	0.826	18.3		
Benzo(g,h,i)Perylene	1.051	0.834	20.6		

RF(50) - Response Factor from daily standard file at concentration indicated (50 total nanograms)

AVE RF - Average Response Factor from initial calibration Form VI

%D - - - Percent Difference

x - - - Due to low response analyze at 80 total nanograms

CCC - - Calibration Check Compounds (*)

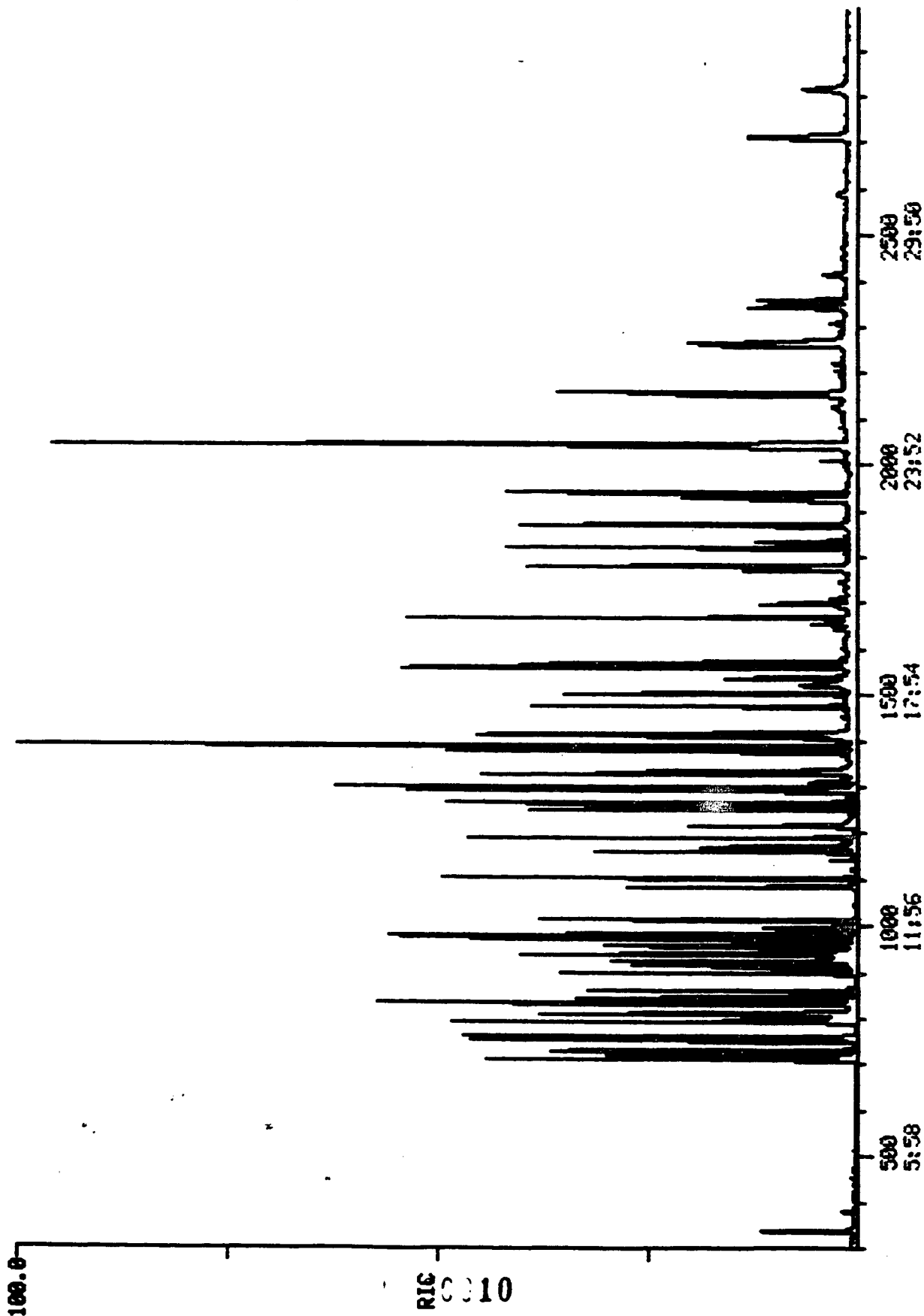
SPCC - - System Performance Check Compounds (**)

(1) - - Cannot be separated from diphenylamine

Form VII

RIC
09/07/90 9:05:00 DATA: CC090790E1 #1 SCANS 300 TO 2992
SAMPLE: CONTINUING CALIBRATION 50 NG CALI: CC090790E1 #3
CONDS.: 150E
RANGE: G 1.2992 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

120950.



WATER SURROGATE PERCENT RECOVERY SUMMARY
(Page 1)

Case No. A4735 Contract Laboratory ENSR LAB-HOU Contract No. _____

	VOLATILE				SEMI-VOLATILE				PEST			
	Toluen e-d8	Bromof luorob enzene	1,2-Di chloro ethane -d4	Nitrob enzene -d5	2-Fluo robiph enyl	Terphe nyl-d1 4	Benzen e-d6		Phenol -d5	2-Fluo rophen ol	Tribro mophen ol	2,4,6- Dibuty lchlor endate **
SMO TRAFFIC NO.	86 119	85 121	77 120	41 120	44 119	38 128	75 125		15 103	23 121	10 130	48 136
HCS-6-WDB_T	_____	_____	_____	89	66	220*	_____		47	98	117	_____
LP-WDA-1_TC	_____	_____	_____	60	80	214*	_____		48	106	124	_____

* VALUES ARE OUTSIDE OF CONTRACT
REQUIRED QC LIMITS
** ADVISORY LIMITS ONLY

Volatiles: _____ out of _____ 8; outside of QC limits
Semi-Volatiles: _____ 2 out of _____ 12; outside of QC limits
Pesticides: _____ out of _____ 2; outside of QC limits

Comments:

FORM II

0011

INITIAL CALIBRATION DATA
SEMIVOLATILE HSL COMPOUNDS
(Page 1)

Case No: CAL Region: _____ Instrument ID: FINN
Contractor: ENSR LAB-HOU Calibration Date: 08/17/90
Contract No: _____

Minimum AVE RF for SPCC is 0.050 Maximum %RSD for CCC is 30%

Laboratory ID	IC0817E020		IC0817E080		IC0817E160				CCC*
	CC081690E1		IC0817E120						
Compound	RF(20)	RF(50)	RF(80)	RF(120)	RF(160)	AVE RF	% RSD	SPCC**	
Phenol	1.534	1.528	1.617	1.652	1.653	1.597	3.9	*	
bis(2-Chloroethyl)Ether	1.176	1.183	1.250	1.228	1.268	1.221	3.3		
2-Chlorophenol	1.298	1.313	1.282	1.310	1.337	1.308	1.6		
1,3-Dichlorobenzene	1.564	1.403	1.579	1.579	1.630	1.551	5.6		
1,4-Dichlorobenzene	1.635	1.506	1.621	1.655	1.671	1.618	4.0	*	
Benzyl Alcohol	0.360	0.387	0.569	0.614	0.655	0.517	26.1		
1,2-Dichlorobenzene	1.524	1.333	1.481	1.507	1.521	1.473	5.4		
2-Methylphenol	0.935	0.982	1.080	1.115	1.123	1.047	8.0		
bis(2-Chloroisopropyl)Ether	1.854	1.601	1.706	1.661	1.653	1.695	5.7		
4-Methylphenol	0.911	1.041	1.139	1.160	1.175	1.085	10.2		
N-Nitroso-Di-n-Propylamine	0.926	0.882	0.974	0.947	0.979	0.942	4.2	* *	
Hexachloroethane	0.623	0.541	0.647	0.665	0.663	0.628	8.2		
Nitrobenzene	0.341	0.317	0.342	0.339	0.360	0.340	4.5		
Isophorone	0.603	0.555	0.595	0.591	0.617	0.592	3.9		
2-Nitrophenol	0.187	0.186	0.181	0.187	0.198	0.188	3.3	*	
2,4-Dimethylphenol	0.254	0.306	0.292	0.303	0.323	0.296	8.7		
Benzoic Acid	x	0.160	0.149	0.161	0.164	0.158	4.1		
bis(2-Chloroethoxy)Methane	0.369	0.384	0.416	0.418	0.442	0.406	7.2		
2,4-Dichlorophenol	0.247	0.271	0.270	0.282	0.301	0.274	7.2	*	
1,2,4-Trichlorobenzene	0.332	0.293	0.327	0.327	0.344	0.325	5.8		
Naphthalene	0.966	1.017	1.018	1.026	1.056	1.017	3.2		
4-Chloroaniline	0.084	0.191	0.293	0.327	0.349	0.249	44.3		
Hexachlorobutadiene	0.164	0.141	0.155	0.154	0.162	0.155	5.8	*	
4-Chloro-3-Methylphenol	0.260	0.257	0.268	0.273	0.313	0.274	8.2	*	
2-Methylnaphthalene	0.617	0.646	0.667	0.657	0.686	0.655	3.9		
Hexachlorocyclopentadiene	0.206	0.113	0.286	0.286	0.274	0.233	32.1	* *	
2,4,6-Trichlorophenol	0.338	0.304	0.334	0.339	0.349	0.333	5.1	*	
2,4,5-Trichlorophenol	x	0.320	0.347	0.356	0.365	0.347	5.6		
2-Chloronaphthalene	1.280	0.949	1.158	1.170	1.185	1.148	10.6		
2-Nitroaniline	x	0.315	0.348	0.348	0.374	0.346	7.0		
Dimethyl Phthalate	1.296	1.086	1.255	1.267	1.309	1.243	7.3		
Acenaphthylene	1.909	1.586	1.703	1.714	1.828	1.748	7.1		
2,6-Dinitrotoluene	0.280	0.254	0.307	0.311	0.336	0.298	10.6		
3-Nitroaniline	x	0.090	0.138	0.217	0.160	0.151	34.8		
Acenaphthene	1.123	0.984	1.043	1.038	1.076	1.053	4.9	*	
2,4-Dinitrophenol	x	0.102	0.105	0.103	0.108	0.104	2.5	* *	
4-Nitrophenol	x	0.112	0.132	0.134	0.138	0.129	9.0	* *	

Response Factor (number is the amount of nanograms)

AVE RF - Average Response Factor

%RSD - - Percent Relative Standard Deviation

CCC - - Calibration Check Compounds (*)

SPCC - - System Performance Check Compounds (**)

x - - - Not detectable at 20 ng

Form VI

00012

INITIAL CALIBRATION DATA
SEMIVOLATILE HSL COMPOUNDS
(Page 2)

Case No: CAL Region: _____ Instrument ID: FINN
Contractor: ENSR LAB-HOU Calibration Date: 08/17/90
Contract No: _____

Minimum AVE RF for SPCC is 0.050 Maximum %RSD for CCC is 30%

Laboratory ID	IC0817E020		IC0817E080		IC0817E160			
	CC081690E1		IC0817E120			CCC*		
Compound	RF(20)	RF(50)	RF(80)	RF(120)	RF(160)	AVE RF	% RSD	SPCC**
Dibenzofuran	1.679	1.327	1.449	1.437	1.500	1.478	8.7	
2,4-Dinitrotoluene	0.324	0.289	0.343	0.346	0.357	0.332	8.1	
Diethylphthalate	1.337	1.214	1.266	1.240	1.286	1.269	3.7	
4-Chlorophenyl phenyl ether	0.610	0.524	0.622	0.611	0.652	0.604	7.9	
Fluorene	1.332	1.221	1.287	1.284	1.363	1.297	4.2	
4-Nitroaniline	x	0.096	0.119	0.022	0.160	0.099	58.3	
4,6-Dinitro-2-Methylphenol	x	0.175	0.116	0.114	0.112	0.129	23.6	
N-Nitrosodiphenylamine (1)	0.651	0.600	0.498	0.513	0.557	0.564	11.2	*
4-Bromophenyl phenyl ether	0.215	0.250	0.200	0.200	0.219	0.217	9.4	
Hexachlorobenzene	0.245	0.252	0.231	0.238	0.253	0.244	3.8	
Pentachlorophenol	x	0.163	0.125	0.121	0.125	0.134	14.8	*
Phenanthrene	1.218	1.559	1.089	1.067	1.092	1.205	17.1	
Anthracene	1.160	1.371	1.022	0.977	1.009	1.108	14.7	
Di-n-Butylphthalate	1.401	1.918	1.452	1.409	1.354	1.507	15.4	
Fluoranthene	0.911	1.479	1.105	1.054	1.013	1.112	19.5	*
Pyrene	2.316	1.035	1.723	1.641	1.427	1.628	28.7	
4-Ethylbenzylphthalate	1.031	0.544	0.912	0.865	0.768	0.824	22.2	
3,3'-Dichlorobenzidine		0.092	0.179	0.164	0.151	0.146	26.0	
Benzo(a)Anthracene	1.280	0.769	1.261	1.224	1.193	1.145	18.6	
bis(2-Ethylhexyl)Phthalate	1.633	0.861	1.276	1.229	1.131	1.226	22.7	
Chrysene	1.255	0.638	1.080	1.029	1.024	1.005	22.5	
Di-n-Octyl Phthalate	3.122	2.038	2.988	2.910	3.604	2.932	19.4	*
Benzo(b)Fluoranthene	1.871	1.017	1.615	1.638	1.830	1.594	21.4	
Benzo(k)Fluoranthene	1.730	1.017	1.682	1.609	1.830	1.574	20.4	
Benzo(a)Pyrene	1.419	0.945	1.445	1.368	1.408	1.317	15.9	*
Indeno(1,2,3-cd)Pyrene	1.392	0.784	1.285	1.338	1.342	1.228	20.5	
Dibenz(a,h)Anthracene	1.108	0.792	1.029	1.021	1.107	1.011	12.8	
Benzo(g,h,i)Perylene	1.065	1.011	1.031	1.038	1.109	1.051	3.6	

Response Factor (number is the amount of nanograms)

AVE RF - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*)

SPCC - System Performance Check Compounds (**)

x - Not detectable at 20 ng

(1) - Cannot be separated from diphenylamine

Form VI

DATA PACKAGE CHECKLIST -

Lab A4742 Project Name Hondo-Holiz New Mexico Project No. 3519-003-135

Copies to: Jim Baker Project Manager

Darlene Venable Client
Steve Beck Other (1)
 Other (2)

Signature Release	File Copy D / I	PM Copy D / I	Client D / I	Other (1) D / I	Other (2) D / I
Disposal Letter	✓	✓ 9-25-90		✓ 9-25-90	✓ 9-25-90
Chain of Custody	✓	✓		✓	✓
Sample Receipt	✓	✓		✓	✓
Checklist	✓	✓		✓	✓
Analytical Summary	✓	✓		✓	✓
Analytical Report	✓	✓		✓	✓
QC Logs/ <u>WQS</u>	✓	✓		✓	✓
QC Logs Subcontract	✓	✓		✓	✓
VOA	✓	✓		✓	✓
<u>A</u>	✓	✓		✓	✓
Pest/PCBs					
Other 1.					
Other 2.					
Other 3.					
Narrative Log					
Billing Summary	✓	✓		✓	✓
=====					
Internal QC Checklist					
Preliminary Summary	✓				
Travelers	✓				
Federal Express Bill					
Subcontract Chain of Custody	✓				
Subcontract Invoice					
Corrective Action Report					
Other 1.					
Other 2.					

9-19-90/GAH



Formerly ERT

DATE: 09/19/90

TO: Jim Baker

FROM: Bo Blankfield, Laboratory Director

PROJ. NO.: 3519-003-135 LAB NO.: A4742

ENSR Consulting
and Engineering

3000 Richmond Avenue
Houston, Texas 77098
(713) 520-9900

Attached are reports of chemical analyses of samples received August 24, 1990. These analyses are:

Count	Test Code	Test Name	Test Method	Sampled	Matrix
1	Ag - -TCL-HOU	TCLP SILVER	EPA SW-846: 7760, ATOMIC ABSORPTION		TCLP EXT
1	As - -TCL-WQS	TCLP ARSENIC	EPA SW-846: 7060, GRAPHITE FURNACE		TCLP EXT
1	BNA - - -HOU	SEMIVOLATILE ORGANICS	EPA SW-846: 3520,8270, LLE,GC/MS		TCLP EXT
1	Ba - -TCL-HOU	TCLP BARIUM	EPA SW-846: 6010, ICP		TCLP EXT
1	CORR - - -HOU	CORROSIVITY	SW-846: 1110, NACE STEEL COUPON	08/23/90	LIQUID
1	Cd - -TCL-HOU	TCLP CADMIUM	EPA SW-846: 6010, ICP		TCLP EXT
1	Cr - -TCL-HOU	TCLP CHROMIUM	EPA SW-846: 6010, ICP		TCLP EXT
1	FP - - -HOU	IGNITABILITY (FLASH POINT)	EPA SW-846: 1010 PENSKEY-MARTIN	08/23/90	LIQUID
1	H2S - -REA-AKM	HYDROGEN SULFIDE, REACTIVE	EPA SW-846: 7.3.4.2, 9030	08/23/90	LIQUID
1	HCN - -REA-AKM	HYDROCYANIC ACID, REACTIVE	EPA SW-846: 7.3.3.2, 9010	08/23/90	LIQUID
1	Hg - -TCL-HOU	TCLP MERCURY	EPA SW-846: 7470, COLD VAPOR		TCLP EXT
1	Pb - -TCL-HOU	TCLP LEAD	EPA SW-846: 6010, ICP		TCLP EXT
1	Se - -TCL-WQS	TCLP SELENIUM	EPA SW-846: 7740, GRAPHITE FURNACE		TCLP EXT
1	VOA - - -HOU	VOLATILE ORGANIC ANALYSES	EPA SW-846: 8240, GC/MS		TCLP EXT
1	pH - -COR-HOU	pH CORROSION	EPA SW-846: 9040, ELECTRODE	08/23/90	LIQUID

Data contained in this report reflect a full quality control review and have met all applicable standards established by ENSR. ENSR quality assurance protocols are in accordance with EPA guidelines.

Should you have any questions, do not hesitate to contact me at (713) 520-9900.

BB/lis

Enclosures: Analytical Summary, Analytical Report, Chain of Custody, Sample Receipt Checklist, Quality Control Logs, ENSR ID #A4742-1T, Billing Summary

cc: Darlene Venable, Steve Beck

LAB NO. A4742

PROJECT 3519-003-135 Homco - Hobbs, New Mexico



ENSR LABORATORIES®
SAMPLE RECEIPT CHECKLIST

Client Honico Project Number 3519-003-135 Laboratory Number A4742

- 1 ☒ Shipped Notes: Federal Express
☐ Hand Delivered
- 2 ☒ COC Present on Receipt Notes: _____
☐ No COC
- 3 ☒ COC Tape on Shipping Container Notes: _____
☐ No COC Tape on Shipping Container Notes: _____
- 4 ☒ Samples Broken/Leaking Notes: Sample submitted for UHJ-DOL
☐ Sample Intact on Receipt for TPH analysis - broken in
☐ Other (See Notes) fragment -
- 5 ☐ Ambient on Receipt Notes: _____
☒ Chilled on Receipt
- 6 ☒ Samples Preserved Correctly Notes: _____
☐ Improper Preservatives
☐ N/A (None Recommended)
☐ Other (See Notes)
- 7 ☒ Received Within Holding Time Notes: _____
☐ Not Received Within Holding Time
☐ N/A (None Recommended)
☐ Other (See Notes)
- 8 ☐ COC Tapes on Samples Notes: _____
☒ No COC Tapes on Samples
- 9 ☒ Discrepancies Between COC and Sample Labels Notes: Samples originally sent
☐ No Discrepancies Noted in for Hold Status. Samples
☐ N/A (No COC Received) taken off Hold & put on analysis
for Rush TAT per D. Verable.

Additional Comments: Spoke to Steve Beck about broken
sample. He will resample & submit on new COC.

Inspected and Logged in by: Thelma Lowe Date/Time 8/24/90-1300

ENSR Labs-Houston

Analytical Summary

09/19/90 09:11

Lab Number: A4742 Project: 3519-003-135 Homco - Hobbs, New Mexico		
Lab ID Field ID Test /Matrix	1 UHT-WD- L LIQUID	1T UHT-WD- L/TCLP TCLP EXT
Ag - -TCL-HOU (MDL)	--	<0.01 ✓ MG/L (0.01)
As - -TCL-WQS (MDL)	--	0.003 ✓ MG/L (0.002)
BNA - - -HOU (MDL)	--	ATTACHED UG/L ()*
Ba - -TCL-HOU (MDL)	--	0.1 ✓ MG/L (0.02)
CORR - - -HOU (MDL)	<6.35 MMPY ✓ (6.35)	--
Cd - -TCL-HOU (MDL)	--	<0.010 ✓ MG/L (0.010)
Cr - -TCL-HOU (MDL)	--	<0.02 ✓ MG/L (0.02)
FP - - -HOU (MDL)	>150 °F ✓ ()	--
H2S - -REA-AKM (MDL)	<50 ✓ MG/KG* (50)*	--

* Please see attached Analytical Report for remarks.

Signatures of approval indicate quality assurance-quality control verification of analytical results, billing and enclosed documentation.

Approvals:

James M. House

Date: 9/20/90

Shirley P. Gault

Date: 9/25/90

***** CONTINUED *****

ENSR

ENSR Labs-Houston

Analytical Summary

09/19/90 09:11

Lab Number: A4742		
Project: 3519-003-135		
Homco - Hobbs, New Mexico		
Lab ID Field ID Test /Matrix	1 UHT-WD- L LIQUID	1T UHT-WD- L/TCLP TCLP EXT
HCN - -REA-AKM (MDL)	<50 ✓ MG/KG* (50)*	--
Hg - -TCL-HOU (MDL)	--	<0.001 ✓ MG/L (0.001)
Pb - -TCL-HOU (MDL)	--	0.1 ✓ MG/L (0.025)
Se - -TCL-WQS (MDL)	--	0.004 ✓ MG/L (0.001)
VOA - - -HOU (MDL)	--	ATTACHED UG/L ()*
pH - -COR-HOU (MDL)	7.5 ✓ UNITS (0.1)*	--

* Please see attached Analytical Report for remarks.

Signatures of approval indicate quality assurance-quality control verification of analytical results, billing and enclosed documentation.

 Approvals: *Wamm, Bob* Date: 9/20/90 *Shonda P. Leslie* Date: 9/25/90
ENSR

ENSR Labs-Houston

Analytical Report

09/19/90 09:12

Homco - Hobbs, New Mexico		Field ID: UHT-WD-L	Date Sampled: 08/23/90	
Proj. No.: 3519-003-135		Lab ID: 1	Time Sampled: 1215	
Lab No.: A4742		Matrix: LIQUID (GRAB)	Date Received: 08/24/90	
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
CORR - - -HOU CORROSIVITY SW-846: 1110, NACE STEEL COUPON	<6.35 ✓	MMPY	6.35	08/29/90 1500
FP - - -HOU IGNITABILITY (FLASH POINT) EPA SW-846: 1010 PENSKEY-MARTIN	>150 ✓	°F		08/31/90 900
H2S - -REA-AKM HYDROGEN SULFIDE, REACTIVE EPA SW-846: 7.3.4.2, 9030	<50 *1 ✓	MG/KG*	50	09/05/90
HCN - -REA-AKM HYDROCYANIC ACID, REACTIVE EPA SW-846: 7.3.3.2, 9010	<50 *2 ✓	MG/KG*	50	09/05/90
pH - -COR-HOU pH CORROSION EPA SW-846: 9040, ELECTRODE	7.5 *3 ✓	UNITS	0.1	08/28/90 1400

- *1 *TOTAL AVAILABLE H2S
- *2 *TOTAL AVAILABLE HCN
- *3 HOLDING TIME EXPIRED BEFORE RECEIPT

ENSR

ENSR Labs-Houston

Analytical Report

09/19/90 09:12

Homco - Hobbs, New Mexico		Field ID: UHT-WD-L/TCLP	Date Sampled: / /	
Proj. No.: 3519-003-135		Lab ID: 1T	Time Sampled:	
Lab No.: A4742		Matrix: TCLP EXT	Date Received: 08/24/90	
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
Ag - -TCL-HOU TCLP SILVER EPA SW-846: 7760, ATOMIC ABSORPTION	<0.01 ✓	MG/L	0.01	09/06/90 1400
As - -TCL-WQS TCLP ARSENIC EPA SW-846: 7060, GRAPHITE FURNACE	0.003 ✓	MG/L	0.002	09/07/90 1115
BNA - - -HOU SEMIVOLATILE ORGANICS EPA SW-846: 3520,8270, LLE,GC/MS	ATTACHED *1	UG/L		Ext.: 09/06/90 Anal.: 09/07/90
Ba - -TCL-HOU TCLP BARIUM EPA SW-846: 6010, ICP	0.1 ✓	MG/L	0.02	09/06/90 730
Cd - -TCL-HOU TCLP CADMIUM EPA SW-846: 6010, ICP	<0.010 ✓	MG/L	0.010	09/06/90 730
Cr - -TCL-HOU TCLP CHROMIUM EPA SW-846: 6010, ICP	<0.02 ✓	MG/L	0.02	09/06/90 730
Hg - -TCL-HOU TCLP MERCURY EPA SW-846: 7470, COLD VAPOR	<0.001 ✓	MG/L	0.001	09/07/90 1030
Pb - -TCL-HOU TCLP LEAD EPA SW-846: 6010, ICP	0.1 ✓	MG/L	0.025	09/06/90 730
Se - -TCL-WQS TCLP SELENIUM EPA SW-846: 7740, GRAPHITE FURNACE	0.004 ✓	MG/L	0.001	09/07/90 950

*1 SEE ENSR ID #A4742-1T

***** CONTINUED *****

ENSR

ENSR Labs-Houston

Analytical Report

09/19/90 09:12

Homco - Hobbs, New Mexico		Field ID: UHT-WD-L/TCLP	Date Sampled: / /	
Proj. No.: 3519-003-135		Lab ID: 1T	Time Sampled:	
Lab No.: A4742		Matrix: TCLP EXT	Date Received:08/24/90	
(Test Code) Parameter (Test Name) (Test Method)		Concen- tration	Units	Method Detection Limit
Date/Time Analysis Performed				
VOA - - -HOU VOLATILE ORGANIC ANALYSES EPA SW-846: 8240, GC/MS		ATTACHED *1	UG/L	09/06/90

*1 SEE ENSR ID #A4742-1T

ENSR Labs-Houston

QUALITY CONTROL LOG

Parameter: Silver - Ag

Page: 7 of 2

Matrix: TCLP, Water

Method of Analysis: SW846: 7760 AA

Date/Time: 06 Sept. 90/1400

Lab Numbers	Detection Limits	Calibration Stds./Blk	Absorbance/Conc.	Check Standards	Concentration Found/True
A4773-13	0.01mg/l	Blank	0.000 0.003	A4773 Sample Blank	0.008 ppm
A4731-2T		0.50 ppm	0.010 0.506	Method Blank	0.002 ppm
A4735-10T		1.00 ppm	0.019 1.001	ERA-2 P.E. Std.	1.028 1.00 ppm
A4742-1T		2.00 ppm	0.038 2.002	CCVS Internal Std.	0.742 0.75 ppm
A4783-1				0.02 ppm	0.022 0.02
A4788-1					
A4776-1(3)	✓				
		Correlation Coefficient:			
		Comments:			

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result	Sample Result	Spike Added	Percent Recovery
A4773-3	<0.02	<0.02	*	*	0.973	*	50% of 2.00	97%
A4731-2T		↓	↓	↓	0.928	↓		93%
A4735-10T		—	—	—	0.977	↓		98%
A4735-11T		<0.02	*	*	0.975	*		98%
A4742-1T		↓	↓	↓	0.971	↓		97%
A4783-1	↓	↓	↓	↓	—	—	—	—

Analyst: James G. Math

QA/QC Approval: DeAnna M. Senegal

ENSR LABS-HOUSTON
QUALITY CONTROL LOG

PARAMETER: Silver - Ag DATE/TIME: 06 Sept. 20/1400 PAGE 2 OF 2
INTERNAL QUALITY CONTROL DUPLICATES AND SPIKES

* BELOW MDL

[illegible]

ANALYST:

QA/QC APPROVAL:

ANALYST: Jane Martin

QA/QC APPROVAL: DeAnna M. Senega

Date: 6 Sept 90

ENSR Labs-Houston

Page 1 of 5Time: 0730ICAP Quality Control Logs
Method EPA SW-846:6010, 3rd Ed.

Calibration, Standard and Blank Information

Parameter MDL		Zn 0.08	Pb 0.100	Cd 0.04	Ni 0.08	Mn 0.08	Fe 0.08	Cr 0.08	Be 0.08	Cu 0.08	Ba 0.08
CALIBRATION STANDARD / BLK	BLANK	-0.001	0.000	0.000	0.000	-0.000	-0.000	0.000	-0.000	-0.000	-0.000
	5.00 ppm	4.88	4.93	5.01	5.03	5.01	5.01	4.98	4.99	4.88	4.88
	1.00 ppm	1.07	1.01	1.02	1.02	1.01	0.997	1.00	1.00	0.978	0.969
	0.100 ppm	—	0.105	—	—	—	—	—	—	—	—
	0.08 ppm	0.078	—	0.079	0.080	0.079	0.080	0.078	0.078	0.077	0.075
	0.04 ppm	0.038	—	0.038	0.042	0.038	0.040	0.039	0.038	0.038	0.036
	100 ppm	—	101	—	—	—	—	—	—	—	—

CHECK STANDARD	ERA #3	1.00 1.00	0.998 1.00	1.00 1.00	0.997 1.00	1.00 1.00	9.98 10.0	1.00 1.00	1.00 1.00	0.983 1.00	0.949 1.00

SAMPLE BLANKS	A47743-BLK	—	-0.000	0.000	—	—	—	0.000	—	—	0.001
	A4778-BLK	—	-0.008	—	—	—	—	—	—	—	—

Analyst: Michelle SavoreQA/QC Approval: DeAnna M. Penegal

ENSR Labs-Houston

2 of 5 pgs.

Date: 6 Sept 90

Time: 0730

ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information

* Below MD

Parameter MDL	Zn 0.08	Pb 0.100	Cd 0.04	Ni 0.08	Mn 0.02	Fe 0.02	Cr 0.02	Be 0.02	Cu 0.02	Ba 0.02
TCLP 100-705 A4743-BLK	T	-0.000	0.000	T	T	T	0.000	T	T	0.001
Duplicate		—	—				—			—
% RPD		—	—				—			—
Spike BLK SPK		0.885	0.088				0.207			1.81
% Recovery	↓	88%	88%	↓	↓	↓	104%	↓	↓	90%
-14T		0.051								
Duplicate		—								
% RPD		—								
Spike		1.21								
% Recovery		101%								
-15T		-0.000								
Duplicate		—								
% RPD		—								
Spike		0.845								
% Recovery		84%								
-16T		0.123								
Duplicate		—								
% RPD		—								
Spike		1.34								
% Recovery		85%								
-17T		-0.000								
Duplicate		—								
% RPD		—								
Spike		0.983								
% Recovery		98%								

Analyst: Michelle Savari

QAQC Approval: DeAnna M. Senegal

Date: 6 Sept 90

Time: 0730

ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information

* Below MDL

Parameter MDL	Zn 0.08	Pb 0.100	Cd 0.04	Ni 0.08	Mn 0.08	Fe 0.08	Cr 0.08	Be 0.08	Cu 0.08	Ba 0.08
A4743-18T		11.9								
Duplicate		—								
% RPD		—								
Spike Bench		68.1								
% Recovery		89%								
-19T		0.011								
Duplicate		—								
% RPD		—								
Spike		0.854								
% Recovery		85%								
-20T		0.450								
Duplicate		—								
% RPD		—								
Spike		2.88								
% Recovery		108%								
-21T		0.008								
Duplicate		0.003								
% RPD		*								
Spike		0.898								
% Recovery		90%								
-22T		10.2								
Duplicate		—								
% RPD		—								
Spike		41.7								
Recovery		90%								

Analyst: Michelle Savore

QAQC Approval:

DeAnna M. Senegal

ENSR Labs-Houston

4 of 5 pgs.

Date: 6 Sept 90

Time: 0730

ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information

* Below MDL

Parameter MDL	Zn 0.08	Pb 0.100	Cd 0.04	Ni 0.08	Mn 0.08	Fe 0.08	Cr 0.08	Bz 0.08	Cu 0.08	Ba 0.08
A4743-23T		-0.002								
Duplicate		—								
% RPD		—								
Spike		0.860								
% Recovery		86%								
A4731-2T		0.093	0.008				0.026			1.07
Duplicate		0.106	0.007				0.027			1.08
% RPD		13.1	*				3.77			0.93
Spike		1.37	0.110				0.315			6.07
% Recovery		100%	110%				106%			90%
A4735-10T		0.097	0.003				0.003			1.12
Duplicate		—	—				—			—
% RPD		—	—				—			—
Spike		1.37	0.109				0.205			6.19
% Recovery		98%	109%				102%			86%
-11T		-0.008	-0.000				0.001			0.71
Duplicate		-0.001	0.000				0.001			0.70
% RPD		*	*				*			0.56
Spike		0.863	0.084				0.175			4.70
% Recovery		86%	84%				88%			92%
A4742-1T		0.125	0.002				0.006			0.09E
Duplicate		0.126	0.001				0.004			0.094
% RPD		0.797	*				*			4.17
Spike		1.38	0.105				0.194			2.31
% Recovery		88%	105%				97%			96%

Analyst: Michelle Savari

QAQC Approval:

DeAnna M. Senegal

Date: 6 Sept 90Time: 0730ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information

* Below MDL

Parameter MDL	Zn 0.08	Pb 0.100	Cd 0.04	Ni 0.02	Mn 0.08	Fe 0.08	Cr 0.08	Be 0.08	Cu 0.08	Ba 0.08
<u>D₂₃ → 100</u> <u>A4778-2</u>		0.788								
Duplicate		0.787								
% RPD		0.127								
Spike Bench		2.59								
% Recovery		88%								
<u>D₂₃ → 100</u> <u>A4801-5</u>		5.42								
Duplicate		5.44								
% RPD		0.368								
Spike Bench		5.37								
% Recovery		106%								
<u>-14</u>		1.99								
Duplicate		1.93								
% RPD		3.06								
Spike Bench		3.23								
% Recovery		89%								
<u>-19</u>		3.56								
Duplicate		3.35								
% RPD		6.08								
Spike		4.61								
% Recovery		105%								
Duplicate										
% RPD										
Spike										
Recovery										

Analyst: Michelle SavariQAQC Approval: DeAnna M. Penegal

QUALITY CONTROL LOG

Date/Time: 8-29-90/1:50

[illegible]

* Below MDL

[illegible]QA/QC Approval: DeAnna M. Seneg

ENSR Labs-Houston
QUALITY CONTROL LOG

Parameter: Ignitability
Method of Analysis: EPA SW-846, 1010

Page: 1 of 1

Matrix: Liquid

Date/Time: 8-31-90/0900

[illegible]

Internal Quality Control Duplicates and Spikes

* Below MDL

[illegible]

Analyst:

QA/QC Approval:

QA/QC Approval: Deanna M. Senegal

ENSR Labs-Houston
QUALITY CONTROL LOG

Parameter: Mercury Hg
Method of Analysis: SW846-7470

Page: 1 of 2
Matrix: TELP, Water
Date/Time: 07 Sept. 90/1030

Lab Numbers	Detection Limits	Calibration Stds./Blk	Absorbance/Conc.	Check Standards	Concentration Found/True
A4758-1	0.001 mg/l	Blank	0.000 0.0000	Sample Blank	ppm
A4755-1T		0.002 ppm	0.018 0.0019	Method Blank	0.0000 ppm
A4735-10T, 11T		0.005 ppm	0.044 0.0048	P.E. Std. 487-2	0.0081 0.0087 ppm
A4719-1T, 5T, 10T		0.010 ppm	0.087 0.0100	CCVS Internal Std.	0.0072 0.0075 ppm
A4726-6T				0.001 ppm	0.0009 0.001 ppm
A4742-1T					
A4726-(10T)		Correlation Coefficient:			
A4731-2T		Comments:			
A4732-(8-10T)					
A4773-(1-3)					
A4776-(1-3)					
	↓				

Internal Quality Control Duplicates and Spikes								
* Below MDL								
Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result	Sample Result	Spike Added	Percent Recovery
Blank	<0.001 mg/l				0.0050	*	0.005	100%
A4758-1	0.0040	0.0038	0.0002	5.13%				
A4735-11T	<0.001				0.0041	*	0.005	82%
A4719-1T	<0.001				0.0046	*	50% of 0.010	92
A4719-5T	<0.001				0.0048	*	50% of 0.010	96%
A4719-10T	<0.001	<0.001	*	*	0.0048	*	0.005	96%

Analyst: Jana Mather

QA/QC Approval: DeAnna M. Senegle

ENSR LABS-HOUSTON
QUALITY CONTROL LOG

PARAMETER: Mercury Hg DATE/TIME: 07 Sept. 90/1030 PAGE 2 OF 2
INTERNAL QUALITY CONTROL DUPLICATES AND SPIKES

* BELOW MDL

LAB NO.- SAMPLE	SAMPLE CONC.	DUPLICATE CONC.	RANGE	PERCENT RPD	SPIKED RESULT	SAMPLE RESULT	SPIKE ADDED	PERCENT RECOVERY
A4726-6T	<0.001	_____	_____	_____	0.0041	*	0.005	82%
A4742-1T	<0.001	_____	_____	_____	0.0044	*	0.005	88
A4726-1T	'	_____	_____	_____	0.0042	*	50% of 0.010	84
A4726-2T		<0.0010	*	*	0.0043	*	0.005	86%
A4726-3T		_____	_____	_____	0.0041	*	0.005	82%
A4726-4T		↓	↓	↓	0.0044	*	0.005	88
A4726-5T		↓	↓	↓	0.0042	*	50% of 0.010	84
A4731-2T	↓	<0.001	*	*	0.0096	*	0.005	92
A4732-8T	0.0012	_____	_____	_____	0.0057	0.0006	50% of 0.010	90
A4732-10T	0.0027	↓	↓	↓	0.0063	0.00135	50% of 0.010	99
A4732-9T	<0.001	↓	↓	↓	0.0052	*	50% of 0.010	104
A4773-2	0.0030	_____	_____	_____	0.0081	0.0030	0.005	102
A4776-2	<0.001	<0.001	*	*	0.0048	*	50% of 0.010	96
A4755-1T	<0.001	<0.001	*	*	0.0044	*	0.005	88

ANALYST: Jana Matter

QA/QC APPROVAL: DeAnna M. Penney

ENSR Labs-Houston
QUALITY CONTROL LOG

Parameter: pH CONDUCTIVITY

Page: 1 of 1

Method of Analysis: 2PP SW-846 9040

Matrix: liquid

Date/Time: 8-28-90/11400

Lab Numbers	Detection Limits
A4742-1	0.1 units
A4735-11	↓
A4750-1-2	↓

Calibration Stds./Blk	Absorbance/Conc.
Buffer 10.0	10.0
4L	4.0
Correlation Coefficient:	

Comments:

Check Standards	Concentration Found/True
Sample Blank	EE m
Method Blank	EE m
P.E. Std.	EE m
Internal Std.	EE m
70 Buffer	70/7.0 units

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result	Sample Result	Spike Added	Percent Recovery
A4735-11	7.2	7.2	0	0	-	-	-	-
A4750-1	9.7	9.7	0	0	-	-	-	-

Analyst: Deanna Wyatt

QA/QC Approval: Deanna M. Senegal



**WATER
QUALITY
SERVICES**

17459 VILLAGE GREEN DRIVE
HOUSTON, TEXAS 77040
(713) 466-0958

ENVIRONMENTAL TESTING SPECIALISTS

September 7, 1990

Ms. Dayna Bocca
ENSR Laboratories
2925 Richmond Ave
Houston, TX 77098

LABORATORY REPORT

TCLP extract samples received 09/04/90. Project #3519-003-135.

Sample ID	Arsenic, mg/l	Selenium, mg/l	WQS ID
2T	0.005	<0.002	4897
10T	0.003	<0.001	4898
11T	<0.002	0.003	4899
44742-1T	0.003	0.004	4900
TCLP Blank	<0.002	0.003	4901

Quality Control

Analysis	Arsenic	Selenium
Method	7060	7741
Analyst	MD	MD
Date	09/07/90	09/07/90
Time	1115	0950
MDL	0.002	0.001
Dup-1	<0.002	0.002
Dup-2	<0.002	0.003
Spike	90	91

WATER QUALITY SERVICES

Anne Fidelman
Anne Fidelman
General Manager

IV. Laboratory Chronicle

DATE

Sampling Date 8/23/90

Receipt/Refrigeration 8/27/90

	<u>Date of Extraction</u>	<u>Date of Analysis</u>
Reactivity-Sulfide	<u>--</u>	<u>9/05/90</u>
Reactivity-Cyanide	<u>--</u>	<u>9/05/90</u>
Total Solids	<u>--</u>	<u>8/30/90</u>

Laboratory Manager
Review & Approval

(Signature)
(Printed Name)
(Date)


William Fithian
9-14-90

V. Analytical Results

Reactivity

The observations for Reactivity were as follows:

- . The sample(s) did not undergo violent changes under normal conditions.
- . The sample(s) did not react violently or form a potentially explosive mixture with water.
- . The sample(s) did not appear readily capable of detonation, explosive decomposition or reaction at standard temperature or pressure.
- . The sample(s) did not generate toxic gases, vapors or fumes when exposed to pH conditions between 2 and 12.5.
- . The results for reactive sulfide and cyanide are as follows:

<u>Parameter</u>	<u>Sample Designation</u>	
	<u>Method</u> <u>Blank</u>	<u>A22675-1</u> <u>UHT-WD-L 4742-1</u>
Reactivity-Sulfide	<50	<50
Reactivity-Cyanide	<50	<50
Units	(mg/kg)	(mg/kg)

<u>Parameter</u>	<u>Sample Designation</u>	
	<u>Method</u> <u>Blank</u>	<u>A22675-1</u> <u>UHT-WD-L 4742-1</u>
Total Solids, %	< 0.1	4.7

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ENSR LAB-Hou
Lab Sample ID: A4742-1T
Client Sample ID: UHT-WD-L-TCLP

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: 100.0

Date Extracted: 09/06/90
Date Analyzed: 09/06/90
Dilution Factor: 1.0

TCLP VOLATILES

CAS Number		UG/L	CAS Number		UG/L
110-86-1	Pyridine	50 <	56-23-5	Carbon Tetrachloride	5 <
75-01-4	Vinyl Chloride	10 <	79-01-6	Trichloroethene	5 <
75-35-4	1,1-Dichloroethene	5 <	71-43-2	Benzene	5 <
67-66-3	Chloroform	5 <	127-18-4	Tetrachloroethene	5 <
107-06-2	1,2-Dichloroethane	5 <	108-90-7	Chlorobenzene	5 <
78-93-3	2-Butanone	10 <			

The Lab ID for data on this page is A47421T.

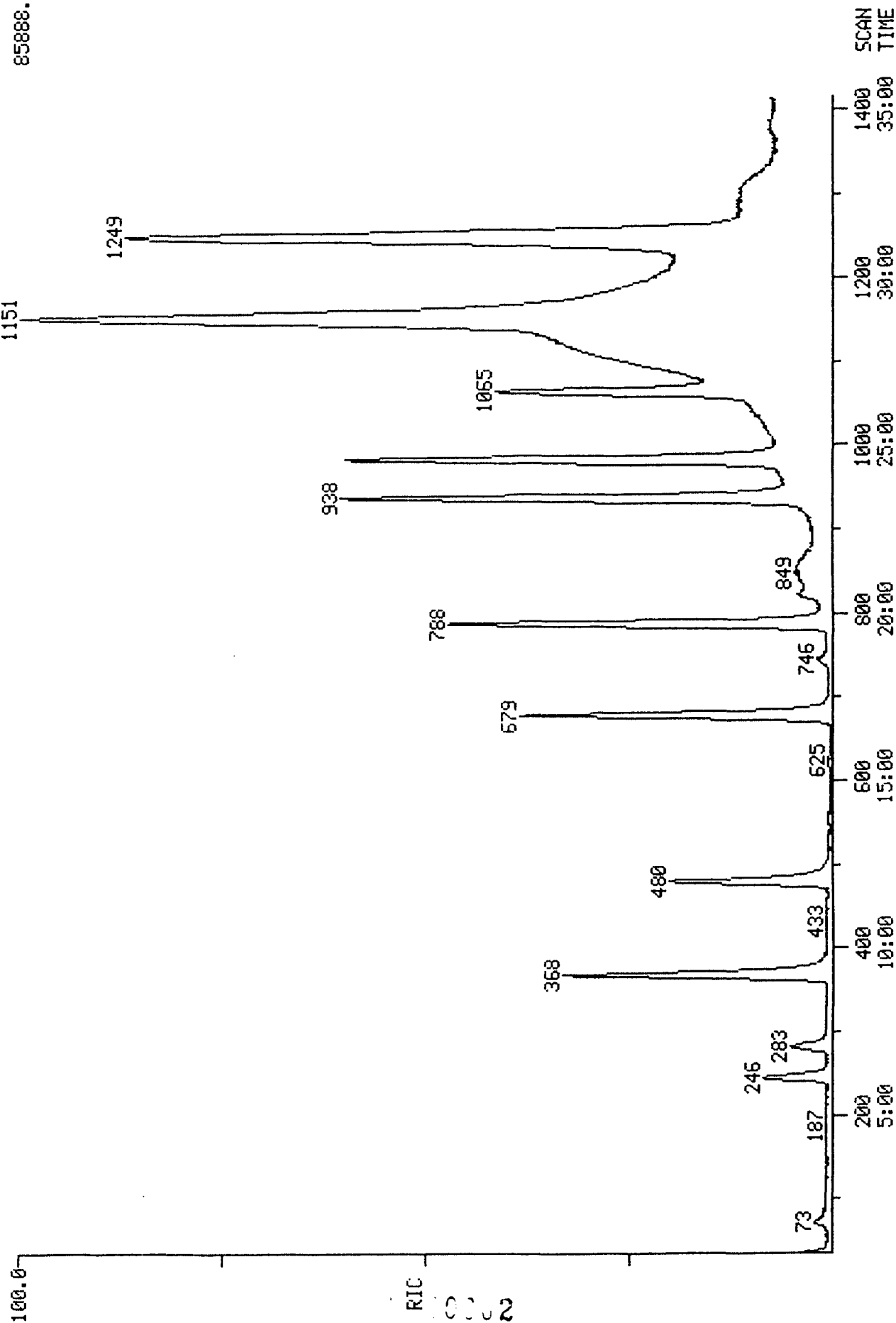
< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

Form I

RIC
09/06/90 18:09:00
SAMPLE: UHT-MD-L, TCLP
CONDS.: I50C
RANGE: G 1.1420 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: A47421T #1
CALI: A47421T #3
SCANS 35 TO 1415

85888.



SCAN
TIME

BROMOFLUOROBENZENE

Tuning Report

7/06/90 12:16:00 + 7:16

Instrument: I50C

#291 to #292 averaged - #319

Case Number:

Data: BF090690C1 # 291

Cali: CALTAB # 3

Analyst: BPB

Laboratory:

Base m/z: 95

RIC: 12240.

Acct. No.: 8506-090

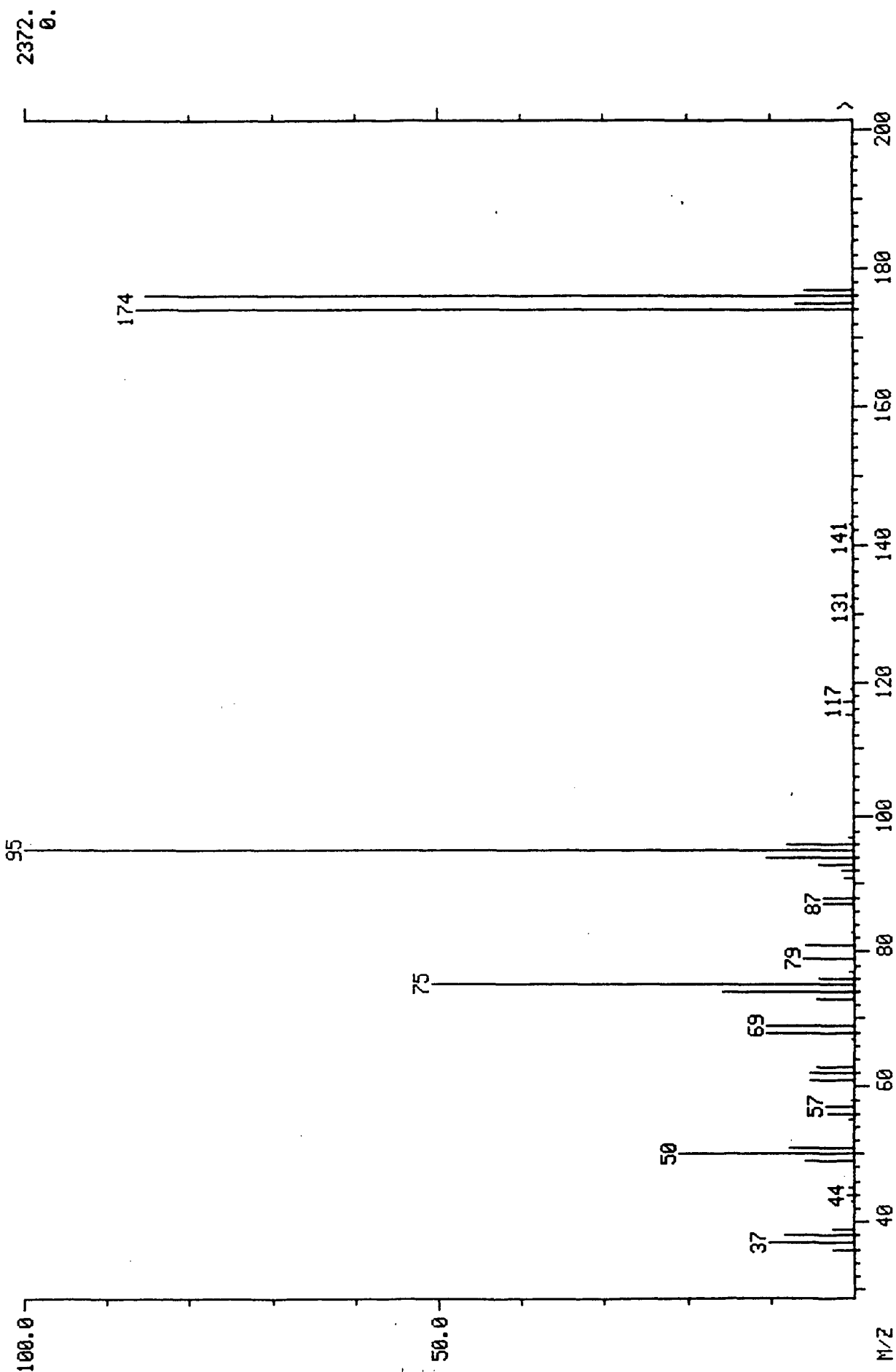
Contract:

m/z	Intensity	% RA	Ion Abundance Criteria			Actual	Status
			Min %	Max %	Mass		
50	500.	21.1	15.0	40.0	95	21.1	PASS
75	1206.	50.8	30.0	60.0	95	50.8	PASS
95	2372.	100.0	100.0	---	---	100.0	PASS
96	193.	8.1	5.0	9.0	95	8.1	PASS
173	0.	0.0	---	2.0	174	0.0	PASS
174	2052.	86.5	50.0	---	95	86.5	PASS
175	161.	6.8	5.0	9.0	174	7.8	PASS
176	2028.	85.5	95.0	101.0	174	98.8	PASS
177	136.	5.7	5.0	9.0	176	6.7	PASS

MASS SPECTRUM
09/06/90 12:16:00 + 7:16
SAMPLE: BFB CALIBRATION
CONDS.: 150C
TEMP: 225 DEG. C
#291 TO #292 AVERAGED - #319 - #273 TO #274

DATA: BF090690C1 #291
CALI: CALTAB #3

BASE M/Z: 95
RIC: 12240.



Mass List
09/06/90 12:16:00 + 7:16
Sample: BFB CALIBRATION

Data: BF090690C1 # 291
Cali: CALTAB # 3

Base m/z: 95
RIC: 12240.

Units: I50C

#291 to #292 averaged - #319

36	0.00	0.	Minima	Min Inten:	0.
207			Maxima	#	0
Mass	% RA	Inten.			
36?	S	2.36	56.		
37?	S	10.16	241.		
38?	S	8.22	195.		
39?	S	2.40	57.		
43?	S	0.21	5.		
44?	S	0.89	21.		
45?	S	0.42	10.		
49?	S	5.73	136.		
50?	S	21.08	500.		
51?	S	7.72	183.		
55?	S	0.46	11.		
56?	S	2.99	71.		
57?	S	3.37	80.		
58?	S	0.25	6.		
61?	S	5.35	127.		
62?	S	5.31	126.		
63?	S	4.51	107.		
67?	S	0.21	5.		
68?	S	10.46	248.		
69	S	10.50	249.		
73	S	4.55	108.		
74	S	15.81	375.		
75	S	50.84	1206.		
76	S	4.17	99.		
77	S	0.55	13.		
79	S	6.16	146.		
81	S	5.69	135.		
83	S	0.17	4.		
87	S	3.71	88.		
88	S	3.58	85.		
91	S	1.05	25.		
92	S	1.39	33.		
93	S	4.17	99.		
94	S	10.41	247.		
95	S	100.00	2372.		
96	S	8.14	193.		
97	S	0.42	10.		
115	S	0.84	20.		
117	S	1.22	29.		
119	S	0.38	9.		
131	S	0.34	8.		
141	S	0.38	9.		
143	S	0.34	8.		
174	S	86.51	2052.		
175	S	6.79	161.		
176	S	85.50	2028.		
177	S	5.73	136.		
207	S	3.41	81.		

**CONTINUING CALIBRATION CHECK
VOLATILE HSL COMPOUNDS**

Case No: CALIB
Contractor: ENSR LAB-Hou
Contract No:
Instrument ID: I50C

Region:

Calibration Date: 09/06/90
Time: 12:46
Laboratory ID: CC090690C1
Initial Cali. Date: 08/23/90

Minimum RF for SPCC is 0.300 (1)

Maximum %D for CCC is 25%

Compound	AVE RF	RF(50)	% D	CCC	SPCC
Chloromethane	1.252	1.231	1.7		* *
Bromomethane	1.365	1.237	9.4		
Vinyl Chloride	1.225	1.130	7.8	*	
Chloroethane	0.753	0.706	6.2		
Methylene Chloride	1.763	1.619	8.2		
Acetone	0.328	0.225	31.4		
Carbon Disulfide	3.160	2.639	16.5		
1,1-Dichloroethene	1.416	1.348	4.8	*	
1,1-Dichloroethane	3.103	2.807	9.5		* *
trans-1,2-Dichloroethene	1.462	1.365	6.6		
Chloroform	3.417	3.189	6.7	*	
1,2-Dichloroethane	2.375	2.014	15.2		
2-Butanone	0.015	0.018	-20.0		
1,1,1-Trichloroethane	0.688	0.588	14.5		
Carbon Tetrachloride	0.666	0.570	14.4		
Vinyl Acetate	0.284	0.290	-2.1		
Bromodichloromethane	0.663	0.570	14.0		
1,2-Dichloropropane	0.453	0.376	17.0	*	
cis-1,3-Dichloropropene	0.515	0.417	19.0		
Trichloroethene	0.562	0.498	11.4		
Dibromochloromethane	0.558	0.478	14.3		
1,1,2-Trichloroethane	0.343	0.315	8.2		
Benzene	1.027	0.892	13.1		
trans-1,3-Dichloropropene	0.455	0.370	18.7		
2-Chloroethylvinylether	0.207	0.188	9.2		
Bromoform	0.416	0.359	13.7		* *
4-Methyl-2-Pentanone	0.300	0.241	19.7		
2-Hexanone	0.085	0.063	25.9		
Tetrachloroethene	0.642	0.567	11.7		
1,1,2,2-Tetrachloroethane	0.462	0.476	-3.0		* *
Toluene	0.806	0.655	18.7	*	
Chlorobenzene	1.139	1.009	11.4		* *
Ethylbenzene	0.552	0.488	11.6	*	
Styrene	0.876	0.827	5.6		
Xylene (Total)	0.538	0.469	12.8		

RF(50) - Response Factor from daily standard file at
50 ug/l

Average RF - Average Response Factor from initial
calibration Form VI

%D - - - Percent Difference

CCC - - Calibration Check Compounds (*)

SPCC - - System Performance Check Compounds (**)

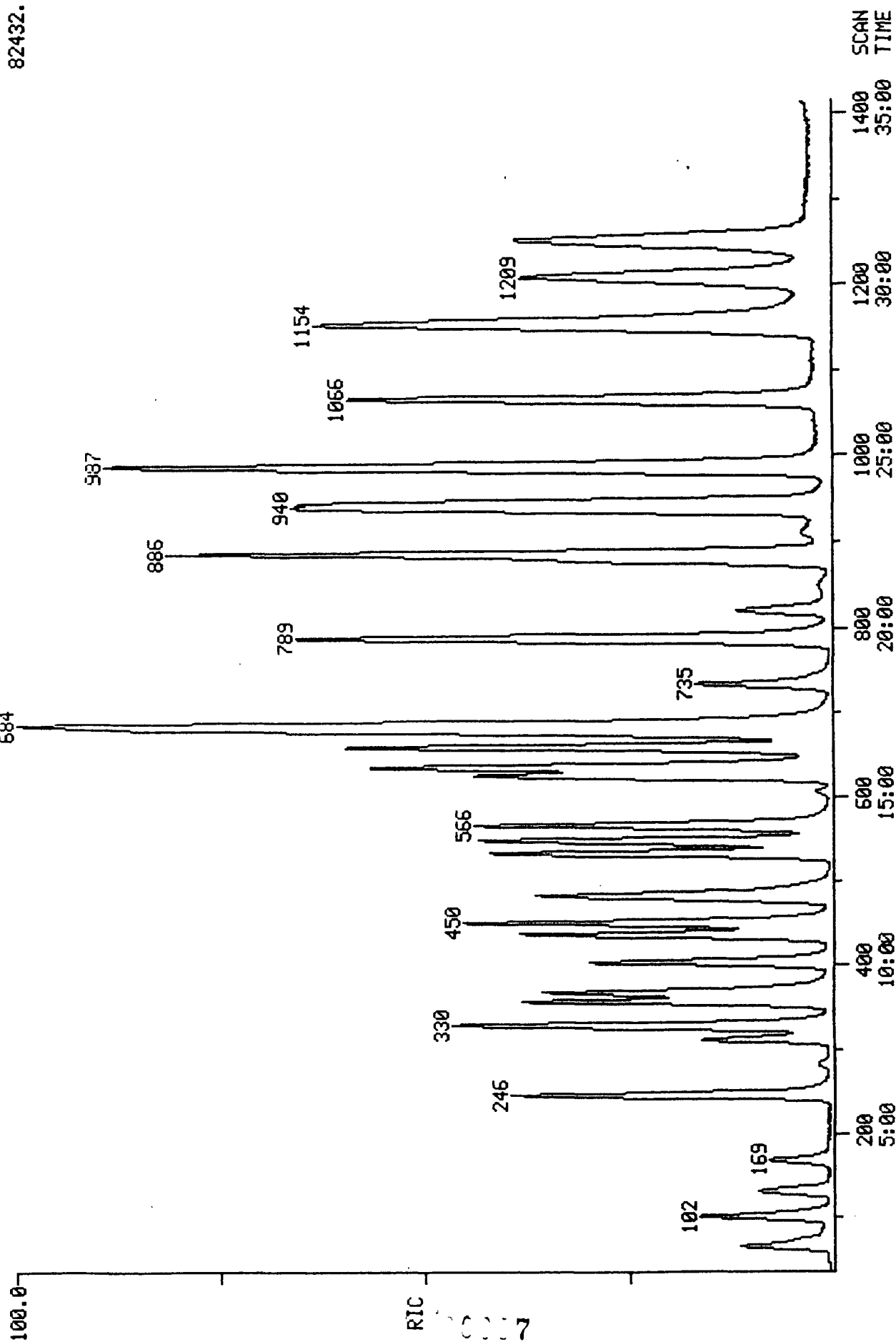
(1) - - Minimum RF for Bromoform is 0.250

Form VII

RIL
09/06/90 12:46:00
SAMPLE: CONTINUING CALIBRATION
CONDS.: I50C
RANGE: G 1.1420 LABEL: N 0.4.0 QUAN: A 0.1.0 J 0 BASE: U 20. 3

DATA: CC090690C1 #1
CALI: CC090690C1 #3
SCANS 35 TO 1415

82432.



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ENSR LAB-Hou
 Lab Sample ID: MB090690C1
 Client Sample ID: MB090690C1

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: 100.0

Date Extracted: 09/06/90
 Date Analyzed: 09/06/90
 Dilution Factor: 1.0

VOLATILE COMPOUNDS

CAS Number		UG/L	CAS Number		UG/L
74-87-3	Chloromethane	10 <	78-87-5	1,2-Dichloropropane	5 <
74-83-9	Bromomethane	10 <	10061-01-5	cis-1,3-Dichloropropene	5 <
75-01-4	Vinyl Chloride	10 <	79-01-6	Trichloroethene	5 <
75-00-3	Chloroethane	10 <	124-48-1	Dibromochloromethane	5 <
75-09-2	Methylene Chloride	7	79-00-5	1,1,2-Trichloroethane	5 <
67-64-1	Acetone	12	71-43-2	Benzene	5 <
75-15-0	Carbon Disulfide	5 <	10061-02-6	trans-1,3-Dichloropropene	5 <
75-35-4	1,1-Dichloroethene	5 <	110-75-8	2-Chloroethylvinylether	10 <
75-34-3	1,1-Dichloroethane	5 <	75-25-2	Bromoform	5 <
156-60-5	trans-1,2-Dichloroethene	5 <	108-10-1	4-Methyl-2-Pentanone	10 <
67-66-3	Chloroform	5 <	591-78-6	2-Hexanone	10 <
107-06-2	1,2-Dichloroethane	5 <	127-18-4	Tetrachloroethene	5 <
78-93-3	2-Butanone	10 <	79-34-5	1,1,2,2-Tetrachloroethane	5 <
71-55-6	1,1,1-Trichloroethane	5 <	108-88-3	Toluene	5 <
56-23-5	Carbon Tetrachloride	5 <	108-90-7	Chlorobenzene	5 <
105-4	Vinyl Acetate	10 <	100-41-4	Ethylbenzene	5 <
75-27-4	Bromodichloromethane	5 <	100-42-5	Styrene	5 <
			1330-20-7	Xylene (Total)	5 <

The Lab ID for data on this page is MB090690C1.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

Form I

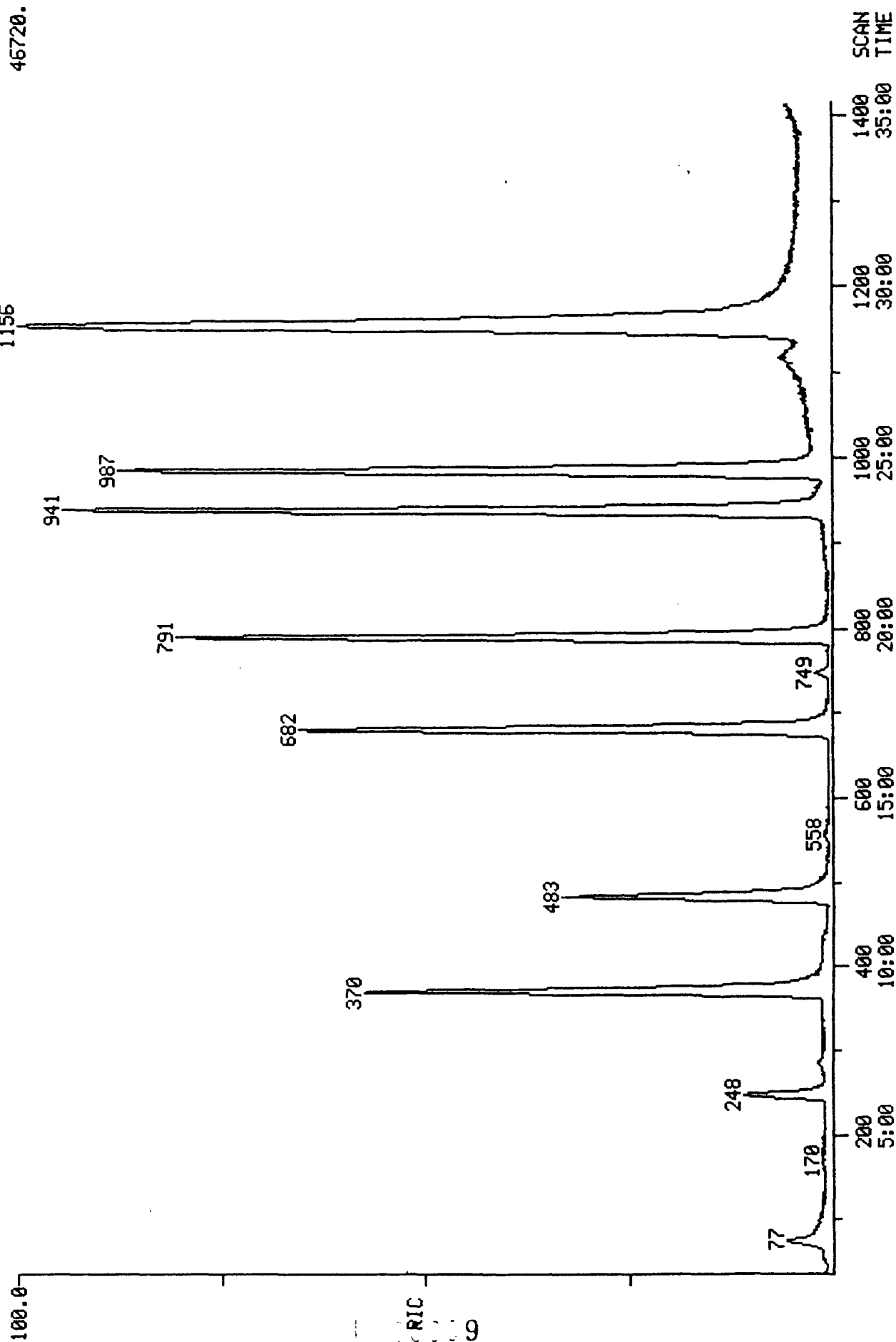
RIC
09/06/90 13:31:00
SAMPLE: METHOD BLANK
COND5.: I50C
RANGE: G 1.1420

DATA: MB090690C1 #1
CALI: MB090690C1 #3

SCANS 35 TO 1415

LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

46720.



VOLATILE

Contract Laboratory ENSR LAB-Hou

Contract No.

[illegible]

* VALUES ARE OUTSIDE OF CONTRACT
REQUIRED QC LIMITS

Volatiles:	0	out of	4	; outside of QC limits
Semi-Volatiles:	0	out of	0	; outside of QC limits
Pesticides:	0	out of	0	; outside of QC limits

Comments:

FORM II

70010

**INITIAL CALIBRATION DATA
VOLATILE HSL COMPOUNDS**

Case No: CALIB
Contractor: ENSR LAB-Hou
Contract No:

Region:

Instrument ID: I50C
Calibration Date: 08/23/90

Min AVE RF for SPCC is 0.300 (1)

Max %RSD for CCC is 30%

Laboratory ID	IC0823020C1		IC0823100C1		IC0823200C1				
	IC0823050C1		IC0823150C1						CCC*
Compound	RF(20)	RF(50)	RF(100)	RF(150)	RF(200)	Ave RF	% RSD	SPCC**	
Chloromethane	1.382	1.119	1.252	1.367	1.138	1.252	9.9	* *	
Bromomethane	1.579	1.262	1.357	1.446	1.179	1.365	11.4		
Vinyl Chloride	1.386	1.129	1.238	1.316	1.055	1.225	11.0	*	
Chloroethane	0.807	0.723	0.766	0.803	0.666	0.753	7.9		
Methylene Chloride	2.498	1.577	1.600	1.717	1.421	1.763	24.1		
Acetone	0.724	0.292	0.210	0.228	0.184	0.328	68.7		
Carbon Disulfide	2.901	2.625	3.281	3.706	3.285	3.160	13.1		
1,1-Dichloroethene	1.514	1.261	1.407	1.568	1.330	1.416	8.9	*	
1,1-Dichloroethane	3.163	2.724	3.198	3.443	2.987	3.103	8.6	* *	
trans-1,2-Dichloroethene	1.545	1.297	1.462	1.629	1.378	1.462	9.0		
Chloroform	3.330	2.976	3.459	3.924	3.395	3.417	9.9	*	
1,2-Dichloroethane	2.370	2.123	2.415	2.696	2.270	2.375	8.9		
2-Butanone	0.012	0.015	0.017	0.017	0.016	0.015	13.5		
1,1,1-Trichloroethane	0.712	0.611	0.722	0.750	0.644	0.688	8.4		
Carbon Tetrachloride	0.654	0.572	0.710	0.742	0.653	0.666	9.7		
Vinyl Acetate	0.493	0.142	0.386	0.327	0.074	0.284	61.0		
Bromodichloromethane	0.625	0.566	0.711	0.753	0.658	0.663	11.0		
1,2-Dichloropropane	0.476	0.410	0.476	0.476	0.428	0.453	7.0	*	
cis-1,3-Dichloropropene	0.463	0.441	0.557	0.581	0.533	0.515	11.7		
Trichloroethene	0.529	0.522	0.569	0.577	0.615	0.562	6.8		
Dibromochloromethane	0.479	0.476	0.604	0.633	0.597	0.558	13.4		
1,1,2-Trichloroethane	0.370	0.297	0.353	0.366	0.331	0.343	8.8		
Benzene	1.073	0.920	1.083	1.094	0.963	1.027	7.7		
trans-1,3-Dichloropropene	0.440	0.386	0.477	0.508	0.464	0.455	10.0		
2-Chloroethylvinylether	0.202	0.183	0.211	0.230	0.211	0.207	8.2		
Bromoform	0.326	0.345	0.438	0.496	0.473	0.416	18.4	* *	
4-Methyl-2-Pentanone	0.348	0.139	0.268	0.390	0.355	0.300	33.5		
2-Hexanone	0.121	0.108	0.073	0.096	0.028	0.085	42.9		
Tetrachloroethene	0.688	0.577	0.666	0.692	0.589	0.642	8.6		
1,1,2,2-Tetrachloroethane	0.503	0.387	0.509	0.543	0.366	0.462	17.2	* *	
Toluene	0.863	0.716	0.830	0.873	0.747	0.806	8.8	*	
Chlorobenzene	1.180	1.032	1.180	1.234	1.070	1.139	7.4	* *	
Ethylbenzene	0.606	0.499	0.558	0.590	0.509	0.552	8.6	*	
Styrene	0.878	0.808	0.942	0.940	0.810	0.876	7.5		
Xylene (Total)	0.586	0.487	0.572	0.555	0.491	0.538	8.6		

Response Factor (number is the amount of ug/L)

AVE RF - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*)

SPCC - System Performance Check Compounds (**)

(1) - Minimum AVE RF for Bromoform is 0.250

Form VI

0011

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ENSR LAB-HOU
Lab Sample ID: A4742-1T
Client Sample ID: UHT-WD-L TCLP

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: 100.0

Date Extracted: 09/06/90
Date Analyzed: 09/07/90
Dilution Factor: 10

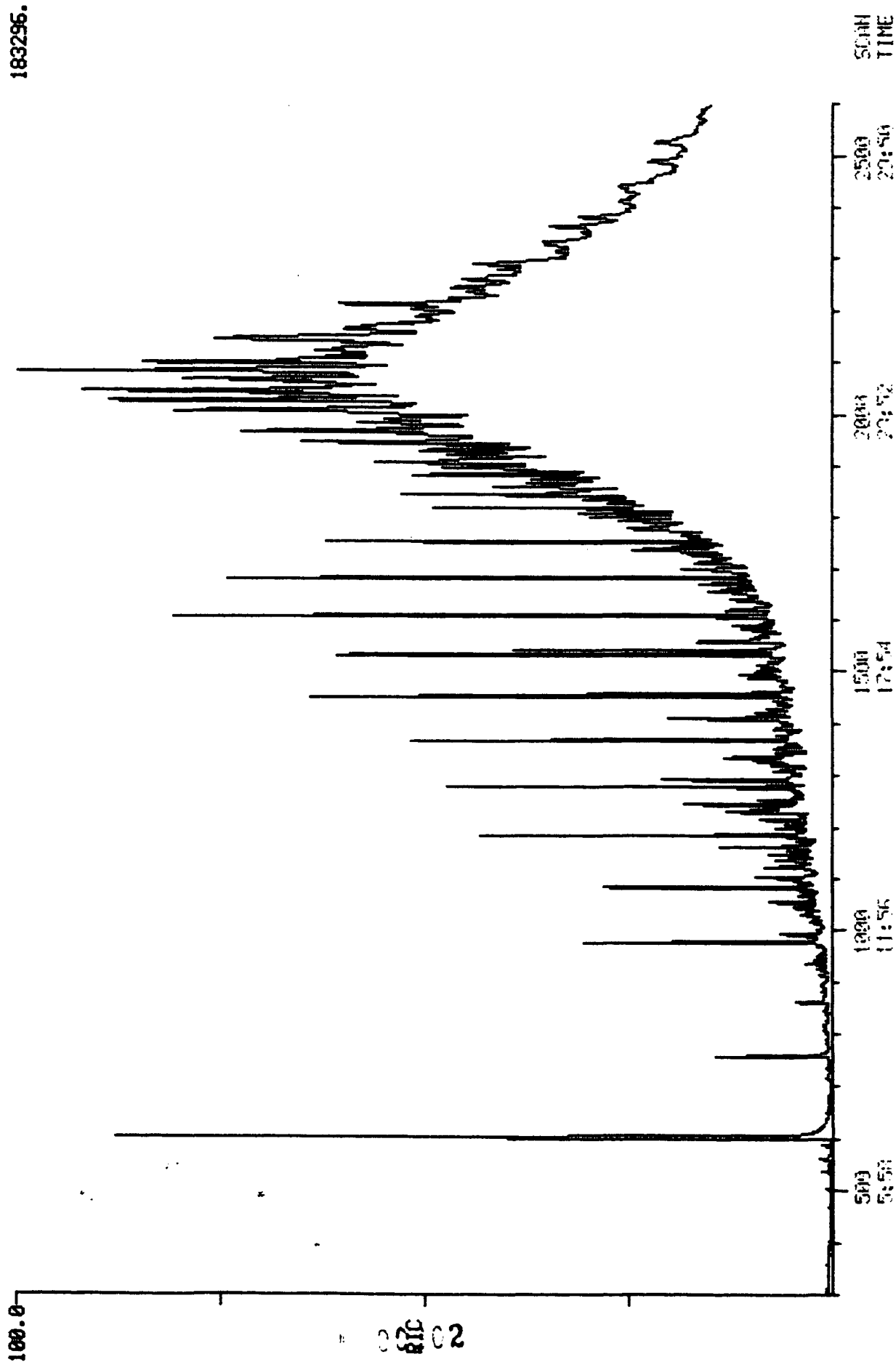
TCLP SEMIVOLATILES

CAS Number		UG/L		CAS Number		UG/L	
110-86-1	Pyridine	500	<	98-95-3	Nitrobenzene	100	<
106-46-7	1,4-Dichlorobenzene . . .	100	<	87-68-3	Hexachlorobutadiene . . .	100	<
95-48-7	2-Methylphenol	100	<	88-06-2	2,4,6-Trichlorophenol . .	100	<
106-44-5	4-Methylphenol	100	<	95-95-4	2,4,5-Trichlorophenol . .	500	<
108-39-4	3-Methylphenol	100	<	121-14-2	2,4-Dinitrotoluene	100	<
67-72-1	Hexachloroethane	100	<	118-74-1	Hexachlorobenzene	100	<
				87-86-5	Pentachlorophenol	500	<

The Lab ID for data on this page is A47421T.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

RIC
 09/07/90 14:45:00
 SAMPLE: UHT-MD-L/TCLP
 CONDS.: 150E
 RANGE: G 1.2501 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3
 DATA: A47421T #1
 CALI: A47421T #3
 SCANS 300 TO 2501



02002

183296.

DECAFLUOROTRIPHENYLPHOSPHINE

Tuning Report

09/07/90 8:48:00 + 7:50

Instrument: FINN

#656 - #664

Case Number:

Data: DF090790E1 # 656

Call: DF090790E1 # 3

Analyst: BPB

Laboratory:

Base m/z: 198

RIC: 59904.

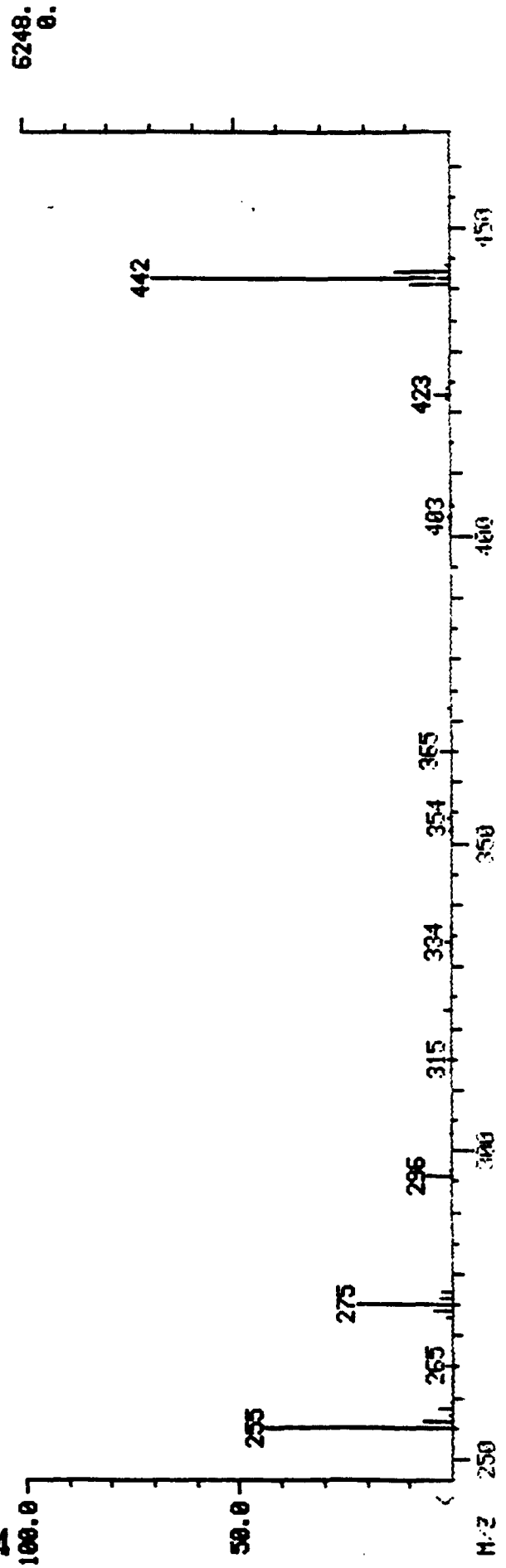
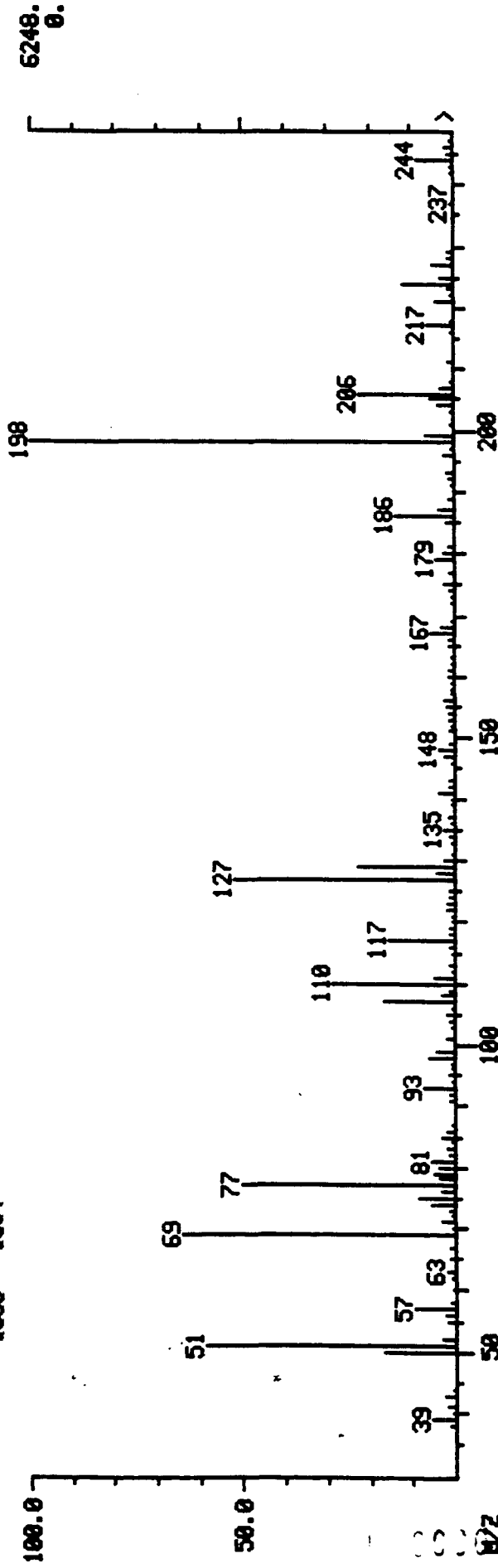
Acct. No.: 8506-090

Contract:

m/z	Intensity	Z RA	Ion Abundance Criteria			Actual	Status
			Min %	Max %	Mass		
51	3672.	58.8	30.0	60.0	198	58.8	PASS
68	0.	0.0	—	2.0	69	0.0	PASS
69	4016.	64.3	—	—	—	64.3	PASS
70	48.	0.8	—	2.0	69	1.2	PASS
127	3264.	52.2	40.0	60.0	198	52.2	PASS
197	24.	0.4	—	1.0	198	0.4	PASS
198	6248.	100.0	100.0	—	—	100.0	PASS
199	402.	6.4	5.0	9.0	198	6.4	PASS
275	1390.	22.2	10.0	30.0	198	22.2	PASS
365	168.	2.7	1.0	—	198	2.7	PASS
441	562.	9.0	—	100.0	443	72.1	PASS
442	4336.	69.4	40.0	—	198	69.4	PASS
443	780.	12.5	17.0	23.0	442	18.0	PASS

MASS SPECTRUM
 09/07/90 8:48:00 + 7:50
 SAMPLE: DFTPP CALIBRATION 50 NG
 CONDS.: 150E
 TEMP: 249 DEG. C
 #656 - #664

DATA: DF090790E1 #656
 CALI: DF090790E1 #3
 BASE M/Z: 198
 RIC: 59840.



Mass List

09/07/90 8:48:00 + 7:50

Data: DF090790E1 # 656

Base m/z: 198

Sample: DFTPP CALIBRATION 50 NG

Cal: DF090790E1 # 3

RIC: 59904.

Conds.: I50E

#556 - #664

38 444 Mass	0.00 X RA	0. Inten.	Minima Maxima Mass	Min Inten: # 0 X RA	77. Inten.
387	1.25	78.	137	1.47	92.
397 S	5.25	328.	141	3.71	232.
417 S	2.08	130.	147	2.30	144.
437 S	2.14	134.	148	3.84	240.
507	16.61	1038.	149	1.28	80.
517	58.77	3672.	155	2.02	126.
527	3.04	190.	156	2.46	154.
557 S	1.73	108.	165	1.34	84.
567 S	2.66	166.	167	5.31	332.
577 S	9.80	612.	168	2.85	178.
637	1.98	124.	175	2.18	136.
657	1.44	90.	179	3.94	246.
69 S	64.28	4016.	180	2.66	166.
71 S	3.17	198.	185	1.76	110.
73 S	1.47	92.	186	13.86	866.
74	5.22	326.	187	3.81	238.
75	8.48	530.	193	1.54	96.
76	3.04	190.	196	2.43	152.
77 S	50.26	3140.	198	100.00	6248.
78	3.62	226.	199	6.43	402.
79 S	4.55	284.	204	3.49	218.
80	3.49	218.	205	5.12	320.
81 S	5.31	332.	206	22.15	1384.
83 S	1.60	100.	207	3.27	204.
85 S	2.82	176.	217	5.92	370.
86	1.63	102.	221	4.13	258.
91 S	1.28	80.	224	11.84	740.
93 S	7.23	452.	225	3.07	192.
95 S	1.41	88.	227	5.09	318.
98 S	6.11	382.	229	1.25	78.
99 S	4.48	280.	244	8.55	534.
101	2.02	126.	245	1.38	86.
104	1.41	88.	246	1.66	104.
105 S	1.76	110.	255	43.73	2732.
107	16.97	1060.	256	6.63	414.
108	2.88	180.	258	2.75	172.
109 S	1.34	84.	273	1.47	92.
110 S	28.68	1792.	274	4.00	250.
111 S	4.67	292.	275	22.25	1390.
117	15.75	984.	276	2.98	186.
118	1.47	92.	277	2.21	138.
119	1.28	80.	296	5.47	342.
122	1.73	108.	323	2.05	128.
123 S	1.95	122.	365	2.69	168.
125 S	1.25	78.	423	3.59	224.
127 S	52.24	3264.	441	8.99	562.
128	4.19	262.	442	69.40	4336.
129 S	22.66	1416.	443	12.48	780.
130	2.30	144.			
135	2.43	152.			

F 100005

CONTINUING CALIBRATION CHECK
SEMIVOLATILE HSL COMPOUNDS

(Page 1)

Case No: CAL Region: _____ Calibration Date: 09/07/90
 Contractor: ENSR LAB-HOU Time: 09:05
 Contract No: _____ Laboratory ID: CC090790E1
 Instrument ID: FINN Initial Cali. Date: 08/17/90

Minimum RF for SPCC is 0.050

Maximum %D for CCC is 30%

Compound	AVE RF	RF(50)	% D	CCC	SPCC
Phenol	1.597	1.632	-2.2	*	
bis(2-Chloroethyl)Ether	1.221	1.280	-4.8		
2-Chlorophenol	1.308	1.378	-5.4		
1,3-Dichlorobenzene	1.551	1.412	9.0		
1,4-Dichlorobenzene	1.618	1.482	8.4	*	
Benzyl Alcohol	0.517	0.226	56.3		
1,2-Dichlorobenzene	1.473	1.330	9.7		
2-Methylphenol	1.047	1.054	-0.7		
bis(2-Chloroisopropyl)Ether	1.695	1.624	4.2		
4-Methylphenol	1.085	0.983	9.4		
N-Nitroso-Di-n-Propylamine	0.942	0.929	1.4		* *
Hexachloroethane	0.628	0.561	10.7		
Nitrobenzene	0.340	0.320	5.9		
Isophorone	0.592	0.517	12.7		
2-Nitrophenol	0.188	0.184	2.1	*	
2,4-Dimethylphenol	0.296	0.278	6.1		
Benzoic Acid	x 0.158	0.121	23.4		
bis(2-Chloroethoxy)Methane	0.406	0.391	3.7		
4-Dichlorophenol	0.274	0.254	7.3	*	
2,4-Trichlorobenzene	0.325	0.265	18.5		
Naphthalene	1.017	0.916	9.9		
4-Chloroaniline	0.249	0.173	30.5		
Hexachlorobutadiene	0.155	0.137	11.6	*	
4-Chloro-3-Methylphenol	0.274	0.252	8.0	*	
2-Methylnaphthalene	0.655	0.513	21.7		
Hexachlorocyclopentadiene	0.233	0.033	85.8		* *
2,4,6-Trichlorophenol	0.333	0.366	-9.9	*	
2,4,5-Trichlorophenol	x 0.347	0.348	-0.3		
2-Chloronaphthalene	1.148	1.108	3.5		
2-Nitroaniline	x 0.346	0.359	-3.8		
Dimethyl Phthalate	1.243	1.178	5.2		
Acenaphthylene	1.748	1.512	13.5		
2,6-Dinitrotoluene	0.298	0.279	6.4		
3-Nitroaniline	x 0.151	0.220	-45.7		
Acenaphthene	1.053	1.053	0.0	*	
2,4-Dinitrophenol	x 0.104	0.083	20.2		* *
4-Nitrophenol	x 0.129	0.144	-11.6		* *

RF(50) - Response Factor from daily standard file at concentration indicated (50 total nanograms)

AVE RF - Average Response Factor from initial calibration Form VI *

%D - - - Percent Difference

x - - - Due to low response analyze at 80 total nanograms

CCC - - Calibration Check Compounds (*)

SPCC - - System Performance Check Compounds (**)

Form VII

100006

**CONTINUING CALIBRATION CHECK
SEMIVOLATILE HSL COMPOUNDS**

(Page 2)

Use No: CAL Region: _____ Calibration Date: 09/07/90
 Intractor: ENSR LAB-HOU Time: 09:05
 Contract No: _____ Laboratory ID: CC090790E1
 Instrument ID: FINN Initial Cali. Date: 08/17/90

Minimum RF for SPCC is 0.050

Maximum %D for CCC is 30%

Compound	AVE RF	RF(50)	% D	CCC	SPCC
Dibenzofuran	1.478	1.367	7.5		
2,4-Dinitrotoluene	0.332	0.316	4.8		
Diethylphthalate	1.269	1.319	-3.9		
4-Chlorophenyl phenyl ether	0.604	0.622	-3.0		
Fluorene	1.297	1.418	-9.3		
4-Nitroaniline x	0.099	0.092	7.1		
4,6-Dinitro-2-Methylphenol x	0.129	0.107	17.1		
N-Nitrosodiphenylamine (1)	0.564	0.462	18.1	*	
4-Bromophenyl phenyl ether	0.217	0.174	19.8		
Hexachlorobenzene	0.244	0.200	18.0		
Pentachlorophenol x	0.134	0.101	24.6	*	
Phenanthrene	1.205	0.925	23.2		
Anthracene	1.108	0.743	32.9		
Di-n-Butylphthalate	1.507	1.272	15.6		
Fluoranthene	1.112	0.867	22.0	*	
Pyrene	1.628	0.875	46.3		
Butylbenzylphthalate	0.824	0.431	47.7		
3,3'-Dichlorobenzidine	0.146	0.112	23.3		
Benzo(a)Anthracene	1.145	0.702	38.7		
Is(2-Ethylhexyl)Phthalate	1.226	0.918	25.1		
Chrysene	1.005	0.702	30.1		
Di-n-Octyl Phthalate	2.932	2.070	29.4	*	
Benzo(b)Fluoranthene	1.594	1.149	27.9		
Benzo(k)Fluoranthene	1.574	1.204	23.5		
Benzo(a)Pyrene	1.317	0.937	28.9	*	
Indeno(1,2,3-cd)Pyrene	1.228	1.027	16.4		
Dibenz(a,h)Anthracene	1.011	0.826	18.3		
Benzo(g,h,i)Perylene	1.051	0.834	20.6		

RF(50) - Response Factor from daily standard file at concentration indicated (50 total nanograms)

AVE RF - Average Response Factor from initial calibration Form VI

%D - - - Percent Difference

x - - - Due to low response analyze at 80 total nanograms

CCC - - Calibration Check Compounds (*)

SPCC - - System Performance Check Compounds (**)

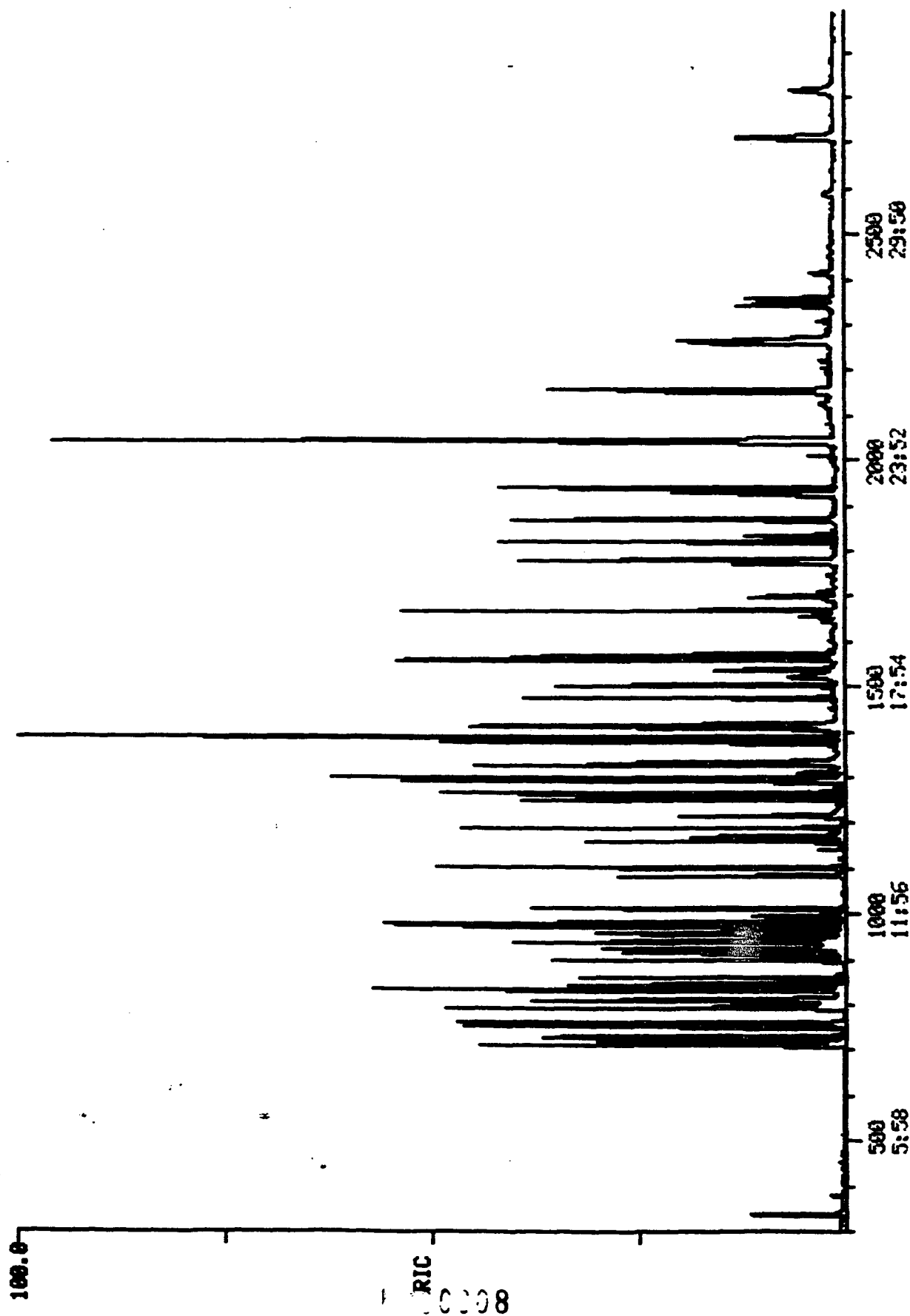
(1) - - Cannot be separated from diphenylamine

Form VII

100007

RIC
 09/07/90 9:05:00 DATA: CC090790E1 #1 SCANS 300 TO 2992
 SAMPLE: CONTINUING CALIBRATION 50 NG CALI: CC090790E1 #3
 COND.: 150E
 RANGE: G 1,2992 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

120950.



WATER SURROGATE PERCENT RECOVERY SUMMARY
(Page 1)

Case No. A4742 Contract Laboratory ENSR LAB-HOU Contract No. _____

	VOLATILE				SEMI-VOLATILE				PEST			
	Toluen e-d8	Bromof luorob enzene	1,2-D1 chloro ethane -d4	Nitrob enzene -d5	2-Fluo robiph enyl	Terphe nyl-d1 4	Benzen e-d6		Phenol -d5	2-Fluo rophen ol	Tribro mophen ol	Dibuty lchlor endate **
SMO												
TRAFFIC	86	85	77	41	44	38	75		15	23	10	48
NO.	119	121	120	120	119	128	125		103	121	130	136
UHT-WD-L_TC					116	202*				109		

* VALUES ARE OUTSIDE OF CONTRACT
REQUIRED QC LIMITS

** ADVISORY LIMITS ONLY

Volatiles: _____ out of _____4; outside of QC limits
Semi-Volatiles: _____ out of _____6; outside of QC limits
Pesticides: _____ out of _____1; outside of QC limits

Comments:

FORM II

00009

**INITIAL CALIBRATION DATA
SEMIVOLATILE HSL COMPOUNDS**

(Page 1)

Case No: CAL Region: Instrument ID: FINN
Contractor: ENSR LAB-HOU Calibration Date: 08/17/90
Contract No:

Minimum AVE RF for SPCC is 0.050 Maximum %RSD for CCC is 30%

Laboratory ID	IC0817E020		IC0817E080		IC0817E160	AVE RF	% RSD	CCC*
Compound	RF(20)	RF(50)	RF(80)	RF(120)	RF(160)			
Phenol	1.534	1.528	1.617	1.652	1.653	1.597	3.9	*
bis(2-Chloroethyl)Ether	1.176	1.183	1.250	1.228	1.268	1.221	3.3	
2-Chlorophenol	1.298	1.313	1.282	1.310	1.337	1.308	1.6	
1,3-Dichlorobenzene	1.564	1.403	1.579	1.579	1.630	1.551	5.6	
1,4-Dichlorobenzene	1.635	1.506	1.621	1.655	1.671	1.618	4.0	*
Benzyl Alcohol	0.360	0.387	0.569	0.614	0.655	0.517	26.1	
1,2-Dichlorobenzene	1.524	1.333	1.481	1.507	1.521	1.473	5.4	
2-Methylphenol	0.935	0.982	1.080	1.115	1.123	1.047	8.0	
bis(2-Chloroisopropyl)Ether	1.854	1.601	1.706	1.661	1.653	1.695	5.7	
4-Methylphenol	0.911	1.041	1.139	1.160	1.175	1.085	10.2	
N-Nitroso-Di-n-Propylamine	0.926	0.882	0.974	0.947	0.979	0.942	4.2	* *
Hexachloroethane	0.623	0.541	0.647	0.665	0.663	0.628	8.2	
Nitrobenzene	0.341	0.317	0.342	0.339	0.360	0.340	4.5	
Isophorone	0.603	0.555	0.595	0.591	0.617	0.592	3.9	
2-Nitrophenol	0.187	0.186	0.181	0.187	0.198	0.188	3.3	*
4-Dimethylphenol	0.254	0.306	0.292	0.303	0.323	0.296	8.7	
Benzoic Acid	x	0.160	0.149	0.161	0.164	0.158	4.1	
bis(2-Chloroethoxy)Methane	0.369	0.384	0.416	0.418	0.442	0.406	7.2	
2,4-Dichlorophenol	0.247	0.271	0.270	0.282	0.301	0.274	7.2	*
1,2,4-Trichlorobenzene	0.332	0.293	0.327	0.327	0.344	0.325	5.8	
Naphthalene	0.966	1.017	1.018	1.026	1.056	1.017	3.2	
4-Chloroaniline	0.084	0.191	0.293	0.327	0.349	0.249	44.3	
Hexachlorobutadiene	0.164	0.141	0.155	0.154	0.162	0.155	5.8	*
4-Chloro-3-Methylphenol	0.260	0.257	0.268	0.273	0.313	0.274	8.2	*
2-Methylnaphthalene	0.617	0.646	0.667	0.657	0.686	0.655	3.9	
Hexachlorocyclopentadiene	0.206	0.113	0.286	0.286	0.274	0.233	32.1	* *
2,4,6-Trichlorophenol	0.338	0.304	0.334	0.339	0.349	0.333	5.1	*
2,4,5-Trichlorophenol	x	0.320	0.347	0.356	0.365	0.347	5.6	
2-Chloronaphthalene	1.280	0.949	1.158	1.170	1.185	1.148	10.6	
2-Nitroaniline	x	0.315	0.348	0.348	0.374	0.346	7.0	
Dimethyl Phthalate	1.296	1.086	1.255	1.267	1.309	1.243	7.3	
Acenaphthylene	1.909	1.586	1.703	1.714	1.828	1.748	7.1	
2,6-Dinitrotoluene	0.280	0.254	0.307	0.311	0.336	0.298	10.6	
3-Nitroaniline	x	0.090	0.138	0.217	0.160	0.151	34.8	
Acenaphthene	1.123	0.984	1.043	1.038	1.076	1.053	4.9	*
2,4-Dinitrophenol	x	0.102	0.105	0.103	0.108	0.104	2.5	* *
4-Nitrophenol	x	0.112	0.132	0.134	0.138	0.129	9.0	* *

Response Factor (number is the amount of nanograms)

AVE RF - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*)

SPCC - System Performance Check Compounds (**)

x - Not detectable at 20 ng

INITIAL CALIBRATION DATA
SEMIVOLATILE HSL COMPOUNDS
(Page 2)

Case No: CAL Region: _____ Instrument ID: FINN
Contractor: ENSR LAB-HOU Calibration Date: 08/17/90
Contract No: _____

Minimum AVE RF for SPCC is 0.050 Maximum %RSD for CCC is 30%

Laboratory ID	IC0817E020		IC0817E080		IC0817E160	AVE RF	% RSD	SPCC**	CCC*
Compound	RF(20)	RF(50)	RF(80)	RF(120)	RF(160)				
Dibenzofuran	1.679	1.327	1.449	1.437	1.500	1.478	8.7		
2,4-Dinitrotoluene	0.324	0.289	0.343	0.346	0.357	0.332	8.1		
Diethylphthalate	1.337	1.214	1.266	1.240	1.286	1.269	3.7		
4-Chlorophenyl phenyl ether	0.610	0.524	0.622	0.611	0.652	0.604	7.9		
Fluorene	1.332	1.221	1.287	1.284	1.363	1.297	4.2		
4-Nitroaniline	x	0.096	0.119	0.022	0.160	0.099	58.3		
4,6-Dinitro-2-Methylphenol	x	0.175	0.116	0.114	0.112	0.129	23.6		
N-Nitrosodiphenylamine (1)	0.651	0.600	0.498	0.513	0.557	0.564	11.2	*	
4-Bromophenyl phenyl ether	0.215	0.250	0.200	0.200	0.219	0.217	9.4		
Hexachlorobenzene	0.245	0.252	0.231	0.238	0.253	0.244	3.8		
Pentachlorophenol	x	0.163	0.125	0.121	0.125	0.134	14.8	*	
Phenanthrene	1.218	1.559	1.089	1.067	1.092	1.205	17.1		
Anthracene	1.160	1.371	1.022	0.977	1.009	1.108	14.7		
Di-n-Butylphthalate	1.401	1.918	1.452	1.409	1.354	1.507	15.4		
Fluoranthene	0.911	1.479	1.105	1.054	1.013	1.112	19.5	*	
Pyrene	2.316	1.035	1.723	1.641	1.427	1.628	28.7		
Butylbenzylphthalate	1.031	0.544	0.912	0.865	0.768	0.824	22.2		
3,3'-Dichlorobenzidine		0.092	0.179	0.164	0.151	0.146	26.0		
Benzo(a)Anthracene	1.280	0.769	1.261	1.224	1.193	1.145	18.6		
bis(2-Ethylhexyl)Phthalate	1.633	0.861	1.276	1.229	1.131	1.226	22.7		
Chrysene	1.255	0.638	1.080	1.029	1.024	1.005	22.5		
Di-n-Octyl Phthalate	3.122	2.038	2.988	2.910	3.604	2.932	19.4	*	
Benzo(b)Fluoranthene	1.871	1.017	1.615	1.638	1.830	1.594	21.4		
Benzo(k)Fluoranthene	1.730	1.017	1.682	1.609	1.830	1.574	20.4		
Benzo(a)Pyrene	1.419	0.945	1.445	1.368	1.408	1.317	15.9	*	
Indeno(1,2,3-cd)Pyrene	1.392	0.784	1.285	1.338	1.342	1.228	20.5		
Dibenz(a,h)Anthracene	1.108	0.792	1.029	1.021	1.107	1.011	12.8		
Benzo(g,h,i)Perylene	1.065	1.011	1.031	1.038	1.109	1.051	3.6		

Response Factor (number is the amount of nanograms)
AVE RF - Average Response Factor
%RSD - - Percent Relative Standard Deviation
CCC - - Calibration Check Compounds (*)
SPCC - - System Performance Check Compounds (**)
x - - - Not detectable at 20 ng
(1) - - Cannot be separated from diphenylamine

Form VI

DATA PACKAGE CHECKLIST .

Lab No. A4755

Project Name Homo-Hobbs, Lawrence

Project No. 3519-

Copies to: [Redacted]

Project Manager

Client

Darlene Venable

Other (1)

Steve Beck

Other (2)

Signature Release	File Copy ✓ D / I	PM Copy ✓ D / I	Client D / I	Other (1) ✓ D / I
Disposal Letter	✓	✓ 9-18-90		✓ 9-18-
Chain of Custody	✓	✓		✓
Sample Receipt	✓	✓		✓
Checklist	✓	✓		✓
Analytical Summary	✓	✓		✓
Analytical Report	✓	✓		✓
QC Logs/	✓	✓		✓
QC Logs Subcontract	✓	✓		✓
VOA				
BNA				
Pest/PCBs				
Other 1.				
Other 2.				
Other 3.				
Narrative Log				
Billing Summary	✓	✓		✓
Internal QC Checklist				
Preliminary Summary	✓			
Travelers	✓			
Federal Express Bill	✓			
Subcontract Chain of Custody				
Subcontract Invoice				
Corrective Action Report				
Other 1.				
Other 2.				

9-17-90

DATE: 09/14/90

TO: Jim Baker

FROM: Bo Blankfield, Laboratory Director

PROJ. NO.: 3519-003-135 LAB NO.: A4755

ENSR Consulting
and Engineering3000 Richmond Avenue
Houston, Texas 77098
(713) 520-9900

Attached are reports of chemical analyses of samples received August 27, 1990. These analyses are:

Count	Test Code	Test Name	Test Method	Sampled	Matrix
1	Ag - -TCL-HOU	TCLP SILVER	EPA SW-846: 7760, ATOMIC ABSORPTION		TCLP EXT
1	As - -TCL-HOU	TCLP ARSENIC	EPA SW-846: 7060, GRAPHITE FURNACE		TCLP EXT
6	BENZ -S- -HOU	BENZENE ON SOLID	EPA SW-846: 8020, GC	08/24/90	SOIL
1	Ba - -TCL-HOU	TCLP BARIUM	EPA SW-846: 6010, ICP		TCLP EXT
1	Cd - -TCL-HOU	TCLP CADMIUM	EPA SW-846: 6010, ICP		TCLP EXT
1	Cr - -TCL-HOU	TCLP CHROMIUM	EPA SW-846: 6010, ICP		TCLP EXT
6	EB -S- -HOU	ETHYL BENZENE ON SOLID	EPA SW-846: 8020, GC	08/24/90	SOIL
1	Hg - -TCL-HOU	TCLP MERCURY	EPA SW-846: 7470, COLD VAPOR		TCLP EXT
7	Pb - -TCL-HOU	TCLP LEAD	EPA SW-846: 6010, ICP		TCLP EXT
1	Se - -TCL-HOU	TCLP SELENIUM	EPA SW-846: 7740, GRAPHITE FURNACE		TCLP EXT
6	TOL -S- -HOU	TOLUENE ON SOLID	EPA SW-846: 8020, GC	08/24/90	SOIL
1	TPH - - -HOU	TOTAL PETROLEUM HYDROCARBONS	EPA 600: 418.1	08/24/90	LIQUID
8	TPH -S- -HOU	TOTAL PET. HYDROCARBONS/SOLID	EPA 600:418.1, SW-846:9071	08/24/90	SOIL
6	XYL -S- -HOU	XYLENE ON SOLID	EPA SW-846: 8020, GC	08/24/90	SOIL

Data contained in this report reflect a full quality control review and have met all applicable standards established by ENSR. ENSR quality assurance protocols are in accordance with EPA guidelines.

Should you have any questions, do not hesitate to contact me at (713) 520-9900.

BB/lis

Enclosures: Analytical Summary, Analytical Report, Chain of Custody, Sample Receipt Checklist, Quality Control Logs, Billing Summary

cc: Darlene Venable, Steve Beck

LAB NO. A4755

PROJECT 3519-003-135 Homco - Hobbs, New Mexico

Project no. 3519-003 135		Client/Project Name Hemco			Project Location Hobbs, N.M.		
Lab ID No	Field Sample No./ Identification	Date and Time	Sample Container (Size/Mat'l)	Sample Type (Liquid Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
1	E-Blank 0700	8/24	32oz Amb	Liquid	4°C	TCLP metals	
↓	↓	↓	16oz Amb	↓	HCL	TPH	
↓	↓	↓	32oz Amb	↓	4°C	TCLP Pielin	
2	HCS-10-51	0810	802 55wm	Soil	4°C	TPH	
3	Dupe #3	—	802 55wm	Soil	4°C	TPH	
4	UHT-1-B1-A	0850	802 55wm	Soil	4°C	TPH (Rush)	
↓	↓	↓	16oz Amb	↓	↓	TCLP Lead (Rush)	
↓	↓	↓	32oz Amber	↓	↓	TCLP Benzene (Hold)	
↓	↓	↓	40L TAIL	↓	↓	BTEX (Rush)	
5	Dupe #4	—	802 55wm	↓	↓	TPH	

Relinquished by (Signature) Steve Beck	Date: 8/29/90 Time: 1000	Received by (Signature)	Date: Time:	COC Seal No. 37940
Relinquished by (Signature)	Date: Time:	Received by (Signature)	Date: Time:	37938
Relinquished by (Signature)	Date: Time:	Received by Laboratory (Signature)	Date: 8/27/90 Time: 1230	37941
Data Results To: 1. Jim Baker			Laboratory No. AUX950	
2. Darlene Venable				

REMARKS: SAMPLES NOT RECEIVED WITH SHIPMENT / LONG ZIP ON FEDEX A/B 8/28/90

Project no.		Client/Project Name		Project Location			
3519-003-135		Homco		Hobbs, N.M.			
Lab ID No	Field Sample No./ Identification	Date and Time	Sample Container (Size/Mat'l)	Sample Type (Liquid Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
5	Dupe #4	8/24	16oz Amb	Soil	40	TCLP Pb	
↓	↓	↓	32oz Amb	↓	↓	TCLP Benzene (Hold)	
↓	↓	↓	40z 55um	↓	↓	BTEX	
6	WAT #1-A1-B	0905	80z 55um	↓	↓	TPH	(Rush)
↓	↓	↓	160z Amber	↓	↓	TCLP Pb	(Rush)
↓	↓	↓	32oz Amber	↓	↓	TCLP Benzene (Hold)	
↓	↓	↓	40z tall	↓	↓	BTEX	(Rush)
7	Dupe #5	—	80z 55um	↓	↓	TPH	
↓	↓	↓	160z Amber	↓	↓	TCLP Pb	
↓	↓	↓	32oz Amber	↓	↓	TCLP Benzene (Hold)	
Samplers: (Signature)			Relinquished by: (Signature)		Date: 8/25/90	Received by: (Signature)	COC Seal No.
Stephen Beck			[Signature]		Time: 1:00	Date: 8/25/90	37940
Affiliation			Relinquished by: (Signature)		Date: 8/25/90	Received by: (Signature)	37938
ENGR			Relinquished by: (Signature)		Date: 8/25/90	Received by: (Signature)	37941
REMARKS: SAMPLES NOT REC'D w/ SAT SHIPMENT WRONG ZIP			Data Results To:		Date: 8/25/90	Contact:	
ON FEDER A/B 08/25			1. Jim Baker		Time: 1:30		
			2. Darlene Venable				
							Laboratory No. 44755



CONSULTING AND ENGINEERING
2925 RICHMOND AVENUE HOUSTON, TX 77098 (713) 520-1495

Analysis Request and Chain of Custody Record

Project no.		Client/Project Name				Project Location			
3514-003-135		HOMO				Hobbs, N.M.			
Lab ID No	Field Sample No./ Identification	Date and Time	g	g	Sample Container (Size/Mat'l)	Sample Type (Liquid Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
7	Dupe #5	8/24	X	X	4oz TAIL	Soil	4°C	BTEX	
8	UHT #1-B1-C	0915	X	X	8oz 55um			TPH (Rush)	
			X	X	16oz Amber			TCLP Pb (Rush)	
			X	X	32oz Amber			TCLP Benzene (Hold)	
			X	X	4oz TAIL			BTEX (Rush)	
9	UHT #1-B2-A	0955	X	X	8oz 55um			TPH (Rush)	
			X	X	16oz Amber			TCLP Pb (Rush)	
			X	X	32oz Amber			TCLP Benzene (Hold)	
			X	X	4oz TAIL			BTEX (Rush)	
	UHT #1-B2-B	1005	X	X	8oz 55um			TPH (Rush)	

Samplers: (Signature) Steve Beck		Relinquished by: (Signature) 		Date: 8/25/90 Time: 1000		Received by: (Signature) Date: 8/25/90 Time: 1000	
Affiliation ENSR		Relinquished by: (Signature)		Date:		Received by: (Signature)	
Relinquished by: (Signature)		Relinquished by: (Signature)		Date:		Received by: (Signature)	

REMARKS: Samples NOT BEING analyzed for TPH, BTEX, and Benzene.		Date Results To:	
210 on EPOX #18 (excluding UHT #1-B2-B)		Date: 8/25/90 Time: 1230	

Laboratory No.	
A4755	

EXPERIMENTAL LAB #17-K



ENSR LABORATORIES ©
SAMPLE RECEIPT CHECKLIST

Client Homco

Project Number 3519-003135

Laboratory Number A4755

- 1 ☒ Shipped
☐ Hand Delivered
- 2 ☒ COC Present on Receipt
☐ No COC
- 3 ☒ COC Tape on Shipping Container
☐ No COC Tape on Shipping Container
- 4 ☐ Samples Broken/Leaking

Notes: Fedex Express #806804469

Notes: COC dropped off by Steve Bick in person on 8/25/90.

Notes: Tape Intact

Notes: _____

Notes: Intact

- ☒ Sample Intact on Receipt
☐ Other (See Notes)

- 5 ☒ Ambient on Receipt
☐ Chilled on Receipt

Notes: Samples received 2 days after they should have been delivered same

- 6 ☐ Samples Preserved Correctly
☐ Improper Preservatives

Notes: were not longer at required 4°C.

- ☒ N/A (None Recommended)
☐ Other (See Notes)

- 7 ☒ Received Within Holding Time
☐ Not Received Within Holding Time
☐ N/A (None Recommended)
☐ Other (See Notes)

Notes: _____

- 8 ☐ COC Tapes on Samples

Notes: _____

- ☒ No COC Tapes on Samples

- 9 ☐ Discrepancies Between COC and Sample Labels

Notes: _____

- ☒ No Discrepancies Noted

- ☐ N/A (No COC Received)

Additional Comments: COC divided into separate lab #'s due to dates of delivery (RE: A4755 & A4746).

Inspected and Logged in by: Tricia Lowe Date/Time 8/27/90-123

ENSR Labs-Houston

Analytical Summary

09/14/90 13:07

Lab Number: A4755
Project: 3519-003-135
Homco - Hobbs, New Mexico

Lab ID Field ID Test /Matrix	1 E-BLANK LIQUID	2 HCS-10-S1 SOIL	3 DUPE #3 SOIL	4 UHT #1-B1-A SOIL	5 DUPE #4 SOIL	6 UHT #1-B1-B SOIL	7 DUPE #5 SOIL	8 UHT #1-B1-C SOIL
BENZ -S- -HOU (MDL)	--	--	--	<125 UG/KG (125)	<125 UG/KG (125)	<125 UG/KG (125)	<125 UG/KG (125)	<125 UG/KG (125)
EB -S- -HOU (MDL)	--	--	--	760 UG/KG (125)	740 UG/KG (125)	3800 UG/KG (125)	4800 UG/KG (125)	4100 UG/KG (125)
TOL -S- -HOU (MDL)	--	--	--	<125 UG/KG (125)	<125 UG/KG (125)	170 UG/KG (125)	170 UG/KG (125)	200 UG/KG (125)
TPH - - -HOU (MDL)	<4 MG/L (4)	--	--	--	--	--	--	--
TPH -S- -HOU (MDL)	--	<40 MG/KG (40)	58 MG/KG (40)	6400 MG/KG (400)	5300 MG/KG (400)	1.2 PERCENT (0.20)	1.4 PERCENT (0.20)	9600 MG/KG (770)
XYL -S- -HOU (MDL)	--	--	--	1000 UG/KG (125)	930 UG/KG (125)	7600 UG/KG (125)	11000 UG/KG (125)	9300 UG/KG (125)

Signatures of approval indicate quality assurance-quality control verification of analytical results, billing and enclosed documentation.

Approvals:

Bronda P. Lasker

Date:

9/17/90

Bo Lasker

Date:

9-17-90

***** CONTINUED *****

ENSR

ENSR Labs-Houston

Analytical Summary
09/14/90 13:08

Lab Number: A4755
Project: 3519-003-135
Homco - Hobbs, New Mexico

Lab ID Field ID	9 UHT #1- B2-A	1T E-BLANK/ TCLP	4T UHT #1- B1-A/*	5T DUPE #4/ TCLP	6T UHT #1- B1-B/*	7T DUPE #5/ TCLP	8T UHT #1- B1-C/*	9T UHT #1- B2-A/ TCLP
Test /Matrix	SOIL	TCLP EXT	TCLP EXT	TCLP EXT	TCLP EXT	TCLP EXT	TCLP EXT	TCLP EXT
Ag - -TCL-HOU (MDL)	--	<0.01 MG/L (0.01)	--	--	--	--	--	--
As - -TCL-HOU (MDL)	--	<0.005 MG/L (0.005)	--	--	--	--	--	--
BENZ -S- -HOU (MDL)	<125 UG/KG (125)	--	--	--	--	--	--	--
Ba - -TCL-HOU (MDL)	--	0.1 MG/L (0.02)	--	--	--	--	--	--
Cd - -TCL-HOU (MDL)	--	<0.010 MG/L (0.010)	--	--	--	--	--	--
Cr - -TCL-HOU (MDL)	--	<0.02 MG/L (0.02)	--	--	--	--	--	--
EB -S- -HOU (MDL)	2600 UG/KG (125)	--	--	--	--	--	--	--
Hg - -TCL-HOU (MDL)	--	<0.001 MG/L (0.001)	--	--	--	--	--	--

Signatures of approval indicate quality assurance-quality control verification of analytical results, billing and enclosed documentation.

Approvals: Brenda P. Saville Date: 9/17/90 Bo B. Shufeld Date: 9-17-90

***** CONTINUED *****

ENSR

ENSR Labs-Houston

Analytical Summary

09/14/90 13:08

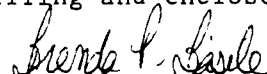
Lab Number: A4755
 Project: 3519-003-135
 Homco - Hobbs, New Mexico

Lab ID Field ID Test /Matrix	9 UHT #1- B2-A SOIL	1T E-BLANK/ TCLP TCLP EXT	4T UHT #1- B1-A/* TCLP EXT	5T DUPE #4/ TCLP TCLP EXT	6T UHT #1- B1-B/* TCLP EXT	7T DUPE #5/ TCLP TCLP EXT	8T UHT #1- B1-C/* TCLP EXT	9T UHT #1- B2-A/ TCLP TCLP EXT
Pb -- -TCL-HOU (MDL)	--	<0.025 MG/L (0.025)	0.05 MG/L (0.025)*	<0.025 MG/L (0.025)	0.05 MG/L (0.025)*	0.07 MG/L (0.025)	0.1 MG/L (0.025)*	0.04 MG/L (0.025)*
Se -- -TCL-HOU (MDL)	--	<0.005 MG/L (0.005)	--	--	--	--	--	--
TOL -S- -HOU (MDL)	150 UG/KG (125)	--	--	--	--	--	--	--
TPH -S- -HOU (MDL)	1.0 PERCENT (0.08)	--	--	--	--	--	--	--
XYL -S- -HOU (MDL)	4700 UG/KG (125)	--	--	--	--	--	--	--

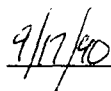
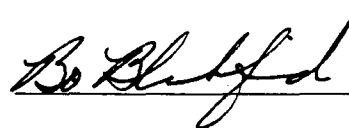
* Please see attached Analytical Report for remarks.

Signatures of approval indicate quality assurance-quality control verification of analytical results, billing and enclosed documentation.

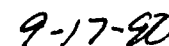
Approvals:



Date:

Date:



ENSR

ENSR Labs-Houston

Analytical Report

09/14/90 13:08

Domco - Hobbs, New Mexico	Field ID: E-BLANK	Date Sampled: 08/24/90
Proj. No.: 3519-003-135	Lab ID: 1	Time Sampled: 700
Lab No.: A4755	Matrix: LIQUID (GRAB)	Date Received: 08/27/90

(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
TPH - - -HOU TOTAL PETROLEUM HYDROCARBONS EPA 600: 418.1	<4	MG/L	4	09/06/90 1300

ENSR Labs-Houston

Analytical Report

09/14/90 13:08

Homco - Hobbs, New Mexico		Field ID: HCS-10-S1	Date Sampled: 08/24/90	
Proj. No.: 3519-003-135		Lab ID: 2	Time Sampled: 810	
Lab No.: A4755		Matrix: SOIL (GRAB)	Date Received:08/27/90	
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	<40	MG/KG	40	09/06/90 1300

ENSR Labs-Houston

Analytical Report

09/14/90 13:08

Homco - Hobbs, New Mexico		Field ID: DUPE #3	Date Sampled: / /	
Proj. No.: 3519-003-135		Lab ID: 3	Time Sampled:	
Lab No.: A4755		Matrix: SOIL (GRAB)	Date Received: 08/27/90	
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	58	MG/KG	40	09/06/90 1300

ENSR Labs-Houston

Analytical Report

09/14/90 13:08

Homco - Hobbs, New Mexico		Field ID: UHT #1-B1-A	Date Sampled: 08/24/90	
Proj. No.: 3519-003-135		Lab ID: 4	Time Sampled: 850	
Lab No.: A4755		Matrix: SOIL (COMPOSITE)	Date Received: 08/27/90	
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
BENZ -S- -HOU BENZENE ON SOLID EPA SW-846: 8020, GC	<125	UG/KG	125	08/31/90
EB -S- -HOU ETHYL BENZENE ON SOLID EPA SW-846: 8020, GC	760	UG/KG	125	08/31/90
TOL -S- -HOU TOLUENE ON SOLID EPA SW-846: 8020, GC	<125	UG/KG	125	08/31/90
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	6400	MG/KG	400	09/06/90 1300
XYL -S- -HOU XYLENE ON SOLID EPA SW-846: 8020, GC	1000	UG/KG	125	08/31/90

ENSR Labs-Houston

Analytical Report
09/14/90 13:08

Homco - Hobbs, New Mexico		Field ID: DUPE #4	Date Sampled: / /	
Proj. No.: 3519-003-135		Lab ID: 5	Time Sampled:	
Lab No.: A4755		Matrix: SOIL	Date Received: 08/27/90	
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
BENZ -S- -HOU BENZENE ON SOLID EPA SW-846: 8020, GC	<125	UG/KG	125	08/31/90
EB -S- -HOU ETHYL BENZENE ON SOLID EPA SW-846: 8020, GC	740	UG/KG	125	08/31/90
TOL -S- -HOU TOLUENE ON SOLID EPA SW-846: 8020, GC	<125	UG/KG	125	08/31/90
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	5300	MG/KG	400	09/06/90 1300
XYL -S- -HOU XYLENE ON SOLID EPA SW-846: 8020, GC	930	UG/KG	125	08/31/90

ENSR Labs-Houston

Analytical Report

09/14/90 13:09

Homco - Hobbs, New Mexico		Field ID: UHT #1-B1-B	Date Sampled: 08/24/90	
Proj. No.: 3519-003-135		Lab ID: 6	Time Sampled: 905	
Lab No.: A4755		Matrix: SOIL (COMPOSITE)	Date Received: 08/27/90	
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
BENZ -S- -HOU BENZENE ON SOLID EPA SW-846: 8020, GC	<125	UG/KG	125	08/31/90
EB -S- -HOU ETHYL BENZENE ON SOLID EPA SW-846: 8020, GC	3800	UG/KG	125	08/31/90
TOL -S- -HOU TOLUENE ON SOLID EPA SW-846: 8020, GC	170	UG/KG	125	08/31/90
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	1.2	PERCENT	0.20	09/06/90 1300
XYL -S- -HOU XYLENE ON SOLID EPA SW-846: 8020, GC	7600	UG/KG	125	08/31/90

ENSR Labs-Houston

Analytical Report

09/14/90 13:09

Homco - Hobbs, New Mexico		Field ID: DUPE #5	Date Sampled: / /	
Proj. No.: 3519-003-135		Lab ID: 7	Time Sampled:	
Lab No.: A4755		Matrix: SOIL (COMPOSITE)	Date Received: 08/27/90	
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
BENZ -S- -HOU BENZENE ON SOLID EPA SW-846: 8020, GC	<125	UG/KG	125	08/31/90
EB -S- -HOU ETHYL BENZENE ON SOLID EPA SW-846: 8020, GC	4800	UG/KG	125	08/31/90
TOL -S- -HOU TOLUENE ON SOLID EPA SW-846: 8020, GC	170	UG/KG	125	08/31/90
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	1.4	PERCENT	0.20	09/06/90 1300
XL -S- -HOU XYLENE ON SOLID EPA SW-846: 8020, GC	11000	UG/KG	125	08/31/90

ENSR Labs-Houston

Analytical Report

09/14/90 13:09

Homco - Hobbs, New Mexico	Field ID: UHT #1-B1-C	Date Sampled: 08/24/90
Proj. No.: 3519-003-135	Lab ID: 8	Time Sampled: 915
Lab No.: A4755	Matrix: SOIL (COMPOSITE)	Date Received: 08/27/90

(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
BENZ -S- -HOU BENZENE ON SOLID EPA SW-846: 8020, GC	<125	UG/KG	125	08/31/90
EB -S- -HOU ETHYL BENZENE ON SOLID EPA SW-846: 8020, GC	4100	UG/KG	125	08/31/90
TOL -S- -HOU TOLUENE ON SOLID EPA SW-846: 8020, GC	200	UG/KG	125	08/31/90
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	9600	MG/KG	770	09/06/90 1300
XYL -S- -HOU XYLENE ON SOLID EPA SW-846: 8020, GC	9300	UG/KG	125	08/31/90

ENSR Labs-Houston

Analytical Report

09/14/90 13:09

Homco - Hobbs, New Mexico		Field ID: UHT #1-B2-A	Date Sampled: 08/24/90	
Proj. No.: 3519-003-135		Lab ID: 9	Time Sampled: 955	
Lab No.: A4755		Matrix: SOIL (COMPOSITE)	Date Received: 08/27/90	
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
BENZ -S- -HOU BENZENE ON SOLID EPA SW-846: 8020, GC	<125	UG/KG	125	08/31/90
EB. -S- -HOU ETHYL BENZENE ON SOLID EPA SW-846: 8020, GC	2600	UG/KG	125	08/31/90
TOL -S- -HOU TOLUENE ON SOLID EPA SW-846: 8020, GC	150	UG/KG	125	08/31/90
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	1.0	PERCENT	0.08	09/06/90 1300
XYL -S- -HOU XYLENE ON SOLID EPA SW-846: 8020, GC	4700	UG/KG	125	08/31/90

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Analytical Report
09/14/90 13:09

Homco - Hobbs, New Mexico		Field ID: UHT #1-B1-A/*	Date Sampled: / /	
Proj. No.: 3519-003-135		Lab ID: 4T	Time Sampled:	
Lab No.: A4755		Matrix: TCLP EXT	Date Received: 08/27/90	
(Test Code) Parameter (Test Name) (Test Method)		Concen- tration	Units	Method Detection Limit
Pb - -TCL-HOU TCLP LEAD EPA SW-846: 6010, ICP		0.05 *1	MG/L	0.025 09/10/90 730

*1 *FIELD ID CONT.: TCLP

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Analytical Report
09/14/90 13:09

Homco - Hobbs, New Mexico		Field ID: DUPE #4/TCLP	Date Sampled: / /		
Proj. No.: 3519-003-135		Lab ID: 5T	Time Sampled:		
Lab No.: A4755		Matrix: TCLP EXT	Date Received:08/27/90		
(Test Code) Parameter (Test Name) (Test Method)		Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
Pb - -TCL-HOU TCLP LEAD EPA SW-846: 6010, ICP		<0.025	MG/L	0.025	09/10/90 730

ENSR Labs-Houston

Analytical Report

09/14/90 13:09

Homco - Hobbs, New Mexico		Field ID: UHT #1-B1-B/*	Date Sampled: / /		
Proj. No.: 3519-003-135		Lab ID: 6T	Time Sampled:		
Lab No.: A4755		Matrix: TCLP EXT	Date Received: 08/27/90		
(Test Code) Parameter (Test Name) (Test Method)		Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
Pb - -TCL-HOU TCLP LEAD EPA SW-846: 6010, ICP		0.05 *1	MG/L	0.025	09/10/90 730

*1 *FIELD ID CONT.: TCLP

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ENSR Labs-Houston

Analytical Report
09/14/90 13:09

Homco - Hobbs, New Mexico		Field ID: DUPE #5/TCLP	Date Sampled: / /	
Proj. No.: 3519-003-135		Lab ID: 7T	Time Sampled:	
Lab No.: A4755		Matrix: TCLP EXT	Date Received: 08/27/90	
(Test Code) Parameter (Test Name) (Test Method)		Concen- tration	Units	Method Detection Limit Date/Time Analysis Performed
Pb - -TCL-HOU TCLP LEAD EPA SW-846: 6010, ICP		0.07	MG/L	0.025 09/10/90 730

ENSR Labs-Houston

Analytical Report

09/14/90 13:09

Homco - Hobbs, New Mexico		Field ID: UHT #1-B1-C/*	Date Sampled: / /	
Proj. No.: 3519-003-135		Lab ID: 8T	Time Sampled:	
Lab No.: A4755		Matrix: TCLP EXT	Date Received: 08/27/90	
(Test Code) Parameter (Test Name) (Test Method)		Concen- tration	Units	Method Detection Limit Date/Time Analysis Performed
Pb - -TCL-HOU TCLP LEAD EPA SW-846: 6010, ICP		0.1 *1	MG/L	0.025 09/10/90 730

*1 *FIELD ID CONT.:TCLP

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ENSR Labs-Houston

Analytical Report

09/14/90 13:09

Homco - Hobbs, New Mexico		Field ID: UHT #1-B2-A/TCLP	Date Sampled: / /	
Proj. No.: 3519-003-135		Lab ID: 9T	Time Sampled:	
Lab No.: A4755		Matrix: TCLP EXT	Date Received: 08/27/90	
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
Pb - -TCL-HOU TCLP LEAD EPA SW-846: 6010, ICP	0.04 *1	MG/L	0.025	09/10/90 730

*1 *FIELD ID CONT.: TCLP

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ENSR Labs-Houston

QUALITY CONTROL LOG

Parameter: Silver; Ag

Page: 1 of 2

Method of Analysis: EPAS 846.1 7760-A.A

Matrix: SOLID AND LIQUID

Date/Time: Aug 30, 1990 1230

Lab Numbers	Detection Limits	Calibration Stds./Blk	Absorbance/Conc.	Check Standards	Concentration Found/True
A4762-1	0.01 mg/L	BLANK	0.000/0.001	Sample Blank A4762	0.008 ppm
A4731-1	0.01 mg/L	0.500 ppm	0.010/0.510	Method Blank	0.001 ppm
A4755-1	0.01 mg/L	1.00 ppm	0.020/1.010	P.E. Std. ERA#2	1.007/1.00 ppm
A4758-1	0.01 mg/L	2.00 ppm	0.040/2.003	Internal Std. 0.75 ppm	0.754/0.75 ppm
A4765-7-10	1 mg/L			0.04 ppm	0.037/0.040
A4703-1	0.01 mg/L			0.02 ppm	0.020/0.020
A4693-4-6 ^{IT}	0.01 mg/L	Correlation Coefficient:			
		Comments:			

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result	Sample Result	Spike Added	Percent Recovery
^{100 → 25} A4762-1	<0.04	<0.04	*	*	0.988	*	50% Ag 2 ppm	99%
^{100 → 25} A4731-1	<0.04	<0.04	*	*	0.088	*	+0.1 ppm	88%
^{TCM 100 → 25} A4755-1	<0.04	<0.04	*	*	0.090	*	+0.1 ppm	90%
^{100 → 25} A4758-1	<0.04	<0.04	*	*	0.971	*	50% Ag 5 ppm	97%
^{25 → 100} A4725-9	<0.02	<0.02	*	*	0.978	*	50% Ag 2 ppm	98%
^{100 → 25} A4703-1	<0.04	<0.04	*	*	0.987	*	50% Ag 2 ppm	99%

Analyst:

Michelle Savoe

QA/QC Approval:

DeAnna M. Seneay

QUALITY CONTROL LOG

Page: 2 of 2

Method of Analysis: EPA SW 846 : 7760 A.A.

Date/Time: Aug 30, 1990 1230

Internal Quality Control Duplicates and Spikes

[illegible]QA/QC Approval: D. Anna M. Senesi

ENSR Labs-Houston
QUALITY CONTROL LOG

Parameter: Arsenic - AS

Page: 1 of 2

Method of Analysis: SW-846; 7060 GFAA

Matrix: SOIL, TULP, WATER

Date/Time: 30 AUG 90/0730

Lab Numbers	Detection Limits	Calibration Stds./Blk	CONC./ABSORB	Check Standards	Concentration Found/True
A4725-770	1.25 mg/kg	BLANK	-0.0005 / 0.003	Sample Blank A4725-BLK	-0.0003 ppm
A4693-1T76T	0.005 mg/L	0.010 ppm	0.0092 / 0.044	Method Blank	-0.0005 ppm
A4731-1	↓	0.020 ppm	0.0190 / 0.090	P.E. Std. EPA 207.0-4	0.0244 / 0.0250 ppm
A4755-1T		0.050 ppm	0.0488 / 0.0200	CCV Internal Std. 0.025 ppm	0.0234 / 0.025 ppm
A4758-1				0.005 ppm	0.0045 / 0.005
A4761-1716				A4693-BLK	-0.0007
A4773-173				A4731-BK	-0.0002
		Correlation Coefficient:		A4761-BLK	-0.0004
		Comments:		A4773-BLK	-0.0002

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result	Sample Result	Spike Added	Percent Recovery
A4725-BLK	<0.005	—	—	—	0.0397	*	0.04	99
A4725-7	0.0171	0.0173	0.002	1.16	0.0326	0.085	50% of 0.05	96
A4693-BLK	<0.005	—	—	—	0.0391	*	0.04	98
A4693-1T	0.0321	—	—	—	0.0421	0.0160	50% of 0.05	104
A4693-2T	0.0211	—	—	—	0.0368	0.0106	↓	105
A4693-3T	0.0277	—	—	—	0.0380	0.0138	↓	97

on/for Approval: Dr Anna M. Senea

ENSR LABS-HOUSTON
QUALITY CONTROL LOG

PARAMETER: Arsenic - As DATE/TIME: 30 AUG 90 / 0730 PAGE 2 OF 2
INTERNAL QUALITY CONTROL DUPLICATES AND SPIKES

* BELOW MDL

LAB NO.- SAMPLE	SAMPLE CONC.	DUPLICATE CONC.	RANGE	PERCENT RPD	SPIKED RESULT	SAMPLE RESULT	SPIKE ADDED	PERCENT RECOVERY
A4693-4T	0.0135	—	—	—	0.0538	0.0135	0.04	101
A4693-5T	0.0177	—	—	—	0.0524	0.0177	↓	87
A4693-6T	<0.005	—	—	—	0.0254	*	50% 8 0.05	102
A4731-BLK	<0.005	—	—	—	0.0398	*	0.04	100
A4731-1	0.0071	0.0069	0.002	2.86	0.0490	0.0071	↓	105
A4755-1T	<0.005	—	—	—	0.0420	*	↓	105
A4758-1	0.008	—	—	—	0.0465	0.0080	↓	96
A4761-BLK	<0.005	—	—	—	0.0186	*	0.02	93
A4761-4	<0.005	<0.005	*	*	0.0206	↓	↓	103
A4761-14	<0.005	<0.005	*	*	0.0184	↓	↓	92
A4773-BLK	<0.005	—	—	—	0.0172	↓	↓	86
A4773-1	0.0957	0.0898	0.059	6.36	0.1370	0.0957	0.04	103

ANALYST: LEDR. McKelvey

QA/QC APPROVAL: DeAnna L. Sene

Date: 31 Aug 1990

ENSR Labs-Houston

Page 1 of 4Time: 0700ICAP Quality Control Logs
Method EPA SW-846:6010, 3rd Ed.

Calibration, Standard and Blank Information

Parameter	MDL	Zn	Pb	Cd	Ni	Cr	Be	Cu	Ba		
		0.04	0.100	0.04	0.04	0.04	0.04	0.04	0.04		
C A L I B R A T I O N	BLANK	0.001	-0.008	0.000	0.000	-0.001	0.000	0.001	-0.000		
	5.00 ppm	4.94	4.94	4.92	4.91	4.97	4.98	4.99	4.93		
	1.00 ppm	1.09	0.976	1.03	0.999	0.983	1.01	1.01	0.990		
	0.100 ppm	—	0.090	—	—	—	—	—	—		
	0.08 ppm	0.080	—	0.077	0.076	0.080	0.079	0.079	0.077		
	0.04 ppm	0.044	—	0.039	0.044	0.038	0.039	0.044	0.038		
S T D / B L K											

H E C K S T D	ERA #3	0.993 1.00	0.940 1.00	0.986 1.00	0.981 1.00	0.984 1.00	0.990 1.00	1.01 1.00	0.971 1.00		
										FOUND	
										TRUE	

S A M P L E B L A N K S	A4773-BLK	0.036	0.007	-0.000	-0.001	0.000	0.000	0.009	—		
	A4763-BLK	—	0.002	—	—	—	—	—	—		
	A4693-BLK	—	0.004	0.000	0.004	0.006	—	—	0.002		
	A4737-BLK	0.062	0.008	0.000	—	0.001	—	0.025	0.003		
	A4758-BLK	—	0.008	0.002	—	-0.000	—	—	0.002		
	A4762-BLK	0.002	-0.003	0.000	0.000	0.001	—	0.013	—		

APPROVED: *[Signature]* 08/01/90 Approval: *Dolanna M. Serey*

Date: 31 Aug 1990Time: 0700ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information

* Below MDL

Parameter MDL	Zn 0.04	Pb 0.100	Cd 0.04	Ni 0.04	Cr 0.04	Be 0.04	Cu 0.04	Ba 0.04		
A4773-BLK	0.036	0.007	-0.000	-0.001	0.000	0.000	0.009	T		
Duplicate	—	—	—	—	—	—	—	T		
% RPD	—	—	—	—	—	—	—	T		
Spike	1.00	0.909	0.087	0.900	0.174	0.084	0.211	T		
% Recovery	86%	91%	87%	90%	87%	84%	106%	↓		
A4773 - 3	T	0.013	0.000	T	0.006	0.000	0.011	T		
Duplicate	T	0.005	0.001	T	0.005	0.000	0.012	T		
% RPD	T	*	*	T	*	*	*	T		
Spike	T	0.874	0.090	T	0.191	0.087	0.226	T		
% Recovery	↓	87%	90%	↓	96%	87%	91%	↓		
A4743 - 2	T	T	T	T	T	T	T	106		
Duplicate	T	T	T	T	T	T	T	101		
% RPD	T	T	T	T	T	T	T	4.83		
Spike	T	T	T	T	T	T	T	103		
% Recovery	↓	↓	↓	↓	↓	↓	↓	106%		
A4743 - 13	T	0.638	T	T	T	T	T	T		
Duplicate	T	0.619	T	T	T	T	T	T		
% RPD	T	3.02	T	T	T	T	T	T		
Spike	T	1.64	T	T	T	T	T	T		
% Recovery	↓	100%	↓	↓	↓	↓	↓	↓		
A4763-BLK	T	0.002	T	T	T	T	T	T		
Duplicate	T	—	T	T	T	T	T	T		
% RPD	T	—	T	T	T	T	T	T		
Spike	T	0.885	T	T	T	T	T	T		
% Recovery	↓	88%	↓	↓	↓	↓	↓	↓		

Analyst: Michelle SavoreQAQC Approval: DeAnna M. Senega

Date: 31 Aug. 1990Time: 0700ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information

* Below ML

Parameter MDL	Zn 0.04	Pb 0.100	Cd 0.04	Ni 0.04	Cr 0.04	Ba 0.04	Cu 0.04	Ba 0.04		
²³ → ¹⁰⁰ A4763-3	—	2.63	—	—	—	—	—	—		
Duplicate	—	3.05	—	—	—	—	—	—		
% RPD	—	14.8	—	—	—	—	—	—		
Spike	—	3.64	—	—	—	—	—	—		
% Recovery	↓	101%	↓	↓	↓	↓	↓	↓		
²³ → ¹⁰⁰ A4693-BLK	—	0.004	0.000	0.004	0.006	—	—	0.002		
Duplicate	—	—	—	—	—	—	—	—		
% RPD	—	—	—	—	—	—	—	—		
Spike	—	0.862	0.087	0.899	0.183	—	—	—		
% Recovery	↓	86%	87%	90%	92%	↓	↓	—		
²³ → ¹⁰⁰ A4693-2	—	0.357	0.036	0.448	0.809	—	—	—		
Duplicate	—	0.414	0.036	0.409	0.814	—	—	—		
% RPD	—	14.8	0.00	9.10	0.616	—	—	—		
Spike	—	1.26	0.123	1.30	0.998	—	—	—		
% Recovery	↓	90%	87%	85%	94%	↓	↓	↓		
¹⁰⁰ → ²⁵ A4737-BLK	0.062	0.008	0.000	—	0.001	—	0.025	0.003		
Duplicate	—	—	—	—	—	—	—	—		
% RPD	—	—	—	—	—	—	—	—		
Spike BLK SPK	1.18	1.01	0.107	—	0.195	—	—	2.15		
% Recovery	93%	101%	107%	↓	98%	↓	—	108%		
A4731-1	—	0.001	0.000	—	—	—	—	0.065		
Duplicate	—	0.006	0.000	—	—	—	—	0.065		
% RPD	—	*	*	—	—	—	—	0.00		
Spike	—	1.09	0.109	—	—	—	—	2.23		
% Recovery	↓	109%	109%	↓	↓	↓	↓	98%		

Analyst:

Michelle Savvie

QA/QC Approval:

DeAnna M. Sene

Date: 31 Aug 1990ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike InformationTime: 0700

* Below MD

Parameter MDL	Zn 0.04	Pb 0.100	Cd 0.04	Ni 0.04	Cr 0.04	Be 0.04	Cu 0.04	Ba 0.04		
TCUP 100 → 25 A4755-1	—	0.002	-0.000	—	0.000	—	—	0.104		
Duplicate	—	0.004	0.000	—	0.003	—	—	0.099		
% RPD	—	*	*	—	*	—	—	4.93		
Spike	—	1.14	0.104	—	0.213	—	—	2.40		
% Recovery	↓	114%	104%	↓	106%	↓	↓	99%		
⊕ 100 → 25 A4758-BLK	—	0.008	0.002	—	-0.000	—	—	0.002		
Duplicate	—	—	—	—	—	—	—	—		
% RPD	—	—	—	—	—	—	—	—		
Spike BLK SPK	—	1.13	0.086	—	0.224	—	—	1.96		
% Recovery	↓	113%	86%	↓	112%	↓	↓	98%		
⊕ 100 → 25 A4758-1	—	0.009	0.001	—	0.029	—	—	0.104		
Duplicate	—	-0.002	0.002	—	0.030	—	—	0.105		
% RPD	—	*	*	—	3.39	—	—	0.956		
Spike	—	0.953	0.093	—	0.287	—	—	2.24		
% Recovery	↓	95%	93%	↓	86%	↓	↓	91%		
⊕ 100 → 25 A4762-BLK	0.002	-0.003	0.000	0.000	0.001	—	0.013	—		
Duplicate	—	—	—	—	—	—	—	—		
% RPD	—	—	—	—	—	—	—	—		
Spike BLK SPK	0.903	0.855	0.087	0.905	—	—	0.214	—		
% Recovery	90%	86%	87%	90%	—	↓	81%	↓		
100 → 25 A4762-1	—	0.005	0.000	0.000	0.001	—	0.008	—		
Duplicate	—	0.009	0.000	0.000	0.000	—	0.006	—		
% RPD	—	*	*	*	*	—	*	—		
Spike * Berch	—	* 2.29	0.089	0.911	0.183	—	* 2.39	—		
% Recovery	↓	92%	89%	91%	92%	↓	96%	↓		

Analyst: Michelle SavoirQAQC Approval: DeAnna M. Senega

ENSR Labs-Houston

QUALITY CONTROL LOG

Parameter: Mercury Hg

Method of Analysis: SW846-7470

Page: 1 of 2

Matrix: TELP, Water

Date/Time: 07 Sept. 90/1030

Lab Numbers	Detection Limits
A4758-1	0.001 mg/L
A4755-1T	
A4735-10T, 11T	
A4719-1T, 5T, 18T	
A4726-6T	
A4742-1T	
A4726-(1+2)	
A4731-2T	
A4732-(8+10T)	
A4773-(1+2)	
A4776-(1+3)	
	↓

Calibration Stds./Blk	Absorbance/Conc.
Blank	0.000 0.0000
0.002 ppm	0.018 0.0019
0.005 ppm	0.044 0.0048
0.010 ppm	0.087 0.0100
Correlation Coefficient:	

Comments:

Check Standards	Concentration Found/True
Sample Blank	ppm
Method Blank	0.0000 ppm
P.E. Std. 487-2	0.0081 0.0087 ppm
LCVS Internal Std.	0.0072 0.0077 ppm
0.001 ppm	0.0009 0.001 ppm

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result	Sample Result	Spike Added	Percent Recovery
Blank	<0.001 mg/L				0.0050	*	0.005	100%
A4758-1	0.0040	0.0038	0.0002	5.13%				
A4735-11T	<0.001				0.0041	*	0.005	82%
A4719-1T	<0.001				0.0046	*	50% of 0.010	92
A4719-5T	<0.001				0.0048	*	50% of 0.010	96%
A4719-18T	<0.001	<0.001	*	*	0.0048	*	0.005	96%

Analyst: Jane G. Walter

QA/QC Approval: Delanna M. Perry

ENSR LABS-HOUSTON
QUALITY CONTROL LOG

PARAMETER: Mercury Hg DATE/TIME: 07 Sept. 90 / 1030 PAGE 2 OF 2
INTERNAL QUALITY CONTROL DUPLICATES AND SPIKES

* BELOW MDL

LAB NO. - SAMPLE	SAMPLE CONC.	DUPLICATE CONC.	RANGE	PERCENT RPD	SPIKED RESULT	SAMPLE RESULT	SPIKE ADDED	PERCENT RECOVERY
A4726-6T	<0.001	_____	_____	_____	0.0041	*	0.005	82%
A4742-1T	<0.001	_____	_____	_____	0.0044	*	0.005	88
A4726-1T	'	_____	_____	_____	0.0042	*	50% of 0.010	84
A4726-2T		<0.0010	*	*	0.0043	*	0.005	86%
A4726-3T		_____	_____	_____	0.0041	*	0.005	82%
A4726-4T		_____	_____	_____	0.0044	*	0.005	88
A4726-5T		_____	_____	_____	0.0042	*	50% of 0.010	84
A4731-2T	✓	<0.001	*	*	0.0046	*	0.005	92
A4732-8T	0.0012	_____	_____	_____	0.0057	0.0006	50% of 0.010	90
A4732-10T	0.0027	_____	_____	_____	0.0063	0.00135	50% of 0.010	99
A4732-9T	<0.001	_____	_____	_____	0.0052	*	50% of 0.010	104
A4773-2	0.0030	_____	_____	_____	0.0081	0.0030	0.005	102
A4776-2	<0.001	<0.001	*	*	0.0048	*	50% of 0.010	96
A4755-1T	<0.001	<0.001	*	*	0.0044	*	0.005	88

ANALYST: Jane Mather

QA/QC APPROVAL: DeAnna M. Pen

QUALITY CONTROL LOG

Parameter: Se SeleniumPage: 1 of 1Method of Analysis: EPA SW-846 7740 GFAMatrix: LiquidDate/Time: 7 Sept 90 0800

Lab Numbers	Detection Limits	Calibration Stds./Blk	Absorbance/Conc.	Check Standards	Concentration Found/True
A4731-1	0.002 ^{ng/L}	BLANK	-0.001/0.0008	Sample Blank A4731	0.0006 ppm
A4773-1-23	0.002 ^{ng/L}	0.010 ppm	0.022/0.0107	Method Blank 1	0.0008 ppm
A4758-1	0.002 ^{ng/L}	0.020 ppm	0.043/0.0194	P.E. Std. ECAP19E114C	0.0242 ppm 0.025 ppm
A4755-1	0.005 ^{ng/L}	0.050 ppm	0.088/0.0517	Internal Std. 0.025 ppm	0.0251 ppm 0.0250 ppm
				0.005 ppm	0.0047 ppm
				0.002 ppm	0.0018 ppm
		Correlation Coefficient:			
		Comments:			

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result	Sample Result	Spike Added	Percent Recovery
A4731-1	<0.002	<0.002	*	*	0.0244	*	50% SB 0.050 ppm	98%
A4773-1	<0.002	<0.002	*	*	0.0214	*	50% SB 0.050 ppm	86%
A4758-1	<0.002	<0.002	*	*	0.0266	*	50% SB 0.050 ppm	106%
TCUP 50-50 A4755-1	<0.005	<0.005	*	*	0.0235	*	+0.020	118%

Analyst: Michelle SavoreQA/QC Approval: DeAnna M. Sene

Time: 0730ICAP Quality Control Logs
Method EPA SW-846:6010, 3rd Ed.

Calibration, Standard and Blank Information

Parameter	MDL	Pb	Cd	Ni	Cr	Ba					
		0.100	0.04	0.08	0.08	0.08					
C A L I B R A T I O N	BLANK	0.004	-0.000	0.002	0.001	-0.000					
	5.00 ppm	5.00	5.01	4.99	5.03	4.94					
	1.00 ppm	1.03	1.02	1.00	1.00	0.975					
	0.100 ppm	0.094	—	—	—	—					
	0.08 ppm	—	0.082	0.077	0.081	0.075					
	0.04 ppm	—	0.038	0.036	0.040	0.037					
S T D / B L K											

CHECK	ERA # 3	0.988	0.996	0.983	1.00	0.962					
		1.00	1.00	1.00	1.00	1.00					
S T D			Found								
			TRUE								

S A M P L E	TCLP 106-725										
	A4755-BLK	0.006	—	—	—	—					
	23 → 100										
	A4693-BLK	—	—	0.003	—	—					
	TCLP BLK FL1	0.002	-0.000	—	0.006	0.001					
	TCLP BLK FL2	0.007	0.000	—	0.003	0.000					
B L A N K											

Analyst: Michelle Lanni QA/QC Approval: DoAnn M. Senegal

Date: 10 Sept 90Time: 0730ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information

* Below M

Parameter MDL	Pb 0.100	Cd 0.04	Ni 0.05	Cr 0.08	Ba 0.08					
A4755-BLK	0.006									
Duplicate	—									
% RPD	—									
Spike BLK SPK	0.873									
% Recovery	87%									
-4T	0.048									
Duplicate	—									
% RPD	—									
Spike	1.06									
% Recovery	87%									
-5T	0.004									
Duplicate	—									
% RPD	—									
Spike	1.04									
% Recovery	104%									
-6T	0.054									
Duplicate	0.053									
% RPD	1.87									
Spike	1.26									
% Recovery	104%									
-7T	0.072									
Duplicate	—									
% RPD	—									
Spike	1.25									
% Recovery	96%									

Analyst: Michelle SavoniQAQC Approval: DeAnna M. Penegal

Date: 10 Sept 90Time: 0730ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information

* Below MDL

Parameter	Pb	Cd	Ni	Cr	Ba					
MDL	0.100	0.04	0.08	0.08	0.08					
TEL 100-25 A4755-8T	0.105									
Duplicate	—									
% RPD	—									
Spike	1.35									
% Recovery	93%									
-9T	0.043									
Duplicate	—									
% RPD	—									
Spike	1.07									
% Recovery	90%									
TEL 100-25 A4693-BLK			0.003							
Duplicate			—							
% RPD			—							
Spike BLK SPK			0.855							
% Recovery			86%							
TEL 100-25 A4693-6			1.14							
Duplicate			—							
% RPD			—							
Spike Bench			2.85							
% Recovery			91%							
TEL 100-25 A4731-1				0.002						
Duplicate				0.002						
% RPD				*						
Spike				0.206						
% Recovery				103%						

Analyst:

Michelle Savari

QAQC Approval:

DeAnna M. Senegal

Date: 10 Sept 90Time: 0730

ICAP Quality Control Logs
 Method SW-846-3rd Ed., #6010
 Duplicate and Spike Information

* Below M

Parameter MDL	Pb n.100	Cd 0.04	Ni 0.08	Cr 0.08	Ba 0.08					
TCLP100 → 25 BLANK FLUID 1	0.002	-0.000	—	0.006	0.001					
Duplicate	—	—	—	—	—					
% RPD	—	—	—	—	—					
Spike 3uL SPK	0.876	0.094	—	0.197	—					
% Recovery	88%	94%	✓	98%	—					
TCLP100 → 25 BLANK FLUID 2	0.007	0.000	—	0.003	0.000					
Duplicate	—	—	—	—	—					
% RPD	—	—	—	—	—					
Spike	—	0.101	—	0.171	1.85					
% Recovery	—	101%	✓	86%	92%					
Duplicate										
% RPD										
Spike										
% Recovery										
Duplicate										
% RPD										
Spike										
% Recovery										
Duplicate										
% RPD										
Spike										
% Recovery										

Analyst: Michelle SavoreQAQC Approval: DeAnna M. Senegal

ENSR Labs-Houston

QUALITY CONTROL LOG

Parameter: Total Petroleum Hydrocarbons - Water

Page: 1 of 1

Method of Analysis: EPA 600/4181

Matrix: water

Date/Time: 9-6-90/1300

Lab Numbers	Detection Limits	Calibration Stds./Blk	Absorbance/Conc.	Check Standards	Concentration Found/True
A4782(13-5)	4 mg/l	2.1	0.0740/1.96	Sample Blank	
A4784-1	40 mg/l	4.2	0.0986/3.80	Method Blank	Abs. 0.0159
A4786-9	4 mg/l	8.5	0.1532/7.88	P.E. Std.	
A4793-5	4 mg/l	17.0	0.2953/18.5	Internal Std.	25.2/21.3
A4800-35	15 mg/l	42.5	0.6088/41.9	IS 21.3	24.7/21.3
A4755-1	4 mg/l	IS 21.3	0.3852/25.2		
		Correlation Coefficient: 0.9986			
		Comments:			
		Insufficient sample for further OC.			
		3ms 9/7/90			

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result (mg)	Sample Result (mg)	Spike Added (mg)	Percent Recovery (mg)
Water-spik					21.8	22	21.3	102%
Water-spik					21.2	22	21.3	100%
Water-spik	21.8	21.2	0.6	2.8%				

Analyst: Eric A. Edwards

QA/QC Approval: Dr. Anna M. Penney

ENSR Labs-Houston
QUALITY CONTROL LOG

Parameter: Total Petroleum Hydrocarbon-Soil
Method of Analysis: EPA 401.1 SW846:9071

Page: 1 of 1
Matrix: Soil
Date/Time: 9-6-90/1300

Lab Numbers	Detection Limits	Calibration Stds./Blk	Absorbance/Conc.	Check Standards	Concentration Found/True
A4733(6-7)	40 ms/kg	2.1	0.0740/196	Sample Blank	
A4733(9,10)	90 ms/kg	4.2	0.0996/3.80	Method Blank	Abs. 0.0194
A4733(11,14)	210 ms/kg	8.5	0.1532/7.88	P.E. Std.	
A4733-12	80 ms/kg	17.0	0.2953/18.5	Internal Std.	25.2/21.3
A4733-15	740 ms/kg	42.5	0.6088/41.9	IS 21.3	24.5/21.3
A751-2	360 ms/kg	IS 21.3	0.3052/25.2		
A4755(2,3)	40 ms/kg	Correlation Coefficient: 0.9986			
A4755(4,5)	400 ms/kg	Comments:			
A4755(6,7)	0.20%				
A4755-8	770 ms/kg				
A4755-9	0.08%				

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result (mg)	Sample Result (mg)	Spike Added (mg)	Percent Recovery (mg)
A4733-1	<40	<40	*	*	7.7	<2	8.5	90%
A4733-15	9810	10159	349	3.5%	←	Diluted out		→
A4751-2	6717	6223	494	7.6%	←	Diluted out		→
A4755-3	58	73	15	22.9%	10.1	1.5	8.5	101%

Analyst:

Erick Medina

QA/QC Approval:

Diana M. Senega

ENSR CONSULTING AND ENGINEERING-HOUSTON LABORATORY
QUALITY CONTROL LOG
SH 846: 8020; BTEX ANALYSIS

LABORATORY NO: A4755

LAB ID	SPIKED AMT (UG)	CALC AMT (UG)	PERCENT RECOVERY (75-125%)
CC083090	30	32.52	108
MB083090	30	36.61	122
4	30	159.83	533*
5	30	143.00	477*
6	30	326.59	1089*
7	30	420.72	1402*
8	30	378.71	1262*
9	30	279.35	931*

BLANK ANALYSIS DATE: 8/30/90

NO BTEX DETECTED AT STATED METHOD
DETECTION LIMITS

COMMENTS:

**outside surrogate recovery due
to extremely high background in
samples*

AL Benman 9-6-90
ANALYST SIGNATURE DATE

Wallace Doong 9/7/90
QA/QC COORDINATOR DATE

ENSR

Formerly ERT

DATE: 09/13/90

TO: Jim Baker

FROM: Bo Blankfield, Laboratory Director

PROJ. NO.: 3519-003-135 LAB NO.: A4746

ENSR Consulting
and Engineering
3000 Richmond Avenue
Houston, Texas 77098
(713) 520-9900

Attached are reports of chemical analyses of samples received August 25, 1990. These analyses are:

Count	Test Code	Test Name	Test Method	Sampled	Matrix
7	BENZ -S- -HOU	BENZENE ON SOLID	EPA SW-846: 8020, GC	08/24/90	SOIL
7	EB -S- -HOU	ETHYL BENZENE ON SOLID	EPA SW-846: 8020, GC	08/24/90	SOIL
7	Pb - -TCL-HOU	TCLP LEAD	EPA SW-846: 6010, ICP		TCLP EXT
7	TOL -S- -HOU	TOLUENE ON SOLID	EPA SW-846: 8020, GC	08/24/90	SOIL
10	TPH -S- -HOU	TOTAL PET. HYDROCARBONS/SOLID	EPA 600/418.1, SW-846:9071	08/24/90	SOIL
7	XYL -S- -HOU	XYLENE ON SOLID	EPA SW-846: 8020, GC	08/24/90	LIQUID/* SOIL

Data contained in this report reflect a full quality control review and have met all applicable standards established by ENSR. ENSR quality assurance protocols are in accordance with EPA guidelines.

Should you have any questions, do not hesitate to contact me at (713) 520-9900.

BB/lis

Enclosures: Analytical Summary, Analytical Report, Chain of Custody, Sample Receipt Checklist, Quality Control Logs, Billing Summary

cc: Darlene Venable, Steve Beck

LAB NO. A4746

PROJECT 3519-003-135 Homco - Hobbs, New Mexico

Project no. 3514-003-135		Client/Project Name Hono			Project Location Hobbs, N.M.				
Lab ID No	Field Sample No./ Identification	Date and Time	gpc	gpc	Sample Container (Size/Mat'l)	Sample Type (Liquid Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
	Dupe #5	8/24		X	4oz TAIL	Soil	4C	BTEX	
	UHT #1-A1-C	0915		X	8oz 55um			TPH (Rush)	
				X	16oz Amber			TCLP Pb (Rush)	
				X	32oz Amber			TCLP Benzene (Hold)	SAMPLES NOT RECD - WRONG ZIP CODE ON FID
				X	4oz TAIL			BTEX (Rush)	EX SHIP
	UHT #1-B2-A	0955		X	8oz 55um			TPH (Rush)	DB 8/25
				X	16oz Amber			TCLP Pb (Rush)	
				X	32oz Amber			TCLP Benzene (Hold)	
				X	4oz TAIL			BTEX (Rush)	
	UHT #1-B2-B	1005		X	8oz 55um			TPH (Rush)	

Sampers: (Signature) Steve Beck		Relinquished by: (Signature) [Signature]		Date: 8/25/90 Time: 1000	Received by: (Signature)	Date: [Signature] Time: [Signature]	COC Seal No. 37940 37938 37941
Affiliation ENSR		Relinquished by: (Signature)		Date: [Signature] Time: [Signature]	Received by: (Signature)	Date: [Signature] Time: [Signature]	
REMARKS:		Relinquished by: (Signature)		Date: [Signature] Time: [Signature]	Received by: (Signature)	Date: [Signature] Time: [Signature]	
		Data Results To:		1. [Signature]	Intact:		
				2. [Signature]			

Laboratory No.
A4746

Project no.

3519-003-135

Client/Project Name

Homco

Project Location

Hobbs, N.M.

Lab ID No	Field Sample No./ Identification	Date and Time	Q	Q	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
1	WT 1-82-B	8/24/80	X	X	16oz Amber	Soil	4c	TCLP Pb (Rush)	
1			X	X	32oz Amber			TCLP Benzene (Hold)	
1			X	X	4oz Tall			BTEX (Rush)	
2	WT 1-83-A	1045	X	X	8oz 55mm	Soil		TPH (Rush)	
2			X	X	16oz Amb			TCLP Pb (Rush)	
2			X	X	32oz Amb			TCLP Benzene (Hold)	
2			X	X	4oz Tall			BTEX (Rush)	
3	Page #6		X	X	8oz 55mm			TPH ✓	NOT REC'D 8/25 7:05 PM - NOT REC'D 8/27 10:00 AM. TOOK ST. FROM BTEX CONTAINER. BTEX
3			X	X	16oz Amb			TCLP Pb	
3			X	X	32oz Amb			TCLP Benzene (Hold)	

Samplers: (Signature)

Steve Beck

Affiliation

ENSR

Relinquished by: (Signature)

[Signature]

Relinquished by: (Signature)

[Signature]

Relinquished by: (Signature)

[Signature]

Date:

Time:

Date:

Time:

Date:

Time:

Received by: (Signature)

[Signature]

Received by: (Signature)

[Signature]

Received by Laboratory: (Signature)

[Signature]

Date Results To:

1. Jim Baker

2. Darlene Venable

REMARKS:

Laboratory No.

44746

COC Seal No.

37440

37938

37941

Date:

Time:

Date:

Time:

Date:

Time:

Project no.		Client/Project Name				Project Location		LABORATORY REMARKS	
3519-003-135		Homco				Hobbs, N.M.			
Lab ID No	Field Sample No./ Identification	Date and Time	Sample Container (Size/Mat'l)	Sample Type (Liquid Sludge, Etc.)	Preservative	ANALYSIS REQUESTED			
3519-003-135-001	Dupe #6	8/24	40Z TAIL	Soil	4°C	BTEx			
3519-003-135-002	UHT #1-B3-B	1100	80Z 55Wm			TPH (Rush)			
3519-003-135-003			160Z Amber			TCLP Pb (Rush)			
3519-003-135-004			320Z Amber			TCLP Benzene (Hold)			
3519-003-135-005			40Z TAIL			BTEx (Rush)			
3519-003-135-006	LP-B1	1140	80Z 55Wm			TPH (Rush)			
3519-003-135-007			160Z Amber			TCLP Pb (Rush)			
3519-003-135-008			320Z Amber			TCLP Benzene (Hold)			
3519-003-135-009			40Z TAIL			BTEx (Rush)			
3519-003-135-010	HGS-9-CC	1220	80Z 55Wm			TPH			

Samplers: (Signature)	Date: 8/25	Received by: (Signature)	Date: 8/25	COC Seal No. 37940
Steno Back	Time: 1000		Time: 1000	37938
	Date: 8/25	Received by: (Signature)	Date: 8/25	37941
Affiliation ENSR	Time: 1100	Received by Laboratory: (Signature) [Signature]	Date: 8/25	Intact:
		Data Results To:	Time: 1100	
REMARKS:		Laboratory No. A4746		
		1. Jim Baker		
		2. Darlene Venable		

ENSR
LABORATORIES

CONSULTING AND ENGINEERING

2925 RICHMOND AVENUE HOUSTON, TX 77098 (713) 520-1495

Analysis Request and Chain of Custody Record

Project no.			Client/Project Name			Project Location		ANALYSIS REQUESTED	LABORATORY REMARKS
Lab ID No	Field Sample No./ Identification	Date and Time	Lab ID No	Sample Container (Size/Mat'l)	Sample Type (Liquid Sludge, Etc.)	Preservative			
3519-003-135			Homco			Hobbs, N.M.			
7	Dupe #7	8/24	X	8oz 5gum	Soil	402	TPH	(Hold) (Rush)	
7			X	16oz Amb			TCLP Pb	(Rush) (Rush)	
7			X	32oz Amb			TCLP Benzene	(Hold)	
7			X	402 TALL			BTX	angel requests (Rush)	
8	LP-B2	1210	X	8oz 5gum			TPH	(Rush)	
8			X	16oz Amber			TCLP Pb	(Rush)	
8			X	32oz Amber			TCLP Benzene	(Hold)	
8			X	402 TALL			BTEX	(Rush)	
9	UHT-W0-L	1205	X	16oz Amb	Liquid		TPH	(Rush)	
10	LP-W0-1	1240	X	16oz Amb	Liquid		TPH	(Rush)	
Samplers: (Signature) Steve Beck			Relinquished by: (Signature) [Signature]			Date: 8/25/90 Time: 1000		Received by: (Signature) [Signature]	
Affiliation ENSR			Relinquished by: (Signature) [Signature]			Date: [blank] Time: [blank]		Received by: (Signature) [Signature]	
REMARKS:			Relinquished by: (Signature) [Signature]			Date: [blank] Time: [blank]		Received by: (Signature) [Signature]	
Data Results To:			1. Jim Baker			Date: 8/25/90 Time: 1100		Intact:	
Laboratory No.			A4746			Date: [blank] Time: [blank]		Laboratory No.	



ENSR LABORATORIES ©
SAMPLE RECEIPT CHECKLIST

Client Horne Project Number 319-003-135 Laboratory Number A4746

- 1 ☒ Shipped
☐ Hand Delivered
- 2 ☒ COC Present on Receipt
☐ No COC
- 3 ☒ COC Tape on Shipping Container
☐ No COC Tape on Shipping Container
- 4 ☐ Samples Broken/Leaking

Notes: FED Ex A/B 5324792912

Notes: 5. Bent hand delivered 8/25

Notes: Seal # 37941, 38

Notes: _____

Notes: _____

- ☒ Sample Intact on Receipt
☐ Other (See Notes)

Intact

- 5 ☐ Ambient on Receipt
☒ Chilled on Receipt

Notes: _____

- 6 ☒ Samples Preserved Correctly
☐ Improper Preservatives
☐ N/A (None Recommended)
☐ Other (See Notes)

Notes: See 9 notes

- 7 ☒ Received Within Holding Time
☐ Not Received Within Holding Time
☐ N/A (None Recommended)
☐ Other (See Notes)

Notes: _____

- 8 ☐ COC Tapes on Samples
☒ No COC Tapes on Samples

Notes: _____

- 9 ☐ Discrepancies Between COC and Sample Labels
☒ No Discrepancies Noted
☐ N/A (No COC Received)

Notes: LAB ID 9410 notes matrix

as liquid - matrix is only waste
& therefore does not require positive

Additional Comments: Original COC was 6pgs. 1 copied of
samples did not apply to LAB therefore assigned a
different LAB #. FED Ex Reference # 0825002707, DB
LAB ID 3 TPH. Water'd 8/25 or 8/27. Took Aliquot from BTEX container.

Inspected and Logged in by: Debra Brown

Date/Time 8/25/90
1100

ENSR Labs-Houston

Analytical Summary

09/17/90 12:51

Lab Number: A4746
Project: 3519-003-135
Homco - Hobbs, New Mexico

Lab ID Field ID Test /Matrix	1 UHT #1-B2-B SOIL	2 UHT #1-B3-A SOIL	3 DUPE #6 SOIL	4 UHT #1-B3-B SOIL	5 LP-B1 SOIL	6 HGS-9-CC SOIL	7 DUPE #7 SOIL	8 LP-B2 SOIL
BENZ -S- -HOU (MDL)	<250 UG/KG (250)	<125 UG/KG (125)	<125 UG/KG (125)	<125 UG/KG (125)	<125 UG/KG (125)	--	<125 UG/KG (125)	<125 UG/KG (125)
EB -S- -HOU (MDL)	5700 UG/KG (250)	150 UG/KG (125)	230 UG/KG (125)	<125 UG/KG (125)	1000 UG/KG (125)	--	590 UG/KG (125)	470 UG/KG (125)
TOL -S- -HOU (MDL)	360 UG/KG (250)	<125 UG/KG (125)	<125 UG/KG (125)	<125 UG/KG (125)	290 UG/KG (125)	--	<125 UG/KG (125)	<125 UG/KG (125)
TPH -S- -HOU (MDL)	2.2 PERCENT (0.20)	230 MG/KG (40)	68 MG/KG (40)	66 MG/KG (40)	3200 MG/KG (190)	650 MG/KG (40)	3300 MG/KG (190)	3800 MG/KG (380)
XYL -S- -HOU (MDL)	12000 UG/KG (250)	<125 UG/KG (125)	<125 UG/KG (125)	<125 UG/KG (125)	3000 UG/KG (125)	--	1500 UG/KG (125)	880 UG/KG (125)

Signatures of approval indicate quality assurance-quality control verification of analytical results, billing and enclosed documentation.

Approvals: James M. Dool Date: 9/13/90 Brenda P. Smith Date: 9/18/90

***** CONTINUED *****

ENSR

ENSR Labs-Houston

Analytical Summary
09/13/90 13:02

Lab Number: A4746
Project: 3519-003-135
Homco - Hobbs, New Mexico

Lab ID Field ID Test /Matrix	9 UHT-WD- L LIQUID/*	10 LP-WD-1 LIQUID/*	1T UHT #1- B2-B/ TCLP TCLP EXT	2T UHT #1- B3-A/ TCLP TCLP EXT	3T DUPE #6/ TCLP TCLP EXT	4T UHT #1- B3-B/ TCLP TCLP EXT	5T LP-B1/ TCLP TCLP EXT	7T DUPE #7/ TCLP TCLP EXT
Pb - -TCL-HOU (MDL)	--	--	0.1 MG/L (0.025)	<0.025 MG/L (0.025)	<0.025 MG/L (0.025)	<0.025 MG/L (0.025)	<0.025 MG/L (0.025)	<0.025 MG/L (0.025)
TPH -S- -HOU (MDL)	78 PERCENT (5.3)*	29 PERCENT (2.5)*	--	--	--	--	--	--

* Please see attached Analytical Report for remarks.

Signatures of approval indicate quality assurance-quality control verification of analytical results, billing and enclosed documentation.

Approvals: *[Signature]* Date: 9/13/90 *[Signature]* Date: 9/13/90

***** CONTINUED *****

ENSR

ENSR Labs-Houston

Analytical Summary

09/13/90 13:02

Lab Number: A4746	
Project: 3519-003-135	
Homco - Hobbs, New Mexico	
Lab ID	8T
Field ID	LP-B2/ TCLP
Test /Matrix	TCLP EXT
Pb - -TCL-HOU	<0.025 MG/L
(MDL)	(0.025)

Signatures of approval indicate quality assurance-quality control verification of analytical results, billing and enclosed documentation.

Approvals: Joann. Reed Date: 9/13/90 Frederic P. Lewis Date: 9/13/90

ENSR

ENSR Labs-Houston

Analytical Report

09/13/90 08:43

Romco - Hobbs, New Mexico		Field ID: UHT #1-B2-B	Date Sampled: 08/24/90	
Proj. No.: 3519-003-135		Lab ID: 1	Time Sampled: 1005	
Lab No.: A4746		Matrix: SOIL (COMPOSITE)	Date Received: 08/25/90	
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
BENZ -S- -HOU BENZENE ON SOLID EPA SW-846: 8020, GC	<250	UG/KG	250	08/27/90
EB -S- -HOU ETHYL BENZENE ON SOLID EPA SW-846: 8020, GC	5700	UG/KG	250	08/27/90
TOL -S- -HOU TOLUENE ON SOLID EPA SW-846: 8020, GC	360	UG/KG	250	08/27/90
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	2.2	PERCENT	0.20	09/10/90 1100
NYL -S- -HOU NYLONE ON SOLID EPA SW-846: 8020, GC	12000	UG/KG	250	08/27/90

ENSR Labs-Houston

Analytical Report
09/17/90 12:50

Homco - Hobbs, New Mexico	Field ID: UHT #1-B3-A	Date Sampled: 08/24/90
Proj. No.: 3519-003-135	Lab ID: 2	Time Sampled: 1045
Lab No.: A4746	Matrix: SOIL (COMPOSITE)	Date Received: 08/25/90

(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
BENZ -S- -HOU BENZENE ON SOLID EPA SW-846: 8020, GC	<125	UG/KG	125	08/28/90
EB -S- -HOU ETHYL BENZENE ON SOLID EPA SW-846: 8020, GC	150	UG/KG	125	08/28/90
TOL -S- -HOU TOLUENE ON SOLID EPA SW-846: 8020, GC	<125	UG/KG	125	08/28/90
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	230	MG/KG	40	09/10/90 1100
-S- -HOU XYLENE ON SOLID EPA SW-846: 8020, GC	<125	UG/KG	125	08/28/90

ENSR Labs-Houston

Analytical Report

09/13/90 08:43

Homco - Hobbs, New Mexico
 Proj. No.: 3519-003-135
 Lab No.: A4746

Field ID: DUPE #6
 Lab ID: 3
 Matrix: SOIL

Date Sampled: 08/24/90
 Time Sampled:
 Date Received: 08/25/90

(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
BENZ -S- -HOU BENZENE ON SOLID EPA SW-846: 8020, GC	<125	UG/KG	125	08/27/90
EB -S- -HOU ETHYL BENZENE ON SOLID EPA SW-846: 8020, GC	230	UG/KG	125	08/27/90
TOL -S- -HOU TOLUENE ON SOLID EPA SW-846: 8020, GC	<125	UG/KG	125	08/27/90
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	68	MG/KG	40	09/10/90 1100
XL -S- -HOU XYLENE ON SOLID EPA SW-846: 8020, GC	<125	UG/KG	125	08/27/90

ENSR Labs-Houston

Analytical Report

09/13/90 13:03

Homco - Hobbs, New Mexico		Field ID: UHT #1-B3-B	Date Sampled: 08/24/90	
Proj. No.: 3519-003-135		Lab ID: 4	Time Sampled: 1100	
Lab No.: A4746		Matrix: SOIL (COMPOSITE)	Date Received: 08/25/90	
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
BENZ -S- -HOU BENZENE ON SOLID EPA SW-846: 8020, GC	<125	UG/KG	125	08/27/90
EB -S- -HOU ETHYL BENZENE ON SOLID EPA SW-846: 8020, GC	<125	UG/KG	125	08/27/90
TOL -S- -HOU TOLUENE ON SOLID EPA SW-846: 8020, GC	<125	UG/KG	125	08/27/90
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	66	MG/KG	40	09/10/90 1100
XL -S- -HOU XYLENE ON SOLID EPA SW-846: 8020, GC	<125	UG/KG	125	08/27/90

ENSR Labs-Houston

Analytical Report

09/13/90 08:43

Homco - Hobbs, New Mexico	Field ID: LP-B1	Date Sampled: 08/24/90
Proj. No.: 3519-003-135	Lab ID: 5	Time Sampled: 1140
Lab No.: A4746	Matrix: SOIL (COMPOSITE)	Date Received: 08/25/90

(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
BENZ -S- -HOU BENZENE ON SOLID EPA SW-846: 8020, GC	<125	UG/KG	125	08/30/90
EB -S- -HOU ETHYL BENZENE ON SOLID EPA SW-846: 8020, GC	1000	UG/KG	125	08/30/90
TOL -S- -HOU TOLUENE ON SOLID EPA SW-846: 8020, GC	290	UG/KG	125	08/30/90
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	3200	MG/KG	190	09/10/90 1100
X -S- -HOU XYLENE ON SOLID EPA SW-846: 8020, GC	3000	UG/KG	125	08/30/90

ENSR Labs-Houston

Analytical Report
09/13/90 08:43

Homco - Hobbs, New Mexico	Field ID: HGS-9-CC	Date Sampled: 08/24/90
Proj. No.: 3519-003-135	Lab ID: 6	Time Sampled: 1220
Lab No.: A4746	Matrix: SOIL (GRAB)	Date Received: 08/25/90

(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	650	MG/KG	40	09/10/90 1100

ENSR Labs-Houston

Analytical Report
09/13/90 08:44

Homco - Hobbs, New Mexico		Field ID: DUPE #7	Date Sampled: 08/24/90	
Proj. No.: 3519-003-135		Lab ID: 7	Time Sampled:	
Lab No.: A4746		Matrix: SOIL (COMPOSITE)	Date Received: 08/25/90	
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
BENZ -S- -HOU BENZENE ON SOLID EPA SW-846: 8020, GC	<125	UG/KG	125	08/28/90
EB -S- -HOU ETHYL BENZENE ON SOLID EPA SW-846: 8020, GC	590	UG/KG	125	08/28/90
TOL -S- -HOU TOLUENE ON SOLID EPA SW-846: 8020, GC	<125	UG/KG	125	08/28/90
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	3300	MG/KG	190	09/10/90 1100
XL -S- -HOU XYLENE ON SOLID EPA SW-846: 8020, GC	1500	UG/KG	125	08/28/90

ENSR Labs-Houston

Analytical Report

09/13/90 08:44

Homco - Hobbs, New Mexico
 Proj. No.: 3519-003-135
 Lab No.: A4746

Field ID: LP-B2

Lab ID: 8

Matrix: SOIL

Date Sampled: 08/24/90

Time Sampled: 1210

(COMPOSITE) Date Received: 08/25/90

(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
BENZ -S- -HOU BENZENE ON SOLID EPA SW-846: 8020, GC	<125	UG/KG	125	08/29/90
EB -S- -HOU ETHYL BENZENE ON SOLID EPA SW-846: 8020, GC	470	UG/KG	125	08/29/90
TOL -S- -HOU TOLUENE ON SOLID EPA SW-846: 8020, GC	<125	UG/KG	125	08/29/90
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	3800	MG/KG	380	09/10/90 1100
XL -S- -HOU XYLENE ON SOLID EPA SW-846: 8020, GC	880	UG/KG	125	08/29/90

ENSR Labs-Houston

Analytical Report

09/13/90 08:44

Homco - Hobbs, New Mexico
Proj. No.: 3519-003-135
Lab No.: A4746

Field ID: UHT-WD-L
Lab ID: 9
Matrix: LIQUID/* (GRAB)

Date Sampled: 08/24/90
Time Sampled: 1205
Date Received: 08/25/90

(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	78 *1	PERCENT	5.3	09/10/90 1100

*1 *MATRIX CONT.: OILY WASTE

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ENSR Labs-Houston

Analytical Report

09/13/90 08:44

Homco - Hobbs, New Mexico	Field ID: LP-WD-1	Date Sampled: 08/24/90
Proj. No.: 3519-003-135	Lab ID: 10	Time Sampled: 1240
Lab No.: A4746	Matrix: LIQUID/* (GRAB)	Date Received: 08/25/90

(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
TPH -S- -HOU TOTAL PET. HYDROCARBONS/SOLID EPA 600:418.1, SW-846:9071	29 *1	PERCENT	2.5	09/10/90 1100

*1 *MATRIX CONT.: OILY WASTE

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ENSR Labs-Houston

Analytical Report

09/13/90 08:44

Homco - Hobbs, New Mexico
Proj. No.: 3519-003-135
Lab No.: A4746

Field ID: UHT #1-B2-B/TCLP
Lab ID: 1T
Matrix: TCLP EXT

Date Sampled: / /
Time Sampled:
Date Received: 08/25/90

(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
Pb - -TCL-HOU TCLP LEAD EPA SW-846: 6010, ICP	0.1	MG/L	0.025	09/07/90 800

ENSR Labs-Houston

Analytical Report

09/13/90 08:44

Homco - Hobbs, New Mexico	Field ID: UHT #1-B3-A/TCLP	Date Sampled: / /
Proj. No.: 3519-003-135	Lab ID: 2T	Time Sampled:
Lab No.: A4746	Matrix: TCLP EXT	Date Received: 08/25/90

(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
Pb - -TCL-HOU TCLP LEAD EPA SW-846: 6010, ICP	<0.025	MG/L	0.025	09/07/90 800

ENSR Labs-Houston

Analytical Report
09/13/90 08:44Homco - Hobbs, New Mexico
Proj. No.: 3519-003-135
Lab No.: A4746Field ID: DUPE #6/TCLP
Lab ID: 3T
Matrix: TCLP EXTDate Sampled: / /
Time Sampled:
Date Received: 08/25/90

(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
Pb - -TCL-HOU TCLP LEAD EPA SW-846: 6010, ICP	<0.025	MG/L	0.025	09/07/90 800

ENSR Labs-Houston

Analytical Report
09/13/90 08:44

Homco - Hobbs, New Mexico		Field ID: UHT #1-B3-B/TCLP	Date Sampled: / /	
Proj. No.: 3519-003-135		Lab ID: 4T	Time Sampled:	
Lab No.: A4746		Matrix: TCLP EXT	Date Received:08/25/90	
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
Pb - -TCL-HOU TCLP LEAD EPA SW-846: 6010, ICP	<0.025	MG/L	0.025	09/07/90 800

ENSR Labs-Houston

Analytical Report

09/13/90 08:44

Homco - Hobbs, New Mexico
Proj. No.: 3519-003-135
Lab No.: A4746

Field ID: LP-B1/TCLP
Lab ID: 5T
Matrix: TCLP EXT

Date Sampled: / /
Time Sampled:
Date Received: 08/25/90

(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
Pb - -TCL-HOU TCLP LEAD EPA SW-846: 6010, ICP	<0.025	MG/L	0.025	09/07/90 800

ENSR Labs-Houston

Analytical Report

09/13/90 08:44

Homco - Hobbs, New Mexico	Field ID: DUPE #7/TCLP	Date Sampled: / /
Proj. No.: 3519-003-135	Lab ID: 7T	Time Sampled:
Lab No.: A4746	Matrix: TCLP EXT	Date Received: 08/25/90

(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
Pb - -TCL-HOU TCLP LEAD EPA SW-846: 6010, ICP	<0.025	MG/L	0.025	09/07/90 800

ENSR Labs-Houston

Analytical Report
09/13/90 08:44

Homco - Hobbs, New Mexico		Field ID: LP-B2/TCLP	Date Sampled: / /	
Proj. No.: 3519-003-135		Lab ID: 8T	Time Sampled:	
Lab No.: A4746		Matrix: TCLP EXT	Date Received: 08/25/90	
(Test Code) Parameter (Test Name) (Test Method)		Concen- tration	Units	Method Detection Limit Date/Time Analysis Performed
Pb - ~TCL-HOU TCLP LEAD EPA SW-846: 6010, ICP		<0.025	MG/L	0.025 09/07/90 800

ENSR Labs-Houston

QUALITY CONTROL LOG

Parameter: Total Petroleum Hydrocarbons

Page: 1 of 1

Method of Analysis: EPA 600/418.1 SW846:9071

Matrix: Soil

Date/Time: 9-10-90/1100

Lab Numbers	Detection Limits	Calibration Stds./Blk	Absorbance/Conc.	Check Standards	Concentration Found/True
A4746-1	0.20%	2.1	0.0728/1.87	Sample Blank	
A4746(246)	40 ^{ms} /kg	4.2	0.0980/3.76	Method Blank	Abs. 0.0237
A4746(57)	190 ^{ms} /kg	8.5	0.1562/8.11	P.E. Std.	
A4746-8	390 ^{ms} /kg	17.0	0.2941/18.4	Internal Std.	22.6/21.3
A4746-9	5.3%	42.5	0.6088/42.0	IS 21.3	22.4/21.3
A4746-10	2.5%	IS 21.3	0.3503/22.6		
A4771	0.089%	Correlation Coefficient: 0.9988			
A4784-2	40 ^{ms} /kg	Comments:			
A4822-1	400 ^{ms} /kg				
A4822-2	0.18%				
A4822-3	370 ^{ms} /kg				
A4822-4	360 ^{ms} /kg				

Internal Quality Control Duplicates and Spikes

* Below MDL

Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	Percent RPD	Spiked Result (mg)	Sample Result (mg)	Spike Added (mg)	Percent Recovery (mg)
A4746-7	3292	3242	50	1.5%	←	Diluted out	→	
A4771-1	11852	11620	232	2.0%	←	Diluted out	→	
A4784-2	240	240	*	*	11.0	2	8.5	129%
A4822-2	24069	24506	437	1.8%	←	Diluted out	→	

Analyst:

Evelyn Medsker

QA/QC Approval:

DeAnna M. Senegal

Time: 0800ICAP Quality Control Logs
Method EPA SW-846:6010, 3rd Ed.

Calibration, Standard and Blank Information

Parameter	MDL	Pb									
		0.100									
C A L I B R A T I O N	BLANK	-0.005									
	5.00ppm	5.04									
	1.00 ppm	1.08									
	0.100 ppm	0.099									
	100 ppm	108									
S T D / B L K											

C E C K S T D	ERA #3	1.07 1.00									
		FOUND TRUE									

S A M P L E B L A N K	73 → 100										
	A4743-BLK	-0.009									
	100 → 25										
	A4800-BLK	0.004									
	100 → 25										
	A4746-BLK	0.003									

Analyst: Michelle SavoriQA/QC Approval: DeAnna M. Senegal

Date: 7 Sept 90Time: 0800ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information

* Below MDL

Parameter	MDL	Pb								
		0.100								
²¹³ → 100 A4743-BLK		-0.009								
Duplicate		—								
% RPD		—								
Spike BLK SPE		0.945								
% Recovery		94%								
²¹³ → 100 A4743-7		0.477								
Duplicate		0.427								
% RPD		11.1								
Spike		1.47								
% Recovery		99%								
²¹³ → 100 A4800-2		9.97								
Duplicate		11.1								
% RPD		10.7								
Spike		7.64								
% Recovery		106%								
²¹³ → 100 A4807-4		10.8								
Duplicate		10.5								
% RPD		2.82								
Spike		11.8								
% Recovery		100%								
²¹³ → 25 A4800-BLK		0.004								
Duplicate		—								
% RPD		—								
Spike BLK SPE		0.977								
% Recovery		98%								

Analyst: Michelle SavoreQAQC Approval: DeAnna M. Penegal

Date: 7 Sept 90Time: 0800ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information

* Below MD

Parameter	MDL	Pb									
		0.100									
100 → 25											
A4800-35		0.045									
Duplicate		—									
% RPD		—									
Spike		1.15									
% Recovery		97%									
100 → 25											
A4801-20		0.003									
Duplicate		0.002									
% RPD		*									
Spike		0.906									
% Recovery		91%									
100 → 25											
A4746-BLK		0.003									
Duplicate		—									
% RPD		—									
Spike BLK SPK		0.903									
% Recovery		90%									
A4746-1T		0.102									
Duplicate		—									
% RPD		—									
Spike		1.41									
% Recovery		100%									
-2T		0.000									
Duplicate		—									
% RPD		—									
Spike		0.935									
% Recovery		94%									

Analyst: Michelle Savore

QAQC Approval:

DeAnna M. Senegal

ENSR Labs-Houston

4 of 4 pgs.

Date: 7 Sept 90

Time: 0800

ICAP Quality Control Logs
Method SW-846-3rd Ed., #6010
Duplicate and Spike Information

* Below MD

Parameter	MDL	Pb									
		0.100									
TCLP 100-725											
A4746 -3T		0.008									
Duplicate		—									
% RPD		—									
Spike		0.933									
% Recovery		93%									
-4T		0.015									
Duplicate		—									
% RPD		—									
Spike		0.854									
% Recovery		85%									
-5T		0.002									
Duplicate		0.007									
% RPD		*									
Spike		0.907									
% Recovery		91%									
-7T		0.003									
Duplicate		—									
% RPD		—									
Spike		0.823									
% Recovery		82%									
-8T		0.008									
Duplicate		—									
% RPD		—									
Spike		0.885									
% Recovery		88%									

Analyst: Michelle Savie

QAQC Approval: DeAnna M. Penega

ENSR CONSULTING AND ENGINEERING-HOUSTON LABORATORY

QUALITY CONTROL LOG

F46: 8020; BTEX ANALYSIS

LABORATORY NO: A4746

LAB ID	SPIKED AMT (UG)	CALC AMT (UG)	PERCENT RECOVERY (75-125%)
00082790	30	32.88	110
MB082790	30	36.85	123
1	30	236.23	787*
2	30	35.49	122
3	30	38.75	129
4	30	37.66	125
5	30	86.47	289*
7	30	82.43	275*
8	30	68.27	228*
00082890	30	30.21	101
MB082890	30	27.60	92
00083090	30.0	32.52	108
MB083090	30.0	36.61	122

BLANK ANALYSIS DATE: 8/27/90

NO BTEX DETECTED AT STATED METHOD
DETECTION LIMITS

COMMENTS:

* outside advisory QC limits due to high
sample background

Al Berms 9-7-90
ANALYST SIGNATURE DATE

Wallace Doong 9/7/90
QA/QC COORDINATOR DATE

APPENDIX C
NM - STATE ENGINEER WELL RECORD
PERMIT NO. L476 AND L-333-COMB. A

10/12/90

ENSR

**STATE ENGINEER OFFICE
WELL RECORD**

Hobbs, New Mexico

Section 1. GENERAL INFORMATION

(A) Owner of well The Western Co. of North America Owner's Well No. _____
 Street or Post Office Address O.O. Box 1067
 City and State Hobbs, New Mexico 88240

Well was drilled under Permit No. L-476 & L-333-Comb.A and is located in the:a. 1/4 1/4 SW 1/4 NE 1/4 of Section 20 Township 18S Range 38E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
 Subdivision, recorded in Lea County.d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in
 the _____ Grant.(B) Drilling Contractor Abbott Bros. License No. WD-46Address P.O. Box 637, Hobbs, New Mexico 88240Drilling Began 8/18/75 Completed 8/18/75 Type tools Cable Size of hole 8 in.Elevation of land surface or _____ at well is _____ ft. Total depth of well 125 ft.Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 55 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			
55	125	70		

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To
6 5/8	13	Welded	0	125	125	None	55	125

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				
					Cement at top

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by: _____

State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received December 12, 1979

Quad _____ FWL _____ FSL _____

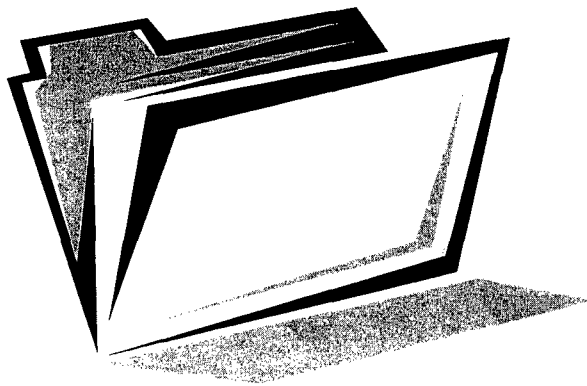
File No. L-476 & L-333-Comb-A Use IND. Location No. 18.38.20.23323

[illegible]

779 DEC 12 AM 8 07
STATE ENGINEER OFFICE
ROSWELL N.M.

Murrell Abbott
Driller N.B.

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All questions, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 11 need be completed.



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**FEDERAL
EXPRESS**

QUESTIONS? CALL 800-238-5355 TOLL FREE.

**AIRBILL
PACKAGE
TRACKING NUMBER**

87553246

3275288463

RECIPIENT'S COPY

From (Your Name) Please Print 1. <i>WKS CONSULTING & ENGINEERING</i>		Your Phone Number (Very Important) <i>(703) 726-7111</i>		To (Recipient's Name) Please Print 2. <i>WKS CONSULTING & ENGINEERING</i>		Recipient's Phone Number (Very Important) <i>(703) 726-7111</i>	
Company		Department / Floor No.		Company		Department / Floor No.	
Street Address <i>1000 W. 10TH AVE</i>		Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.) <i>1000 W. 10TH AVE</i>		City <i>NM</i>		State <i>NM</i>	
City		State		City		State	
ZIP Required		ZIP Required		ZIP Required		ZIP Required	

YOUR INTERNAL BILLING REFERENCE INFORMATION (First 24 characters will appear on invoice.)

*IF HOLD FOR PICK-UP, Print FEDEX Address Here

PAYMENT: 1 ☐ Bill Sender, 2 ☐ Bill Recipient's FedEx Acct. No., 3 ☐ Bill 3rd Party FedEx Acct. No., 4 ☐ Bill Credit Card 5 ☐ Cash				Street Address City State ZIP Required	
---	--	--	--	---	--

SERVICES (Check only one box)		DELIVERY AND SPECIAL HANDLING	PACKAGES	WEIGHT in Pounds Only	YOUR DECLARED VALUE	OVER SIZE	Emp. No.	Date	Federal Express Use
Priority Overnight Service (Delivery by next business morning) 11 ☐ YOUR PACKAGING 16 ☐ FEDEX LETTER 12 ☐ FEDEX PAK 13 ☐ FEDEX BOX 14 ☐ FEDEX TUBE Economy Service (formerly Standard Air) (Delivery by second business day) 30 ☐ ECONOMY SERVICE	Standard Overnight Service (Delivery by next business afternoon) 51 ☐ 56 ☐ FEDEX LETTER 52 ☐ FEDEX PAK 53 ☐ FEDEX BOX 54 ☐ FEDEX TUBE Heavyweight Service (for Extra Large or any package over 150 lbs.) 70 ☐ HEAVYWEIGHT 80 ☐ DEFERRED HEAVYWEIGHT	1 ☐ HOLD FOR PICK-UP (Fill in Box H) 2 ☐ DELIVER WEEKDAY 3 ☐ DELIVER SATURDAY (Extra charge) (Not available to all locations) 4 ☐ DANGEROUS GOODS (Extra charge) (CSS not available for Dangerous Goods Shipments) 5 ☐ CONSTANT SURVEILLANCE SVC. (CSS) (Extra charge) (Release Signature Not Applicable) 6 ☐ DRY ICE _____ Lbs. 7 ☐ OTHER SPECIAL SERVICE _____ 8 ☐ SATURDAY PICK-UP (Extra charge) 9 ☐ DESCRIPTION _____ 10 ☐ HOLIDAY DELIVERY (If offered) (Extra charge)	Total Total Total	Total Total Total	Total Total Total	Total Total Total	Emp. No. Date Received By Date/Time Received FedEx Employee Number Release Signature Date/Time	Federal Express Use Base Charges Declared Value Charge Other 1 Other 2 Total Charges REVISION DATE 11/89 PART #119501 FXEM 6/90 FORMAT #014 014 © 1989 F.E.C. PRINTED IN U.S.A.	

ENSR

TRANSMITTAL

FROM: H. DARLENE VENABLE

3000 RICHMOND

HOUSTON, TX

DATE: 10-13-90

OUR PROJECT NO. 3519003135

TO: New Mexico Oil Conservation
Division

Santa Fe, NM

ATTN: ROGER ANDERSON

RE: Proposed Closure/Remedial
Action Plan for HOMCO INTERNATIONAL, INC
WE ARE SENDING YOU

IF MATERIAL RECEIVED IS NOT AS LISTED.
PLEASE NOTIFY US AT ONCE

- ☐ ATTACHED
- ☐ SHOP DRAWINGS
- ☐ PRINTS
- ☒ DOCUMENTS
- ☐ SPECIFICATIONS

- ☐ UNDER SEPARATE COVER VIA
- ☐ TRACINGS
- ☐ CATALOGS
- ☐ COPY OF LETTER
- ☐

RECEIVED

OCT 15 1990

OIL CONSERVATION DIV.
SANTA FE

COPIES	DATE	ITEM
1	10-13-90	PROPOSED CLOSURE/REMEDIAL ACTION PLAN for HOMCO INTERNATIONAL, INC 3000 West County Road HOBBS, New Mexico

REMARKS: Roger,
Please review and issue
NM-OCD approvals as appropriate.
Thanks,
Darlene

COPY TO