

3R - 228

REPORTS

DATE:

2001

Certified Mail: #7001 1940 0003 1553 8513

February 28, 2002

RECEIVED

MAR 04 2002

Mr. William C. Olson
New Mexico Oil Conservation Division
1220 St. Francis Dr.
Santa Fe, NM 87504

ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

RE: 2001 Pit Project Annual Groundwater Report

Dear Mr. Olson:

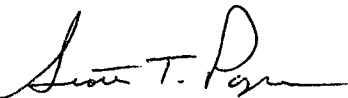
In accordance with reporting requirements, El Paso Field Services (EPFS) has enclosed annual reports for the 30 remaining groundwater impacted sites that were identified during our pit closure project of 1994 / 1995.

EPFS has organized the 30 reports (Volumes IA, IB, II and III), reports by land type. Volume IA and IB contain annual reports for sites found on Federal land. Volume II contains Non Federal sites and Volume III contains sites on Navajo land. Of the 30 reports submitted EPFS is requesting closure of three sites located on Navajo lands. Of the three Navajo sites submitted for closure OCD has closed the Charley Pah #4 and the John Charles #8. The Rementa et al #1 has not been closed by either agency. EPFS understands closure of groundwater sites on Navajo land falls under jurisdiction of the Navajo Environmental Protection Agency and original documents have been submitted to them for review. Other Navajo sites are included in the report for your information.

The Jaquez Com. C #1 and Jaquez Com. E #1 site is not included in with this report and will be submitted by the required deadline of April 1, 2002.

If you have any questions concerning the enclosed reports, please call me at (505) 599-2124.

Sincerely,



Scott T. Pope P.G.
Senior Environmental Scientist

xc: Mr. Denny Foust, NMOCD, Aztec - w / enclosures; **Certified Mail # 7001 1940 0003 1553 8506**
Mr. Bill Liesse, BLM - w / enclosures (federal sites only), **Certified Mail # 7001 1940 0003 1553 8520**

SAN JUAN BASIN PIT CLOSURES

San Juan Basin, New Mexico

**El Paso Field Services
Pit Project Groundwater Sites
Annual Report
Volume IB-Federal Sites**

RECEIVED

MAR 04 2002

**ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION**

March 2002

Prepared for

**El Paso Field Services
Farmington, New Mexico**



MWH

MONTGOMERY WATSON HARZA

EL PASO FIELD SERVICES ANNUAL GROUNDWATER REPORT

FEDERAL SITES VOLUME IB

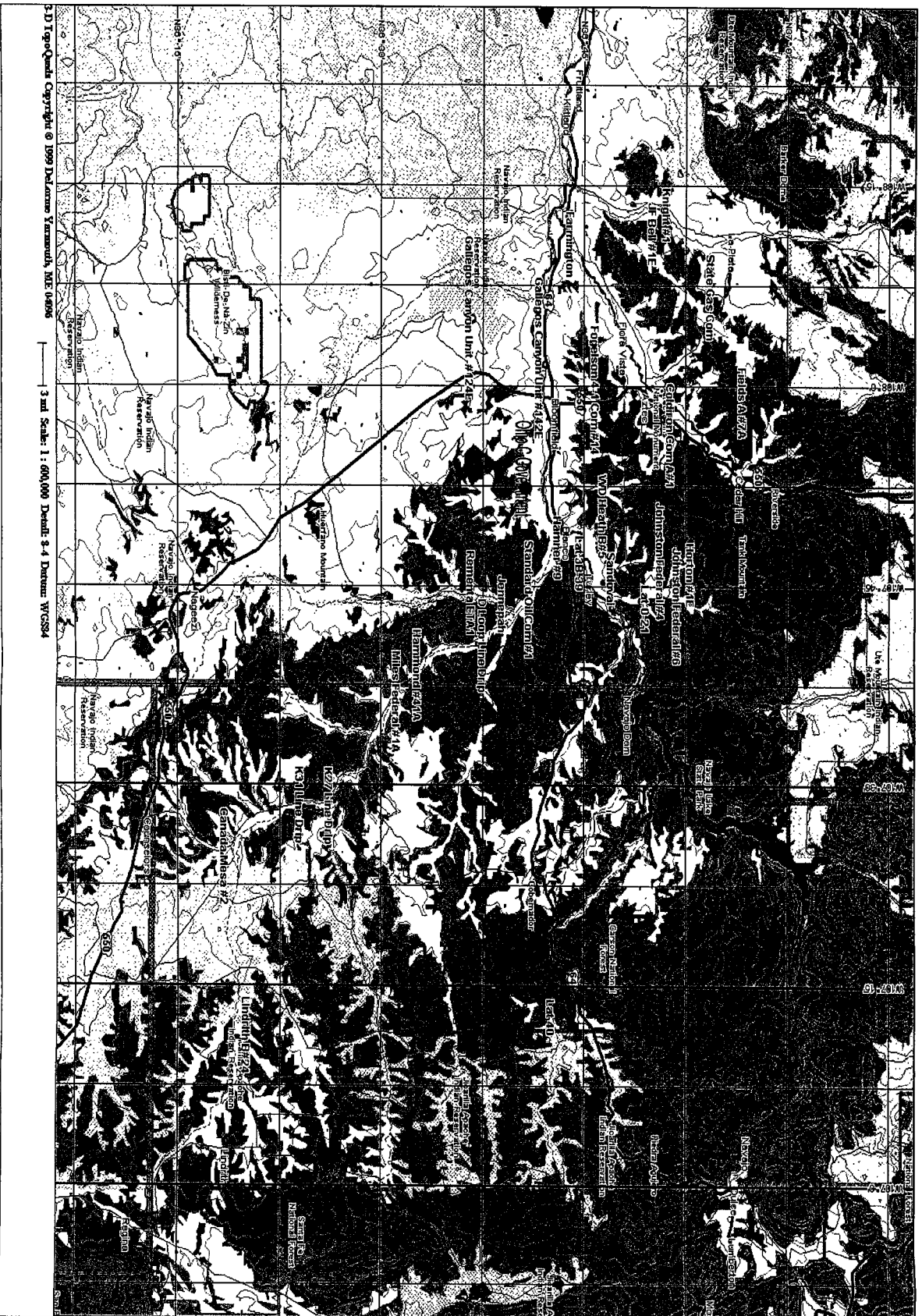
TABLE OF CONTENTS

Site Map

METER or LINE ID	SITE NAME	TOWNSHIP	RANGE	SECTION	UNIT
97213	Hamner #9	29N	09W	20	A
72890	Ohio C Government #3	28N	11W	26	P
LD169	D Loop Line Drip	28N	08W	33	I
LD174	LAT LD 40	28N	04W	13	H
89894	Hammond #41A	27N	08W	25	O
94810	Miles Fed 1A	26N	07W	5	F
LD072	K27 LD072	25N	06W	4	E
87640	Canada Mesa #2	24N	06W	24	I



Groundwater Site Map



EPFS GROUNDWATER PITS

2001 ANNUAL GROUNDWATER REPORT

Ohio C Government #3

Meter Code 72890

SITE DETAILS

Legals Twn: 28N Rng: 11W Sec: 26 UNIT: P
NMOCD Haz Ranking 40 Land Type: Federal Operator: Marathon Oil Co

PREVIOUS ACTIVITIES

Site Assessment: Sep-94 Excavation Sep-94 Soil Boring: Sep-95 Monitor Well: May-97
Geoprobe: Nov-96 Additional MWs: Nov-99 Downgradient MW's: NA Replace MW: NA
PSH Removal Initiated: NA ORC Nutrient Injection NA Re-Excavation: Sep-95
Quarterly Initiated Jun-97 Annual Initiated NA Quarterly Resumed: NA

2001 ACTIVITY

OCD rescinded previous closure decision and EPFS continues monitoring.

Groundwater monitoring - Quarterly monitoring continuing through 2001.

SUMMARY TABLES AND GRAPHS

Groundwater analytical data are presented in Table 1 BTEX. Copies of the laboratory data sheets and the associated quality assurance/quality control data are presented as Attachment 1. Included and BTEX Data graphs for MW-1 through MW-5.

SITE MAP

Site Maps with BTEX concentrations and groundwater elevations are attached.

GEOLOGIC LOGS AND WELL COMPLETION DIAGRAMS

No drilling activities were performed at this site for 2001.

DISPOSITION OF GENERATED WASTES

No wastes were generated at this site for 2001.

EPFS GROUNDWATER PITS 2001 ANNUAL GROUNDWATER REPORT

Ohio C Government #3

Meter Code: 72890

ISOCONCENTRATION MAPS

No isoconcentration maps were generated at this site.

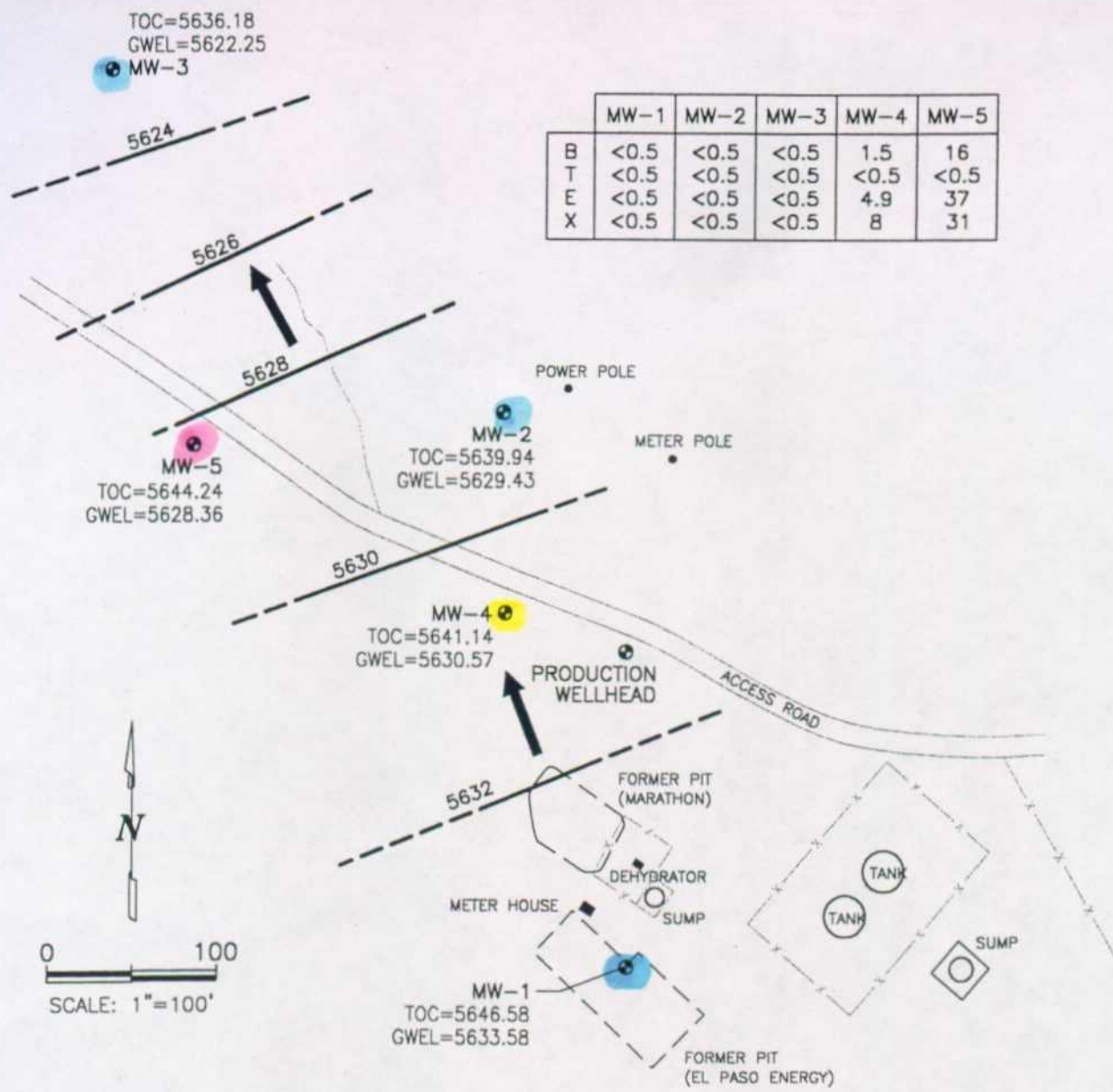
CONCLUSIONS

EPFS requested closure at this site with data presented in the 2000 San Juan Basin Annual Groundwater Monitoring Report. OCD stated that pit closure and groundwater activities at this site appeared satisfactory; however, OCD requested missing information on soil remediation on July 18, 2001. Marathon Oil Company submitted downgradient sampling data that indicated a single downgradient monitoring well, MW-5, slightly exceeded NMWQCC standards (MW-5 detected 12 ppb benzene, the NMWQCC standard is 10 ppb benzene). OCD subsequently reopened this site for further monitoring.

EPFS performed an active pit excavation and remediation program as documented in prior Annual Groundwater Monitoring Reports. Groundwater monitoring confirmed that EPFS had completed remediation activities to NMWQCC standards.

RECOMMENDATIONS

- > EPFS will contact Marathon Oil Company. We hope to cooperatively continue quarterly sampling of MW-5 at this site until BTEX constituents fall below NMWQCC standards for four consecutive quarters. Sample MW-1 through -4 at closure.
- > EPFS will sample MW-1 through MW-4 at closure.
- > Following OCD approval for closure, monitoring wells will be abandoned using OCD approved guidelines.



	MW-1	MW-2	MW-3	MW-4	MW-5
B	<0.5	<0.5	<0.5	1.5	16
T	<0.5	<0.5	<0.5	<0.5	<0.5
E	<0.5	<0.5	<0.5	4.9	37
X	<0.5	<0.5	<0.5	8	31

LEGEND

- MW-1 Approximate Monitoring Well Location and Number
- Fence Line
- B Benzene ($\mu\text{g/L}$)
- T Toluene ($\mu\text{g/L}$)
- E Ethylbenzene ($\mu\text{g/L}$)
- X Total Xylenes ($\mu\text{g/L}$)
- 5628 Potentiometric Surface (Approximate & Assumed Where Dashed)
- Direction of Groundwater Flow (Estimated)
- GWEL Groundwater Elevation (FT Above Mean Sea Level Unless Noted Otherwise)
- TOC Top of Casing

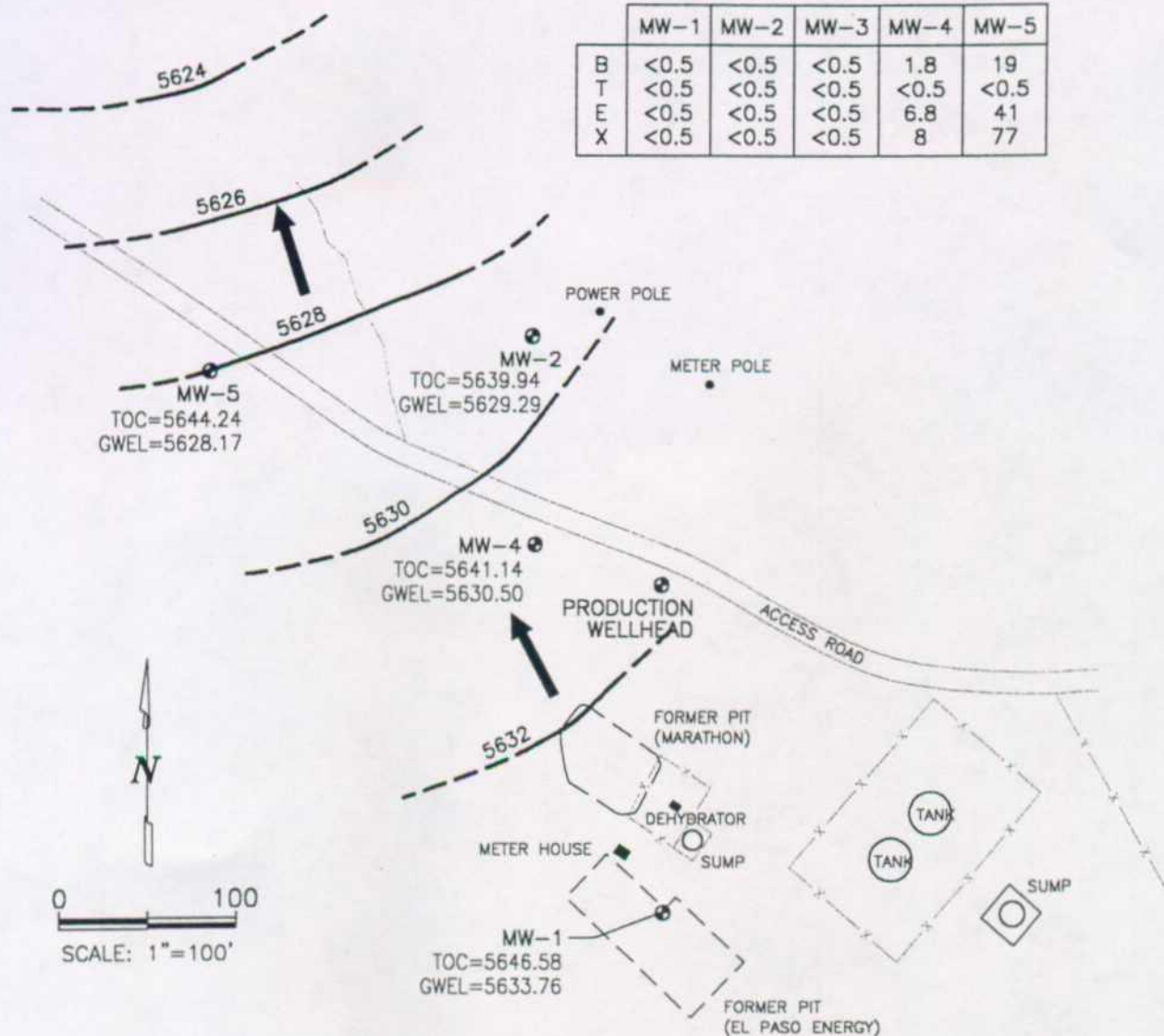
OHIO "C" GOVERNMENT 3, METER 72890
MARCH, 2001

GROUNDWATER SITES
EL PASO FIELD SERVICES

FIGURE 1

TOC=5636.18
GWEL=5622.21
● MW-3

	MW-1	MW-2	MW-3	MW-4	MW-5
B	<0.5	<0.5	<0.5	1.8	19
T	<0.5	<0.5	<0.5	<0.5	<0.5
E	<0.5	<0.5	<0.5	6.8	41
X	<0.5	<0.5	<0.5	8	77



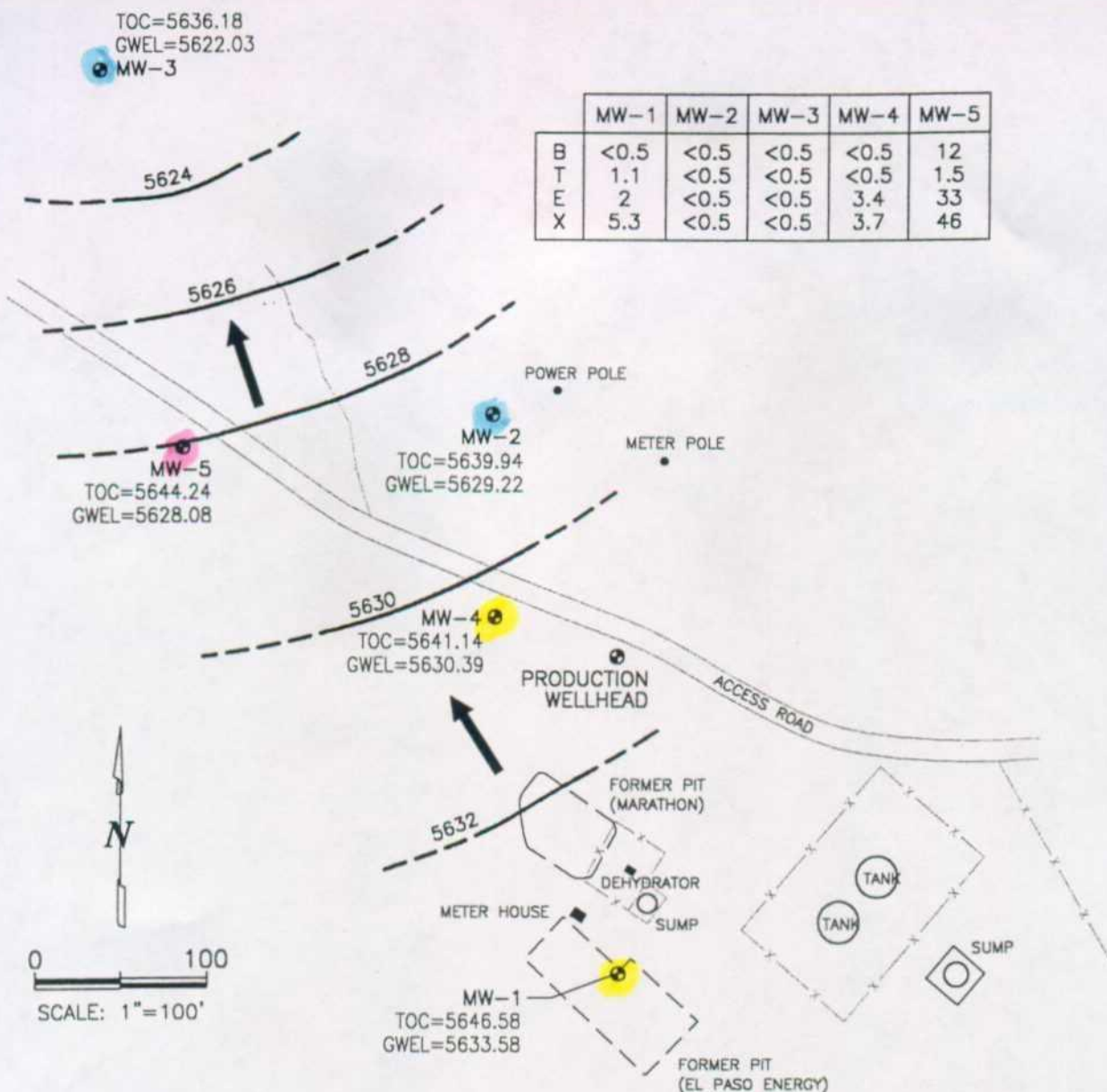
LEGEND

● MW-1	Approximate Monitoring Well Location and Number	5628	Potentiometric Surface (Approximate & Assumed Where Dashed)
— x — x —	Fence Line	→	Direction of Groundwater Flow (Estimated)
B	Benzene ($\mu\text{g/L}$)	GWEL	Groundwater Elevation (FT Above Mean Sea Level Unless Noted Otherwise)
T	Toluene ($\mu\text{g/L}$)	TOC	Top of Casing
E	Ethylbenzene ($\mu\text{g/L}$)		
X	Total Xylenes ($\mu\text{g/L}$)		

OHIO "C" GOVERNMENT 3, METER 72890
JUNE, 2001

GROUNDWATER SITES
EL PASO FIELD SERVICES

FIGURE 2



	MW-1	MW-2	MW-3	MW-4	MW-5
B	<0.5	<0.5	<0.5	<0.5	12
T	1.1	<0.5	<0.5	<0.5	1.5
E	2	<0.5	<0.5	3.4	33
X	5.3	<0.5	<0.5	3.7	46

LEGEND

● MW-1	Approximate Monitoring Well Location and Number	5628	Potentiometric Surface (Approximate & Assumed Where Dashed)
— x — x —	Fence Line	→	Direction of Groundwater Flow (Estimated)
B	Benzene ($\mu\text{g/L}$)	GWEL	Groundwater Elevation (FT Above Mean Sea Level Unless Noted Otherwise)
T	Toluene ($\mu\text{g/L}$)	TOC	Top of Casing
E	Ethylbenzene ($\mu\text{g/L}$)		
X	Total Xylenes ($\mu\text{g/L}$)		

OHIO "C" GOVERNMENT 3, METER 72890
SEPTEMBER, 2001

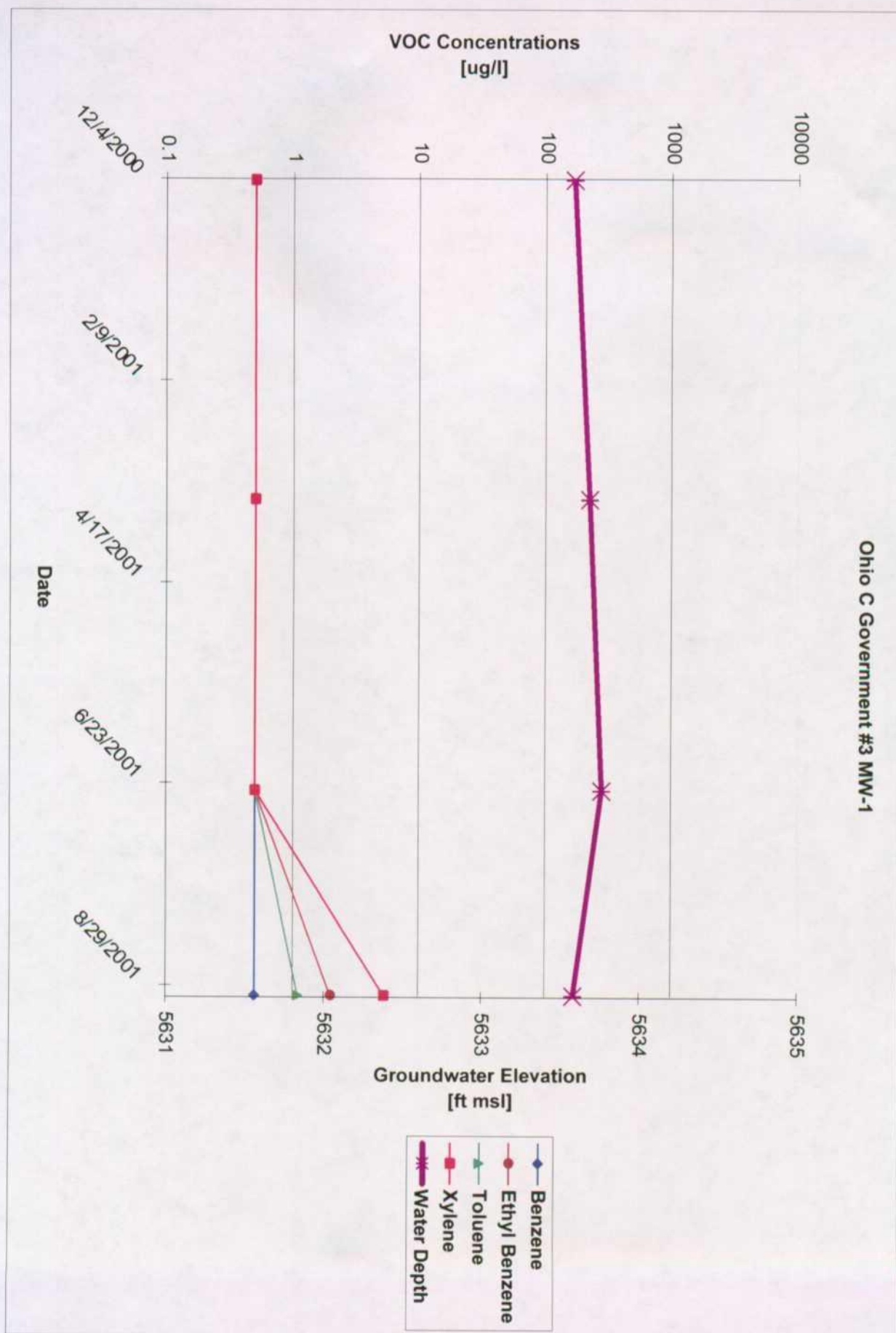
GROUNDWATER SITES
EL PASO FIELD SERVICES

FIGURE 3

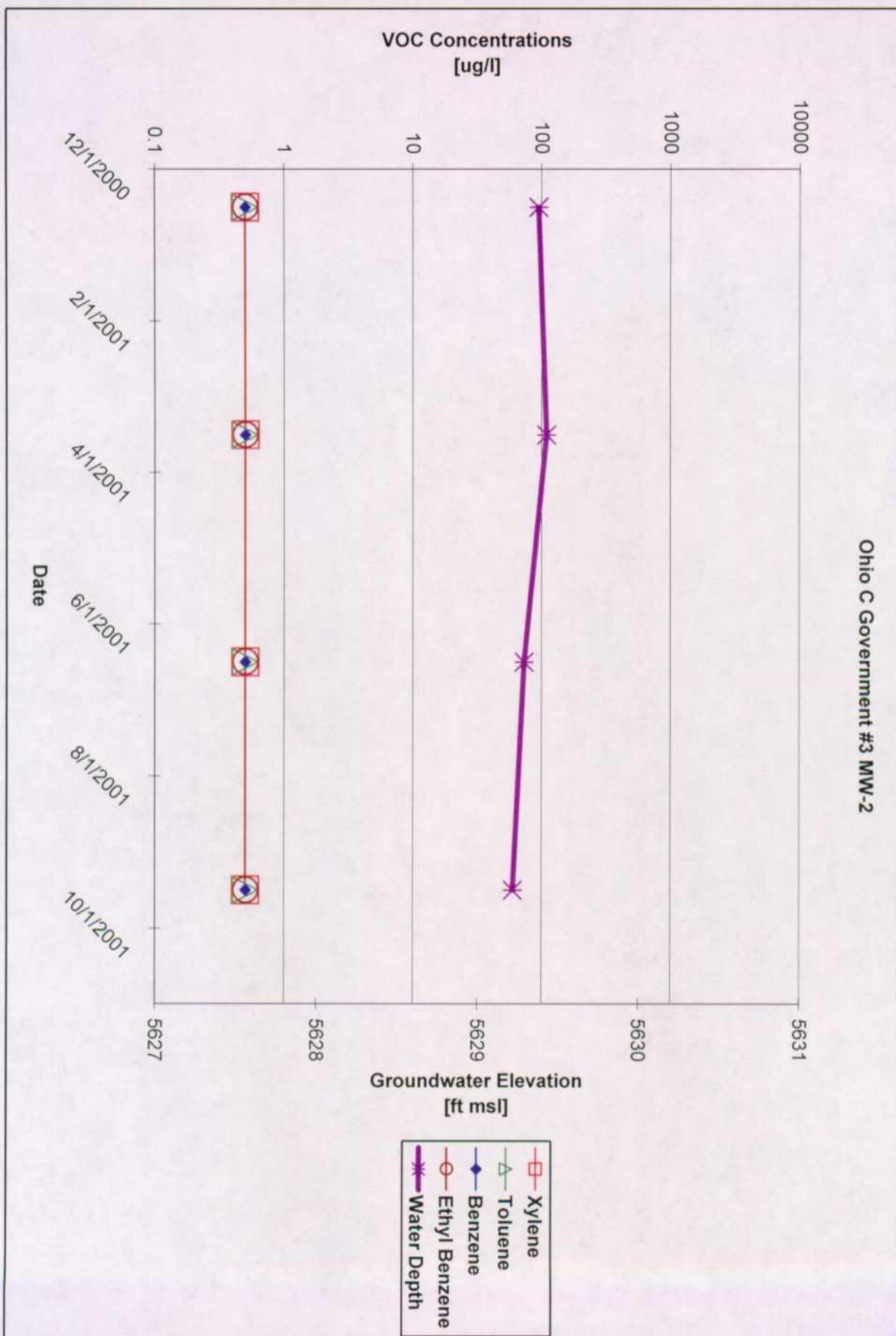
Table 1 BTEX
Ohio C Government #3

Sample #	Meter Line #	Site Name	Sample Date	MW#	Benzene (µg/l)	Ethyl Benzene (µg/l)	Toluene (µg/l)	Total Xylenes (µg/l)	Depth to Water (Feet)	Groundwater Elevation (feet)
OHI-0301	72890	Ohio C Government #3	3/20/2001	1	< 0.5	< 0.5	< 0.5	< 0.5	12.90	5633.68
OHI-0106	72890	Ohio C Government #3	6/25/2001	1	< 0.5	< 0.5	< 0.5	< 0.5	12.82	5633.76
OHI-0109	72890	Ohio C Government #3	9/1/2001	1	< 0.5	2.0	1.1	5.3	13.0	5633.58
OHI-0301	72890	Ohio C Government #3	3/20/2001	2	< 0.5	< 0.5	< 0.5	< 0.5	10.51	5629.43
OHI-0106	72890	Ohio C Government #3	6/25/2001	2	< 0.5	< 0.5	< 0.5	< 0.5	10.65	5629.29
OHI-0109	72890	Ohio C Government #3	9/1/2001	2	< 0.5	< 0.5	< 0.5	< 0.5	10.72	5629.22
OHI-0301	72890	Ohio C Government #3	3/20/2001	3	< 0.5	< 0.5	< 0.5	< 0.5	13.93	5622.25
OHI-0106	72890	Ohio C Government #3	6/25/2001	3	< 0.5	< 0.5	< 0.5	< 0.5	13.97	5622.21
OHI-0109	72890	Ohio C Government #3	9/1/2001	3	< 0.5	< 0.5	< 0.5	< 0.5	14.15	5622.03
OHI-0301	72890	Ohio C Government #3	3/20/2001	4	1.5	4.9	< 0.5	8.0	10.57	5630.57
OHI-0106	72890	Ohio C Government #3	6/25/2001	4	1.8	6.8	< 0.5	8.0	10.64	5630.5
OHI-0109	72890	Ohio C Government #3	9/1/2001	4	< 0.5	3.4	< 0.5	3.7	10.75	5630.39
OHI-0301	72890	Ohio C Government #3	3/20/2001	5	16	37	< 0.5	31	15.88	5628.36
OHI-0106	72890	Ohio C Government #3	6/25/2001	5	19	41	< 0.5	77	16.07	5628.17
OHI-0109	72890	Ohio C Government #3	9/1/2001	5	12	33	1.5	46	16.16	5628.08

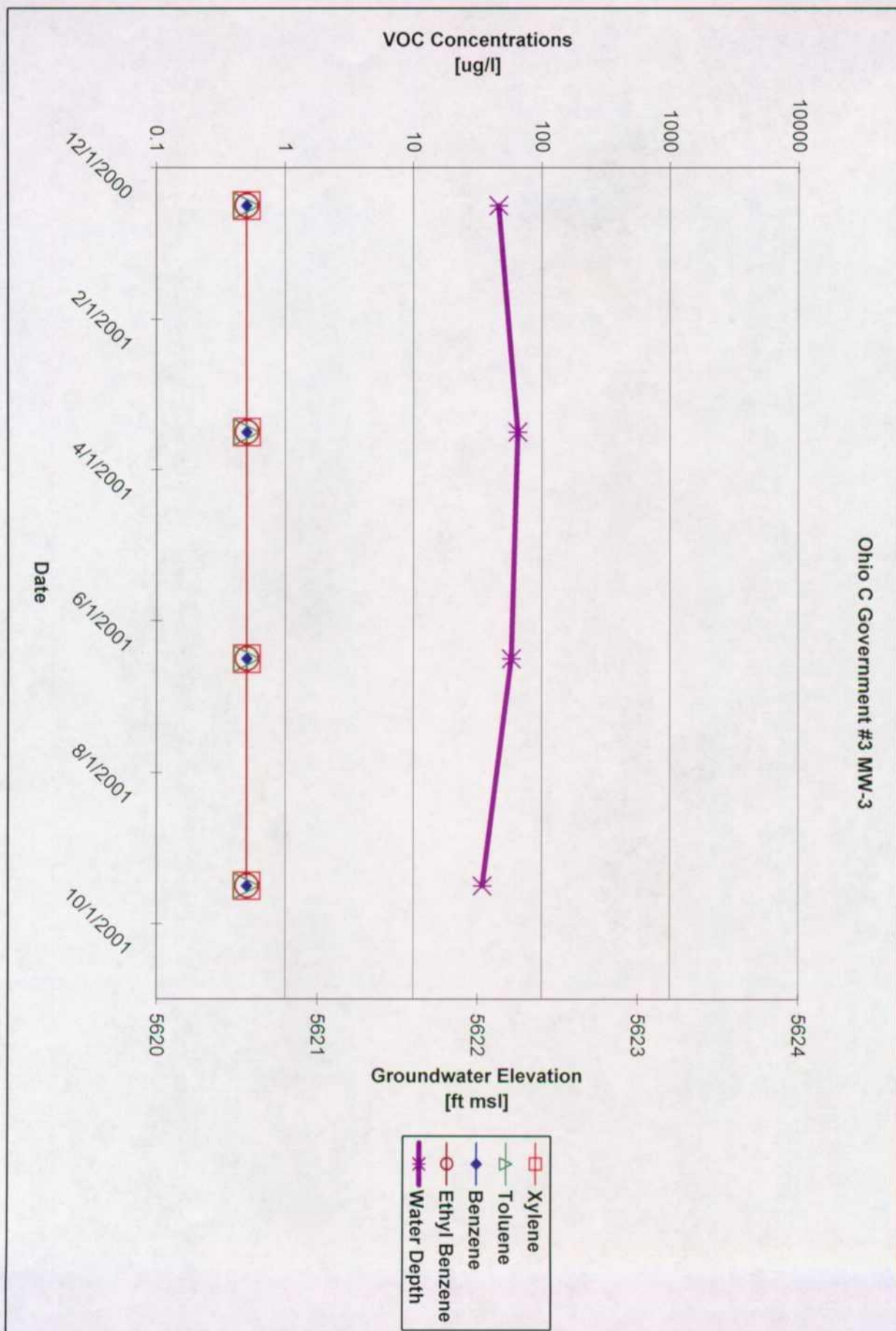
Ohio C Government #3 MW-1



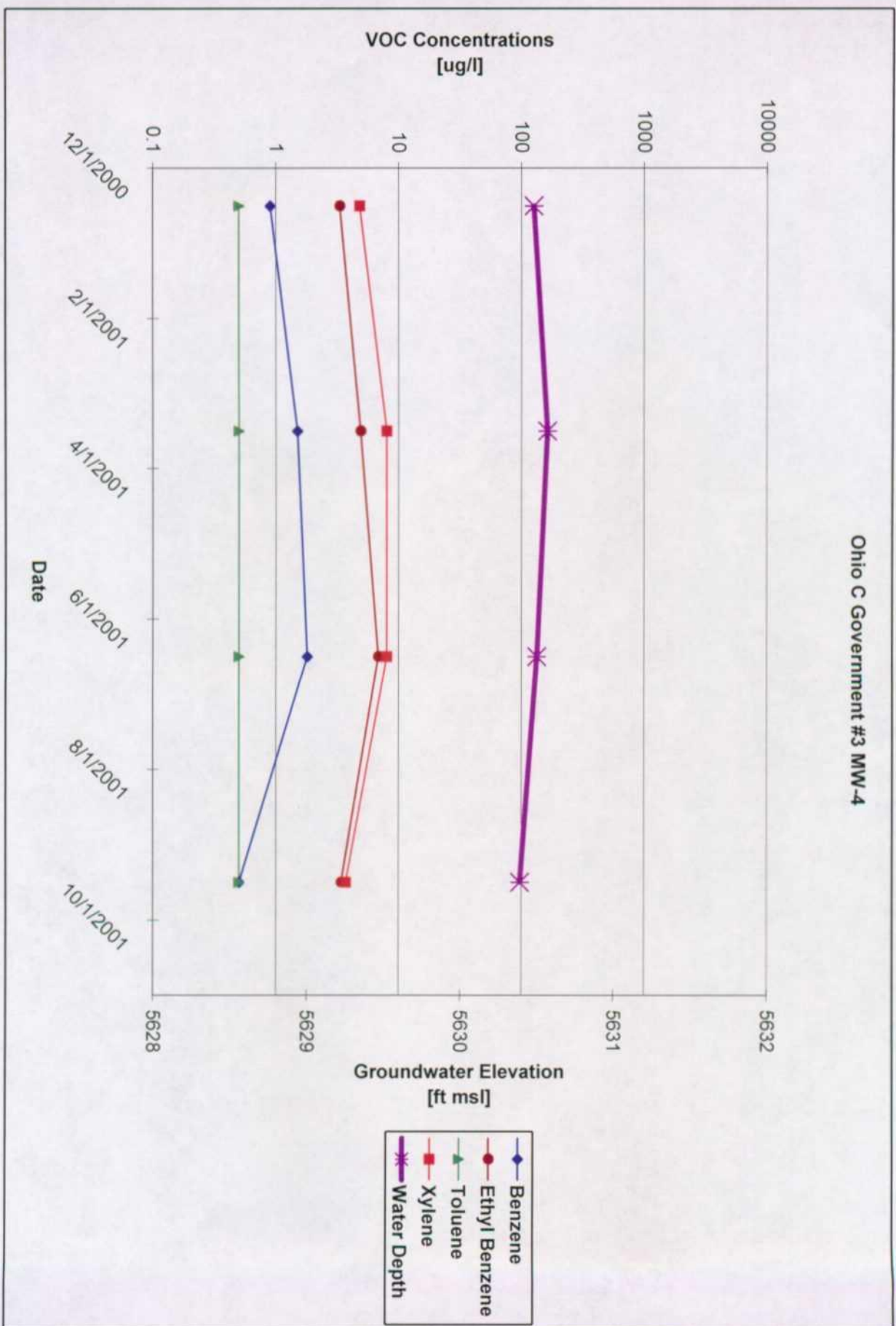
Ohio C Government #3 MW-2



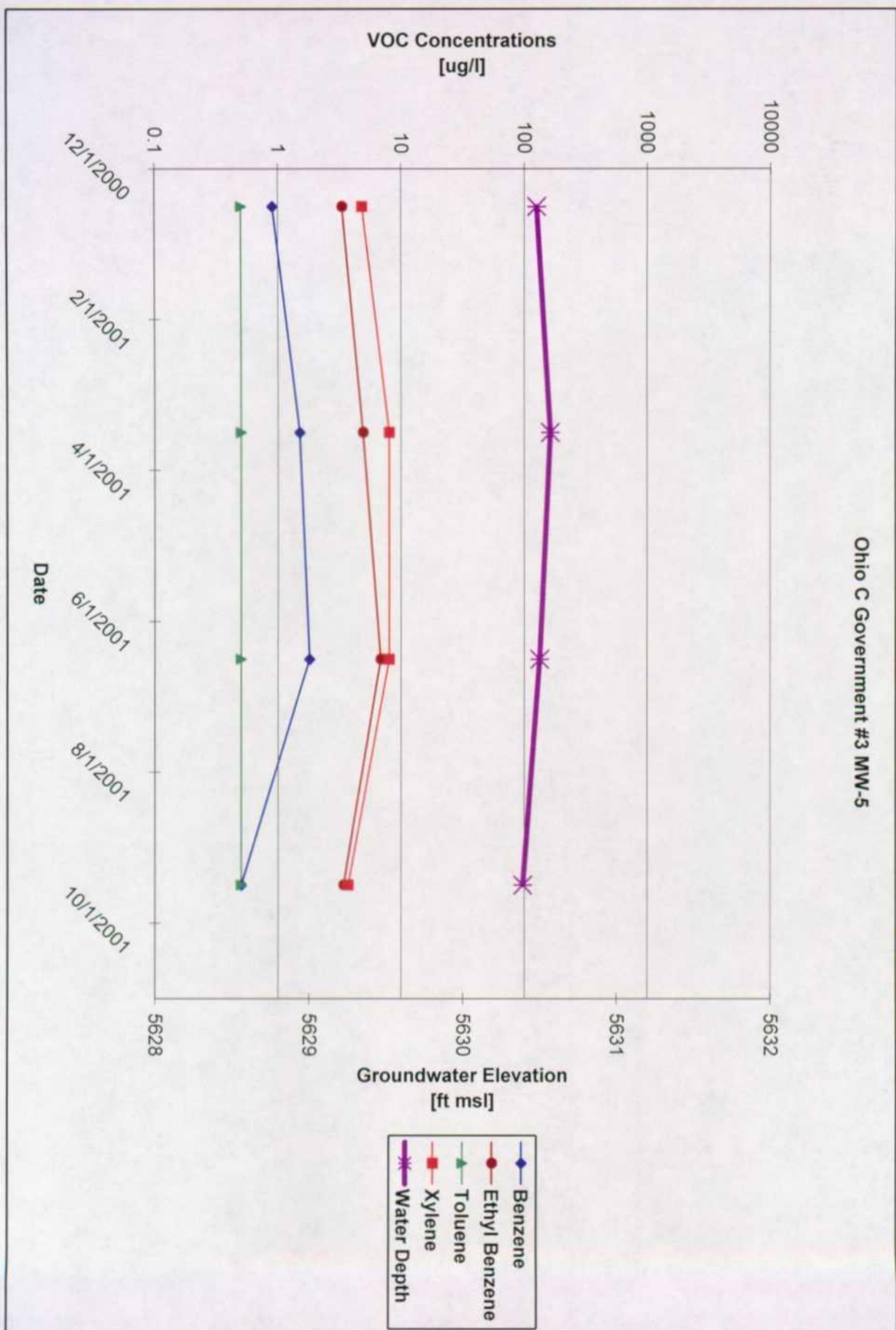
Ohio C Government #3 MW-3



Ohio C Government #3 MW-4

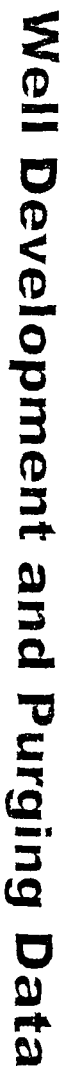


Ohio C Government #3 MW-5



ATTACHMENT 1

2001 GROUNDWATER ANALYTICAL



Developer's Signature (s)	Date	Reviewer	Date
<i>[Signature]</i>	11-2-01	<i>[Signature]</i>	11-2-01



Well Development and Purging Data

11

Project No. 6169

Development ☐
Purging ☒

Page 1 of 1

Task No. 2

Well No. Mr 2 Site Name/Identification OHIO C GALT #3 (72890) Site Address Rural San Juan CO.

Client/Project Name El Paso Field Services EPCS Remediation project Project Manager List with

Development Criteria

☒ No 5 Casing Volumes of Water Removal

☐ Stabilization of Indicator Parameters

☐ Other _____

Water Volume Calculation

Initial Depth of Well (feet) 16.70

Initial Depth to Water (feet) 10.72

Height of Water Column in Well (feet) 5.98

Diameter (inches): Well 4.11 Gravel Pack _____

Instruments

☒ PH Meter

☐ DO Monitor

☒ Conductivity Meter

☐ Temperature Meter

☐ Other _____

Water Disposal

11 RTZ STC-2000-1000-1000-1000

- Methods of Development
- ☐ Pump
 - ☐ Centrifugal
 - ☐ Submersible
 - ☐ Peristaltic
 - ☐ Other _____

Item	Water Volume in Well	Gallons to be Removed
Well Casing	5.98	390 X 3
Gravel Pack		11.7
Drilling Fluids		
Total		4.7

Sampling Activities
Type of Container VOA No. of Containers 2
Parameters Sampled For BTX

Water Removal Data

Date	Time	Pump	Development Method	Removal Rate (gallons/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons)	Product Volume Removed (gallons)	Temperature (°C)	pH	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Comments
9-2-01	1046		X				2.5	2.5	16.5	7.09	4010		Cloudy no odor
	1049		X				2.5	5	17.2	6.99	4080		"
	1052		X				2.5	7.5	17.2	6.99	4020		"
	1056		X				2.5	10	17	6.98	4000		"
	1100		X			13.74	2.5	12.5	16.4	7.03	3970		no change

Circle the date and time that the development criteria are met.

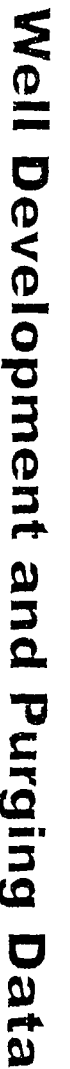
Comments Sampled for BTX 1110

Developer's Signature (s) Chris & Mary

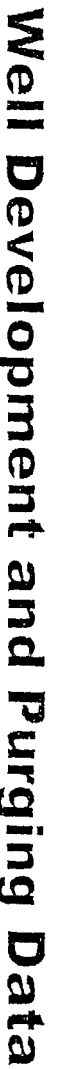
Date 9-2-01

Reviewer John

Date 9/10/01



Date 03/01



of
and

1

Lein

Serial No. (if applicable)

Hydax

Hydro

—

2

unfied

Type of Container	No. of Containers
<u>LOA</u>	<u>2</u>

Sampling Activities	
Type of Container	No. of Containers
Parameters Sampled For <i>PTX</i>	<i>2</i>

Dr Seungjo Lee

10

Date

ANALYSIS REQUEST

PROJECT MANAGER: Lisa King

COMPANY:

ADDRESS:

PHONE:

FAX:

BILL TO:

COMPANY:

ADDRESS:

SAMPLE ID

DATE

TIME

MATRIX

LAB ID

Petroleum Hydrocarbons (418.1) TRPH
(MOD.8015) Diesel/Direct Inject

(M8015) Gas/Purge & Trap

8021 (BTEX)/8015 (Gasoline) MTBE

8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE
8021 (TCL)

8021 (EDX)

8021 (HALO)

8021 (CUST)

504.1 EDB ☐ / DBCP ☐

8260 (TCL) Volatile Organics

8260 (Full) Volatile Organics

8260 (CUST) Volatile Organics

8260 (Landfill) Volatile Organics

Pesticides /PCB (608/8081/8082)

Herbicides (615/8151)

Base/Neutral/Acid Compounds GC/MS (625/8270)

Polynuclear Aromatics (610/8310/8270-SIMS)

General Chemistry:

Priority Pollutant Metals (13)

Target Analyte List Metals (23)

RCRA Metals (8)

RCRA Metals by TCLP (Method 1311)

Metals:

NUMBER OF CONTAINERS

PLEASE FILL THIS FORM IN COMPLETELY.

SHADED AREAS ARE FOR LAB USE ONLY.

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1) TRPH (MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline) MTBE	8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE	8021 (TCL)	8021 (EDX)	8021 (HALO)	8021 (CUST)	504.1 EDB ☐ / DBCP ☐	8260 (TCL) Volatile Organics	8260 (Full) Volatile Organics	8260 (CUST) Volatile Organics	8260 (Landfill) Volatile Organics	Pesticides /PCB (608/8081/8082)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310/8270-SIMS)	General Chemistry:	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:	NUMBER OF CONTAINERS
CHT-0009-MW1	9-7-01	1000	H ₂ O																									
CHT-0009-MW2	9-7-01	1110	H ₂ O																									
CHT-0009-MW3	9-7-01	1145	H ₂ O																									
CHT-0009-MW4	9-7-01	1030	H ₂ O																									
CHT-0109-MW5	9-7-01	1230	H ₂ O																									

PROJECT INFORMATION

PROJ NO: 6169

PROJ NAME: 500's Remediation

P.O. NO:

SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS:

CUSTODY SEALS:

RECEIVED INTACT:

BLUE ICE/ICE

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEKCERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHERMETHANOL PRESERVATION ☐COMMENTS: FIXED FEE ☐

CHIT C. 600T #3

72890

RELINQUISHED BY: 1.

Signature: [Signature] Time: 1500

Printed Name: [Name] Date: 9-12-01

Company: [Company]

See reverse side (Force Majeure)

RECEIVED BY: 1.

Signature: [Signature] Time: [Time]

Printed Name: [Name] Date: [Date]

Company: [Company]

RELINQUISHED BY: 2.

Signature: [Signature] Time: [Time]

Printed Name: [Name] Date: [Date]

Company: [Company]

RECEIVED BY: (LAB) 2.

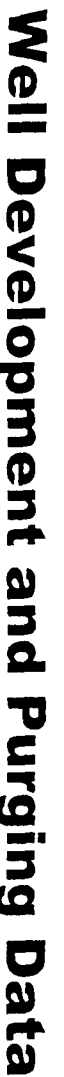
Signature: [Signature] Time: [Time]

Printed Name: [Name] Date: [Date]

Company: [Company]



6201



Alman Date 6/3/01



Well Development and Purging Data

Project No. 6169 Development ☐ Purging ☒

Page 1 of 1

Task No. WV 4 Site Name/Identification OHIO C GWR. (2889th) Address Rural San Juan CO.

Client/Project Name El Paso Field Services EPES Remediation project Project Manager Lisa Winn

Development Criteria

- ☒ 3 to 5 Casing Volumes of Water Removal
☐ Stabilization of Indicator Parameters
☐ Other _____

Water Volume Calculation
Initial Depth of Well (feet) 2102
Initial Depth to Water (feet) 1064
Height of Water Column in Well (feet) 1038
Diameter (inches): Well 4" Gravel Pack _____

Instruments
☒ PH Meter
☐ DO Monitor
☒ Conductivity Meter
☒ Temperature Meter
Serial No. (if applicable)
Hydac
Hydac
Hydac

☐ Other _____

- Methods of Development
Pump
☐ Centrifugal
☐ Submersible
☐ Peristaltic
☒ Bailor
☒ Bottom Valve
☐ Double Check Valve
☐ Stainless-steel Kemmerer

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing	<u>10.38</u>	<u>67253</u>	<u>20.31</u>
Gravel Pack			
Drilling Fluids			
Total			<u>20.31</u>

Water Disposal

4272 Sycamore Bismarck N/D

☐ Other _____

Sampling Activities

Type of Container WQA No. of Containers 2
Parameters Sampled For RTX

Water Removal Data

Date	Time	Development Method		Removal Rate (gal/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons)		Product Volume Removed (gallons)		Temperature (°C)	pH	Conductivity (micro/cm)	Dissolved Oxygen (mg/L)	Comments
		Pump	Bailor				Increment	Cumulative	Increment	Cumulative					
<u>5-25-01</u>	<u>1034</u>		☒				<u>4.25</u>	<u>4.25</u>			<u>21.2</u>	<u>7.06</u>	<u>2950</u>		<u>810-47, 131, 154, 171, 187, 203, 219, 235, 251, 267, 283, 299, 315, 331, 347, 363, 379, 395, 411, 427, 443, 459, 475, 491, 507, 523, 539, 555, 571, 587, 603, 619, 635, 651, 667, 683, 699, 715, 731, 747, 763, 779, 795, 811, 827, 843, 859, 875, 891, 907, 923, 939, 955, 971, 987, 1003, 1019, 1035, 1051, 1067, 1083, 1099, 1115, 1131, 1147, 1163, 1179, 1195, 1211, 1227, 1243, 1259, 1275, 1291, 1307, 1323, 1339, 1355, 1371, 1387, 1403, 1419, 1435, 1451, 1467, 1483, 1499, 1515, 1531, 1547, 1563, 1579, 1595, 1611, 1627, 1643, 1659, 1675, 1691, 1707, 1723, 1739, 1755, 1771, 1787, 1803, 1819, 1835, 1851, 1867, 1883, 1899, 1915, 1931, 1947, 1963, 1979, 1995, 2011, 2027, 2043, 2059, 2075, 2091, 2107, 2123, 2139, 2155, 2171, 2187, 2203, 2219, 2235, 2251, 2267, 2283, 2299, 2315, 2331, 2347, 2363, 2379, 2395, 2411, 2427, 2443, 2459, 2475, 2491, 2507, 2523, 2539, 2555, 2571, 2587, 2603, 2619, 2635, 2651, 2667, 2683, 2699, 2715, 2731, 2747, 2763, 2779, 2795, 2811, 2827, 2843, 2859, 2875, 2891, 2907, 2923, 2939, 2955, 2971, 2987, 3003, 3019, 3035, 3051, 3067, 3083, 3099, 3115, 3131, 3147, 3163, 3179, 3195, 3211, 3227, 3243, 3259, 3275, 3291, 3307, 3323, 3339, 3355, 3371, 3387, 3403, 3419, 3435, 3451, 3467, 3483, 3499, 3515, 3531, 3547, 3563, 3579, 3595, 3611, 3627, 3643, 3659, 3675, 3691, 3707, 3723, 3739, 3755, 3771, 3787, 3803, 3819, 3835, 3851, 3867, 3883, 3899, 3915, 3931, 3947, 3963, 3979, 3995, 4011, 4027, 4043, 4059, 4075, 4091, 4107, 4123, 4139, 4155, 4171, 4187, 4203, 4219, 4235, 4251, 4267, 4283, 4299, 4315, 4331, 4347, 4363, 4379, 4395, 4411, 4427, 4443, 4459, 4475, 4491, 4507, 4523, 4539, 4555, 4571, 4587, 4603, 4619, 4635, 4651, 4667, 4683, 4699, 4715, 4731, 4747, 4763, 4779, 4795, 4811, 4827, 4843, 4859, 4875, 4891, 4907, 4923, 4939, 4955, 4971, 4987, 5003, 5019, 5035, 5051, 5067, 5083, 5099, 5115, 5131, 5147, 5163, 5179, 5195, 5211, 5227, 5243, 5259, 5275, 5291, 5307, 5323, 5339, 5355, 5371, 5387, 5403, 5419, 5435, 5451, 5467, 5483, 5499, 5515, 5531, 5547, 5563, 5579, 5595, 5611, 5627, 5643, 5659, 5675, 5691, 5707, 5723, 5739, 5755, 5771, 5787, 5803, 5819, 5835, 5851, 5867, 5883, 5899, 5915, 5931, 5947, 5963, 5979, 5995, 6011, 6027, 6043, 6059, 6075, 6091, 6107, 6123, 6139, 6155, 6171, 6187, 6203, 6219, 6235, 6251, 6267, 6283, 6299, 6315, 6331, 6347, 6363, 6379, 6395, 6411, 6427, 6443, 6459, 6475, 6491, 6507, 6523, 6539, 6555, 6571, 6587, 6603, 6619, 6635, 6651, 6667, 6683, 6699, 6715, 6731, 6747, 6763, 6779, 6795, 6811, 6827, 6843, 6859, 6875, 6891, 6907, 6923, 6939, 6955, 6971, 6987, 7003, 7019, 7035, 7051, 7067, 7083, 7099, 7115, 7131, 7147, 7163, 7179, 7195, 7211, 7227, 7243, 7259, 7275, 7291, 7307, 7323, 7339, 7355, 7371, 7387, 7403, 7419, 7435, 7451, 7467, 7483, 7499, 7515, 7531, 7547, 7563, 7579, 7595, 7611, 7627, 7643, 7659, 7675, 7691, 7707, 7723, 7739, 7755, 7771, 7787, 7803, 7819, 7835, 7851, 7867, 7883, 7899, 7915, 7931, 7947, 7963, 7979, 7995, 8011, 8027, 8043, 8059, 8075, 8091, 8107, 8123, 8139, 8155, 8171, 8187, 8203, 8219, 8235, 8251, 8267, 8283, 8299, 8315, 8331, 8347, 8363, 8379, 8395, 8411, 8427, 8443, 8459, 8475, 8491, 8507, 8523, 8539, 8555, 8571, 8587, 8603, 8619, 8635, 8651, 8667, 8683, 8699, 8715, 8731, 8747, 8763, 8779, 8795, 8811, 8827, 8843, 8859, 8875, 8891, 8907, 8923, 8939, 8955, 8971, 8987, 9003, 9019, 9035, 9051, 9067, 9083, 9099, 9115, 9131, 9147, 9163, 9179, 9195, 9211, 9227, 9243, 9259, 9275, 9291, 9307, 9323, 9339, 9355, 9371, 9387, 9403, 9419, 9435, 9451, 9467, 9483, 9499, 9515, 9531, 9547, 9563, 9579, 9595, 9611, 9627, 9643, 9659, 9675, 9691, 9707, 9723, 9739, 9755, 9771, 9787, 9803, 9819, 9835, 9851, 9867, 9883, 9899, 9915, 9931, 9947, 9963, 9979, 9995, 10011, 10027, 10043, 10059, 10075, 10091, 10107, 10123, 10139, 10155, 10171, 10187, 10203, 10219, 10235, 10251, 10267, 10283, 10299, 10315, 10331, 10347, 10363, 10379, 10395, 10411, 10427, 10443, 10459, 10475, 10491, 10507, 10523, 10539, 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19707, 19723, 19739, 19755, 19771, 19787, 19803, 19819, 19835, 19851, 19867, 19883, 19899, 19915, 19931, 19947, 19963, 19979, 19995, 20011, 20027, 20043, 20059, 20075, 20091, 20107, 20123, 20139, 20155, 20171, 20187, 20203, 20219, 20235, 20251, 20267, 20283, 20299, 20315, 20331, 20347, 20363, 20379, 20395, 20411, 20427, 20443, 20459, 20475, 20491, 20507, 20523, 20539, 20555, 20571, 20587, 20603, 20619, 20635, 20651, 20667, 20683, 20699, 20715, 20731, 20747, 20763, 20779, 20795, 20811, 20827, 20843, 20859, 20875, 20891, 20907, 20923, 20939, 20955, 20971, 20987, 21003, 21019, 21035, 21051, 21067, 21083, 21099, 21115, 21131, 21147, 21163, 21179, 21195, 21211, 21227, 21243, 21259, 21275, 21291, 21307, 21323, 21339, 21355, 21371, 21387, 21403, 21419, 21435, 21451, 21467, 21483, 21499, 21515, 21531, 21547, 21563, 21579, 21595, 21611, 21627, 21643, 21659, 21675, 21691, 21707, 21723, 21739, 21755, 21771, 21787, 21803, 21819, 21835, 21851, 21867, 21883, 21899, 21915, 21931, 21947, 21963, 21979, 21995, 22011, 22027, 22043, 22059, 22075, 22091, 22107, 22123, 22139, 22155, 22171, 22187, 22203, 22219, 22235, 22251, 22267, 22283, 22299, 22315, 22331, 22347, 22363, 22379, 22395, 22411, 22427, 22443, 22459, 22475, 22491, 22507, 22523, 22539, 22555, 22571, 22587, 22603, 22619, 22635, 22651, 22667, 22683, 22699, 22715, 22731, 22747, 22763, 22779, 22795, 22811, 22827, 22843, 22859, 22875, 22891, 22907, 22923, 22939, 22955, 22971, 22987, 23003, 23019, 23035, 23051, 23067, 23083, 23099, 23115, 23131, 23147, 23163, 23179, 23195, 23211, 23227, 23243, 23259, 23275, 23291, 23307, 23323, 23339, 23355, 23371, 23387, 23403, 23419, 23435, 23451, 23467, 23483, 23499, 23515, 23531, 23547, 23563, 23579, 23595, 23611, 23627, 23643, 23659, 23675, 23691, 23707, 23723, 23739, 23755, 23771, 23787, 23803, 23819, 23835, 23851, 23867, 23883, 23899, 23915, 23931, 23947, 23963, 23979, 23995, 24011, 24027, 24043, 24059, 24075, 24091, 24107, 24123, 24139, 24155, 24171, 24187, 24203, 24219, 24235, 24251, 24267, 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Well Development and Purging Data

Project No. 6169

Development ☐

Task No. _____

Purging ☒

Page 1 of 1

Well No. MW 5

Site

Name/Identification HOCOM (72490) Site Address Rural San Juan Co.

Client/Project Name El Paso Field Services EPFS Remediation project

Project Manager Lisa Wein

Development Criteria

☒ 3 to 5 Casing Volumes of Water Removal

☒ Stabilization of Indicator Parameters

☐ Other _____

Water Volume Calculation

Initial Depth of Well (feet) 21.71

Initial Depth to Water (feet) 16.07

Height of Water Column in Well (feet) 5.64

Diameter (inches): Well 4" Gravel Pack _____

Methods of Development

Pump ☐

☐ Centrifugal

☐ Submersible

☐ Peristaltic

☐ Other _____

Bailer ☒

☒ Bottom Valve

☐ Double Check Valve

☐ Stainless-steel Kemmerer

Item	Water Volume in Well	Gallons to be Removed
Well Casing	Cubic Feet	Gallons
Gravel Pack	<u>5.64</u>	<u>368 X 3</u>
Drilling Fluids		<u>11.04</u>
Total		<u>11.04</u>

Instruments ☒ PH Meter ☒ DO Monitor ☒ Conductivity Meter ☒ Temperature Meter

Serial No. (if applicable) Hydrec Hydrec

Water Disposal ☐ Other _____

4-72 Separator Brownfield N/A.

Sampling Activities

Type of Container VOA No. of Containers 2

Parameters Sampled For SPX

Water Removal Data

Date	Time	Pump	Bailer	Removal Rate (gal/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons)	Product Volume Removed (gallons)	Temperature (°C)	pH	Conductivity (mmhos/cm)	Dissolved Oxygen (mg/L)	Comments
6-25-01	1249		X				2.25	2.25	21.7	7.18	2560		Casing water
6-25-01	1251		X				2.85	4.50	19.3	7.17	2430		
6-25-01	1254		X				2.04	2.85	18.3	7.17	2490		no change

Circle the date and time that the development criteria are met.

Comments After Bailing approximately 6.75 gal Bailed well 12:49:00 water sampled for BTEX

1302

Developer's Signature (s) W. A. 0717

Date 6-25-01

Reviewer Alman

Date 6/25/01

SHADED AREAS ARE FOR LAB USE ONLY.

PLI Accession #

SAMPLEID	DATE	TIME	MATRIX	LABID
1	11/11/2011	14:00	URINE	11111
2	11/11/2011	14:05	URINE	11112
3	11/11/2011	14:10	URINE	11113
4	11/11/2011	14:15	URINE	11114
5	11/11/2011	14:20	URINE	11115
6	11/11/2011	14:25	URINE	11116
7	11/11/2011	14:30	URINE	11117
8	11/11/2011	14:35	URINE	11118
9	11/11/2011	14:40	URINE	11119
10	11/11/2011	14:45	URINE	11120
11	11/11/2011	14:50	URINE	11121
12	11/11/2011	14:55	URINE	11122
13	11/11/2011	15:00	URINE	11123
14	11/11/2011	15:05	URINE	11124
15	11/11/2011	15:10	URINE	11125
16	11/11/2011	15:15	URINE	11126
17	11/11/2011	15:20	URINE	11127
18	11/11/2011	15:25	URINE	11128
19	11/11/2011	15:30	URINE	11129
20	11/11/2011	15:35	URINE	11130
21	11/11/2011	15:40	URINE	11131
22	11/11/2011	15:45	URINE	11132
23	11/11/2011	15:50	URINE	11133
24	11/11/2011	15:55	URINE	11134
25	11/11/2011	16:00	URINE	11135
26	11/11/2011	16:05	URINE	11136
27	11/11/2011	16:10	URINE	11137
28	11/11/2011	16:15	URINE	11138
29	11/11/2011	16:20	URINE	11139
30	11/11/2011	16:25	URINE	11140
31	11/11/2011	16:30	URINE	11141
32	11/11/2011	16:35	URINE	11142
33	11/11/2011	16:40	URINE	11143
34	11/11/2011	16:45	URINE	11144
35	11/11/2011	16:50	URINE	11145
36	11/11/2011	16:55	URINE	11146
37	11/11/2011	17:00	URINE	11147
38	11/11/2011	17:05	URINE	11148
39	11/11/2011	17:10	URINE	11149
40	11/11/2011	17:15	URINE	11150
41	11/11/2011	17:20	URINE	11151
42	11/11/2011	17:25	URINE	11152
43	11/11/2011	17:30	URINE	11153
44	11/11/2011	17:35	URINE	11154
45	11/11/2011	17:40	URINE	11155
46	11/11/2011	17:45	URINE	11156
47	11/11/2011	17:50	URINE	11157
48	11/11/2011	17:55	URINE	11158
49	11/11/2011	18:00	URINE	11159
50	11/11/2011	18:05	URINE	11160
51	11/11/2011	18:10	URINE	11161
52	11/11/2011	18:15	URINE	11162
53	11/11/2011	18:20	URINE	11163
54	11/11/2011	18:25	URINE	11164
55	11/11/2011	18:30	URINE	11165
56	11/11/2011	18:35	URINE	11166
57	11/11/2011	18:40	URINE	11167
58	11/11/2011	18:45	URINE	11168
59	11/11/2011	18:50	URINE	11169
60	11/11/2011	18:55	URINE	11170
61	11/11/2011	19:00	URINE	11171
62	11/11/2011	19:05	URINE	11172
63	11/11/2011	19:10	URINE	11173
64	11/11/2011	19:15	URINE	11174
65	11/11/2011	19:20	URINE	11175
66	11/11/2011	19:25	URINE	11176
67	11/11/			

NUMBER OF CONTAINERS

Printed Name: _____ Date: _____

DISTRIBUTION: ~~Ames~~ - P.I. Canary - Originator

PHILIP

DEVELOPMENT

WELL DEVELOPMENT AND PURGING DATA

Well Number MW-4

Well Development and Purging Data

Page 1 of 1

Project Name EPFS Quarterly Sampling

Client Company EL PASO Field Services

Project No. 62400107

Site Name OILCO GOVT #3 (72890)

Operator LISA Wynn

Phone/Ext No. 0301

Development Criteria

☒ 3 to 5 Casing Volumes of Water Removal

☒ Stabilization of Indicator Parameters

☐ Other

Methods of Development

Pump

☐ Centrifugal

☐ Submersible

☐ Peristaltic

☐ Other

Booster

☒ Bottom Volume

☐ Double Check Valve

☐ Stainless Steel Pumping

Time	Flow Rate (gpm)	Pressure (psi)	Temperature (°F)	Conductivity (µmhos/cm)	pH	Other
10:00	10.0	10.0	10.0	10.0	10.0	10.0
10:05	10.0	10.0	10.0	10.0	10.0	10.0
10:10	10.0	10.0	10.0	10.0	10.0	10.0
10:15	10.0	10.0	10.0	10.0	10.0	10.0
10:20	10.0	10.0	10.0	10.0	10.0	10.0
10:25	10.0	10.0	10.0	10.0	10.0	10.0
10:30	10.0	10.0	10.0	10.0	10.0	10.0
10:35	10.0	10.0	10.0	10.0	10.0	10.0
10:40	10.0	10.0	10.0	10.0	10.0	10.0
10:45	10.0	10.0	10.0	10.0	10.0	10.0
10:50	10.0	10.0	10.0	10.0	10.0	10.0
10:55	10.0	10.0	10.0	10.0	10.0	10.0
11:00	10.0	10.0	10.0	10.0	10.0	10.0
11:05	10.0	10.0	10.0	10.0	10.0	10.0
11:10	10.0	10.0	10.0	10.0	10.0	10.0
11:15	10.0	10.0	10.0	10.0	10.0	10.0
11:20	10.0	10.0	10.0	10.0	10.0	10.0
11:25	10.0	10.0	10.0	10.0	10.0	10.0
11:30	10.0	10.0	10.0	10.0	10.0	10.0
11:35	10.0	10.0	10.0	10.0	10.0	10.0
11:40	10.0	10.0	10.0	10.0	10.0	10.0
11:45	10.0	10.0	10.0	10.0	10.0	10.0
11:50	10.0	10.0	10.0	10.0	10.0	10.0
11:55	10.0	10.0	10.0	10.0	10.0	10.0
12:00	10.0	10.0	10.0	10.0	10.0	10.0

Water Disposal

Water Storage

Instruments

☒ pH Meter

☐ DO Monitor

☒ Conductivity Meter

☒ Temperature Meter

☐ Other

Serial No. (if applicable)

Hydac

Hydac

Hydac

Water Removal Data

Date	Time	Development Method	Removal Rate (bbl/hr)	Total Volume (bbl)	Flow Rate (gpm)	Pressure (psi)	Temperature (°F)	Conductivity (µmhos/cm)	pH	Other	Comments
3-20-01	10:57	X			4.25	4.25	17.5	5.84	8670		C10-41/Bottom
	11:01	X			4.25	4.50	13.6	6.35	2550		"
	11:06	X			4.25	4.50	13.6	6.20	2640		"
	11:10	X					13.6	6.15	2730		"
	11:14						13.6	5.97	2800		no change

Circle the date and time that the development criteria are met

Comments SAMPLED FOR BTEX 11/31

Developer's Signature(s) [Signature]

Date 3-20-01

Reviewed [Signature] Date 3/20/01

PHILIP

ENVIRONMENTAL

Well Number MW 5

WELL DEVELOPMENT AND PURGING DATA

Serial No. 50110

Page 1 of 1

Project Name EPFS Quarterly Sampling

Client Company ER-PASS Field Services

Site Name OHIO C. GOVT. #3 (72890)

Project No. 62800107

Phase Task No. 0301

San Juan Co.

Development Criteria

☒ 5 Casing Volumes of Water Removal
☒ Stabilization of Indicator Parameters
☐ Other

Instruments

☒ pH Meter

☐ DO Monitor

☒ Conductivity Meter

☒ Temperature Meter

☐ Other

Serial No. (if applicable)

Hydrex

Hydrex

Hydrex

Methods of Development

☐ Pump
☐ Centrifugal
☐ Submersible
☐ Peristaltic
☐ Other

Time	Flow Rate (gpm)	Water Level (ft)	Indicator Reading
21.71	15.83	5.83	
11.4	11.4		

Water Disposal

K-175 Separator Bloomfield NM.

Water Removal Data

Date	Time	Development Method	Removal Rate (gpm)	Water Level (ft)	Indicator Reading	Comments
3-20-01	1334	X	2.5	17.6	5.53	2530
	1337	X	2.5	16.5	6.02	2440
	1341	X	2.5	16.4	6.14	2470
						no. change

Circle the date and time that the development criteria were met

Comment: Sampled for BTEX 1400. After Building approximately 2.5 gals tested well for BTEX. Let recover then collected sample at 1400. No

Developer's Signature(s) Don A. M...

3-20-01

Review Date 3/23/01

PHILIP

Well Number MM 3

DATE 3/23/01

WELL DEVELOPMENT AND PURGING DATA

ENVIRONMENTAL

Serial No. WDPD

Page 1 of 1

Project Name EPFS Quarterly Sampling

Location Missa Winn

Project No. 62800102

Client Company EL PASO Field Services

Phase/Job No. 0301

Site Name OHIO C. GOVT #3 (922890) and 2000 San Juan CO.

Development Criteria

- ☒ 3 to 5 Casing Volumes of Water Returned
☒ Stabilization of Indicator Parameters
☐ Other _____

Methods of Development

- ☐ Pump
☐ Centrifugal ☒ Rotary
☐ Submersible ☐ Double Check Valve
☐ Peristaltic ☐ Stainless Steel Formation
☐ Other _____

Flow Rate (gpm)	Flow Rate (m³/hr)	Flow Rate (bbl/hr)	Flow Rate (bbl/day)
2.5	1.5	21.5	172.5
4.5	2.7	38.5	308.5
14.8	8.9	121.5	972.5

Instruments

Serial No. (if applicable)

☒ pH Meter

Hydac

☐ DO Monitor

☒ Conductivity Meter

Hydac

☐ Temperature Meter

Hydac

☐ Other _____

Water Disposal

Water Separator Backfield NM.

Water Removal Data

Date	Time	Development Pump/Bore	Estimated Flow (gpm)	Estimated Flow (m³/hr)	Estimated Flow (bbl/hr)	Estimated Flow (bbl/day)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/l)	Comments
3-20-01	1241	X				19.9	569	3680	Cloudy w/ no odor
	1246	X				17.1	565	3500	"
	1250	X				16.3	568	3450	"
	1303	X				16.3	571	3410	"
	1307	X				15	577	3380	no change

Circle the date and time that the development criteria are met

Comments Sampled for BTEX A310

Developer's Signature(s) Chris A. M...

Date 3-20-01

Reviewer Andrew 3/23/01

Project Name EPF5 Quarterly Sampling

Date 11/11/01

Project No. 62800107

Client Company EL Paso Field Services

File/Job No. 0301

Site Name OHIO C. GOVT #3 (02890)

General San Juan CO.

Development Criteria

- ☒ 5 Casing Volumes of Water Removal
☒ Stabilization of Indicator Parameters
☐ Other _____

Instruments

- ☒ pH Meter
☐ DO Monitor
☒ Conductivity Meter
☒ Temperature Meter
☐ Other _____

Serial No. (if applicable)
Hydax
Hydax

Methods of Development

- ☐ Pump
☐ Centrifugal
☐ Submersible
☐ Peristaltic
☐ Other _____

Time	Flow Rate (gpm)	Water Level (ft)	Flow Rate (gpm)	Water Level (ft)
16:30	10.51	6.19	12.12	12.12
16:31	10.51	6.19	12.12	12.12
16:32	10.51	6.19	12.12	12.12
16:33	10.51	6.19	12.12	12.12
16:34	10.51	6.19	12.12	12.12
16:35	10.51	6.19	12.12	12.12
16:36	10.51	6.19	12.12	12.12
16:37	10.51	6.19	12.12	12.12
16:38	10.51	6.19	12.12	12.12
16:39	10.51	6.19	12.12	12.12
16:40	10.51	6.19	12.12	12.12
16:41	10.51	6.19	12.12	12.12
16:42	10.51	6.19	12.12	12.12
16:43	10.51	6.19	12.12	12.12
16:44	10.51	6.19	12.12	12.12
16:45	10.51	6.19	12.12	12.12
16:46	10.51	6.19	12.12	12.12
16:47	10.51	6.19	12.12	12.12
16:48	10.51	6.19	12.12	12.12
16:49	10.51	6.19	12.12	12.12
16:50	10.51	6.19	12.12	12.12
16:51	10.51	6.19	12.12	12.12
16:52	10.51	6.19	12.12	12.12
16:53	10.51	6.19	12.12	12.12
16:54	10.51	6.19	12.12	12.12
16:55	10.51	6.19	12.12	12.12
16:56	10.51	6.19	12.12	12.12
16:57	10.51	6.19	12.12	12.12
16:58	10.51	6.19	12.12	12.12
16:59	10.51	6.19	12.12	12.12
17:00	10.51	6.19	12.12	12.12

Water Disposal
LT2 Separator Bloomfield NM.

Water Removal Data

Date	Time	Development Method	Flow Rate (gpm)	Water Level (ft)	Flow Rate (gpm)	Water Level (ft)	pH	Conductivity (µmhos/cm)	Temperature (°F)	Comments
3-20-01	11:38	X	2.50	2.5	15.41	5.74	3230	70-75	no odor	
	11:43	X	2.5	2.5	14.7	5.67	3190	"	"	
	11:47	X	2.5	2.5	13.9	5.66	3150	"	"	
	11:51	X	2.5	2.5	14	6.00	3150	"	"	
	11:56	X	2.5	2.5	15.1	5.88	3210	"	no change	

Circle the date and time that the development criteria are met

Comments Sampled for BTEX 10/20

Developer's Signature(s) As A 9/11/01

Date 3/23/01

Review Shane Date 3/23/01

WILL DEVELOPMENT AND PURGING DATA

Page 1 of 1

Project No 62500107

Phylog. J. 10. 0501

Reverend Sir Thomas

Serial No. (if applicable)

~~71 pft Meter~~

Hydroc

8.29

2) Conduct

~~Imperial~~

—

Leif J. Johansen

Motor: 171

17.19

Water Disposal
KUTZ Separation Groundfield N.Y.N.

[illegible]

Circle the date and line that the development cabinet was put

Comments AFTER Bailing, approximately 12.5 gal Bailed well. Dry Lot Recover

collected sample 1045

Developer's Signature: 

10-58-111

Reviewer: J. Mulvaney Date: 3/23/01

September 24, 2001

Mr. M. Paul Peacock
Marathon Oil Company
P.O. Box 552
Midland, Texas 79702

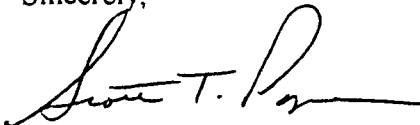
RE: 3rd Quarter Analytical Results from the Ohio C Government #3

Dear Mr. Peacock:

Please find the enclosed laboratory analytical results for the September 9, 2001 sampling of monitoring wells MW-01 – MW-05. This represents the 3rd quarter sampling event for the year 2001. This will be the last sampling event performed by El Paso Field Services (EPFS). EPFS have been given preliminary closure on our portion of the site. If our situation should change we will notify you. Marathon may continue to monitor MW-1 if necessary. Please notify EPFS when it is appropriate to plug and abandon MW-1.

If you have any questions concerning the enclosed laboratory report or other issues, please call me at (505) 599-2124.

Sincerely,



Scott T. Pope P.G.
Senior Environmental Scientist
Environmental Remediation Department

Enclosure: as stated

Cc: Ohio C Government #3 file

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

PINNACLE
LABORATORIES

Pinnacle Lab ID number 109045
September 19, 2001

GOLDEN ENVIRONMENTAL MNGT.
906 SAN JUAN BLVD.
FARMINGTON, NM 87401

EL PASO FIELD SERVICES
614 RIELLY STREET
FARMINGTON, NM 87401

Project Name EPFS REMEDIATION PROJECT
Project Number 6169

Attention: LISA WINN/SCOTT POPE

On 09/13/01 Pinnacle Laboratories, Inc., (ADHS License No. AZ0592 pending), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

If you have any questions or comments, please do not hesitate to contact us at (505)344-3777.

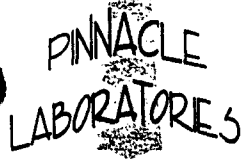


H. Mitchell Rubenstein, Ph. D.
General Manager

MR: jt

Enclosure

*Need to Forward
Results to Marathon.*



2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

CLIENT	: GOLDEN ENVIRONMENTAL MNGT.	PINNACLE ID	: 109045
PROJECT #	: 6169	DATE RECEIVED	: 09/13/01
PROJECT NAME	: EPFS REMEDIATION PROJECT	REPORT DATE	: 09/19/01

PINNACLE		DATE	
ID #	CLIENT DESCRIPTION	MATRIX	COLLECTED
109045 - 01	OHI-0109-MW1	AQUEOUS	09/07/01
109045 - 02	OHI-0109-MW2	AQUEOUS	09/07/01
109045 - 03	OHI-0109-MW3	AQUEOUS	09/07/01
109045 - 04	OHI-0109-MW4	AQUEOUS	09/07/01
109045 - 05	OHI-0109-MW5	AQUEOUS	09/07/01



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Albuquerque, New Mexico 87107
Phone (505) 344-3777
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GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : GOLDEN ENVIRONMENTAL MNGT.
PROJECT # : 6169
PROJECT NAME : EPFS REMEDIATION PROJECT

PINNACLE I.D.: 109045

SAMPLE			DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
01	OHI-0109-MW1	AQUEOUS	09/07/01	NA	09/14/01	1
02	OHI-0109-MW2	AQUEOUS	09/07/01	NA	09/14/01	1
03	OHI-0109-MW3	AQUEOUS	09/07/01	NA	09/14/01	1

PARAMETER	DET. LIMIT	UNITS	OHI-0109-MW1	OHI-0109-MW2	OHI-0109-MW3
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOLUENE	0.5	UG/L	1.1	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	2.0	< 0.5	< 0.5
TOTAL XYLENES	0.5	UG/L	5.3	< 0.5	< 0.5

SURROGATE:
BROMOFLUOROBENZENE (%) 89 91 85
SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:
N/A



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Albuquerque, New Mexico 87107
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Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : GOLDEN ENVIRONMENTAL MNGT.
PROJECT # : 6169
PROJECT NAME : EPFS REMEDIATION PROJECT

PINNACLE I.D.: 109045

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	OHI-0109-MW4	AQUEOUS	09/07/01	NA	09/14/01	1
05	OHI-0109-MW5	AQUEOUS	09/07/01	NA	09/14/01	1

PARAMETER	DET. LIMIT	UNITS	OHI-0109-MW4	OHI-0109-MW5
BENZENE	0.5	UG/L	< 0.5	12
TOLUENE	0.5	UG/L	< 0.5	1.5
ETHYLBENZENE	0.5	UG/L	3.4	33
TOTAL XYLENES	0.5	UG/L	3.7	46

SURROGATE:
BROMOFLUOROBENZENE (%) 89 104
SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:
N/A



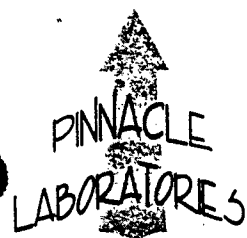
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Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 109045
BLANK I. D.	: 091401	DATE EXTRACTED	: NA
CLIENT	: GOLDEN ENVIRONMENTAL MNGT.	DATE ANALYZED	: 09/14/01
PROJECT #	: 6169	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: EPFS REMEDIATION PROJECT		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5

SURROGATE:
BROMOFLUOROBENZENE (%) 95
SURROGATE LIMITS: (80 - 120)
CHEMIST NOTES:



2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
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GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST : EPA 8021 MODIFIED
MSMSD # : 091401
CLIENT : GOLDEN ENVIRONMENTAL MNGT.
PROJECT # : 6169
PROJECT NAME : EPFS REMEDIATION PROJECT

PINNACLE I.D. : 109045
DATE EXTRACTED : NA
DATE ANALYZED : 09/14/01
SAMPLE MATRIX : AQUEOUS
UNITS : UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.5	20.0	16.2	81	16.5	83	2	(80 - 120)	20
TOLUENE	<0.5	20.0	19.2	96	19.6	98	2	(80 - 120)	20
ETHYLBENZENE	<0.5	20.0	21.0	105	21.1	106	0	(80 - 120)	20
TOTAL XYLENES	<0.5	60.0	63.3	106	65.1	109	3	(80 - 120)	20

REMARKS:
N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
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Pinnacle Lab ID number **109045**
September 19, 2001

GOLDEN ENVIRONMENTAL MNGT.
906 SAN JUAN BLVD.
FARMINGTON, NM 87401

EL PASO FIELD SERVICES
614 RIELLY STREET
FARMINGTON, NM 87401

Project Name EPFS REMEDIATION PROJECT
Project Number 6169

Attention: LISA WINN/SCOTT POPE

On 09/13/01 Pinnacle Laboratories, Inc., (ADHS License No. AZ0592 pending), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

If you have any questions or comments, please do not hesitate to contact us at (505)344-3777.



H. Mitchell Rubenstein, Ph. D.
General Manager

MR: jt

Enclosure

*Need to Forward
Results to Marathon.*

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

CLIENT	: GOLDEN ENVIRONMENTAL MNGT.	PINNACLE ID	: 109045
PROJECT #	: 6169	DATE RECEIVED	: 09/13/01
PROJECT NAME	: EPFS REMEDIATION PROJECT	REPORT DATE	: 09/19/01

PINNACLE ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
109045 - 01	OHI-0109-MW1	AQUEOUS	09/07/01
109045 - 02	OHI-0109-MW2	AQUEOUS	09/07/01
109045 - 03	OHI-0109-MW3	AQUEOUS	09/07/01
109045 - 04	OHI-0109-MW4	AQUEOUS	09/07/01
109045 - 05	OHI-0109-MW5	AQUEOUS	09/07/01

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : GOLDEN ENVIRONMENTAL MNGT.
PROJECT # : 6169
PROJECT NAME : EPFS REMEDIATION PROJECT

PINNACLE I.D.: 109045

SAMPLE			DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
01	OHI-0109-MW1	AQUEOUS	09/07/01	NA	09/14/01	1
02	OHI-0109-MW2	AQUEOUS	09/07/01	NA	09/14/01	1
03	OHI-0109-MW3	AQUEOUS	09/07/01	NA	09/14/01	1

PARAMETER	DET. LIMIT	UNITS	OHI-0109-MW1	OHI-0109-MW2	OHI-0109-MW3
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOLUENE	0.5	UG/L	1.1	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	2.0	< 0.5	< 0.5
TOTAL XYLENES	0.5	UG/L	5.3	< 0.5	< 0.5

SURROGATE:
BROMOFLUOROBENZENE (%) 89 91 85
SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:
N/A

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : GOLDEN ENVIRONMENTAL MNGT.
PROJECT # : 6169
PROJECT NAME : EPFS REMEDIATION PROJECT

PINNACLE I.D.: 109045

SAMPLE			DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
04	OHI-0109-MW4	AQUEOUS	09/07/01	NA	09/14/01	1
05	OHI-0109-MW5	AQUEOUS	09/07/01	NA	09/14/01	1

PARAMETER	DET. LIMIT	UNITS	OHI-0109-MW4	OHI-0109-MW5
BENZENE	0.5	UG/L	< 0.5	12
TOLUENE	0.5	UG/L	< 0.5	1.5
ETHYLBENZENE	0.5	UG/L	3.4	33
TOTAL XYLENES	0.5	UG/L	3.7	46

PROBATE:
BROMOFLUOROBENZENE (%) 89 104
SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:
N/A

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 109045
BLANK I. D.	: 091401	DATE EXTRACTED	: NA
CLIENT	: GOLDEN ENVIRONMENTAL MNGT.	DATE ANALYZED	: 09/14/01
PROJECT #	: 6169	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: EPFS REMEDIATION PROJECT		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5

SURROGATE:
BROMOFLUOROBENZENE (%) 95
SURROGATE LIMITS: (80 - 120)
COMMENTS NOTES:
N/A

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 109045
MSMSD #	: 091401	DATE EXTRACTED	: NA
CLIENT	: GOLDEN ENVIRONMENTAL MNGT.	DATE ANALYZED	: 09/14/01
PROJECT #	: 6169	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: EPFS REMEDIATION PROJECT	UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.5	20.0	16.2	81	16.5	83	2	(80 - 120)	20
TOLUENE	<0.5	20.0	19.2	96	19.6	98	2	(80 - 120)	20
ETHYLBENZENE	<0.5	20.0	21.0	105	21.1	106	0	(80 - 120)	20
TOTAL XYLENES	<0.5	60.0	63.3	106	65.1	109	3	(80 - 120)	20

CHEMIST NOTES:
N/A

% Recovery = $\frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$

RPD (Relative Percent Difference) = $\frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$

