GW - 101

REPORTS

YEAR(S):

1994

ENVIROTECH INC.

GW-101

SEPTEMBER 1994 SAMPLING
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
FARMINGTON, NEW MEXICO

PREPARED FOR
THE NEW MEXICO
OIL CONSERVATION DIVISION

COMMISSIONED BY
MR. MAURICE STICKER
ENVIRONMENTAL AFFAIRS COORDINATOR
SMITH INTERNATIONAL INC.

September 1994 **Project No. 91410**

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

SEPTEMBER 1994 SAMPLING
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
SE/4, SE/4, SECTION 14, TOWNSHIP 29N, RANGE 13W
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO

PREPARED FOR
THE NEW MEXICO OIL CONSERVATION DIVISION

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MR. MAURICE STICKER
ENVIRONMENTAL AFFAIRS COORDINATOR
SMITH INTERNATIONAL INC.

PROJECT NO: 91410

SEPTEMBER 1994

ENVIROTECH INC.
ENVIRONMENTAL SCIENTISTS & ENGINEERS
5796 U.S. HIGHWAY 64-3014
FARMINGTON, NEW MEXICO

(505) 632-0615

SEPTEMBER 1994 SAMPLING
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
SE/4, SE/4, SECTION 14, TOWNSHIP 29N, RANGE 13W
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO

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DECEMBER 2, 1994 **PROJECT NO: 91410**

SEPTEMBER 1994 SAMPLING
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO

INTRODUCTION

Envirotech Inc. has been retained by Smith International, Inc., to obtain closure at three spill remediation sites located on the subject property. This property was the staging yard for Smith Energy Services. This sampling report is prepared for the New Mexico Oil Conservation Division (NMOCD), continuing a monitoring program of select monitoring wells. This sampling plan follows a request by Mr. William C. Olson of the NMOCD in a letter dated November 17, 1992 to Mr. Maurice Sticker of Smith International Inc (attached). The long term monitoring requested is to verify cleanup of the sites described in the following previously prepared closure reports:

- 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)
- Acid UST & Sump Closure Supplemental Report, Smith International, Inc., 2198 East Bloomfield Highway, Farmington, New Mexico (July 1992)
- Groundwater Assessment Supplemental Closure Report (October 1992)

All of the closure reports have been submitted to the NMOCD.

From December 1991 to June 1992, Environtech Inc. conducted an extensive abatement program for site closures. Three sites of principle concern were involved at the subject property. These 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 reclamation action consisted of excavation and removal of the hydrocarbon contaminated soils for treatment. The excavations were extended to depths on the order of 28 feet (approximate depth of groundwater) with a trackhoe excavator. Approximately 13,000 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 immediate area around each site. 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, and/or the NMED for all areas of concern.

As part of the pre-abatement assessment, three groundwater monitor wells were installed on the property. Water samples analyzed from these wells indicated that the groundwater quality had not been significantly impacted. Considering the extent of the soil contamination, the NMOCD and NMED requested the installation of three additional groundwater monitoring wells and sampling to verify the groundwater quality. The analyses from the additional wells also indicated the residual hydrocarbon contamination to be well below the current regulatory limits. Well locations are designated on the site plan located in the Appendix A.

PURPOSE & SCOPE OF SERVICES

The purpose of this monitoring plan is to complete the closure of those areas under the NMOCD's jurisdiction, the waste acid underground storage tank, and the wash bay solids disposal area sites at the Smith International property. This sampling program is designed to complete a long term monitoring evaluation of the reclamation operations.

The scope of services that Envirotech provides includes the following:

A. Monitor wells MW-4 and MW-5 were sampled in March and September of 1993. Thereafter, these monitor wells are to be annually sampled during the month of September. Future sampling requirements will be reviewed by the NMOCD.

B. Groundwater samples from the monitor wells are to be analyzed for pH, Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX). Samples are to be analyzed by Envirotech Labs using EPA method 8020 for BTEX.

C. The results of the monitor well sampling will be submitted to the OCD within 60 days of the sampling event.

SAMPLING & ANALYSIS RESULTS

Monitor wells #4 and #5 were purged by bailing until a minimum of three (3) well volumes had been removed. After purging, water samples were collected in laboratory supplied 40 ml VOA vials and preserved with 5% $HgCl_2$. The water samples were placed on ice and transported to Envirotech's laboratory for BTEX analysis using

United States Environmental Protection Agency (USEPA) Method 8020. Sampling was done according to USEPA SW-846 protocol.

A summary of the results of the laboratory analyses for the samples taken September 29, 1994 are presented in Table 1. Previous laboratory results for samples taken August 13, 1992, March 30, and September 21, 1993 are also included for comparison. Table 2 contains field test results.

Table 1
Groundwater Monitoring
Laboratory Results (μg/L)
Smith International Inc.
2198 East Bloomfield Highway
Farmington, New Mexico

WELL #/DATE	BENZENE	TOLUENE	ETHYLBENZENE	T-XYLENE
MW-4 (9-29-94)	N/D	N/D	N/D	N/D
MW-4 (9-21-93)	N/D	N/D	N/D	0.5
MW-4 (3-30-93)	N/D	N/D	N/D	N/D
MW-4 (8-13-92)	N/D	5.4	4.1	N/D
MW-5 (9-29-94)	N/D	N/D	N/D	N/D
MW-5 (9-21-93)	N/D	N/D	N/D	N/D
MW-5 (3-30-93)	N/D	N/D	N/D	N/D
MW-5 (8-13-92)	N/D	5.1	3.7	3.2

Notes:
1) N/D = Not detected @ method detection limits.
2) T-XYLENE = Total xylene including p,m, and o-xylene.
3) μg/L. = Micrograms per liter equivalent to parts per billion.
4) Test results per EPA Method 8020.

Table 2
Groundwater Monitoring
Field Test Results (09-29-94)
Smith International Inc.
2198 East Bloomfield Highway
Farmington, New Mexico

WELL #/DATE	OVM	pH	μMHO/CM	TEMP (°C)
MW-4 (9-29-94)	1	7.2	700	18.5
MW-4 (9-21-93)	N/D	7.1	1100	19
MW-4 (3-30-93)	N/D	6.9	190	16
MW-5 (9-29-94)	3	7.3	400	18.5
MW-5 (9-21-93)	N/D	7.3	600	19
MW-5 (3-30-93)	N/D	7.3	250	16

Notes:
1) OVM - Organic Vapor Meter reading from well headspace prior to sampling.
2) μMHO = Conductivity measurement
3) N/D = Not detected

All laboratory sample results including QA/QC documentation are included in the Appendix.

The September 20, 1994 sampling event completes eight quarters of sampling for the subject site. Benzene has not been detected at regulatory limits since monitoring began. The other BTEX components have either been not detected or at detection limits. For this reason Envirotech requests that the New Mexico Oil Conservation Division grant closure of this site.

CLOSURE AND LIMITATIONS

The scope of Envirotech's services was limited to sampling of the designated monitor wells for BTEX analysis and field testing. All work has been performed in accordance with generally accepted professional practices in geotechnical/environmental engineering and hydrogeology.

This report has been prepared for the exclusive use of the New Mexico Oil Conservation Division, and Mr. Maurice Sticker of Smith Environmental, as it pertains to the subject site located at Farmington, New Mexico.

I hereby certify that the work described for this quarterly monitoring report was performed under my direct supervision, and that I am personally familiar with the nature of the work, the results of the monitoring, and the contents of this report.

Respectfully submitted,
Envirotech Inc.

Reviewed by:

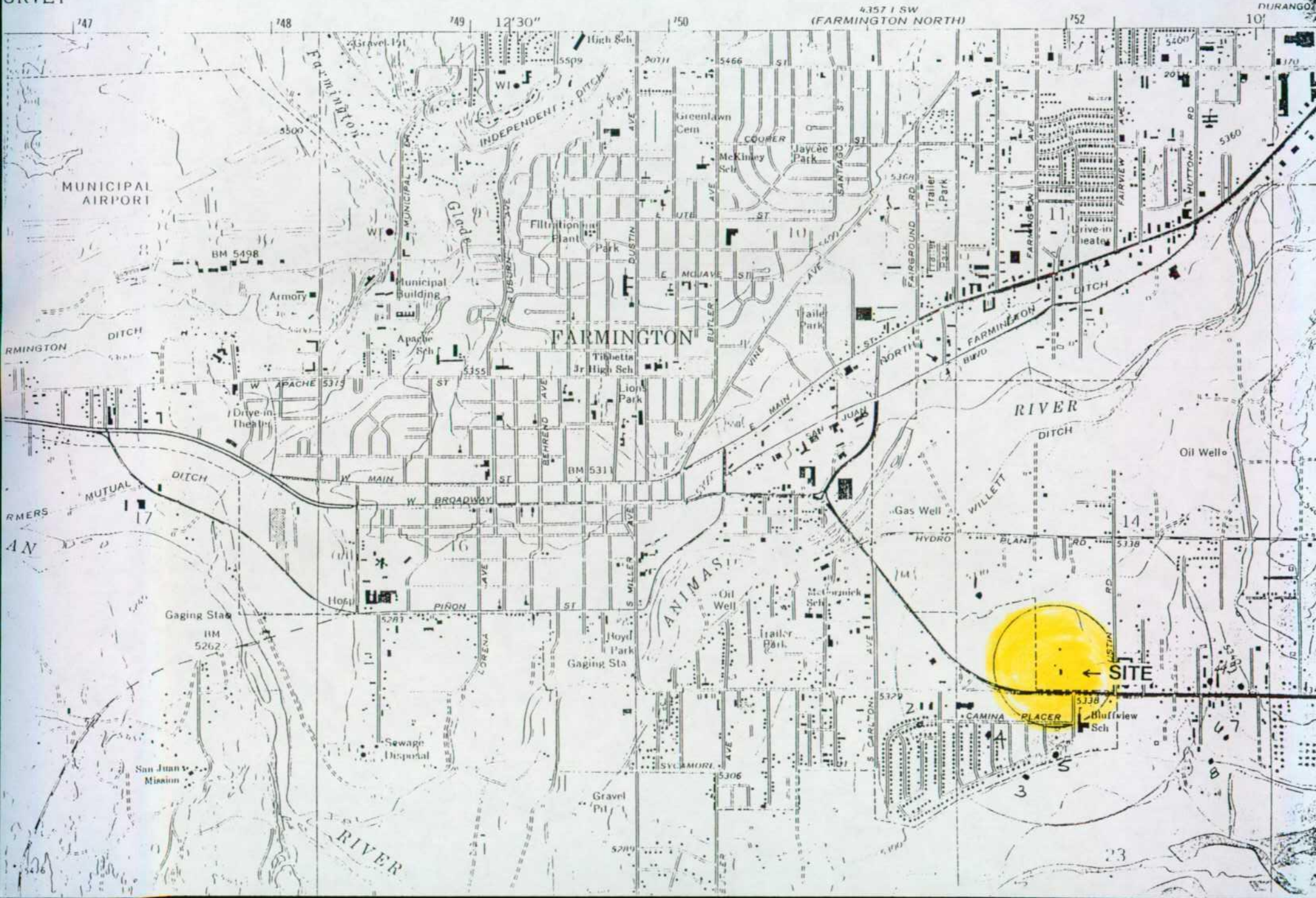
Harlan M. Brown
Staff Geologist

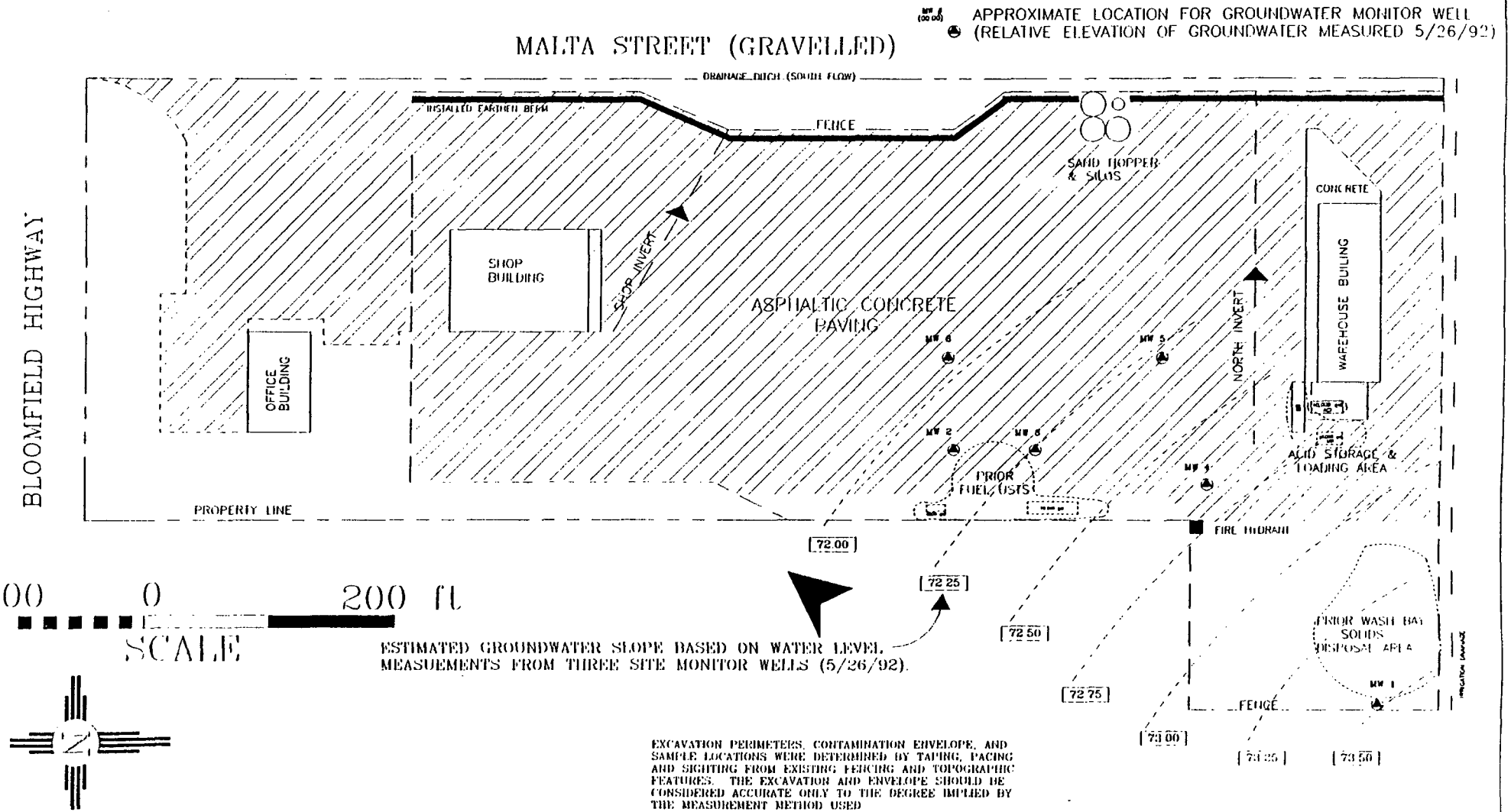
Morris D. Young
President

Appendix: Vicinity Map
Site Plan
Laboratory Results
QA/QC Documentation
Chain-of-Custody

HMB/hmb

TES
IE INTERIOR
URVEY





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

PHASE 5 SAMPLING PROJECT NO: 91410

ENVIROTECH INC.

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

SITE PLAN & GROUNDWATER MONITOR WELL LOCATIONS

SHEET: 1 DRAWN: MKL

REVISED: REO REV. DATE: 4/93

9/410

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

November 17, 1992

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

CERTIFIED MAIL
RETURN RECEIPT NO. P-667-242-310

Mr. Maurice Sticker
Environmental Affairs Coordinator
Smith International, Inc.
16740 Hardy St.
Houston, Texas 72205-0068

RE: SITE REMEDIATION AND GROUND WATER ASSESSMENT
SMITH INTERNATIONAL, INC.
FARMINGTON, NEW MEXICO

Dear Mr. Sticker:

The New Mexico Oil Conservation Division (OCD) has completed a comprehensive review of the following documents submitted by Envirotech, Inc. on behalf of Smith International, Inc. regarding soil remediation activities and ground water quality investigations at the Smith International, Inc. Farmington, New Mexico service company facility:

1. April 1992 "SURFACE IMPOUNDMENT CLOSURE REPORT, WASH BAY SOLIDS DISPOSAL AREA".

2. May 1992 "ACID UST AND SUMP CLOSURE REPORT".

3. June 1992 "OFFSITE DRAINAGE CLOSURE REPORT".

4. July 1992 "ACID UST & SUMP CLOSURE SUPPLEMENTAL REPORT, SMITH INTERNATIONAL, INC., 2198 EAST BLOOMFIELD HIGHWAY, FARMINGTON, NEW MEXICO".

5. October 1992 "GROUNDWATER ASSESSMENT SUPPLEMENTAL, CLOSURE REPORT, SMITH INTERNATIONAL, INC., FARMINGTON, NEW MEXICO".

The remedial activities for contaminated soils related to Smith International's waste disposal activities, as contained in the above reports, meet the OCD's requirements in effect at the time of closure of these disposal units. However, since the October 1992 report documented the presence of low level ground water contaminants in the monitor wells downgradient of both the waste acid underground storage tank and the wash bay solids disposal area the OCD requires the following long term monitoring:

1. Monitor wells MW-4 and MW-5 will be sampled in March and September of 1993. Thereafter, these monitor wells will be annually sampled during the month of September. Upon renewal of the facility's ground water discharge plan the sampling requirements will be reviewed.

2. Ground water samples from the monitor wells will be analyzed for pH, Benzene, Toluene, Ethylbenzene and Xylenes using EPA approved laboratory methods.

3. The results of the monitor well sampling will be submitted to OCD within 60 days of the sampling event.

Please be advised that OCD approval does not relieve you of liability should future sampling show ground water to be contaminated in excess of New Mexico Water Quality Control Commission ground water standards as a result of these closed disposal areas.

If you have any questions, please contact me at (505) 827-5885.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc: Denny Foust, OCD Aztec Office
Michael K. Lane, Envirotech, Inc.

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 International	Project #:	91410
Sample ID:	MW-4	Date Reported:	10-04-94
Laboratory Number:	7943mtbe	Date Sampled:	09-29-94
Sample Matrix:	Water	Date Received:	09-29-94
Preservative:	HgCl & Cool	Date Analyzed:	10-03-94
Condition:	Cool & Intact	Analysis Requested:	MTBE

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	ND	0.3
Toluene	ND	0.7
Ethylbenzene	ND	0.4
p,m-Xylene	ND	0.5
o-Xylene	ND	0.5

SURROGATE RECOVERIE	Parameter	Percent Recovery
	Trifluorotoluene	90 %
	Bromofluorobenzene	92 %

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992

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: Smith International Inc
2198 E. Bloomfield HWY
Farmington, NM., 87410

Analyst

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 International	Project #:	91410
Sample ID:	MW-5	Date Reported:	10-04-94
Laboratory Number:	7944mtbe	Date Sampled:	09-29-94
Sample Matrix:	Water	Date Received:	09-29-94
Preservative:	HgCl & Cool	Date Analyzed:	10-03-94
Condition:	Cool & Intact	Analysis Requested:	MTBE

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	ND	0.3
Toluene	ND	0.7
Ethylbenzene	ND	0.4
p,m-Xylene	ND	0.5
o-Xylene	ND	0.5

SURROGATE RECOVERIE	Parameter	Percent Recovery
	Trifluorotoluene	89 %
	Bromofluorobenzene	92 %

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992

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: Smith International Inc
2198 E. Bloomfield HWY
Farmington, NM., 87410

Analyst

Review

ENVIROTECH LABORATORIES

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

QUALITY ASSURANCE/QUALITY CONTROL

DOCUMENTATION

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:	NA	Project #:	NA
Sample ID:	Laboratory Blank	Date Reported:	10-04-94
Laboratory Number:	1003am.blk	Date Sampled:	NA
Sample Matrix:	Water	Date Received:	NA
Preservative:	NA	Date Analyzed:	10-03-94
Condition:	NA	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Methyl-t-Butyl Ether	ND	0.2
Benzene	ND	0.3
Toluene	ND	0.7
Ethylbenzene	ND	0.4
p,m-Xylene	ND	0.5
o-Xylene	ND	0.5

SURROGATE RECOVERIES:

Parameter	Percent Recovery
Trifluorotoluene	86 %
Bromofluorobenzene	87 %

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

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:

Analyst

Review

ENVIROTECH LABS

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

** QUALITY ASSURANCE EPA METHOD 8020
MATRIX SPIKE - AROMATIC VOLATILE ORGANICS

Client:	NA	Project #:	NA
Sample ID:	Sample Spike	Date Reported:	10-04-94
Laboratory Number:	7941mtbe	Date Sampled:	09-29-94
Sample Matrix:	Water	Date Received:	09-29-94
Analysis Requested:	BTEX	Date Analyzed:	10-03-94
Condition:	NA		

Parameter	Sample Result (ug/L)	Spike Added (ug/L)	Spiked Sample Result (ug/L)	Det. Limit (ug/L)	Percent Recovery	SW-846 % Rec. Accept. Range
Methyl-t-Butyl Ether	0.3	20	0.0	0.2	69	
Benzene	ND	20	16.9	0.3	84	39-150
Toluene	ND	20	17.6	0.7	86	46-148
Ethylbenzene	ND	20	21.4	0.4	105	32-160
p,m-Xylene	ND	20	21.7	0.5	107	46-148
o-Xylene	ND	20	22.5	0.5	111	46-148

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

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:

Roy L Griffin
Analyst

Stacy W. Sendler
Review

9410

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
Smith International Inc.	2198 E. Bloomfield Hwy, Farmington, N.M. 87401
Sampler: (Signature)	Chain of Custody Tape No.

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX	MTBE	EDB	EDC	Naphthalene		Remarks
MW-2	9-29-94	10:45	7941	Water	3	✓	✓	✓	✓	✓		
MW-6	9-29-94	12:00	7942	WATER	3	✓	✓	✓	✓	✓		
MW-4	9-29-94	13:00	7943	WATER	2	✓						
MW-5	9-29-94	13:50	7944	WATER	2	✓						

Resampled. Naphthalene Sent to Lab

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
	9-29-94	14:45		9/30/94	10 AM
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

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

ENVIROTECH INC.

GW-101

SEPTEMBER 1994 SAMPLING
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
FARMINGTON, NEW MEXICO

PREPARED FOR
THE NEW MEXICO
ENVIRONMENTAL DEPARTMENT

COMMISSIONED BY
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SEPTEMBER 1994 SAMPLING
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SEPTEMBER 1994

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ENVIRONMENTAL SCIENTISTS & ENGINEERS
5796 U.S. HIGHWAY 64-3014
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SEPTEMBER 1994 SAMPLING
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
SE/4, SE/4, SECTION 14, TOWNSHIP 29N, RANGE 13W
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO

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APPENDIX

DECEMBER 2, 1994 **PROJECT NO: 91410**

PHASE 5
SEPTEMBER 1994 SAMPLING
SMITH INTERNATIONAL INC.
2198 EAST BLOOMFIELD HIGHWAY
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO

INTRODUCTION

Envirotech Inc. has been retained by Smith International, Inc., to monitor groundwater quality at three spill remediation sites located on the subject property at 2198 East Bloomfield Highway. This property was the staging yard for Smith Energy Services. The site is currently unoccupied. This sampling report is prepared for the New Mexico Environmental Department (NMED), completing a two year monitoring program of select monitoring wells. The monitoring program, described in a March 9, 1993 Phase 5 Workplan, was verbally approved by NMED on March 26,1993. A Workplan addendum dated March 31, 1993 incorporating additional NMED requested laboratory analyses was formally approved by NMED in a June 30, 1993 letter. This sampling parallels a New Mexico Oil Conservation Division (NMOCD) sampling requested in a letter to Smith International in a letter dated November 17, 1992. The long term monitoring is designed to verify cleanup of the site described in the following previously prepared closure reports:

- UST Closure Report, Diesel & Gasoline System (March 1992)
- Groundwater Assessment Supplemental Closure Report (October 1992)

All of the closure reports have been submitted by Smith International Inc. to the NMED.

From December 1991 to June 1992, Envirotech Inc. conducted an extensive abatement program for site closures. Three sites of principle concern were involved at the subject property. These 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 reclamation action consisted of excavation and removal of the hydrocarbon contaminated soils for treatment. The excavations were extended to depths on the order of 28 feet (approximate depth of groundwater) with a trackhoe excavator. Approximately 13,000 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 immediate area around each site. 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, and/or the NMED for all areas of concern.

As part of the pre-abatement assessment, three groundwater monitor wells were installed on the property. Water samples analyzed from these wells indicated that the groundwater quality had not been significantly impacted. Considering the extent of the soil contamination, the NMOCD and NMED requested the installation of three additional groundwater monitoring wells and sampling to verify the groundwater quality. The analyses from the additional wells also indicated the residual hydrocarbon contamination to be well below the current regulatory limits. Monitor well locations are designated on the site plan located in the Appendix A.

PURPOSE & SCOPE OF SERVICES

The purpose of this monitoring plan is to complete the closure of the UST site at the Smith International property. This sampling program is designed to complete a 2-year evaluation of the reclamation operations as described in the Phase 5 Workplan.

The scope of services that Envirotech provides includes the following:

A. Collect water samples from two down-gradient monitoring wells, MW-2 and MW-6, as shown on the attached site diagram. Sampling was scheduled to be done in March and September of 1993 and again in September of 1994. Sampling requirements beyond the initial sampling events will be reviewed by the NMED.

B. Samples are to be analyzed by Envirotech Labs for Benzene, Toluene, Ethylbenzene, Xylenes (BTEX), MTBE, EDB, EDC and Naphthalene.

C. Report on sampling results.

SAMPLING & ANALYSIS RESULTS

Monitor wells #2 and #6 were purged by bailing until a minimum of three (3) well volumes had been removed. After purging, water samples were collected in laboratory supplied 40 ml VOA vials and preserved with 5% $HgCl_2$. An additional one liter (1L) sample was collected in a laboratory supplied glass container for the Naphthalene test. Field samples were collected simultaneously with laboratory samples for field testing of temperature, conductivity, and pH. The laboratory water samples were placed on ice and transported to Envirotech's laboratory for BTEX and

MTBE analysis using United States Environmental Protection Agency (USEPA) Method 8020. EDB and EDC analyses were done using USEPA Method 8010, and Naphthalene analyses were done using USEPA Method 8100. Sampling was done according to USEPA SW-846 protocol.

A summary of the results of the laboratory analyses for the samples collected September 29, 1994 are presented in Table 1. Due to samples extending beyond the USEPA recommended holding time monitor wells MW-2 and MW-6 were revisited October 20, 1994 to collect new one liter samples for naphthalene analysis. Sampling, storage and shipment were per USEPA SW-846 protocol. These samples were delivered to Inter-Mountain Laboratories for analysis. Results of these analyses are presented in Table 1 as well. Laboratory results for previous sampling events are also included for comparison purposes. Table 2 contains field test results.

Table 1
Groundwater Monitoring
Laboratory Results (μg/L)
Smith International Inc.
2198 East Bloomfield Highway
Farmington, New Mexico

WELL #/DATE	BENZENE	TOLUENE	ETHYL-BENZENE	TOTAL XYLENES	MTBE	EDB	EDC	NAPHTHA-LENE
MW-2 (10-20-94)	--	--	--	--	--	--	--	6.0
MW-2 (09-29-94)	N/D	N/D	N/D	N/D	0.3	2.0	N/D	--
MW-2 (9-21-93)	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D
MW-2 (3-30-93)	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D
MW-2 (5-26-92)	N/D	N/D	N/D	N/D	NT	NT	NT	NT
MW-6 (9-29-94)	N/D	N/D	0.6	2.2	N/D	N/D	7.8	--
MW-6 (10-20-94)	--	--	--	--	--	--	--	N/D
MW-6 (9-21-93)	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D
MW-6 (3-30-93)	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D
MW-6 (8-13-92)	N/D	7.9	N/D	2.7	NT	NT	NT	NT

Notes:
1) N/D = Not detected @ method detection limits.
2) TOTAL XYLENES = Total xylenes including p,m, and o-xylene.
3) μg/L. = Micrograms/liter equivalent to parts per billion.
4) MTBE = Methyl-tertiary-butyl-ether
5) EDB = Ethylene dibromide
6) EDC = 1,2 dichloroethane
7) Test results by EPA Method 8020 (BTEX) 8010 (EDB, EDC, MTBE), & 8100 (Naphthalene).
8) NT = Not Tested

Table 2
Groundwater Monitoring
Field Test Results (09-29-94)
Smith International Inc.
2198 East Bloomfield Highway
Farmington, New Mexico

WELL #/DATE	OVM	pH	μMHO/CM	TEMP (°C)
MW-2 (10-20-94)	25	6.8	600	18
MW-2 (09-29-94)	2	7.3	500	18.5
MW-2 (9-21-93)	N/D	7.1	1100	19
MW-2 (3-30-93)	N/D	6.9	190	16
MW-6 (10-20-94)	1	7.3	600	19
MW-6 (09-29-94)	1	7.3	500	18
MW-6 (9-21-93)	N/D	7.3	600	19
MW-6 (3-30-93)	N/D	7.3	250	16

Notes:
1) OVM - Organic Vapor Meter reading from well headspace prior to sampling.
2) μMHO = Conductivity measurement
3) N/D = Not detected

All laboratory sample results including QA/QC documentation are included in the Appendix B.

USEPA SW-846 protocol was followed for the September 29, 1994 sampling event. In addition to the data recorded above MW-2 had a sheen on the surface of the bailed water and the bailer was slippery to hold.

This report completes work tasks outlined in the March 1993 Phase 5 Workplan, Smith International Inc., Farmington, San Juan County, New Mexico which was prepared for the New Mexico Environmental Department.

CLOSURE AND LIMITATIONS

The scope of Envirotech's services was limited to sampling of the designated monitor wells for BTEX analysis and field testing. All work has been performed in accordance with generally accepted professional practices in geotechnical/environmental engineering and hydrogeology.

This report has been prepared for the exclusive use of the New Mexico Environmental Division and Mr. Maurice Sticker of Smith Environmental as it pertains to the subject site located at Farmington, New Mexico.

I hereby certify that the work described for this quarterly monitoring report was performed under my direct supervision, and that I am personally familiar with the nature of the work, the results of the monitoring, and the contents of this report.

Respectfully submitted,
Envirotech Inc.

Reviewed by:

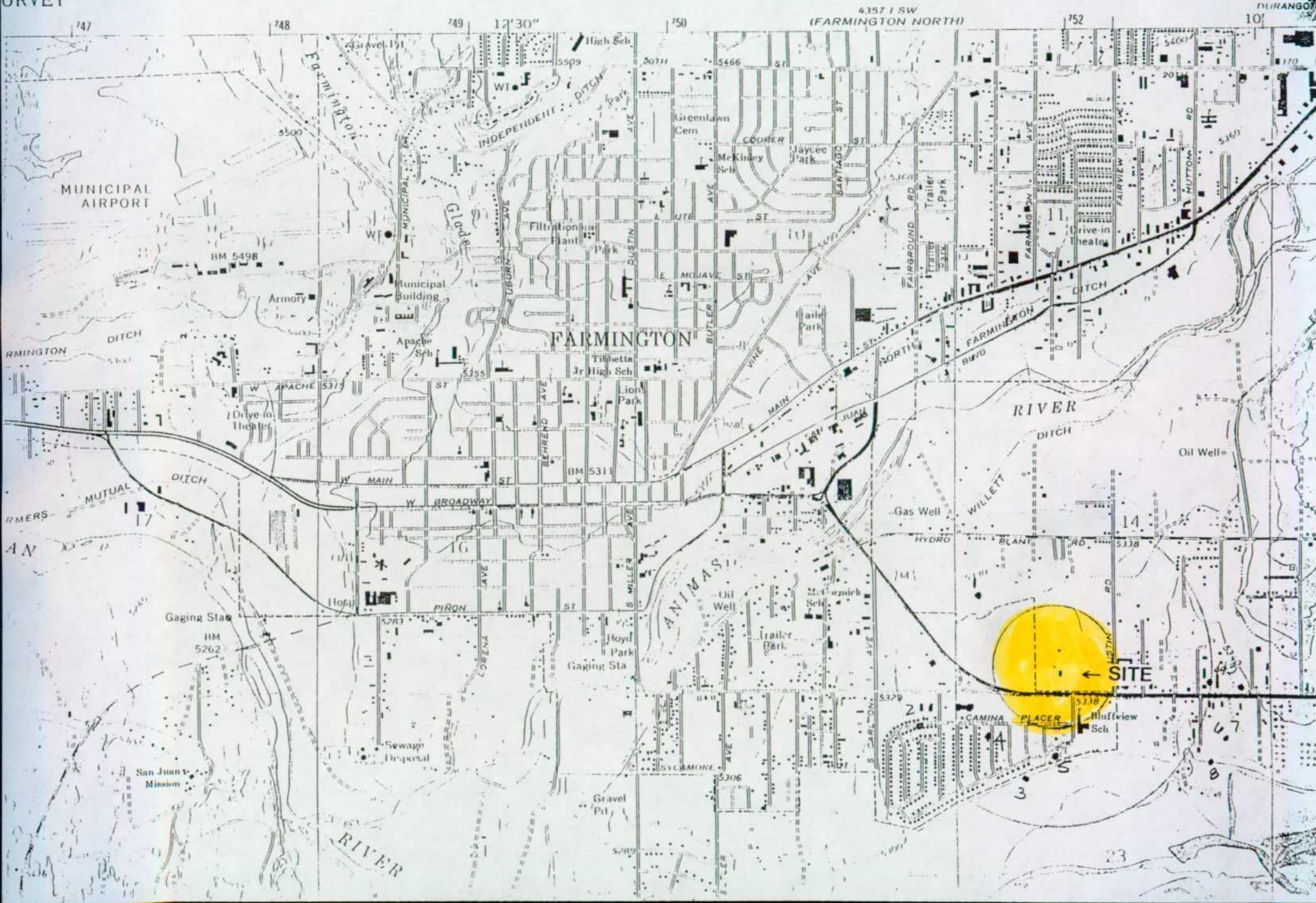
Harlan M. Brown
Staff Geologist

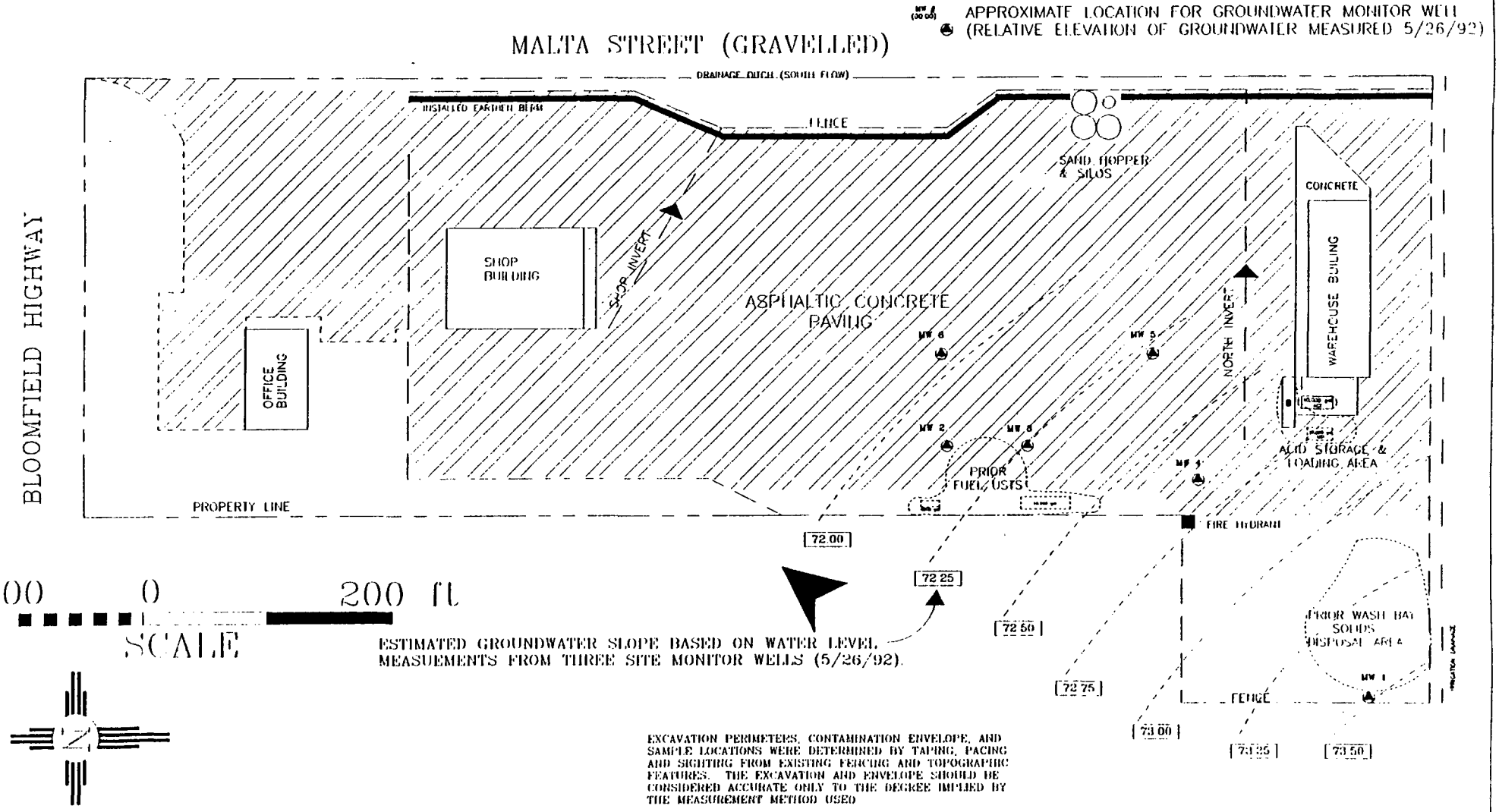
Morris D. Young
President

Appendix: Vicinity Map
Site Plan
Laboratory Results
QA/QC Documentation
Chain-of-Custody

HMB/hmb

TES
IE INTERIOR
URVEY





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

PHASE 5 SAMPLING PROJECT NO: 91410

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

SITE PLAN & GROUNDWATER MONITOR WELL LOCATIONS

SHEET: 1 DRAWN: MKL

REVISED: REO REV. DATE: 4/93

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 International	Project #:	91410
Sample ID:	MW-2	Date Reported:	10-04-94
Laboratory Number:	7941mtbe	Date Sampled:	09-29-94
Sample Matrix:	Water	Date Received:	09-29-94
Preservative:	HgCl & Cool	Date Analyzed:	10-03-94
Condition:	Cool & Intact	Analysis Requested:	MTBE

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Methyl-t-Butyl Ether	0.3	0.2
Benzene	ND	0.3
Toluene	ND	0.7
Ethylbenzene	ND	0.4
p,m-Xylene	ND	0.5
o-Xylene	ND	0.5

SURROGATE RECOVERIE

Parameter	Percent Recovery
Trifluorotoluene	90 %
Bromofluorobenzene	89 %

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992

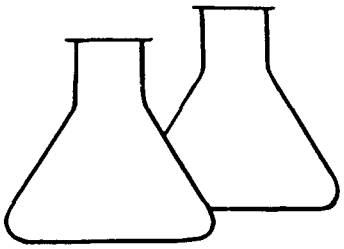
Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Smith International Inc
2198 E. Bloomfield HWY
Farmington, NM., 87410

Analyst

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 International	Project #:	91410
Sample ID:	MW-6	Date Reported:	10-04-94
Laboratory Number:	7942mtbe	Date Sampled:	09-29-94
Sample Matrix:	Water	Date Received:	09-29-94
Preservative:	HgCl & Cool	Date Analyzed:	10-03-94
Condition:	Cool & Intact	Analysis Requested:	MTBE

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Methyl-t-Butyl Ether	ND	0.2
Benzene	ND	0.3
Toluene	ND	0.7
Ethylbenzene	0.6	0.4
p,m-Xylene	1.0	0.5
o-Xylene	1.2	0.5

SURROGATE RECOVERIE	Parameter	Percent Recovery
	Trifluorotoluene	90 %
	Bromofluorobenzene	100 %

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992

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: Smith International Inc
2198 E. Bloomfield HWY
Farmington, NM., 87410

Analyst

Review

ENVIROTECH LABS

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

EPA METHOD 8010
HALOGENATED VOLATILE ORGANICS

Client:	Smith Inter.	Project #:	91410
Sample ID:	MW-2	Date Reported:	10-04-94
Laboratory Number:	7941EDB/EDC	Date Sampled:	09-29-94
Chain of Custody	3946	Date Received:	09-29-94
Sample Matrix:	Water	Date Analyzed:	10-03-94
Preservative:	Cool	Analysis Requested:	EDB/EDC
Condition:	Cool and Intact		

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
1,1-Dichloroethane	11.4	0.1
1,2-Dichloroethane	ND	0.1
1,2-Dibromoethane	2.0	0.1

SURROGATE RECOVERIES:

Parameter	Percent Recovery
Bromofluorobenzene	114 %
Bromochloromethane	99 %

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8010, Halogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

ND - Parameter not detected at the stated detection limit.

Comments: Smith International 2198 E. Bloomfield HWY Farmington, NM

Analyst

Review

ENVIROTECH LABS

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

EPA METHOD 8010
HALOGENATED VOLATILE ORGANICS

Client:	Smith Inter.	Project #:	91410
Sample ID:	MW-6	Date Reported:	10-04-94
Laboratory Number:	7942EDB/EDC	Date Sampled:	09-29-94
Chain of Custody	3946	Date Received:	09-29-94
Sample Matrix:	Water	Date Analyzed:	10-03-94
Preservative:	Cool	Analysis Requested:	EDB/EDC
Condition:	Cool and Intact		

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
1,1-Dichloroethane	12.4	0.1
1,2-Dichloroethane	7.8	0.1
1,2-Dibromoethane	ND	0.1

SURROGATE RECOVERIES:

Parameter	Percent Recovery
Bromofluorobenzene	113 %
Bromochloromethane	116 %

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8010, Halogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

ND - Parameter not detected at the stated detection limit.

Comments: Smith International 2198 E. Bloomfield HWY
Farmington, NM

Analyst

Review

ENVIROTECH LABORATORIES

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

QUALITY ASSURANCE/QUALITY CONTROL

DOCUMENTATION

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:	NA	Project #:	NA
Sample ID:	Laboratory Blank	Date Reported:	10-04-94
Laboratory Number:	1003am.blk	Date Sampled:	NA
Sample Matrix:	Water	Date Received:	NA
Preservative:	NA	Date Analyzed:	10-03-94
Condition:	NA	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Methyl-t-Butyl Ether	ND	0.2
Benzene	ND	0.3
Toluene	ND	0.7
Ethylbenzene	ND	0.4
p,m-Xylene	ND	0.5
o-Xylene	ND	0.5

SURROGATE RECOVERIES:

Parameter	Percent Recovery
Trifluorotoluene	86 %
Bromofluorobenzene	87 %

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

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:

Analyst

Review

ENVIROTECH LABS

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

** QUALITY ASSURANCE EPA METHOD 8020
MATRIX SPIKE - AROMATIC VOLATILE ORGANICS

Client:	NA	Project #:	NA
Sample ID:	Sample Spike	Date Reported:	10-04-94
Laboratory Number:	7941mtbe	Date Sampled:	09-29-94
Sample Matrix:	Water	Date Received:	09-29-94
Analysis Requested:	BTEX	Date Analyzed:	10-03-94
Condition:	NA		

Parameter	Sample Result (ug/L)	Spike Added (ug/L)	Spiked Sample Result (ug/L)	Det. Limit (ug/L)	Percent Recovery	SW-846 % Rec. Accept. Range
Methyl-t-Butyl Ether	0.3	20	0.0	0.2	69	
Benzene	ND	20	16.9	0.3	84	39-150
Toluene	ND	20	17.6	0.7	86	46-148
Ethylbenzene	ND	20	21.4	0.4	105	32-160
p,m-Xylene	ND	20	21.7	0.5	107	46-148
o-Xylene	ND	20	22.5	0.5	111	46-148

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

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:

Analyst

Review

ENVIROTECH LABS

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

EPA METHOD 8010
HALOGENATED VOLATILE ORGANICS

Client:	NA	Project #:	NA
Sample ID:	lab blank	Date Reported:	10-04-94
Laboratory Number:	1003AM.BLK	Date Sampled:	NA
Sample Matrix:	Water	Date Received:	NA
Preservative:	NA	Date Analyzed:	10-03-94
Condition:	NA	Analysis Requested:	EDC-EDB

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
1,1-Dichloroethane	ND	6.0
1,2-Dichloroethane	ND	0.1
1,2-Dibromoethane	ND	0.1

SURROGATE RECOVERIES:

Parameter	Percent Recovery
Bromofluorobenzene	85 %
Bromochloromethane	109 %

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8010, Halogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

ND - Parameter not detected at the stated detection limit.

Comments: QC/QC for samples 7941 & 7942

Analyst

Review

ENVIROTECH LABS

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

EPA METHOD 8010
HALOGENATED VOLATILE ORGANICS

Client:		Project #:	91410
Sample ID:	Duplicate sample	Date Reported:	10-04-94
Laboratory Number:	7941DUP.	Date Sampled:	09-29-94
Chain of Custody	3946	Date Received:	09-29-94
Sample Matrix:	Water	Date Analyzed:	10-03-94
Preservative:	Cool	Analysis Requested:	EDB/EDC
Condition:	Cool and Intact		

Parameter	Concentration (ug/L)	Concentration (ug/L)	Percent Difference
1,1-Dichloroethane	14.0	11.4	18.6
1,2-Dichloroethane	ND	ND	0.0
1,2-Dibromoethane	1.1	2.0	45.0

SURROGATE RECOVERIES:

Parameter	Percent Recovery
Bromofluorobenzene	86 %
Bromochloromethane	104 %

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8010, Halogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

ND - Parameter not detected at the stated detection limit.

Comments: Smith International 2198 E. Bloomfield HWY
Farmington, NM
QA/QC for sample 7941 & 7942

Roy L Tuffin
Analyst

Stacy W. Sendler
Review

ENVIROTECH LABS

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

** QUALITY ASSURANCE EPA METHOD 8010
MATRIX SPIKE - HALOGENATED VOLATILE ORGANICS

Client:		Project #:	NA
Sample ID:	Matrix Spike	Date Reported:	10-04-94
Laboratory Number:	7941EDB-EDC	Date Sampled:	09-29-94
Sample Matrix:	Water	Date Received:	09-29-94
Analysis Requested:	EDB-EDC	Date Analyzed:	10-03-94
Condition:	cool		

Parameter	Sample Result (ug/L)	Spike Added (ug/L)	Spiked Sample Result (ug/L)	Det. Limit (ug/L)	Percent Recovery	SW-846 % Rec. Accept. Range
1,1-Dichloroethane	11.4	20.0	16.9	0.1	54	39-150
1,2-Dichloroethane	ND	20.0	18.2	0.1	91	46-148
1,2-Dibromoethane	2.0	20.0	15.9	0.1	72	32-160

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

ND - Parameter not detected at the stated detection limit.

Comments: QA/QC for 7941 & 7942

Analyst

Review

3946

91410

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
Smith International Inc.	2198 E. Bloomfield Hwy, Farmington, N.M. 87410

Sampler: (Signature)	Chain of Custody Tape No.
Harlan M Brown	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX	MTBE	EDB	EDC	Naphthalene		Remarks
MW-2	9-29-94	10:45	7941	Water	3	✓	✓	✓	✓	✓		
MW-6	9-29-94	12:00	7942	WATER	3	✓	✓	✓	✓	✓		
MW-4	9-29-94	13:00	7943	WATER	2	✓						
MW-5	9-29-94	13:50	7944	WATER	2	✓						

Re-sampled. Naphthalene Sent to Lab

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Harlan M Brown	9-29-94	14:45	Roy Hoffman	9/30/94	10 OC
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

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

Inter·Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

EPA Method 8260
VOLATILE ORGANIC COMPOUNDS

Client:	**ENVIROTECH, INC.**		
Project :	Smith International/Farmington, NM	Report Date:	11/03/94
Sample ID:	MW 2	Date Sampled:	11/02/94
Laboratory ID:	1980/0694G02040	Date Received:	11/03/94
Sample Matrix:	Water	Date Extracted:	11/03/94
Condition:	**Intact, pH<2, Head Space**	Date Analyzed:	11/03/94
Preservative:	Cool, HCl		

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Naphthalene	6	5

ND - Analyte not detected at stated limit of detection

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Dibromofluoromethane	101%	86 - 118%
Toluene-d8	102%	88 - 110%
Bromofluorobenzene	91%	86 - 115%

Reference: Method 8260: Gas Chromatography / Mass Spectrometry for Volatile Organics: Capillary Column Technique. Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental Protection Agency, Final Update I,1992.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

EPA Method 8260
VOLATILE ORGANIC COMPOUNDS

Client:	**ENVIROTECH, INC.**		
Project :	Smith International/Farmington, NM	Report Date:	11/03/94
Sample ID:	MW 6	Date Sampled:	11/02/94
Laboratory ID:	1981/0694G02041	Date Received:	11/03/94
Sample Matrix:	Water	Date Extracted:	11/03/94
Condition:	Intact, pH<2	Date Analyzed:	11/03/94
Preservative:	Cool, HCl		

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Naphthalene	ND	5

ND - Analyte not detected at stated limit of detection

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Dibromofluoromethane	100%	86 - 118%
Toluene-d8	101%	88 - 110%
Bromofluorobenzene	93%	86 - 115%

Reference: Method 8260: Gas Chromatography / Mass Spectrometry for Volatile Organics: Capillary Column Technique. Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental Protection Agency, Final Update I,1992.

Comments:

Analyst

Review

Inter-Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

QUALITY CONTROL REPORT - METHOD BLANK
EPA METHOD 8260 - VOLATILE ORGANIC COMPOUNDS

Sample ID: Method Blank
Laboratory ID: MB1103
Sample Matrix: Water

Report Date: 11/03/94
Date Extracted: 11/03/94
Date Analyzed: 11/03/94

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	5
Bromobenzene	ND	5
Bromochloromethane	ND	5
Bromodichloromethane	ND	5
Bromoform	ND	5
Bromomethane	ND	10
n-Butylbenzene	ND	10
sec-Butylbenzene	ND	5
tert-Butylbenzene	ND	5
Carbon tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	10
Chloroform	ND	5
Chloromethane	ND	10
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
Dibromochloromethane	ND	5
1,2-Dibromo-3-chloropropane	ND	10
1,2-Dibromoethane	ND	5
Dibromomethane	ND	5
1,2-Dichlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
Dichlorodifluoromethane	ND	10
1,1-Dichloroethane	ND	5
1,2-Dichloroethane	ND	5
1,1-Dichloroethene	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
1,2-Dichloropropane	ND	5
1,3-Dichloropropane	ND	5
2,2-Dichloropropane	ND	5
1,1-Dichloropropene	ND	5
cis-1,3-Dichloropropene	ND	5
trans-1,3-Dichloropropene	ND	5

ND - Analyte not detected at stated limit of detection

Inter-Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

EPA METHOD 8260 - VOLATILE ORGANIC COMPOUNDS

Sample ID: Method Blank
Laboratory ID: MB1103

Report Date: 11/03/94
Date Sampled: 11/03/94
Date Analyzed: 11/03/94

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Ethylbenzene	ND	5
Hexachlorobutadiene	ND	10
Isopropylbenzene	ND	5
p-Isopropyltoluene	ND	5
Methylene chloride	ND	5
Naphthalene	ND	10
n-Propylbenzene	ND	5
Styrene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,2,3-Trichlorobenzene	ND	10
1,2,4-Trichlorobenzene	ND	10
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Trichlorofluoromethane	ND	5
1,2,3-Trichloropropane	ND	5
1,2,4-Trimethylbenzene	ND	5
1,3,5-Trimethylbenzene	ND	5
Vinyl chloride	ND	5
Xylenes (total)	ND	5

ND - Analyte not detected at stated limit of detection

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Dibromofluoromethane	103%	86 - 118%
Toluene-d8	100%	88 - 110%
Bromofluorobenzene	92%	86 - 115%

Inter-Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

QUALITY CONTROL REPORT - METHOD BLANK

EPA METHOD 8260 - VOLATILE ORGANIC COMPOUNDS

ADDITIONAL DETECTED COMPOUNDS

Sample ID: Method Blank
Laboratory ID: MB1103

Report Date: 11/03/94
Date Sampled: 11/03/94
Date Analyzed: 11/03/94

Tentative Identification	Retention Time (Minutes)	Concentration * (ug/L)
None detected at reportable levels		

* - Concentration calculated using assumed Relative Response Factor = 1

Reference: Method 8260: Volatile Organic Compounds by Gas Chromatography / Mass Spectrometry: Capillary Column Technique. Test Methods for Evaluating Solid Waste, SW - 846, United States Environmental Protection Agency, Final Update I, July 1992.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

QUALITY CONTROL REPORT - METHOD BLANK
EPA METHOD 8260 - VOLATILE ORGANIC COMPOUNDS

Sample ID: Method Blank
Laboratory ID: MB1104
Sample Matrix: Water

Report Date: 11/04/94
Date Extracted: 11/04/94
Date Analyzed: 11/04/94

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	5
Bromobenzene	ND	5
Bromochloromethane	ND	5
Bromodichloromethane	ND	5
Bromoform	ND	5
Bromomethane	ND	10
n-Butylbenzene	ND	10
sec-Butylbenzene	ND	5
tert-Butylbenzene	ND	5
Carbon tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	10
Chloroform	ND	5
Chloromethane	ND	10
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
Dibromochloromethane	ND	5
1,2-Dibromo-3-chloropropane	ND	10
1,2-Dibromoethane	ND	5
Dibromomethane	ND	5
1,2-Dichlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
Dichlorodifluoromethane	ND	10
1,1-Dichloroethane	ND	5
1,2-Dichloroethane	ND	5
1,1-Dichloroethene	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
1,2-Dichloropropane	ND	5
1,3-Dichloropropane	ND	5
2,2-Dichloropropane	ND	5
1,1-Dichloropropene	ND	5
cis-1,3-Dichloropropene	ND	5
trans-1,3-Dichloropropene	ND	5

ND - Analyte not detected at stated limit of detection

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EPA METHOD 8260 - VOLATILE ORGANIC COMPOUNDS

Sample ID: Method Blank
Laboratory ID: MB1104

Report Date: 11/04/94
Date Sampled: 11/04/94
Date Analyzed: 11/04/94

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Ethylbenzene	ND	5
Hexachlorobutadiene	ND	10
Isopropylbenzene	ND	5
p-Isopropyltoluene	ND	5
Methylene chloride	ND	5
Naphthalene	ND	10
n-Propylbenzene	ND	5
Styrene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,2,3-Trichlorobenzene	ND	10
1,2,4-Trichlorobenzene	ND	10
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Trichlorofluoromethane	ND	5
1,2,3-Trichloropropane	ND	5
1,2,4-Trimethylbenzene	ND	5
1,3,5-Trimethylbenzene	ND	5
Vinyl chloride	ND	5
Xylenes (total)	ND	5

ND - Analyte not detected at stated limit of detection

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Dibromofluoromethane	97%	86 - 118%
Toluene-d8	99%	88 - 110%
Bromofluorobenzene	94%	86 - 115%

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QUALITY CONTROL REPORT - METHOD BLANK

EPA METHOD 8260 - VOLATILE ORGANIC COMPOUNDS

ADDITIONAL DETECTED COMPOUNDS

Sample ID: Method Blank
Laboratory ID: MB1104

Report Date: 11/04/94
Date Sampled: 11/04/94
Date Analyzed: 11/04/94

Tentative Identification	Retention Time (Minutes)	Concentration * (ug/L)
None detected at reportable levels		

* - Concentration calculated using assumed Relative Response Factor = 1

Reference: Method 8260: Volatile Organic Compounds by Gas Chromatography / Mass Spectrometry: Capillary Column Technique. Test Methods for Evaluating Solid Waste, SW - 846, United States Environmental Protection Agency, Final Update I, July 1992.

Comments:

Analyst

Ramona R. Dennis
Review

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QUALITY CONTROL REPORT - MATRIX SPIKE / SPIKE DUPLICATE ANALYSIS

EPA Method 8260 - VOLATILE ORGANIC COMPOUNDS

Laboratory ID:	0694G02041	Report Date:	11/04/94
Sample Matrix:	Water	Date Sampled:	11/02/94
Condition:	Intact, pH<2	Date Received:	11/03/94
Preservative:	Cool, HCl	Date Analyzed:	11/04/94

MATRIX SPIKE ANALYSIS

Analyte	Spiked Sample Result (ug/L)	Sample Result (ug/L)	Spike Added (ug/L)	Percent Recovery	QC Limits Recovery
Naphthalene	138	ND	100	138%	50 - 150

MATRIX SPIKE DUPLICATE ANALYSIS

Analyte	Duplicate Result (ug/L)	Percent Recovery	Original Spike Result (ug/L)	RPD	QC Limits RPD	QC Limits Rec.
Naphthalene	142	142%	138%	3%	20%	50 - 150

ND - Analyte not detected at stated limit of detection

Quality Control:

Surrogate	Spike Recovery	Duplicate Recovery	Recovery Limits
Dibromofluoromethane	100%	99%	86 - 118%
Toluene-d8	99%	100%	88 - 110%
Bromofluorobenzene	92%	90%	86 - 115%

Reference: Method 8260: Gas Chromatography / Mass Spectrometry for Volatile Organics: Capillary Column Technique. Test Methods for Evaluating Solid Waste, SW - 846, United States Environmental Protection Agency, Final Update I, July 1992.

Comments:

Analyst

Ramona R. Dennis
Review

CHAIN OF CUSTODY RECORD

imi
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Client/Project Name	Project Location	ANALYSES / PARAMETERS
ENVIROTECH, INC. Smith INTERNATIONAL	2198 E BROADWAY Farmington	
Sampler: (Signature) Harlan W Brown	**Chain of Custody Tape No.**	**Remarks**

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	Napth TAKEN ✓				
MW-2	10.20.94	1300		Water	1	✓				
MW 6	10.20.94	1355		Water	1	✓				

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Harlan W Brown	10.20.94	15:30	Anna Schaefer	10/20/94	5:30
Relinquished by: (Signature)	**Date**	**Time**	**Received by: (Signature)**	**Date**	**Time**
Relinquished by: (Signature)	**Date**	**Time**	**Received by laboratory: (Signature)**	**Date**	**Time**

Inter-Mountain Laboratories, Inc.

☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945
☐ 1714 Phillips Circle, Gillette, Wyoming 82716, Telephone (307) 682-8945
☐ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737
☐ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450
☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945
☐ 3304 Longmire Drive, College Station, TX 77845, Telephone (409) 774-4999

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