

GW - 101

REPORTS

YEAR(S):

1992

ENVIROTECH INC.

GW-101

GROUNDWATER ASSESSMENT
SUPPLEMENTAL CLOSURE REPORT
SMITH INTERNATIONAL INC.
FARMINGTON, NEW MEXICO

Prepared for
Mr. Maurice Sticker
Environmental Affairs Coordinator
Smith International, Inc.

RECEIVED

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OIL CONSERVATION DIV.
SANTA FE

Project No. 91410 October 1992

GROUNDWATER ASSESSMENT
SUPPLEMENTAL CLOSURE REPORT
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
SE/4, SW/4 SECTION 14, TOWNSHIP 29N, RANGE 13W
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO

PREPARED FOR
MR. MAURICE STICKER
ENVIRONMENTAL AFFAIRS COORDINATOR
SMITH INTERNATIONAL, INC.

PROJECT NO: 91410

OCTOBER 1992

ENVIROTECH INC.
Environmental Scientists & Engineers
5796 U.S. Highway 64-3014
Farmington, New Mexico

(505) 632-0615

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SUPPLEMENTAL CLOSURE REPORT
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
SE/4, SW/4 SECTION 14, TOWNSHIP 29N, RANGE 13W
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO**

PROJECT NO: 91410

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GROUNDWATER ASSESSMENT
SUPPLEMENTAL CLOSURE REPORT
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
SE/4, SW/4 SECTION 14, TOWNSHIP 29N, RANGE 13W
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO

Envirotech, Inc. has been retained by Smith International, Inc., to install groundwater monitor wells and establish the quality of the groundwater at their above referenced property. This site is currently the staging yard for Smith Energy Services. This report is a supplement to the closure reports prepared by Envirotech Inc. for the subject site:

- UST Closure Report, Diesel & Gasoline Fuel System (March 1992)
- Surface Impoundment Closure Report, Wash Bay Solids Disposal Area (April 1992).
- Acid UST and Sump Closure Report, Acid Storage Tank and Loading Area (May 1992)
- Offsite Drainage Closure Report (June 1992)

All of the closure reports have been submitted to the New Mexico Environmental Department (NMED) and/or the New Mexico Oil Conservation Division (NMOCD).

INTRODUCTION

The property is currently an active staging yard for Smith Energy Services an oilfield service company. To facilitate a property transaction of the subject site, Smith International Inc. retained Envirotech Inc. to perform clean-up of the site.

From December 1991 to June 1992, Envirotech Inc. conducted an extensive abatement program for closure. Three sites of principal concern were involved at the subject property. These sites consisted of the:

- Fuel Underground Storage Tank System (USTS)
- Wash Bay Solids Disposal Area
- Acid Tank Storage and Loading Area

Lead State of New Mexico regulatory agencies were contacted and involved with the closure operations. At all three sites, the remedial action consisted of excavation and removal of for treatment of the hydrocarbon contaminated soils. The excavations were extended to depths on the order of 28 feet (approximate depth

of groundwater) with a track-hoe excavator. Approximately 14,000 cubic yards of soil were removed for treatment.

Based on the site assessment conducted during the closures and abatement operations, the hydrocarbon contamination of soil appeared to be limited to the immediately area at each site. Also, all soils exceeding the current regulatory levels for hydrocarbon contamination were excavated and removed for remediation in all areas practically feasible. Prior to backfilling, approval to close was given by Mr. Denny Foust, Oil and Gas Inspector, NMOCD, for all areas of concern.

As part of the pre-abatement assessment, three groundwater monitor wells were installed on the property (MW1, MW2 and MW3). Water samples analyzed from these wells indicated that the groundwater quality had not been significantly impacted. But considering the extent of the soil contamination, the NMOCD and NMED requested the installation of three additional groundwater wells and sampling to verify the groundwater quality.

PURPOSE & SCOPE OF SERVICES

The purpose of this groundwater assessment is to complete the closure of all sites at the Smith International property. The protocol outlined in the New Mexico Oil Conservation Division's proposed "Guidelines for Surface Impoundment Closure" (October 29, 1991) and the New Mexico Environment Department's UST Regulations (Amended July 26, 1990) were followed in the monitor well construction, development and sampling.

The scope of services that Envirotech was retained to provide included the following:

- A. Drill and construct three additional groundwater monitor wells.
- B. Measurement of water levels, well development, and sampling.
- C. Collect groundwater samples and submittal for laboratory analyses, to assess the impact on the groundwater from the contamination.
- D. Review available water supply information, and the findings of the earlier assessments and closures.
- E. Document the findings of the sampling and analyses.

DRILLING & MONITOR WELL CONSTRUCTION

Well Drilling:

Three groundwater monitor wells were drilled on June 21 and 22, 1992. Due to the alluvial site soil conditions which consisted of cobbles and gravels, the wells were advanced with a truck mounted rotary mud drilling rig using a six inch (6") diameter bit. All three borings were drilled to depths of approximately forty feet (40') below the ground surface. Locations of the bore holes are presented on the attached site plan.

Cutting developed during the drilling were classified in accordance with the Unified Soil Classification System (ASTM: D- 2488). Logs of the borings are included in the Appendix, and while the noted stratification lines represent approximate boundaries between soil types, transitions may be gradual.

Well Completion:

The borings were completed as groundwater monitor wells. The wells were constructed using two inch (2") diameter threaded-coupling schedule 40 PVC casing. The top of the screen section (0.020" slot size) was set approximately ten feet (10') above the groundwater level encountered during the drilling. Blank PVC casing was used to complete the wells to approximate site grade. The screened interval was filter packed to a minimum of one foot (1') above the slotted interval with 8-12 mesh gradation silica sand and sealed with 200 mesh bentonite. The remainder of the well annulus was grouted with a 5% bentonite cement slurry to within eighteen inches of the surface. Each monitor well was secured with an eight inch (8") diameter bolt-down steel monitor well covers, cement grouted and locking cap installed.

GROUNDWATER SAMPLING AND ANALYTICAL RESULTS

Water Levels and Well Development:

Following drilling and well construction, the three new monitor wells (MW4, MW5, and MW6) were surveyed and measuring point (top of casing) elevations determined. The elevations were relative to the southwest corner of the warehouse building loading dock (benchmark: 100.00'), tying into the earlier survey of the original monitor wells (MW1, MW2, and MW3). The survey information is summarized in Table 1.

On May 26, 1992, the water levels for all the wells were measured (refer to Table 1). An electronic interface probe (SOLINST Model 121) was used to measure the liquid levels. The new wells were developed by pumping and removing approximately three to five well bore volumes (2" diameter: approximately 6 to 10 gallons). No sampling was done on May 26, 1992, to allow these wells to stabilize.

TABLE 1

MONITOR WELL DATA SUMMARY
GROUNDWATER ASSESSMENT
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO

DRILLING & COMPLETION INFORMATION

MONITOR WELL	TOTAL DEPTH	WATER LEVEL	TOP OF SCREEN
1	34	25	15
2	40	30	18
3	40	28	20
4	38	25	18
5	40	24	15
6	40	27	20

SURVEY & WATER LEVEL INFORMATION

MAY 26, 1992

<u>LOCATION</u>	<u>ELEV.</u>	<u>COORDINATE</u>		<u>WATER LEVEL(bgs)</u>	<u>WATER ELEV.</u>
		<u>X</u>	<u>Y</u>		
SW WAREHOUSE COR. (benchmark)	100.00	0.00	0.00		
MW1	99.78	346.41	195.63	26.36	73.42
MW2	99.85	85.11	-289.32	27.65	72.20
MW3	99.77	67.82	-199.59	27.53	72.24
MW4	97.85	87.68	-60.22	25.19	72.66
MW5	97.32	-5.20	-98.73	24.97	72.35
MW6	98.05	30.83	-278.51	26.41	71.64

Water Sampling and Analyses:

The two original monitor wells (MW2 and MW3) near the closed fuel UST area were sampled on May 26, 1992. The new monitor wells (MW4, MW5 and MW6) were sampled on August 13, 1992. Prior to sampling, approximately three (3) well volumes were bailed from these wells.

The water samples were then collected in laboratory supplied sample glass containers. BTEX samples were placed in 40 ml VOL vials and preserved with 5% HgCL₂, and TPH samples were placed in one liter bottles or the 40 ml VOC vials. The samples were placed on ice and transported to Envirotech's Laboratory for BTEX and TPH analysis. All sampling followed USEPA SW-846 protocol.

The BTEX (benzene, toluene, ethyl-benzene and total xylenes) analysis were done per USEPA Method 8020. The TPH (total petroleum hydrocarbons) were done per USEPA Method 418.1 in the area of the diesel tank and USEPA Method 8015 for the new wells where the source might not be well defined.

The results of the laboratory analyses are summarized in Table 2. Copies of the laboratory results, QA/QC and the chain of custodies are enclosed in the Appendix.

TABLE 2

LABORATORY ANALYTICAL RESULTS
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO
MAY & AUGUST 1992

<u>SAMPLE ID</u>	<u>MATRIX</u>	<u>EPA METHOD</u>	<u>BENZENE</u> (ug/L)	<u>TOLUENE</u> (ug/L)	<u>ETHYL-BENZENE</u> (ug/L)	<u>TOTAL XYLENE</u> (ug/L)	<u>TPH</u> (mg/L)
MONITOR WELL GROUNDWATER SAMPLES							
MW2	WATER	8020	ND	ND	ND	ND	-
MW2	WATER	418.1	-	-	-	-	ND
MW3	WATER	8020	ND	ND	ND	0.7	-
MW3	WATER	418.1	-	-	-	-	ND
MW4	WATER	8020	ND	5.4	4.1	ND	-
MW4	WATER	8015	-	-	-	-	ND
MW5	WATER	8020	ND	5.1	3.7	3.2	-
MW5	WATER	8015	-	-	-	-	4.1
MW6	WATER	8020	ND	7.9	ND	2.7	-
MW6	WATER	8015	-	-	-	-	3.2

- Notes:
- 1) ND - Parameter not detected at method detection limit (refer to analytical results for detection limit).
 - 2) Total Xylene - summation of m,p-Xylene and o-Xylene.

Refer to the Site Plan (Sheet 1) for the monitor well locations.

SOIL AND GROUNDWATER CONDITIONS

Based on the previous site assessments and the drilling for the new monitor wells, the soil conditions to the depths explored appear to be typical alluvial sediments consisting of well graded gravels and cobble laminated with thin sand and silt lenses. These gravels overly a silty clay to clayey silt (blue shale) at a depth of approximately 35 to 40 feet below existing ground surface (bgs). Above the free water level the soils appear to be slightly moist to moist, becoming wet above the groundwater surface in the vadose zone. The vadose zone appeared to be on the order of one to two feet, typical for well graded noncohesive soils.

Based on the water level measurements from all the wells, the groundwater ranges from 25 to 30 feet below the existing ground surface. The water level is believed to fluctuate as much as two to five feet based on the observed water levels during the pit closure. The measured water levels taken in May for this assessment are anticipated to be near the seasonal high considering the heights of the San Juan and Animas Rivers during the spring of 1992.

The groundwater gradient and subsequent flow direction is to the west and south and averages approximately 0.0034 feet/foot. These are similar to the measurements taken in February 1992 during the fuel UST closure.

The shallow alluvial groundwater appears to represent an unconfined aquifer. The groundwater level and gradient may vary, considering the sites relative proximity to both the San Juan River and Animas River and site soil conditions.

DISCUSSION AND CONCLUSIONS

The current maximum allowable concentrations for groundwater contamination as outlined by the State of New Mexico Water Quality Control Commission (August 18, 1991) are summarized reported in Table 2. The maximum allowable concentrations for soil as outlined in the New Mexico Oil Conservation Division, "Guidelines for Surface Impoundment Closure (October 29, 1991)", and the New Mexico Environmental Department, "Underground Storage Tank Regulations" are also summarized in Table 3.

TABLE 3

HYDROCARBON SOIL & GROUNDWATER CONTAMINATION STANDARDS STATE OF NEW MEXICO

<u>Parameter</u>	<u>Maximum Allowable Limits</u>	
	<u>soil (mg/kg)</u>	<u>groundwater (ug/l)</u>
Benzene	10	10
Toluene	-	750
Ethylbenzene	-	750
Total Xylene	-	620
Total Aromatics	50	-
Total Petroleum Hydrocarbons	100	-

- Notes: 1) ug/kg or ug/l - equivalent to parts per billion.
2) mg/kg - equivalent to parts per million.

Review of the site assessments from the previous closures indicate that the residual hydrocarbon contamination of soil to be below the current regulator limits except in a relatively small area beneath the above ground acid storage tank, which could not be removed without extensive engineering, or demolition and reconstruction of the existing above ground acid storage system. Abatement by excavation and removal was terminated with the OCD's approval. Pending the results of the monitor wells installation and groundwater analysis, a revised remedial action plan may have been requested by the NMOCD.

The analysis of the groundwater from the five down gradient monitor wells indicates the residual hydrocarbon contamination to be well below the current regulated limits. The findings of the additional groundwater assessment complement the earlier findings from the closure assessments.

Considering the findings of this groundwater assessment and the earlier closure assessments, we recommend closure of all sites at the subject Smith International Inc., Farmington, New Mexico site.

LIMITATIONS AND CLOSURE

The conclusions given in this report are based on visual observations of the site, subsurface soil conditions encountered during drilling operations, analyses of water samples collected from five groundwater monitor wells, and the findings of earlier site assessments conducted during closures. This report does not reflect subsurface variations which may exist between sampling points.

The scope of Envirotech's services for this assessment were limited to the installation of three monitor wells, sampling and the assessment of groundwater contamination with respect to hydrocarbon contamination associated with hydrocarbon products at typical oil field service and production facilities. All work has been performed in accordance with generally accepted professional practices in construction/excavation, environmental/petroleum engineering, and hydrogeology.

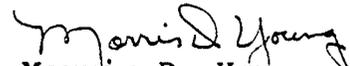
This report has been prepared for the exclusive use of Smith International as it pertains to their property located at 2198 East Bloomfield Highway, Farmington, New Mexico.

I hereby certify that the work performed by Envirotech as described in this report was performed under my direct supervision, and that I am personally familiar with the nature of the work, the results of the assessment and the contents of this report.

Respectfully Submitted,
ENVIROTECH INC.


Michael K. Lane, P.E.
Geological Engineer

Reviewed By:


Morris D. Young
President

APPENDICES

1410GW.SUP

ENVIROTECH Inc.

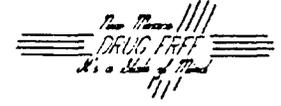
5796 US HWY. 64, FARMINGTON, NM 87401
(505) 632-0615

BORING LOG REPORT

BORING No: MW6
 JOB No: 91410
 PAGE No: SHT 4
 LOCATION: REF TO PLAN
 DATE START: 5-22-92
 DATE FINISH: 5-22-92
 DRILLER: NA
 PREPARED BY: MKL

PROJECT: SMITH INTERNATIONAL INC., GROUNDWATER ASSESSMENT
 CLIENT: SMITH INTERNATIONAL INC.
 CONTRACTOR: MOTE
 EQUIPMENT USED: ROTARY MUD DRILL RIG w/6" DIAMETER

DEPTH FEET	USCS	QVM PPM	SAMPLE TYPE	BLDV/ FOOT	FIELD CLASSIFICATION AND REMARKS
10	AC GW				ASPHALTIC CONCRETE PAVING OVER AGGREGATE BASE. LIGHT BROWN WELL GRADED GRAVEL TO COBBLE WITH FINE SAND NONCOHESIVE, FIRM TO DENSE, MOIST TO WET, WELL ROUNDED AND SPHERICAL CLASTS.
20					
30			▼		
40	ML/ CL				BLUEISH GRAY TO MEDIUM GRAY SILTY CLAY TO CLAYEY SILT, PLASTIC, STIFF TO VERY STIFF, WET TO SATURATED.
50					TOTAL DEPTH: 40 FEET GROUNDWATER DEPTH: 27 FEET COMPLETION: GROUNDWATER MONITOR WELL MW#5 (REF. TYPICAL SHT 5) RELATIVE ELEVATION: 98.05' (BM:100.00') WELL TD: 40 FEET CASING: 2" Sch. 40 PVC (THREADED COUPLING) SCREEN: 20' w/ 0.020" SLOTS (20'-40') GRAVEL PACK: 8-12 SILICA SAND (19'-40') SEAL: 200 MESH BENTONITE @ 19'
					NOTES: SOILS CLASSIFIED USING CUTTING DEVELOPED DURING DRILLING.



STATE OF NEW MEXICO
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
AZTEC DISTRICT OFFICE

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

1000 RIO BRAZOS ROAD
AZTEC, NEW MEXICO 87410
(505) 334-6178

April 30, 1992

Envirotech Inc.
Attn. Mike Lane, Project Engineer
5796 U. S. Highway 64-3014
Farmington, NM 87401

RE: Monitor Wells for Smith Energy Services Remediation Site Farmington, New Mexico
Funded by Smith International.

Dear Mr. Lane:

A minimum of two additional groundwater monitor wells must be installed at the Smith Energy Services Remediation Site. Contamination did reach the water table at the Wash Bay Solids Disposal Area and UST Acid Disposal Facility. Each of these sources of contamination is to have a monitor well installed S-SW of the point source in approximately the down gradient direction or the direction of flow towards the San Juan River. Monitor wells are to penetrate the water table five to ten feet and utilize a design similar to existing wells. The new wells are to be located at optimum locations to integrate with the existing monitor wells while detecting potential contamination. Additional wells may be needed if groundwater contamination is indicated by samples from the new wells.

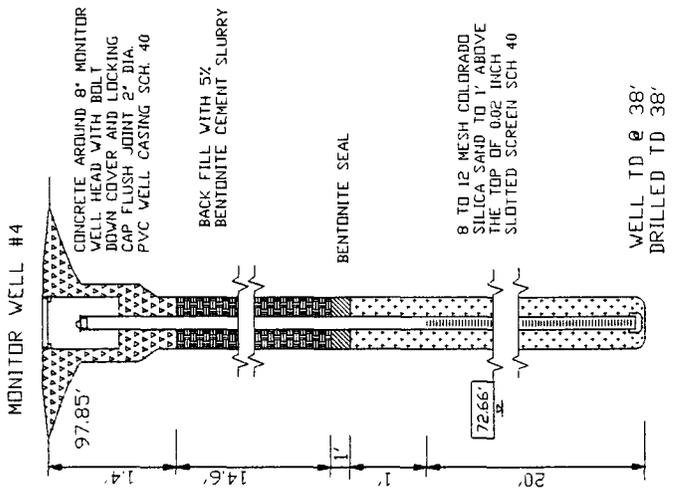
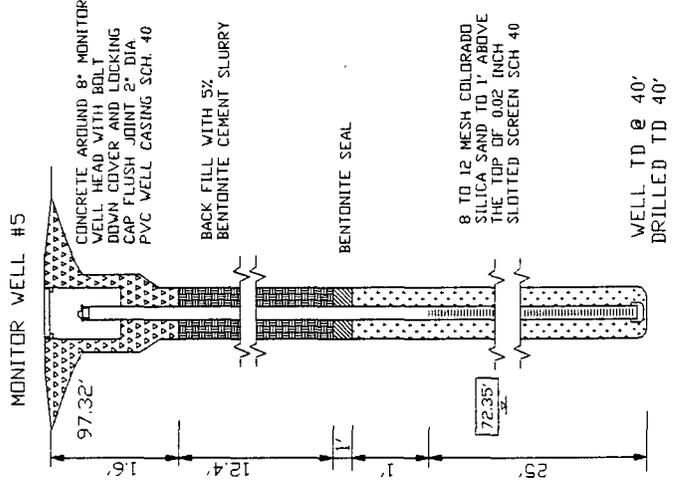
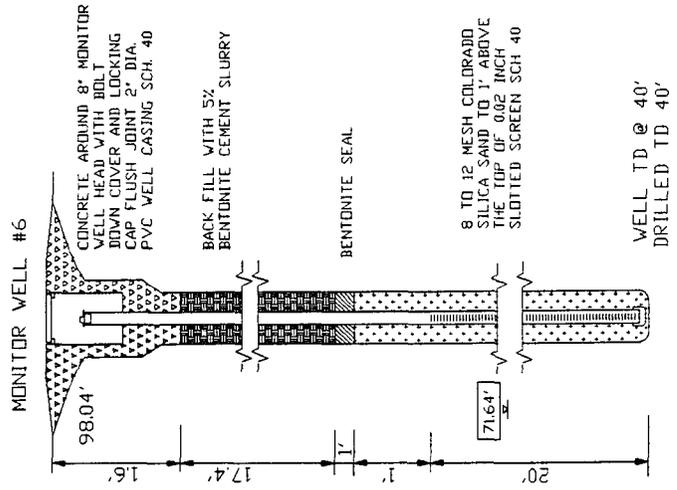
Please feel free to contact this office for any clarification.

Yours truly,

Denny G. Foust
Environmental Geologist

DGF/sh

Xc: Smith Energy Services
OCD Environmental Bureau
Environmental File
DGF File



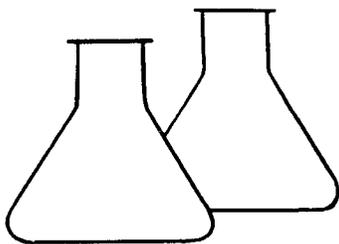
100.01' RELATIVE GROUNDWATER SURFACE ELEVATION, MEASURED IN MAY 1992.
114.08' RELATIVE ELEVATION OF THE MEASURING POINT, BENCHMARK 100.00'.

SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HWY
FARMINGTON, NEW MEXICO

ENVIROTECH INC.
ENVIRONMENTAL SCIENTISTS & ENGINEERS
5796 U.S. HIGHWAY 64-3014
FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615

MONITOR WELL CONSTRUCTION DETAIL	
SHEET: 5	DRAWN: OCT 92
DRWN BY: MKL	PRJ MGR: MKL

GROUNDWATER ASSESSMENT PROJECT NO: 91410



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401

PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Smith	Project #:	91410
Sample ID:	Acid Pit M.W. #2	Date Reported:	07-28-92
Laboratory Number:	0891	Date Sampled:	05-26-92
Sample Matrix:	Water	Date Received:	05-26-92
Preservative:	HgCl & Cool	Date Analyzed:	05-27-92
Condition:	Cool & Intact	Analysis Requested:	8020

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	ND	0.2
Toluene	ND	0.3
Chlorobenzene	ND	0.2
Ethylbenzene	ND	0.2
p,m-Xylene	ND	0.5
o-Xylene	ND	0.3
1,3-Dichlorobenzene	0.3	0.2
1,4-Dichlorobenzene	ND	0.2
1,2-Dichlorobenzene	0.8	0.2

SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	125.7 %
	Bromfluorobenzene	91.7 %

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

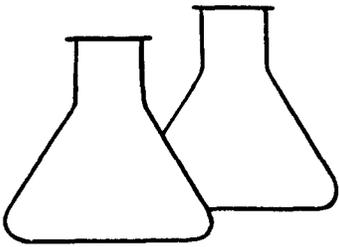
Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments:

Robert M. Young
Analyst

Maris J. Young
Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Smith International	Project #:	91410
Sample ID:	acid pit MW #2	Date Reported:	06-24-92
Laboratory Number:	0891	Date Sampled:	05-26-92
Sample Matrix:	Water	Date Received:	05-26-92
Preservative:	Cool	Date Analyzed:	05-29-92
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/L)	Det. Limit (mg/L)
-----	-----	-----
TPH	ND	10.0

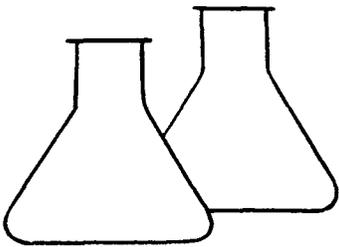
Method: Method 418.1, Total Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

ND - Parameter not detected at the stated detection limit.

Comments: Smith International--acid Pit MW #2

Vanessa Ransom
Analyst

Neil Ransom
Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Smith	Project #:	91410
Sample ID:	Acid Pit M.W. #3	Date Reported:	07-28-92
Laboratory Number:	0892	Date Sampled:	05-26-92
Sample Matrix:	Water	Date Received:	05-26-92
Preservative:	HgCl & Cool	Date Analyzed:	05-27-92
Condition:	Cool & Intact	Analysis Requested:	8020

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	ND	0.2
Toluene	ND	0.3
Chlorobenzene	ND	0.2
Ethylbenzene	ND	0.2
p,m-Xylene	0.7	0.5
o-Xylene	ND	0.3
1,3-Dichlorobenzene	ND	0.2
1,4-Dichlorobenzene	ND	0.2
1,2-Dichlorobenzene	ND	0.2

SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	125.8 %
	Bromfluorobenzene	98.2 %

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

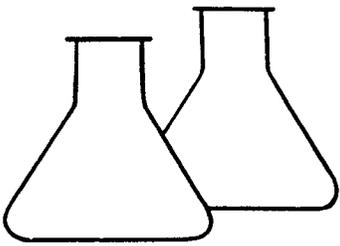
Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments:

Robert M. Young
Analyst

Marion D. Young
Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Smith International	Project #:	91410
Sample ID:	acid pit MW #3	Date Reported:	06-24-92
Laboratory Number:	0892	Date Sampled:	05-26-92
Sample Matrix:	Water	Date Received:	05-26-92
Preservative:	Cool	Date Analyzed:	05-29-92
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/L)	Det. Limit (mg/L)
-----	-----	-----
TPH	ND	10.0

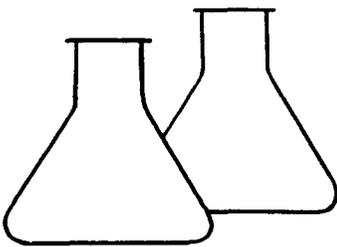
Method: Method 418.1, Total Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

ND - Parameter not detected at the stated detection limit.

Comments: Smith International--acid pit MW #3

Vanessa Ransom
Analyst

Neil Lammwood
Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Smiths	Project #:	91410
Sample ID:	Smiths MW #4	Date Reported:	09-10-92
Laboratory Number:	2270	Date Sampled:	08-13-92
Sample Matrix:	Water	Date Received:	08-13-92
Preservative:	HgCl & Cool	Date Analyzed:	09-07-92
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
-----	-----	-----
Benzene	ND	1.4
Toluene	5.4	3.3
Ethylbenzene	4.1	0.2
p,m-Xylene	ND	2.9
o-Xylene	ND	0.2

SURROGATE RECOVERIES:	Parameter	Percent Recovery
	-----	-----
	Trifluorotoluene	116.7 %
	Bromfluorobenzene	106.1 %

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

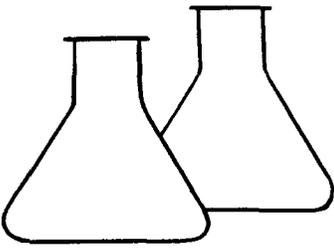
Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Bloomfield Hiway

Robert M Young
Analyst

Morris D Young
Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

MODIFIED EPA METHOD 8015 NONHALOGENATED VOLATILE ORGANICS

Client:	Smiths	Project #:	91410
Sample ID:	MW #4	Date Reported:	09-28-92
Laboratory Number:	2270	Date Sampled:	08-13-92
Sample Matrix:	Water	Date Received:	08-13-92
Preservative:	HgCl & Cool	Date Analyzed:	08-20-92
Condition:	Cool & Intact	Analysis Requested:	TPH

Parameter	Concentration (mg/L)	Det. Limit (mg/L)
----- Total Petroleum Hydrocarbons	----- ND	----- 0.12

Method: Method 5030, Purge-and-Trap, Test Methods for
Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

Method 8015, Nonhalogenated Volatile Organics,
Test Methods for Evaluating Solid Waste, SW-846, USEPA,
Sept. 1986

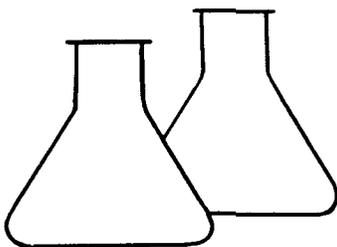
ND - Parameter not detected at the stated detection limit.

This analysis was based on a Gasoline calibration.

Comments: Bloomfield Hiway.

Robert M Young
Analyst

Marissa Young
Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Smiths	Project #:	91410
Sample ID:	Smiths MW #5	Date Reported:	09-10-92
Laboratory Number:	2271	Date Sampled:	08-13-92
Sample Matrix:	Water	Date Received:	08-13-92
Preservative:	HgCl & Cool	Date Analyzed:	09-07-92
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
-----	-----	-----
Benzene	ND	1.4
Toluene	5.1	3.3
Ethylbenzene	3.7	0.2
p,m-Xylene	3.2	2.9
o-Xylene	ND	0.2

SURROGATE RECOVERIES:	Parameter	Percent Recovery
	-----	-----
	Bromfluorobenzene	112.1 %
	Trifluorotoluene	108.7 %

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

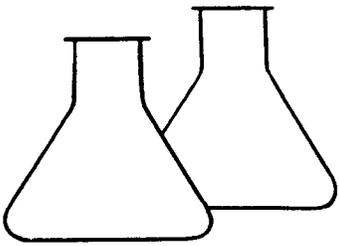
Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Bloomfield Hiway

Robert M. Young
Analyst

Marissa Young
Review



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

MODIFIED EPA METHOD 8015 NONHALOGENATED VOLATILE ORGANICS

Client:	Smith International, Inc.	Project #:	91410
Sample ID:	Smith's MW #5	Date Reported:	09-28-92
Laboratory Number:	2271	Date Sampled:	08-13-92
Sample Matrix:	Water	Date Received:	08-13-92
Preservative:	Cool	Date Analyzed:	09-25-92
Condition:	Cool and Intact	Analysis Requested:	TPH

Parameter	Concentration (mg/L)	Det. Limit (mg/L)
-----	-----	-----
Total Petroleum Hydrocarbons	4.1	0.13

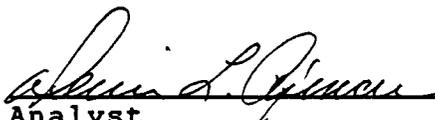
Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

Method 8015, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

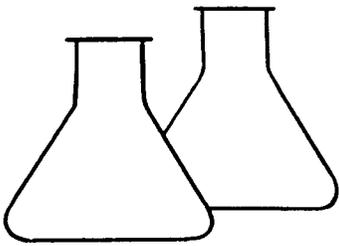
ND - Parameter not detected at the stated detection limit.

This analysis was based on a Diesel calibration.

Comments: Smith's, Bloomfield Highway


Analyst


Review



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Smiths	Project #:	91410
Sample ID:	Smiths MW #6	Date Reported:	09-10-92
Laboratory Number:	2272	Date Sampled:	08-13-92
Sample Matrix:	Water	Date Received:	08-13-92
Preservative:	HgCl & Cool	Date Analyzed:	09-07-92
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
-----	-----	-----
Benzene	ND	1.4
Toluene	7.9	3.3
Ethylbenzene	ND	0.2
p,m-Xylene	ND	2.9
o-Xylene	2.7	0.2

SURROGATE RECOVERIES:	Parameter	Percent Recovery
	-----	-----
	Trifluorotoluene	122.7 %
	Bromfluorobenzene	114.8 %

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

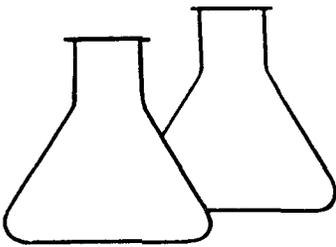
Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Bloomfield Hiway

Robert M Young
Analyst

Marion D Young
Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

MODIFIED EPA METHOD 8015 NONHALOGENATED VOLATILE ORGANICS

Client:	Smith International, Inc.	Project #:	91410
Sample ID:	Smith's MW #6	Date Reported:	09-28-92
Laboratory Number:	2272	Date Sampled:	08-13-92
Sample Matrix:	Water	Date Received:	08-13-92
Preservative:	Cool	Date Analyzed:	09-25-92
Condition:	Cool and Intact	Analysis Requested:	TPH

Parameter	Concentration (mg/L)	Det. Limit (mg/L)
-----	-----	-----
Total Petroleum Hydrocarbons	3.2	0.13

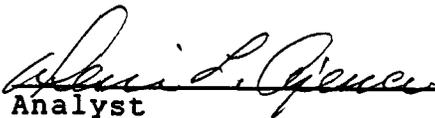
Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

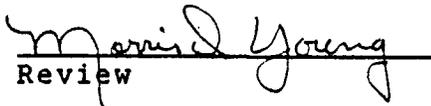
Method 8015, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

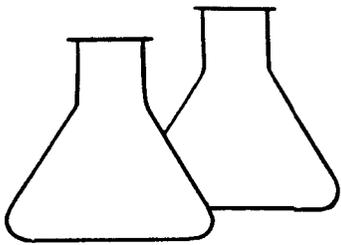
ND - Parameter not detected at the stated detection limit.

This analysis was based on a Diesel calibration.

Comments: Smith's, Bloomfield Highway


Analyst


Review



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	NA	Project #:	NA
Sample ID:	Laboratory Blank	Date Reported:	07-28-92
Laboratory Number:	821b0527	Date Sampled:	NA
Sample Matrix:	Water	Date Received:	NA
Preservative:	NA	Date Analyzed:	05-27-92
Condition:	NA	Analysis Requested:	8020

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
-----	-----	-----
Benzene	ND	0.2
Toluene	ND	0.3
Chlorobenzene	ND	0.2
Ethylbenzene	ND	0.2
p,m-Xylene	ND	0.5
o-Xylene	ND	0.3
1,3-Dichlorobenzene	ND	0.2
1,4-Dichlorobenzene	ND	0.2
1,2-Dichlorobenzene	ND	0.2

SURROGATE RECOVERIES:	Parameter	Percent Recovery
	-----	-----
	Trifluorotoluene	116.8 %
	Bromfluorobenzene	101.6 %

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

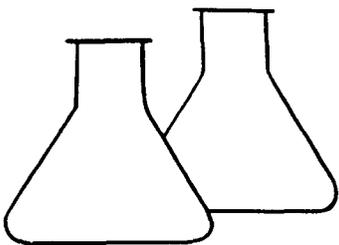
Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments:

Robert M. Young
Analyst

Morris D. Young
Review



ENVIROTECH LABS

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EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	NA	Project #:	NA
Sample ID:	Laboratory Blank	Date Reported:	07-28-92
Laboratory Number:	82LB0528	Date Sampled:	NA
Sample Matrix:	Water	Date Received:	NA
Preservative:	NA	Date Analyzed:	05-28-92
Condition:	NA	Analysis Requested:	8020

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	ND	0.2
Toluene	ND	0.6
Chlorobenzene	ND	0.2
Ethylbenzene	ND	0.3
p,m-Xylene	ND	0.6
o-Xylene	ND	0.4
1,3-Dichlorobenzene	ND	0.2
1,4-Dichlorobenzene	ND	0.3
1,2-Dichlorobenzene	ND	0.2

SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	91.8 %
	Bromfluorobenzene	92.9 %

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

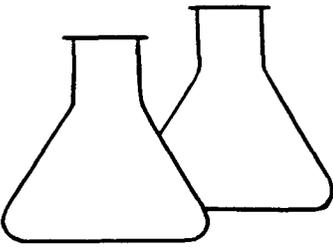
Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments:

Robert M. Young
Analyst

Maria S. Young
Review



ENVIROTECH LABS

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EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	NA	Project #:	NA
Sample ID:	Laboratory Blank	Date Reported:	09-10-92
Laboratory Number:	BTLB0907	Date Sampled:	NA
Sample Matrix:	Water	Date Received:	NA
Preservative:	NA	Date Analyzed:	09-07-92
Condition:	NA	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	ND	1.4
Toluene	ND	3.3
Ethylbenzene	ND	0.2
p,m-Xylene	ND	2.9
o-Xylene	ND	0.2

SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	95.7 %
	Bromfluorobenzene	97.8 %

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

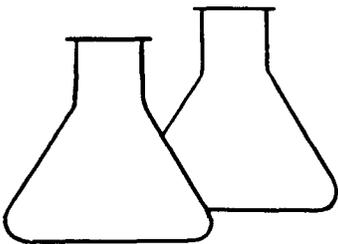
Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments:

Robert M. Young
Analyst

Maris D. Young
Review



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

MODIFIED EPA METHOD 8015 NONHALOGENATED VOLATILE ORGANICS

Client:	NA	Project #:	NA
Sample ID:	Laboratory Blank	Date Reported:	09-28-92
Laboratory Number:	DSLBO924	Date Sampled:	NA
Sample Matrix:	Water	Date Received:	NA
Preservative:	NA	Date Analyzed:	09-25-92
Condition:	NA	Analysis Requested:	TPH

Parameter	Concentration (mg/L)	Det. Limit (mg/L)
-----	-----	-----
Total Petroleum Hydrocarbons	ND	0.13

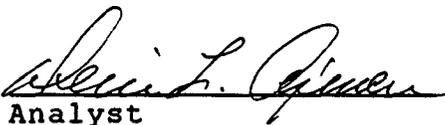
Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

Method 8015, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

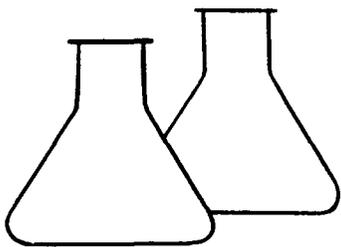
ND - Parameter not detected at the stated detection limit.

This analysis was based on a Diesel calibration.

Comments:


Analyst


Review



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

MODIFIED EPA METHOD 8015 NONHALOGENATED VOLATILE ORGANICS

Client:	NA	Project #:	NA
Sample ID:	Laboratory Blank	Date Reported:	09-28-92
Laboratory Number:	GSLB0820	Date Sampled:	NA
Sample Matrix:	Water	Date Received:	NA
Preservative:	NA	Date Analyzed:	08-20-92
Condition:	NA	Analysis Requested:	TPH

Parameter	Concentration (mg/L)	Det. Limit (mg/L)
-----	-----	-----
Total Petroleum Hydrocarbons	ND	0.12

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

Method 8015, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

This sample was based on a Gasoline calibration.

Comments:

Robert M. Young
Analyst

Marisa Young
Review

CHAIN OF CUSTODY RECORD

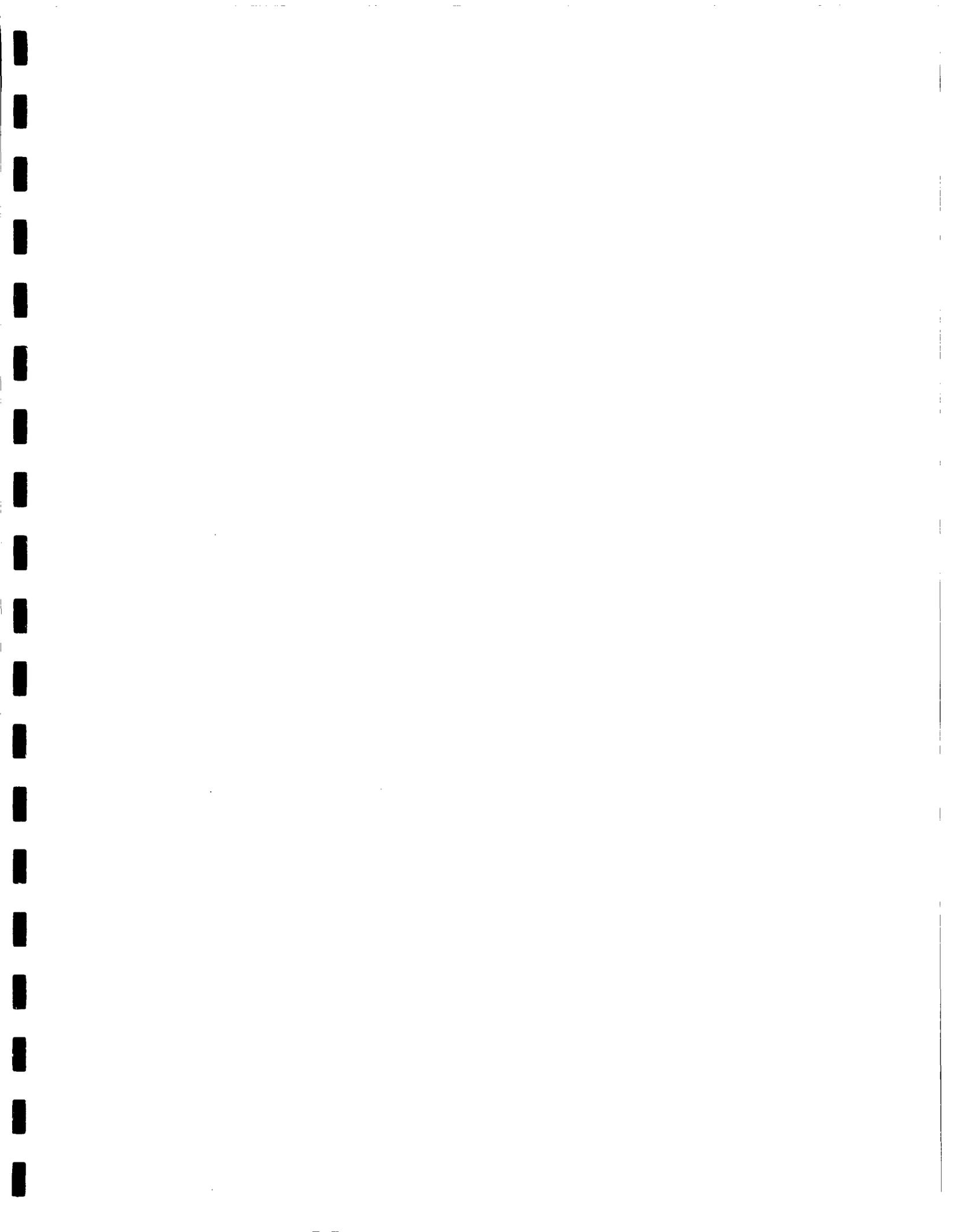
Client/Project Name		Project Location		ANALYSIS/PARAMETERS						Remarks	
Smith 91410		Bloomfield Highway									
Sampler: (Signature) <i>Kelley Johnson</i>		Chain of Custody Taps No.		No. of Containers	✓	✓	✓	✓	✓	✓	
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	✓ <th>✓ <th>✓ <th>✓ <th>✓ <th>✓ <th></th> </th></th></th></th></th>	✓ <th>✓ <th>✓ <th>✓ <th>✓ <th></th> </th></th></th></th>	✓ <th>✓ <th>✓ <th>✓ <th></th> </th></th></th>	✓ <th>✓ <th>✓ <th></th> </th></th>	✓ <th>✓ <th></th> </th>	✓ <th></th>	
Acid Pit - M.W. #12	5/26/92	1659	0891	WATER	3	✓	✓	✓	✓	✓	
Acid Pit M.W. #13	5/26/92	1637	0892	WATER	3	✓	✓	✓	✓	✓	
Acid Pit M.W. #14	5/26/92	1606	0893	WATER	3	✓	✓	✓	✓	✓	NOT ANALYZED AS WELL NOT ALLOWED TO EQUILIBRATE. 5/27/92 H
Relinquished by: (Signature) <i>Kelley Johnson</i>		Date	Time	Received by: (Signature) <i>Tommy Tristano</i>		Date	Time				
Relinquished by: (Signature)		5/26/92	1802	Received by: (Signature)		5/26/92	1802				
Relinquished by: (Signature)				Received by: (Signature)							

ENVIROTECH INC.
 5796 U.S. Highway 64-3014
 Farmington, New Mexico 87401
 (505) 632-0615

CHAIN OF CUSTODY RECORD

Client/Project Name		Project Location		ANALYSIS/PARAMETERS															
Smith 91410		Bloomfield Highway		Chain of Custody Tape No.		Sample Date		Sample Time		Lab Number		Sample Matrix		No. of Containers		Date		Time	
Sampler: (Signature) <i>Kelly Johnson</i>																			
ACID P.I.T - M.W.#12		5/26/92		1659		0891		WATER						3		4/18.1		8020	
ACID P.I.T M.W.#13		5/26/92		1637		0892		WATER						3					
ACID P.I.T M.W.#14		5/26/92		1606		0893		WATER						3				NOT ANALYZED AS WELL NOT ALLOWED TO EQUILIBRATE. 5/27/92. H	
Relinquished by: (Signature) <i>Kelly Johnson</i>		Date 5/26/92		Time 1802		Received by: (Signature) <i>Tommy Tristano</i>		Date 5/26/92		Time 1802		Received by: (Signature)		Date		Time			
Relinquished by: (Signature)																			

ENVIROTECH INC.
 5796 U.S. Highway 64-3014
 Farmington, New Mexico 87401
 (505) 632-0615



ENVIROTECH INC.

GW-101

**UST Closure Report
Diesel and Gasoline Fuel System**

at

**Smith International Inc.
2198 East Bloomfield Highway
Farmington, New Mexico**

RECEIVED

MAR 30 1992

OIL CONSERVATION DIV.
SANTA FE

Project #91410

March 1992

UST CLOSURE REPORT
DIESEL AND GASOLINE FUEL SYSTEM
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO

PREPARED FOR
MR. MAURICE STICKER
ENVIRONMENTAL AFFAIRS COORDINATOR
SMITH INTERNATIONAL, INC.

PROJECT NO: 91410

MARCH 1992

ENVIROTECH INC.
Environmental Scientists & Engineers
5796 U.S. Highway 64-3014
Farmington, New Mexico

(505) 632-0615

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UST CLOSURE REPORT
DIESEL AND GASOLINE FUEL SYSTEM
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO

PROJECT NO: 91410

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MARCH 1992

PROJECT NO: 91410

UST CLOSURE REPORT
DIESEL AND GASOLINE FUEL SYSTEM
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO

Envirotech Inc. has been retained by Smith International, Inc. to remove and dispose of two (2) Underground Storage Tanks (UST) for closure at the Smith Energy Services facility located at 2198 East Bloomfield Highway in Farmington, San Juan County, New Mexico. Enclosed please find a copy of the Tank Closure Worksheet and Amended Underground Storage Tank Notification Form 7530 for two (2) fuel tanks excavated and pulled from the above referenced site.

The tank removal was initiated on February 6, 1992 and excavation of the highly contaminated soils was completed on February 18, 1992. Hydrocarbon contaminated soil was found in the area associated with the piping at the center of the fuel UST system.

Mr. Leonard Murray of the New Mexico Environment Department (NMED) was present during the tank removal. He identified and reported the spill incident. Mr. Murray executed the tank closure documentation for this tank removal; refer to the closure forms in the Appendix.

PURPOSE & SCOPE OF SERVICES

The purpose of the excavation and removal of the UST's was to aid in the closure of the fuel UST system at the reference site. The New Mexico Environment Department's UST Regulations (Amended July 26, 1990) protocol was followed in the UST removal.

The scope of services that Envirotech was retained to provide included the following:

- A. Notification of the NMED, NMOCD and appropriate authorities of the intent to remove and close the fuel UST system at the referenced site.
- B. Excavation, removal and disposal of the UST's.
- C. Field assessment of the site to determine if a spill incident had occurred.

- D. Excavate and dispose of the highly contaminated soils to abate the spill incident.
- E. Provide acceptable fill material sufficient to backfill the excavation.
- F. Review available water supply information, collect groundwater samples, and analyze groundwater samples to assess the potential impact from the spill incident.
- G. Document the tank excavation, closure operations, and site assessment findings.

SITE DESCRIPTION

Bluestake New Mexico was contacted and underground utilities were marked, prior to the excavation operation. The main utilities are located along East Bloomfield Highway and Molta Avenue, the south and west boundaries of the property. The underground utilities in the immediate area of the fueling system consisted of a one inch water line and electrical to the control/lube/storage building. These utilities were disconnected prior to the tank removal operations and subsequently were removed during the contaminated soil excavation.

The site is an active staging yard for Smith Energy Services an oilfield services company. The fuel UST system was in use until within one week of the tank removal. The subject fuel UST system was located along the east side of the service yard. Refer to the attached general Site Plan (Sheet 1) prepared by ENERLOG/TIS Inc.

Access to the yard and site is available from East Bloomfield Highway (U.S. Highway 64) which is adjacent to the south property boundary.

The attached Site Plan (Sheet 2) shows the location of the buried utilities, as they were marked or uncovered and the fuel UST system.

Water Supply Information:

Based on a preliminary review of available records from the New Mexico State Engineers Office, there appear to be eight water supply wells within a half mile radius of the Smith International site. They are listed in Table 1 at the end of Section 2.

All wells appear to be located over 1000 feet from the site. The wells on Section 14 appear to be located up and cross gradient based on preliminary monitor well water level measurements. The remaining six wells on Sections 22 and 23 appear to be located down and cross gradient from the site and plume. Analysis of a water samples collected during the closure operations and from monitor wells #2 and #3 located adjacent to the fuel system did not detect BTEX or TPH contamination above the regulated limits. These monitor wells are located at the southwest and northwest corners of the fuel apron. Refer to the attached laboratory analytical results.

The San Juan River is south of the site, approximately three-quarters of a mile down-gradient. The Animas River is north of the site, approximately one mile up-gradient. Both rivers flow to the west and south, and have year around water flow. The Willett Ditch provides irrigation water to farms in the general proximity of the

site. The Willett Ditch is fed on the south side of the Animas River, upstream of the site approximately 3/4 miles. Based on discussions with the New Mexico State Engineers Office, this ditch appears to be used primarily for irrigation and industrial use and is not a public drinking water source.

Where easily assessable, all of the above mentioned surface water courses were inspected. The author observed no superficial evidence of hydrocarbon contamination from a spill along any of the water courses. Thus, it is felt that the surface water courses in the immediate proximity of the site have not been nor are immediately threatened.

WATER WELL INFORMATION
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO
FEBRUARY 6, 1992
TABLE 1

Location (T.R.Sec.Quad)	Name	Well No.	Use	Water Depth (ft)	Aquifer
29.13.14.313	Valley Drive In	SJ-00176	dom,stk	35	Qal
29.13.14.443	Dowell Inc.	NA	NA	15	Kk,Qal
29.13.22.22	Dennis Burke	SJ-01673	dom	14	Qal
29.13.23.1	Tom Kannard	SJ-01562	dom	6	Qal
29.13.23.11	NA	SJ-01719	NA	NA	NA
29.13.23.123	NA	SJ-00187	NA	40	Qal
29.13.23.22	Mary Barkley	SJ-00352	dom	30	Qal
29.13.23.22	Tom Pratt	SJ-01376	dom	15	Qal

Notes: NA - Information not available.
dom - domestic water source
stk - water source for livestock
Kk - Kirtland Shale
Qal - Quaternary alluvium

Based on available information from the State of New Mexico Engineers Office.

TANK REMOVAL & FIELD ASSESSMENT

Site Safety:

During the tank pull and excavation operations, the work area was contained and roped off with reflector type barricades. Access was limited to essential personnel. Hydrocarbon vapors were monitored by Envirotech personnel to assess if a health or explosion hazard existed. A MSA model 62 explosimeter was used to monitor the site. No hazard associated with hydrocarbon vapors was detected during the entire operation.

USTS and Excavation:

Both tanks were constructed of steel and buried at a depth of approximately four feet (4') below the existing ground surface. Residual product of less than 25 gallons was removed from both tanks. The gasoline tank was inerted with compressed air and carbon dioxide, prior to removing the tank. The following is a tank summary:

**UST SYSTEM SUMMARY
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO
FEBRUARY 6, 1992
TABLE 2**

<u>Tank</u>	<u>Prior Contents</u>	<u>Diameter (ft)</u>	<u>Length (ft)</u>	<u>Volume (gal)</u>	<u>Condition</u>
1	Diesel	11.0	41.9	30,000	Minor corrosion
2	UL. Gas.	6.8	14.1	4,000	Minor corrosion

Refer to the attached Site Plan (Sheet 2) for the tank locations.

The tanks and piping were steel. The USTS was reportedly installed in August 1980. The USTS was in use until five days prior to the tank removal on February 6, 1992. The tanks were essentially emptied at that time.

The tanks were transported to Envirotech's Farmington Construction yard for disposal.

The tanks were inspected for any evidence of a hole or leak by Mr. Murray of the NMED, and Envirotech personnel. All tanks appeared to have minor surface corrosion with some pitting.

Both tanks were set and strapped to 12 inch thick reinforce concrete hold down slabs. Native soils appear to have been used to bed the tanks in place. The Native soils were classified as moderate to grayish brown well graded gravel with well rounded cobbles to 15 inches in diameter and medium to fine sand, dense, and moist.

Site Groundwater Information:

Three previously installed groundwater monitor well were used to estimate the site groundwater gradient. They were sampled to determine if groundwater had been impacted by the subject fuel UST hydrocarbon plume. The wells had been installed by ENERLOG/TIS for Smith International during an environmental audit of the property in August 1990. The wells were drilled with an air drill rig, and completed with four inch PVC casing. The monitor well information and groundwater level measurements (taken 2-7-92) are summarized in Table 3 at the end of Section 2.

Based on the water level measurements from the three wells, the groundwater ranges from 28 to 30 feet below the existing ground surface. The groundwater gradient and subsequent flow direction is to the west and south and averages approximately 0.002 feet/foot. The shallow alluvial groundwater appears to represent an unconfined aquifer. The groundwater level and gradient may vary, considering the sites relative proximity to both the San Juan River and Animas River and site soil conditions.

MONITOR WELL DATA SUMMARY
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO

TABLE 3

DRILLING & COMPLETION INFORMATION
AUGUST 1990

MONITOR WELL	TOTAL DEPTH	WATER LEVEL	TOP OF SCREEN
1	34	25	15
2	40	30	18
3	40	28	20

SURVEY & WATER LEVEL INFORMATION
FEBRUARY 7, 1992

<u>LOCATION</u>	<u>ELEV.</u>	<u>COORDINATE</u>		<u>WATER LEVEL(bgs)</u>	<u>WATER ELEV.</u>
		<u>X</u>	<u>Y</u>		
SW WAREHOUSE COR. (benchmark)	100.00	0.00	0.00		
MW1	99.78	346.41	195.63	28.54	71.24
MW2	99.85	85.11	-289.32	29.98	69.87
MW3	99.77	67.82	-199.59	29.74	70.03

Abatement and Closure:

Hydrocarbon contaminated soil was encountered at the center of the UST system in the area surrounding the control building. The spill is suspected to have been from piping leakage and/or over fill during fuel transfer to the tanks, as both tanks had previously tested tight and had no visible holes.

As the contamination appeared to be limited to the immediate area of the UST system, Smith International elected to abate the contamination by excavating all the highly contaminated soils. Soil samples were collected during excavation operations from the bottom and sidewalls. These soil samples were analyzed for organic hydrocarbon vapors and/or Total Recoverable Petroleum Hydrocarbons (TPH) to determine the extent of contamination following the NMUSTR guidelines of 100 ppm volatile organics by OVM and/or TPH. Additional excavation was performed in every area where the results exceeded the 100 ppm action level. Once the extent of contamination appeared to have been reached, confirmation soil samples were collected and analyzed for benzene, toluene, ethylbenzene and xylene (BTEX) compounds from the final excavation. All sampling followed NMUSTR protocol.

The contamination was relatively extensive. Based on the final excavation the plume was limited to a depth of approximately 28 feet below the original ground surface and within a 50 to 75 foot diameter area (refer to the site plan, Sheet 2). The highly contaminated soils were excavated by Envirotech, following the removal of the UST's. Approximately 2,564 cubic yards of contaminated soil were removed from the site. These contaminated soils were transported to Envirotech's Soil Remediation Facility located at Hilltop, New Mexico. Attached are copies of the CERTIFICATION OF ORIGIN OF CONTAMINATED SOILS executed by Mr. Murray of the NMED and Bill of Ladings to manifest the soil.

As no new UST's were to be installed, clean imported soils were backfilled in the excavation upon completion of the highly contaminated soil removal and verification testing.

Photographs of the referenced tank excavation and tanks are attached.

SOIL & GROUNDWATER SAMPLING AND ANALYTICAL RESULTS

After the removal of both tanks, the excavation bottom was sampled beneath both tanks to assess if hydrocarbon contamination was present. Soil was sampled from the tank excavation following US EPA SW-846 protocol. The soil was field tested for volatile hydrocarbons following the Headspace Field Method (Underground Storage Tank Regulations, State of New Mexico, Environmental Improvement Board, Part XII, Appendix C, July 26, 1990) using a photoionization detector (PID), Model 580-B Organic Vapor Meter (OVM) manufactured by Thermo Environmental Instrumental. As diesel was stored in Tank #2, additional soil samples were collected and analyzed for TPH per USEPA method 418.1 (modified for soil).

During the abatement by excavation, the highly contaminated soils were excavate until the field results of the OVM for volatile hydrocarbons were below the NMUSTR action level of 100 ppm.

The results of the field headspace analyses are summarized in Table 4 at the end of Section 3.

Upon completion of the removal of the highly contaminated soil, confirmation soil samples were collected from the excavation. These samples were submitted for laboratory analyzed for BTEX compounds per USEPA Method 8020 or TPH per USEPA Method 418.1 (modified for diesel in soil). Results of the analysis indicated the concentration the BTEX compounds are below the current regulated limits for groundwater. Refer to the appendix for copies of the laboratory results and quality control/quality assurance.

To assess if groundwater had been impacted by the hydrocarbon plume, groundwater samples were collected at the conclusion of the abatement operations. Prior to sampling, the monitor wells were developed by removing at least three well bore volumes or until the well bore was pumped off (approximately 6 gallons). Following development, groundwater samples were collected following US EPA SW-846 protocol. The water samples were analyzed to total petroleum hydrocarbons (TPH) per EPA 418.1, BTEX compounds per EPA 8020, and major cations/anions.

The results of the laboratory analyses are attached in Appendix C and summarized in Tables 5 and 6 at the end of Section 3.

FIELD HEADSPACE OVM RESULTS
 SMITH INTERNATIONAL INC.
 2198 EAST BLOOMFIELD HIGHWAY
 FARMINGTON, SAN JUAN COUNTY, NEW MEXICO
 FEBRUARY 6, 1992

TABLE 4

<u>Sample</u>	<u>Date/Lab #</u>	<u>Sample Location</u>	<u>Time</u>	<u>OVM (ppm)</u>
* 1	020692	17' bgs TK#1 S. end	10:35	161
* 1ED	020692	17' bgs TK#1 S. end	10:35	103
2	020692	20' bgs TK#1 S. end	10:46	63.4
* 3	020692	14' bgs TK#2 N. end	11:20	221
* 3ED	020692	14' bgs TK#2 N. end	11:20	230
* 4	020692	14' bgs TK#2 S. end	11:27	9.6
* 4ED	020692	14' bgs TK#2 S. end	11:27	11.3
* 5	021092	17' bgs TK#1 N. end	11:20	2.9
6	021192	17' bgs S. TK#1 @ Fence	10:47	34.2
* 7	021192	19' bgs N. TK#1 under slab	10:45	13.0
* 8	021192	21' bgs @ 13'S. of TK#1 slab	10:54	165
* 9	021192	18' bgs W. of TK#1 slab S.end	11:48	135
10	021192	16' bgs E. of TK#2 at center	11:02	1.9
11	021192	21' bgs @ 13'So of TK#1 slab	11:04	3.2
12	021292	17' bgs E. 13' SE of TK#1	9:20	1.9
13	021292	17' bgs E. fence NE cnr bldg	9:22	0.6
14	021292	16' bgs E. fence SE cnr bldg	9:28	1.0
15	021292	15' bgs NE TK#2 @ E. fence	9:41	12.3
16	021292	12' bgs above sample #13	9:44	15.3
* 17	021292	17' bgs S. bldg	10:10	186
18	021292	15' bgs btw samples #13 & #14	10:15	34.8
18D	021292	duplicate of sample #18	10:16	15.7
* 19	021292	20' bgs W. of bldg	11:21	190
20	021292	20' bgs E. of bldg	11:24	86.4
21	021292	14' bgs	11:54	53.4
22	021292	18' bgs	11:56	44.6
* 23	021292	25' bgs W. of bldg	16:02	154.2
* 24	021292	27' bgs W. of bldg	16:24	150.0
* 25	021392	14' bgs TK#1 Ctr slab	15:30	25.2
26	021392	18' bgs TK#1 Ctr slab	15:32	1.0
* 27	021392	12' bgs	8:45	198
* 28	021392	14' bgs	8:50	188
* 29	021492	14' bgs	14:02	128
@ 30	021492	14' bgs	14:15	1.0
@ 31	021792	14' bgs	15:03	72.6
32	021792	14' bgs	15:04	14.6
33	021792	16' bgs	15:07	1.8
34	021792	17' bgs	15:11	6.2
35	021792	15' bgs	15:13	3.6
36	021792	18' bgs	15:16	22.4

37	021792	13' bgs	15:18	58.8
38	021792	13' bgs	15:34	3.6
39	021792	23' bgs	15:40	1.9
40	021792	13' bgs	15:43	6.8
41	021792	16' bgs	15:44	11.2
42	021792	17' bgs	15:48	14.6
43	021892	15' bgs	10:01	1.0
44	021892	14' bgs	10:02	1.0
45	021892	14' bgs	10:04	ND
46	021892	18' bgs	10:12	ND

Notes: bgs - approximate depth below original ground surface.

 OVM - 100 ppm action level per NMUSTR, 7/26/91.

 ED - Field headspace OVM results measured by NMED inspector.

 * - Samples taken within the removed contamination plume envelope.

 @ - Samples taken at the deepest extent of excavation (approximately 28 feet).

Refer to the site plan for the approximate sample locations.

LABORATORY ANALYTICAL RESULTS
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO
FEBRUARY, 1992

TABLE 5

SOIL SAMPLES

<u>SAMPLE ID</u>	<u>MATRIX</u>	<u>EPA METHOD</u>	<u>BENZENE</u> (ug/kg)	<u>TOLUENE</u> (ug/kg)	<u>ETHYL-BENZENE</u> (ug/kg)	<u>TOTAL XYLENE</u> (ug/kg)	<u>TPH</u> (mg/kg)
2	SOIL	418.1	-	-	-	-	80.2
*3	SOIL	8020	688	203	<50	66.1	-
*4	SOIL	8020	ND	303	1575	5156	-
*5	SOIL	418.1	-	-	-	-	97.4
6	SOIL	418.1	-	-	-	-	17.2
*7	SOIL	418.1	-	-	-	-	3327
12	SOIL	418.1	-	-	-	-	11.4
13	SOIL	418.1	-	-	-	-	14.3
*25	SOIL	418.1	-	-	-	-	109
26	SOIL	418.1	-	-	-	-	17.2
30	SOIL	418.1	-	-	-	-	<10.0
31	SOIL	8020	ND	477	<50	265.9	-
32	SOIL	8020	ND	187	ND	@50	-
33	SOIL	8020	ND	190	<50	285.5	-
34	SOIL	8015-D	-	-	-	-	ND
35	SOIL	8015-D	-	-	-	-	ND
38	SOIL	8015-D	-	-	-	-	ND

- Notes:
- 1) ND - Parameter not detected at method detection limit (refer to analytical results for detection limit).
 - 2) Total Xylene - summation of m,p-Xylene and o-Xylene.
 - 3) @ - Laboratory indicated traces of both m,p-Xylene and o-Xylene at detection limit of 50 ug/kg, the net total of which approximated 50 ug/kg.
 - 4) * - Samples taken within the removed contamination plume envelope.

Refer to the Sampling Detail (Sheet 3) for the approximate sample locations.

LABORATORY ANALYTICAL RESULTS
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO
FEBRUARY, 1992
TABLE 6

MONITOR WELL GROUNDWATER SAMPLES							
SAMPLE ID	MATRIX	EPA METHOD	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYL- BENZENE (ug/L)	TOTAL XYLENE (ug/L)	TPH (mg/L)
MW1	WATER	8020	ND	ND	ND	ND	-
MW1	WATER	418.1	-	-	-	-	<10
MW2	WATER	8020	ND	<1.0	<1.0	<1.0	-
MW2	WATER	418.1	-	-	-	-	14.5
MW3	WATER	8020	ND	<1.0	<1.0	<1.0	-
MW3	WATER	418.1	-	-	-	-	ND

- Notes:
- 1) ND - Parameter not detected at method detection limit (refer to analytical results for detection limit).
 - 2) Total Xylene - summation of m,p-Xylene and o-Xylene.
 - 3) @ - Laboratory indicated traces of both m,p-Xylene and o-Xylene at detection limit of 50 ug/kg, the net total of which approximated 50 ug/kg.
 - 4) * - Samples taken within the removed contamination plume envelope.

Refer to the Sampling Detail (Sheet 3) for the approximate sample locations.

LIMITATIONS AND CLOSURE

Based on the site assessment conducted during the USTS removal and abatement, it appears that the hydrocarbon contamination was limited to the area immediately around the UST's and the piping to the dispensers. The highly contaminated soils have been excavated and removed for remediation. Soils from the final excavation sidewalls and bottom tested below the action level of 100 ppm for volatile organic vapors and tested below action levels to BTEX compounds and/or TPH.

Analysis of the groundwater samples indicate that the soil hydrocarbon plume had not impacted groundwater at the site.

We respectfully request closure of this UST file, considering the findings of this report.

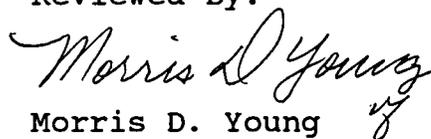
I hereby certify that the work performed by Envirotech and described in this report was performed under my direct supervision, and that I am personally familiar with the nature of the work, the results of the assessment and the contents of this report.

Respectfully submitted,
ENVIROTECH Inc.



Michael K. Lane, P.E.
Geological Engineer

Reviewed By:

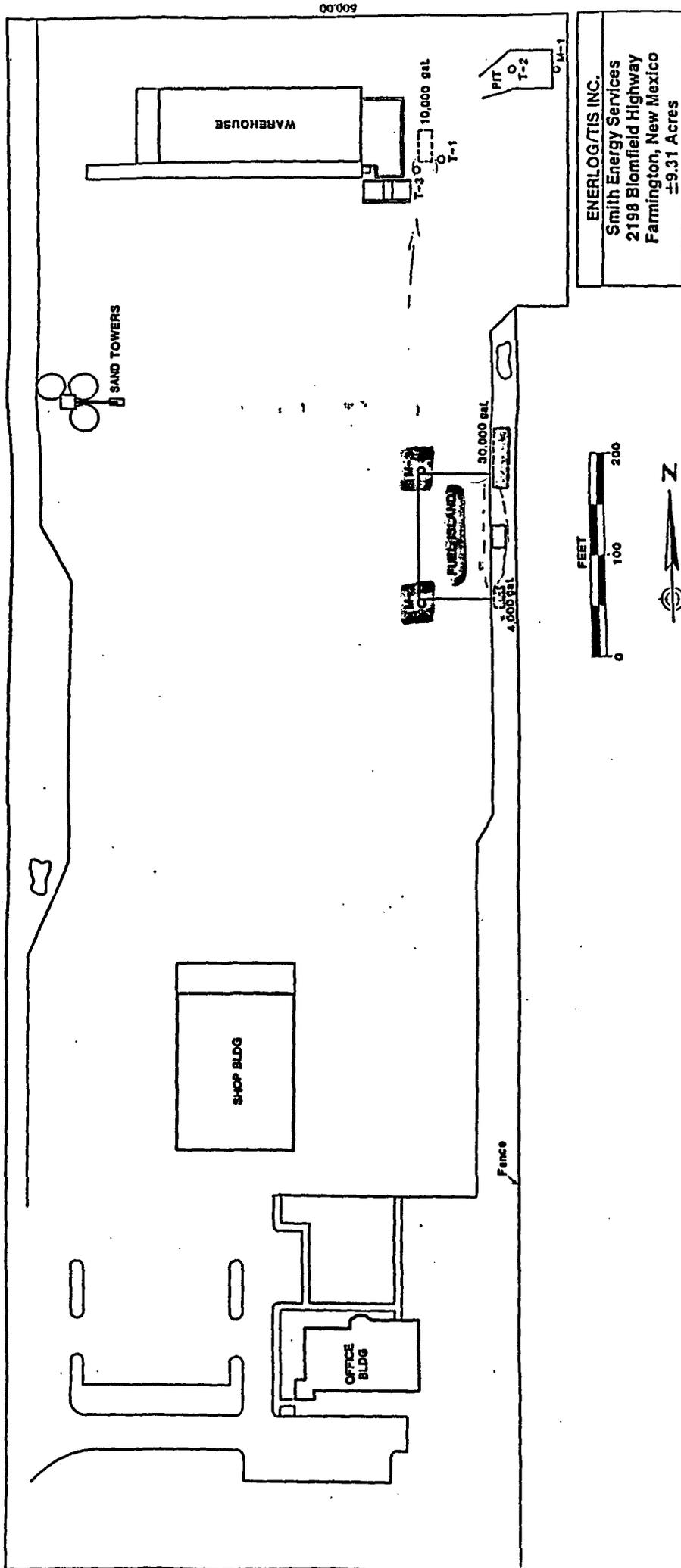


Morris D. Young
President

APPENDICES

1410UST.RPT

MOLTA AVE



ENERLOG/TIS INC.
 Smith Energy Services
 2198 Blomfield Highway
 Farmington, New Mexico
 ±9.31 Acres

REV. 8/90

ENVIROTECH INC.
 PROJECT NO: 91410
 MARCH 1992

UST CLOSURE REPORT
 DIESEL AND GASOLINE FUEL SYSTEM
 SMITH INTERNATIONAL INC.
 FARMINGTON, SAN JUAN COUNTY, NEW MEXICO

SCALE



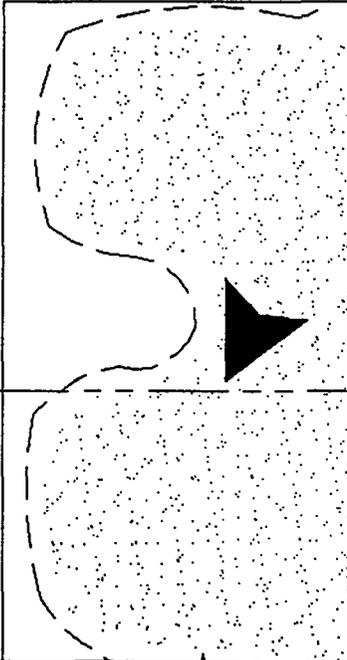
EXCAVATION PERIMETERS AND CONTAMINATION ENVELOPE WERE DETERMINED BY TAPING, PACING AND SIGHTING FROM EXISTING CURBING AND TOPOGRAPHIC FEATURES. THE SAMPLE LOCATIONS SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE MEASUREMENT METHOD USED.

ESTIMATED GROUNDWATER SLOPE BASED ON WATER LEVEL MEASUREMENTS FROM THREE SITE MONITOR WELLS (2/17/92)

FUEL ISLAND (CONCRETE SLAB)

MONITOR WELL #2

A



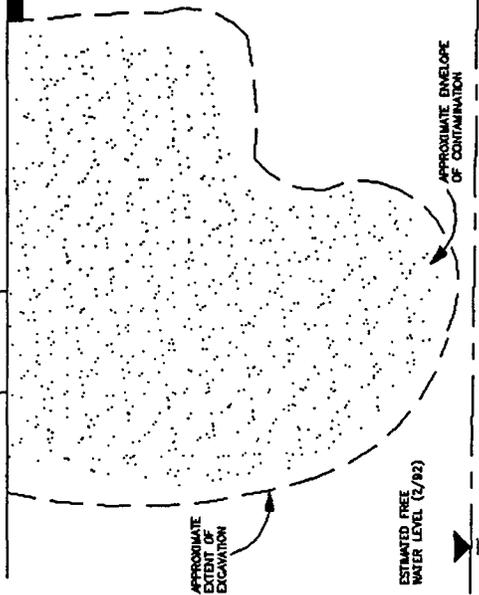
LUBE BUILDING

TK #1 DIESEL (50,000 gal)

CHAINLINK FENCE

LUBE BUILDING (DEMOLISHED)

AC PAVING



VIEW A-A

CHAINLINK FENCE

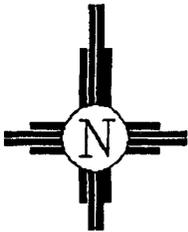
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HWY
FARMINGTON, NEW MEXICO

ENVIROTECH INC.
ENVIRONMENTAL SCIENTISTS & ENGINEERS
5786 U.S. HIGHWAY 64-3014
FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615

GASOLINE AND DIESEL FUEL USTS	
SITE PLAN & DETAILS	
SHEET: 2	DRAWN: MAR. '92
DRWN BY: MKL	PRJ MGR: MKL

USTS SITE ASSESSMENT PROJECT NO: 91410

10 0 SCALE 50 FEET



APPROXIMATE LOCATION OF SOIL SAMPLE FOR VOLATILE ORGANIC VAPOR ANALYSES &/OR LABORATORY ANALYSES (TPH OR BTEX).

SAMPLE LOCATIONS WERE DETERMINED BY PACING AND SIGHTING FROM EXISTING BUILDINGS AND TOPOGRAPHIC FEATURES. THE SAMPLE LOCATIONS SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE MEASUREMENT METHOD USED.

FUEL ISLAND
(REMOVED CONCRETE SLAB)

○ MONITOR WELL #3

○ MONITOR WELL #2

APPROXIMATE ENVELOPE OF HIGHLY CONTAMINATED SOILS

APPROXIMATE FINAL EXCAVATION PERIMETER

12" CONCRETE SLAB UNDER TANK (REMOVED)

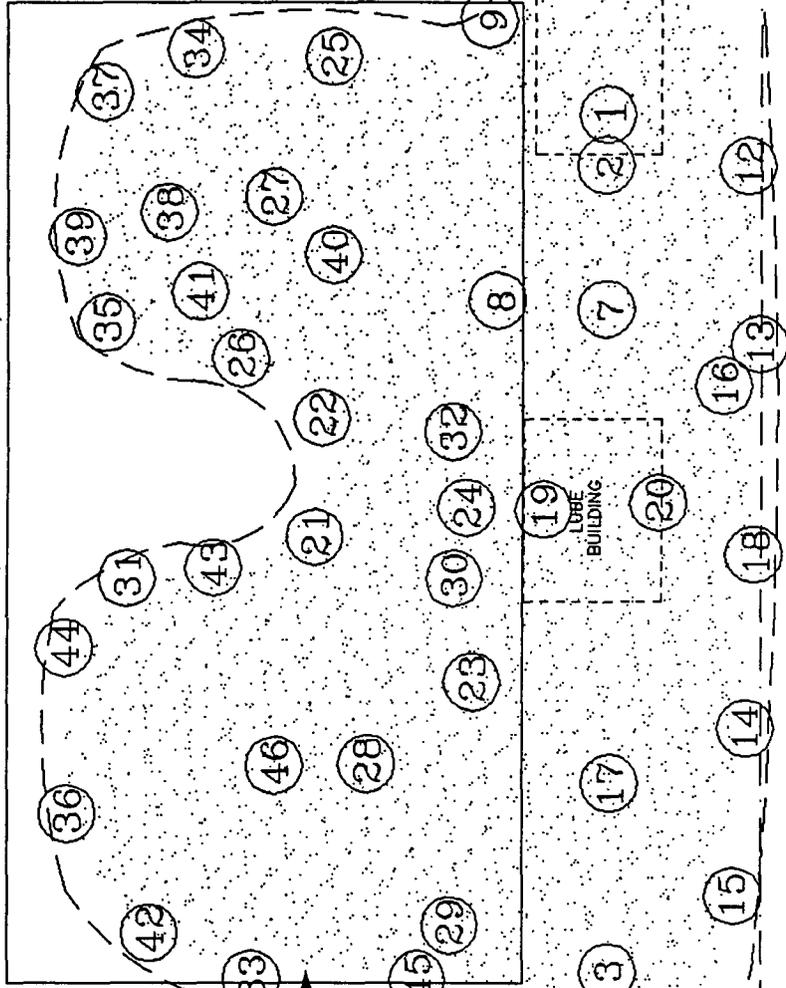
TK #2 GASOLINE (4000 gal)

TK #1 DIESEL (50,000 gal)

LOBE BUILDING

12" CONCRETE SLAB UNDER TANK (REMOVED)

CHAINLINK FENCE



NOTE: SAMPLES #30 AND #32 TAKEN FROM THE DEEPEST POINT IN EXCAVATION @ APPROXIMATELY 28 FEET BELOW ORIGINAL GROUND SURFACE.

SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HWY
FARMINGTON, NEW MEXICO

ENVIROTECH INC.
ENVIRONMENTAL SCIENTISTS & ENGINEERS
5786 U.S. HIGHWAY 64-3014
FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615

GASOLINE AND DIESEL FUEL USTS
SAMPLING DETAIL

SHEET: 3 DRAWN: MAR. '92

USTS SITE ASSESSMENT PROJECT NO: 91410

DRWN BY: MKL PRJ MGR: MKL

TANK CLOSURE WORKSHEET
(COMPLETE AFTER CLOSURE)

Tank Owner CLM Properties, Inc. Phone 325-1288
Mailing Address 3211 Mountain View Dr., Farmington, NM 87401
Tank Address 2198 E. Bloomfield Hwy., Farmington, NM 87401
Contractor Name Eurotech, Inc. Phone 632-0615
Address 5796 U.S. Hwy 64 - 3014, Farmington, NM 87401
Contractor Name _____ Phone _____
Address _____

Tank Closure Date 2-6-92 # of Tanks Closed 2

I. Tank Closure Initial Procedures (check measures complied with):

- Obtain recommended safety equipment for all personnel
- Contact Fire Marshall or other fire officials
- Bond or ground equipment
- Drain product from piping and tank
- Disconnect, then cap or remove piping
- Remove all residual product from tank
- Excavate to tank top
- Remove all tank fixtures
- Properly purge or inert tank of all flammable vapors using approved method
- Continually monitor for explosive vapors while tank is being removed

II. Tank Removal

- Create vent hole unknown for gasoline tank
- Excavate tank using all safety precautions
- Clean and inspect tank
- Check excavation for evidence of leaks and notify EID and other proper authorities if leak is found
- Check vapor levels in tank before transporting unknown
- Dispose of tank in approved manner

Tank disposal location 30,000 gal tank - Hilltop Facility, south of Bloomfield, NM
4,000 gal " - Eurotech yard, 5796 U.S. Hwy 64, Farmington
City _____ State _____

How did you assess site for leakage? Visual, PID, soil analysis by Eurotech for client
Closure report kept at 740. Avinas, Farmington

NOTE: Immediately report any evidence of leakage to EID at 827-0188

I hereby state that the above information is correct

Ken Tubrey NMED/USTB
Signature of ~~owner~~ ~~or contractor~~ performing work

FOR EID USE ONLY

Notification Received 1-23-92 Approved By Ken Tubrey
Inspection Date 2-6-92 Inspector Ken Tubrey

Notification for Underground Storage Tanks

UNDERGROUND STORAGE TANK BUREAU
1190 St. Francis Drive
Harold Runnels Bldg. N. 2164
Santa Fe, New Mexico 87503

IO Number _____ STATE USE ONLY
Date Received _____

GENERAL INFORMATION

Notification is required by Federal law for all underground tanks that have been used to store regulated substances since January 1, 1974, that are in the ground as of May 8, 1988, or that are brought into use after May 8, 1988. The information requested is required by Section 1002 of the Resource Conservation and Recovery Act (RCRA), as amended.

The primary purpose of this notification program is to locate and evaluate underground tanks that store or have stored petroleum or hazardous substances. It is expected that the information you provide will be based on reasonably available records, or, in the absence of such records, your knowledge, belief, or recollection.

What Must Notify? Section 1002 of RCRA, as amended, requires that, unless exempted, owners of underground tanks that were regulated substances must notify designated State or local agencies of the existence of their tanks. Owner means - (a) in the case of an underground storage tank in use on November 8, 1980, or brought into use after that date, any person who owns an underground storage tank used for the storage, use, or dispensing of regulated substances; and

(b) in the case of an underground storage tank in use before November 8, 1980, but no longer in use on that date, any person who owned such tank immediately before the discontinuation of its use.

What Tanks Are Included? Underground storage tank is defined as any one or combination of tanks that (1) is used to contain an accumulation of "regulated substances," and (2) whose design (including connected underground piping) is 10% or more beneath the ground. Some examples are underground tanks storing: 1. gasoline, used oil, or diesel fuel; and 2. industrial solvents, pesticides, herbicides or fungicides.

What Tanks Are Excluded? Tanks removed from the ground are not subject to notification. Other tanks excluded from notification are:

1. farm or residential tanks of 1,000 gallons or less capacity used for storing motor fuel for non-commercial purposes;
2. tanks used for storing heating oil for domestic use on the premises where stored;
3. septic tanks;

4. pipeline facilities (including gathering lines) regulated under the Natural Gas Pipeline Safety Act of 1968, or the Hazardous Liquid Pipeline Safety Act of 1979 in which is an interstate pipeline facility regulated under State law;
5. surface impoundments, pits, ponds, or lagoons;
6. waste water or storm water collection systems;
7. flow-through process tanks;
8. liquid traps or sandcatcher gathering lines directly related to oil or gas production and gathering operations;
9. storage tanks situated in an underground area (such as a basement, cellars, mine, or shaft, or tunnels) if the storage tank is situated upon or above the surface of the floor.

What Substances Are Covered? The notification requirements apply to underground storage tanks that contain regulated substances. This includes any substance defined as hazardous in section 301 (30) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) with the exception of those substances regulated as hazardous waste under Subtitle C of RCRA. It also includes petroleum, e.g., crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute).

Where To Notify? Completed notification forms should be sent to the address given at the top of this page.

When To Notify? 1. On each of underground storage tanks in use that have been taken out of operation after January 1, 1974, but not in use ground, must notify by May 8, 1988. 2. On any tank being underground storage tanks into use after May 8, 1988, must notify within 30 days of bringing the tank into use.

Penalties: Any owner who knowingly fails to notify or submit false information shall be subject to a civil penalty not to exceed \$20,000 for each tank for which notification is not given or for which false information is submitted.

INSTRUCTIONS

Please type or print in ink all items except "signature" in Section V. This form must be completed for each location containing underground storage tanks. If more than 5 tanks are owned at this location, photocopy the reverse side, and staple continuation sheets to this form.

Indicate number of continuation sheets attached

I OWNERSHIP OF TANK(S)

Owner Name (Corporation, Individual, Public Agency, or Other Entity)
CLM Properties Inc., Michael T. Grazier, Pres.

Street Address
3211 Mountain View Dr.

County
San Juan

City
Farmington State
NM ZIP Code
87401

Area Code
(505) Phone Number
325-1288

II LOCATION OF TANK(S)

(If same as Section I, mark box here)

Facility Name or Company Site Identifier, as applicable
Smith Energy Services

Street Address or State Road, as applicable
2198 E. Bloomfield Hwy

County
San Juan

City (nearest)
Farmington State
NM ZIP Code
87401

Type of Owner (Mark all that apply)

Current State or Local Govt Private or Corporate
 Former Federal Govt (EPA facility ID. no.) Ownership uncertain

Indicate number of tanks at this location

Mark box here if tank(s) are located on land within an Indian reservation or on other Indian trust lands

III CONTACT PERSON AT TANK LOCATION

Name (If same as Section I, mark box here)
Michael Much Job Title
Dist. Mgr. Area Code
505 Phone Number
327-7281

IV TYPE OF NOTIFICATION

Mark box here only if this is an amended or subsequent notification for this location.

V CERTIFICATION (Read and sign after completing Section VI)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.

Name and official title of owner or owner's authorized representative
Michael Much, Dist. Mgr. Signature
Michael Much Date Signed
2-10-92

CONTINUE ON REVERSE SIDE

DESCRIPTION OF UNDERGROUND STORAGE TANKS (Complete for each tank at this location)

Tank Identification No. (e.g., ABC-123), or Arbitrarily Assigned Sequential Number (e.g., 1,2,3...)	Tank No. 1	Tank No. 2	Tank No. 3	Tank No. 4	Tank No. 5
1. Status of Tank (Mark all that apply) Currently in Use Temporarily Out of Use Permanently Out of Use Brought into Use after 5/8/86	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
2. Estimated Age (Years)	<u>11(4) yrs</u>	<u>11(4) yrs</u>			
3. Estimated Total Capacity (Gallons)	<u>30,000 gal</u>	<u>4,800 gal</u>			
4. Material of Construction (Mark one) Steel Concrete Fiberglass Reinforced Plastic Unknown Other, Please Specify	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
5. Internal Protection (Mark all that apply) Cathodic Protection Interior Lining (e.g., epoxy resins) None Unknown Other, Please Specify	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
6. External Protection (Mark all that apply) Cathodic Protection Painted (e.g., asphaltic) Fiberglass Reinforced Plastic Coated None Unknown Other, Please Specify	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
7. Piping (Mark all that apply) Bare Steel Galvanized Steel Fiberglass Reinforced Plastic Cathodically Protected Unknown Other, Please Specify	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
8. Substance Currently or Last Stored in Greatest Quantity by Volume (Mark all that apply) a. Empty b. Petroleum Diesel Kerosene Gasoline (including alcohol blends) Used Oil Other, Please Specify c. Hazardous Substance	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Please indicate Name of Principal CERCLA Substance OR Chemical Abstract Service (CAS) No. Mark box <input type="checkbox"/> if tank stores a mixture of substances d. Unknown	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
9. Additional Information (for tanks permanently taken out of service) a. Estimated date last used (mo/yr) b. Estimated quantity of substance remaining (gal.) c. Mark box <input type="checkbox"/> if tank was filled with inert material (e.g., sand, concrete)	<u>01/92</u> <u>0</u> <input type="checkbox"/>	<u>01/92</u> <u>0</u> <input type="checkbox"/>	<u>1</u> <u>1</u> <input type="checkbox"/>	<u>1</u> <u>1</u> <input type="checkbox"/>	<u>1</u> <u>1</u> <input type="checkbox"/>



Environmental Improvement Division
 Underground Storage Tank Bureau
 Prevention/Inspection Section
 1190 St. Francis Drive
 Santa Fe, New Mexico 87503

INSPECTION REPORT

Page 1 of two pages

(505) 827-0216

DATE 2-6-92	CASE NUMBER 076M	OPENING CONFERENCE TIME 9:10am
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INSPECTION TYPE:	<input type="checkbox"/> COMPLIANCE <input type="checkbox"/> REINSPECTION	<input checked="" type="checkbox"/> TANK CLOSURE <input type="checkbox"/> INSTALLATION	<input type="checkbox"/> REPAIR <input type="checkbox"/> COMPLAINT	<input type="checkbox"/> MODIFICATION
------------------	--	---	---	---------------------------------------

Facility Name 1. Smith Energy Services	Facility No. New 5678901	Phone No. 327-7281
--	--	------------------------------

Address 2198 E. Bloomfield Hwy, Farmington	ZIP Code 87401
--	--------------------------

Owner Name 2. Michael T. Greve, Pres CLM Properties, Inc.	Owner No. New	Phone No. 325-1288
---	-------------------------	------------------------------

Address 3211 Mountain View Dr., Farmington	ZIP Code 87401
--	--------------------------

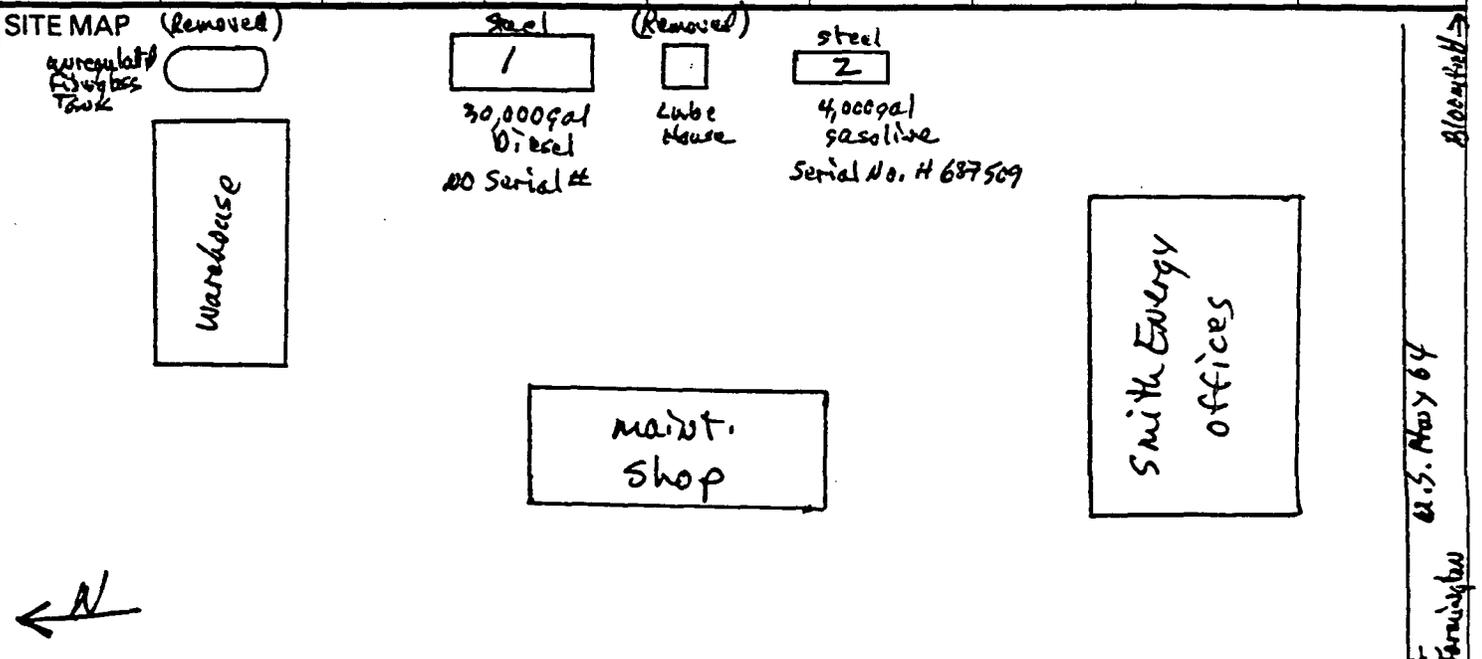
Facility Operator 3. Same as Facility	Phone No.
---	-----------

Address	ZIP Code
---------	----------

Contractor Name 4. Envirotech Inc.	Phone No. 632-0615
--	------------------------------

Address 5796 U.S. Hwy 64-3014, Farmington	ZIP Code 87401
---	--------------------------

TANK NO.	SIZE	CONTENTS	INSTALLATION DATE	TANK CONSTRUCTION	PIPING CONSTRUCTION	TANK RELEASE DETECTION	PIPING RELEASE DETECTION	TANK STATUS
1	30,000gal	Diesel	1980	steel	galvanized steel	NONE	Red Jacket	Permanently Closed
2	4,000gal	Gasoline	1980	steel	Painted steel	NONE	Red Jacket 4 1/2" Pump 2" Pump NONE	"



	Yes	No	Unk.	N/A
1. All applicable tanks on site are registered.	✓			
2. Proper notification was made for the following:				
a. Closure	✓			
b. Installation				✓
c. Modification				✓
d. Repair				✓
3. Tanks closed properly.	✓			
4. Tanks installed properly.		✓		
5. Tanks repaired/modified properly.			✓	
6. Release detection — tanks:				
a. Inventory records combined with annual tank tightness testing		✓		
b. Manual tank gauging		✓		
c. Automatic tank gauging		✓		
d. Vapor monitoring		✓		
e. Ground water monitoring		✓		
f. Interstitial monitoring		✓		
7. Release detection — piping.	✓			
8. Certified tank installers.				✓
9. All required records are maintained.		✓		
10. Evidence of release/spill.	✓			

Except for 2nd pipe gasolene

COMMENTS:

(1) Soil Type - Sand, cobble, some clay possible below 14'. Depth to groundwater approx. 45' to 50'

(2) Tank #1 - 30,000 gal - steel. No perforations observed in tank. Soil removed from around tank had discernible hydrocarbon smell. Cement pad under tank at depth of approx 15'. Soil sample taken south end tank at approx. 17' - PID soil VOH = 103 ppm. Envirotech OVA read approx 16.0 ppm, 3ft below my sample. Piping & overfill probable causes. No sample taken at north end tank because of cave-in problems.

(3) Tank #2 - 4000 gal - steel. No perforations observed in top or sides of tank. Soil samples taken at 14', which is approx. 3ft below cement slab tank sitting on. PID soil VOH - North end tank = 230 ppm, South end = 11.3 ppm. Soil contaminated, probable cause - piping & overfill. Not able to observe bottom of tank for perforations. (4) Incident Report called in 2-6-92 (5) No NOV issued

CLOSING CONFERENCE:	DATE 2-6-92	TIME 1245 am
Compliance Officer's Signature <i>Lionel Tubrey</i>	Date 2-10-92	

On-site Representative's Signature <i>Michael Muech</i>	Date 2-10-92
--	-----------------



East Portion of Excavation from North



East Portion of Excavation from South

UST Closure Report
Diesel & Gasoline Fuel System
Smith International Inc.
2198 East Bloomfield Highway
Farmington, New Mexico

Envirotech Inc.
March 1992 Project: 91410



Lube Building Prior to Demolition



Extent of Excavation Toward the West

UST Closure Report
Diesel & Gasoline Fuel System
Smith International Inc.
2198 East Bloomfield Highway
Farmington, New Mexico

Envirotech Inc.
March 1992 Project: 91410



South End and West Side



North End and East Side
Diesel Tank (Tk #1)

UST Closure Report
Diesel & Gasoline Fuel System
Smith International Inc.
2198 East Bloomfield Highway
Farmington, New Mexico

Envirotech Inc.
March 1992 Project: 91410



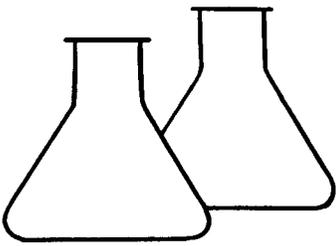
South End and West Side



North End and East Side
Gasoline Tank (Tk #2)

UST Closure Report
Diesel & Gasoline Fuel System
Smith International Inc.
2198 East Bloomfield Highway
Farmington, New Mexico

Envirotech Inc.
March 1992 Project: 91410



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 PURGEABLE AROMATICS

Client: Smith International
Sample ID: Sample #3
Lab ID#: 020692410-2
Matrix: Soil
Preservative:
Sample Condition: Received on ice

Project #: 91410
Date Reported: 2-17-92
Date Sampled: 2-6-92
Date Received: 2-6-92
Date Extracted: 2-6-92
Date Analyzed: 2-13-92
Injection Vol: 100 ul

Analyte -----	Analytical Result -----	Detection Limit -----	Units -----
Benzene	688	50.0	ug/kg
Toluene	203	50.0	ug/kg
Ethylbenzene	<50.0	50.0	ug/kg
m,p-Xylene	66.1	50.0	ug/kg
o-Xylene	<50.0	50.0	ug/kg

ND - Analyte not detected at given detection level.

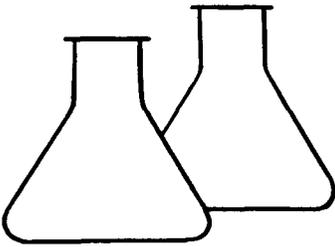
Comments:

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluation Solid Waste, SW-846, United States Environmental Protection Agency, SW-846, Vol. IB, November 1990.

Michael D. Dixon
Analyst

Maris D. Young
Reviewed



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 PURGEABLE AROMATICS

Client: Smith International
Sample ID: Sample #4
Lab ID#: 020692410-3
Matrix: Soil
Preservative:
Sample Condition: Received on ice

Project #: 91410
Date Reported: 2-17-92
Date Sampled: 2-6-92
Date Received: 2-6-92
Date Extracted: 2-10-92
Date Analyzed: 2-13-92
Injection Vol: 100 & 10 ul

Analyte -----	Analytical Result -----	Detection Limit -----	Units -----
Benzene	ND	50.0	ug/kg
Toluene	303	50.0	ug/kg
Ethylbenzene	1575	50.0	ug/kg
m,p-Xylene	5156	500.0	ug/kg
o-Xylene	ND	50.0	ug/kg

ND - Analyte not detected at given detection level.

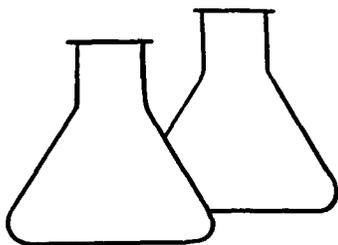
Comments:

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for
Evaluation Solid Waste, SW-846, United States Environmental
Protection Agency, SW-846, Vol. IB, November 1990.

Michael J. Eisen
Analyst

David Young
Reviewed



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**** QUALITY ASSURANCE REPORT
METHOD BLANK - PURGABLE AROMATICS**

Sample ID: Method Blank
Matrix: Soil
Preservative:

Date Reported: 2-17-92
Date Extracted: 2-13-92
Date Analyzed: 2-13-92
Injection Vol: 100 ul

Analyte -----	Analytical Result -----	Detection Limit -----	Units -----
Benzene	ND	1.0	ug/k
Toluene	ND	1.0	ug/k
Ethylbenzene	ND	1.0	ug/k
m,p-Xylene	ND	1.0	ug/k
o-Xylene	ND	1.0	ug/k

ND - Analyte not detected at given detection level.

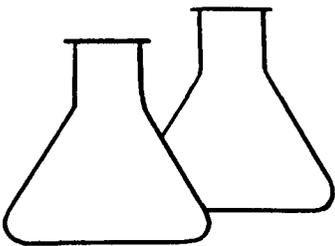
Comments:

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for
Evaluation Solid Waste, SW-846, United States Environmental
Protection Agency, SW-846, Vol. IB, November 1990.

Michael J. Pava
Analyst

Mavis D. Young
Reviewed



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

** QUALITY ASSURANCE REPORT MATRIX SPIKE - PURGABLE AROMATICS

Laboratory Number: 020692410-3
Sample Matrix: Soil
Preservative:
Sample Condition: Received on ice

Date Reported: 2-17-92
Date Sampled: 2-6-92
Date Extracted: 2-10-92
Date Analyzed: 2-13-92

Analyte	Spike Added (ug/L)	Sample Result (ug/L)	Spiked Sample Result (ug/L)	Percent Recovery
Benzene	100	ND	98.5	99
Toulene	100	303	398	96
Ethylbenzene	100	1575	1656	81

ND - Analyte not detected at the stated detection limit.

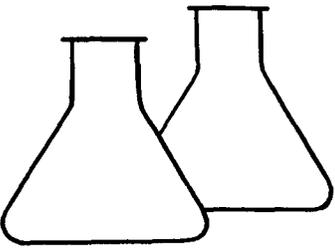
QA ACCEPTANCE CRITERIA: Analyte	Acceptance Range %
Benzene	39 - 150
Toluene	46 - 148
Ethylbenzene	32 - 160

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluation Solid Waste, SW-846, United States Environmental Protection Agency, SW-846, Vol. IB, November 1990.

Michael D. Egan
Analyst

Marion D. Young
Reviewed



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Diesel Tank South Side #2
Laboratory Number: 020692410-1
Sample Matrix: Soil
Temperature: Received on ice
Analysis Method: 418.1

Project #: 91410
Report Date: 2-17-92
Date Sampled: 2-6-92
Date Received: 2-6-92
Date Extracted: 2-14-92
Date Analyzed: 2-14-92

Analyte	Concentration (mg/kg)	Detection Limit (mg/kg)
Total Recoverable Petroleum Hydrocarbons	80.2	10.0

ND - Analyte not detected at the stated detection limit.

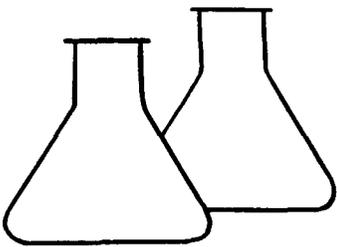
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael L. Cron
Analyst

Marion D. Young
Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Diesel Tank N @17'
Laboratory Number: 021092410-1
Sample Matrix: Soil
Temperature: Received on ice
Analysis Method: 418.1

Project #: 91410
Report Date: 2-17-92
Date Sampled: 2-10-92
Date Received: 2-10-92
Date Extracted: 2-14-92
Date Analyzed: 2-14-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	97.4	10.0

ND - Analyte not detected at the stated detection limit.

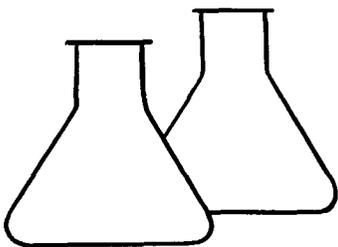
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. Eason
Analyst

Morris D. Young
Review



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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: E Wall of Diesel Tank Exc.
Laboratory Number: 021192410-2
Sample Matrix: Soil
Temperature: Received on ice
Analysis Method: 418.1

Project #: 91410
Report Date: 2-17-92
Date Sampled: 2-11-92
Date Received: 2-11-92
Date Extracted: 2-14-92
Date Analyzed: 2-14-92

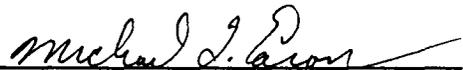
Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	3327	10.0

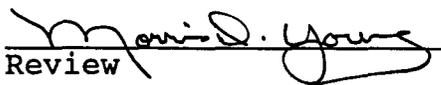
ND - Analyte not detected at the stated detection limit.

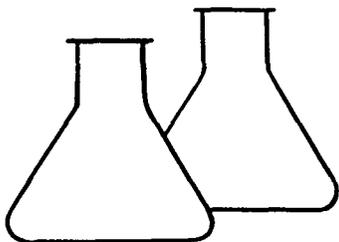
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


Analyst


Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: 4' N of S End of Slab @19'
Laboratory Number: 021192410-1
Sample Matrix: Soil
Temperature: Received on ice
Analysis Method: 418.1

Project #: 91410
Report Date: 2-17-92
Date Sampled: 2-11-92
Date Received: 2-11-92
Date Extracted: 2-14-92
Date Analyzed: 2-14-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	17.2	10.0

ND - Analyte not detected at the stated detection limit.

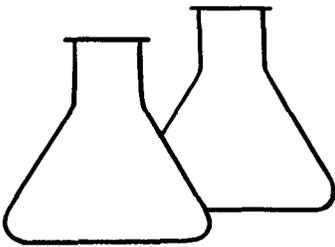
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael D. Eason
Analyst

Maris D. Young
Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: #12 @16.5'
Laboratory Number: 021292410-1
Sample Matrix: Soil
Temperature: Received on ice
Analysis Method: 418.1

Project #: 91410
Report Date: 2-17-92
Date Sampled: 2-12-92
Date Received: 2-12-92
Date Extracted: 2-14-92
Date Analyzed: 2-14-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	11.4	10.0

ND - Analyte not detected at the stated detection limit.

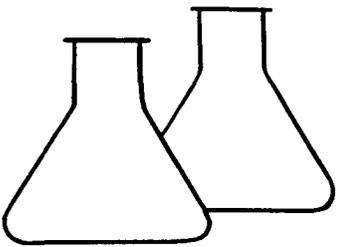
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael D. Eason
Analyst

Imanid. Young
Review



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: #13 @17'
Laboratory Number: 021292410-2
Sample Matrix: Soil
Temperature: Received on ice
Analysis Method: 418.1

Project #: 91410
Report Date: 2-17-92
Date Sampled: 2-12-92
Date Received: 2-12-92
Date Extracted: 2-14-92
Date Analyzed: 2-14-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	14.3	10.0

ND - Analyte not detected at the stated detection limit.

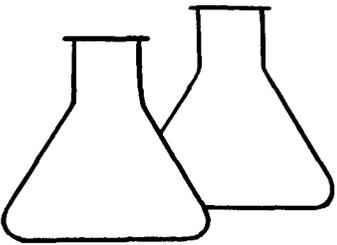
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. Egan
Analyst

Marvin Young
Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Sample #25
Laboratory Number: 021392410-1
Sample Matrix: Soil
Temperature: Received on ice
Analysis Method: 418.1

Project #: 91410
Report Date: 2-17-92
Date Sampled: 2-13-92
Date Received: 2-13-92
Date Extracted: 2-14-92
Date Analyzed: 2-14-92

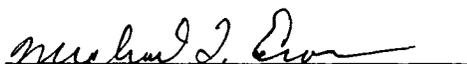
Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	109	10.0

ND - Analyte not detected at the stated detection limit.

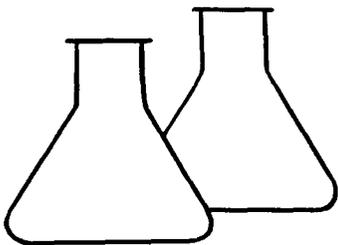
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


Analyst


Review



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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Sample #26
Laboratory Number: 021392410-2
Sample Matrix: Soil
Temperature: Received on ice
Analysis Method: 418.1

Project #: 91410
Report Date: 2-17-92
Date Sampled: 2-13-92
Date Received: 2-13-92
Date Extracted: 2-14-92
Date Analyzed: 2-14-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	17.2	10.0

ND - Analyte not detected at the stated detection limit.

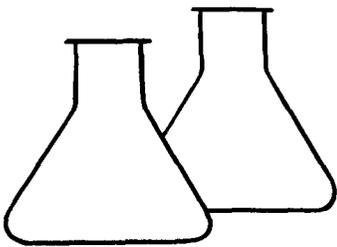
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. Egan
Analyst

Meris D. Young
Review



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**** QUALITY ASSURANCE REPORT
METHOD BLANK - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Sample ID: Method Blank
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 2-17-92
Date Extracted: 2-14-92
Date Analyzed: 2-14-92

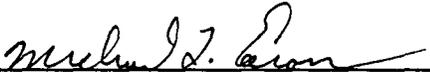
Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

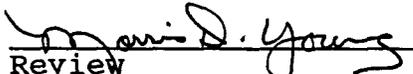
ND - Analyte not detected at the stated detection limit.

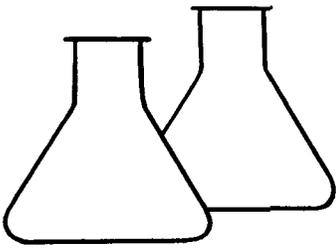
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


Analyst


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**** QUALITY ASSURANCE REPORT
MATRIX SPIKE - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Laboratory Number: 021392410-2
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 2-17-92
Date Extracted: 2-14-92
Date Analyzed: 2-14-92

<u>Analyte</u>	<u>Spike Added (ug/kg)</u>	<u>Sample Result (ug/kg)</u>	<u>Spiked Sample Result (ug/kg)</u>	<u>Percent Recovery</u>
TPH	100	17.2	103	86

ND - Analyte not detected at the stated detection limit.

<u>QA ACCEPTANCE CRITERIA: Analyte</u>	<u>Acceptance Range %</u>
TPH	48 - 143

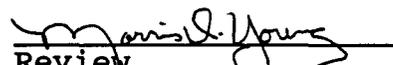
ND - Analyte not detected at the stated detection limit.

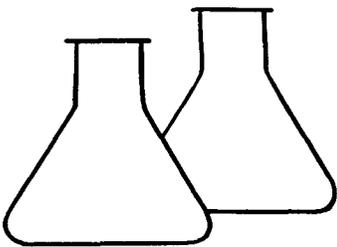
Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.:

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable,
Gas Chromatography. Test Methods for Evaluating Solid Waste
Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method
3550, SW-846, USEPA, 1990.

Comments:


Analyst


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EPA METHOD 8020 PURGEABLE AROMATICS

Client: Smith International
Sample ID: Monitor Well #1
Lab ID#: 021492410-5
Matrix: Water
Preservative: HgCl₂
Sample Condition: Received on Ice

Project #: 91410
Date Reported: 2-17-92
Date Sampled: 2-14-92
Date Received: 2-14-92
Date Extracted:
Date Analyzed: 2-17-92
Injection Vol: 5 ml

Analyte	Analytical Result	Detection Limit	Units
Benzene	ND	1.0	ug/l
Toluene	ND	1.0	ug/l
Ethylbenzene	ND	1.0	ug/l
m,p-Xylene	ND	1.0	ug/l
o-Xylene	ND	1.0	ug/l

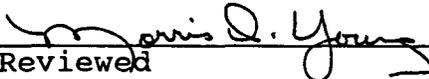
ND - Analyte not detected at given detection level.

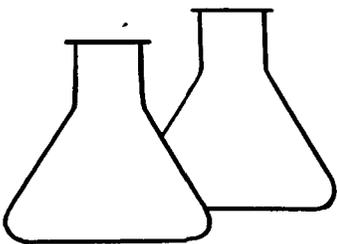
Comments:

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluation Solid Waste, SW-846, United States Environmental Protection Agency, SW-846, Vol. IB, November 1990.


Analyst


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EPA METHOD 8020 PURGEABLE AROMATICS

Client: Smith International
Sample ID: Monitor Well #2
Lab ID#: 021492410-4
Matrix: Water
Preservative: HgCl₂
Sample Condition: Received on Ice

Project #: 91410
Date Reported: 2-17-92
Date Sampled: 2-14-92
Date Received: 2-14-92
Date Extracted:
Date Analyzed: 2-17-92
Injection Vol: 5 ml

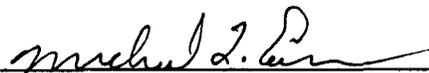
Analyte	Analytical Result	Detection Limit	Units
Benzene	ND	1.0	ug/l
Toluene	<1.0	1.0	ug/l
Ethylbenzene	<1.0	1.0	ug/l
m,p-Xylene	<1.0	1.0	ug/l
o-Xylene	<1.0	1.0	ug/l

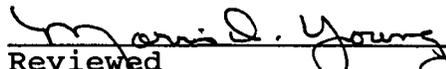
ND - Analyte not detected at given detection level.

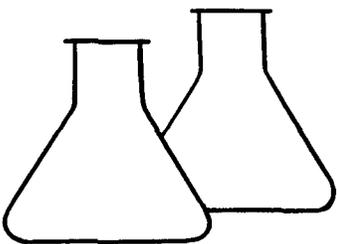
Comments:

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluation Solid Waste, SW-846, United States Environmental Protection Agency, SW-846, Vol. IB, November 1990.


Analyst


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PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 PURGEABLE AROMATICS

Client: Smith International
Sample ID: Monitor Well #3
Lab ID#: 021492410-6
Matrix: Water
Preservative: HgCl₂
Sample Condition: Received on Ice

Project #: 91410
Date Reported: 2-17-92
Date Sampled: 2-14-92
Date Received: 2-14-92
Date Extracted:
Date Analyzed: 2-17-92
Injection Vol: 5 ml

Analyte	Analytical Result	Detection Limit	Units
Benzene	ND	1.0	ug/l
Toluene	<1.0	1.0	ug/l
Ethylbenzene	<1.0	1.0	ug/l
m,p-Xylene	<1.0	1.0	ug/l
o-Xylene	<1.0	1.0	ug/l

ND - Analyte not detected at given detection level.

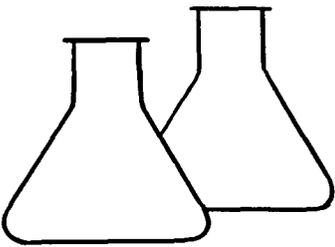
Comments:

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluation Solid Waste, SW-846, United States Environmental Protection Agency, SW-846, Vol. IB, November 1990.

Analyst

Reviewed



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**** QUALITY ASSURANCE REPORT
METHOD BLANK - PURGABLE AROMATICS**

Sample ID: Method Blank
Matrix: Water
Preservative: HgCl₂

Date Reported: 2-17-92
Date Extracted:
Date Analyzed: 2-17-92
Injection Vol: 5 ml

Analyte -----	Analytical Result -----	Detection Limit -----	Units -----
Benzene	ND	1.0	ug/k
Toluene	ND	1.0	ug/k
Ethylbenzene	ND	1.0	ug/k
m,p-Xylene	ND	1.0	ug/k
o-Xylene	ND	1.0	ug/k

ND - Analyte not detected at given detection level.

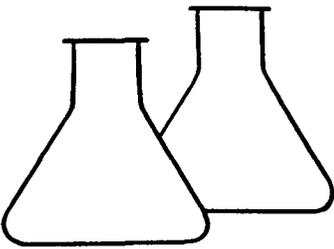
Comments:

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for
Evaluation Solid Waste, SW-846, United States Environmental
Protection Agency, SW-846, Vol. IB, November 1990.

Michael D. Lee
Analyst

Morris D. Young
Reviewed



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

** QUALITY ASSURANCE REPORT MATRIX SPIKE - PURGABLE AROMATICS

Laboratory Number: 021492410-6
Sample Matrix: Water
Preservative: HgCl₂
Sample Condition: Received on ice

Date Reported: 2-17-92
Date Sampled: 2-14-92
Date Extracted:
Date Analyzed: 2-17-92

Analyte	Spike Added (ug/L)	Sample Result (ug/L)	Spiked Sample Result (ug/L)	Percent Recovery
Benzene	10	ND	9.8	98
Toulene	10	<1.0	9.1	91
Ethylbenzene	10	<1.0	9.3	93

ND - Analyte not detected at the stated detection limit.

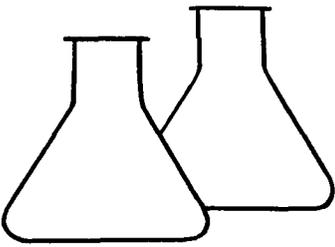
QA ACCEPTANCE CRITERIA:	Analyte	Acceptance Range %
	Benzene	39 - 150
	Toluene	46 - 148
	Ethylbenzene	32 - 160

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluation Solid Waste, SW-846, United States Environmental Protection Agency, SW-846, Vol. IB, November 1990.

Mahul D. En
Analyst

Maris Young
Reviewed



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Sample #30
Laboratory Number: 021492410-7
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-4-92
Date Sampled: 2-14-92
Date Received: 2-14-92
Date Extracted: 2-18-92
Date Analyzed: 2-18-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	<10.0	10.0

ND - Analyte not detected at the stated detection limit.

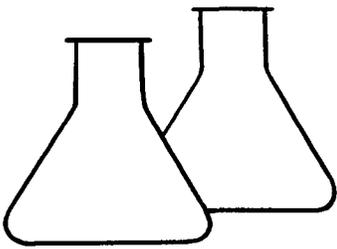
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. Pro
Analyst

Monica Young
Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International	Project #: 91410
Sample ID: Sample #30	Report Date: 3-4-92
Laboratory Number: 021492410-7 Duplicate	Date Sampled: 2-14-92
Sample Matrix: Soil	Date Received: 2-14-92
Temperature: Received on Ice	Date Extracted: 2-18-92
Analysis Method: 418.1	Date Analyzed: 2-18-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	<10.0	10.0

ND - Analyte not detected at the stated detection limit.

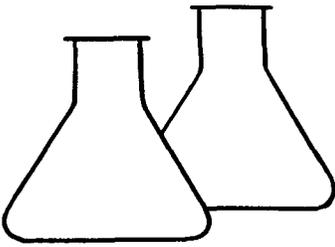
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. Brown
Analyst

Janis D. Young
Review



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**** QUALITY ASSURANCE REPORT
METHOD BLANK - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Sample ID: Method Blank
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 3-4-92
Date Extracted: 2-18-92
Date Analyzed: 2-18-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

ND - Analyte not detected at the stated detection limit.

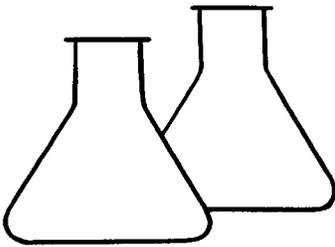
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. Ben
Analyst

Margaret D. Young
Review



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**** QUALITY ASSURANCE REPORT
MATRIX SPIKE - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Laboratory Number: 021492410-7
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 3-4-92
Date Extracted: 2-18-92
Date Analyzed: 2-18-92

Analyte	Spike Added (ug/kg)	Sample Result (ug/kg)	Spiked Sample Result (ug/kg)	Percent Recovery
TPH	100	<10.0	94.4	94

ND - Analyte not detected at the stated detection limit.

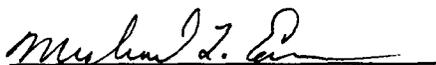
QA ACCEPTANCE CRITERIA:	Analyte	Acceptance Range %
	TPH	48 - 143

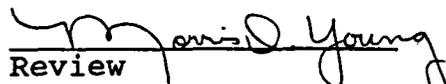
ND - Analyte not detected at the stated detection limit.

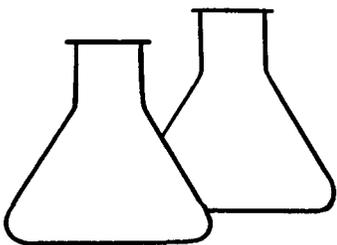
Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.:

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable,
Gas Chromatography. Test Methods for Evaluating Solid Waste
Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method
3550, SW-846, USEPA, 1990.

Comments:


Analyst


Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 PURGEABLE AROMATICS

Client: Smith International
Sample ID: Location #31
Lab ID#: 021792410-1
Matrix: Soil
Preservative:
Sample Condition: Received on Ice

Project #: 91410
Date Reported: 2-28-92
Date Sampled: 2-17-92
Date Received: 2-17-92
Date Extracted: 2-18-92
Date Analyzed: 2-28-92
Injection Vol: 100 ul

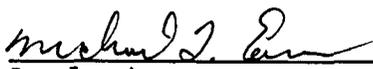
Analyte	Analytical Result	Detection Limit	Units
Benzene	ND	50.0	ug/kg
Toluene	477	50.0	ug/kg
Ethylbenzene	<50	50.0	ug/kg
m,p-Xylene	206	50.0	ug/kg
o-Xylene	59.9	50.0	ug/kg

ND - Analyte not detected at given detection level.

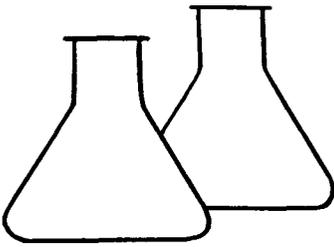
Comments:

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluation Solid Waste, SW-846, United States Environmental Protection Agency, SW-846, Vol. IB, November 1990.


Analyst


Reviewed



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EPA METHOD 8020 PURGEABLE AROMATICS

Client: Smith International
Sample ID: Location #32
Lab ID#: 021792410-2
Matrix: Soil
Preservative:
Sample Condition: Received on Ice

Project #: 91410
Date Reported: 2-28-92
Date Sampled: 2-17-92
Date Received: 2-17-92
Date Extracted: 2-18-92
Date Analyzed: 2-28-92
Injection Vol: 100 ul

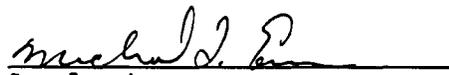
Analyte -----	Analytical Result -----	Detection Limit -----	Units -----
Benzene	ND	50.0	ug/kg
Toluene	187	50.0	ug/kg
Ethylbenzene	ND	50.0	ug/kg
m,p-Xylene	<50	50.0	ug/kg
o-Xylene	<50	50.0	ug/kg

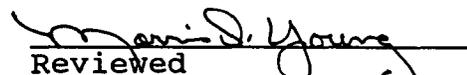
ND - Analyte not detected at given detection level.

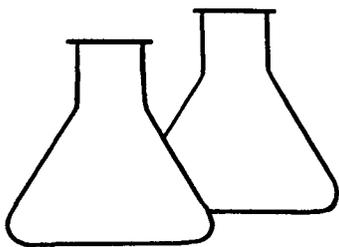
Comments:

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluation Solid Waste, SW-846, United States Environmental Protection Agency, SW-846, Vol. IB, November 1990.


Analyst


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EPA METHOD 8020 PURGEABLE AROMATICS

Client: Smith International
Sample ID: Location #33
Lab ID#: 021792410-3
Matrix: Soil
Preservative:
Sample Condition: Received on Ice

Project #: 91410
Date Reported: 2-28-92
Date Sampled: 2-17-92
Date Received: 2-17-92
Date Extracted: 2-18-92
Date Analyzed: 2-28-92
Injection Vol: 100 ul

Analyte	Analytical Result	Detection Limit	Units
Benzene	ND	50.0	ug/kg
Toluene	190	50.0	ug/kg
Ethylbenzene	<50	50.0	ug/kg
m,p-Xylene	216	50.0	ug/kg
o-Xylene	69.5	50.0	ug/kg

ND - Analyte not detected at given detection level.

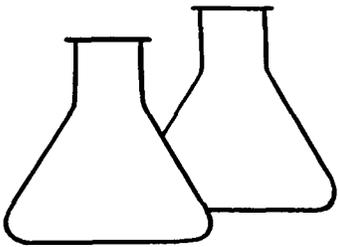
Comments:

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluation Solid Waste, SW-846, United States Environmental Protection Agency, SW-846, Vol. IB, November 1990.

Michael D. ...
Analyst

Marion D. Young
Reviewed



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

**** QUALITY ASSURANCE REPORT
METHOD BLANK - PURGABLE AROMATICS**

Sample ID: Method Blank
Matrix: Soil
Preservative:

Date Reported: 2-28-92
Date Extracted: 2-28-92
Date Analyzed: 2-28-92
Injection Vol: 100 ul

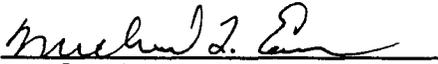
Analyte	Analytical Result	Detection Limit	Units
Benzene	ND	50.0	ug/kg
Toluene	ND	50.0	ug/kg
Ethylbenzene	ND	50.0	ug/kg
m,p-Xylene	ND	50.0	ug/kg
o-Xylene	ND	50.0	ug/kg

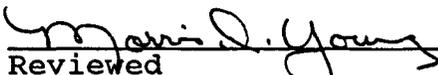
ND - Analyte not detected at given detection level.

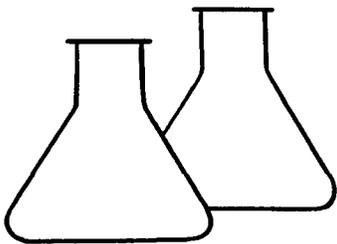
Comments:

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluation Solid Waste, SW-846, United States Environmental Protection Agency, SW-846, Vol. IB, November 1990.


Analyst


Reviewed



ENVIROTECH LABS

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** QUALITY ASSURANCE REPORT MATRIX SPIKE - PURGABLE AROMATICS

Laboratory Number: 021792410-2
Sample Matrix: Soil
Preservative:
Sample Condition: Received on ice

Date Reported: 2-28-92
Date Sampled: 2-17-92
Date Extracted: 2-18-92
Date Analyzed: 2-28-92

Analyte	Spike Added (ug/L)	Sample Result (ug/L)	Spiked Sample Result (ug/L)	Percent Recovery
Benzene	100	ND	96.2	96
Toulene	100	187	281	94
Ethylbenzene	100	ND	84.1	84

ND - Analyte not detected at the stated detection limit.

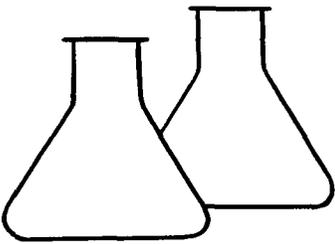
QA ACCEPTANCE CRITERIA:	Analyte	Acceptance Range %
	Benzene	39 - 150
	Toluene	46 - 148
	Ethylbenzene	32 - 160

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluation Solid Waste, SW-846, United States Environmental Protection Agency, SW-846, Vol. IB, November 1990.

Michael J. Egan
Analyst

Morris D. Young
Reviewed



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International	Project #: 91410
Sample ID: Location #34	Report Date: 3-4-92
Laboratory Number: 021792410-4	Date Sampled: 2-17-92
Sample Matrix: Soil	Date Received: 2-17-92
Temperature: Received on Ice	Date Extracted: 2-20-92
Analysis Method: Modified 8015-Diesel	Date Analyzed: 2-25-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	0.1

ND - Analyte not detected at the stated detection limit.

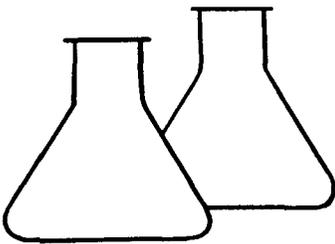
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. Lee
Analyst

Gregory D. Young
Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International	Project #: 91410
Sample ID: Location #35	Report Date: 3-4-92
Laboratory Number: 021792410-5	Date Sampled: 2-17-92
Sample Matrix: Soil	Date Received: 2-17-92
Temperature: Received on Ice	Date Extracted: 2-20-92
Analysis Method: Modified 8015-Diesel	Date Analyzed: 2-25-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	0.1

ND - Analyte not detected at the stated detection limit.

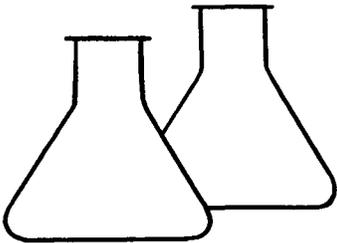
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. [Signature]
Analyst

Morris D. Young
Review



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International	Project #: 91410
Sample ID: Location #38	Report Date: 3-4-92
Laboratory Number: 021792410-6	Date Sampled: 2-17-92
Sample Matrix: Soil	Date Received: 2-17-92
Temperature: Received on Ice	Date Extracted: 2-20-92
Analysis Method: Modified 8015-Diesel	Date Analyzed: 2-25-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	0.1

ND - Analyte not detected at the stated detection limit.

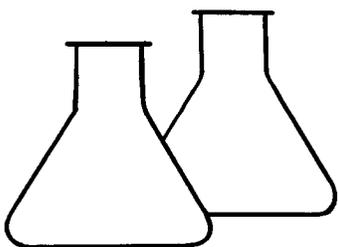
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael D. [Signature]
Analyst

Moni D. Young
Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

**** QUALITY ASSURANCE REPORT
METHOD BLANK - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Sample ID: Method Blank
Sample Matrix: Soil
Analysis Method: Modified 8015-Diesel

Report Date: 3-4-92
Date Extracted: 2-25-92
Date Analyzed: 2-25-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	0.1

ND - Analyte not detected at the stated detection limit.

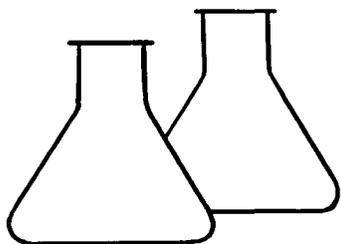
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Analyst

Review



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**** QUALITY ASSURANCE REPORT
MATRIX SPIKE - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Laboratory Number: 021792410-6
Sample Matrix: Soil
Analysis Method: Modified 8015-Diesel

Report Date: 3-4-92
Date Extracted: 2-20-92
Date Analyzed: 2-25-92

Analyte	Spike Added (ug/kg)	Sample Result (ug/kg)	Spiked Sample Result (ug/kg)	Percent Recovery
TPH	100	ND	91.7	92

ND - Analyte not detected at the stated detection limit.

QA ACCEPTANCE CRITERIA:	Analyte	Acceptance Range %
	TPH	48 - 143

ND - Analyte not detected at the stated detection limit.

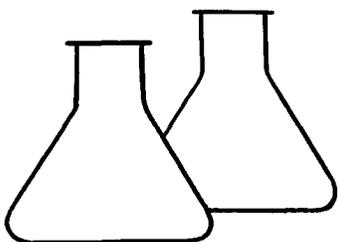
Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.:

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable,
Gas Chromatography. Test Methods for Evaluating Solid Waste
Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method
3550, SW-846, USEPA, 1990.

Comments:

Michael J. Egan
Analyst

Marian D. Young
Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Monitor Well #1
Laboratory Number: 030592410-1
Sample Matrix: Water
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-13-92
Date Sampled: 3-5-92
Date Received: 3-5-92
Date Extracted: 3-13-92
Date Analyzed: 3-13-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	<10.0	10.0

ND - Analyte not detected at the stated detection limit.

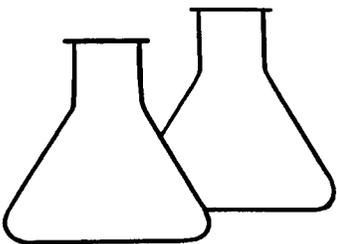
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Analyst

Review



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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Monitor Well #2
Laboratory Number: 030592410-2
Sample Matrix: Water
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-13-92
Date Sampled: 3-5-92
Date Received: 3-5-92
Date Extracted: 3-13-92
Date Analyzed: 3-13-92

Analyte	Concentration (mg/kg)	Detection Limit (mg/kg)
Total Recoverable Petroleum Hydrocarbons	14.5	10.0

ND - Analyte not detected at the stated detection limit.

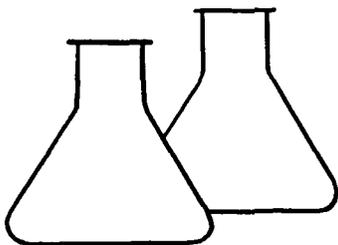
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. Egan
Analyst

Yonnie D. Young
Review



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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Monitor Well #3
Laboratory Number: 030592410-3
Sample Matrix: Water
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-13-92
Date Sampled: 3-5-92
Date Received: 3-5-92
Date Extracted: 3-13-92
Date Analyzed: 3-13-92

Analyte	Concentration (mg/kg)	Detection Limit (mg/kg)
Total Recoverable Petroleum Hydrocarbons	ND	10.0

ND - Analyte not detected at the stated detection limit.

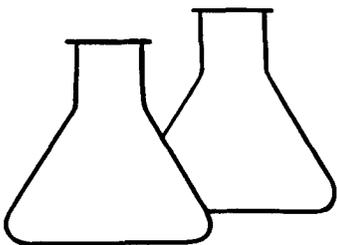
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. Egan
Analyst

Thomas J. Young
Review



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

**** QUALITY ASSURANCE REPORT
METHOD BLANK - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Sample ID: Method Blank
Sample Matrix: Water
Analysis Method: 418.1

Report Date: 3-13-92
Date Extracted: 3-13-92
Date Analyzed: 3-13-92

Analyte	Concentration (mg/kg)	Detection Limit (mg/kg)
Total Recoverable Petroleum Hydrocarbons	ND	10.0

ND - Analyte not detected at the stated detection limit.

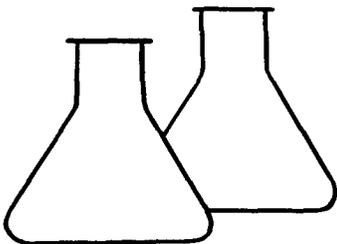
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. Carr
Analyst

Gregory D. Young
Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

**** QUALITY ASSURANCE REPORT
MATRIX SPIKE - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Laboratory Number: 030592410-3
Sample Matrix: Water
Analysis Method: 418.1

Report Date: 3-13-92
Date Extracted: 3-13-92
Date Analyzed: 3-13-92

Analyte	Spike Added (ug/kg)	Sample Result (ug/kg)	Spiked Sample Result (ug/kg)	Percent Recovery
TPH	100	ND	104	104

ND - Analyte not detected at the stated detection limit.

QA ACCEPTANCE CRITERIA: Analyte	Acceptance Range %
TPH	48 - 143

ND - Analyte not detected at the stated detection limit.

Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.:

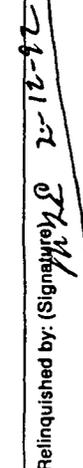
Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable,
Gas Chromatography. Test Methods for Evaluating Solid Waste
Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method
3550, SW-846, USEPA, 1990.

Comments:

Michael S. Brown
Analyst

Marion D. Young
Review

CHAIN OF CUSTODY RECORD

Client/Project Name		Project Location		ANALYSIS/PARAMETERS									
SMITH / 191410		DIESEL / GAS TRK											
Sampler: (Signature)		Chain of Custody Tape No.											
													
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	EPA #	TP#				Remarks		
#12 @ 14.5'	2/12/92	10:20	021292410-1	SOIL	1	✓							
#13 @ 17'	2/12/92	10:24	021292410-2	SOIL	1	✓							
DRAINAGE #1			021292410-3		1	✓							
DRAINAGE #2			021292410-4		1	✓							
DRAINAGE #3			021292410-5		1	✓							
DRAINAGE #4			021292410-6		1	✓							
DRAINAGE #5			021292410-7		1	✓							
			MZL										
Relinquished by: (Signature)													
													
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CHAIN OF CUSTODY RECORD

Client/Project Name		Project Location		ANALYSIS/PARAMETERS												
SMITH / 91A10		Dress / Gas Tr														
Sampler: (Signature)		Chain of Custody Tape No.										Remarks				
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	TPH									Date	Time
SMR #25	2/13/92	1530	021392410-1	Soil	1	✓										
JAMRE #26	2/13/92	1532	021392410-2	Soil	1	✓										
MRG 2-13-92																
Relinquished by: (Signature)		Date		Time		Received by: (Signature)		Date		Time						
		2/13/92		1615		MRE 2-13-92										
Relinquished by: (Signature)		Date		Time		Received by: (Signature)		Date		Time						
		2-13-92				MRE		2-13-92		1615						
Relinquished by: (Signature)		Date		Time		Received by: (Signature)		Date		Time						
		MRE 2-13-92				MRE		2-13-92		1615						

ENVIROTECH INC.
 5796 U.S. Highway 64-3014
 Farmington, New Mexico 87401
 (505) 632-0615

CLIENT: Envirotech
ID: 1000
SITE: MW#1
LAB NO: F8163

DATE REPORTED: 03/02/92
DATE RECEIVED: 02/14/92
DATE COLLECTED: 02/14/92

Lab pH (s.u.).....	7.14
Lab Conductivity, umhos/cm @ 25C....	675
Lab Resistivity, ohm-m.....	14.8
Total Dissolved Solids (180C), mg/L.	420 *
Total Dissolved Solids (calc), mg/L.	442
Total Alkalinity as CaCO3, mg/L.....	237
Total Hardness as CaCO3, mg/L.....	315
Sodium Adsorption Ratio.....	0.80

	mg/L	meq/L
Bicarbonate as HCO3.....	289	4.74
Carbonate as CO3.....	0	0
Chloride.....	15.5	0.44
Sulfate.....	133	2.76
Calcium.....	102	5.11
Magnesium.....	14.4	1.18
Potassium.....	2.22	0.06
Sodium.....	32.5	1.41
Major Cations.....		7.76
Major Anions.....		7.94
Cation/Anion Difference.....		1.13 †

* Reanalyzed, no significant change.


Mary Stepp
Lab Director

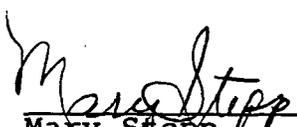

Wanda Orso
Water Lab Supervisor

CLIENT: Envirotech
ID: 1045
SITE: MW#3
LAB NO: F8165

DATE REPORTED: 03/02/92
DATE RECEIVED: 02/14/92
DATE COLLECTED: 02/14/92

Lab pH (s.u.)..... 7.38
Lab Conductivity, umhos/cm @ 25C.... 864
Lab Resistivity, ohm-m..... 11.6
Total Dissolved Solids (180C), mg/L. 546
Total Dissolved Solids (calc), mg/L. 548
Total Alkalinity as CaCO₃, mg/L..... 311
Total Hardness as CaCO₃, mg/L..... 398
Sodium Adsorption Ratio..... 0.72

	mg/L	meq/L
Bicarbonate as HC0 ₃	379	6.21
Carbonate as C0 ₃	0	0
Chloride.....	34.1	0.96
Sulfate.....	136	2.83
Calcium.....	133	6.65
Magnesium.....	16.0	1.32
Potassium.....	8.98	0.23
Sodium.....	32.9	1.43
Major Cations.....		9.63
Major Anions.....		10.0
Cation/Anion Difference.....		1.92 %


Mary Stepp
Lab Director


Wanda Orso
Water Lab Supervisor

ENVIROTECH INC.

UNDERGROUND TANK TESTING • SITE ASSESSMENT • SITE REMEDIATION

5796 U.S. HIGHWAY 64 - 3014
FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615

CERTIFICATION OF ORIGIN OF CONTAMINATED SOILS

The soil at SMITH ENERGY SERVICES
2198 E. BLOOMFIELD HWY, FARMINGTON, NM
(DIESEL & GASOLINE TANKS)

was contaminated by a leaking Underground Storage Tank System.

Ken Murray 2-6-92
EID INSPECTOR DATE

I certify that ENVIROTECH, INC. has transported
2564 cubic yards of hydrocarbon
contaminated soils from SMITH ENERGY SERVICE YARD
@ 2198 E. BLOOMFIELD HWY, FARMINGTON, NM

To Envirotech's Soil Remediation Site at Hilltop, New Mexico.

BY: Michael Lee 2/6/92
ENVIROTECH INC. DATE

Bill of Lading

MONTH OF February

PHONE: (505) 632-0615

MANIFEST			COMPLETE DESCRIPTION OF SHIPMENT					TRANSPORTING COMPANY		
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE	
2/1/92	1	Smith Energy	Landham Smith Energy	Coal		20	Envirotech	E-57	McChes	
2/1/92	2	Landham Smith Energy	Landham Smith Energy	Backfill		20	Envirotech	E-57	McChes	
2/1/92	3	Landham Smith Energy	Landham Smith Energy	Coal		20		E-57	McChes	
2/1/92	4	Landham Smith Energy	Landham Smith Energy	Backfill		20		E-57	McChes	
2/1/92	5	Landham Smith Energy	Landham Smith Energy	Coal		20		E-57	McChes	
2/1/92	6	Landham Smith Energy	Landham Smith Energy	Backfill		20		E-57	McChes	
2/1/92	7	Landham Smith Energy	Landham Smith Energy	Coal		20		E-57	McChes	
2/1/92	8	Landham Smith Energy	Landham Smith Energy	Backfill		20		E-57	McChes	
2/1/92	9	Landham Smith Energy	Landham Smith Energy	Coal		20		E-57	McChes	
2/1/92	10	Landham Smith Energy	Landham Smith Energy	Backfill		20		E-57	McChes	
						100 @ 15.00				
						100 @ 7.99				
						100 @ 7.99				

Bill of Lading

MONTH OF Feb - 92

PHONE: (505) 632-0615

MANIFEST DATE	MANIFEST No.	COMPLETE DESCRIPTION OF SHIPMENT					TRANSPORTING COMPANY				
		POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE		
2-11-92	1	Smith Energy	land farm	contaminated dirt		20	Envirotech	E 48	Daniel Grover		
2-11	2	Smith Energy	land farm	contaminated dirt		20	Envirotech	E 48	Daniel Grover		
2-11	3	Smith Energy	land farm	contaminated dirt		20	Envirotech	E 48	Daniel Grover		
2-11	4	Smith Energy	land farm	contaminated dirt		20	Envirotech	E 48	Daniel Grover		
2-11	5	Smith Energy	land farm	contaminated dirt		20	Envirotech	E 48	Daniel Grover		
					400						
					400						
2-11-92	1	Land farm	Smith	fill dirt		20	Envirotech	E 48	Daniel Grover		
2-11	2	Land farm	Smith	fill dirt		20	Envirotech	E 48	Daniel Grover		
2-11	3	Land farm	Smith	fill dirt		20	Envirotech	E 48	Daniel Grover		
2-11	4	Land farm	Smith	fill dirt		20	Envirotech	E 48	Daniel Grover		
2-11	5	Land farm	Smith	fill dirt		20	Envirotech	E 48	Daniel Grover		
					400						

Bill of Lading

PHONE: (505) 632-0615

MONTH OF Feb 92

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT					TRANSPORTING COMPANY			
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE	
2/10/92	1	Smith A. Edwards	Land Farm	Scrap Metal		20	ENVIROTECH	E-49	Bobby E. Haddock MS	
" "	2	" "	" "	" "		20	" "	E-49	Bobby E. Haddock MS	
" "	3	" "	" "	" "		20	" "	E-49	Bobby E. Haddock MS	
" "	4	" "	" "	" "		20	" "	E-49	Bobby E. Haddock MS	
" "	5	" "	" "	" "		20	" "	E-49	Bobby E. Haddock MS	
ROAD										
ROAD										
2/10/92	1	LAND FARM	SMITH	Full Metal		20	ENVIROTECH	E-49	Bobby E. Haddock MS	
" "	2	" "	" "	" "		20	" "	E-49	Bobby E. Haddock MS	
" "	3	" "	" "	" "		20	" "	E-49	Bobby E. Haddock MS	
" "	4	" "	" "	" "		20	" "	E-49	Bobby E. Haddock MS	
" "	5	" "	" "	" "		20	" "	E-49	Bobby E. Haddock MS	
C. Haddock										

Bill of Lading

PHONE: (505) 632-0615

MONTH OF Feb 1992

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT					TRANSPORTING COMPANY			
DATE	NO.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE	
2-13	1	Truck Energy	Low-Die Court			30	Sumcorca	100	[Signature]	
	2	"	"	"		"	"	"	[Signature]	
	3	"	"	"		"	"	"	[Signature]	
	4	"	"	"		"	"	"	[Signature]	
	5	"	"	"		"	"	"	[Signature]	
						100				
						100				
2-13	1	Low Die	Truck Energy	Box File		30	Sumcorca	100	[Signature]	
	2	"	"	"		"	"	"	[Signature]	
	3	"	"	"		"	"	"	[Signature]	
	4	"	"	"		"	"	"	[Signature]	
	5	"	"	"		"	"	"	[Signature]	
						100				

Bill of Lading

PHONE: (505) 632-0615

MONTH OF Feb 14 - 1992

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT						TRANSPORTING COMPANY				
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE			
2-14	1	Smith Energy	Land Farm	contained dirt		20	Envirotech	E 48	Daniel Groves MS			
2-14	2	Smith Energy	Land Farm	contained dirt		20	Envirotech	E 48	Daniel Groves MS			
2-14	3	Smith Energy	Land Farm	contained dirt		20	Envirotech	E 48	Daniel Groves MS			
2-14	4	Smith Energy	Land Farm	contained dirt		20	Envirotech	E 48	Daniel Groves MS			
2-14	5	Smith Energy	Land Farm	contained dirt		20	Envirotech	E 48	Daniel Groves MS			
2-14	6	Smith Energy	Land Farm	contained dirt		20	Envirotech	E 48	Daniel Groves MS			
2-14	1	Land farm	Smith	fill dirt		20	Envirotech	E 48	Daniel Groves MS			
2-14	2	Land farm	Smith	fill dirt		20	Envirotech	E 48	Daniel Groves MS			
2-14	3	Land farm	Smith	fill dirt		20	Envirotech	E 48	Daniel Groves MS			
2-14	4	Land farm	Smith	fill dirt		20	Envirotech	E 48	Daniel Groves MS			
2-14	5	Land farm	Smith	fill dirt		20	Envirotech	E 48	Daniel Groves MS			
2-14	6	Land farm	Smith	fill dirt		20	Envirotech	E 48	Daniel Groves MS			

583931

Bill of Lading

MONTH OF Feb 92

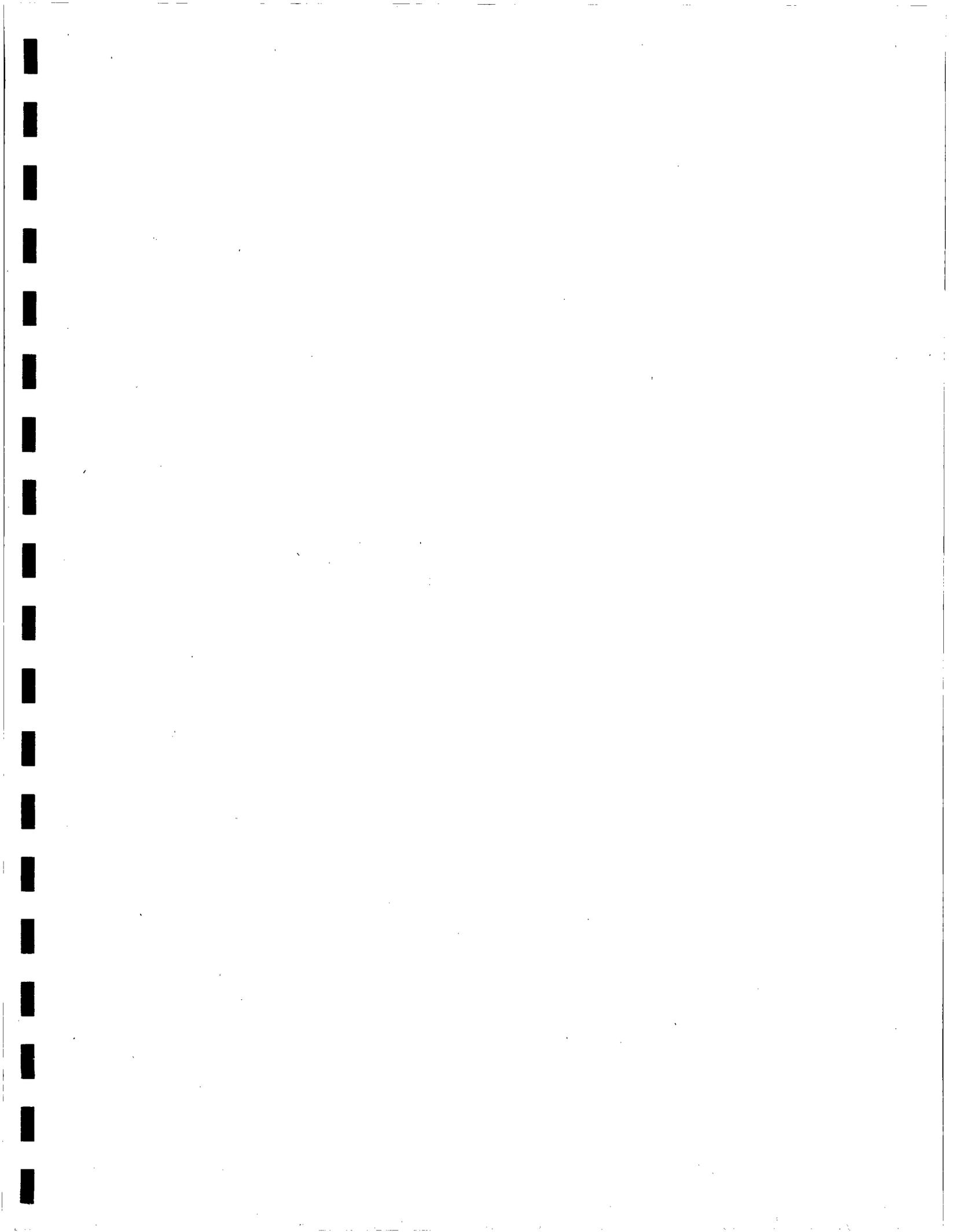
1420

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT					TRANSPORTING COMPANY			
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE	
2-17	1	Smith & Swamy	Carrollton	Coast		20	Envirotech	888	KEK	
	2	"	"	"		"	"	"	KEK	
	3	"	"	"		"	"	"	KEK	
	4	"	"	"		"	"	"	KEK	
	5	"	"	"		"	"	"	KEK	
							ADD M.T.			
2-17	1	Frank (Land)	Smith & Swamy	Brick Fire		20	Envirotech	888	KEK	
	2	"	"	"		"	"	"	KEK	
	3	"	"	"		"	"	"	KEK	
	4	"	"	"		"	"	"	KEK	
							ADD M.T.			

Bill of Lading

MONTH OF Feb 1992

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT					TRANSPORTING COMPANY			
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE	
2-18-1	1	San Francisco	Las Vegas	Cont.		20	Everest	E99	KKK	
	2	"	"	"		20	"	E99	KKK	
	3	"	"	"		20	"	"	KKK	
	4	"	"	"		20	"	"	KKK	
	5	"	"	"		20	"	"	KKK	
						100	Everest			
2-18-1	1	Land Form	San Francisco	San Francisco		20	Everest	E99	KKK	
	2	"	"	"		20	"	"	KKK	
	3	"	"	"		20	"	"	KKK	



ENVIROTECH INC.

GW-101

**Acid UST and Sump
Closure Report**

for

**Smith International Inc.
2198 East Bloomfield Highway
Farmington, New Mexico**

RECEIVED

JUN 01 1992

OIL CONSERVATION DIV.
SANTA FE

Project #91410

May 1992

ACID UST AND SUMP CLOSURE REPORT
ACID STORAGE TANK AND LOADING AREA
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
SE/4, SW/4 SECTION 14, TOWNSHIP 29N, RANGE 13W
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO

PREPARED FOR
MR. MAURICE STICKER
ENVIRONMENTAL AFFAIRS COORDINATOR
SMITH INTERNATIONAL, INC.

PROJECT NO: 91410

MAY 1992

ENVIROTECH INC.
Environmental Scientists & Engineers
5796 U.S. Highway 64-3014
Farmington, New Mexico

(505) 632-0615

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ACID STORAGE TANK AND LOADING AREA
SMITE INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
SE/4, SW/4 SECTION 14, TOWNSHIP 29N, RANGE 13W
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO

PROJECT NO: 91410

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MAY 1992

PROJECT NO: 91410

ACID UST AND SUMP CLOSURE REPORT
ACID STORAGE TANK AND LOADING AREA
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
SE/4, SW/4 SECTION 14, TOWNSHIP 29N, RANGE 13W
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO

Envirotech Inc. has been retained by Smith International, Inc. to remove and dispose of the acid underground storage tank (UST); perform the necessary site assessment and remediation of the associated system used for the storage and loading of hydrochloric acid. These services were performed for closure of the acid system, at the Smith Energy Services facility, 2198 East Bloomfield Highway in Farmington, San Juan County, New Mexico.

ENERLOG/TIS Inc. conducted two site assessments dated April 1990 and August 1990 for the subject property as part of a property transaction. Three sites requiring remediation were identified in the assessment reports:

Fuel Underground Storage Tank System (USTS)
Wash Bay Solids Disposal Area
Acid Tank Storage and Loading Area

Enclosed please find a copy of Smith International's January 30, 1992 request of the New Mexico Oil Conservation Division for authorization of the proposed site assessment and remediation.

The UST's comprising of the fuel system were removed and the site remediated for closure in February and early March 1992, under the direction of the New Mexico Environment Department (NMED). The USTS closure was completed prior to commencing the disposal pit and acid tank assessments and remediation. A Seven Day Report and a USTS Closure Report have been submitted to the NMED under separate covers.

The remediation of the disposal pit by excavation and removal was initiated on February 18, 1992. The excavation of the highly contaminated soils was completed on March 20, 1992. Hydrocarbon contaminated soil was found throughout the area within the original pit perimeter. Additionally, contamination extended laterally 10 to 30 feet beyond the pit perimeter and vertically to groundwater at approximately 28 feet below the original ground surface. A Surface Impoundment Closure Report has been submitted to the NMOCD under separate cover.

Remediation of the acid storage area was performed concurrent with the fuel USTS closure and the wash bay disposal pit closure. The site remediation was initiated December 24, 1991. The UST in the acid system was removed during the fuel system closure on February 6, 1992. The excavation and removal of the highly contaminated soils for the site remediation was completed on April 8, 1992. Hydrocarbon contaminated soil was found around the UST, the acid spill catchment, associated piping and beneath the overflow catchment sump. The soil contamination extended laterally 10 to 15 feet beyond the system's perimeter and vertically to groundwater at approximately 29 feet below the original ground surface.

Mr. Denny Foust of the State of New Mexico Oil Conservation Division (NMOCD) conducted periodic site inspections during the closure and site assessment operations.

PURPOSE & SCOPE OF SERVICES

The purpose of the excavation and removal of the highly hydrocarbon contaminated soils was to aid in the closure of the acid storage UST system at the reference site. The protocol outlined in the New Mexico Oil Conservation Division's proposed "Guidelines for Surface Impoundment Closure" (October 29, 1991) and the New Mexico Environment Department's UST Regulations (Amended July 26, 1990) were followed in the soil removal and treatment, site assessment, and final closure. It should be noted that the hydrochloric acid stored in the UST is currently not a regulated substance per RCRA.

The scope of services that Envirotech was retained to provide included the following:

- A. Notification of the NMOCD and appropriate authorities of the intent to remediate and close the original acid storage and loading UST system at the referenced property.
- B. Excavate and dispose of the highly contaminated soils to abate the spill incident.
- C. Provide acceptable fill material sufficient to backfill the excavation.
- D. Field assessment of the site, including laboratory analyses, to determine the extent of the contamination.

- E. Review available water supply information, collect groundwater samples, and analyze groundwater samples to assess the potential impact from the contamination.
- F. Document the pit excavation, closure operations, and site assessment findings.
- G. Design and installation of a replacement spill catchment, storage and loading system.

SITE DESCRIPTION

Bluestake New Mexico was contacted and underground utilities were marked, prior to the excavation operation. The main utilities are located along East Bloomfield Highway and Malta Avenue, the south and west boundaries of the property. The only underground utilities in the immediate area of the acid system were a 2.5" diameter gas line and 4" diameter water line in the west portion of the acid loading area.

The site is an active staging yard for Smith Energy Services an oilfield services company. The acid system was in use until December of 1991. The subject acid system was located in a fenced area at the east end of the north warehouse building. Refer to the attached general Site Plan (Sheet 1) prepared by ENERLOG/TIS Inc.

Access to the yard and site is available from East Bloomfield Highway (U.S. Highway 64) which is adjacent to the south property boundary.

The attached System Site Detail (Sheet 2) shows the location of the acid system storage and loading area.

Water Resource Information:

Based on a preliminary review of available records from the New Mexico State Engineers Office, there appears to be eight water supply wells within a half mile radius of the Smith International site. They are listed in Table 1 at the end of Section 2.

All wells appear to be located over 1000 feet from the site. The wells in Section 14 appear to be located up and cross gradient based on preliminary monitor well water level measurements. The remaining six wells in Sections 22 and 23 appear to be located down and cross gradient from the site and plume. Analysis of water samples collected during the USTS closure operations and from the excavation bottom did not detect BTEX or TPH contamination above the regulated limits. Monitor well #1 is located east of the pit and monitor wells #2 and #3 are located west of the previous fuel USTS.

The San Juan River is south of the site, approximately three-quarters of a mile down-gradient. The Animas River is north of the site, approximately one mile up-gradient. Both rivers flow to the west and south, and have year around water flow. The Willett Ditch provides irrigation water to farms in the general proximity of the site. The Willett Ditch is fed on the south side of the Animas River, upstream of the site approximately 3/4 miles. Based on discussions with the New Mexico State Engineers Office, this ditch appears to be used primarily for irrigation and industrial use and

is not a public drinking water source.

Where easily assessable, all of the above referenced surface water courses were inspected during the USTS closure. The author observed no superficial evidence of hydrocarbon contamination from a spill along any of the water courses. Thus, it is felt that the surface water courses in the immediate proximity of the site have not been nor are immediately threatened.

TABLE 1
WATER WELL INFORMATION
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO
FEBRUARY 1992

Location (T.R.Sec.Quad)	Name	Well No.	Use	Water Depth (ft)	Aquifer
29.13.14.313	Valley Drive In	SJ-00176	dom,stk	35	Qal
29.13.14.443	Dowell Inc.	NA	NA	15	Kk,Qal
29.13.22.22	Dennis Burke	SJ-01673	dom	14	Qal
29.13.23.1	Tom Kannard	SJ-01562	dom	6	Qal
29.13.23.11	NA	SJ-01719	NA	NA	NA
29.13.23.123	NA	SJ-00187	NA	40	Qal
29.13.23.22	Mary Barkley	SJ-00352	dom	30	Qal
29.13.23.22	Tom Pratt	SJ-01376	dom	15	Qal

Notes: NA - Information not available.
dom - domestic water source
stk - water source for livestock
Kk - Kirtland Shale
Qal - Quaternary alluvium

Based on available information from the State of New Mexico Engineers Office.

SYSTEM CLOSURE & FIELD ASSESSMENT

Site Safety:

The entire acid system and extent of the excavation remained within the fenced compound of the Smith Energy Services facility. The work area could only be access from the fenced yard and, during excavation operations, access was limited to essential personnel. Hydrocarbon vapors were monitored by Envirotech personnel to assess if a health or explosion hazard existed. A MSA model 62 explosimeter was used to monitor the site. No hazard associated with hydrocarbon vapors was detected during the entire operation.

Acid Storage/Loading System & Excavation:

The acid storage and loading system located at the east end of the of the Smith Energy Services facility warehouse building consisted of three elements. These were:

Above Grade Acid Storage Tank (24,000 gal) with
concrete catchment enclosure.

Acid Spill Catchment and concrete apron

Fiberglass Acid UST (10, 000 gal)

New product was stored in the above grade tank (AGT). The concrete catchment enclosure adjacent to the warehouse consisted of a three foot (3') retaining wall on all sides and a overflow sump at the northeast corner. The overflow sump drained into the north end of the UST by three inch (3") PVC piping. Piping from the warehouse drained into the catchment.

The acid spill catchment consisted of a five foot (5') by twelve foot (12') by three and one half foot (3.5') concrete sump covered with metal grating, and concrete aprons draining to the sump. This basin was used to catch any spills in transfer or loading acid. The sump drained into the south end of the UST in six inch (6") PVC piping.

The UST stored the recovered acid product and any liquids that drained from the warehouse catchment. The tank was fiberglass, buried approximately four feet (4') below grade, and capable of storing 10,000 gallons. All piping to the tank was PVC consisting of a three inch (3") line from the catchment sump, six inch (6") line from the spill catchment, and two eight inch (8") clean-outs.

The UST was inspected by Envirotech personnel after removal for holes and/or cracks. Aside from a puncher hole which were caused by cobbles during the tank removal, two other holes were observed that may have contributed to soil contamination. Patching was

noted around the original holes. One hole approximately 1/4 from the UST top was located toward the southeast side of the tank. The patching appears to have leaked since repair. Discussions with the Smith Energy personnel, indicated that the repair had been performed approximately three years prior to the UST removal.

The final excavation extended approximately thirty-five feet (35') east and south of the retaining wall surrounding the AGT and to a total depth at the ground water of approximately 29 feet below the overall site grade (bsg). The southeast corner of the excavation did not extend to groundwater, as the extent of contamination terminated at approximately seventeen feet (17') bsg.

Based on the excavation sidewalls, native soils were classified as moderate to grayish brown well graded gravel with well rounded cobbles to 15 inches in diameter and medium to fine sand, dense, and moist to saturated below the water table. The hydrocarbon soil contamination appears to have been from piping leaks, a hole in the east side of the UST, and the failure of the spill catchment which appeared to have been corroded by acid.

Due to the proximity of the AGT and concrete catchment, the excavation and removal of the highly contaminated soils was terminated at the AGT foundation. High soil contamination is not believe to extend more than a couple of feet beneath the AGT support structure.

As a new spill collection system was to be constructed, clean imported soils were backfilled in the excavation upon completion of the highly contaminated soil removal and verification testing. After installation of the new spill collection system (Sheet 4), the entire area will be paved to minimized potential surface water recharge or possible leaching of residual soil contamination to groundwater.

Refer to the system site detail for the acid dump system and final excavation perimeter (Sheet 2).

Photographs of the referenced UST and excavation are attached.

Site Groundwater Information:

Three previously installed groundwater monitor well were used to estimate the site groundwater gradient. They were sampled to determine if groundwater had been impacted by the fuel UST and/or the disposal pit hydrocarbon plumes. The wells had been installed by ENERLOG/TIS for Smith International during an environmental audit of the property in August 1990. The wells were drilled with an air drill rig, and completed with four inch PVC casing. The monitor well information and groundwater level measurements (taken 2-7-92) are summarized in Table 3 at the end of Section 2.

Based on the water level measurements from the three wells, the groundwater ranges from 28 to 30 feet below the existing ground surface. The groundwater gradient and subsequent flow direction is to the west and south and averages approximately 0.002 feet/foot. The shallow alluvial groundwater appears to represent an unconfined aquifer. The groundwater level and gradient may vary, considering the sites relative proximity to both the San Juan River and Animas River and site soil conditions.

During the course of the excavation and abatement, the groundwater at the bottom of the excavation was observed to fluctuate in depth. Fluctuations appeared to be on the order of one to three feet, corresponding to a water level of 27 to 30 feet bsg. This fluctuation is not unusual, considering the site soil condition, and proximity of the site to the San Juan and Animas Rivers.

Groundwater samples were also collected at the bottom of the excavation, prior to backfill.

TABLE 2
MONITOR WELL DATA SUMMARY
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO
FEBRUARY 1992

DRILLING & COMPLETION INFORMATION
AUGUST 1990

MONITOR WELL	TOTAL DEPTH	WATER LEVEL	TOP OF SCREEN
1	34	25	15
2	40	30	18
3	40	28	20

SURVEY & WATER LEVEL INFORMATION
FEBRUARY 7, 1992

<u>LOCATION</u>	<u>ELEV.</u>	<u>COORDINATE</u>		<u>WATER LEVEL(bgs)</u>	<u>WATER ELEV.</u>
		<u>X</u>	<u>Y</u>		
SW WAREHOUSE COR. (benchmark)	100.00	0.00	0.00		
MW1	99.78	346.41	195.63	28.54	71.24
MW2	99.85	85.11	-289.32	29.98	69.87
MW3	99.77	67.82	-199.59	29.74	70.03

Abatement and Closure:

Hydrocarbon contaminated soil was encountered throughout the UST and acid spill containment area. Contamination is suspected to have been from several sources: overflow and pumped out spillage, piping leaks, holes in the UST and the failure of the spill catchment basin bottom from acid. The contamination is suspected to be primarily from used acid and produced oil and gas well fluids recovered by Smith Energy's equipment during well acid service operations.

Based on the earlier ENERLOG/TIS assessments, the contamination appeared to be limited to the immediate area of the UST and relatively shallow (ie. above the UST). Thus, Smith International elected to abate the contamination by excavating all the highly contaminated soils. Soil samples were collected during excavation operations from the bottom and sidewalls. These soil samples were analyzed for organic hydrocarbon vapors and/or Total Recoverable Petroleum Hydrocarbons (TPH) to determine the extent of contamination following the NMOCD guidelines of 100 ppm volatile organics by OVM and/or TPH. Where practical, additional excavation was performed in all areas where the results exceeded the 100 ppm action level.

It should be noted that due to the relative proximity of the AGT support structure to the contamination plume, those areas that would not inhibit the structural integrity of the AGT foundation and associated concrete catchment were excavated for remediation. On April 7, 1992, excavation was terminated when the sidewalls under the AGT foundation showed evident of potential failure. Soil sampling was limited to those areas that could safely be sampled while the excavation was backfill to avoid the potential failure.

The contamination was relatively extensive. Based on the final excavation, the plume extended to the groundwater at a maximum depth of approximately 29 feet below the original ground surface and within a 4,000 to 5,000 sf area (refer to the System Site Plan, Sheet 2).

Approximately 2,032 cubic yards of contaminated soil were removed from the site. These contaminated soils were transported to Envirotech's Soil Remediation Facility located at Hilltop, New Mexico. Attached is a copy of Envirotech's NMOCD request to receive the contaminated soils and laboratory analytical results showing that the soils are not characterized as hazardous waste per Resource Conservation Recovery Act (RCRA) standards. Mr. Roger Anderson of the NMOCD authorized Envirotech to receive these soils. Copies of the Bill of Ladings manifesting the contaminated soils are included in the Appendix.

SOIL & GROUNDWATER SAMPLING AND ANALYTICAL RESULTS

During the abatement by excavation, the highly contaminated soils were excavated until the field results of the OVM for volatile hydrocarbons were below the NMOCD action level of 100 ppm OVM and/or TPH. Soil samples were taken from the excavation bottom and sidewalls following US EPA SW-846 protocol. The soil was field tested for volatile hydrocarbons following the Headspace Field Method (Guidelines For Surface Impoundment Closure, New Mexico Oil Conservation Division, Part 1 (IA.2a) October 29, 1991) using a photoionization detector (PID), Model 580-B Organic Vapor Meter (OVM) manufactured by Thermo Environmental Instrumental.

The results of the field headspace analyses are summarized in Table 4 at the end of Section 3.

Upon completion of the removal of the highly contaminated soil, confirmation soil samples were collected from the excavation. These samples were submitted for laboratory analyzed for TPH per USEPA Method 418.1 (modified soil).

As previously noted, only limited soil sampling was done on April 7, 1992 and no groundwater samples were collected at the excavation bottom to assess if groundwater had been impacted by the hydrocarbon plume, due to the unstable excavation conditions. However, the three monitor wells were sampled as part of the fuel UST Closure to assess the groundwater conditions at this Smith International site. Prior to sampling, the monitor wells were developed by removing at least three well bore volumes or until the well bore was pumped off (approximately 6 gallons). Groundwater samples were collected following US EPA SW-846 protocol. The water samples were analyzed to total petroleum hydrocarbons (TPH) per EPA 418.1, BTEX compounds per EPA 8020, and/or major cations/anions.

The results of the laboratory analyses and quality control/quality assurance are attached in Appendix C and summarized in Tables 5 and 6 at the end of Section 3.

TABLE 3
FIELD HEADSPACE OVM RESULTS
ACID STORAGE TANK AND LOADING AREA
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO
DECEMBER 1991 - APRIL 1992

<u>Sample</u>	<u>Date/Lab #</u>	<u>Sample Location</u>	<u>Time</u>	<u>OVM (ppm)</u>
*E 1	122491	12' bsg West side	NA	ND
*E 2	011392	12' bsg NE cnr	NA	NA
*E 3	013192	12' bsg SE cnr	NA	NA
* 1	021992	22' bsg NE cnr	NA	903
* 2	021992	16' bsg NE cnr above #1	NA	254.8
* 3	021992	17' bsg NW cnr	NA	11.2
* 4	021992	20' bsg N end slab	NA	2,648
5	021992	17' bsg W wall under AGT	NA	14.3
6	021992	17' bsg W wall under AGT	NA	6.5
* 7	021992	16' bsg SW cnr slab	NA	1,013
*J 1	022092	18' bsg E of UST	NA	311
*J 2	022092	17' bsg NE cnr N of #1	NA	145
*J 3	022092	17' bsg S end slb	NA	4,850
*J 4	022092	21' bsg below #J 3	NA	3,140
J 5	022092	20' bsg SE cnr	NA	13
J 6	022092	20' bsg W of #J 5	NA	45
*J 7	022092	20' bsg S & E of slab	NA	211
* 8	022192	22' bsg SW cnr	NA	387
9	022192	22' bsg N end	NA	53.4
10	021992	27' bsg NE cnr N of #1	NA	94.2
11	022692	18' bsg East wall	NA	35.4
* 12	040692	10' bsg W of sump	NA	1,071
* 13	040692	14' bsg E of sump	NA	3,201
* 14	040692	24' bsg S of #8	NA	6,830
* 14D	040692	#14 duplicate	NA	8,571
* 15	040692	24' bsg S of AGT	NA	124.8
* 15D	040692	#15 duplicate	NA	138.3
* 16	040692	24' bsg E of #13	NA	322
* 17	040792	25' bsg S of #10	NA	132.7
* 18	040792	28' bsg SE of AGT	NA	3,490
* 19	040792	28' bsg below S end AGT	NA	3,050
20	040792	28' bsg W of #17	NA	7.5
21	040792	27' bsg S wall	NA	79.1
22	040792	17' bsg SE cnr	NA	92.8
23	040792	24' bsg SW cnr	NA	87.9
* 24	040792	26' bsg SE of sump	NA	1,147

TABLE 3 (Continued)
FIELD HEADSPACE OVM RESULTS
ACID STORAGE TANK AND LOADING AREA
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO
DECEMBER 1991 - APRIL 1992

- Notes: 1) bsg - approximate depth below original surface grade.
- 2) OVM - 100 ppm action level per NMOC D Guidelines, 10/29/91.
- 3) * - Samples taken within the removed contamination plume envelope. Efforts were made to continue the excavation beyond these location.
- 4) Samples E# collected by Mr. Mike Eason, samples J# collected by Mr. Jack Dewey, remaining samples # collected by Mr. Myke Lane.

Refer to the Sample Detail (Sheet 3) for the approximate sample locations.

TABLE 4
LABORATORY ANALYTICAL RESULTS
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO
FEBRUARY/MARCH 1992

SOIL SAMPLES

<u>SAMPLE ID</u>	<u>MATRIX</u>	<u>EPA METHOD</u>	<u>BENZENE</u> (ug/kg)	<u>TOLUENE</u> (ug/kg)	<u>ETHYL-BENZENE</u> (ug/kg)	<u>TOTAL XYLENE</u> (ug/kg)	<u>TPH</u> (mg/kg)
*E1	SOIL	418.1	-	-	-	-	19.5
*E2	SOIL	418.1	-	-	-	-	3,552
*E3	SOIL	418.1	-	-	-	-	703
3	SOIL	418.1	-	-	-	-	152
5	SOIL	418.1	-	-	-	-	194
6	SOIL	418.1	-	-	-	-	26.2
6D	SOIL	418.1	-	-	-	-	24.2
11	SOIL	418.1	-	-	-	-	<10.0
11D	SOIL	418.1	-	-	-	-	<10.0
*18	SOIL	418.1	-	-	-	-	25,400
*19	SOIL	418.1	-	-	-	-	3,580
20	SOIL	418.1	-	-	-	-	ND

- Notes:
- 1) ND - Parameter not detected at method detection limit (refer to analytical results for detection limit).
 - 2) Total Xylene - summation of m,p-Xylene and o-Xylene.
 - 3) @ - Laboratory indicated traces of both m,p-Xylene and o-Xylene at detection limit of 50 ug/kg, the net total of which approximated 50 ug/kg.
 - 4) * - Samples taken within the removed contamination plume envelope.

Refer to the Sampling Detail (Sheet 3) for the approximate sample locations.

TABLE 5
LABORATORY ANALYTICAL RESULTS
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO
FEBRUARY, 1992

<u>SAMPLE ID</u>	<u>MATRIX</u>	<u>EPA METHOD</u>	<u>BENZENE</u> (ug/L)	<u>TOLUENE</u> (ug/L)	<u>ETHYL-BENZENE</u> (ug/L)	<u>TOTAL XYLENE</u> (ug/L)	<u>TPH</u> (mg/L)
MONITOR WELL GROUNDWATER SAMPLES							
MW1	WATER	8020	ND	ND	ND	ND	-
MW1	WATER	418.1	-	-	-	-	<10
MW2	WATER	8020	ND	<1.0	<1.0	<1.0	-
MW2	WATER	418.1	-	-	-	-	14.5
MW3	WATER	8020	ND	<1.0	<1.0	<1.0	-
MW3	WATER	418.1	-	-	-	-	ND

- Notes:
- 1) ND - Parameter not detected at method detection limit (refer to analytical results for detection limit).
 - 2) Total Xylene - summation of m,p-Xylene and o-Xylene.
 - 3) + - Laboratory indicated traces of both m,p-Xylene and o-Xylene near the detection limit of 1.0 ug/kg, the net total of which approximated 3.2 ug/kg.
 - 4) * - Samples taken within the removed contamination plume envelope.

Refer to the Site Plan (Sheet 1) for the monitor well locations.

CONCLUSIONS

The current maximum allowable concentrations for groundwater contamination as outlined by the State of New Mexico Water Quality Control Commission (August 18, 1991) are summarized reported in Table 6. The maximum allowable concentrations for soil as outlined in the New Mexico Oil Conservation Division, Guidelines for Surface Impoundment Closure (October 29, 1991) are also summarized in Table 6. The analyses for hydrocarbon contamination of the soil and groundwater in the immediate area of the acid UST system at the Smith International Farmington facility showed; the soil to be above the current regulated limits, and groundwater to be at or below the current regulated limits.

TABLE 6
HYDROCARBON SOIL & GROUNDWATER CONTAMINATION STANDARDS
STATE OF NEW MEXICO

<u>Parameter</u>	<u>Maximum Allowable Limits</u>	
	<u>soil (mg/kg)</u>	<u>groundwater (ug/l)</u>
Benzene	10	10
Toluene	-	750
Ethylbenzene	-	750
Total Xylene	-	620
Total Aromatics	50	-
Total Petroleum Hydrocarbons	100	-

- Notes: 1) ug/kg or ug/l - equivalent to parts per billion.
2) mg/kg - equivalent to parts per million.

Based on the site assessment conducted during the closure and abatement of the acid UST and spill catchment system, it appears that the hydrocarbon contamination was limited to the area immediately around the system and had limited lateral extent.

The highly contaminated soils have been excavated and removed for remediation in all areas practically feasible. Removal of any remaining highly contaminated soils will required extensive engineering to stabilize the foundation of the AGT system and/or removal and reconstruction of the AGT system.

Soils from the final excavation sidewalls and bottom tested below the action level of 100 ppm for volatile organic vapors and tested below action levels to TPH.

Preliminary analysis of the groundwater samples, taken from the monitor wells, indicates that the soil hydrocarbon plume may have had limited impact to the groundwater at the site. There are currently no action limits for total petroleum hydrocarbon in groundwater in the State of New Mexico.

As per NMOCD's April 30, 1992 request (Refer to Appendix B), two additional monitor wells will be installed down gradient of the acid UST system to assess the site groundwater conditions. The findings from these monitor wells will be prepared as a supplemental report under separate cover, upon completion of the well construction, development, sampling and testing. Due to the nature of the site soils, these wells will be drilled using a rotary drill rig with water based drilling fluid.

If the findings from the additional monitor wells indicate no impact to the site groundwater, we will request closure of this acid UST system file, considering the findings of this report.

LIMITATIONS AND CLOSURE

The conclusions given in this report are based on a visual observation of the site, subsurface soil conditions encountered during the closure operations, and analysis of soil and water samples collected during site assessment. This report does not reflect subsurface variations which may exist between sampling points.

The scope of Envirotech's services was limited to site remediation and the assessment of soil and/or groundwater contamination with respect to hydrocarbon contamination associated with hydrocarbon products at typical oil field service and production facilities. All work has been performed in accordance with generally accepted professional practices in construction/excavation, geotechnical/environmental/petroleum engineering and hydrogeology.

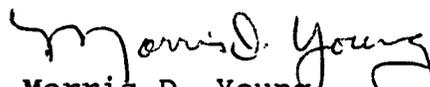
This report has been prepared for the exclusive use of Smith International as it pertains to their property located at 2198 East Bloomfield Highway, Farmington, New Mexico.

I hereby certify that the work performed by Envirotech as described in this report was performed under my direct supervision, and that I am personally familiar with the nature of the work, the results of the assessment and the contents of this report.

Respectfully Submitted,
ENVIROTECH INC.


Michael K. Lane, P.E.
Geological Engineer

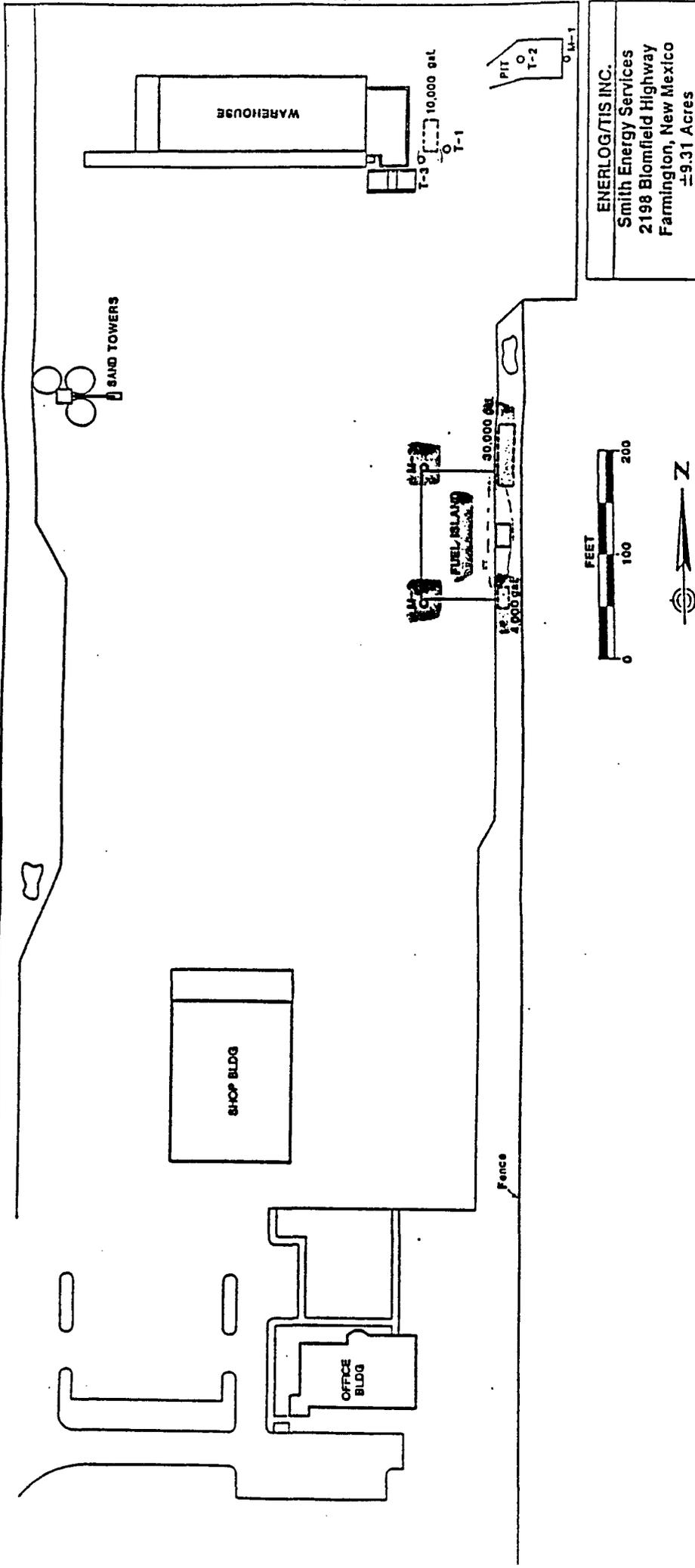
Reviewed By:


Morris D. Young
President

APPENDICES

1410ACD.RPT

MOLTA AVE



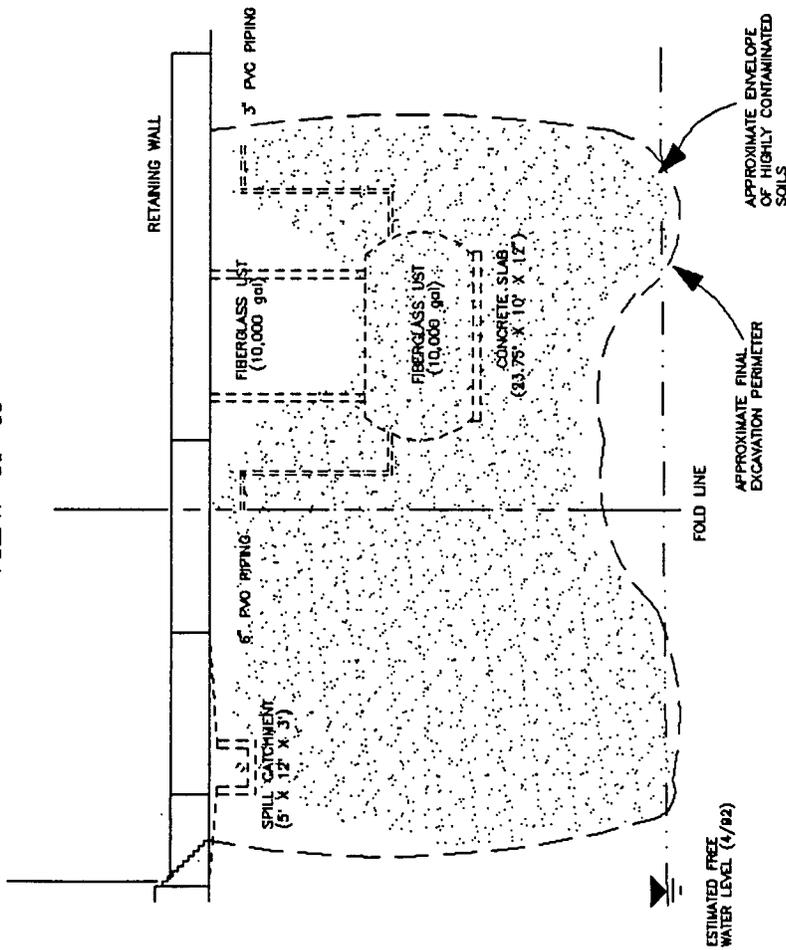
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Rev. 8/90

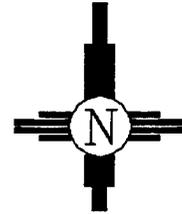
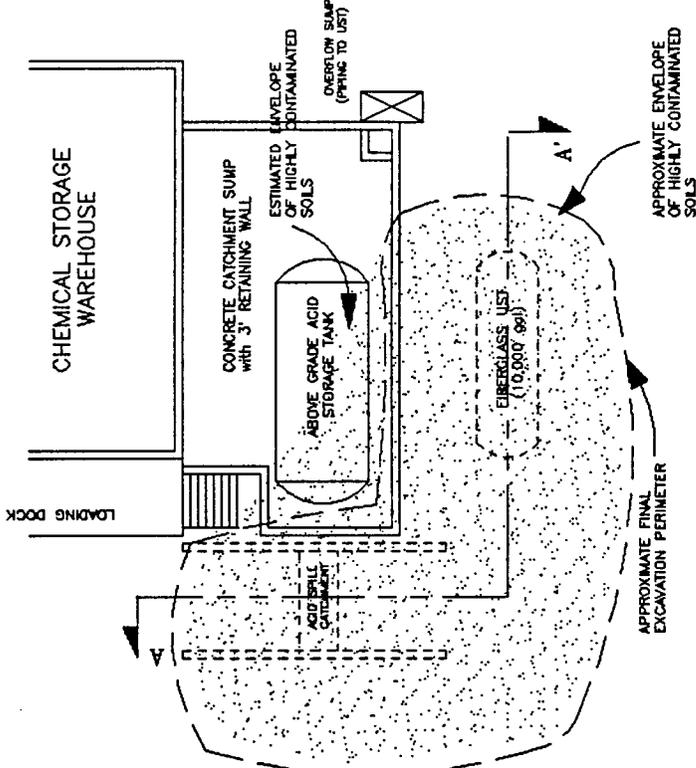
▲ ACID UST AND SUMP CLOSURE REPORT
 ACID STORAGE TANK AND LOADING AREA
 SMITH INTERNATIONAL INC.
 2198 EAST BLOOMFIELD HIGHWAY
 SE/4, SW/4 SECTION 14, TWP 29N, RNG 13W
 FARMINGTON, SAN JUAN COUNTY, NEW MEXICO

ENVIROTECH INC.
 5796 U.S. HWY 64-3014
 FARMINGTON, NM
 Project No: 91410

VIEW A-A'



ESTIMATED GROUNDWATER SLOPE BASED ON WATER LEVEL MEASUREMENTS FROM THREE SITE MONITOR WELLS (2/17/92).



EXCAVATION PERIMETERS AND CONTAMINATION ENVELOPES WERE DETERMINED BY TAPING, PACING AND SIGHTING FROM EXISTING FENCING AND TOPOGRAPHIC FEATURES. THE EXCAVATION ENVELOPE SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE MEASUREMENT METHOD USED.

SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HWY
FARMINGTON, NEW MEXICO
ACID UST AND LOADING SYSTEM CLOSURE
PROJECT NO: 91410

ENVIROTECH INC.
ENVIRONMENTAL SCIENTISTS & ENGINEERS
5796 U.S. HIGHWAY 64-3014
FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615

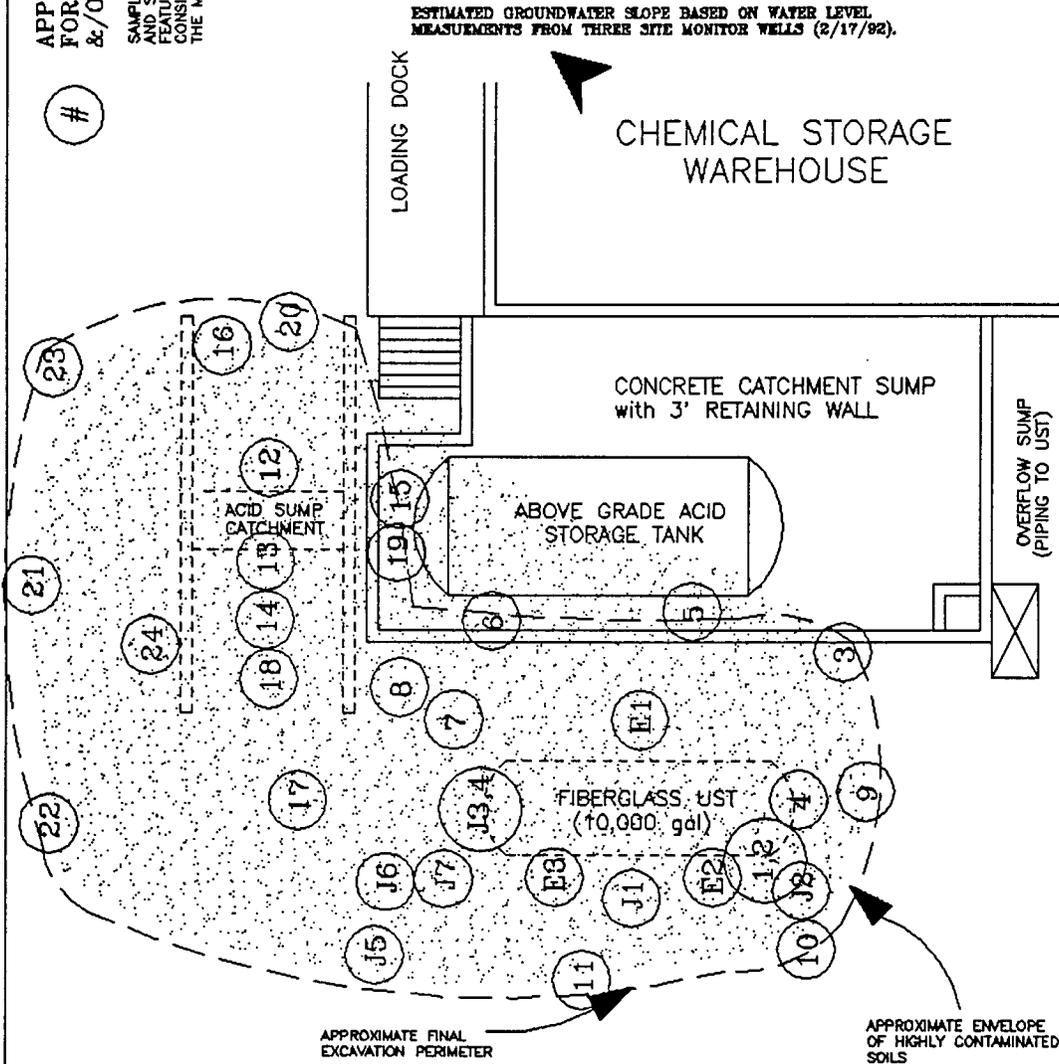
ACID STORAGE AND LOADING AREA
SYSTEM SITE DETAIL

SHEET: 2 DRAWN: MAY '92

DRWN BY: MKL PRJ MGR: MKL

APPROXIMATE LOCATION OF SOIL SAMPLE
FOR VOLATILE ORGANIC VAPOR ANALYSES
&/OR LABORATORY ANALYSES (TPH).

SAMPLE LOCATIONS WERE DETERMINED BY TAPING, PACING
AND SIGHTING FROM EXISTING FENCING AND TOPOGRAPHIC
FEATURES. THE EXCAVATION AND ENVELOPE SHOULD BE
CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY
THE MEASUREMENT METHOD USED.



ENVIROTECH INC.

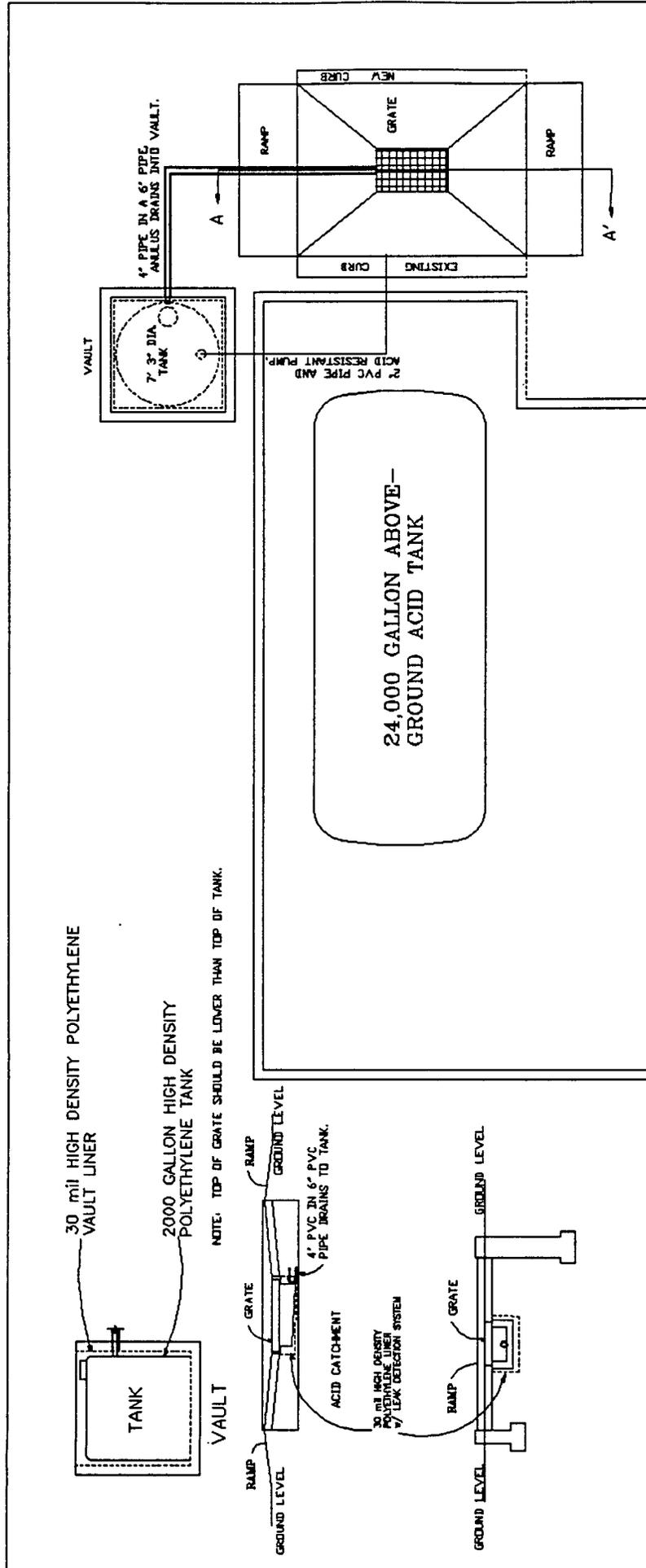
ENVIRONMENTAL SCIENTISTS & ENGINEERS
5786 U.S. HIGHWAY 64-3014
FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615

SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HWY
FARMINGTON, NEW MEXICO
ACID UST AND LOADING SYSTEM CLOSURE
PROJECT NO: 91410

ACID STORAGE AND LOADING AREA
SAMPLING DETAIL

SHEET: 3 DRAWN: MAY '92

DRWN BY: MKL PRJ MGR: MKL



30 mil HIGH DENSITY POLYETHYLENE VAULT LINER

2000 GALLON HIGH DENSITY POLYETHYLENE TANK

NOTE: TOP OF GRATE SHOULD BE LOWER THAN TOP OF TANK.

24,000 GALLON ABOVE-GROUND ACID TANK

SMITH INTERNATIONAL INC.
 2198 EAST BLOOMFIELD HWY
 FARMINGTON, NEW MEXICO

ACID UST AND LOADING SYSTEM CLOSURE

PROJECT NO: 81410

ENVIROTECH INC.
 ENVIRONMENTAL SCIENTISTS & ENGINEERS
 6798 U.S. HIGHWAY 64-3014
 FARMINGTON, NEW MEXICO 87401
 PHONE: (505) 632-0616

ACID STORAGE AND LOADING AREA

REPLACEMENT ACID CATCHMENT SCHEMATIC

SHEET: 4

DRAWN: 5-5-92

DRWN BY: JDD

PRJ MGR: MKL



South End & West Side



North End & East Side
10,000 Gallon Fiberglass Tank

Acid UST & Sump Closure Report
Smith International Inc.
2198 East Bloomfield Highway
SE/4, SW/4, Section 14, TWP 29N, RGE 13W
Farmington, San Juan County, New Mexico
Envirotech Inc.

May 1992

Project: 91410



North End of Acid UST Excavation



South End of Acid UST Excavation

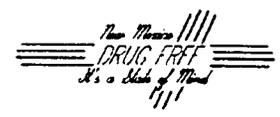
Acid UST & Sump Closure Report
Smith International Inc.
2198 East Bloomfield Highway
SE/4, SW/4, Section 14, TWP 29N, RGE 13W
Farmington, San Juan County, New Mexico
Envirotech Inc.
May 1992 Project: 91410



Final Excavation, South of Above
Ground Acid Storage Tank.

Acid UST & Sump Closure Report
Smith International Inc.
2198 East Bloomfield Highway
SE/4, SW/4, Section 14, TWP 29N, RGE 13W
Farmington, San Juan County, New Mexico
Envirotech Inc.
May 1992 Project: 91410

File: 91410



STATE OF NEW MEXICO
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
AZTEC DISTRICT OFFICE

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

1000 RIO BRAZOS ROAD
AZTEC, NEW MEXICO 87410
(505) 334-6178

April 30, 1992

Envirotech Inc.
Attn. Mike Lane, Project Engineer
5796 U. S. Highway 64-3014
Farmington, NM 87401

RE: Monitor Wells for Smith Energy Services Remediation Site Farmington, New Mexico
Funded by Smith International.

Dear Mr. Lane:

A minimum of two additional groundwater monitor wells must be installed at the Smith Energy Services Remediation Site. Contamination did reach the water table at the Wash Bay Solids Disposal Area and UST Acid Disposal Facility. Each of these sources of contamination is to have a monitor well installed S-SW of the point source in approximately the down gradient direction or the direction of flow towards the San Juan River. Monitor wells are to penetrate the water table five to ten feet and utilize a design similar to existing wells. The new wells are to be located at optimum locations to integrate with the existing monitor wells while detecting potential contamination. Additional wells may be needed if groundwater contamination is indicated by samples from the new wells.

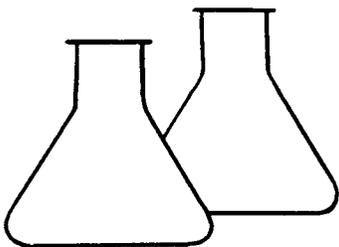
Please feel free to contact this office for any clarification.

Yours truly,

Denny G. Foust
Denny G. Foust
Environmental Geologist

DGF\sh

Xc: Smith Energy Services
OCD Environmental Bureau
Environmental File
DGF File



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Ex. #1
Laboratory Number: 122491410-1
Analysis Requested: 418.1
Sample Matrix: Soil
Condition: Received on Ice

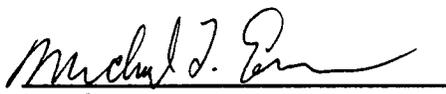
Report Date: 1-10-92
Date Sampled: 12-24-91
Date Received: 12-24-91
Date Extracted: 12-30-91
Date Analyzed: 12-30-91
Preservative: Cool

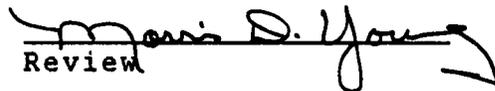
Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Total Recoverable Petroleum Hydrocarbons	19500.0	10.0

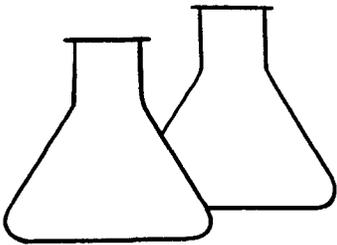
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978.

ND - Parameter not detected at the stated detection limit.

Comments:


Analyst


Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Acid Tank NE Side @ 12'
Laboratory Number: 011392410-1
Sample Matrix: Soil
Temperature: Received on ice
Analysis Method: 418.1

Report Date: 1-14-92
Date Sampled: 1-13-92
Date Received: 1-13-92
Date Extracted: 1-13-92
Date Analyzed: 1-13-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	3552	10.0

ND - Analyte not detected at the stated detection limit.

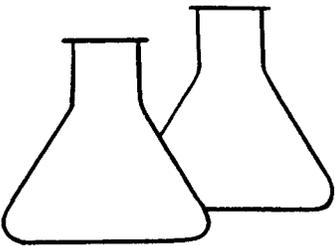
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Analyst

Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Acid Tank SE Side @ 12'
Laboratory Number: 011392410-2
Sample Matrix: Soil
Temperature: Received on ice
Analysis Method: 418.1

Report Date: 1-14-92
Date Sampled: 1-13-92
Date Received: 1-13-92
Date Extracted: 1-13-92
Date Analyzed: 1-13-92

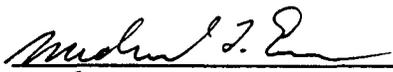
Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	703	10.0

ND - Analyte not detected at the stated detection limit.

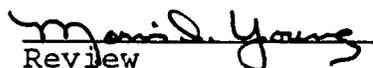
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

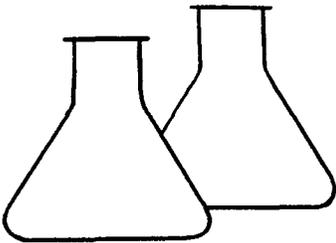
Comments:



Analyst



Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Acid Tank Sample #3
Laboratory Number: 02192410-1
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-4-92
Date Sampled: 2-19-92
Date Received: 2-19-92
Date Extracted: 2-21-92
Date Analyzed: 2-21-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	152	10.0

ND - Analyte not detected at the stated detection limit.

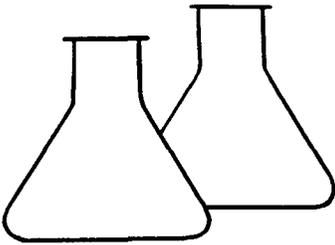
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. E...
Analyst

Imani D. Young
Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Acid Tank Sample #5
Laboratory Number: 02192410-2
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-4-92
Date Sampled: 2-19-92
Date Received: 2-19-92
Date Extracted: 2-21-92
Date Analyzed: 2-21-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	194	10.0

ND - Analyte not detected at the stated detection limit.

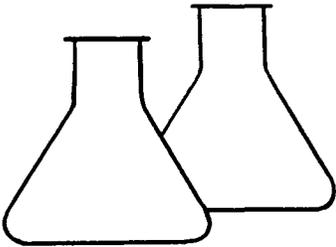
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. En
Analyst

Marie D. Young
Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Acid Tank Sample #6
Laboratory Number: 02192410-3
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-4-92
Date Sampled: 2-19-92
Date Received: 2-19-92
Date Extracted: 2-21-92
Date Analyzed: 2-21-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	26.2	10.0

ND - Analyte not detected at the stated detection limit.

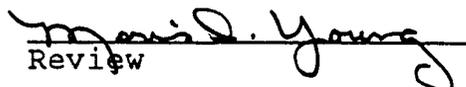
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

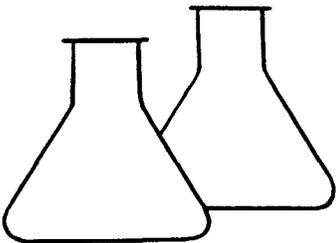
Comments:



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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International	Project #: 91410
Sample ID: Acid Tank Sample #6	Report Date: 3-4-92
Laboratory Number: 02192410-3 Duplicate	Date Sampled: 2-19-92
Sample Matrix: Soil	Date Received: 2-19-92
Temperature: Received on Ice	Date Extracted: 2-21-92
Analysis Method: 418.1	Date Analyzed: 2-21-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	24.2	10.0

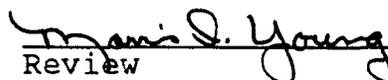
ND - Analyte not detected at the stated detection limit.

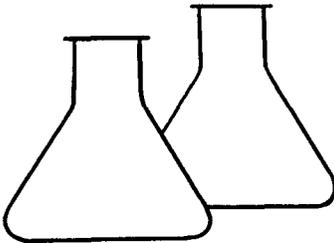
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Acid Tank East Side @ 20'
Laboratory Number: 022692410-1
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-4-92
Date Sampled: 2-26-92
Date Received: 2-26-92
Date Extracted: 3-4-92
Date Analyzed: 3-4-92

Analyte	Concentration (mg/kg)	Detection Limit (mg/kg)
Total Recoverable Petroleum Hydrocarbons	<10	10.0

ND - Analyte not detected at the stated detection limit.

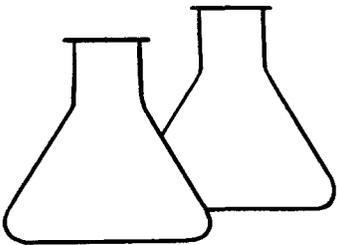
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. Egan
Analyst

Manis Young
Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International	Project #: 91410
Sample ID: Acid Tank East Side @ 20'	Report Date: 3-4-92
Laboratory Number: 022692410-1 Duplicate	Date Sampled: 2-26-92
Sample Matrix: Soil	Date Received: 2-26-92
Temperature: Received on Ice	Date Extracted: 3-4-92
Analysis Method: 418.1	Date Analyzed: 3-4-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	<10	10.0

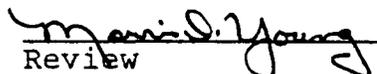
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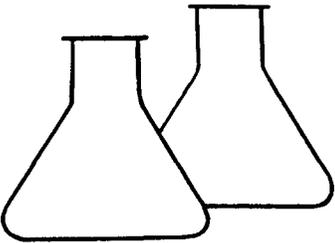
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Acid Tank East Side @ 16'
Laboratory Number: 022692410-2
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-4-92
Date Sampled: 2-26-92
Date Received: 2-26-92
Date Extracted: 3-4-92
Date Analyzed: 3-4-92

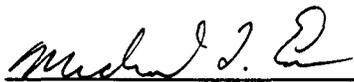
Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	13.1	10.0

ND - Analyte not detected at the stated detection limit.

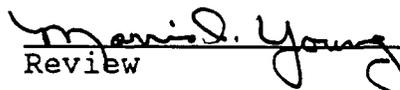
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

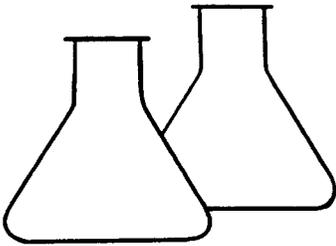
Comments:



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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Acid Tank #18
Laboratory Number: 040792410-1
Sample Matrix: Sand
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 4-28-92
Date Sampled: 4-7-92
Date Received: 4-7-92
Date Extracted: 4-28-92
Date Analyzed: 4-28-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	25400	10.0

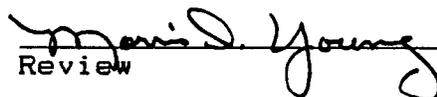
ND - Analyte not detected at the stated detection limit.

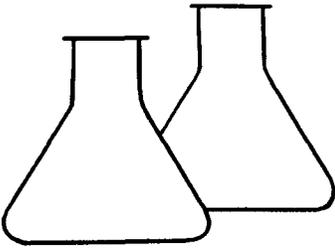
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


Analyst


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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Acid Tank #19
Laboratory Number: 040792410-2
Sample Matrix: Sand
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 4-28-92
Date Sampled: 4-7-92
Date Received: 4-7-92
Date Extracted: 4-28-92
Date Analyzed: 4-28-92

Analyte	Concentration (mg/kg)	Detection Limit (mg/kg)
Total Recoverable Petroleum Hydrocarbons	3580	10.0

ND - Analyte not detected at the stated detection limit.

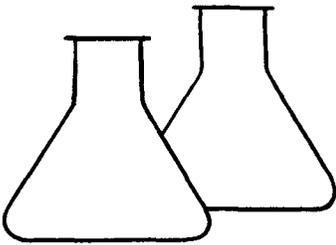
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. [Signature]
Analyst

[Signature]
Review



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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Acid Tank #20
Laboratory Number: 040792410-3
Sample Matrix: Sand
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 4-28-92
Date Sampled: 4-7-92
Date Received: 4-7-92
Date Extracted: 4-28-92
Date Analyzed: 4-28-92

Analyte	Concentration (mg/kg)	Detection Limit (mg/kg)
Total Recoverable Petroleum Hydrocarbons	ND	10.0

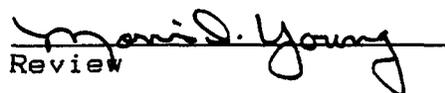
ND - Analyte not detected at the stated detection limit.

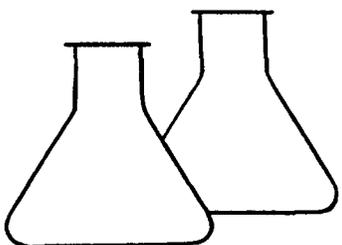
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


Analyst


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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Acid Tank
Laboratory Number: 040792410-4
Sample Matrix: Sand
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 4-28-92
Date Sampled: 4-7-92
Date Received: 4-7-92
Date Extracted: 4-28-92
Date Analyzed: 4-28-92

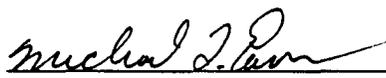
Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	3490	10.0

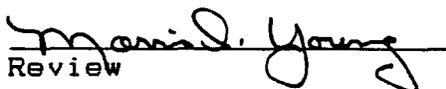
ND - Analyte not detected at the stated detection limit.

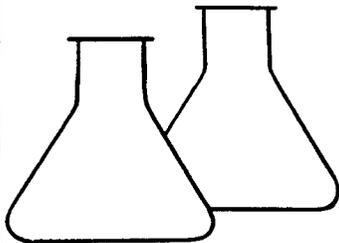
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


Analyst


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**** QUALITY ASSURANCE REPORT
METHOD BLANK - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Client: Smith International
Sample ID: Method Blank
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 1-4-92
Date Extracted: 12-30-91
Date Analyzed: 12-30-91

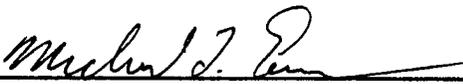
Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

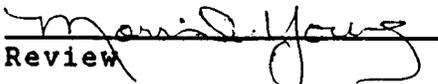
ND - Analyte not detected at the stated detection limit.

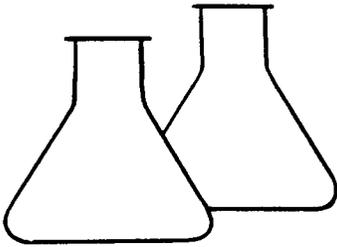
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


Analyst


Review



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**** QUALITY ASSURANCE REPORT**
MATRIX SPIKE/DUPLICATE - TOTAL RECOVERABLE PETROLEUM
HYDROCARBONS

Laboratory Number: 123091410-1
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 1-10-91
Date Extracted: 12-30-92
Date Analyzed: 12-30-92

Analyte	Spike Added (mg/kg)	Sample Result (mg/kg)	Spiked Sample Result (mg/kg)	Percent Recovery
TPH	847	42.7	728	81

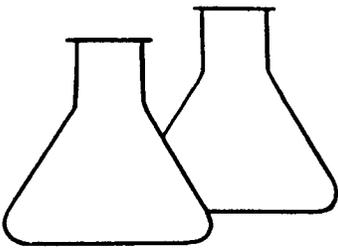
ND - Analyte not detected at the stated detection limit.

QA ACCEPTANCE CRITERIA:

Analyte	Acceptance Range %
TPH	48 - 143

ND - Analyte not detected at the stated detection limit.

Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.:

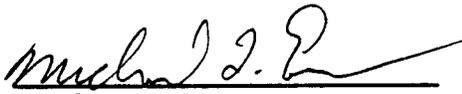


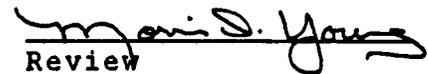
ENVIROTECH LABS

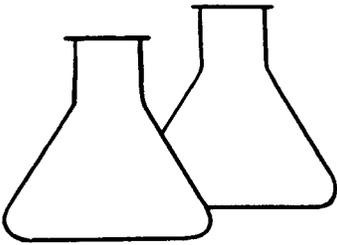
5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable,
Gas Chromatography. Test Methods for Evaluating Solid Waste
Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method
3550, SW-846, USEPA, 1990.

Comments:


Analyst


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**** QUALITY ASSURANCE REPORT
SAMPLE DUPLICATE - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Laboratory No: 043091410-1
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 1-10-91
Date Extracted: 12-30-91
Date Analyzed: 12-30-91

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	40.3	10.0

ND - Analyte not detected at the stated detection limit.

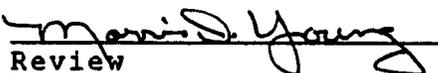
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

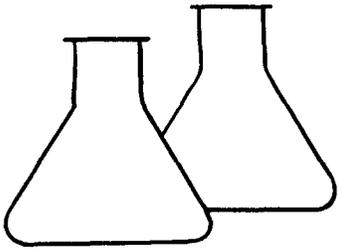
Comments:



Analyst



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**** QUALITY ASSURANCE REPORT
METHOD BLANK - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Client: Smith International
Sample ID: Method Blank
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 1-14-92
Date Extracted: 1-13-92
Date Analyzed: 1-13-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	0.1

ND - Analyte not detected at the stated detection limit.

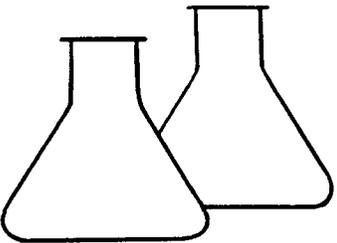
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Analyst

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**** QUALITY ASSURANCE REPORT
METHOD BLANK - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Sample ID: Method Blank
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 3-4-92
Date Extracted: 2-21-92
Date Analyzed: 2-21-92

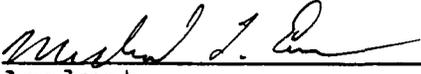
Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

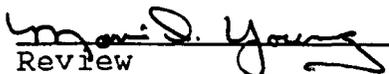
ND - Analyte not detected at the stated detection limit.

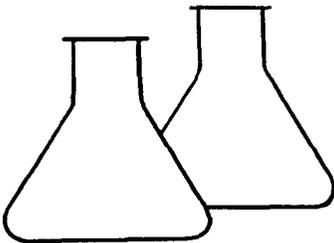
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


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**** QUALITY ASSURANCE REPORT
METHOD BLANK - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Sample ID: Method Blank
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 3-4-92
Date Extracted: 3-4-92
Date Analyzed: 3-4-92

<u>Analyte</u>	<u>Concentration (mg/kg)</u>	<u>Detection Limit (mg/kg)</u>
Total Recoverable Petroleum Hydrocarbons	ND	10.0

ND - Analyte not detected at the stated detection limit.

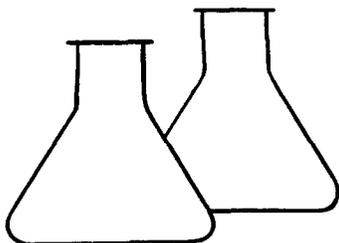
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael L. Egan
Analyst

Maris D. Young
Review



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** QUALITY ASSURANCE REPORT METHOD BLANK - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Sample ID: Method Blank
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 4-28-92
Date Extracted: 4-28-92
Date Analyzed: 4-28-92

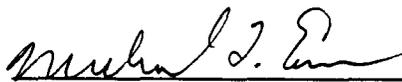
Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

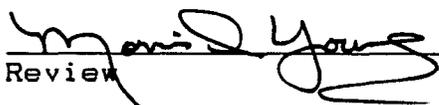
ND - Analyte not detected at the stated detection limit.

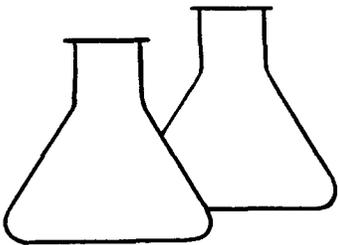
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


Analyst


Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

**** QUALITY ASSURANCE REPORT
SAMPLE DUPLICATE - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Laboratory No: 0134
Sample Matrix: Sand
Analysis Method: 418.1

Report Date: 4-29-92
Date Extracted: 4-28-92
Date Analyzed: 4-28-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

ND - Analyte not detected at the stated detection limit.

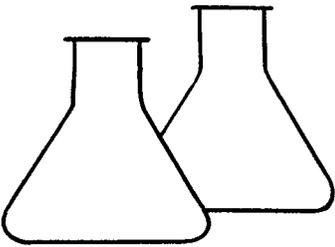
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments: Sample 0132 was None Detected as well.

Analyst

Review



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**** QUALITY ASSURANCE REPORT**
MATRIX SPIKE/DUPLICATE - TOTAL RECOVERABLE PETROLEUM
HYDROCARBONS

Laboratory Number: 040792410-4
Sample Matrix: Sand
Analysis Method: 418.1

Report Date: 4-29-92
Date Extracted: 4-28-92
Date Analyzed: 4-28-92

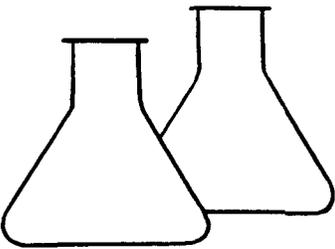
<u>Analyte</u>	<u>Spike Added (mg/kg)</u>	<u>Sample Result (mg/kg)</u>	<u>Spiked Sample Result (mg/kg)</u>	<u>Percent Recovery</u>
TPH	331	464	ND	128

ND - Analyte not detected at the stated detection limit.

<u>QA ACCEPTANCE CRITERIA:</u>	<u>Analyte</u>	<u>Acceptance Range %</u>
	TPH	48 - 143

ND - Analyte not detected at the stated detection limit.

Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.:



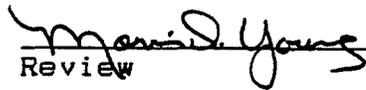
ENVIROTECH LABS

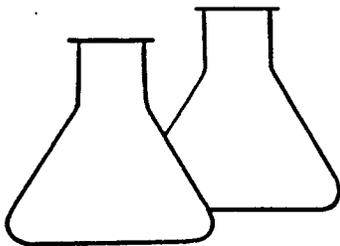
5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable,
Gas Chromatography. Test Methods for Evaluating Solid Waste
Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by
Method 3550, SW-846, USEPA, 1990.

Comments:


Analyst


Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 PURGEABLE AROMATICS

Client: Smith International
Sample ID: Monitor Well #1
Lab ID#: 021492410-5
Matrix: Water
Preservative: HgCl₂
Sample Condition: Received on Ice

Project #: 91410
Date Reported: 2-17-92
Date Sampled: 2-14-92
Date Received: 2-14-92
Date Extracted:
Date Analyzed: 2-17-92
Injection Vol: 5 ml

Analyte	Analytical Result	Detection Limit	Units
Benzene	ND	1.0	ug/l
Toluene	ND	1.0	ug/l
Ethylbenzene	ND	1.0	ug/l
m,p-Xylene	ND	1.0	ug/l
o-Xylene	ND	1.0	ug/l

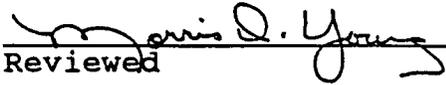
ND - Analyte not detected at given detection level.

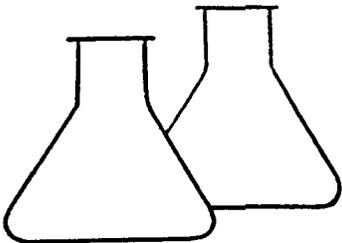
Comments:

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluation Solid Waste, SW-846, United States Environmental Protection Agency, SW-846, Vol. IB, November 1990.


Analyst


Reviewed



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 PURGEABLE AROMATICS

Client: Smith International
Sample ID: Monitor Well #2
Lab ID#: 021492410-4
Matrix: Water
Preservative: HgCl₂
Sample Condition: Received on Ice

Project #: 91410
Date Reported: 2-17-92
Date Sampled: 2-14-92
Date Received: 2-14-92
Date Extracted:
Date Analyzed: 2-17-92
Injection Vol: 5 ml

Analyte	Analytical Result	Detection Limit	Units
Benzene	ND	1.0	ug/l
Toluene	<1.0	1.0	ug/l
Ethylbenzene	<1.0	1.0	ug/l
m,p-Xylene	<1.0	1.0	ug/l
o-Xylene	<1.0	1.0	ug/l

ND - Analyte not detected at given detection level.

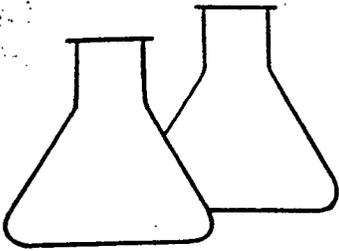
Comments:

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluation Solid Waste, SW-846, United States Environmental Protection Agency, SW-846, Vol. IB, November 1990.

Michael J. Lee
Analyst

Marnie D. Young
Reviewed



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 PURGEABLE AROMATICS

Client: Smith International
Sample ID: Monitor Well #3
Lab ID#: 021492410-6
Matrix: Water
Preservative: HgCl₂
Sample Condition: Received on Ice

Project #: 91410
Date Reported: 2-17-92
Date Sampled: 2-14-92
Date Received: 2-14-92
Date Extracted:
Date Analyzed: 2-17-92
Injection Vol: 5 ml

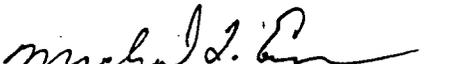
Analyte -----	Analytical Result -----	Detection Limit -----	Units -----
Benzene	ND	1.0	ug/l
Toluene	<1.0	1.0	ug/l
Ethylbenzene	<1.0	1.0	ug/l
m,p-Xylene	<1.0	1.0	ug/l
o-Xylene	<1.0	1.0	ug/l

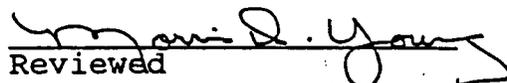
ND - Analyte not detected at given detection level.

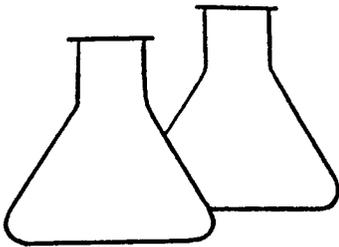
Comments:

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for
Evaluation Solid Waste, SW-846, United States Environmental
Protection Agency, SW-346, Vol. IB, November 1990.


Analyst


Reviewed



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**** QUALITY ASSURANCE REPORT
METHOD BLANK - PURGABLE AROMATICS**

Sample ID: Method Blank
Matrix: Water
Preservative: HgCl₂

Date Reported: 2-17-92
Date Extracted:
Date Analyzed: 2-17-92
Injection Vol: 5 ml

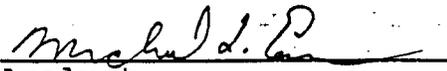
Analyte -----	Analytical Result -----	Detection Limit -----	Units -----
Benzene	ND	1.0	ug/k
Toluene	ND	1.0	ug/k
Ethylbenzene	ND	1.0	ug/k
m,p-Xylene	ND	1.0	ug/k
o-Xylene	ND	1.0	ug/k

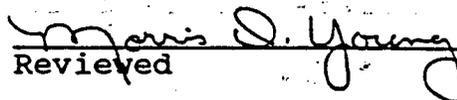
ND - Analyte not detected at given detection level.

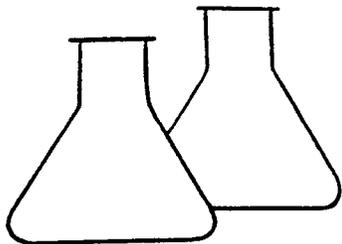
Comments:

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for
Evaluation Solid Waste, SW-846, United States Environmental
Protection Agency, SW-846, Vol. IB, November 1990.


Analyst


Reviewed



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

**** QUALITY ASSURANCE REPORT
MATRIX SPIKE - PURGABLE AROMATICS**

Laboratory Number: 021492410-6
Sample Matrix: Water
Preservative: HgCl₂
Sample Condition: Received on ice

Date Reported: 2-17-92
Date Sampled: 2-14-92
Date Extracted:
Date Analyzed: 2-17-92

Analyte	Spike Added (ug/L)	Sample Result (ug/L)	Spiked Sample Result (ug/L)	Percent Recovery
Benzene	10	ND	9.8	98
Toulene	10	<1.0	9.1	91
Ethylbenzene	10	<1.0	9.3	93

ND - Analyte not detected at the stated detection limit.

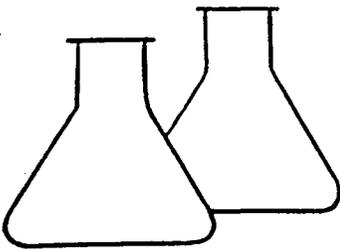
QA ACCEPTANCE CRITERIA:	Analyte	Acceptance Range %
	Benzene	39 - 150
	Toluene	46 - 148
	Ethylbenzene	32 - 160

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluation Solid Waste, SW-846, United States Environmental Protection Agency, SW-846, Vol. IB, November 1990.

Mahud. En
Analyst

Marie Young
Reviewed



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Monitor Well #1
Laboratory Number: 030592410-1
Sample Matrix: Water
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-13-92
Date Sampled: 3-5-92
Date Received: 3-5-92
Date Extracted: 3-13-92
Date Analyzed: 3-13-92

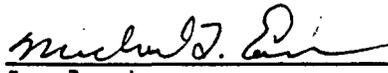
Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	<10.0	10.0

ND - Analyte not detected at the stated detection limit.

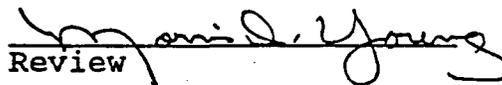
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

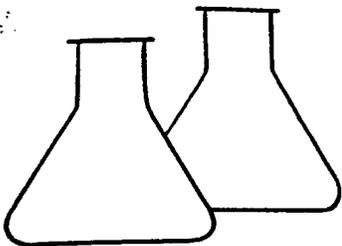
Comments:



Analyst



Review



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Monitor Well #2
Laboratory Number: 030592410-2
Sample Matrix: Water
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-13-92
Date Sampled: 3-5-92
Date Received: 3-5-92
Date Extracted: 3-13-92
Date Analyzed: 3-13-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	14.5	10.0

ND - Analyte not detected at the stated detection limit.

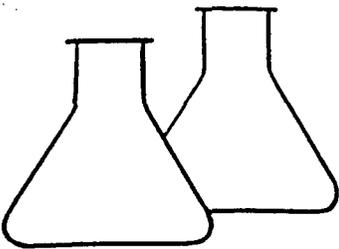
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. Lee
Analyst

Marion D. Young
Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Monitor Well #3
Laboratory Number: 030592410-3
Sample Matrix: Water
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-13-92
Date Sampled: 3-5-92
Date Received: 3-5-92
Date Extracted: 3-13-92
Date Analyzed: 3-13-92

Analyte	Concentration (mg/kg)	Detection Limit (mg/kg)
Total Recoverable Petroleum Hydrocarbons	ND	10.0

ND - Analyte not detected at the stated detection limit.

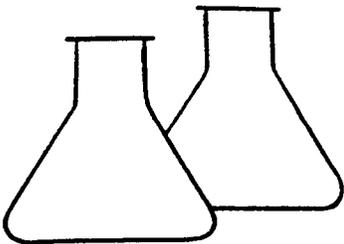
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael L. Don
Analyst

Margaret D. Young
Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

**** QUALITY ASSURANCE REPORT
METHOD BLANK - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Sample ID: Method Blank
Sample Matrix: Water
Analysis Method: 418.1

Report Date: 3-13-92
Date Extracted: 3-13-92
Date Analyzed: 3-13-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

ND - Analyte not detected at the stated detection limit.

Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

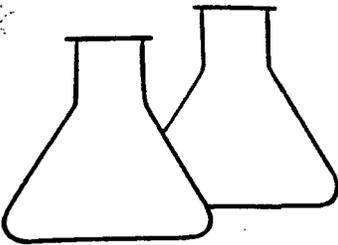
Comments:

Michael L. ...

Analyst

... D. Young

Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

**** QUALITY ASSURANCE REPORT
MATRIX SPIKE - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Laboratory Number: 030592410-3
Sample Matrix: Water
Analysis Method: 418.1

Report Date: 3-13-92
Date Extracted: 3-13-92
Date Analyzed: 3-13-92

<u>Analyte</u>	<u>Spike Added (ug/kg)</u>	<u>Sample Result (ug/kg)</u>	<u>Spiked Sample Result (ug/kg)</u>	<u>Percent Recovery</u>
TPH	100	ND	104	104

ND - Analyte not detected at the stated detection limit.

<u>QA ACCEPTANCE CRITERIA: Analyte</u>	<u>Acceptance Range %</u>
TPH	48 - 143

ND - Analyte not detected at the stated detection limit.

Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.:

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable,
Gas Chromatography. Test Methods for Evaluating Solid Waste
Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method
3550, SW-846, USEPA, 1990.

Comments:

Michael J. Brown
Analyst

M. Young
Review

CHAIN OF CUSTODY RECORD

Client/Project Name		Project Location		ANALYSIS/PARAMETERS													
SMITH ENERGY / 91410		Dese, California		Chain of Custody Tape No.		No. of Containers		TPH		BOD		ASB.1		Remarks			
Sampler: (Signature)	Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix												
<i>[Signature]</i>	TPH-MW#2	2/14/92	11:30	021492410-1	SEWAGE WATER												
	TPH-MW#1	2/14/92	10:05	021492410-2	WATER												
	TPH-MW#3	2/14/92	10:49	021492410-3	WATER												
	8020-MW#2	2/14/92	11:35	021492410-4	WATER												
	8020-MW#1	2/14/92	10:10	021492410-5	WATER												
	8020-MW#3	2/14/92	10:54	021492410-6	WATER												
	418.1-SMP#30	2/14/92	16:15	021492410-7	SOIL												
			MZ E	2-14-92													
Relinquished by: (Signature)		<i>[Signature]</i>		Date	2/14/92	Time	16:50	Received by: (Signature)		MZ E		2-14-92		Date	2-14-92	Time	16:50
Relinquished by: (Signature)		<i>[Signature]</i>		Date		Time		Received by: (Signature)		MZ E		2-14-92		Date		Time	
Relinquished by: (Signature)		<i>[Signature]</i>		Date		Time		Received by: (Signature)		MZ E		2-14-92		Date		Time	

ENVIROTECH INC.
 5796 U.S. Highway 64-3014
 Farmington, New Mexico 87401
 (505) 632-0615

CLIENT: Envirotech
ID: 1000
SITE: MW#1
LAB NO: F8163

DATE REPORTED: 03/02/92
DATE RECEIVED: 02/14/92
DATE COLLECTED: 02/14/92

Lab pH (s.u.).....	7.14
Lab Conductivity, umhos/cm @ 25C....	675
Lab Resistivity, ohm-m.....	14.8
Total Dissolved Solids (180C), mg/L.	420 *
Total Dissolved Solids (calc), mg/L.	442
Total Alkalinity as CaCO3, mg/L.....	237
Total Hardness as CaCO3, mg/L.....	315
Sodium Adsorption Ratio.....	0.80

	mg/L	meq/L
Bicarbonate as HCO3.....	289	4.74
Carbonate as CO3.....	0	0
Chloride.....	15.5	0.44
Sulfate.....	133	2.76
Calcium.....	102	5.11
Magnesium.....	14.4	1.18
Potassium.....	2.22	0.06
Sodium.....	32.5	1.41
Major Cations.....		7.76
Major Anions.....		7.94
Cation/Anion Difference.....		1.13 %

* Reanalyzed, no significant change.

Mary Stepp
Mary Stepp
Lab Director

Wanda Orso
Wanda Orso
Water Lab Supervisor

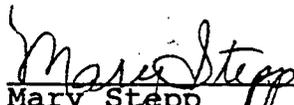
CLIENT: Envirotech
ID: 1125
SITE: MW#2
LAB NO: F8164

DATE REPORTED: 03/02/92
DATE RECEIVED: 02/14/92
DATE COLLECTED: 02/14/92

Lab pH (s.u.).....	7.06
Lab Conductivity, umhos/cm @ 25C....	840
Lab Resistivity, ohm-m.....	11.9
Total Dissolved Solids (180C), mg/L.	454 *
Total Dissolved Solids (calc), mg/L.	524
Total Alkalinity as CaCO ₃ , mg/L.....	279
Total Hardness as CaCO ₃ , mg/L.....	378
Sodium Adsorption Ratio.....	0.73

	mg/L	meq/L
Bicarbonate as HC0 ₃	340	5.58
Carbonate as C0 ₃	0	0
Chloride.....	35.0	0.99
Sulfate.....	133	2.78
Calcium.....	139	6.93
Magnesium.....	7.69	0.63
Potassium.....	9.35	0.24
Sodium.....	32.5	1.41
Major Cations.....		9.21
Major Anions.....		9.35
Cation/Anion Difference.....		0.72 %

* Reanalyzed, no significant change.


Mary Stepp
Lab Director

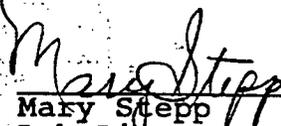

Wanda Orso
Water Lab Supervisor

CLIENT: Envirotech
 ID: 1045
 SITE: MW#3
 LAB NO: F8165

DATE REPORTED: 03/02/92
 DATE RECEIVED: 02/14/92
 DATE COLLECTED: 02/14/92

Lab pH (s.u.).....	7.38
Lab Conductivity, umhos/cm @ 25C....	864
Lab Resistivity, ohm-m.....	11.6
Total Dissolved Solids (180C), mg/L.	546
Total Dissolved Solids (calc), mg/L.	548
Total Alkalinity as CaCO ₃ , mg/L.....	311
Total Hardness as CaCO ₃ , mg/L.....	398
Sodium Adsorption Ratio.....	0.72

	mg/L	meq/L
Bicarbonate as HC0 ₃	379	6.21
Carbonate as C0 ₃	0	0
Chloride.....	34.1	0.96
Sulfate.....	136	2.83
Calcium.....	133	6.65
Magnesium.....	16.0	1.32
Potassium.....	8.98	0.23
Sodium.....	32.9	1.43
Major Cations.....		9.63
Major Anions.....		10.0
Cation/Anion Difference.....		1.92 %


 Mary Stepp
 Lab Director


 Wanda Orso
 Water Lab Supervisor

CHAIN OF CUSTODY RECORD

Client/Project Name		Project Location		ANALYSIS/PARAMETERS																
SMITH ENERGY		SMITH YARD - ACID TANK																		
Sampler: (signature) <i>Michael J. ...</i>		Chain of Custody Tape No.																		
Sample No/ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix																Remarks
NE SIDE @ 12'	1-13-92	1315	011392410-1	SOIL																418.1
SE SIDE @ 12'	1-13-92	1315	011392410-2	SOIL																✓
MARK 1-13-92																				
Relinquished by: (signature)			Date	Time	Received by: (signature)										Date	Time				
			1315		<i>MR E</i>															
Relinquished by: (signature)			Received by: (signature)																	
Relinquished by: (signature)			Received by: (signature)																	

ENVIROTECH Inc.
 5796 US HIGHWAY 64-3014
 FARMINGTON, NEW MEXICO 87401
 (505) 632-0615



CHAIN OF CUSTODY RECORD

Client/Project Name		Project Location		ANALYSES / PARAMETERS											
[Handwritten Name]		[Handwritten Location]		[Blank]											
Sampler: (Signature)				Chain of Custody Tape No.				No. of Containers		Remarks					
Sample No./ Identification	Date	Time	Lab Number	Matrix											
#1	11/10	10:00		Water	1	✓									
#2	11/10	11:00			1	✓									
#3	11/10	12:00			1	✓									

Relinquished by: (Signature)				Date		Time		Received by: (Signature)				Date		Time	
[Signature]				11/11		10:00		[Signature]				11/11		10:00	
Relinquished by: (Signature)				Date		Time		Received by: (Signature)				Date		Time	
[Signature]				11/11		11:00		[Signature]				11/11		11:00	
Relinquished by: (Signature)				Date		Time		Received by laboratory: (Signature)				Date		Time	
[Signature]				11/11		12:00		[Signature]				11/11		12:00	

Inter-Mountain Laboratories, Inc.

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Telephone (505) 326-4737
- 910 Technology Blvd. Suite B
Bozeman, Montana 59715
Telephone (406) 586-8450
- 3304 Longmire Drive
College Station, TX 77845
Telephone (409) 774-4999

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CHAIN OF CUSTODY RECORD

Client/Project Name		Project Location			ANALYSIS/PARAMETERS																																																
SMITH / 91410		ACID TANK																																																			
Sampler: (Signature)		Chain of Custody Tape No.										Remarks																																									
																																																					
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers																																																
#2	2/19/92	16:05	021992410-1	Sox	1	ERA																																															
#5	↓	16:08	021992410-2	↓	1	✓																																															
#6	↓	16:15	021992410-3	↓	1	✓																																															
MAZE 2-24-92																																																					
Relinquished by: (Signature)		Date		Time		Received by: (Signature)										Date		Time																																			
		2/24/92		16:00		MAZE										2-24-92																																					
Relinquished by: (Signature)		Date		Time		Received by: (Signature)										Date		Time																																			
		2-24-92				MAZE										2-24-92		1600																																			
Relinquished by: (Signature)		Date		Time		Received by: (Signature)										Date		Time																																			
		MAZE		2-24-92		Michael J. Egan										2-24-92		1600																																			

ENVIROTECH INC.
 5796 U.S. Highway 64-3014
 Farmington, New Mexico 87401
 (505) 632-0615

ENVIROTECH INC.

UNDERGROUND TANK TESTING • SITE ASSESSMENT • SITE REMEDIATION

5796 U.S. HIGHWAY 64 - 3014
FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615

January 24, 1992

Mr. Roger Anderson
Environmental Engineer
State of New Mexico
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504

RE: Contaminated Soil from
Smith International, Inc.
2198 Bloomfield Highway
Farmington, New Mexico

Project No: 91410

Dear Mr. Anderson:

Enclosed are the laboratory results of chemical analyses for soil samples, collected December 20, 1991, from the referenced Smith International facility in Farmington, New Mexico. The samples are of the contaminated material around the acid tank and acid disposal pit areas, as discussed with you earlier by Mr. Morris Young of Envirotech.

The results for all parameters are non-detectable or below RCRA limits.

Therefore, Envirotech requests permission to receive this soil at Envirotech's Soil Remediation Facility at Hilltop, New Mexico.

Respectfully submitted,
ENVIROTECH, Inc.


Michael K. Lane, P.E.
Geological Engineer

Enclosures

C: Mr. Maurice Sticker, Smith International, Inc.
Mr. Chuck Hagen

MKL/mkl
410TCLP.LTR



RECEIVED JAN 3 1 1992

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

91410
SMITH INTERNATIONAL

Case Narrative

On December 20, 1991 a sample set consisting of one sample was received by Inter-Mountain Laboratories - Farmington, NM. Enclosed is a copy of the chain of custody indicating the requested analysis. The normal turn around time was requested for this sample and is reflected in the analytical price.

It is the policy of this laboratory to employ, whenever possible, analytical methods which have been approved by regulatory agencies. The methods which we use are referenced in SW-846, "Test Methods for Evaluating Solid Waste", USEPA, 1986; "Chemical Analysis of Water and Waste", USEPA, 1978; and other references as applicable. All reports in this package have the analytical methods and the references footnoted.

Quality Assurance reports have been included in this package. These reports can be identified by the title of the report.

Please feel free to call if you have any questions.

Tony Tristano
Tony Tristano
Senior Analytical Chemist

CASE NARRATIVE

On December 21, 1991, one soil sample was received for analysis at Inter-Mountain Labs, Bozeman, Montana. The chain of custody form requested analysis for Toxic Characteristic Leaching Procedure Parameters. Client name/Project name was listed as Envirotech / Smith Energy.

No target analytes were detected .

The Toxic Characteristic Leaching Procedure methodology used is outlined in the Federal Register, 40 CFR 261, Vol 55, No 126, June 29, 1990. Results are reported in mass per unit volume of leachate (mg/L) and calculated from matrix spike recoveries as prescribed by the TC Rule.

Limits of detection for each instrument/analysis are determined by sample matrix effects, instrument performance under standard conditions, and dilution requirements to maintain chromatography output within calibration ranges.


Wynn Sudtelgte
IML-Bozeman

**TOXICITY CHARACTERISTIC LEACHING PROCEDURE
 HSL VOLATILE COMPOUNDS**

Client:	ENVIROTECH	Date Reported:	01/24/92
Sample ID:	Waste Pit Comp.	Date Sampled:	12/20/91
Project ID:	Smith Energy	Date Received:	12/21/91
Laboratory ID:	B914207	Date Extracted TCLP:	01/03/92
Sample Matrix:	Soil	Date Analyzed:	01/08/92
Preservation:	Cool		
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
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Vinyl Chloride	ND	0.025	mg/L
1,1-Dichloroethene	ND	0.025	mg/L
Chloroform	ND	0.025	mg/L
1,2-Dichloroethane	ND	0.025	mg/L
Carbon Tetrachloride	ND	0.025	mg/L
Trichloroethene	ND	0.025	mg/L
Benzene	ND	0.025	mg/L
Tetrachloroethene	ND	0.025	mg/L
Chlorobenzene	ND	0.025	mg/L
2-Butanone	ND	0.125	mg/L

ND - Compound not detected at stated Detection Limit.

J - Meets identification criteria, below Detection Limit.

B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

910 Technology Boulevard, Suite B
Bozeman, Montana 59715TOXICITY CHARACTERISTIC LEACHING PROCEDURE
TENTATIVELY IDENTIFIED COMPOUNDS

Client:	ENVIROTECH	Date Reported:	01/24/92
Sample ID:	Waste Pit Comp.	Date Sampled:	12/20/91
Laboratory ID:	B914207	Date Analyzed:	01/08/92
Sample Matrix:	Soil		

Tentative Identification	Retention Time (min)	Concentration	Units
--------------------------	----------------------	---------------	-------

No additional compounds found at reportable levels.

Unknown concentrations calculated assuming a Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recovery	%
1,2-Dichloroethane-d4	98
Toluene-d8	96
Bromofluorobenzene	93

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics,
Test Methods for Evaluating Solid Wastes, SW-846, United States
Environmental Protection Agency, Third Edition, November 1986.

Toxicity Characteristic Leaching Procedure, Final Rule, Federal Register,
40 CFR 261-302, Part V, Environmental Protection Agency, Vol. 55, No. 126,
June 29, 1990.



Analyst



Reviewed

TOXICITY CHARACTERISTIC LEACHING PROCEDURE HSL SEMI-VOLATILE COMPOUNDS

Client:	ENVIROTECH	Report Date:	01/23/92
Sample ID:	Waste Pit Comp.	Date Sampled:	12/20/91
Project ID:	Smith Energy	Date Received:	12/21/91
Laboratory ID:	B914207	Date Extracted-TCLP:	** 01/17/92
Sample Matrix:	Soil	Date Analyzed:	01/21/92
Preservation:	Cool	Date Extracted-BNA:	** 01/20/92
Condition:	Intact		

** - Sample was re-extracted due to low surrogate recoveries. First extractions were TCLP=1/3/92 and BNA=1/10/92

Parameter	Analytical Result	Detection Limit	Units
1,4-Dichlorobenzene	ND	0.015	mg/L
Hexachloroethane	ND	0.015	mg/L
Nitrobenzene	ND	0.015	mg/L
Hexachloro-1,3-butadiene	ND	0.015	mg/L
2,4,6-Trichlorophenol	ND	0.015	mg/L
2,4,5-Trichlorophenol	ND	0.015	mg/L
2,4-Dinitrotoluene	ND	0.015	mg/L
Hexachlorobenzene	ND	0.015	mg/L
Pentachlorophenol	ND	0.015	mg/L
o-Cresol	ND	0.015	mg/L
m & p-Cresol	ND	0.015	mg/L
Pyridine	ND	0.15	mg/L

ND - Compound not detected at stated Detection Limit

J - Meets identification criteria, below Detection Limit

B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

910 Technology Boulevard, Suite 8
Bozeman, Montana 59715

TOXICITY CHARACTERISTIC LEACHING PROCEDURE TENTATIVELY IDENTIFIED COMPOUNDS

Client:	ENVIROTECH	Date Reported:	01/23/92
Sample ID:	Waste Pit Comp.	Date Sampled:	12/20/91
Laboratory ID:	B914207	Date Analyzed:	01/21/92
Sample Matrix:	Soil		

Parameter	Retention Time (min.)	Concentration	Units
Unknown organic acid	13.71	0.03	mg/L
Unknown hydrocarbon	21.33	0.03	mg/L
Diethylphthalate	26.09	0.06	mg/L
Unknown hydrocarbon	28.12	0.02	mg/L

Unknown concentrations calculated assuming Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recoveries	%
2-Fluorophenol	52
Phenol-d6	43
Nitrobenzene-d5	92
2-Fluorobiphenyl	82
2,4,6-Tribromophenol	68
Terphenyl-d14	79

References:

Method 8270, Gas Chromatography/Mass Spectrometry for Semi-Volatile Organics, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, December 1987.

Toxicity Characteristic Leaching Procedure, Final Rule, Federal Register, 40 CFR 261-302, Part V, Environmental Protection Agency, Vol. 55, No. 126, June 29, 1990.



Analyst



Reviewed

**METHOD 8150
CHLORINATED HERBICIDES
TCLP PARAMETERS**

Client:	ENVIROTECH	Date Reported:	01/24/92
Sample ID:	Waste Pit Comp.	Date Sampled:	12/20/91
Project ID:	Smith Energy	Date Received:	12/21/91
Laboratory ID:	B914207	Date Extracted:	01/10/92
Sample Matrix:	Soil	Date Analyzed:	01/23/92
Preservative:	Cool		
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
-----------	-------------------	-----------------	-------

2,4-D	ND	0.001	mg/L
2,4,5-TP	ND	0.001	mg/L

ND - Parameter Not Detected at Stated Detection Limits

Reference: Method 8150, Chlorinated Herbicides, Test Methods for Evaluating Solid Waste, United States Environmental Protection Agency, SW-846, Vol. IB, November, 1986.

Analyst

RM

Reviewed

WJ

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
TRACE METAL CONCENTRATIONS

Client: Envirotech
Sample Id: 7788
Lab Id: B914207/4659
Matrix: Soil
Preservation: COOL / INTACT

Report Date: 01/23/92
Date Sampled: 12/20/91
Date Received: 12/21/91
TCLP Extract: 01/04/92
Date Analyzed: 01/21/91

Parameter:	(units)	Analytical Result	Regulatory Level
Arsenic	mg/L	<0.1	5.0
Barium	mg/L	3.5 B	100
Cadmium	mg/L	0.008	1.0
Chromium	mg/L	<0.01	5.0
Lead	mg/L	<0.2	5.0
Mercury	mg/L	<0.001	0.2
Selenium	mg/L	<0.1	1.0
Silver	mg/L	<0.01	1.0

Toxicity Characteristic Leaching Procedure, Final Rule,
Federal Register, 40 CFR 261-302, Part V, EPA Vol 55, No. 126
June 29, 1990

Method 6010A: Inductively Coupled Plasma-Atomic Emission
Spectroscopy, SW-846, Nov. 1990.

Method 7470A: Mercury in Liquid Waste (Manual Cold-Vapor
Technique), SW-846, Nov. 1990.

Reviewed by: CB.



CHAIN OF CUSTODY RECORD

Client/Project Name		Project Location		ANALYSES / PARAMETERS			
SMITH INTERNATIONAL		SMITH ENERGY					
Sampler: (Signature)		Chain of Custody Tape No.		No. of Containers	Remarks		
<i>Morris D. Young</i>				1	TCLP ✓		
Sample No./ Identification	Date	Time	Lab Number	Matrix			
WASTE PIT COMP	12/20/91	11:35A	7798	Soil			
NFE MAT 12/20/91							
Relinquished by: (Signature)		Date	Time	Received by: (Signature)	Date	Time	
<i>Morris D. Young, Environmental</i>		12/20/91	11:35A	<i>AAJ</i>	12/20/91		
Relinquished by: (Signature)		Date	Time	Received by: (Signature)	Date	Time	
<i>AAJ</i>		12/20/91		<i>1 Morris D. Young</i>	12/20/91	1140	
Inter-Mountain Laboratories, Inc.							

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 College Station, TX 77845
 Telephone (409) 776-8945

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

04301

Bill of Lading

MONTH OF Feb 14 - 1992

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT						TRANSPORTING COMPANY			
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE		
2-14	1	Smith Energy	Land Farm	contamed dirt		20	Envirotech	E 48	Daniel Grover		ms
2-14	2	Smith Energy	Land Farm	contamed dirt		20	Envirotech	E 48	Daniel Grover		ms
2-14	3	Smith Energy	Land Farm	contamed dirt		20	Envirotech	E 48	Daniel Grover		ms
2-14	4	Smith Energy	Land Farm	contamed dirt		20	Envirotech	E 48	Daniel Grover		ms
2-14	5	Smith Energy	Land Farm	contamed dirt		20	Envirotech	E 48	Daniel Grover		ms
2-14	6	Smith Energy	Land Farm	contamed dirt		20	Envirotech	E 48	Daniel Grover		ms
							Envirotech M.T.				
2-14	1	Land Farm	Smith	fill dirt		20	Envirotech	E 48	Daniel Grover		ms
2-14	2	Land Farm	Smith	fill dirt		20	Envirotech	E 48	Daniel Grover		ms
2-14	3	Land Farm	Smith	fill dirt		20	Envirotech	E 48	Daniel Grover		ms
2-14	4	Land Farm	Smith	fill dirt		20	Envirotech	E 48	Daniel Grover		ms
2-14	5	Land Farm	Smith	fill dirt		20	Envirotech	E 48	Daniel Grover		ms
2-14	6	Land Farm	Smith	fill dirt		20	Envirotech	E 48	Daniel Grover		ms
							Envirotech M.T.				

Bill of Lading

PHONE: (505) 632-0615

MONTH OF Feb 92

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT					TRANSPORTING COMPANY		
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE
2-20	1	Mill Spring	Las Cruces	Cont.		20	Swinsator	E49 Ken	Ken
	2	"	"	"		20	"	E49 Ken	Ken
	3	"	"	"		20	"	E49 Ken	Ken
							Swinsator M.T.		
2-20	1	Las Cruces	Mill Spring	Beer		20	Swinsator	E49 Ken	Ken
	2	"	"	"		20	"	E49 Ken	Ken
	3	"	"	"		20	"	E49 Ken	Ken
							Swinsator M.T.		

PHONE: (505) 632-0615

Bill of Lading

MONTH OF Feb 1992

14355

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT					TRANSPORTING COMPANY			
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE	
2-21	1	Forta Energy	Las Lunas	Coal		20	Evergreen	E99	[Signature]	
	2	"	"	"		22	Evergreen	E99	[Signature]	
	3	"	"	"		22	Evergreen	E99	[Signature]	
	4	Forta Energy	"	"		20	Evergreen	E99	[Signature]	
	5	"	"	"		22	"	E99	[Signature]	
						106	1800	M.T.		
2-21	1	Las Lunas	Forta Energy	Coal		20	Evergreen	E99	[Signature]	
	2	"	"	"		20	"	"	[Signature]	
	3	"	"	"		20	"	"	[Signature]	
	4	"	"	"		20	"	"	[Signature]	
	5	"	"	"		20	"	"	[Signature]	
						140	289	M.T.		

Bill of Lading

MONTH OF March 92

PHONE: (505) 632-0615

MANIFEST			COMPLETE DESCRIPTION OF SHIPMENT					TRANSPORTING COMPANY			
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE		
3-23	1	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-53	Dave Gardner		
3-23	2	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-53	Dave Gardner		
3-23	3	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-53	Dave Gardner		
						00					
						00					
						00					
						00					
						00					
						00					
						00					
						00					
3-23	1	Land Farm	Smith Energy	Fill/Dirt		20	Envirotech	E-53	Dave Gardner		
3-23	2	Land Farm	Smith Energy	Fill/Dirt		20	Envirotech	E-53	Dave Gardner		
3-23	3	Land Farm	Smith Energy	Fill/Dirt		20	Envirotech	E-53	Dave Gardner		
						00					

Bill of Lading

PHONE: (505) 632-0615

MONTH OF

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT						TRANSPORTING COMPANY		
DATE	NO.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE	
3/23/91	1	SMITH ENERGY LANDFILL	LANDFILL SMITH ENERGY	Cont		20	ENVIROTECH	E-57	Alh Clark	
3/23/92	2	SMITH ENERGY LANDFILL	LANDFILL SMITH ENERGY	BF		20		E-57	Alh Clark	
3/23/93	3	SMITH ENERGY LANDFILL	LANDFILL SMITH ENERGY	Cont		20		E-57	Alh Clark	
3/23/94	4	SMITH ENERGY LANDFILL	LANDFILL SMITH ENERGY	BF		20		E-57	Alh Clark	
3/23/95	5	SMITH ENERGY LANDFILL	LANDFILL SMITH ENERGY	Cont		20		E-57	Alh Clark	
3/23/96	6	SMITH ENERGY LANDFILL	LANDFILL SMITH ENERGY	BF		20		E-57	Alh Clark	
3/23/97	7	SMITH ENERGY LANDFILL	LANDFILL SMITH ENERGY	Cont		20		E-57	Alh Clark	
3/23/98	8	SMITH ENERGY LANDFILL	LANDFILL SMITH ENERGY	BF		20		E-57	Alh Clark	
3/23/99	9	SMITH ENERGY LANDFILL	LANDFILL SMITH ENERGY	Cont		20		E-57	Alh Clark	
3/23/00	10	SMITH ENERGY LANDFILL	SAN JUAN SALVAGE	SS Drums		20		E-50	Alh Clark	
						100 @ 2 SA				
						100 @ 2 SA				
						100 M.T.				
						100 M.T.				

Bill of Lading

PHONE: (505) 632-0615

MONTH OF *April* 24-92

MANIFEST				COMPLETE DESCRIPTION OF SHIPMENT				TRANSPORTING COMPANY			
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE		
4-24	1	Smith Energy	Landfarm	cont. dirt		20	Envirotech	E49	Daniel Grover		
4-24	2	Smith Energy	Landfarm	cont. dirt		20	Envirotech	E49	Daniel Grover		
4-24	3	Smith Energy	Landfarm	cont. dirt		20	Envirotech	E49	Daniel Grover		
4-24	4	Smith Energy	Landfarm	cont. dirt		20	Envirotech	E49	Daniel Grover		
					800	18.00					
4-24	1	Landfarm	Smith	fill dirt		20	Envirotech	E49	Daniel Grover		
4-24	2	Landfarm	Smith	fill dirt		20	Envirotech	E49	Daniel Grover		
4-24	3	Landfarm	Smith	fill dirt		20	Envirotech	E49	Daniel Grover		
4-24	4	Landfarm	Smith	fill dirt		20	Envirotech	E49	Daniel Grover		
						800	289				

Bill of Lading

PHONE: (505) 632-0615

MONTH OF

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT					TRANSPORTING COMPANY			
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE	
4-24-92	1	SMITH ENGY	LAND FARM (OUTSIDE GATE)	CONT'D		20	ENVIROTECH	ET-48	[Signature]	
4-24-92	2	SMITH ENGY	LAND FARM (INSIDE)	CONT'D		20	ENVIROTECH	ET-48	[Signature]	
4-24-92	3	SMITH ENGY	LAND FARM (INSIDE)	CONT'D		20	ENVIROTECH	ET-48	[Signature]	
4-24-92	4	SMITH ENGY	LAND FARM (INSIDE)	CONT'D		20	ENVIROTECH	ET-48	[Signature]	
						80				
4-24-92	1	LAND FARM	(OUTSIDE GATE) SMITH ENGY	FILL		20	ENVIROTECH	ET-48	[Signature]	
4-24-92	2	LAND FARM	(INSIDE) SMITH ENGY	FILL		20	ENVIROTECH	ET-48	[Signature]	
4-24-92	3	LAND FARM	(OUTSIDE GATE) SMITH ENGY	FILL		20	ENVIROTECH	ET-48	[Signature]	
						600				

Bill of Lading

MONTH OF APRIL 1992

PHONE: (505) 632-0615

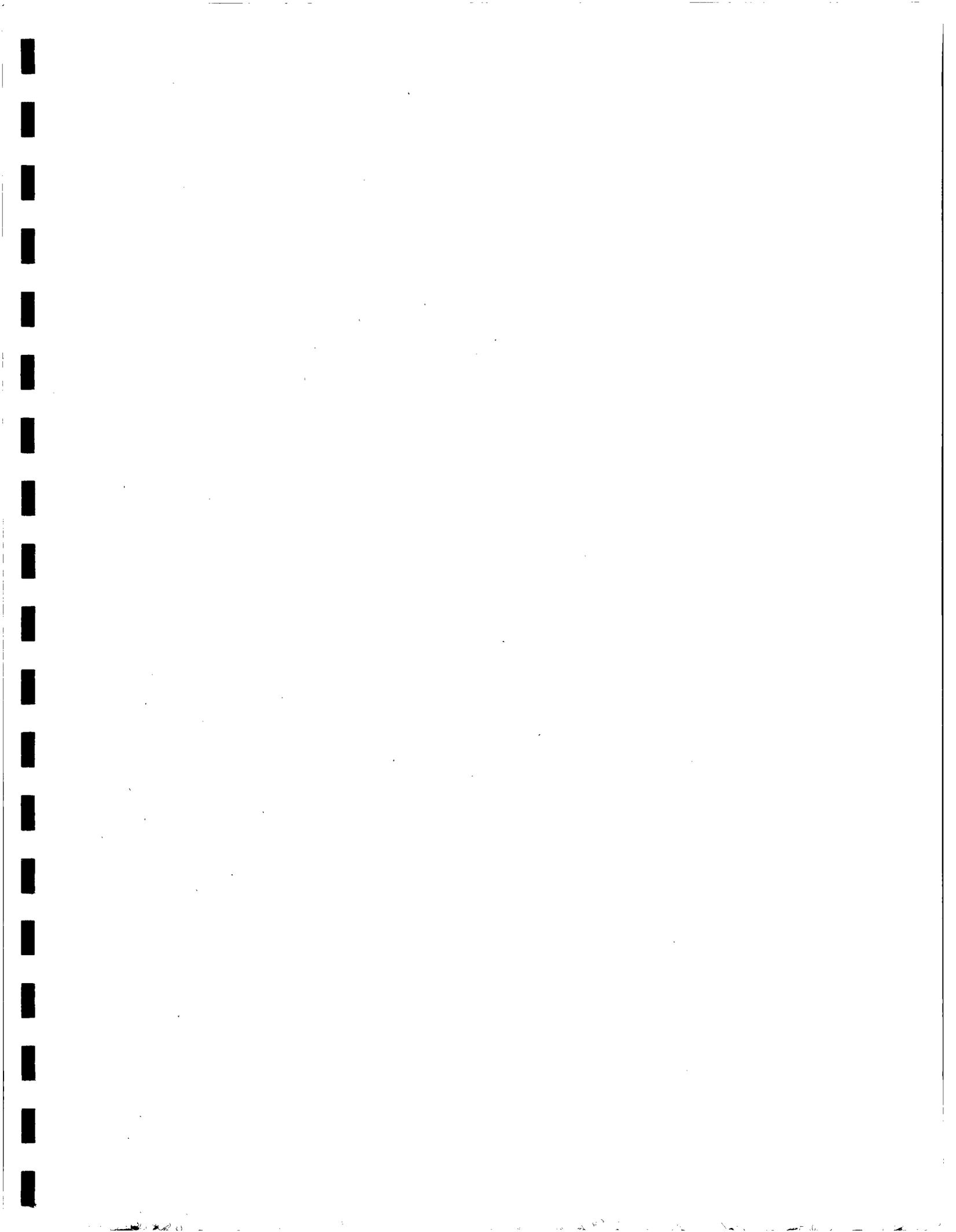
MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT					TRANSPORTING COMPANY			
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE	
4-27-92	1	SMITH ENGY	LAND FARM	Cont'd		20	ENVIRO TECH	ET-48	[Signature]	
4-27-92	2	SMITH ENGY	LAND FARM	Cont'd		20	ENVIRO TECH	ET-48	[Signature]	
4-27-92	3	SMITH ENGY	LAND FARM	Cont'd		20	ENVIRO TECH	ET-48	[Signature]	
4-27-92	4	SMITH ENGY	LAND FARM	Cont'd		20	ENVIRO TECH	ET-48	[Signature]	
4-27-92	5	SMITH ENGY	LAND FARM	Cont'd		20	ENVIRO TECH	ET-48	[Signature]	
						100	18.00			
4-27-92	1	LAND FARM	SMITH ENGY	FILL		20	ENVIRO TECH	ET-48	[Signature]	
4-27-92	2	LAND FARM	SMITH ENGY	FILL		20	ENVIRO TECH	ET-48	[Signature]	
4-27-92	3	LAND FARM	SMITH ENGY	FILL		20	ENVIRO TECH	ET-48	[Signature]	
4-27-92	4	LAND FARM	SMITH ENGY	FILL		20	ENVIRO TECH	ET-48	[Signature]	
						80	2.89			

Bill of Lading

PHONE: (505) 632-0615

MONTH OF April 27, 92

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT						TRANSPORTING COMPANY			
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE		
4-27	1	Smith Energy	Landfarm	cont. dirt		20	Envirotech	E49	Daniel Grover		
4-27	2	Smith Energy	Landfarm	cont. dirt		20	Envirotech	E49	Daniel Grover		
4-27	3	Smith Energy	Landfarm	cont. dirt		20	Envirotech	E49	Daniel Grover		
4-27	4	Smith Energy	Landfarm	cont. dirt		20	Envirotech	E49	Daniel Grover		
4-27	5	Smith Energy	Landfarm	cont. dirt		20	Envirotech	E49	Daniel Grover		
4-27	6	Smith Energy	Landfarm	cont. dirt		20	Envirotech	E49	Daniel Grover		
4-27	7	Smith Energy	Landfarm	cont. dirt		20	Envirotech	E49	Daniel Grover		
					140	18.00					
4-27	1	Landfarm	Smith	fill dirt		20	Envirotech	E49	Daniel Grover		
4-27	2	Landfarm	Smith	fill dirt		20	Envirotech	E49	Daniel Grover		
4-27	3	Landfarm	Smith	fill dirt		20	Envirotech	E49	Daniel Grover		
4-27	4	Landfarm	Smith	fill dirt		20	Envirotech	E49	Daniel Grover		
4-27	5	Landfarm	Smith	fill dirt		20	Envirotech	E49	Daniel Grover		
4-27	6	Landfarm	Smith	fill dirt		20	Envirotech	E49	Daniel Grover		
4-27	7	Landfarm	Smith	fill dirt		20	Envirotech	E49	Daniel Grover		
					140	289					



ENVIROTECH INC.

GW-101

**Acid UST & Sump Closure
Supplemental Report
Smith International, Inc.
2198 East Bloomfield Highway
Farmington, New Mexico**

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OIL CONSERVATION DIV.
SANTA FE

July 1992

Project #91410

ENVIROTECH INC.

UNDERGROUND TANK TESTING • SITE ASSESSMENT • SITE REMEDIATION

5796 U.S. HIGHWAY 64 - 3014
FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615

July 8, 1992

Mr. Maurice Sticker
Environmental Affairs Coordinator
Smith International, Inc.
P.O. Box 060068
Houston, Texas 77205-0068

RE: Supplement to the Acid UST & Sump Closure Report
Smith International Inc.
2198 East Bloomfield Highway
SE/4, SW/4, Sec. 14, T29N, R13W, NMPM
San Juan County, Farmington, NM
Project No. 91410

Dear Mr. Sticker:

Envirotech, Inc. has been retained by Smith International, Inc., to complete the abatement of additional soil contamination noted in the area of a small catchment north of the previous acid underground storage tank system (UST) and sump at their above referenced property. This site is currently the staging yard for Smith Energy Services. This letter is a supplement to the closure summarized in the "Acid UST and Sump Closure Report, Acid Storage Tank and Loading Area", prepared by Envirotech Inc. in May 1992, and submitted to the New Mexico Oil Conservation Division (NMOCD).

INTRODUCTION

From December 1991 to April 1992, Envirotech Inc. removed one UST and the associated system for closure. This system was used for the storage of acid used for oil field purposes. Soil contamination associated with the UST system was found and a spill incident reported to the NMOCD. The remedial action consisted of excavation and removal of for treatment of the highly contaminated soil around the UST and sump located south of the UST and piped to the UST. The excavation extended to a depth of 28 feet (approximate depth of groundwater) with a trachoe excavator. Approximately 2,000 cubic yards of soil were removed for treatment.

Based on the site assessment conducted during the closure and abatement operations, the hydrocarbon contamination was limited to the area immediately around the system. Also, the highly contaminated soils had been excavated and removed for remediation in all areas practically feasible.

During installation and piping for a replacement acid storage system, additional soil contamination was noted in the area of a catchment located north and west of the UST. Refer to the attached site plan.

ABATEMENT & FIELD ASSESSMENT

The north catchment was demolished, piping removed, and contaminated soils in the area removed for treatment in a similar manner as during the closure. A limited field assessment was performed and confirmation soil samples collected to verify abatement. As no new catchment was to be constructed the excavation was backfilled with clean imported material.

The catchment was constructed of concrete and approximately two foot by two foot by three foot deep. Drainage from the spill containment for the new acid product above ground storage tank (AGT) collected in the northeast corner of the containment. This drainage was piped into the catchment. Subsequently, the catchment was piped to the previous acid UST with 2" PVC piping (believed to be schedule 40).

Hydrocarbon contaminated soil was encountered in the immediate area beneath the catchment. This contamination is suspected to have been from failure of the catchment's concrete bottom and poor piping connections.

The contamination was relatively limited in extent and required relatively little excavation for the area to be abated. The final excavation was approximately nine foot (north-south) by fifteen foot (east-west) by eight foot deep. Approximately 40 cubic yards of contaminated soil were removed for treatment at Envirotech's NMOC approved soil remediation facility located at Hilltop, New Mexico. As the origin of contamination was believed to be the same as with the acid system, Mr. Denny Foust of the NMOC authorized Envirotech to receive these soils. Copies of the Bill of Ladings, manifesting the contaminated soils, are attached.

SMITH: SUPPLEMENT TO ACID CLOSURE
ENVIROTECH, INC.
July 8, 1992

Page 3
Project NO: 91410

Attached is a photograph of the final excavation prior to backfill and closure.

Upon completion of the excavation, soil samples were taken from the excavation bottom and sidewalls following US EPA SW-846 protocol. The soil was field tested for volatile hydrocarbons following the Headspace Field Method (Guidelines For Surface Impoundment Closure, New Mexico Oil Conservation Division, Part 1 (IA.2a) October 29, 1991) using a photoionization detector (PID), Model 580-B Organic Vapor Meter (OVM) manufactured by Thermo Environmental Instrumental.

The results of the field headspace analyses are summarized in Table 1.

TABLE 1

FIELD HEADSPACE OVM RESULTS
SUPPLEMENTAL TO ACID UST & SUMP CLOSURE REPORT
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO

MAY 1992

<u>Sample</u>	<u>Date/Lab #</u>	<u>Sample Location</u>	<u>Time</u>	<u>OVM (ppm)</u>
1	060992	8' bsg South side	15:46	21.2
2	060992	6.5' bsg NW side	15:47	ND
3	060992	7.5' bsg East end	15:48	ND
4	060992	5' bsg center	15:49	ND

Notes: 1) bsg - approximate depth below original surface grade.

2) OVM - 100 ppm action level per NMOCDC Guidelines, 10/29/91.

Refer to the Site Plan for the approximate sample locations.

Additionally, a confirmation soil sample was collected from the excavation. This sample was submitted for laboratory analyzed for TPH per USEPA Method 418.1 (modified soil). The laboratory result for verification sample indicated a residual TPH concentration in the soil of 28.6 ppm.

Attached are copies of the laboratory reports and quality control.

SMITH: SUPPLEMENT TO ACID CLOSURE
ENVIROTECH, INC.
July 8, 1992

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CONCLUSIONS

The maximum allowable concentrations of TPH and aromatic hydrocarbons (as determined by field OVM) for soil [New Mexico Oil Conservation Division, Guidelines for Surface Impoundment Closure (October 29, 1991)] are 100 ppm (and/or mg/kg). The analyses for hydrocarbon contamination of the soil in the immediate area of the catchment after abatement show the soil to be current regulated limits.

Based on the site assessment conducted during the closure and abatement, it appears that the hydrocarbon contamination was limited to the area immediately around the catchment and had limited lateral and vertical extent.

The highly contaminated soils have been excavated and removed for remediation.

Soils from the final excavation sidewalls and bottom tested below the action level of 100 ppm for volatile organic vapors and tested below action levels to TPH.

This report supplements the previously noted abatement activities, and it is recommended that this area be closed as part of the acid UST closure file.

CLOSURE

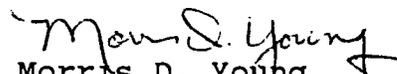
This supplement has been prepared for the exclusive use of Smith International as it pertains to their property located at 2198 East Bloomfield Highway, Farmington, New Mexico.

I hereby certify that the work performed by Envirotech as described in this report was performed under my direct supervision, and that I am personally familiar with the nature of the work, the results of the assessment and the contents of this report.

Respectfully Submitted,
ENVIROTECH INC.


Michael K. Lane, P.E.
Geological Engineer

Reviewed By:

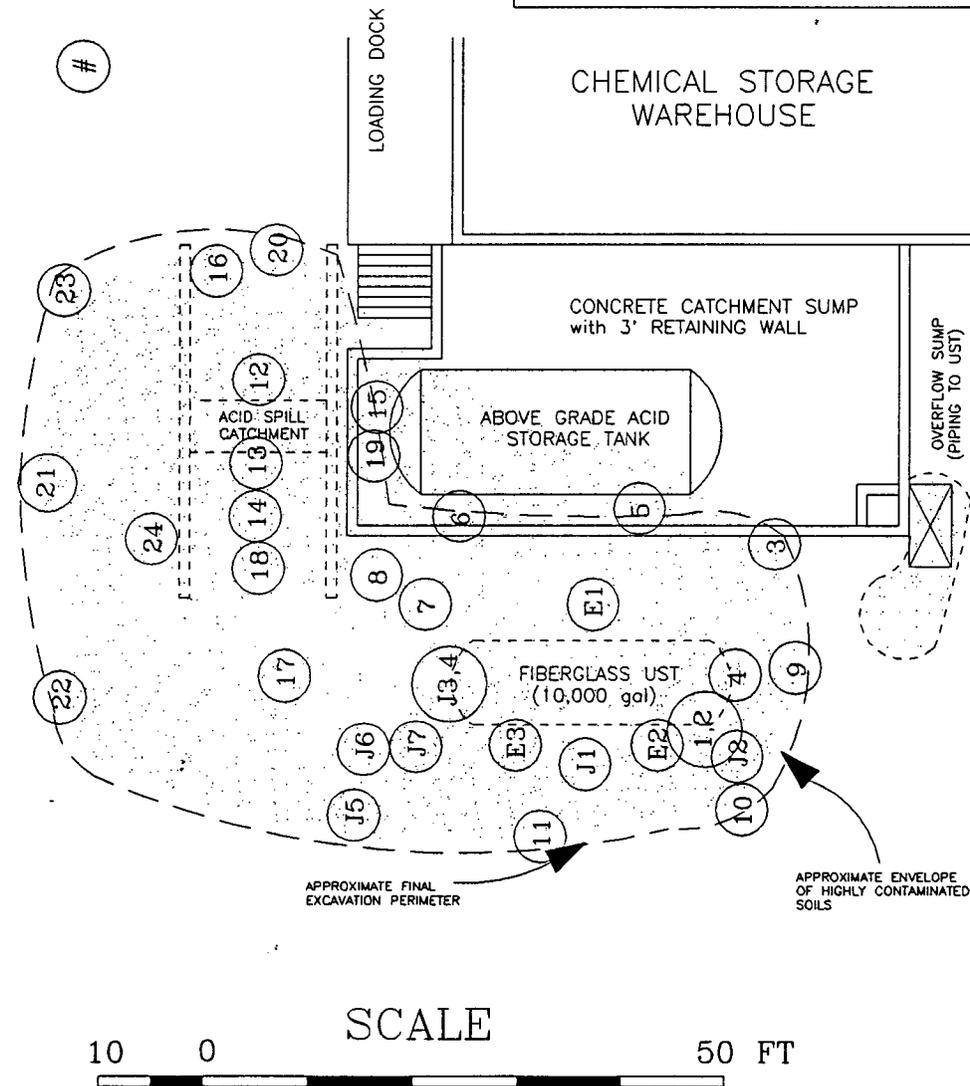

Morris D. Young
President

Attachments: Site Plan
Laboratory TPH Results & QC/QA
Photographs
Bill of Ladings

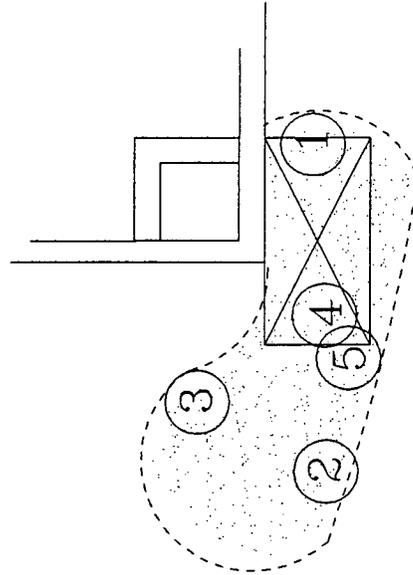
91410ACD.SUP

**APPROXIMATE LOCATION OF SOIL SAMPLE
FOR VOLATILE ORGANIC VAPOR ANALYSES
&/OR LABORATORY ANALYSES (TPH).**

SAMPLE LOCATIONS WERE DETERMINED BY TAPING, PACING
AND SIGHTING FROM EXISTING FENCING AND TOPOGRAPHIC
FEATURES. THE EXCAVATION AND ENVELOPE SHOULD BE
CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY
THE MEASUREMENT METHOD USED.



SAMPLE DETAIL



SCALE *2.5

ENVIROTECH INC.

ENVIRONMENTAL SCIENTISTS & ENGINEERS
5796 U.S. HIGHWAY 64-3014
FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615

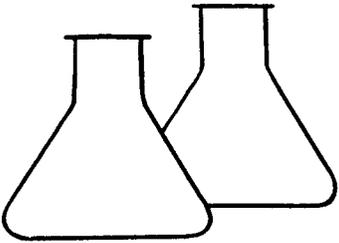
SMITH INTERNATIONAL INC.

2198 EAST BLOOMFIELD HWY
FARMINGTON, NEW MEXICO
ACID UST AND LOADING SYSTEM CLOSURE
PROJECT NO: 91410

ACID STORAGE AND LOADING AREA
SITE PLAN & DETAILS

SHEET: 3
DRAWN: JULY '92

DRWN BY: MKL
PRJ MGR: MKL



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Smith International	Project #:	91410
Sample ID:	#5	Date Reported:	06-24-92
Laboratory Number:	1206	Date Sampled:	06-09-92
Sample Matrix:	Soil	Date Received:	06-09-92
Preservative:	Cool	Date Analyzed:	06-10-92
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
-----	-----	-----
Total Petroleum Hydrocarbons	28.6	5.0

Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

ND - Parameter not detected at the stated detection limit.

Comments: , Smith International--N Acid Sump

Vanessa Ranson
Analyst

Neil Ranson
Review



Final North Sump Excavation

Smith International Inc.
2198 East Bloomfield Highway
Farmington, New Mexico

Envirotech Inc.
June 1992 Project #91410



ENVIROTECH INC.

GW-101

**Offsite Drainage
Closure Report**

for

**Smith International Inc.
2198 Bloomfield Highway
Farmington, New Mexico**

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OIL CONSERVATION DIV.
SANTA FE

Project #91410

June 1992

OFFSITE DRAINAGE CLOSURE REPORT
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
SE/4, SW/4 SECTION 14, TOWNSHIP 29N, RANGE 13W
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO

PREPARED FOR
MR. MAURICE STICKER
ENVIRONMENTAL AFFAIRS COORDINATOR
SMITH INTERNATIONAL, INC.

PROJECT NO: 91410

JUNE 1992

ENVIROTECH INC.
Environmental Scientists & Engineers
5796 U.S. Highway 64-3014
Farmington, New Mexico

(505) 632-0615

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OFFSITE DRAINAGE CLOSURE REPORT
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
SE/4, SW/4 SECTION 14, TOWNSHIP 29N, RANGE 13W
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO

PROJECT NO: 91410

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APPENDIX A	Site & Sample Detail
APPENDIX B	Photographs
APPENDIX C	Results of Laboratory Analyses Chain-of-Custody
APPENDIX D	Request to Receive Contaminated Soils Bill of Ladings

JUNE 1992

PROJECT NO: 91410

OFFSITE DRAINAGE CLOSURE REPORT
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
SE/4, SW/4 SECTION 14, TOWNSHIP 29N, RANGE 13W
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO

INTRODUCTION

Envirotech Inc. has been retained by Smith International, Inc. to abate, remove, and dispose of soil contamination associated with offsite storm water drainage and the spill incident identified by New Mexico Oil Conservation Division (NMOCD) personnel. These services were performed for closure of the spill incident, at the Smith Energy Services facility, 2198 East Bloomfield Highway in Farmington, San Juan County, New Mexico.

These abatement services were performed in conjunction with remediation activities for the Smith International Inc. property as part of a property transaction. Envirotech has prepared closure reports summarizing the remediation of three areas at the site. All reports were for Smith International Inc., 2198 East Bloomfield Highway, SE/4, SW/4 Section 14, Township 29N, Range 13W, Farmington, New Mexico and were titled:

- Seven Day Report, February 19, 1992
- UST Closure Report
Diesel and Gasoline Fuel System, March 1992
- Surface Impoundment Closure Report,
Wash Bay Solids Disposal Area, April 1992
- Acid UST and Sump Closure Report,
Acid Storage Tank and Loading Area, May 1992

Copy of these reports have been submitted to Smith International Inc., CLM Properties of Farmington (current owner), and the NMOCD Aztec office, and the NMOCD Santa Fe office. The UST Closure Report was submitted to the NMED, which maintains jurisdiction of the UST site.

Most of the Smith site is paved. Drainage of storm water from the staging yard is diverted offsite to the west, and into an unlined earthen drainage paralleling Malta Street. Assessment to determine if soils were contaminated with hydrocarbons typical of a staging/parking facility was conducted in conjunction with the fuel UST closure. Abatement of the offsite areas was initiated in March 1992, but due to weather conditions was not completed until early May 1992. The abatement included removal by excavation and treatment of contaminated soils, backfill with clean imported soils and construction of an earthen berm to capture and contain storm water on the Smith property.

Mr. Denny Foust of the State of New Mexico Oil Conservation Division (NMOCD) conducted periodic site inspections during the closure and site assessment operations.

PURPOSE & SCOPE OF SERVICES

The purpose of the assessment and abatement the highly hydrocarbon contaminated soils was to aid in the closure of the offsite spill incident at the reference site. The protocol outlined in the New Mexico Oil Conservation Division's proposed "Guidelines for Surface Impoundment Closure" (October 29, 1991) and the New Mexico Environment Department's UST Regulations (Amended July 26, 1990) were followed in the soil removal and treatment, site assessment, and final closure.

The scope of services that Envirotech was retained to provide included the following:

- A. Notification of the NMOCD and appropriate authorities of the intent to remediate and close the offsite spill at the referenced property.
- B. Excavate and dispose of the highly contaminated soils to abate the spill incident.
- C. Provide acceptable fill material sufficient to backfill the excavation and construct a containment berm to prevent recontamination.
- D. Field assessment of the site, including laboratory analyses, to determine the extent of the contamination.

- E. Review of prior closure activities and closure reports for applicable information regarding available water supply information, groundwater sampling, and analyses to assess the potential impact from the contamination.
- F. Document the spill excavation, closure operations, and site assessment findings.

SITE DESCRIPTION

Bluestake New Mexico was contacted and underground utilities were marked, prior to the excavation operation. The main utilities are located along East Bloomfield Highway and Malta Avenue, the south and west boundaries of the property. The only underground utilities in the immediate area of the acid system were a 2.5" diameter gas line and 4" diameter water line.

The site is an active staging/parking yard for Smith Energy Services an oilfield services company. The yard is paved and fenced. The offsite spill incident was located west of the fence between the west property line and Malta Street, in an unpaved area. Refer to the attached general Site Plan (Sheet 1).

Access to the yard and site is available from East Bloomfield Highway (U.S. Highway 64) which is adjacent to the south property boundary.

Site Remediation Summary:

As indicated in the Introduction several reports have been prepared summarizing remediation activities at the subject property. Detailed information regarding water resources and groundwater is available in those reports. The following is a brief summary of the findings in the earlier reports.

Both the San Juan and Animas rivers and associated irrigation and drainages are within a one mile radius of the site. Based on the New Mexico State Engineers office there are eight water wells located near the site. Prior to commencing the site remediation Smith International had three groundwater monitor wells installed on the subject property. Groundwater was encountered at a depth of approximately twenty-eight feet (28'). During the various remediation activities, no surficial evidence of hydrocarbon contamination from a spill at the site was observed along any of the water courses, and no significant evidence of impact to groundwater was found in the monitor wells. Additional monitor wells have been recently installed at the request of the NMOCDC. Results of the sampling and analyses are not available as of this writing. Upon receipt of the sampling data, a supplemental report will be prepared.

Subsurface hydrocarbon contamination of soil appears to have been limited to the three areas remediated (fuel UST, disposal pit, and acid UST). Refer to the site plan for approximate aerial extent of these spills. Soils at the site were classified as well graded gravel with well rounded cobbles to 15 inches in diameter and medium to fine sands, dense, and moist to saturated below the water table.

SPILL ABATEMENT & FIELD ASSESSMENT

Site Safety:

The extent of the excavation was immediately west of the fenced yard and remained within ten feet of the fence on the Smith property. Access was limited to essential personnel. Hydrocarbon vapors were monitored by Envirotech personnel during the initial assessment to assess if a health or explosion hazard existed. A MSA Model 62 Explosimeter was used to monitor the site. No hazard associated with hydrocarbon vapors were detected.

Drainage System & Excavation:

The majority of the yard is paved with storm water drainage diverted into two inverts that then direct drainage to the west offsite. The subject yard is fenced on all sides. At the time of the initial assessment there was no curb or other diversion structures to contain drainage to the site. The fence is located ten or more feet inside the west property line. A drainage ditch, at the property line, parallels the west fence and Malta Street. Flow in the ditch is toward Bloomfield Highway south of the site. Ultimately, drainage from the channel is believed to be captured in the sewer system associated with Bloomfield Highway.

The unpaved area between the fence and the west property line was inspected during the fuel UST closure. Soil samples were tested for hydrocarbon contamination. Highly contaminated soil was found in the areas where the inverts emptied into this ditch.

The final excavation extended approximately ten feet (10') west of the fence and roughly the entire length of the fenced yard. It extended to a depth of approximately two feet (2') below the original site grade (bsg).

The hydrocarbon soil contamination is suspected to be from the storm water and hydrocarbons present on the paved area. Most likely, the source is fuel and lubricants used and spilled from motor vehicles in the parking, drive, and shop areas.

An earthen berm was constructed on the inside and along the west fence to capture and divert the surface drainage from the pavement and to prevent additional contamination offsite. Clean imported soils were backfilled in the excavation upon completion of the highly contaminated soil removal and laboratory verification testing. Refer to the Site Plan Sheet 1.

Photographs of the referenced UST and excavation are attached.

Abatement and Closure:

Hydrocarbon contaminated soil was encountered at the ends of the inverts and throughout the unpaved west side of the property.

Based on the preliminary assessments, the contamination appeared to be limited to the immediate area of the ditch and area west of the fence. Thus, Smith International elected to abate the contamination by excavating all the highly contaminated soils.

Soil samples were collected during excavation operations from the excavation bottom. These soil samples were analyzed for organic hydrocarbon vapors and/or Total Recoverable Petroleum Hydrocarbons (TPH) to determine the extent of contamination following the NMOCD guidelines of 100 ppm volatile organics by OVM and/or TPH. Additional excavation was performed in all areas where the results exceeded the 100 ppm action level.

The contamination was relatively minor and limited. Based on the final excavation, the spill was limited to the top one to two feet and did not impact groundwater which is at approximately twenty-eight feet (28') bsg.

Approximately 480 cubic yards of contaminated soil were removed from the site. These contaminated soils were transported to Envirotech's Soil Remediation Facility located at Hilltop, New Mexico. Attached is a copy of Envirotech's NMOCD request to receive the contaminated soils and laboratory analytical results showing that the soils are not characterized as hazardous waste per Resource Conservation Recovery Act (RCRA) standards. Mr. Roger Anderson of the NMOCD authorized Envirotech to receive these soils. Copies of the Bill of Ladings manifesting the contaminated soils are included in the Appendix.

SOIL SAMPLING AND ANALYTICAL RESULTS

During the initial assessment and abatement by excavation, the highly contaminated soils were excavated until the field results of the OVM for volatile hydrocarbons were below the NMOCD action level of 100 ppm OVM and/or TPH. Soil samples were taken from the excavation bottom following US EPA SW-846 protocol. The soil was field tested for volatile hydrocarbons following the Headspace Field Method (Guidelines For Surface Impoundment Closure, New Mexico Oil Conservation Division, Part 1 (IA.2a) October 29, 1991) using a photoionization detector (PID), Model 580-B Organic Vapor Meter (OVM) manufactured by Thermo Environmental Instrumental.

The results of the field headspace analyses are summarized in Table 1 at the end of Section 3.

Upon completion of the removal of the highly contaminated soil, confirmation soil samples were collected from the excavation. These samples were submitted for laboratory analyzed for total recoverable hydrocarbons (TPH) per US EPA Method 418.1 (modified soil).

The results of the laboratory analyses and quality control/quality assurance are attached in Appendix C and summarized in Tables 2 at the end of Section 3.

TABLE 1

FIELD HEADSPACE OVM RESULTS
 OFFSITE DRAINAGE
 SMITH INTERNATIONAL INC.
 2198 EAST BLOOMFIELD HIGHWAY
 FARMINGTON, SAN JUAN COUNTY, NEW MEXICO
 MARCH - APRIL 1992

<u>Sample</u>	<u>Date/Lab #</u>	<u>Sample Location</u>	<u>Time</u>	<u>OVM (ppm)</u>
* 1	021292	12" bsg West of N. invt	NA	ND
* 2	021292	0-6" bsg S of N invert	NA	ND
* 3	021292	18" bsg @ #1	NA	ND
4	021292	2' bsg S of #1	NA	ND
* 5	021292	0-6" bsg @ Shop invert	NA	0.9
6	040992	24" bsg S of N invert	NA	ND
7	040992	24" bsg N of N invert	NA	ND
8	043092	24" bsg @ Shop invert	NA	ND

- Notes: 1) bsg - approximate depth below original surface grade.
 2) OVM - 100 ppm action level per NMOCD Guidelines, 10/29/91.
 3) * - Samples taken within the removed contamination spill envelope.
 4) ND - parameter not detected at detection limit of 0.1 ppm for this instrument.

Refer to the Sample Detail (Sheet 1) for the approximate sample locations.

TABLE 2

LABORATORY ANALYTICAL RESULTS
 SMITH INTERNATIONAL INC.
 2198 EAST BLOOMFIELD HIGHWAY
 FARMINGTON, SAN JUAN COUNTY, NEW MEXICO
 APRIL 1992

SOIL SAMPLES

<u>SAMPLE ID</u>	<u>MATRIX</u>	<u>EPA METHOD</u>	<u>TPH</u> (mg/kg)
* 1	SOIL	418.1	1945
* 2	SOIL	418.1	2050
* 3	SOIL	418.1	407
4	SOIL	418.1	22.9
* 5	SOIL	418.1	15, 806
6	SOIL	418.1	ND
7	SOIL	418.1	ND
8(SW Cnr)	SOIL	418.1	ND

- Notes: 1) ND - Parameter not detected at method detection limit (refer to analytical results for detection limit).
 2) * - Samples taken within the removed contamination plume envelope.

Refer to the Site & Sampling Detail (Sheet 1) for the approximate sample locations.

CONCLUSIONS

The maximum allowable concentrations for hydrocarbon contamination of soil as outlined in the New Mexico Oil Conservation Division, Guidelines for Surface Impoundment Closure (October 29, 1991) are also summarized in Table 3. The analyses for hydrocarbon contamination of the soil in the immediate area of the west drainage at the Smith International Farmington facility showed the soil to be above the current regulated limits.

TABLE 3

**HYDROCARBON SOIL CONTAMINATION STANDARDS
STATE OF NEW MEXICO**

<u>Parameter</u>	<u>Maximum Allowable Limits soil (mg/kg)</u>
Benzene	10
Toluene	-
Ethylbenzene	-
Total Xylene	-
Total Aromatics	50
 Total Petroleum Hydrocarbons	 100

Notes: 1) mg/kg - equivalent to parts per million.

Based on the initial site assessment conducted during the fuel UST closure, a spill incident had occurred. Verification testing following abatement of the drainage. It appears that the hydrocarbon contamination was limited to the area immediately west of the fence to the channel parallel to Malta Street and had limited lateral and vertical extent.

The highly contaminated soils have been excavated and removed for remediation in all areas. Abatement of the site is completed.

Soils from the final excavation bottom tested below the action level of 100 ppm for both volatile organic vapors and TPH.

We recommend closure of this spill incident file, considering the findings of this report.

LIMITATIONS AND CLOSURE

The conclusions given in this report are based on a visual observation of the site, subsurface soil conditions encountered during the closure operations, and analysis of soil samples collected during site assessment. This report does not reflect subsurface variations which may exist between sampling points.

The scope of Envirotech's services was limited to site remediation and the assessment of soil and/or groundwater contamination with respect to hydrocarbon contamination associated with hydrocarbon products at typical oil field service and production facilities. All work has been performed in accordance with generally accepted professional practices in construction/excavation, geotechnical/environmental/petroleum engineering and hydrogeology.

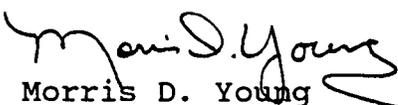
This report has been prepared for the exclusive use of Smith International as it pertains to their property located at 2198 East Bloomfield Highway, Farmington, New Mexico.

I hereby certify that the work performed by Envirotech as described in this report was performed under my direct supervision, and that I am personally familiar with the nature of the work, the results of the assessment and the contents of this report.

Respectfully Submitted,
ENVIROTECH INC.


Michael K. Lane, P.E.
Geological Engineer

Reviewed By:

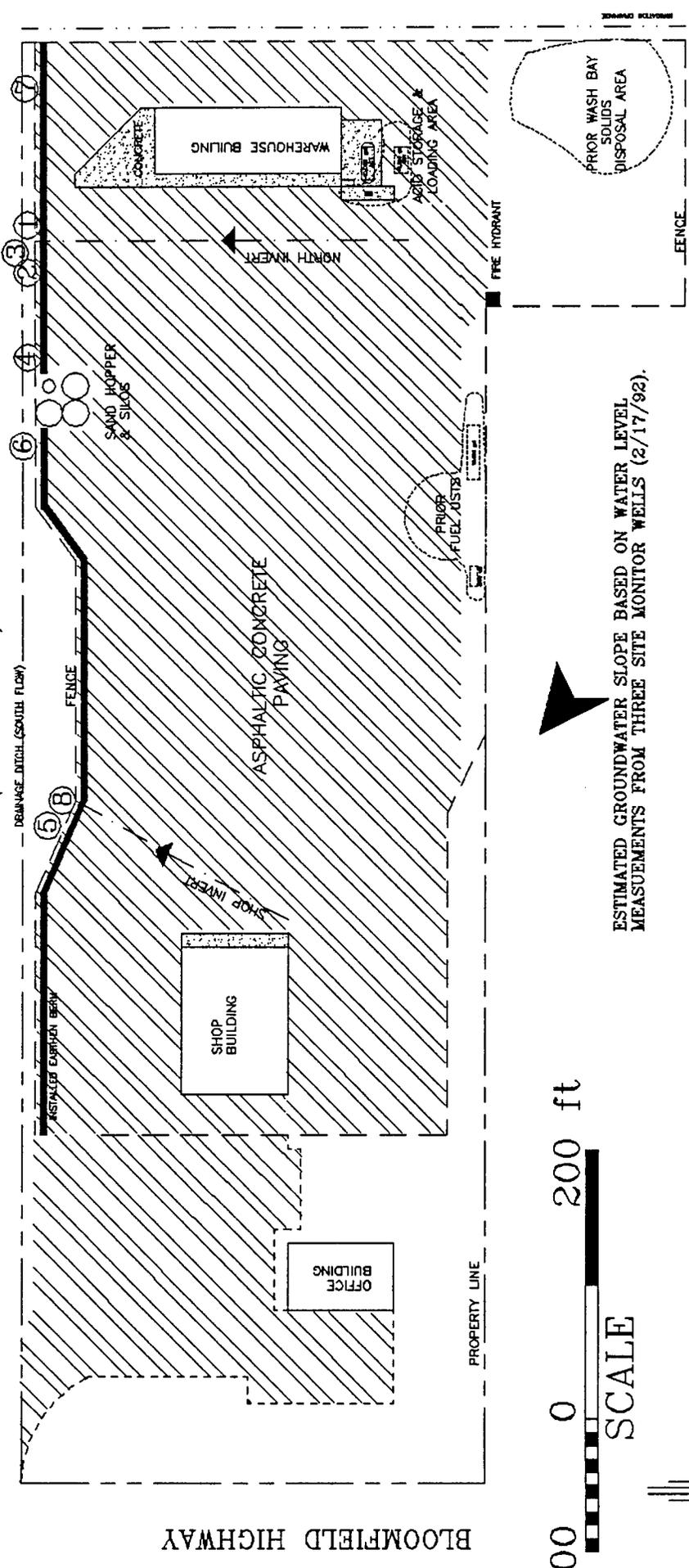

Morris D. Young
President

APPENDICES

1410DRN.RPT

APPROXIMATE LOCATION FOR TPH LABORATORY ANALYSES (REFER TO TEXT FOR SUMMARY OF RESULTS).

MALTA STREET (GRAVELLED)



ESTIMATED GROUNDWATER SLOPE BASED ON WATER LEVEL MEASUREMENTS FROM THREE SITE MONITOR WELLS (2/17/92).

EXCAVATION PERIMETERS, CONTAMINATION ENVELOPE, AND SAMPLE LOCATIONS WERE DETERMINED BY TAPING, PACING AND SIGHTING FROM EXISTING FENCING AND TOPOGRAPHIC FEATURES. THE EXCAVATION AND ENVELOPE SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE MEASUREMENT METHOD USED.

SMITH INTERNATIONAL INC. 2198 EAST BLOOMFIELD HWY FARMINGTON, NEW MEXICO	OFFSITE DRAINAGE SPILL	
	SITE & SAMPLING DETAIL	
OFFSITE DRAINAGE CLOSURE PROJECT NO: 91410	SHEET: 1	DRAWN: JUN '92
ENVIROTECH INC. ENVIRONMENTAL SCIENTISTS & ENGINEERS 5796 U.S. HIGHWAY 64-3014 FARMINGTON, NEW MEXICO 87401 PHONE: (505) 632-0615	DRWN BY: MKL	PRJ MGR: MKL



North Invert Drainage



Shop Invert Drainage

Offsite Drainage Closure Report
Smith International Inc.
2198 Bloomfield Highway
SE/4, SW/4, Section 14, T29N, R13W
Farmington, New Mexico



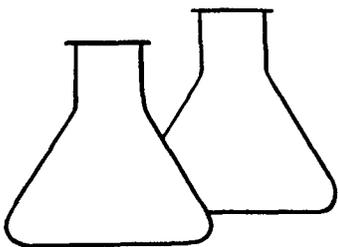
Shop Invert & Earthen Berm (May 1992)

Offsite Drainage Closure Report
Smith International Inc.
2198 Bloomfield Highway
SE/4, SW/4, Section 14, T29N, R13W
Farmington, New Mexico

March 1992

Envirotech Inc.

Project: 92112



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Drainage #1
Laboratory Number: 021292410-3
Sample Matrix: Soil
Temperature: Received on ice
Analysis Method: 418.1

Project #: 91410
Report Date: 2-17-92
Date Sampled: 2-12-92
Date Received: 2-12-92
Date Extracted: 2-14-92
Date Analyzed: 2-14-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	1945	10.0

ND - Analyte not detected at the stated detection limit.

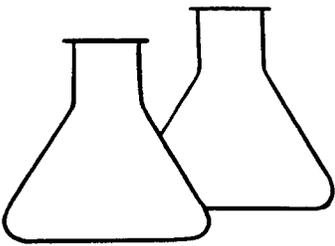
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. [Signature]
Analyst

Morris D. Young
Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Drainage #2
Laboratory Number: 021292410-4
Sample Matrix: Soil
Temperature: Received on ice
Analysis Method: 418.1

Project #: 91410
Report Date: 2-17-92
Date Sampled: 2-12-92
Date Received: 2-12-92
Date Extracted: 2-14-92
Date Analyzed: 2-14-92

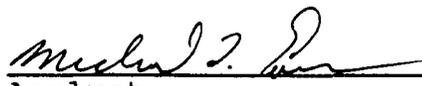
Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	2050	10.0

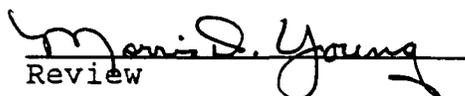
ND - Analyte not detected at the stated detection limit.

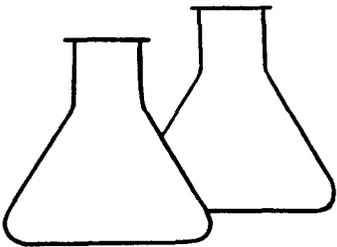
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


Analyst


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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Drainage #3
Laboratory Number: 021292410-5
Sample Matrix: Soil
Temperature: Received on ice
Analysis Method: 418.1

Project #: 91410
Report Date: 2-17-92
Date Sampled: 2-12-92
Date Received: 2-12-92
Date Extracted: 2-14-92
Date Analyzed: 2-14-92

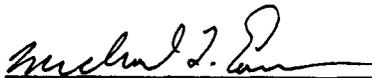
Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	407	10.0

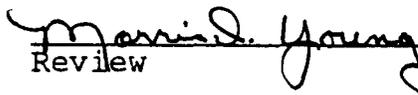
ND - Analyte not detected at the stated detection limit.

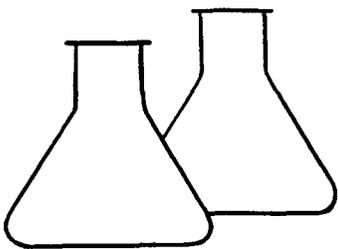
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


Analyst


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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Drainage #4
Laboratory Number: 021292410-6
Sample Matrix: Soil
Temperature: Received on ice
Analysis Method: 418.1

Project #: 91410
Report Date: 2-17-92
Date Sampled: 2-12-92
Date Received: 2-12-92
Date Extracted: 2-14-92
Date Analyzed: 2-14-92

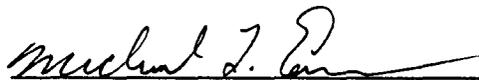
Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	22.9	10.0

ND - Analyte not detected at the stated detection limit.

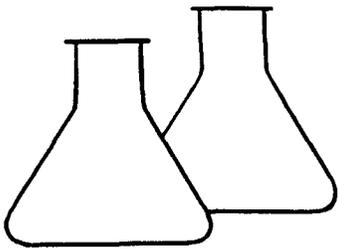
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


Analyst


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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Drainage #5
Laboratory Number: 021292410-7
Sample Matrix: Soil
Temperature: Received on ice
Analysis Method: 418.1

Project #: 91410
Report Date: 2-17-92
Date Sampled: 2-12-92
Date Received: 2-12-92
Date Extracted: 2-14-92
Date Analyzed: 2-14-92

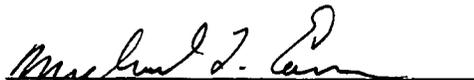
Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	15806	10.0

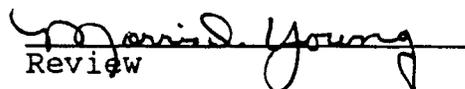
ND - Analyte not detected at the stated detection limit.

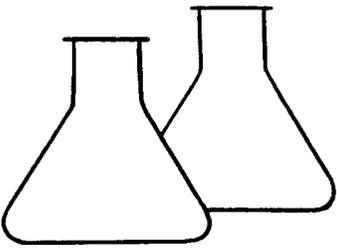
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


Analyst


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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: West Drainage D#6
Laboratory Number: 040992410-1
Sample Matrix: Silt
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 4-28-92
Date Sampled: 4-9-92
Date Received: 4-9-92
Date Extracted: 4-28-92
Date Analyzed: 4-28-92

Analyte	Concentration (mg/kg)	Detection Limit (mg/kg)
Total Recoverable Petroleum Hydrocarbons	ND	10.0

ND - Analyte not detected at the stated detection limit.

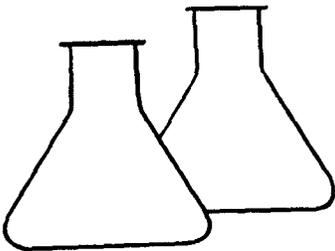
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Analyst

Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: West Drainage D#7
Laboratory Number: 040992410-2
Sample Matrix: Silt
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 4-28-92
Date Sampled: 4-9-92
Date Received: 4-9-92
Date Extracted: 4-28-92
Date Analyzed: 4-28-92

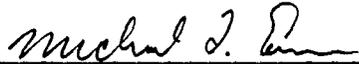
Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

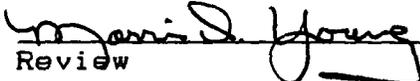
ND - Analyte not detected at the stated detection limit.

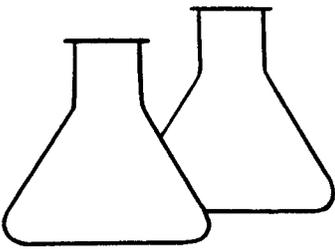
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


Analyst


Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: SW Corner
Laboratory Number: 0310
Analysis Requested: 418.1
Sample Matrix: Soil
Condition: Received on Ice

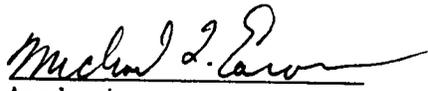
Report Date: 5-5-92
Date Sampled: 4-30-92
Date Received: 4-30-92
Date Extracted: 4-30-92
Date Analyzed: 4-30-92
Preservative: Cool

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Total Recoverable Petroleum Hydrocarbons	ND	10.0

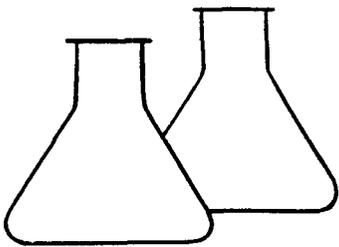
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978.

ND - Parameter not detected at the stated detection limit.

Comments:


Analyst


Review



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5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

**** QUALITY ASSURANCE REPORT
METHOD BLANK - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Sample ID: Method Blank
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 2-17-92
Date Extracted: 2-14-92
Date Analyzed: 2-14-92

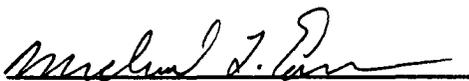
Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

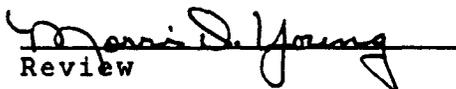
ND - Analyte not detected at the stated detection limit.

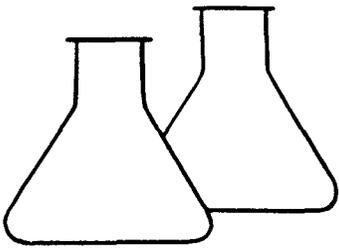
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


Analyst


Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

**** QUALITY ASSURANCE REPORT
SAMPLE DUPLICATE - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Laboratory No: 021292410-5
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 2-17-92
Date Extracted: 2-14-92
Date Analyzed: 2-14-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	387	10.0

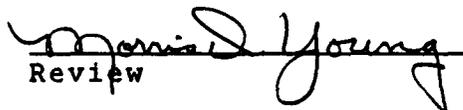
ND - Analyte not detected at the stated detection limit.

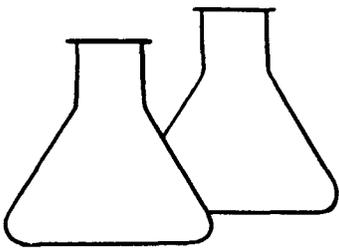
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


Analyst


Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

**** QUALITY ASSURANCE REPORT
MATRIX SPIKE - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Laboratory Number: 021292410-6
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 2-17-92
Date Extracted: 2-14-92
Date Analyzed: 2-14-92

<u>Analyte</u>	<u>Spike Added (mg/kg)</u>	<u>Sample Result (mg/kg)</u>	<u>Spiked Sample Result (mg/kg)</u>	<u>Percent Recovery</u>
TPH	331	22.9	247	70

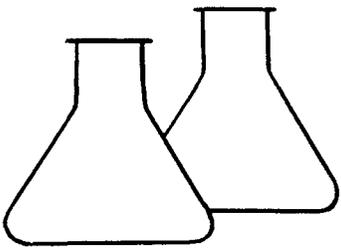
ND - Analyte not detected at the stated detection limit.

QA ACCEPTANCE CRITERIA: Analyte Acceptance Range %

TPH	48 - 143
-----	----------

ND - Analyte not detected at the stated detection limit.

Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.:

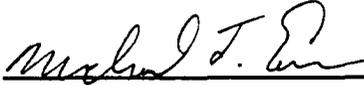


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PHONE: (505) 632-0615 • FAX: (505) 632-1865

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable,
Gas Chromatography. Test Methods for Evaluating Solid Waste
Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method
3550, SW-846, USEPA, 1990.

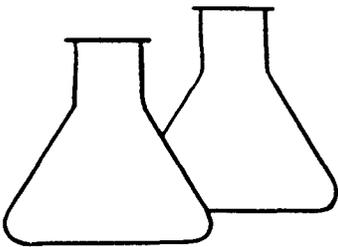
Comments:



Analyst



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

**** QUALITY ASSURANCE REPORT
METHOD BLANK - TOTAL PETROLEUM HYDROCARBONS**

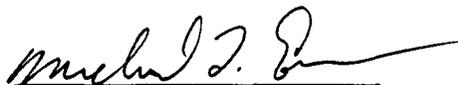
Analysis: 418.1 Date Sampled: 4-28-92
Sample Matrix: Soil Date Analyzed: 4-28-92

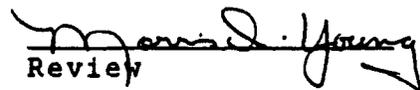
Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
----- Total Petroleum Hydrocarbons	----- ND	----- 10.0

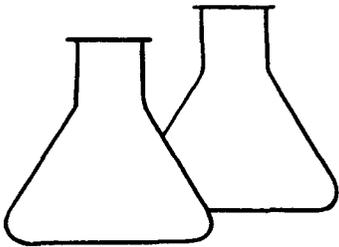
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978.

ND - Parameter not detected at the detection limit.

Comments:


Analyst


Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

** QUALITY ASSURANCE REPORT MATRIX SPIKE - TOTAL PETROLEUM HYDROCARBONS

Laboratory Number: 040792410-4 Date Sampled: 4-7-92
Analysis: 418.1 Date Analyzed: 4-28-92
Sample Matrix: Soil Preservative: Cool
Condition: Received on Ice

Parameter	Spike Added (mg/Kg)	Sample Result (mg/Kg)	Spiked Sample Result (mg/Kg)	Percent Recovery
Total Petroleum Hydrocarbons	331.0	ND	464.0	140.2

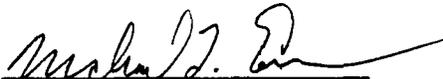
QA ACCEPTANCE CRITERIA: Parameter Acceptance Range (%)

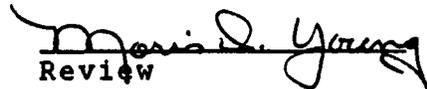
 Total Petroleum Hydrocarbons 50 - 150

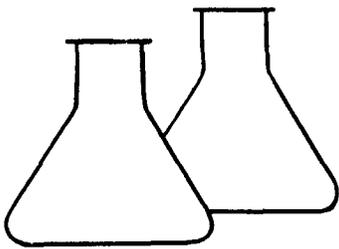
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978.

ND - Parameter not detected at the detection limit.

Comments:


Analyst


Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

**** QUALITY ASSURANCE REPORT
SAMPLE DUPLICATE - TOTAL PETROLEUM HYDROCARBONS**

Laboratory Number:	0312	Date Sampled:	4-30-92
Analysis:	418.1	Date Analyzed:	4-30-92
Sample Matrix:	Soil	Preservative:	Cool
Condition:	Received on Ice		

Parameter	Sample (mg/Kg)	Dup Sample (mg/kg)	Percent Recovery
Total Petroleum Hydrocarbons	ND	ND	ND

QA ACCEPTANCE CRITERIA:	Parameter	Acceptance Range (%)
	Total Petroleum Hydrocarbons	50 - 150

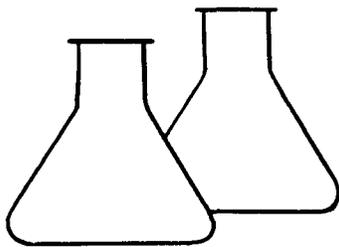
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978.

ND - Parameter not detected at the detection limit.

Comments:

Analyst

Review



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

** QUALITY ASSURANCE REPORT MATRIX SPIKE - TOTAL PETROLEUM HYDROCARBONS

Laboratory Number: 0310 Date Sampled: 4-30-92
Analysis: 418.1 Date Analyzed: 4-30-92
Sample Matrix: Soil Preservative: Cool
Condition: Received on Ice

Parameter	Spike Added (mg/Kg)	Sample Result (mg/Kg)	Spiked Sample Result (mg/Kg)	Percent Recovery
Total Petroleum Hydrocarbons	847.0	ND	724.8	85.6

QA ACCEPTANCE CRITERIA:	Parameter	Acceptance Range (%)
	Total Petroleum Hydrocarbons	50 - 150

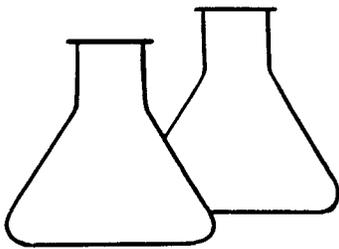
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978.

ND - Parameter not detected at the detection limit.

Comments:

Michael J. Caser
Analyst

Marisa D. Young
Review



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

**** QUALITY ASSURANCE REPORT
METHOD BLANK - TOTAL PETROLEUM HYDROCARBONS**

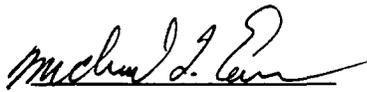
Analysis: 418.1 Date Sampled: 4-30-92
Sample Matrix: Soil Date Analyzed: 4-30-92

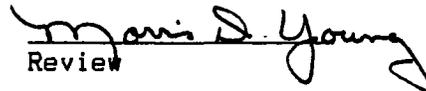
Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	ND	10.0

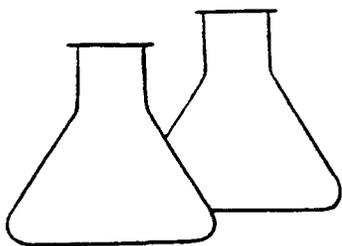
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978.

ND - Parameter not detected at the detection limit.

Comments:


Analyst


Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

** QUALITY ASSURANCE REPORT METHOD BLANK - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Sample ID: Method Blank
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 4-28-92
Date Extracted: 4-28-92
Date Analyzed: 4-28-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

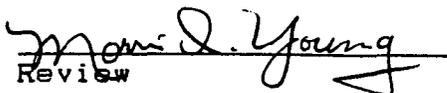
ND - Analyte not detected at the stated detection limit.

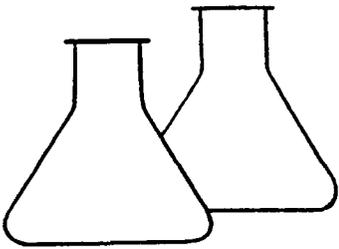
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


Analyst


Review



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

**** QUALITY ASSURANCE REPORT
SAMPLE DUPLICATE - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Laboratory No: 0134
Sample Matrix: Sand
Analysis Method: 418.1

Report Date: 4-29-92
Date Extracted: 4-28-92
Date Analyzed: 4-28-92

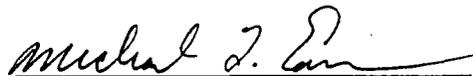
Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

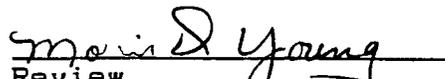
ND - Analyte not detected at the stated detection limit.

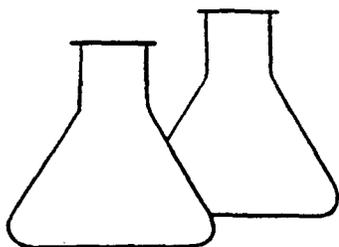
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments: Sample 0132 was None Detected as well.


Analyst


Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

**** QUALITY ASSURANCE REPORT**
MATRIX SPIKE/DUPLICATE - TOTAL RECOVERABLE PETROLEUM
HYDROCARBONS

Laboratory Number: 040792410-4
Sample Matrix: Sand
Analysis Method: 418.1

Report Date: 4-29-92
Date Extracted: 4-28-92
Date Analyzed: 4-28-92

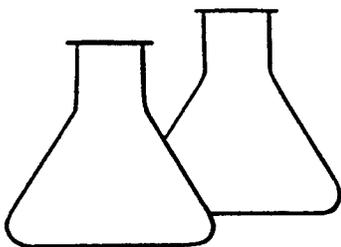
Analyte	Spike Added (mg/kg)	Sample Result (mg/kg)	Spiked Sample Result (mg/kg)	Percent Recovery
TPH	331	464	ND	128

ND - Analyte not detected at the stated detection limit.

QA ACCEPTANCE CRITERIA:	Analyte	Acceptance Range %
	TPH	48 - 143

ND - Analyte not detected at the stated detection limit.

Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.:



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable,
Gas Chromatography. Test Methods for Evaluating Solid Waste
Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by
Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. Egan
Analyst

Maria D. Young
Review

CHAIN OF CUSTODY RECORD

Client/Project Name		Project Location		ANALYSIS/PARAMETERS																
SMITH 191410		11507 DRAINAGE																		
Sampler: (Signature)		Chain of Custody Tape No.																		
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers															Remarks
D#6	4/1/12	1420		Soil	1	✓														
D#7	4/1/12	1426		Soil	1	✓														
MLC 1520																				
Relinquished by: (Signature)		Date		Time		Received by: (Signature)		Date		Time										
		4/1/12		1650				4-1-12		1650										
Relinquished by: (Signature)		Date		Time		Received by: (Signature)		Date		Time										
Relinquished by: (Signature)		Date		Time		Received by: (Signature)		Date		Time										

ENVIROTECH INC.
 5796 U.S. Highway 64-3014
 Farmington, New Mexico 87401
 (505) 632-0615

CHAIN OF CUSTODY RECORD

Client/Project Name		Project Location		ANALYSIS/PARAMETERS									
SMITH 19410 Sampler: (Signature) <i>[Signature]</i>		DIESEL / GAS TRS Chain of Custody Tape No.											
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers						Remarks		
#12 @ 16.5'	2/12/92	10:20	021292410-1	SOIL	1	✓	EPA 418-1 TPH						
#13 @ 17'	2/12/92	10:24	021292410-2	SOIL	1	✓							
DRAINAGE #1			021292410-3		1	✓							
DRAINAGE #2			021292410-4		1	✓							
DRAINAGE #3			021292410-5		1	✓							
DRAINAGE #4			021292410-6		1	✓							
DRAINAGE #5			021292410-7		1	✓							
			MZC										
Relinquished by: (Signature) <i>[Signature]</i>		Date	Time	Received by: (Signature)		Date	Time						
		2/12/92	1645	MZC		2-12-92							
Relinquished by: (Signature) <i>[Signature]</i>		Date	Time	Received by: (Signature)		Date	Time						
		2-12-92		Michael J. Larson		2-12-92	1645						

ENVIROTECH INC.
5796 U.S. Highway 64-3014
Farmington, New Mexico 87401
(505) 632-0615

ENVIROTECH INC.

UNDERGROUND TANK TESTING • SITE ASSESSMENT • SITE REMEDIATION

5796 U.S. HIGHWAY 64 - 3014
FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615

January 24, 1992

Mr. Roger Anderson
Environmental Engineer
State of New Mexico
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504

RE: Contaminated Soil from
Smith International, Inc.
2198 Bloomfield Highway
Farmington, New Mexico

Project No: 91410

Dear Mr. Anderson:

Enclosed are the laboratory results of chemical analyses for soil samples, collected December 20, 1991, from the referenced Smith International facility in Farmington, New Mexico. The samples are of the contaminated material around the acid tank and acid disposal pit areas, as discussed with you earlier by Mr. Morris Young of Envirotech.

The results for all parameters are non-detectable or below RCRA limits.

Therefore, Envirotech requests permission to receive this soil at Envirotech's Soil Remediation Facility at Hilltop, New Mexico.

Respectfully submitted,
ENVIROTECH, Inc.


Michael K. Lane, P.E.
Geological Engineer

Enclosures

C: Mr. Maurice Sticker, Smith International, Inc.
Mr. Chuck Hagen

MKL/mkl
410TCLP.LTR

**TOXICITY CHARACTERISTIC LEACHING PROCEDURE
 HSL VOLATILE COMPOUNDS**

Client: **ENVIROTECH**
 Sample ID: **Waste Pit Comp.**
 Project ID: **Smith Energy**
 Laboratory ID: **B914207**
 Sample Matrix: **Soil**
 Preservation: **Cool**
 Condition: **Intact**

Date Reported: **01/24/92**
 Date Sampled: **12/20/91**
 Date Received: **12/21/91**
 Date Extracted TCLP: **01/03/92**
 Date Analyzed: **01/08/92**

Parameter	Analytical Result	Detection Limit	Units
-----------	-------------------	-----------------	-------

Vinyl Chloride	ND	0.025	mg/L
1,1-Dichloroethene	ND	0.025	mg/L
Chloroform	ND	0.025	mg/L
1,2-Dichloroethane	ND	0.025	mg/L
Carbon Tetrachloride	ND	0.025	mg/L
Trichloroethene	ND	0.025	mg/L
Benzene	ND	0.025	mg/L
Tetrachloroethene	ND	0.025	mg/L
Chlorobenzene	ND	0.025	mg/L
2-Butanone	ND	0.125	mg/L

ND - Compound not detected at stated Detection Limit.

J - Meets identification criteria, below Detection Limit.

B - Compound detected in Method Blank.

TOXICITY CHARACTERISTIC LEACHING PROCEDURE TENTATIVELY IDENTIFIED COMPOUNDS

Client:	ENVIROTECH	Date Reported:	01/24/92
Sample ID:	Waste Pit Comp.	Date Sampled:	12/20/91
Laboratory ID:	B914207	Date Analyzed:	01/08/92
Sample Matrix:	Soil		

Tentative Identification	Retention Time (min)	Concentration	Units
-----------------------------	-------------------------	---------------	-------

No additional compounds found at reportable levels.

Unknown concentrations calculated assuming a Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recovery	%
1,2-Dichloroethane-d4	98
Toluene-d8	96
Bromofluorobenzene	93

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics,
Test Methods for Evaluating Solid Wastes, SW-846, United States
Environmental Protection Agency, Third Edition, November 1986.

Toxicity Characteristic Leaching Procedure, Final Rule, Federal Register,
40 CFR 261-302, Part V, Environmental Protection Agency, Vol. 55, No. 126,
June 29, 1990.



Analyst



Reviewed

TOXICITY CHARACTERISTIC LEACHING PROCEDURE HSL SEMI-VOLATILE COMPOUNDS

Client:	ENVIROTECH	Report Date:	01/23/92
Sample ID:	Waste Pit Comp.	Date Sampled:	12/20/91
Project ID:	Smith Energy	Date Received:	12/21/91
Laboratory ID:	B914207	Date Extracted-TCLP:	** 01/17/92
Sample Matrix:	Soil	Date Analyzed:	01/21/92
Preservation:	Cool	Date Extracted-BNA:	** 01/20/92
Condition:	Intact		

** - Sample was re-extracted due to low surrogate recoveries. First extractions were TCLP=1/3/92 and BNA=1/10/92

Parameter	Analytical Result	Detection Limit	Units
1,4-Dichlorobenzene	ND	0.015	mg/L
Hexachloroethane	ND	0.015	mg/L
Nitrobenzene	ND	0.015	mg/L
Hexachloro-1,3-butadiene	ND	0.015	mg/L
2,4,6-Trichlorophenol	ND	0.015	mg/L
2,4,5-Trichlorophenol	ND	0.015	mg/L
2,4-Dinitrotoluene	ND	0.015	mg/L
Hexachlorobenzene	ND	0.015	mg/L
Pentachlorophenol	ND	0.015	mg/L
o-Cresol	ND	0.015	mg/L
m & p-Cresol	ND	0.015	mg/L
Pyridine	ND	0.15	mg/L

ND - Compound not detected at stated Detection Limit

J - Meets identification criteria, below Detection Limit

B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

910 Technology Boulevard, Suite B
Bozeman, Montana 59715

TOXICITY CHARACTERISTIC LEACHING PROCEDURE TENTATIVELY IDENTIFIED COMPOUNDS

Client:	ENVIROTECH	Date Reported:	01/23/92
Sample ID:	Waste Pit Comp.	Date Sampled:	12/20/91
Laboratory ID:	B914207	Date Analyzed:	01/21/92
Sample Matrix:	Soil		

Parameter	Retention Time (min.)	Concentration	Units
Unknown organic acid	13.71	0.03	mg/L
Unknown hydrocarbon	21.33	0.03	mg/L
Diethylphthalate	26.09	0.06	mg/L
Unknown hydrocarbon	28.12	0.02	mg/L

Unknown concentrations calculated assuming Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recoveries	%
2-Fluorophenol	52
Phenol-d6	43
Nitrobenzene-d5	92
2-Fluorobiphenyl	82
2,4,6-Tribromophenol	68
Terphenyl-d14	79

References:

Method 8270, Gas Chromatography/Mass Spectrometry for Semi-Volatile Organics, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, December 1987.

Toxicity Characteristic Leaching Procedure, Final Rule, Federal Register, 40 CFR 261-302, Part V, Environmental Protection Agency, Vol. 55, No. 126, June 29, 1990.



Analyst



Reviewed

**METHOD 8150
CHLORINATED HERBICIDES
TCLP PARAMETERS**

Client: **ENVIROTECH**
 Sample ID: **Waste Pit Comp.**
 Project ID: **Smith Energy**
 Laboratory ID: **B914207**
 Sample Matrix: **Soil**
 Preservative: **Cool**
 Condition: **Intact**

Date Reported: **01/24/92**
 Date Sampled: **12/20/91**
 Date Received: **12/21/91**
 Date Extracted: **01/10/92**
 Date Analyzed: **01/23/92**

Parameter	Analytical Result	Detection Limit	Units
-----------	-------------------	-----------------	-------

2,4-D	ND	0.001	mg/L
2,4,5-TP	ND	0.001	mg/L

ND - Parameter Not Detected at Stated Detection Limits

Reference: **Method 8150, Chlorinated Herbicides, Test Methods for Evaluating Solid Waste, United States Environmental Protection Agency, SW-846, Vol. IB, November, 1986.**

Analyst

RM

Reviewed

us

**EPA METHOD 8080
ORGANOCHLORINE PESTICIDES
TCLP PARAMETERS**

Client:	ENVIROTECH	Date Reported:	01/24/92
Sample ID:	Waste Pit Comp.	Date Sampled:	12/20/91
Project ID:	Smith Energy	Date Received:	12/21/91
Laboratory ID:	B914207	Date Extracted:	01/10/92
Sample Matrix:	Soil	Date Analyzed:	01/15/92
Preservative:	Cool		
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
Lindane (gamma BHC)	ND	0.006	mg/L
Endrin	ND	0.006	mg/L
Methoxychlor	ND	0.02	mg/L
Heptachlor	ND	0.006	mg/L
Toxaphene	ND	0.5	mg/L
Chlordane	ND	0.03	mg/L

ND - Parameter Not Detected at Stated Detection Limits

References: Method 8080, Organochlorine Pesticides and PCB's, Test Methods for Evaluating Solid Waste, United States Environmental Protection Agency SW-846, Vol. IB September 1986.

Analyst LM

Reviewed WJ

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
TRACE METAL CONCENTRATIONS

Client: Envirotech
Sample Id: 7788
Lab Id: B914207/4659
Matrix: Soil
Preservation: COOL / INTACT

Report Date: 01/23/92
Date Sampled: 12/20/91
Date Received: 12/21/91
TCLP Extract: 01/04/92
Date Analyzed: 01/21/91

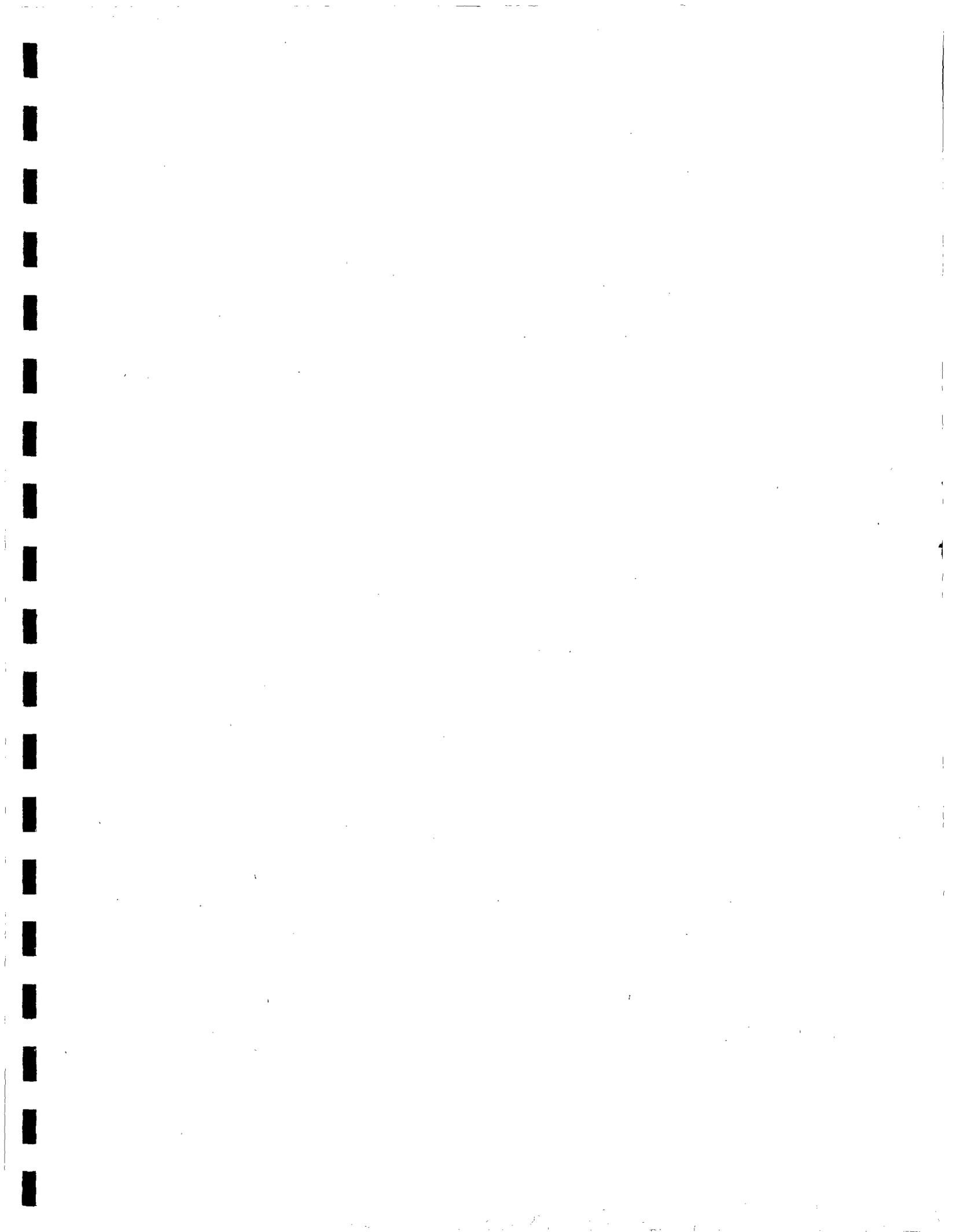
Parameter:	(units)	Analytical Result	Regulatory Level
Arsenic	mg/L	<0.1	5.0
Barium	mg/L	3.5 B	100
Cadmium	mg/L	0.008	1.0
Chromium	mg/L	<0.01	5.0
Lead	mg/L	<0.2	5.0
Mercury	mg/L	<0.001	0.2
Selenium	mg/L	<0.1	1.0
Silver	mg/L	<0.01	1.0

Toxicity Characteristic Leaching Procedure, Final Rule,
Federal Register, 40 CFR 261-302, Part V, EPA Vol 55, No. 126
June 29, 1990

Method 6010A: Inductively Coupled Plasma-Atomic Emission
Spectroscopy, SW-846, Nov. 1990.

Method 7470A: Mercury in Liquid Waste (Manual Cold-Vapor
Technique), SW-846, Nov. 1990.

Reviewed by: CB.



ENVIROTECH INC. GW-101

**Surface Impoundment
Closure Report
Wash Bay Solids Disposal Area**

for

**Smith International Inc.
2198 East Bloomfield Highway
Farmington, New Mexico**

RECEIVED

APR 27 1992

OIL CONSERVATION DIV.
SANTA FE

Project #91410

April 1992

SURFACE IMPOUNDMENT CLOSURE REPORT
WASH BAY SOLIDS DISPOSAL AREA
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
SE/4, SW/4 SECTION 14, TOWNSHIP 29N, RANGE 13W
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO

PREPARED FOR
MR. MAURICE STICKER
ENVIRONMENTAL AFFAIRS COORDINATOR
SMITH INTERNATIONAL, INC.

PROJECT NO: 91410

APRIL 1992

ENVIROTECH INC.
Environmental Scientists & Engineers
5796 U.S. Highway 64-3014
Farmington, New Mexico

(505) 632-0615

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**SURFACE IMPOUNDMENT CLOSURE REPORT
WASH BAY SOLIDS DISPOSAL AREA
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
SE/4, SW/4 SECTION 14, TOWNSHIP 29N, RANGE 13W
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO**

PROJECT NO: 91410

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APPENDICES

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APPENDIX B	Photographs
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APPENDIX D	Request to receive Contaminated Soils Bill of Ladings

APRIL 1992

PROJECT NO: 91410

SURFACE IMPOUNDMENT CLOSURE REPORT
WASH BAY SOLIDS DISPOSAL AREA
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
SE/4, SW/4 SECTION 14, TOWNSHIP 29N, RANGE 13W
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO

Envirotech Inc. has been retained by Smith International, Inc. to perform the necessary site assessment and remediation of the surface impoundment (pit) used for the disposal of wash bay solids for closure at the Smith Energy Services facility, 2198 East Bloomfield Highway in Farmington, San Juan County, New Mexico.

ENERLOG/TIS Inc. conducted two site assessments dated April 1990 and August 1990 for the subject property as part of a property transaction. Three sites requiring remediation were identified in the assessment reports and were:

Fuel Underground Storage Tank System (USTS)
Wash Bay Solids Disposal Area
Acid tank storage and loading Area

Enclosed please find a copy of Smith International's January 30, 1992 request of the New Mexico Oil Conservation Division for authorization of the proposed site assessment and remediation.

The UST's in the fuel system were removed and the site remediated for closure in February and early March 1992, under the direction of the New Mexico Environment Department (NMED). The USTS closure was completed prior to commencing the disposal pit and acid tank assessments and remediation. A Seven Day Report and USTS Closure Report have been submitted to the NMED under separate covers.

The remediation of the disposal pit by excavation and removal was initiated on February 18, 1992 and excavation of the highly contaminated soils was completed on March 20, 1992. Hydrocarbon contaminated soil was found throughout the area within the original pit perimeter. Additionally, contamination extended laterally 10 to 30 feet beyond the pit perimeter and vertically to groundwater at approximately 28 feet below the original ground surface.

Mr. Denny Foust of the State of New Mexico Oil Conservation Division (NMOCD) made periodic site inspections during the closure and site assessment operations.

Remediation of the acid storage area has been concurrent with the fuel USTS closure and the wash bay disposal pit closure. The findings of the acid area closure will be submitted under separate cover, upon completion.

PURPOSE & SCOPE OF SERVICES

The purpose of the excavation and removal of the highly hydrocarbon contaminated soils was to aid in the closure of the surface impoundment used for wash bay solids disposal at the reference site. The protocol outlined in the New Mexico Oil Conservation Division's proposed "Guidelines for Surface Impoundment Closure" (October 29, 1991) were followed in the soil removal and treatment, site assessment, and final closure.

The scope of services that Envirotech was retained to provide included the following:

- A. Notification of the NMOCD and appropriate authorities of the intent to remediate and close the impoundment area at the referenced property.
- B. Excavate and dispose of the highly contaminated soils to abate the spill incident.
- C. Provide acceptable fill material sufficient to backfill the excavation.
- D. Field assessment of the site, including laboratory analyses, to determine the extent of the contamination.
- E. Review available water supply information, collect groundwater samples, and analyze groundwater samples to assess the potential impact from the contamination.
- F. Document the pit excavation, closure operations, and site assessment findings.

SITE DESCRIPTION

Bluestake New Mexico was contacted and underground utilities were marked, prior to the excavation operation. The main utilities are located along East Bloomfield Highway and Malta Avenue, the south and west boundaries of the property. There were no underground utilities in the immediate area of the disposal pit.

The site is an active staging yard for Smith Energy Services an oilfield services company. The disposal pit was in use until January of 1992. The subject disposal area was located in a fenced area at the northeast corner of the service yard. Refer to the attached general Site Plan (Sheet 1) prepared by ENERLOG/TIS Inc.

Access to the yard and site is available from East Bloomfield Highway (U.S. Highway 64) which is adjacent to the south property boundary.

The attached Site Plan (Sheet 2) shows the location of the disposal pit area.

Water Supply Information:

Based on a preliminary review of available records from the New Mexico State Engineers Office, there appears to be eight water supply wells within a half mile radius of the Smith International site. They are listed in Table 1 at the end of Section 2.

All wells appear to be located over 1000 feet from the site. The wells on Section 14 appear to be located up and cross gradient based on preliminary monitor well water level measurements. The remaining six wells on Sections 22 and 23 appear to be located down and cross gradient from the site and plume. Analysis of water samples collected during the USTS closure operations and from the excavation bottom did not detect BTEX or TPH contamination above the regulated limits. Monitor well #1 is located east of the pit and monitor wells #2 and #3 are located west of the previous fuel USTS.

The San Juan River is south of the site, approximately three-quarters of a mile down-gradient. The Animas River is north of the site, approximately one mile up-gradient. Both rivers flow to the west and south, and have year around water flow. The Willett Ditch provides irrigation water to farms in the general proximity of the site. The Willett Ditch is fed on the south side of the Animas River, upstream of the site approximately 3/4 miles. Based on discussions with the New Mexico State Engineers Office, this ditch appears to be used primarily for irrigation and industrial use and is not a public drinking water source.

Where easily assessable, all of the above mentioned surface water courses were inspected during the USTS closure. The author observed no superficial evidence of hydrocarbon contamination from a spill along any of the water courses. Thus, it is felt that the surface water courses in the immediate proximity of the site have not been nor are immediately threatened.

WATER WELL INFORMATION
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO
FEBRUARY 1992
TABLE 1

Location (T.R.Sec.Quad)	Name	Well No.	Use	Water Depth (ft)	Aquifer
29.13.14.313	Valley Drive In	SJ-00176	dom,stk	35	Qal
29.13.14.443	Dowell Inc.	NA	NA	15	Kk,Qal
29.13.22.22	Dennis Burke	SJ-01673	dom	14	Qal
29.13.23.1	Tom Kannard	SJ-01562	dom	6	Qal
29.13.23.11	NA	SJ-01719	NA	NA	NA
29.13.23.123	NA	SJ-00187	NA	40	Qal
29.13.23.22	Mary Barkley	SJ-00352	dom	30	Qal
29.13.23.22	Tom Pratt	SJ-01376	dom	15	Qal

Notes: NA - Information not available.
dom - domestic water source
stk - water source for livestock
Kk - Kirtland Shale
Qal - Quaternary alluvium

Based on available information from the State of New Mexico Engineers Office.

PIT CLOSURE & FIELD ASSESSMENT

Site Safety:

The entire disposal pit area and extent of the excavation remained within the fenced compound of the Smith Energy Services facility. The work area could only be access from the fenced yard and, during excavation operations, access was limited to essential personnel. Hydrocarbon vapors were monitored by Envirotech personnel to assess if a health or explosion hazard existed. A MSA model 62 explosimeter was used to monitor the site. No hazard associated with hydrocarbon vapors was detected during the entire operation.

Surface Impoundment & Excavation:

The disposal pit area located at the northeast corner of the Smith Energy Services facility covered approximately 4,000 square feet (sf).

Prior to the remediation, the impoundment was approximately three to four feet below the adjacent ground surface and had a berm of approximately one foot around the north, east and south perimeter. The west side of the impoundment has a four to six inch thick concrete spillway. Soils at the bottom of the impoundment were classified as mottled brown to gray black silty to clayey sand with gravel, firm, dry to moist, with a slight petroleum odor. No liquids were present.

During the coarse of the excavation and abatement, a secondary pit area appeared to have been identified. This pit area appears to have been smaller (approximately 1800 sf) and included the east half of the disposal impoundment, extending 20 feet south.

The final excavation extended from the north fence, south 80 feet; ten feet from the east fence, west 125 feet; and to a total depth at the ground water of approximately 29 feet below the overall site grade (bsg). The south 40 feet of the excavation did not extend to groundwater, as the extent of contamination terminated at approximately 15 feet bsg.

Based on the excavation sidewalls, native soils were classified as moderate to grayish brown well graded gravel with well rounded cobbles to 15 inches in diameter and medium to fine sand, dense, and moist to saturated below the water table.

As no new impoundment was to be constructed, clean imported soils were backfilled in the excavation upon completion of the highly contaminated soil removal and verification testing. The final site grade was built approximately one foot above bsg to enhance positive drainage away from the pit area and to minimized potential surface water recharge or possible leaching of residual soil

contamination to groundwater.

Refer to the site detail for the pit original pit outline and final excavation perimeter (Sheet 2).

Photographs of the referenced pit excavation are attached.

Site Groundwater Information:

Three previously installed groundwater monitor well were used to estimate the site groundwater gradient. They were sampled to determine if groundwater had been impacted by the fuel UST and/or the disposal pit hydrocarbon plumes. The wells had been installed by ENERLOG/TIS for Smith International during an environmental audit of the property in August 1990. The wells were drilled with an air drill rig, and completed with four inch PVC casing. The monitor well information and groundwater level measurements (taken 2-7-92) are summarized in Table 3 at the end of Section 2.

Based on the water level measurements from the three wells, the groundwater ranges from 28 to 30 feet below the existing ground surface. The groundwater gradient and subsequent flow direction is to the west and south and averages approximately 0.002 feet/foot. The shallow alluvial groundwater appears to represent an unconfined aquifer. The groundwater level and gradient may vary, considering the sites relative proximity to both the San Juan River and Animas River and site soil conditions.

During the coarse of the excavation and abatement, the groundwater at the bottom of the excavation was observed to fluctuate in depth. Fluctuations appeared to be on the order of one to three feet, corresponding to a water level of 27 to 30 feet bsg. This fluctation was not unusual, considering the site soil condition, and proximity of the site to the San Juan and Animas Rivers.

Groundwater samples were also collected at the bottom of the excavation, prior to backfill.

MONITOR WELL DATA SUMMARY
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO
FEBRUARY 1992
TABLE 2

DRILLING & COMPLETION INFORMATION
AUGUST 1990

MONITOR WELL	TOTAL DEPTH	WATER LEVEL	TOP OF SCREEN
1	34	25	15
2	40	30	18
3	40	28	20

SURVEY & WATER LEVEL INFORMATION
FEBRUARY 7, 1992

<u>LOCATION</u>	<u>ELEV.</u>	<u>COORDINATE</u>		<u>WATER LEVEL(bgs)</u>	<u>WATER ELEV.</u>
		<u>X</u>	<u>Y</u>		
SW WAREHOUSE COR. (benchmark)	100.00	0.00	0.00		
MW1	99.78	346.41	195.63	28.54	71.24
MW2	99.85	85.11	-289.32	29.98	69.87
MW3	99.77	67.82	-199.59	29.74	70.03

Abatement and Closure:

Hydrocarbon contaminated soil was encountered throughout the pit area. Contamination is suspected to have been from previous waste disposal practices typically used by similar oil & gas service and industrial companies. Wastes are suspected to be primarily from wash bay solids and produced oil and gas well fluids recovered by Smith Energy's equipment during well service operations.

Based on the earlier ENERLOG assessments, the contamination appeared to be limited to the immediate area of the pit and relatively shallow (ie. above eighteen feet bsg). Thus, Smith International elected to abate the contamination by excavating all the highly contaminated soils. Soil samples were collected during excavation operations from the bottom and sidewalls. These soil samples were analyzed for organic hydrocarbon vapors and/or Total Recoverable Petroleum Hydrocarbons (TPH) to determine the extent of contamination following the NMOCD guidelines of 100 ppm volatile organics by OVM and/or TPH. Additional excavation was performed in every area where the results exceeded the 100 ppm action level.

The contamination was relatively extensive. Based on the final excavation the plume extended to the groundwater at a maximum depth of approximately 29 feet below the original ground surface and within a 7,000 to 8,000 sf area (refer to the site plan, Sheet 2).

Approximately 8,268 cubic yards of contaminated soil were removed from the site. These contaminated soils were transported to Envirotech's Soil Remediation Facility located at Hilltop, New Mexico. Attached is a copy of Envirotech's NMOCD request to receive the contaminated soils and laboratory analytical results showing that the soils are not characterized as hazardous waste per Resource Conservation Recovery Act (RCRA) standards. Mr. Roger Anderson of the NMOCD authorized Envirotech to receive these soils. Copies of the Bill of Ladings manifesting the contaminated soils are included in the Appendix.

SOIL & GROUNDWATER SAMPLING AND ANALYTICAL RESULTS

During the abatement by excavation, the highly contaminated soils were excavated until the field results of the OVM for volatile hydrocarbons were below the NMOC action level of 100 ppm OVM and/or TPH. Soil samples were taken from the excavation bottom and sidewalls following US EPA SW-846 protocol. The soil was field tested for volatile hydrocarbons following the Headspace Field Method (Guidelines For Surface Impoundment Closure, New Mexico Oil Conservation Division, Part 1 (IA.2a) October 29, 1991) using a photoionization detector (PID), Model 580-B Organic Vapor Meter (OVM) manufactured by Thermo Environmental Instrumental.

The results of the field headspace analyses are summarized in Table 4 at the end of Section 3.

Upon completion of the removal of the highly contaminated soil, confirmation soil samples were collected from the excavation. These samples were submitted for laboratory analyzed for TPH per USEPA Method 418.1 (modified soil).

To assess if groundwater had been impacted by the hydrocarbon plume, groundwater samples were collected at the excavation bottom, prior to backfilling, and in the monitor wells. Prior to sampling, the monitor wells were developed by removing at least three well bore volumes or until the well bore was pumped off (approximately 6 gallons). Groundwater samples were collected following US EPA SW-846 protocol. The water samples were analyzed to total petroleum hydrocarbons (TPH) per EPA 418.1, BTEX compounds per EPA 8020, and/or major cations/anions.

The results of the laboratory analyses and quality control/quality assurance are attached in Appendix C and summarized in Tables 5 and 6 at the end of Section 3.

FIELD HEADSPACE OVM RESULTS
 SMITH INTERNATIONAL INC.
 2198 EAST BLOOMFIELD HIGHWAY
 FARMINGTON, SAN JUAN COUNTY, NEW MEXICO
 FEBRUARY/MARCH 1992

TABLE 3

<u>Sample</u>	<u>Date/Lab #</u>	<u>Sample Location</u>	<u>Time</u>	<u>OVM (ppm)</u>
* 0	022592	15' bsg SE cnr pit	NA	1110
1	022592	16' bsg SE cnr E of #0	NA	85.4
2	022592	16' bsg E side S edge	NA	62.5
3	022592	16' bsg E side pit	NA	13.2
4	022592	16' bsg N side E end	NA	8.1
5	022592	21' bsg 15' W of #4	NA	77.3
6	030292	16' bsg SE cnr excavat.	NA	13
7	030292	17' bsg W of #6	NA	69
* 8	030292	26'± bsg N of #7/W of #2	NA	3,500
* 9	030292	26'± bsg W & btw #2 & #3	NA	3,100
* 10	030292	26'± bsg W of #4 & #5	NA	2,900
* 11	030292	28'± bsg W of #8	NA	>10,000
* 12	030292	26'± bsg W of #10	NA	>10,000
* 13	030292	20'± bsg S of #8	NA	1,200
* M1	030592	28'± bsg N. side	15:20	243.9
* M1D	030592	28'± Duplicate #M1	15:20	290.0
* M2	030592	28'± bsg N side E of #M1	14:00	ND
* M3	030992	20-24' bsg W of #13	14:10	146.7
* M4	030992	20-24' bsg N of #M3	14:12	134.2
M5	030992	8-9' bsg S of #M4	14:16	6.2
* M6	030992	10' bsg btw #M4 & #M5	14:21	253.2
M7	031092	26-28' bsg E of #M6	9:01	17.0
M8	031092	25-17' bsg W of #M6	9:06	15.4
M9	031092	26-28' bsg W of #M8	9:11	32.8
* M10	031092	26' bsg N & W of #M9	9:20	123.3
* M11	031092	26' bsg W & N of #M10	9:24	252.4
M12	031292	28'± bsg S of #M11	15:13	9.7
* M13	031292	28'± bsg W & S of #M11	15:14	217.8
* M14	031292	28'± bsg N side W of #M2	15:35	62.8
* M15	031292	28'± bsg N side W of #M14	15:36	57.9
* M16	031292	28'± bsg W of #M11	15:44	147.3
* M17	031292	20'± bsg above #M16	15:55	131.4
M18	031892	22'± bsg W of #M16	8:13	2.7
M19	031892	22'± bsg S of #M18	8:14	1.8
M20	031892	28'± bsg btw #M18 & #M19	8:16	1.8
M21	031892	20'± bsg above #M18	8:26	0.9
M22	031892	20'± bsg above #M19	8:28	0.9
M23	031892	28'± bsg W of #M21	16:11	15.0
M24	031892	28'± bsg N side W of #M15	16:15	7.2
M25	031892	28'± bsg W of #M23	16:16	5.8

FIELD HEADSPACE OVM RESULTS
SMITH INTERNATIONAL INC.

TABLE 3 (continued)

M26	031892	25'bsg W of #M20	16:20	13.3
M27	032092	25'bsg W of #M26	12:15	ND

- Notes: 1) bsg - approximate depth below original surface grade.
2) OVM - 100 ppm action level per NMOCD Guidelines, 10/29/91.
3) * - Samples taken within the removed contamination plume envelope. Efforts were made to continue the excavation beyond these location.
4) Samples 1-10 collected by Mr. Jack Dewey, samples M1-M26 collected by Mr. Myke Lane, sample M27 collected by Mr. Morris Young

Refer to the site plan for the approximate sample locations.

LABORATORY ANALYTICAL RESULTS
 SMITH INTERNATIONAL INC.
 2198 EAST BLOOMFIELD HIGHWAY
 FARMINGTON, SAN JUAN COUNTY, NEW MEXICO
 FEBRUARY/MARCH 1992

TABLE 4

SOIL SAMPLES

<u>SAMPLE ID</u>	<u>MATRIX</u>	<u>EPA METHOD</u>	<u>BENZENE</u> (ug/kg)	<u>TOLUENE</u> (ug/kg)	<u>ETHYL-BENZENE</u> (ug/kg)	<u>TOTAL XYLENE</u> (ug/kg)	<u>TPH</u> (mg/kg)
2	SOIL	418.1	-	-	-	-	ND
* M2	SOIL	418.1	-	-	-	-	2063
M7	SOIL	418.1	-	-	-	-	ND
M9	SOIL	418.1	-	-	-	-	ND
*M11	SOIL	418.1	-	-	-	-	15,594
M12	SOIL	418.1	-	-	-	-	ND
M13	SOIL	418.1	-	-	-	-	10.2
*M14	SOIL	418.1	-	-	-	-	168
*M15	SOIL	418.1	-	-	-	-	117
M18	SOIL	418.1	-	-	-	-	<10.0
M19	SOIL	418.1	-	-	-	-	<10.0
M20	SOIL	418.1	-	-	-	-	<10.0
M21	SOIL	418.1	-	-	-	-	ND
M22	SOIL	418.1	-	-	-	-	<10.0
M23	SOIL	418.1	-	-	-	-	27.4
M24	SOIL	418.1	-	-	-	-	25.8
M25	SOIL	418.1	-	-	-	-	ND
M26	SOIL	418.1	-	-	-	-	ND
M27	SOIL	418.1	-	-	-	-	<10.0

- Notes:
- 1) ND - Parameter not detected at method detection limit (refer to analytical results for detection limit).
 - 2) Total Xylene - summation of m,p-Xylene and o-Xylene.
 - 3) @ - Laboratory indicated traces of both m,p-Xylene and o-Xylene at detection limit of 50 ug/kg, the net total of which approximated 50 ug/kg.
 - 4) * - Samples taken within the removed contamination plume envelope.

Refer to the Sampling Detail (Sheet 3) for the approximate sample locations.

LABORATORY ANALYTICAL RESULTS
 SMITH INTERNATIONAL INC.
 2198 EAST BLOOMFIELD HIGHWAY
 FARMINGTON, SAN JUAN COUNTY, NEW MEXICO
 FEBRUARY, 1992

TABLE 5

<u>SAMPLE ID</u>	<u>MATRIX</u>	<u>EPA METHOD</u>	<u>BENZENE</u> (ug/L)	<u>TOLUENE</u> (ug/L)	<u>ETHYL-BENZENE</u> (ug/L)	<u>TOTAL XYLENE</u> (ug/L)	<u>TPH</u> (mg/L)
MONITOR WELL GROUNDWATER SAMPLES							
MW1	WATER	8020	ND	ND	ND	ND	-
MW1	WATER	418.1	-	-	-	-	<10
MW2	WATER	8020	ND	<1.0	<1.0	<1.0	-
MW2	WATER	418.1	-	-	-	-	14.5
MW3	WATER	8020	ND	<1.0	<1.0	<1.0	-
MW3	WATER	418.1	-	-	-	-	ND
PIT BOTTOM GROUNDWATER SAMPLES							
9	WATER	8020	ND	ND	<10	<10	-
9	WATER	418.1	-	-	-	-	2197
M25	WATER	8020	<1.0	ND	<1.0	3.2+	-
M25	WATER	418.1	-	-	-	-	ND

- Notes:
- 1) ND - Parameter not detected at method detection limit (refer to analytical results for detection limit).
 - 2) Total Xylene - summation of m,p-Xylene and o-Xylene.
 - 3) + - Laboratory indicated traces of both m,p-Xylene and o-Xylene near the detection limit of 1.0 ug/kg, the net total of which approximated 3.2 ug/kg.
 - 4) * - Samples taken within the removed contamination plume envelope.

Refer to the Sampling Detail (Sheet 3) for the approximate sample locations.

CONCLUSIONS

The current maximum allowable concentrations for groundwater contamination as outlined by the State of New Mexico Water Quality Control Commission (August 18, 1991) are summarized reported in Table 6. The maximum allowable concentrations for soil as outlined in the New Mexico Oil Conservation Division, Guidelines for Surface Impoundment Closure (October 29, 1991) are also summarized in Table 6. The analyses for hydrocarbon contamination of the soil and groundwater in the immediate area of the disposal pit at the Smith International Farmington facility showed; the soil to be above the current regulated limits, and groundwater to be at or below the current regulated limits.

**HYDROCARBON SOIL & GROUNDWATER CONTAMINATION STANDARDS
STATE OF NEW MEXICO
TABLE 6**

<u>Parameter</u>	<u>Maximum Allowable Limits</u>	
	<u>soil (mg/kg)</u>	<u>groundwater (ug/l)</u>
Benzene	10	10
Toluene	-	750
Ethylbenzene	-	750
Total Xylene	-	620
Total Aromatics	50	-
Total Petroleum Hydrocarbons	100	-

- Notes: 1) ug/kg or ug/l - equivalent to parts per billion.
2) mg/kg - equivalent to parts per million.

Based on the site assessment conducted during the pit closure and abatement, it appears that the hydrocarbon contamination was limited to the area immediately around the pit and had limited lateral extent. The highly contaminated soils have been excavated and removed for remediation. Soils from the final excavation sidewalls and bottom tested below the action level of 100 ppm for volatile organic vapors and tested below action levels to BTEX compounds and/or TPH.

Preliminary analysis of the groundwater samples indicates that the soil hydrocarbon plume may have had limited impact to the groundwater at the site. There are currently no action limits for total petroleum hydrocarbon in groundwater in the State of New Mexico.

We respectfully request closure of this surface impoundment file, considering the findings of this report.

LIMITATIONS AND CLOSURE

The conclusions given in this report are based on a visual observation of the site, subsurface soil conditions encountered during the pit closure operations, and analysis of soil and water samples collected during site assessment. This report does not reflect subsurface variations which may exist between sampling points.

The scope of Envirotech's services was limited to site remediation and the assessment of soil and/or groundwater contamination with respect to hydrocarbon contamination associated with hydrocarbon products at typical oil field service and production facilities. All work has been performed in accordance with generally accepted professional practices in construction/excavation, geotechnical/environmental engineering and hydrogeology.

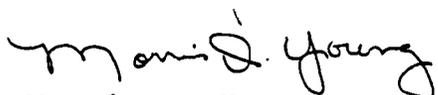
This report has been prepared for the exclusive use of Smith International as it pertains to their property located at 2198 East Bloomfield Highway, Farmington, New Mexico.

I hereby certify that the work performed by Envirotech as described in this report was performed under my direct supervision, and that I am personally familiar with the nature of the work, the results of the assessment and the contents of this report.

Respectfully Submitted,
ENVIROTECH INC.

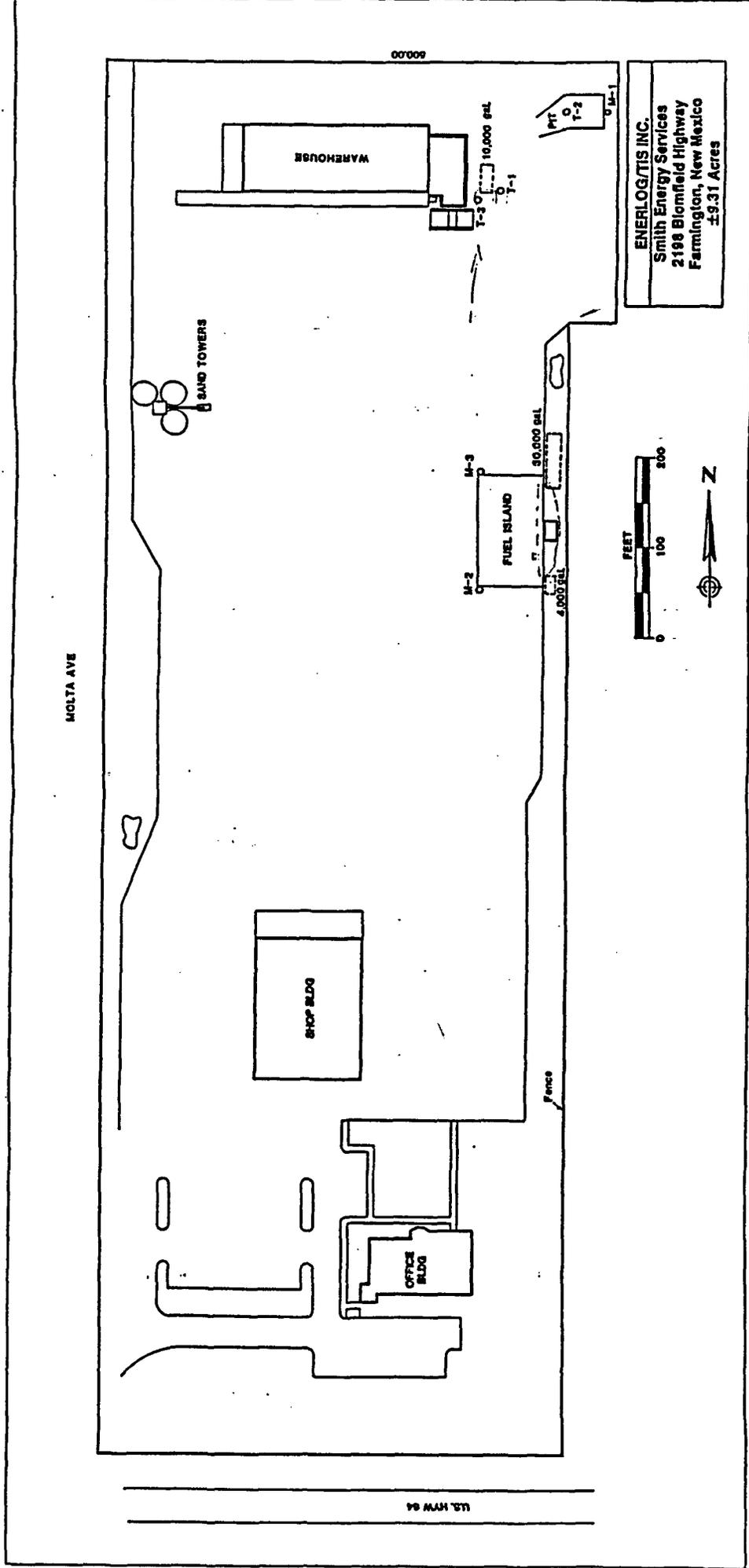

Michael K. Lane, P.E.
Geological Engineer

Reviewed By:


Morris D. Young
President

APPENDICES

1410PIT.RPT

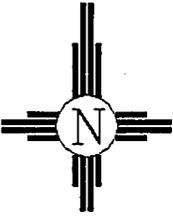


REV. 8/80

Envirotech Inc.
 Project No. 91410
 April 1992

Surface Impoundment Closure Report
 Wash Bay Solids Disposal Area
 Smith International Inc.
 2198 East Bloomfield Hwy
 SE/4, SW/4, Sec. 14, TWP 29N, RNG 13W
 Farmington, San Juan County, New Mexico

SCALE



CHAINLINK FENCE

ESTIMATED GROUNDWATER SLOPE BASED ON WATER LEVEL MEASUREMENTS FROM THREE SITE MONITOR WELLS (2/17/92).

EXCAVATION PERIMETERS AND CONTAMINATION ENVELOPE WERE DETERMINED BY TAPING, PACING AND SIGHTING FROM EXISTING FENCING AND TOPOGRAPHIC FEATURES. THE EXCAVATION AND ENVELOPE SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE MEASUREMENT METHOD USED.

APPROXIMATE FINAL EXCAVATION PERIMETER TO GROUNDWATER (28' beg)

APPROXIMATE ENVELOPE OF HIGHLY CONTAMINATED SOILS

APPROXIMATE FINAL EXCAVATION PERIMETER

CHAINLINK FENCE

○ MW1

ESTIMATED FREE WATER LEVEL (2/4/92)

VIEW A-A'

CHAINLINK FENCE

APPROXIMATE IMPOUNDMENT PERIMETER

APPROXIMATE ENVELOPE OF CONTAMINATION

APPROXIMATE EXTENT OF EXCAVATION



SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HWY
FARMINGTON, NEW MEXICO

DISPOSAL PIT CLOSURE PROJECT NO: 91410

ENVIROTECH INC.

ENVIRONMENTAL SCIENTISTS & ENGINEERS
5796 U.S. HIGHWAY 64-3014
FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615

WASH BAY SOLIDS DISPOSAL PIT
IMPOUNDMENT SITE DETAIL

SHEET: 2

DRAWN: APR. '92

DRWN BY: MKL

PRJ MGR: MKL

SCALE



EXCAVATION PERIMETERS, CONTAMINATION ENVELOPE, AND SAMPLE LOCATIONS WERE DETERMINED BY TAPING, PACING AND SIGHTING FROM EXISTING FENCING AND TOPOGRAPHIC FEATURES. THE EXCAVATION AND ENVELOPE SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE MEASUREMENT METHOD USED.

M#

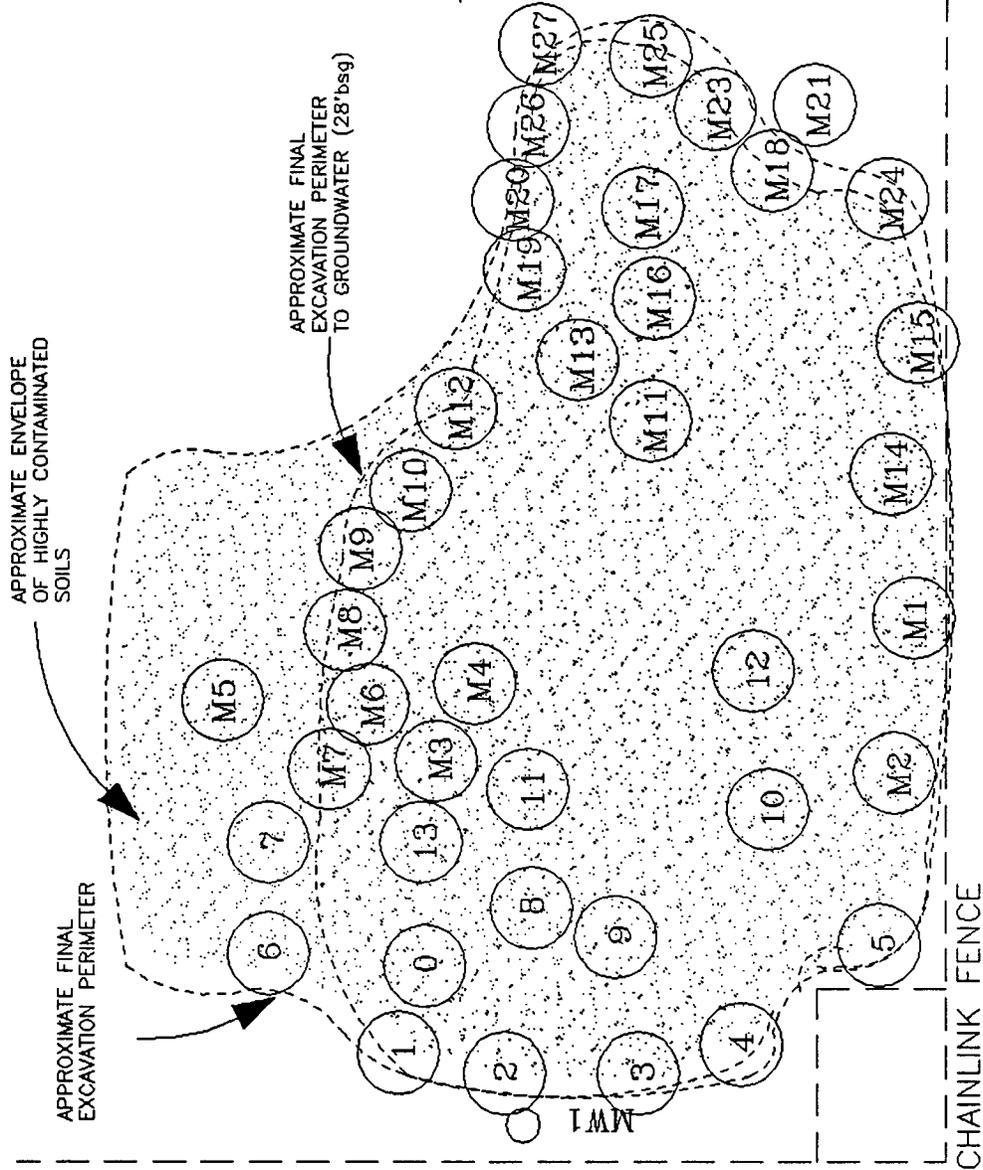
APPROXIMATE LOCATION FOR VOLATILE ORGANIC VAPOR ANALYSES &/OR LABORATORY ANALYSES (IPH OR BIEX). SAMPLE ID "M" COLLECTED BY MK LANE. PRIOR SAMPLING DONE BY JD DEWEY.

APPROXIMATE ENVELOPE OF HIGHLY CONTAMINATED SOILS

APPROXIMATE FINAL EXCAVATION PERIMETER

APPROXIMATE FINAL EXCAVATION PERIMETER TO GROUNDWATER (28'bsg)

ESTIMATED GROUNDWATER SLOPE BASED ON WATER LEVEL MEASUREMENTS FROM THREE SITE MONITOR WELLS (2/17/92).



SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HWY
FARMINGTON, NEW MEXICO

DISPOSAL PIT CLOSURE PROJECT NO: 91410

ENVIROTECH INC.
ENVIRONMENTAL SCIENTISTS & ENGINEERS
5796 U.S. HIGHWAY 64-3014
FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615

WASH BAY SOLIDS DISPOSAL PIT
SAMPLING DETAIL

SHEET: 3

DRAWN: APR. '92

DRWN BY: MKL

PRJ MGR: MKL



Pit Area Prior to Excavation



Final Excavation to North & East

Surface Impoundment Closure Report
Wash Bay Solids Disposal Area
Smith International Inc.
2198 East Bloomfield Hwy
SE/4, SW/4, Section 14, TWP 29N, RNG 13W
Farmington, New Mexico

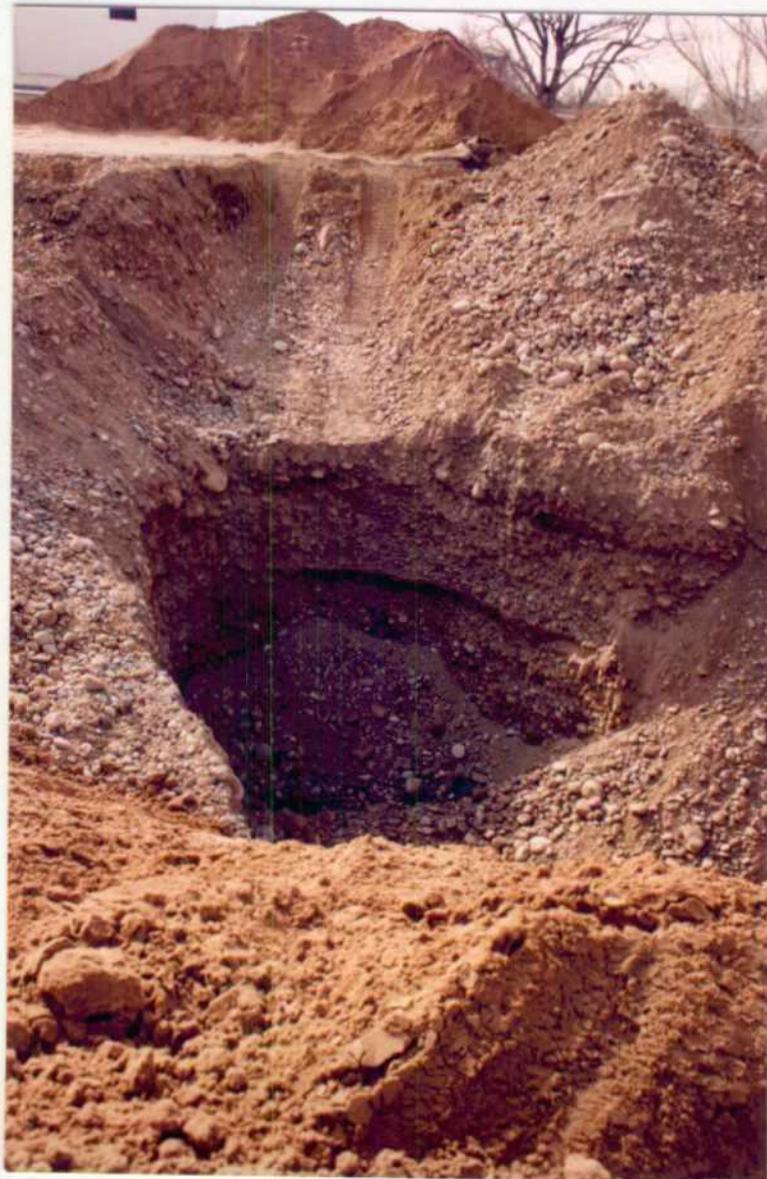


Backfill of North & East Portion of Site
as Excavation to South & West Progressed



Final Excavation to West Prior to Back Filling

Surface Impoundment Closure Report
Wash Bay Solids Disposal Area
Smith International Inc.
2198 East Bloomfield Hwy
SE/4, SW/4, Section 14, TWP 29N, RNG 13W
Farmington, New Mexico



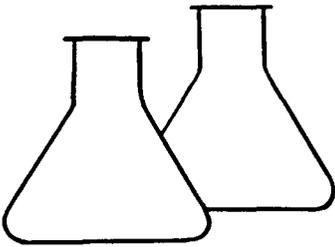
Final Excavation to South West

Surface Impoundment Closure Report
Wash Bay Solids Disposal Area
Smith International Inc.
2198 East Bloomfield Hwy
SE/4, SW/4, Section 14, TWP 29N, RNG 13W
Farmington, New Mexico

Envirotech Inc.

Project: 91410

March 1992



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 PURGEABLE AROMATICS

Client: Smith International
Sample ID: East End of Excavation
Lab ID#: 022892410-1
Matrix: Water
Preservative:
Sample Condition: Received on Ice

Project #: 91410
Date Reported: 2-28-92
Date Sampled: 2-28-92
Date Received: 2-28-92
Date Extracted:
Date Analyzed: 2-28-92
Injection Vol: 500 ul

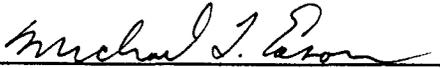
Analyte	Analytical Result	Detection Limit	Units
Benzene	ND	10.0	ug/l
Toluene	ND	10.0	ug/l
Ethylbenzene	<10	10.0	ug/l
m,p-Xylene	<10	10.0	ug/l
o-Xylene	<10	10.0	ug/l

ND - Analyte not detected at given detection level.

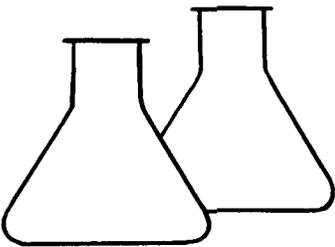
Comments: Not enough sample to perform a matrix spike.

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluation Solid Waste, SW-846, United States Environmental Protection Agency, SW-846, Vol. IB, November 1990.


Analyst


Reviewed



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** QUALITY ASSURANCE REPORT MATRIX SPIKE - PURGABLE AROMATICS

Laboratory Number: 021792410-2
Sample Matrix: Soil
Preservative:
Sample Condition: Received on ice

Date Reported: 2-28-92
Date Sampled: 2-17-92
Date Extracted: 2-18-92
Date Analyzed: 2-28-92

Analyte	Spike Added (ug/L)	Sample Result (ug/L)	Spiked Sample Result (ug/L)	Percent Recovery
Benzene	100	ND	96.2	96
Toulene	100	187	281	94
Ethylbenzene	100	ND	84.1	84

ND - Analyte not detected at the stated detection limit.

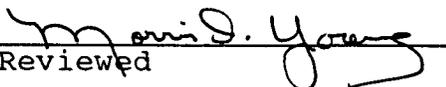
QA ACCEPTANCE CRITERIA:	Analyte	Acceptance Range %
	Benzene	39 - 150
	Toluene	46 - 148
	Ethylbenzene	32 - 160

Reference:

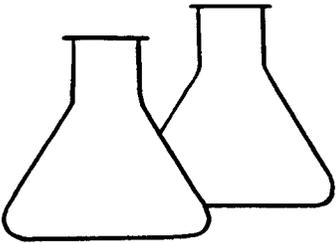
Method 8020, Aromatic Volatile Organics, Test Methods for Evaluation Solid Waste, SW-846, United States Environmental Protection Agency, SW-846, Vol. IB, November 1990.



Analyst



Reviewed



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**** QUALITY ASSURANCE REPORT
SAMPLE DUPLICATE - PURGABLE AROMATICS**

Laboratory No.: 022892410-1
Matrix: Water
Preservative: HgCl₂

Date Reported: 2-28-92
Date Extracted:
Date Analyzed: 2-28-92
Injection Vol: 500 ul

Analyte -----	Analytical Result -----	Detection Limit -----	Units -----
Benzene	ND	10.0	ug/l
Toluene	ND	10.0	ug/l
Ethylbenzene	<10	10.0	ug/l
m,p-Xylene	<10	10.0	ug/l
o-Xylene	<10	10.0	ug/l

ND - Analyte not detected at given detection level.

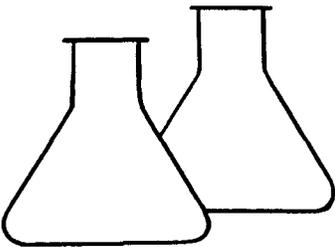
Comments:

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for
Evaluation Solid Waste, SW-846, United States Environmental
Protection Agency, SW-846, Vol. IB, November 1990.

Michael L. Egan
Analyst

Marvin D. Young
Reviewed



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**** QUALITY ASSURANCE REPORT
METHOD BLANK - PURGABLE AROMATICS**

Sample ID: Method Blank
Matrix: Water
Preservative: HgCl₂

Date Reported: 2-28-92
Date Extracted:
Date Analyzed: 2-28-92
Injection Vol: 5 ml

Analyte	Analytical Result	Detection Limit	Units
Benzene	ND	1.0	ug/l
Toluene	ND	1.0	ug/l
Ethylbenzene	ND	1.0	ug/l
m,p-Xylene	ND	1.0	ug/l
o-Xylene	ND	1.0	ug/l

ND - Analyte not detected at given detection level.

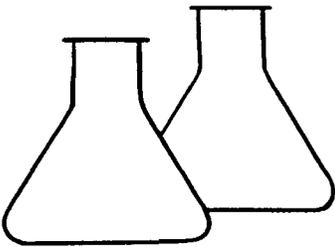
Comments:

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluation Solid Waste, SW-846, United States Environmental Protection Agency, SW-846, Vol. IB, November 1990.

Michael J. Em
Analyst

Maris D. Young
Reviewed



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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: East End of Pit
Laboratory Number: 022892410-2
Sample Matrix: Water
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-13-92
Date Sampled: 2-28-92
Date Received: 2-28-92
Date Extracted: 3-13-92
Date Analyzed: 3-13-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	2197	10.0

ND - Analyte not detected at the stated detection limit.

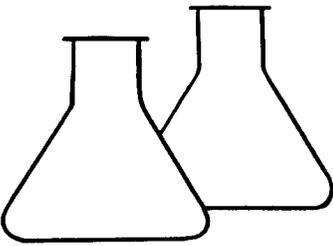
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments: Not enough sample to perform Duplicate.

Analyst

Review



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**** QUALITY ASSURANCE REPORT
METHOD BLANK - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Sample ID: Method Blank
Sample Matrix: Water
Analysis Method: 418.1

Report Date: 3-13-92
Date Extracted: 3-13-92
Date Analyzed: 3-13-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

ND - Analyte not detected at the stated detection limit.

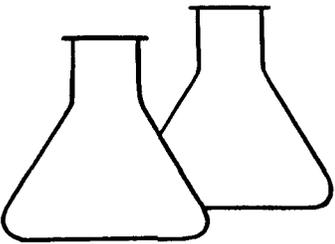
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. Linn
Analyst

Mavis D. Young
Review



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**** QUALITY ASSURANCE REPORT
MATRIX SPIKE - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Laboratory Number: DI Water
Sample Matrix: Water
Analysis Method: 418.1

Report Date: 3-13-92
Date Extracted: 3-13-92
Date Analyzed: 3-13-92

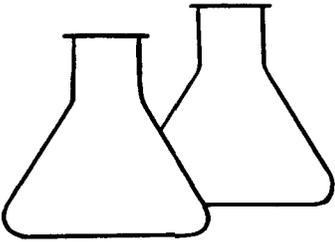
<u>Analyte</u>	<u>Spike Added (mg/kg)</u>	<u>Sample Result (mg/kg)</u>	<u>Spiked Sample Result (mg/kg)</u>	<u>Percent Recovery</u>
TPH	84.7	ND	64.4	76

ND - Analyte not detected at the stated detection limit.

<u>QA ACCEPTANCE CRITERIA: Analyte</u>	<u>Acceptance Range %</u>
TPH	48 - 143

ND - Analyte not detected at the stated detection limit.

Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.:



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**** QUALITY ASSURANCE REPORT (Continued)**
MATRIX SPIKE - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Laboratory Number: DI Water
Sample Matrix: Water
Analysis Method: 418.1

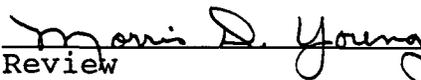
Report Date: 3-13-92
Date Extracted: 3-13-92
Date Analyzed: 3-13-92

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

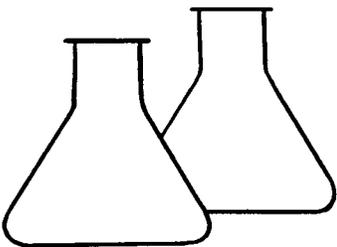
Comments:



Analyst



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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: M 25 Groundwater
Laboratory Number: 031892410-5
Sample Matrix: Water
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-27-92
Date Sampled: 3-18-92
Date Received: 3-18-92
Date Extracted: 3-23-92
Date Analyzed: 3-23-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

ND - Analyte not detected at the stated detection limit.

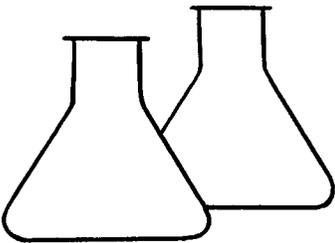
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments: Not enough sample for duplicate

Michael J. Egan
Analyst

Marvin D. Young
Review



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**** QUALITY ASSURANCE REPORT
MATRIX SPIKE - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Laboratory Number: DI Water
Sample Matrix: Water
Analysis Method: 418.1

Report Date: 3-27-92
Date Extracted: 3-23-92
Date Analyzed: 3-23-92

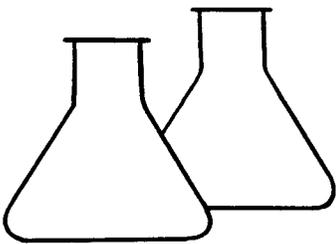
Analyte	Spike Added (mg/kg)	Sample Result (mg/kg)	Spiked Sample Result (mg/kg)	Percent Recovery
TPH	84.7	ND	64.4	76

ND - Analyte not detected at the stated detection limit.

QA ACCEPTANCE CRITERIA:	Analyte	Acceptance Range %
	TPH	48 - 143

ND - Analyte not detected at the stated detection limit.

Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.:



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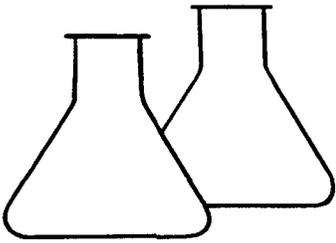
5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable,
Gas Chromatography. Test Methods for Evaluating Solid Waste
Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method
3550, SW-846, USEPA, 1990.

Comments:

Michael J. Egan
Analyst

Marissa D. Young
Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

** QUALITY ASSURANCE REPORT

METHOD BLANK - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Sample ID: Method Blank
Sample Matrix: Water
Analysis Method: 418.1

Report Date: 3-27-92
Date Extracted: 3-23-92
Date Analyzed: 3-23-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

ND - Analyte not detected at the stated detection limit.

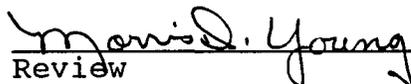
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

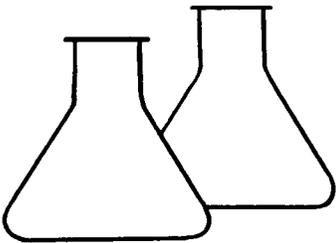
Comments:



Analyst



Review



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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: M 18
Laboratory Number: 031892410-7
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-27-92
Date Sampled: 3-18-92
Date Received: 3-18-92
Date Extracted: 3-21-92
Date Analyzed: 3-21-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	<10.0	10.0

ND - Analyte not detected at the stated detection limit.

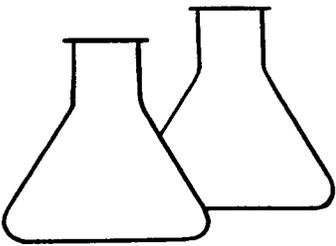
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael D. Egan
Analyst

Imanid. Young
Review



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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: M 19
Laboratory Number: 031892410-8
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-27-92
Date Sampled: 3-18-92
Date Received: 3-18-92
Date Extracted: 3-21-92
Date Analyzed: 3-21-92

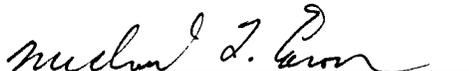
Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	<10.0	10.0

ND - Analyte not detected at the stated detection limit.

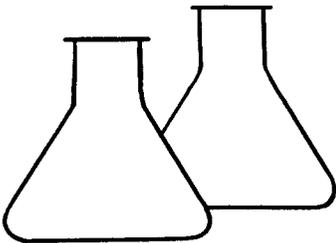
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


Analyst


Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: M 20
Laboratory Number: 031892410-9
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-27-92
Date Sampled: 3-18-92
Date Received: 3-18-92
Date Extracted: 3-23-92
Date Analyzed: 3-23-92

Analyte	Concentration (mg/kg)	Detection Limit (mg/kg)
Total Recoverable Petroleum Hydrocarbons	<10.0	10.0

ND - Analyte not detected at the stated detection limit.

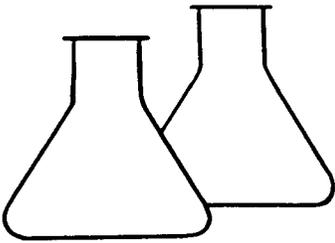
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael L. Pilon
Analyst

Monica Young
Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: M 21
Laboratory Number: 031892410-10
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-27-92
Date Sampled: 3-18-92
Date Received: 3-18-92
Date Extracted: 3-23-92
Date Analyzed: 3-23-92

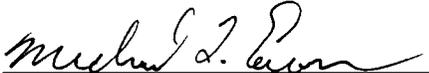
Analyte	Concentration (mg/kg)	Detection Limit (mg/kg)
Total Recoverable Petroleum Hydrocarbons	ND	10.0

ND - Analyte not detected at the stated detection limit.

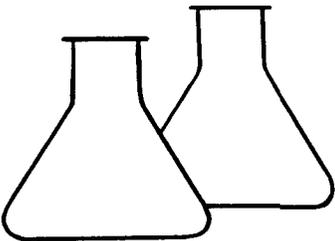
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


Analyst


Review



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**** QUALITY ASSURANCE REPORT
SAMPLE DUPLICATE - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Laboratory No: 031892410-10
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 3-27-92
Date Extracted: 3-23-92
Date Analyzed: 3-23-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

ND - Analyte not detected at the stated detection limit.

Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

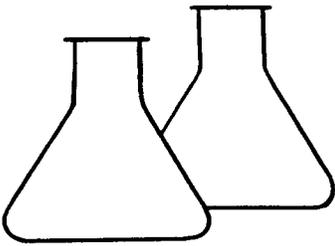
Comments:



Analyst



Review



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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: M 22
Laboratory Number: 031892410-11
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-27-92
Date Sampled: 3-18-92
Date Received: 3-18-92
Date Extracted: 3-23-92
Date Analyzed: 3-23-92

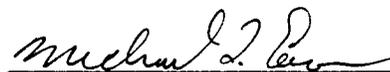
Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	<10.0	10.0

ND - Analyte not detected at the stated detection limit.

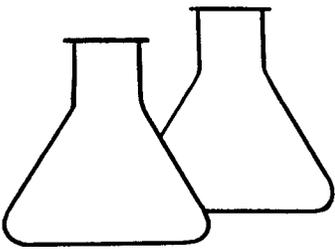
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


Analyst


Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: M 23
Laboratory Number: 031892410-1
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-27-92
Date Sampled: 3-18-92
Date Received: 3-18-92
Date Extracted: 3-23-92
Date Analyzed: 3-23-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	27.4	10.0

ND - Analyte not detected at the stated detection limit.

Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

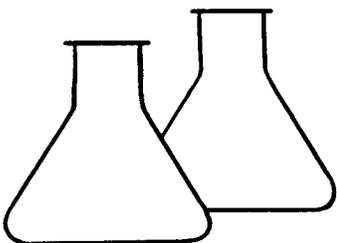
Comments:



Analyst



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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: M 24
Laboratory Number: 031892410-2
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-27-92
Date Sampled: 3-18-92
Date Received: 3-18-92
Date Extracted: 3-23-92
Date Analyzed: 3-23-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	25.8	10.0

ND - Analyte not detected at the stated detection limit.

Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

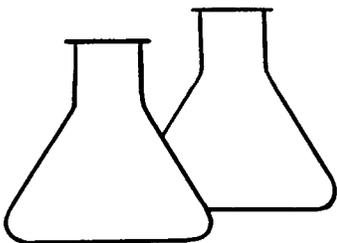
Comments:



Analyst



Review



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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: M 25
Laboratory Number: 031892410-3
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-27-92
Date Sampled: 3-18-92
Date Received: 3-18-92
Date Extracted: 3-23-92
Date Analyzed: 3-23-92

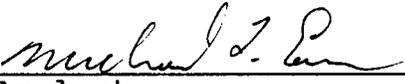
Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

ND - Analyte not detected at the stated detection limit.

Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

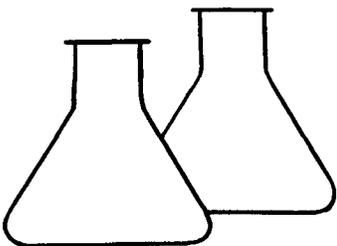
Comments:



Analyst



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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: M 26
Laboratory Number: 031892410-4
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-27-92
Date Sampled: 3-18-92
Date Received: 3-18-92
Date Extracted: 3-23-92
Date Analyzed: 3-23-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

ND - Analyte not detected at the stated detection limit.

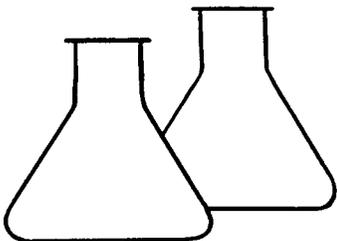
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. [Signature]
Analyst

Maris [Signature]
Review



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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: M 27
Laboratory Number: 032092410-1
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-27-92
Date Sampled: 3-20-92
Date Received: 3-20-92
Date Extracted: 3-23-92
Date Analyzed: 3-23-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	<10.0	10.0

ND - Analyte not detected at the stated detection limit.

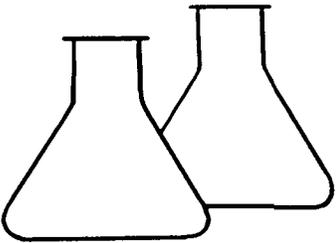
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


Analyst


Review



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**** QUALITY ASSURANCE REPORT
METHOD BLANK - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Sample ID: Method Blank
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 2-27-92
Date Extracted: 3-23-92
Date Analyzed: 3-23-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

ND - Analyte not detected at the stated detection limit.

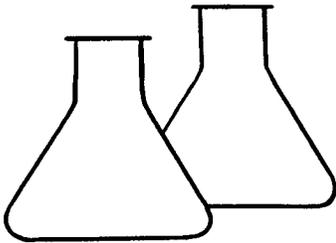
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. Carr
Analyst

Marvin D. Young
Review



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**** QUALITY ASSURANCE REPORT
MATRIX SPIKE - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Laboratory Number: 031892410-8
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 3-27-92
Date Extracted: 3-23-92
Date Analyzed: 3-23-92

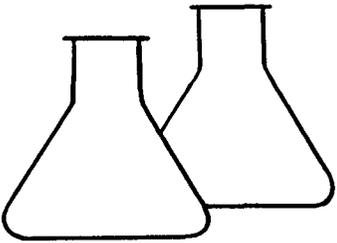
Analyte	Spike Added (mg/kg)	Sample Result (mg/kg)	Spiked Sample Result (mg/kg)	Percent Recovery
TPH	84.7	ND	52.6	62

ND - Analyte not detected at the stated detection limit.

QA ACCEPTANCE CRITERIA:	Analyte	Acceptance Range %
	TPH	48 - 143

ND - Analyte not detected at the stated detection limit.

Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.:



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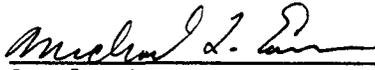
**** QUALITY ASSURANCE REPORT
MATRIX SPIKE - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Laboratory Number: 031892410-8
Sample Matrix: Soil
Analysis Method: 418.1

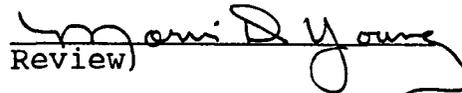
Report Date: 3-27-92
Date Extracted: 3-23-92
Date Analyzed: 3-23-92

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:



Analyst



Review

CHAIN OF CUSTODY RECORD

Client/Project Name		Project Location			ANALYSIS/PARAMETERS					
SMITH 191410		PIT AREA								
Sampler: (Signature)		Chain of Custody Tape No.								
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	EPA	418.1	PCF	6020	Remarks
M23	3/18/92	1544	031852410-1	SOIL	1	✓				
M24		1545	031852410-2		1	✓				
M25		1547	031852410-3		1	✓				
M26		1549	031852410-4		1	✓				
GW EM-5		1600	031852410-5	WATER	1	✓				
"			031852410-6		2					
Relinquished by: (Signature)				Date	Time	Received by: (Signature)		Date	Time	
<i>[Signature]</i>				3/18/92	1700	<i>[Signature]</i>		3-18-92		
Relinquished by: (Signature)						Received by: (Signature)				
<i>[Signature]</i>						<i>[Signature]</i>				
Relinquished by: (Signature)						Received by: (Signature)				
<i>[Signature]</i>						<i>[Signature]</i>				

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CHAIN OF CUSTODY RECORD

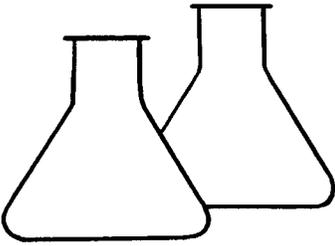
Client/Project Name		Project Location		ANALYSIS/PARAMETERS										Remarks			
SMITH INTERNATIONAL		SMITH YARD															
Sampler: (Signature) <i>Marvin D. Young</i>		Chain of Custody Tape No.															
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers												
11127	3-20-72	-	032052410-1	SOIL	1												
MALE 3-20-72																	
Relinquished by: (Signature) <i>Marvin D. Young</i>		Date	Time	Received by: (Signature)												Date	Time
		3-20-72	1300	<i>MZC</i>												3-20-72	1300
Relinquished by: (Signature) <i>MZC</i>		3-20-72		Received by: (Signature) <i>Michael J. Egan</i>													

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CHAIN OF CUSTODY RECORD

Client/Project Name		Project Location		ANALYSIS/PARAMETERS										Remarks			
SLUDG 191410		MW 1570															
Sampler: (Signature)		Chain of Custody Tape No.		Lab Number		Sample Matrix		No. of Containers		EPA 418.1		EPA 810		EPA 804		EPA 805	
MW#1	3/5/92	1510					WATER	1	✓								
MW#2	3/5/92	1425						1	✓								
MW#3	3/5/92	1455						1	✓								
PIT 25'	3/5/92	1530					SOIL	1	✓								
				M25		3-5-92											
Relinquished by: (Signature)		Date		Time		Received by: (Signature)		Date		Time							
		3/5/92		1640		M25		3-5-92									
Relinquished by: (Signature)																	
Relinquished by: (Signature)																3-5-92 1640	

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EPA METHOD 8020 PURGEABLE AROMATICS

Client: Smith International
Sample ID: M25 Groundwater
Lab ID#: 031892410-6
Matrix: Water
Preservative: HgCl₂
Sample Condition: Received on Ice

Project #: 91410
Date Reported: 3-27-92
Date Sampled: 3-18-92
Date Received: 3-18-92
Date Extracted:
Date Analyzed: 3-20-92
Injection Vol: 5 ml

Analyte	Analytical Result	Detection Limit	Units
Benzene	<1.0	1.0	ug/l
Toluene	ND	1.0	ug/l
Ethylbenzene	<1.0	1.0	ug/l
m,p-Xylene	3.2	1.0	ug/l
o-Xylene	<1.0	1.0	ug/l

ND - Analyte not detected at given detection level.

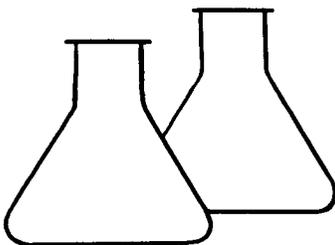
Comments:

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluation Solid Waste, SW-846, United States Environmental Protection Agency, SW-846, Vol. IB, November 1990.

Michael J. Egan
Analyst

Mari D. Young
Reviewed



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** QUALITY ASSURANCE REPORT
SAMPLE DUPLICATE - PURGABLE AROMATICS

Laboratory No.: 031892410-6
Matrix: Water
Preservative: HgCl₂

Date Reported: 3-27-92
Date Extracted:
Date Analyzed: 3-20-92
Injection Vol: 5 ml

Analyte	Analytical Result	Detection Limit	Units
Benzene	<1.0	1.0	ug/l
Toluene	ND	1.0	ug/l
Ethylbenzene	<1.0	1.0	ug/l
m,p-Xylene	4.4	1.0	ug/l
o-Xylene	<1.0	1.0	ug/l

ND - Analyte not detected at given detection level.

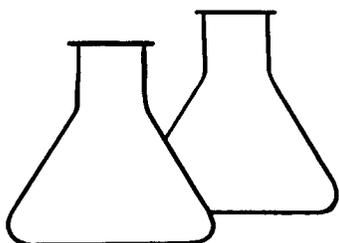
Comments:

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluation Solid Waste, SW-846, United States Environmental Protection Agency, SW-846, Vol. IB, November 1990.


Analyst


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**** QUALITY ASSURANCE REPORT
METHOD BLANK - PURGABLE AROMATICS**

Sample ID: Method Blank
Matrix: Water
Preservative: HgCl₂

Date Reported: 3-27-92
Date Extracted:
Date Analyzed: 3-20-92
Injection Vol: 5 ml

Analyte -----	Analytical Result -----	Detection Limit -----	Units -----
Benzene	ND	1.0	ug/l
Toluene	ND	1.0	ug/l
Ethylbenzene	ND	1.0	ug/l
m,p-Xylene	ND	1.0	ug/l
o-Xylene	ND	1.0	ug/l

ND - Analyte not detected at given detection level.

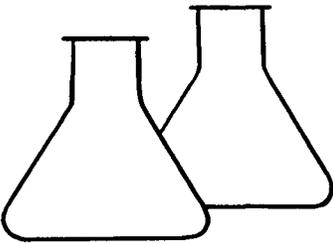
Comments:

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for
Evaluation Solid Waste, SW-846, United States Environmental
Protection Agency, SW-846, Vol. IB, November 1990.

Michael L. Linn
Analyst

Marvin D. Young
Reviewed



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**** QUALITY ASSURANCE REPORT
MATRIX SPIKE - PURGABLE AROMATICS**

Laboratory Number: 032092127-1
Sample Matrix: Water
Preservative: HgCl₂
Sample Condition: Received on ice

Date Reported: 3-27-92
Date Sampled: 3-20-92
Date Extracted:
Date Analyzed: 3-20-92

Analyte	Spike Added (ug/L)	Sample Result (ug/L)	Spiked Sample Result (ug/L)	Percent Recovery
Benzene	10	<1.0	9.3	93
Toulene	10	<1.0	8.4	84
Ethylbenzene	10	<1.0	9.1	91

ND - Analyte not detected at the stated detection limit.

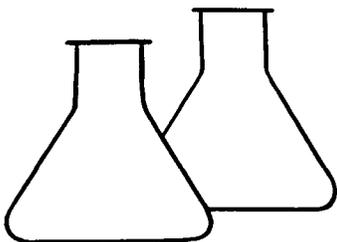
QA ACCEPTANCE CRITERIA:	Analyte	Acceptance Range %
	Benzene	39 - 150
	Toluene	46 - 148
	Ethylbenzene	32 - 160

Reference:

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluation Solid Waste, SW-846, United States Environmental Protection Agency, SW-846, Vol. IB, November 1990.

Michael L. E...
Analyst

Mavis D. Young
Reviewed



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: M12
Laboratory Number: 031292410-1
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-20-92
Date Sampled: 3-12-92
Date Received: 3-13-92
Date Extracted: 3-20-92
Date Analyzed: 3-20-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

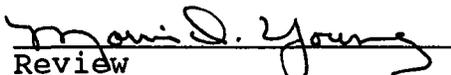
ND - Analyte not detected at the stated detection limit.

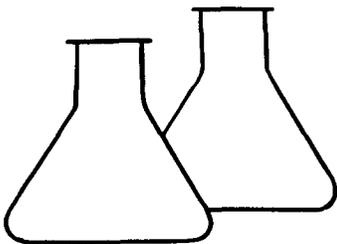
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


Analyst


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**** QUALITY ASSURANCE REPORT
SAMPLE DUPLICATE - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Laboratory No: 031292410-1
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 3-20-92
Date Extracted: 3-20-92
Date Analyzed: 3-20-92

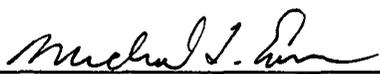
Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

ND - Analyte not detected at the stated detection limit.

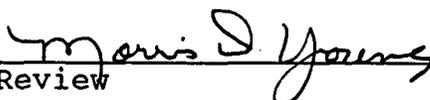
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

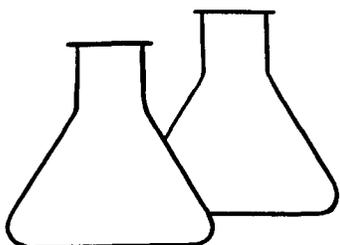
Comments:



Analyst



Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: M13
Laboratory Number: 031292410-2
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-20-92
Date Sampled: 3-12-92
Date Received: 3-13-92
Date Extracted: 3-20-92
Date Analyzed: 3-20-92

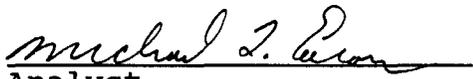
Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	10.2	10.0

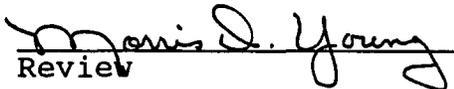
ND - Analyte not detected at the stated detection limit.

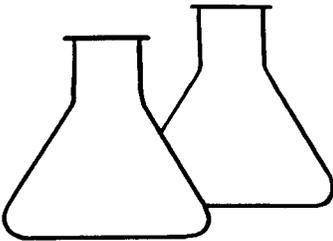
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


Analyst


Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: M14
Laboratory Number: 031292410-3
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-20-92
Date Sampled: 3-12-92
Date Received: 3-13-92
Date Extracted: 3-20-92
Date Analyzed: 3-20-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	168	10.0

ND - Analyte not detected at the stated detection limit.

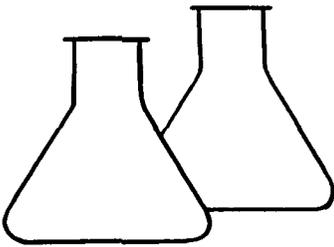
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. Pan
Analyst

Marion D. Young
Review



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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: M15
Laboratory Number: 031292410-4
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-20-92
Date Sampled: 3-12-92
Date Received: 3-13-92
Date Extracted: 3-20-92
Date Analyzed: 3-20-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	117	10.0

ND - Analyte not detected at the stated detection limit.

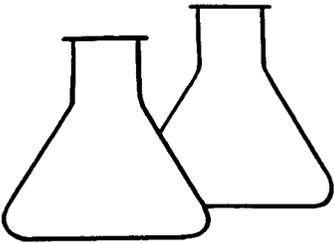
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. Brown
Analyst

Monica Young
Review



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**** QUALITY ASSURANCE REPORT
METHOD BLANK - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Sample ID: Method Blank
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 3-20-92
Date Extracted: 3-20-92
Date Analyzed: 3-20-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

ND - Analyte not detected at the stated detection limit.

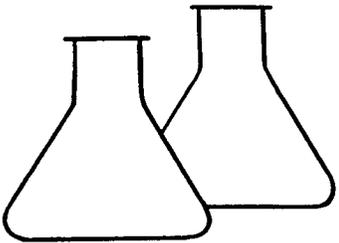
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael D. [Signature]
Analyst

Maris D. Young
Review



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**** QUALITY ASSURANCE REPORT
MATRIX SPIKE - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Laboratory Number: 031292410-2
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 3-20-92
Date Extracted: 3-20-92
Date Analyzed: 3-20-92

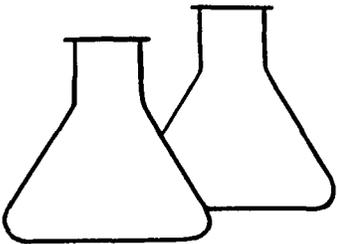
Analyte	Spike Added (mg/kg)	Sample Result (mg/kg)	Spiked Sample Result (mg/kg)	Percent Recovery
TPH	331	10.2	257	77

ND - Analyte not detected at the stated detection limit.

QA ACCEPTANCE CRITERIA: Analyte	Acceptance Range %
TPH	48 - 143

ND - Analyte not detected at the stated detection limit.

Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.:



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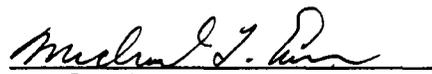
**** QUALITY ASSURANCE REPORT
MATRIX SPIKE - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Laboratory Number: 031292410-2
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 3-20-92
Date Extracted: 3-20-92
Date Analyzed: 3-20-92

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

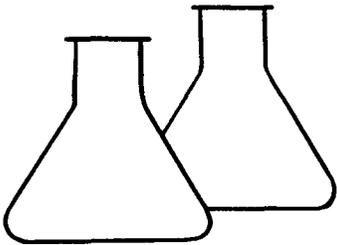

Analyst


Review

CHAIN OF CUSTODY RECORD

Client/Project Name		Project Location		ANALYSIS/PARAMETERS									
SMITH 191410		P.R. AREA											
Sampler: (Signature)		Chain of Custody Tape No.											
<i>[Signature]</i>													
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers					Remarks			
M12	2/12/92	1605	031292410-1	Soil	1	EDR	418.1						
M12		1607	031292410-2		1								
M14		1610	031292410-3		1								
M15		1615	031292410-4		1								
MAE 3-13-92													
Relinquished by: (Signature)		Date		Time		Received by: (Signature)		Date		Time			
<i>[Signature]</i>		3/13/92		8:30		<i>[Signature]</i>		3-13-92					
Relinquished by: (Signature)		Date		Time		Received by: (Signature)		Date		Time			
<i>[Signature]</i>		MAE 3-13-92				<i>[Signature]</i>		3-13-92		0830			
Relinquished by: (Signature)		Date		Time		Received by: (Signature)		Date		Time			
<i>[Signature]</i>		MAE 3-13-92				<i>[Signature]</i>		3-13-92		0830			

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 5796 U.S. Highway 64-3014
 Farmington, New Mexico 87401
 (505) 632-0615



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Pit-Location 2 (east side)
Laboratory Number: 030692410-1
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-12-92
Date Sampled: 3-6-92
Date Received: 3-6-92
Date Extracted: 3-6-92
Date Analyzed: 3-12-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

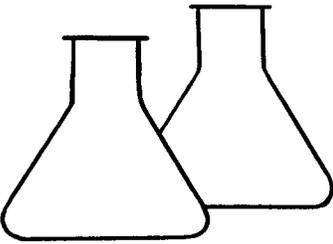
ND - Analyte not detected at the stated detection limit.

Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. Eason Analyst Thomas D. Young Review



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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Pit-M2 West Wall @ 28'
Laboratory Number: 031092410-1
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-12-92
Date Sampled: 3-10-92
Date Received: 3-10-92
Date Extracted: 3-12-92
Date Analyzed: 3-12-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	2063	10.0

ND - Analyte not detected at the stated detection limit.

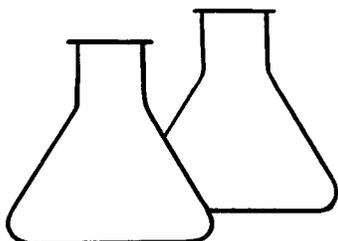
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael L. Brown
Analyst

Marion D. Young
Review



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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Pit-M7
Laboratory Number: 031092410-2
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-12-92
Date Sampled: 3-10-92
Date Received: 3-10-92
Date Extracted: 3-12-92
Date Analyzed: 3-12-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

ND - Analyte not detected at the stated detection limit.

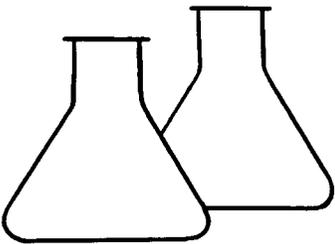
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael L. Brown
Analyst

Marion D. Young
Review



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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Pit-M9
Laboratory Number: 031092410-3
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-12-92
Date Sampled: 3-10-92
Date Received: 3-10-92
Date Extracted: 3-12-92
Date Analyzed: 3-12-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

ND - Analyte not detected at the stated detection limit.

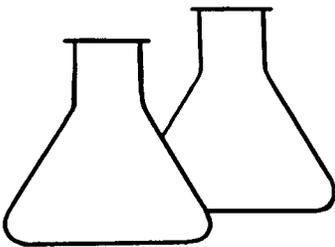
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. Brown
Analyst

Marion DeYoung
Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client: Smith International
Sample ID: Pit-M11
Laboratory Number: 031092410-4
Sample Matrix: Soil
Temperature: Received on Ice
Analysis Method: 418.1

Project #: 91410
Report Date: 3-12-92
Date Sampled: 3-10-92
Date Received: 3-10-92
Date Extracted: 3-12-92
Date Analyzed: 3-12-92

<u>Analyte</u>	<u>Concentration</u> (mg/kg)	<u>Detection Limit</u> (mg/kg)
Total Recoverable Petroleum Hydrocarbons	15594	10.0

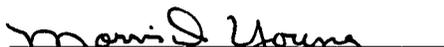
ND - Analyte not detected at the stated detection limit.

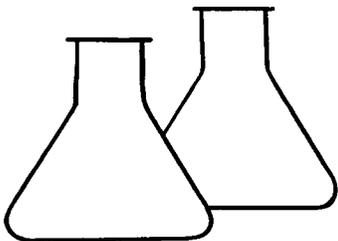
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments: Sample diluted 1:10


Analyst


Review



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**** QUALITY ASSURANCE REPORT
METHOD BLANK - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**

Sample ID: Method Blank
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 3-12-92
Date Extracted: 3-12-92
Date Analyzed: 3-12-92

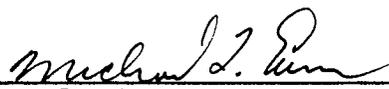
Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

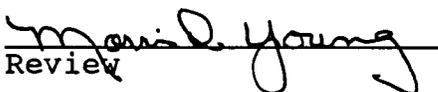
ND - Analyte not detected at the stated detection limit.

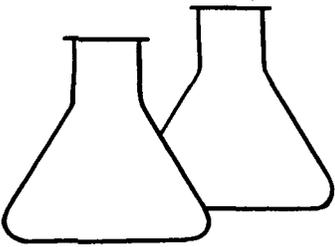
Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:


Analyst


Review



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** QUALITY ASSURANCE REPORT

MATRIX SPIKE - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Laboratory Number: 030692410-1
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 3-12-92
Date Extracted: 3-12-92
Date Analyzed: 3-12-92

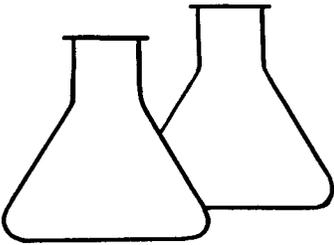
<u>Analyte</u>	<u>Spike Added (mg/kg)</u>	<u>Sample Result (mg/kg)</u>	<u>Spiked Sample Result (mg/kg)</u>	<u>Percent Recovery</u>
TPH	331	ND	239	72

ND - Analyte not detected at the stated detection limit.

<u>QA ACCEPTANCE CRITERIA: Analyte</u>	<u>Acceptance Range %</u>
TPH	48 - 143

ND - Analyte not detected at the stated detection limit.

Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.:



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**** QUALITY ASSURANCE REPORT (Continued)**
MATRIX SPIKE - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Laboratory Number: 030692410-1
Sample Matrix: Soil
Analysis Method: 418.1

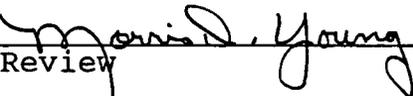
Report Date: 3-12-92
Date Extracted: 3-12-92
Date Analyzed: 3-12-92

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

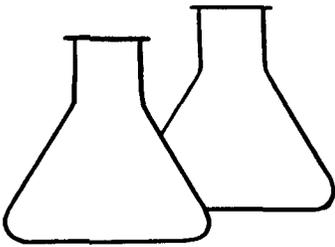
Comments:



Analyst



Review



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** QUALITY ASSURANCE REPORT

MATRIX SPIKE - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Laboratory Number: 031092410-2
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 3-12-92
Date Extracted: 3-12-92
Date Analyzed: 3-12-92

<u>Analyte</u>	<u>Spike Added (mg/kg)</u>	<u>Sample Result (mg/kg)</u>	<u>Spiked Sample Result (mg/kg)</u>	<u>Percent Recovery</u>
TPH	331	ND	221	67

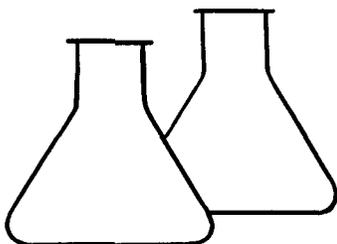
ND - Analyte not detected at the stated detection limit.

QA ACCEPTANCE CRITERIA: Analyte Acceptance Range %

TPH	48 - 143
-----	----------

ND - Analyte not detected at the stated detection limit.

Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.:



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

**** QUALITY ASSURANCE REPORT (Continued)**
MATRIX SPIKE - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Laboratory Number: 031092410-2
Sample Matrix: Soil
Analysis Method: 418.1

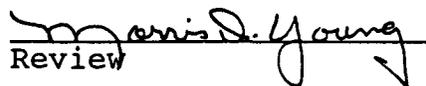
Report Date: 3-12-92
Date Extracted: 3-12-92
Date Analyzed: 3-12-92

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

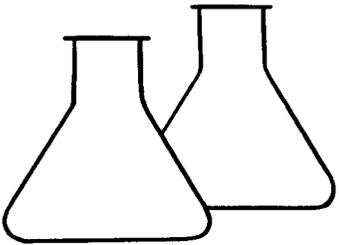
Comments:



Analyst



Review



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PHONE: (505) 632-0615 • FAX: (505) 632-1865

**** QUALITY ASSURANCE REPORT**
SAMPLE DUPLICATE - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Laboratory No: 030692410-1
Sample Matrix: Soil
Analysis Method: 418.1

Report Date: 3-6-92
Date Extracted: 3-6-92
Date Analyzed: 3-6-92

Analyte -----	Concentration (mg/kg) -----	Detection Limit (mg/kg) -----
Total Recoverable Petroleum Hydrocarbons	ND	10.0

ND - Analyte not detected at the stated detection limit.

Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA, 1978. Extraction by Method 3550, SW-846, USEPA, 1986.

Modified Method 8015, Petroleum Hydrocarbons, Total Recoverable, Gas Chromatography. Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, USEPA, 1990. Extraction by Method 3550, SW-846, USEPA, 1990.

Comments:

Michael J. Egan
Analyst

Maris D. Young
Review

ENVIROTECH INC.

UNDERGROUND TANK TESTING • SITE ASSESSMENT • SITE REMEDIATION

5796 U.S. HIGHWAY 64 - 3014
FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615

January 24, 1992

Mr. Roger Anderson
Environmental Engineer
State of New Mexico
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504

RE: Contaminated Soil from
Smith International, Inc.
2198 Bloomfield Highway
Farmington, New Mexico

Project No: 91410

Dear Mr. Anderson:

Enclosed are the laboratory results of chemical analyses for soil samples, collected December 20, 1991, from the referenced Smith International facility in Farmington, New Mexico. The samples are of the contaminated material around the acid tank and acid disposal pit areas, as discussed with you earlier by Mr. Morris Young of Envirotech.

The results for all parameters are non-detectable or below RCRA limits.

Therefore, Envirotech requests permission to receive this soil at Envirotech's Soil Remediation Facility at Hilltop, New Mexico.

Respectfully submitted,
ENVIROTECH, Inc.


Michael K. Lane, P.E.
Geological Engineer

Enclosures

C: Mr. Maurice Sticker, Smith International, Inc.
Mr. Chuck Hagen

MKL/mkl
410TCLP.LTR

Inter-Mountain Laboratories, Inc.

910 Technology Boulevard, Suite B
Bozeman, Montana 59716

TOXICITY CHARACTERISTIC LEACHING PROCEDURE HSL VOLATILE COMPOUNDS

Client:	ENVIROTECH	Date Reported:	01/24/92
Sample ID:	Waste Pit Comp.	Date Sampled:	12/20/91
Project ID:	Smith Energy	Date Received:	12/21/91
Laboratory ID:	B914207	Date Extracted TCLP:	01/03/92
Sample Matrix:	Soil	Date Analyzed:	01/08/92
Preservation:	Cool		
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
Vinyl Chloride	ND	0.025	mg/L
1,1-Dichloroethene	ND	0.025	mg/L
Chloroform	ND	0.025	mg/L
1,2-Dichloroethane	ND	0.025	mg/L
Carbon Tetrachloride	ND	0.025	mg/L
Trichloroethene	ND	0.025	mg/L
Benzene	ND	0.025	mg/L
Tetrachloroethene	ND	0.025	mg/L
Chlorobenzene	ND	0.025	mg/L
2-Butanone	ND	0.125	mg/L

ND - Compound not detected at stated Detection Limit.

J - Meets identification criteria, below Detection Limit.

B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

910 Technology Boulevard, Suite 8
Bozeman, Montana 59715

TOXICITY CHARACTERISTIC LEACHING PROCEDURE TENTATIVELY IDENTIFIED COMPOUNDS

Client:	ENVIROTECH	Date Reported:	01/24/92
Sample ID:	Waste Pit Comp.	Date Sampled:	12/20/91
Laboratory ID:	B914207	Date Analyzed:	01/08/92
Sample Matrix:	Soil		

Tentative Identification	Retention Time (min)	Concentration	Units
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No additional compounds found at reportable levels.

Unknown concentrations calculated assuming a Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recovery	%
1,2-Dichloroethane-d4	98
Toluene-d8	96
Bromofluorobenzene	93

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics,
Test Methods for Evaluating Solid Wastes, SW-846, United States
Environmental Protection Agency, Third Edition, November 1986.

Toxicity Characteristic Leaching Procedure, Final Rule, Federal Register,
40 CFR 261-302, Part V, Environmental Protection Agency, Vol. 55, No. 126,
June 29, 1990.



Analyst



Reviewed

Inter-Mountain Laboratories, Inc.

910 Technology Boulevard, Suite 8
Bozeman, Montana 59715

TOXICITY CHARACTERISTIC LEACHING PROCEDURE HSL SEMI-VOLATILE COMPOUNDS

Client:	ENVIROTECH	Report Date:	01/23/92
Sample ID:	Waste Pit Comp.	Date Sampled:	12/20/91
Project ID:	Smith Energy	Date Received:	12/21/91
Laboratory ID:	B914207	Date Extracted-TCLP:	** 01/17/92
Sample Matrix:	Soil	Date Analyzed:	01/21/92
Preservation:	Cool	Date Extracted-BNA:	** 01/20/92
Condition:	Intact		

** - Sample was re-extracted due to low surrogate recoveries. First extractions were TCLP= 1/3/92 and BNA= 1/10/92

Parameter	Analytical Result	Detection Limit	Units
1,4-Dichlorobenzene	ND	0.015	mg/L
Hexachloroethane	ND	0.015	mg/L
Nitrobenzene	ND	0.015	mg/L
Hexachloro-1,3-butadiene	ND	0.015	mg/L
2,4,6-Trichlorophenol	ND	0.015	mg/L
2,4,5-Trichlorophenol	ND	0.015	mg/L
2,4-Dinitrotoluene	ND	0.015	mg/L
Hexachlorobenzene	ND	0.015	mg/L
Pentachlorophenol	ND	0.015	mg/L
o-Cresol	ND	0.015	mg/L
m & p-Cresol	ND	0.015	mg/L
Pyridine	ND	0.15	mg/L

ND - Compound not detected at stated Detection Limit

J - Meets identification criteria, below Detection Limit

B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

910 Technology Boulevard, Suite B
Bozeman, Montana 59715

**TOXICITY CHARACTERISTIC LEACHING PROCEDURE
TENTATIVELY IDENTIFIED COMPOUNDS**

Client:	ENVIROTECH	Date Reported:	01/23/92
Sample ID:	Waste Pit Comp.	Date Sampled:	12/20/91
Laboratory ID:	B914207	Date Analyzed:	01/21/92
Sample Matrix:	Soil		

Parameter	Retention Time (min.)	Concentration	Units
Unknown organic acid	13.71	0.03	mg/L
Unknown hydrocarbon	21.33	0.03	mg/L
Diethylphthalate	26.09	0.06	mg/L
Unknown hydrocarbon	28.12	0.02	mg/L

Unknown concentrations calculated assuming Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recoveries	%
2-Fluorophenol	52
Phenol-d6	43
Nitrobenzene-d5	92
2-Fluorobiphenyl	82
2,4,6-Tribromophenol	68
Terphenyl-d14	79

References:

Method 8270, Gas Chromatography/Mass Spectrometry for Semi-Volatile Organics, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, December 1987.

Toxicity Characteristic Leaching Procedure, Final Rule, Federal Register, 40 CFR 261-302, Part V, Environmental Protection Agency, Vol. 55, No. 126, June 29, 1990.



Analyst



Reviewed

**METHOD 8150
CHLORINATED HERBICIDES
TCLP PARAMETERS**

Client:	ENVIROTECH	Date Reported:	01/24/92
Sample ID:	Waste Pit Comp.	Date Sampled:	12/20/91
Project ID:	Smith Energy	Date Received:	12/21/91
Laboratory ID:	B914207	Date Extracted:	01/10/92
Sample Matrix:	Soil	Date Analyzed:	01/23/92
Preservative:	Cool		
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
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2,4-D	ND	0.001	mg/L
2,4,5-TP	ND	0.001	mg/L

ND - Parameter Not Detected at Stated Detection Limits

Reference: Method 8150, Chlorinated Herbicides, Test Methods for Evaluating Solid Waste, United States Environmental Protection Agency, SW-846, Vol. IB, November, 1986.

Analyst RM

US
Reviewed

**EPA METHOD 8080
ORGANOCHLORINE PESTICIDES
TCLP PARAMETERS**

Client:	ENVIROTECH	Date Reported:	01/24/92
Sample ID:	Waste Pit Comp.	Date Sampled:	12/20/91
Project ID:	Smith Energy	Date Received:	12/21/91
Laboratory ID:	B914207	Date Extracted:	01/10/92
Sample Matrix:	Soil	Date Analyzed:	01/15/92
Preservative:	Cool		
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
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Lindane (gamma BHC)	ND	0.006	mg/L
Endrin	ND	0.006	mg/L
Methoxychlor	ND	0.02	mg/L
Heptachlor	ND	0.006	mg/L
Toxaphene	ND	0.5	mg/L
Chlordane	ND	0.03	mg/L

ND - Parameter Not Detected at Stated Detection Limits

References: Method 8080, Organochlorine Pesticides and PCB's, Test Methods for Evaluating Solid Waste, United States Environmental Protection Agency SW-846, Vol. IB September 1986.

Analyst LM

Reviewed WJ

Inter-Mountain Laboratories, Inc.

1633 Terra Avenue
Sheridan, Wyoming 82801TOXICITY CHARACTERISTIC LEACHING PROCEDURE
TRACE METAL CONCENTRATIONS

Client:	Envirotech	Report Date:	01/23/92
Sample Id:	7788	Date Sampled:	12/20/91
Lab Id:	B914207/4659	Date Received:	12/21/91
Matrix:	Soil	TCLP Extract:	01/04/92
Preservation:	COOL / INTACT	Date Analyzed:	01/21/91

Parameter:	(units)	Analytical Result	Regulatory Level
Arsenic	mg/L	<0.1	5.0
Barium	mg/L	3.5 B	100
Cadmium	mg/L	0.008	1.0
Chromium	mg/L	<0.01	5.0
Lead	mg/L	<0.2	5.0
Mercury	mg/L	<0.001	0.2
Selenium	mg/L	<0.1	1.0
Silver	mg/L	<0.01	1.0

Toxicity Characteristic Leaching Procedure, Final Rule,
Federal Register, 40 CFR 261-302, Part V, EPA Vol 55, No. 126
June 29, 1990

Method 6010A: Inductively Coupled Plasma-Atomic Emission
Spectroscopy, SW-846, Nov. 1990.

Method 7470A: Mercury in Liquid Waste (Manual Cold-Vapor
Technique), SW-846, Nov. 1990.

Reviewed by: CB.

Bill of Lading

PHONE: (505) 632-0615

MONTH OF MARCH 1992

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT						TRANSPORTING COMPANY			
DATE	NO.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE		
3/19	1	LAND FARM	SMITH ENGY	FILL		20	ENVIROTECH	48	[Signature]		
3/19	2	LAND FARM	SMITH ENGY	FILL		20	ENVIROTECH	48	[Signature]		
3/19	3	LAND FARM	SMITH ENGY	FILL		20	ENVIROTECH	48	[Signature]		
3/19	4	LAND FARM	SMITH ENGY	FILL		20	ENVIROTECH	48	[Signature]		
3/19	5	LAND FARM	SMITH ENGY	FILL		20	ENVIROTECH	48	[Signature]		
3/19	6	LAND FARM	SMITH ENGY	FILL		20	ENVIROTECH	48	[Signature]		
3/19	1	SMITH ENGY	LAND FARM	CONTO		20	ENVIROTECH	48	[Signature]		
3/19	2	SMITH ENGY	LAND FARM	CONTO		20	ENVIROTECH	48	[Signature]		
3/19	3	SMITH ENGY	LAND FARM	CONTO		20	ENVIROTECH	48	[Signature]		
3/19	4	SMITH ENGY	LAND FARM	CONTO		20	ENVIROTECH	48	[Signature]		
3/19	5	SMITH ENGY	LAND FARM	CONTO		20	ENVIROTECH	48	[Signature]		
							M.T.				
						100					
						20					
						20					
						20					

Bill of Lading

MONTH OF Feb

PHONE: (505) 632-0615

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT					TRANSPORTING COMPANY		
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE
2/10/01	1	Smith Energy	Land Farm	Contaminated dirt	50	20	Envirotech	52	Harvey Johnson MS
	2	Smith Energy	Land Farm	Contaminated dirt		20	Envirotech	52	Harvey Johnson
						40	18.00 M.T.		
2/20	1	Land Farm	Smith Energy	Fill dirt		20	Envirotech	52	Harvey Johnson 1998
2/20	2	Land Farm	Smith Energy	Fill dirt		20	Envirotech	52	Harvey Johnson
						40	18.00 M.T.		

Bill of Lading

PHONE: (505) 632-0615

MONTH OF February 92

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT						TRANSPORTING COMPANY		
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE	
2/27	1	Smith Energy	Land Farm	Cont Dirt		20	Envirotech	49	Harvey Johnson	
2/27	2	Smith Energy	Land Farm	Cont Dirt		20	Envirotech	49	Harvey Johnson	
2/27	3	Smith Energy	Land Farm	Cont Dirt		20	Envirotech	49	Harvey Johnson	
2/27	4	Smith Energy	Land Farm	Cont Dirt		20	Envirotech	49	Harvey Johnson	
2/27	5	Smith Energy	Land Farm	Cont Dirt		20	Envirotech	49	Harvey Johnson	
2/27	6	Smith Energy	Land Farm	Cont Dirt		20	Envirotech	49	Harvey Johnson	
						20	Envirotech			
						20	Envirotech			
2/27	1	Land Farm	Smith Energy	Fill		20	Envirotech	49	Harvey Johnson	
2/27	2	Land Farm	Smith Energy	Fill		20	Envirotech	49	Harvey Johnson	
2/27	3	Land Farm	Smith Energy	Fill		20	Envirotech	49	Harvey Johnson	
2/27	4	Land Farm	Smith Energy	Fill		20	Envirotech	49	Harvey Johnson	
2/27	5	Land Farm	Smith Energy	Fill		20	Envirotech	49	Harvey Johnson	
2/27	6	Land Farm	Smith Energy	Fill		20	Envirotech	49	Harvey Johnson	
						20	Envirotech			
						20	Envirotech			

Bill of Lading

PHONE: (505) 632-0615

MONTH OF February 92

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT						TRANSPORTING COMPANY			
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE		
2/28	1	Smith Energy	Land Farm	Cont Dirt		20	Envirotech	49	Harvey Johnson		
2/28	2	Smith Energy	Land Farm	Cont Dirt		20	Envirotech	49	Harvey Johnson		
2/28	3	Smith Energy	Land Farm	Cont Dirt		20	Envirotech	49	Harvey Johnson ¹¹¹¹²		
2/28	4	Smith Energy	Land Farm	Cont Dirt		20	Envirotech	49	Harvey Johnson		
2/28	5	Smith Energy	Land Farm	Cont Dirt		20	Envirotech	49	Harvey Johnson		
2/28	6	Smith Energy	Land Farm	Cont Dirt		20	Envirotech	49	Harvey Johnson		
						120	1800 M.F.				
2/28	1	Land Farm	Smith Energy	fill		20	Envirotech	49	Harvey Johnson		
2/28	2	Land Farm	Smith Energy	fill		20	Envirotech	49	Harvey Johnson		
2/28	3	Land Farm	Smith Energy	fill		20	Envirotech	49	Harvey Johnson		
2/28	4	Land Farm	Smith Energy	fill		20	Envirotech	49	Harvey Johnson		
2/28	5	Land Farm	Smith Energy	fill		20	Envirotech	49	Harvey Johnson		
2/28	6	Land Farm	Smith Energy	fill		20	Envirotech	49	Harvey Johnson		
						120	1800 M.F.				

Bill of Lading

MONTH OF March 2-92

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT						TRANSPORTING COMPANY				
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE			
3-2	1	Smith Energy	Land farm	contamed dirt		20	Envirotech	E 48	Daniel Grover			
3-2	2	Smith Energy	Land farm	contamed dirt		20	Envirotech	E 48	Daniel Grover			
3-2	3	Smith Energy	Land farm	contamed dirt		20	Envirotech	E 48	Daniel Grover			
3-2	4	Smith Energy	Land farm	contamed dirt		20	Envirotech	E 48	Daniel Grover			
3-2	5	Smith Energy	Land farm	contamed dirt		20	Envirotech	E 48	Daniel Grover			
3-2	6	Smith Energy	Land farm	contamed dirt		20	Envirotech	E 48	Daniel Grover			
3-2	1	Land farm	Smith	fill dirt		20	Envirotech	E 48	Daniel Grover			
3-2	2	Land farm	Smith	fill dirt		20	Envirotech	E 48	Daniel Grover			
3-2	3	Land farm	Smith	fill dirt		20	Envirotech	E 48	Daniel Grover			
3-2	4	Land farm	Smith	fill dirt		20	Envirotech	E 48	Daniel Grover			
3-2	5	Land farm	Smith	fill dirt		20	Envirotech	E 48	Daniel Grover			
3-2	6	Land farm	Smith	fill dirt		20	Envirotech	E 48	Daniel Grover			
						18.00						
						1200						
						2.89						
						M.T.						
						1200						
						M.T.						
		586551										

PHONE: (505) 632-0615

Bill of Lading

MONTH OF March

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT					TRANSPORTING COMPANY				
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE		
3-2	1	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Yonkers		
3-2	2	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Yonkers		
3-2	3	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Yonkers		
3-2	4	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Yonkers		
3-2	5	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Yonkers		
						1000					
				M.T.		1000					
3-2	1	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	Dave Yonkers		
3-2	2	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	Dave Yonkers		
3-2	3	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	Dave Yonkers		
3-2	4	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	Dave Yonkers		
3-2	5	Land Farm	Smith Energy	Fill Dirt	M.T.	20	Envirotech	E-52	Dave Yonkers		
						1000					
						289					

Bill of Lading

PHONE: (505) 632-0615

MONTH OF March

COMPLETE DESCRIPTION OF SHIPMENT						TRANSPORTING COMPANY				
MANIFEST	DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE
	3-3-92	1	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	<i>David Yarbrough</i>
	3-3	2	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	<i>David Yarbrough</i>
	3-3	3	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	<i>David Yarbrough</i>
	3-3	4	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	<i>David Yarbrough</i>
	3-3	5	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	<i>David Yarbrough</i>
	3-3	6	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	<i>David Yarbrough</i>
							18.00			
							20.00			
						M.T.				
	3-3-92	1	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	<i>David Yarbrough</i>
	3-3	2	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	<i>David Yarbrough</i>
	3-3	3	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	<i>David Yarbrough</i>
	3-3	4	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	<i>David Yarbrough</i>
	3-3	5	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	<i>David Yarbrough</i>
						M.T.				
							100 @ 289			

Bill of Lading

PHONE: (505) 632-0615

MONTH OF March 92

COMPLETE DESCRIPTION OF SHIPMENT					TRANSPORTING COMPANY					
MANIFEST	DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE
	3/3	1	Smith Energy	Land Farm	Cont'd Dirt		20	Envirotech	49	Harvey Johnson
	3/3	2	Smith Energy	Land Farm	Cont'd Dirt		20	Envirotech	49	Harvey Johnson
	3/3	3	Smith Energy	Land Farm	Cont'd Dirt		20	Envirotech	49	Harvey Johnson
	3/3	4	Smith Energy	Land Farm	Cont'd Dirt		20	Envirotech	49	Harvey Johnson
	3/3	5	Smith Energy	Land Farm	Cont'd dirt		20	Envirotech	49	Harvey Johnson
							100			
							100			
	3/3	1	Land Farm	Smith	Fill	M.I.	20	Envirotech	49	Harvey Johnson
	3/3	2	Land Farm	Smith	Fill		20	Envirotech	49	Harvey Johnson
	3/3	3	Land Farm	Smith	Fill		20	Envirotech	49	Harvey Johnson
	3/3	4	Land Farm	Smith	Fill		20	Envirotech	49	Harvey Johnson
	3/3	5	Land Farm	Smith	Fill		20	Envirotech	49	Harvey Johnson
							100			
							100			

Bill of Lading

PHONE: (505) 632-0615

MONTH OF March 92

MANIFEST				COMPLETE DESCRIPTION OF SHIPMENT				TRANSPORTING COMPANY			
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE		
3/5	1	Smith Energy	Land Farm	Cont'd dirt		20	Envirotech	49	Harvey Johnson		
3/5	2	Smith Energy	Land Farm	Cont'd dirt		20	Envirotech	49	Harvey Johnson		
3/5	3	Smith Energy	Land Farm	Cont'd dirt		20	Envirotech	49	Harvey Johnson		
3/5	4	Smith Energy	Land Farm	Cont'd dirt		20	Envirotech	49	Harvey Johnson		
						92 @ 18.00					
					M.T.						
3/5	1	Land Farm	Smith	fill		20	Envirotech	49	Harvey Johnson		
3/5	2	Land Farm	Smith	fill		20	Envirotech	49	Harvey Johnson		
3/5	3	Land Farm	Smith	fill		20	Envirotech	49	Harvey Johnson		
3/5	4						289				
						10 @ 289					
					M.T.						

Bill of Lading

MONTH OF March 92

PHONE: (505) 632-0615

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT					TRANSPORTING COMPANY			
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE	
3-5	1	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Yarborough	
3-5	2	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Yarborough	
3-5	3	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Yarborough	
3-5	4	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Yarborough	
3-5	5	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Yarborough	
3-5	6	Smith Energy								
					100	18.00				
				M.T.						
3-5	1	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	Dave Yarborough	
3-5	2	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	Dave Yarborough	
3-5	3	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	Dave Yarborough	
3-5	4	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	Dave Yarborough	
3-5	5	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	Dave Yarborough	
						2.89				
					1000					
				M.T.						

Bill of Lading

MONTH OF March 92

PHONE: (505) 632-0615

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT						TRANSPORTING COMPANY			
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE		
3/6	1	Smith Energy	Land Farm	Cont'd dirt		20	Envirotech	49	Harvey Johnson		
3/6	2	Smith Energy	Land Farm	Cont'd dirt		20	Envirotech	49	Harvey Johnson		
3/6	3	Smith Energy	Land Farm	Cont'd dirt		20	Envirotech	49	Harvey Johnson		
3/6	4	Smith Energy	Land Farm	Cont'd dirt		20	Envirotech	49	Harvey Johnson		
3/6	5	Smith Energy	Land Farm	Cont'd dirt		20	Envirotech	49	Harvey Johnson		
3/6	6	Smith Energy	Land Farm	Cont'd dirt		20	Envirotech	49	Harvey Johnson		
3/6	1	Envirotech yard	Smith	fill		20	Envirotech	49	Harvey Johnson		
3/6	2	Envirotech yard	Smith	fill		20	Envirotech	49	Harvey Johnson		
3/6	3	Land Farm	Smith	fill		20	Envirotech	49	Harvey Johnson		
3/6	4	Land Farm	Smith	fill		20	Envirotech	49	Harvey Johnson		
3/6	5	Land Farm	Smith	fill		20	Envirotech	49	Harvey Johnson		
3/6	6	Land Farm	Smith	fill		20	Envirotech	49	Harvey Johnson		
3/6	7	Land Farm	Smith	fill		20	Envirotech	49	Harvey Johnson		
				M.T. 120 @ 18.00							
				M.T. 140 @ 2.89							
				M.T.							

Bill of Lading

PHONE: (505) 632-0615

MONTH OF March 92

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT					TRANSPORTING COMPANY			
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE	
3-10	1	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Korbmann	
3-10	2	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Korbmann	
3-10	3	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Korbmann	
3-10	4	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Korbmann	
3-10	5	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Korbmann	
3-10	6	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Korbmann	
						7.00				
						120.00				
				M.T.						
3-10	1	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	Dave Korbmann	
3-10	2	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	Dave Korbmann	
3-10	3	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	Dave Korbmann	
3-10	4	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	Dave Korbmann	
3-10	5	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	Dave Korbmann	
						100.00				
				M.T.						

Bill of Lading

PHONE: (505) 632-0615

MONTH OF March 92

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT						TRANSPORTING COMPANY			
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE		
3/10	1	Smith Energy	Land Farm	Cont'd dirt		20	Envirotech	49	Harvey Johnson		
3/10	2	Smith Energy	Land Farm	Cont'd dirt		20	Envirotech	49	Harvey Johnson		
3/10	3	Smith Energy	Land Farm	Cont'd dirt		20	Envirotech	49	Harvey Johnson		
3/10	4	Smith Energy	Land Farm	Cont'd dirt		20	Envirotech	49	Harvey Johnson		
3/10	5	Smith Energy	Land Farm	Cont'd dirt		20	Envirotech	49	Harvey Johnson		
3/10	6	Smith Energy	Land Farm	Cont'd dirt		20	Envirotech	49	Harvey Johnson		
					170	288.00					
3/10	1	Land Farm	Smith Energy	fill M.T.		20	Envirotech	49	Harvey Johnson		
3/10	2	Land Farm	Smith Energy	fill		20	Envirotech	49	Harvey Johnson		
3/10	3	Land Farm	Smith Energy	fill		20	Envirotech	49	Harvey Johnson		
3/10	4	Land Farm	Smith Energy	fill		20	Envirotech	49	Harvey Johnson		
3/10	5	Land Farm	Smith Energy	fill		20	Envirotech	49	Harvey Johnson		
3/10	6	Land Farm	Smith Energy	fill		20	Envirotech	49	Harvey Johnson		
				M.T.	170	289					

86308

Bill of Lading

MONTH OF March 92

~~1496~~ 1,496

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT					TRANSPORTING COMPANY			
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE	
3-11	1	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	<i>Daniel Korbmann</i>	
3-11	2	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	<i>Daniel Korbmann</i>	
3-11	3	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	<i>Daniel Korbmann</i>	
-11	4	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	<i>Daniel Korbmann</i>	
3-11	1	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	<i>Daniel Korbmann</i>	
3-11	2	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	<i>Daniel Korbmann</i>	
3-11	3	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	<i>Daniel Korbmann</i>	
3-11	4	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	<i>Daniel Korbmann</i>	
3-11	5	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	<i>Daniel Korbmann</i>	

Bill of Lading

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MONTH OF

March

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT					TRANSPORTING COMPANY		
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE
3/12/99	1	Landfarm	Smith Energy	BF		20	Envirotech	E-51	[Signature]
3/12/99	2	Smith Energy	Landfarm	Cont		20	[Signature]	E-51	[Signature]
3/12/99	3	Landfarm	Smith Energy	BF		20		E-51	[Signature]
3/12/99	4	Smith Energy	Landfarm	Cont		20		E-51	[Signature]
3/12/99	5	Landfarm	Smith Energy	BF		20		E-51	[Signature]
3/12/99	6	Smith Energy	Landfarm	Cont		20		E-51	[Signature]
3/12/99	7	Landfarm	Smith Energy	BF		20		E-51	[Signature]
3/12/99	8	Smith Energy	Landfarm	Cont		20		E-51	[Signature]
3/12/99	9	Landfarm	Smith Energy	BF		20		E-51	[Signature]
3/12/99	10	Smith Energy	Landfarm	Cont		20		E-51	[Signature]
3/12/99	11	Landfarm	Smith Energy	BF		20		E-51	[Signature]
3/12/99	12	Smith Energy	Landfarm	Cont		20		E-51	[Signature]
						18.00			
						120.00			
						120.00			

Bill of Lading

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MONTH OF March 92

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT					TRANSPORTING COMPANY		
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE
3/12	1	Smith Energy	Land Farm	Crtd fill concrete		20	Envirotech	49	Harvey Gibson
3/12	2	Smith Energy	Land Farm	Crtd concrete		20	Envirotech	49	Harvey Gibson
3/12	3	Smith Energy	Land Farm	Concrete		20	Envirotech	49	Harvey Gibson
						1000	Envirotech		
						1000	M.T.		
3/12	1	Land Farm	Smith	fill		20	Envirotech	49	Harvey Gibson
3/12	2	Land Farm	Smith	fill		20	Envirotech	49	Harvey Gibson
3/12	3	Land Farm	Smith	fill		20	Envirotech	49	Harvey Gibson
							M.T.		
						1000			

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MONTH OF March 92

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT					TRANSPORTING COMPANY				
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE		
3-12	1	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Yarber		
3-12	2	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Yarber		
3-12	3	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Yarber		
3-12	4	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Yarber		
3-12	5	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Yarber		
						18.00	M.T.				
						1.00					
3-12	1	Land Farm	Smith Energy	Fill/Dirt		20	Envirotech	E-52	Dave Yarber		
3-12	2	Land Farm	Smith Energy	Fill/Dirt		20	Envirotech	E-52	Dave Yarber		
3-12	3	Land Farm	Smith Energy	Fill/Dirt		20	Envirotech	E-52	Dave Yarber		
3-12	4	Land Farm	Smith Energy	Fill/Dirt		20	Envirotech	E-52	Dave Yarber		
3-12	5	Land Farm	Smith Energy	Fill/Dirt		20	Envirotech	E-52	Dave Yarber		
						10.00	289 M.T.				

Bill of Lading

MONTH OF March 92

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MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT					TRANSPORTING COMPANY			
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE	
3-13	1	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	<i>[Signature]</i>	
3-13	2	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	<i>[Signature]</i>	
3-13	3	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	<i>[Signature]</i>	
3-13	4	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	<i>[Signature]</i>	
						19,000 M.T.				
						800				
3-13	1	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	<i>[Signature]</i>	
3-13	2	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	<i>[Signature]</i>	
3-13	3	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	<i>[Signature]</i>	
						1000 M.T.				

Bill of Lading

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MONTH OF March 92

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT						TRANSPORTING COMPANY			
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE		
3/16	1	Smith Energy Land Farm	Smith	Cont'd		20	Envirotech	49	Harvey Johnson		
3/16	2	Smith Energy Land Farm	Smith	Cont'd		20	Envirotech	49	Harvey Johnson		
3/16	3	Smith Energy Land Farm	Smith	Cont'd		20	Envirotech	49	Harvey Johnson		
3/16	4	Smith Energy Land Farm	Smith	Cont'd		20	Envirotech	49	Harvey Johnson		
						18.00	M.T.				
						1.9000					
3/16	1	Land Farm	Smith	fill		20	Envirotech	49	Harvey Johnson		
3/16	2	Land Farm	Smith	fill		20	Envirotech	49	Harvey Johnson		
3/16	3	Land Farm	Smith	fill		20	Envirotech	49	Harvey Johnson		
3/16	4	Land Farm	Smith	fill		20	Envirotech	49	Harvey Johnson		
						80	SSA M.T.				

Bill of Lading

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MONTH OF March 92

MANIFEST		COMPLETE DESCRIPTION OF SHIPMENT						TRANSPORTING COMPANY			
DATE	No.	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE		
3-19	1	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Garbarough		
3-19	2	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Garbarough		
3-19	3	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Garbarough		
3-19	4	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Garbarough		
3-19	5	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Garbarough		
3-19	6	Smith Energy	Land Farm	Contaminated		20	Envirotech	E-52	Dave Garbarough		
						20	800 M.T.				
					120						
3-19	1	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	Dave Garbarough		
3-19	2	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	Dave Garbarough		
3-19	3	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	Dave Garbarough		
3-19	4	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	Dave Garbarough		
3-19	5	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	Dave Garbarough		
3-19	6	Land Farm	Smith Energy	Fill Dirt		20	Envirotech	E-52	Dave Garbarough		
						20	800 M.T.				

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MONTH OF March 2002

COMPLETE DESCRIPTION OF SHIPMENT				TRANSPORTING COMPANY					
MANIFEST	DATE	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	COMPANY	TRK #	DRIVER SIGNATURE
	3-20	Smith Energy	land farm	contained dirt		20	Envirotech	E49	Daniel Grover
	3-20	Smith Energy	land farm	contained dirt		20	Envirotech	E49	Daniel Grover
	3-20	Smith Energy	land farm	contained dirt		20	Envirotech	E49	Daniel Grover
	20	Smith Energy	land farm	contained dirt		20	Envirotech	E49	Daniel Grover
							Rob.M.T.		
	3-20	land farm	Smith	fill dirt		20	Envirotech	E49	Daniel Grover
	3-20	land farm	Smith	fill dirt		20	Envirotech	E49	Daniel Grover
	3-20	land farm	Smith	fill dirt		20	Envirotech	E49	Daniel Grover
	20	land farm	Smith	fill dirt		20	Envirotech	E49	Daniel Grover
							289 M.T.		
		82700	95-Gal						

