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REPORTS

DATE:

1/1996

**REPORT FOR SEMI-ANNUAL GROUNDWATER SAMPLING
MERIDIAN OIL INC. THOMAS NO. 1 LOCATION
BLOOMFIELD, NEW MEXICO**

January 1996

RECEIVED

DEC 02 1996

Environmental Bureau
Oil Conservation Division

PREPARED FOR:

**MERIDIAN OIL INC.
FARMINGTON, NEW MEXICO**

Project 13164

**PHILIP
ENVIRONMENTAL**

**REPORT FOR SEMI-ANNUAL GROUNDWATER SAMPLING
MERIDIAN OIL INC. THOMAS NO. 1 LOCATION
BLOOMFIELD, NEW MEXICO**

January 1996

PREPARED FOR:

**MERIDIAN OIL INC.
FARMINGTON, NEW MEXICO**

Project 13164



**4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262**



February 21, 1996

Project 13164

Mr. Craig A. Bock
Meridian Oil Inc.
3535 East 30th
P.O. Box 4289
Farmington, New Mexico 87401

**RE: Report for January, 1996, Semi-Annual Groundwater Sampling at the
Meridian Oil Inc. Thomas No. 1 Location, Bloomfield, New Mexico**

Dear Mr. Bock:

During October 1994, Philip Environmental Services Corporation (Philip) initiated a semi-annual groundwater sampling program at the Meridian Oil Inc. (MOI) Thomas No. 1 production well location (the site). The site is located in San Juan County, New Mexico, in the southwest corner of Section 20, Township 29 North, Range 11 West. A site map showing locations of the monitoring wells is presented in Figure 1.

Groundwater sampling included:

- Collecting depth-to-groundwater measurements.
- Purging a minimum of three well casing volumes and monitoring pH, conductivity, and temperature levels until stabilization occurred for monitoring wells 1 through 5.
- Collecting groundwater samples from each monitoring well and submitting the samples for laboratory analysis for benzene, toluene, ethylbenzene, and xylenes (BTEX) by U.S. Environmental Protection Agency (USEPA) Method 602.

METHODOLOGY

Groundwater sampling of the five monitoring wells at the site took place on January 10, 1996, and was completed the same day. Philip's field representative began sampling by taking a static depth-to-groundwater reading with an electronic water level indicator. In addition, the total depth of the well was measured using a weighted survey tape. Both measurements were taken at the same reference point starting at the top of the well casing. The total linear feet of water in the well was then used to calculate the water volume in the well casing. At least three well casing volumes were removed from each well.

Each well was purged and sampled using a pre-cleaned disposable bailer, with an approximate volume of one liter.

Field water-quality measurements of pH, conductivity, and temperature were performed periodically during the purging of the well to ensure that the water sampled was



representative of the ambient groundwater in the aquifer. Once the water quality parameters were stable and at least three well casing volumes had been removed, the groundwater was sampled by pouring groundwater from a disposable bailer directly into 40-milliliter glass containers with Teflon™ septum closures. All samples collected were preserved with hydrochloric acid, placed directly on ice, and transported via overnight service under strict chain-of-custody procedures to Assaigai Analytical Laboratories located in Albuquerque, New Mexico. Each sample was analyzed for BTEX by USEPA Method 602. In addition to collecting samples from each well, a duplicate of MW-2 (identified as MW-52) was also analyzed.

All groundwater purged from each monitoring well was stored in buckets and transported by hand to a discharge storage tank at the site for disposal, as directed by MOI personnel.

RESULTS

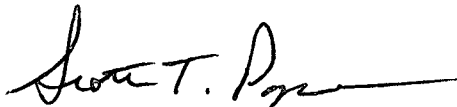
Laboratory results indicated BTEX values to be slightly above detection limits for MW-4. Results from MW-2, and MW-3 indicated BTEX compounds present in the samples. The results from the semi-annual sampling are presented in Table 1, along with historical data from previous sampling events. Table 2 presents field measurements of groundwater elevations and field data collected during this sampling event as well as limited data provided by MOI for previous sampling events. A copy of the original laboratory report is included as Appendix A. Field documentation of purging and sampling data is included in Appendix B.

Figure 1 also presents groundwater elevations and contours for the current sampling event. This map was derived from a base map provided to Philip by MOI. Philip assumes all monitoring well locations to be located on the map accurately.

If you have any questions or require additional information please do not hesitate to contact Scott T. Pope of Philip at (505) 326-2262.

Respectfully submitted,

PHILIP ENVIRONMENTAL SERVICES CORPORATION



Scott T. Pope
Geologist

TABLE 1

BTEX RESULTS FROM GROUNDWATER SAMPLING

MERIDIAN OIL INC.

THOMAS NUMBER 1

Location	Date	Benzene μg/L	Toluene μg/L	Ethylbenzene μg/L	Total Xylenes μg/L
MW-1	01/10/96	ND (1.0)	ND (1.0)	ND (1.0)	ND (2.0)
	07/10/95	1.9	ND (1.0)	2.2	ND (2.0)
	01/04/95	<0.3	<0.3	<0.3	<0.9
	10/20/94	<0.3	<0.3	<0.3	<0.9
	06/15/93	ND	ND	ND	ND
	09/01/92	ND	ND	ND	ND
	11/01/91	ND	ND	ND	ND
MW-2	01/10/96	390	ND (10.0)	64	395
	07/10/95	400	ND (10.0)	47.0	324
	01/04/95	448	8.3	48.0	340
	10/20/94	556	<0.3	79.4	569
	06/15/93	860	420	130	2,540
	12/07/92	850	291	98	912
	11/13/92	3.00	484	164	1,190
	10/28/92	1,230	570	113	2,750
	09/15/92	251	64	23	397
	09/01/92	251	64	23	346
	11/01/91	800	2,800	400	8,100
	08/31/91	800	2,800	400	8,100
MW-3	08/18/91	10	750	750	620
	01/10/96	ND (25.0)	1200	88	470
	07/11/95	ND (10.0)	620	61	273
	01/04/95	122	2,700	155	1,322
	10/20/94	521	10,900	455	4,040
	06/15/93	ND	7,800	780	7,100
	12/08/92	25.6	1,560	570	1,720
	11/13/92	117	4,270	980	9,850
	10/28/92	256	11,400	1,120	5,640
	09/15/92	ND	8,220	ND	3,630
	09/01/92	ND	8,220	ND	ND
	11/01/91	1,500	30,000	2,000	36,000
	08/31/91	1,500	30,000	2,000	38,000
	08/18/91	10	750	750	620

TABLE 1

BTEX RESULTS FROM GROUNDWATER SAMPLING

MERIDIAN OIL INC.

THOMAS NUMBER 1

CONTINUED

Location	Date	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Total Xylenes µg/L
MW-4	01/10/96	ND (1.0)	ND (1.0)	3.6	15.4
	07/10/95	ND (1.0)	ND (1.0)	ND (1.0)	1.3
	01/04/95	<0.3	<0.3	<0.3	<0.5
	10/20/94	<0.3	<0.3	<0.3	<0.9
	06/15/93	ND	ND	ND	ND
	09/04/92	ND	ND	ND	ND
	11/01/91	ND	ND	ND	ND
MW-5	01/10/96	ND (1.0)	ND (1.0)	ND (1.0)	ND (2.0)
	07/11/95	13.0	6.1	3.7	9.0
	01/04/95	<0.3	<0.3	<0.3	<0.9
	10/20/94	<0.3	<0.3	<0.3	<0.9
	06/15/93	9.7	ND	ND	ND
	09/01/92	ND	ND	ND	ND
	11/01/91	ND	ND	ND	ND
Trip Blank	10/20/94	<0.3	<0.3	<0.3	<0.9
MW-52	01/10/96	330	ND (25.0)	55	310
(Duplicate of MW-2)	07/10/95	490	71.0	79.0	448
	01/04/95	294	44.0	33.0	238
	10/20/95	610	<0.3	72.0	555
µg/L = micrograms per liter BTEX Analysis by USEPA Method 8020 µg/L				ND = Not Detected (1.0) Detection Limit in µg/L	

TABLE 2

MONITORING WELL SAMPLING
GROUNDWATER ELEVATIONS AND WATER QUALITY FIELD MEASUREMENTS

Location	Date	Elevation feet MSL	pH	Conductivity μmhos/cm	Temperature °F	Gallons Removed
MW-1	01/10/96	5,372.04	7.18	3,960	48.0	5.0
	07/10/95	5,372.05	7.05	2,790	62.0	2.5
	01/04/95	5,371.72	6.96	2,120	45.5	2.5
	10/20/94	5,371.95	6.81	2,280	58.7	2.0
MW-2	01/10/96	5,371.40	NR	NR	NR	4.0
	07/10/95	5,371.23	NR	NR	NR	4.0
	01/04/95	5,371.02	6.95	2,160	44.8	1.5
	10/20/94	5,371.26	6.64	2,460	66.4	2.5
	10/28/92	*5,370.54	7.20	2,200	68.0	10.0
	11/13/92	*5,370.48	6.97	2,250	61.0	5.0
MW-3	01/10/96	5,371.15	7.43	4,640	47.1	2.0
	07/11/95	5,371.21	7.08	2,160	62.6	1.25
	01/04/95	5,371.01	5.35	2,640	43.4	2.0
	10/20/94	5,371.26	2.86	2,970	61.7	2.5
	10/28/92	*5,371.08	7.12	2,450	68.0	10.0
	11/13/92	*5,371.00	7.03	2,300	56.3	5.0
MW-4	01/10/96	5,371.15	7.52	2,770	47.1	2.0
	07/10/95	5,370.38	7.11	1,840	59.0	2.0
	01/04/95	5,370.31	6.97	2,350	43.0	2.0
	10/20/94	5,370.55	6.92	4,160	53.4	2.0
MW-5	01/10/96	5370.54	7.44	3,190	47.8	2.0
	07/11/95	5,372.01	7.11	1,840	59.0	2.0
	01/04/95	5,370.31	6.97	2,350	43.0	2.0
	10/20/95	5,370.55	6.92	4,160	53.4	2.0

MSL = mean sea level

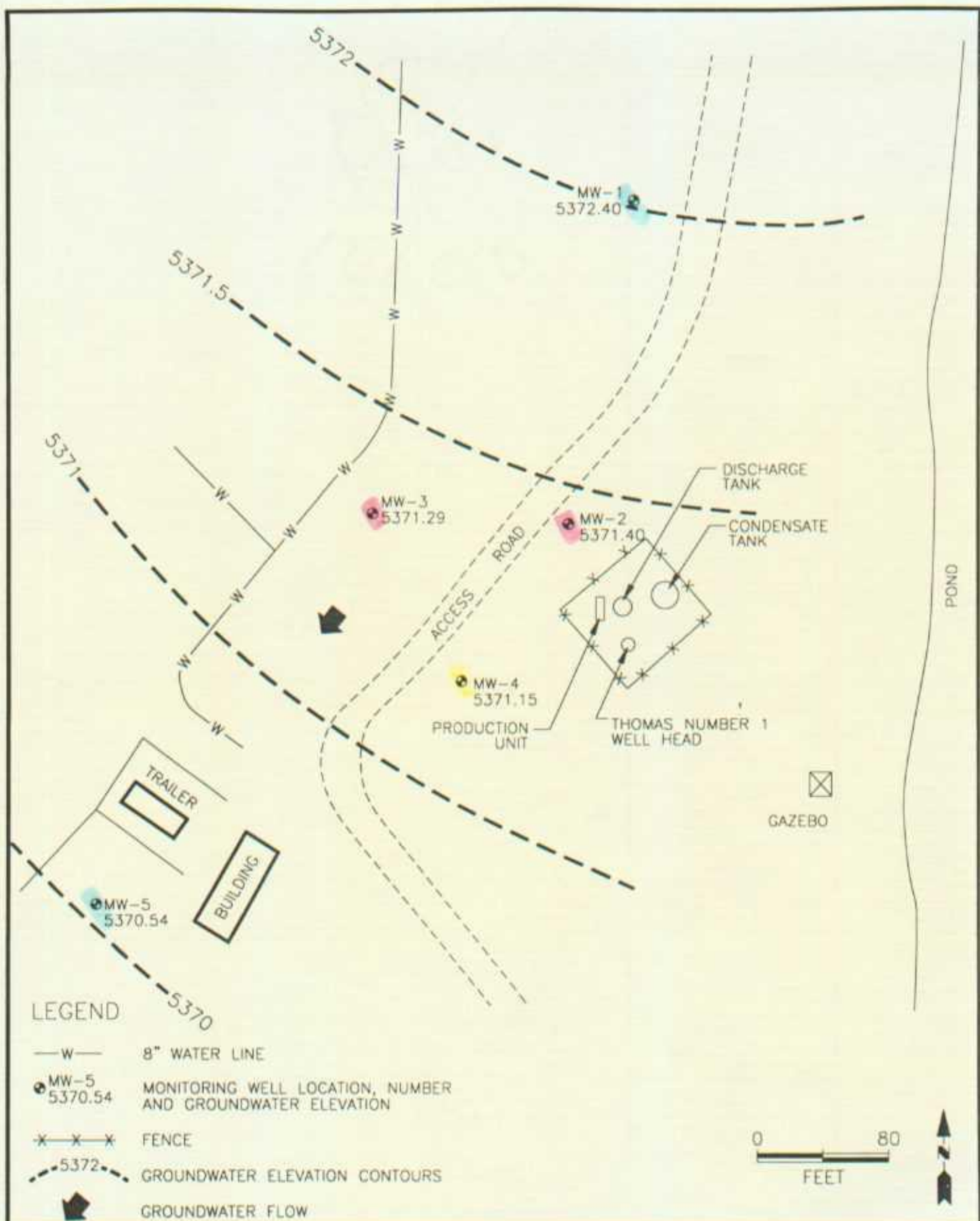
μmhos/cm = micromhos per centimeter

°F = degrees Fahrenheit

NR = No Reading

pH, conductivity, and temperature are final measurements prior to sampling.

*Philip assumes the reference point on these measurements to be the top of the well pipe.



LEGEND

- W — 8" WATER LINE
- MW-5 5370.54 MONITORING WELL LOCATION, NUMBER AND GROUNDWATER ELEVATION
- X-X-X- FENCE
- 5372- GROUNDWATER ELEVATION CONTOURS
- GROUNDWATER FLOW

0 80
FEET



TITLE:
Meridian Oil Inc.,
Thomas Number 1
Well Site

SCALE 1=80
DWN: TMM
DES:
CHKD:
APPD:

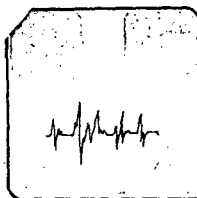
DATE

PROJECT NO: 13164
MERIDIAN OIL INC.

FIGURE 1

REV: 0

APPENDIX A



ASSAIGAI ANALYTICAL LABORATORIES

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964 • FAX (505) 345-7259

3332 Wedgewood, E-5 • El Paso, Texas 79925 • (915) 593-6000 • FAX (915) 593-7820

Report Generated:
February 5, 1996 10:51

CERTIFICATE OF ANALYSIS RESULTS BY SAMPLE

REVISED
215196

SENT PHILIP ENVIRONMENTAL
TO: 4000 MONROE RD.
FARMINGTON, NM 87401

WORKORDER # : 9601089
WORK ID : THOMAS NO. 1 13164
CLIENT CODE : BUR07
DATE RECEIVED : 01/11/96

ATTN: SCOTT POPE

Page: 1

Lab ID: 9601089-01A
Sample ID: MW-1

Collected: 01/10/96 10:25:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
BTEX/EPA 602						
Benzene	ND	ug/L	1.0	1.0	01/18/96	WBTXME080
Toluene	ND	ug/L	1.0	1.0	01/18/96	WBTXME080
Ethylbenzene	ND	ug/L	1.0	1.0	01/18/96	WBTXME080
P-&m-xylene	ND	ug/L	2.0	1.0	01/18/96	WBTXME080
O-xylene	ND	ug/L	1.0	1.0	01/18/96	WBTXME080

Lab ID: 9601089-02A
Sample ID: MW-2

Collected: 01/10/96 11:25:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
BTEX/EPA 602						
Benzene	390	ug/L	1.0	10	01/18/96	WBTXME080
Toluene	ND	ug/L	1.0	10	01/18/96	WBTXME080
Ethylbenzene	64	ug/L	1.0	10	01/18/96	WBTXME080
P-&m-xylene	380	ug/L	2.0	10	01/18/96	WBTXME080
O-xylene	15	ug/L	1.0	10	01/18/96	WBTXME080

Lab ID: 9601089-03A
Sample ID: MW-52

Collected: 01/10/96 11:30:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
BTEX/EPA 602						
Benzene	330	ug/L	1.0	25	01/18/96	WBTXME080
Toluene	ND	ug/L	1.0	25	01/18/96	WBTXME080
Ethylbenzene	55	ug/L	1.0	25	01/18/96	WBTXME080
P-&m-xylene	310	ug/L	2.0	25	01/18/96	WBTXME080
O-xylene	ND	ug/L	1.0	25	01/18/96	WBTXME080



Lab ID: 9601089-04A

Sample ID: MW-3

Collected: 01/10/96 13:30:00

Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
BTEX/EPA 602						
Benzene	ND	ug/L	1.0	25	01/18/96	WBTXME080
Toluene	1200	ug/L	1.0	25	01/18/96	WBTXME080
Ethylbenzene	88	ug/L	1.0	25	01/18/96	WBTXME080
P-&m-xylene	260	ug/L	2.0	25	01/18/96	WBTXME080
O-xylene	210	ug/L	1.0	25	01/18/96	WBTXME080

Lab ID: 9601089-05A

Sample ID: MW-4

Collected: 01/10/96 14:15:00

Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
BTEX/EPA 602						
Benzene	ND	ug/L	1.0	1.0	01/18/96	WBTXME080
Toluene	ND	ug/L	1.0	1.0	01/18/96	WBTXME080
Ethylbenzene	3.6	ug/L	1.0	1.0	01/18/96	WBTXME080
P-&m-xylene	14	ug/L	2.0	1.0	01/18/96	WBTXME080
O-xylene	1.4	ug/L	1.0	1.0	01/18/96	WBTXME080

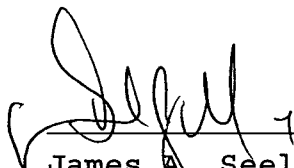
Lab ID: 9601089-06A

Sample ID: MW-5

Collected: 01/10/96 15:30:00

Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
BTEX/EPA 602						
Benzene	ND	ug/L	1.0	1.0	01/18/96	WBTXME080
Toluene	ND	ug/L	1.0	1.0	01/18/96	WBTXME080
Ethylbenzene	ND	ug/L	1.0	1.0	01/18/96	WBTXME080
P-&m-xylene	ND	ug/L	2.0	1.0	01/18/96	WBTXME080
O-xylene	ND	ug/L	1.0	1.0	01/18/96	WBTXME080


James A. Seely
Operations Manager

WORKORDER COMMENTS

DATE : 02/05/96

WORKORDER:

DEFINITIONS/DATA QUALIFIERS

The following are definitions, abbreviations, and data qualifiers which may have been utilized in your report:

- ND = Analyte "not detected" in analysis at the sample specific detection limit.
- D_F = Sample "dilution factor"
- NT = Analyte "not tested" per client request.
- B = Analyte was also detected in laboratory method QC blank.
- E = Analyte concentration (result) is an estimated value or exceeds analysis calibration range.
- LIMIT = The minimum amount of the analyte that AAL can detect utilizing the specified analysis.

Please Note: Multiply the "Limit" value (AAL's Detection Limit) by Dilution Factor (D_F) to obtain the sample specific Detection Limit.

REPORT COMMENTS



BURLINGTON ENVIRONMENTAL
A Philip Environmental Company

Chain-of Custody Record

4000 Monroe Road
Farmington, NM 87401
(505) 326-2262 Phone
(505) 326-2388 FAX

COC Serial No. C 1906

Project Name <u>Thomas No. 1</u>		Type of Analysis and Bottle		Total Number of Bottles	Comments
Project Number <u>13164</u> Phase Task <u>0077.77</u>					
Samplers <u>STP</u>					
Laboratory Name <u>Assaigi</u>					
Location <u>Albuquerque, NM</u>					
Sample Number (and depth)	Date	Time	Matrix		
MW-1	1/10/96	1025	H ₂ O	2	X
MW-2		1125		2	X
MW-52		1130		2	X
MW-3		1330		2	X
MW-4		1415		2	X
MW-5	1/10/96	1530	H ₂ O	2	X

01A
02A
03A
04A
05A
06A

Relinquished by:		Received By:	
Signature <u>Steve T. Pope</u>	Date <u>1/10/96</u>	Signature <u>Alanna N. Campbell</u>	Date <u>1/11/96</u>
	Time <u>1630</u>		Time <u>9130</u>

Samples Iced: ☒ Yes ☐ No	Carrier: <u>UPS</u>	Airbill No. <u>06904652037</u>
Preservatives (ONLY for Water Samples)		
☐ Cyanide Sodium hydroxide (NaOH)		
☒ Volatile Organic Analytes Hydrochloric acid (HCl)		
☐ Metals Nitric acid (HNO ₃)		
☐ TPH (418.1) Sulfuric acid (H ₂ SO ₄)		
☐ Other (Specify) _____		
☐ Other (Specify) _____		
Shipping and Lab Notes: <u>Please Return Cooler to Address Above</u>		

APPENDIX B



Water Sampling Data

Location No. MW-1

Serial No. WSD- _____

Group List Number _____

Sample Type: ☒ Groundwater ☐ Surface Water ☐ Other _____ Date 11/10/96Project Name Thomas No. 1 Project No. 13164Project Manager S. Pope Phase/Task No. EC0017.77Site Name Thomas No. 1

Sampling Specifications

Requested Sampling
Depth Interval (feet) Top 3'
Requested Wait Following
Development/Purging (hours) None

Initial Measurements

Time Elapsed From Final Development/Purging (hours) .33
Initial Water Depth (feet) 3.2
Nonaqueous Liquids Present (Describe) N/A

Water Quality/Water Collection

DO = Dissolved Oxygen; Cond. = Conductivity

Date	Time	Sampler Initials	Water Quality Readings				Water Collection Data				Notes (Explain in Comments Below)
			Temp. (°C)	pH	DO (mg/L)	Cond. (µmhos/ cm)	Volume Removed (gallons)	Removal Rate (gal/min)	Pump Intake Depth (feet)	Bail	
See Purging DATA Sheet											

Sample Containers

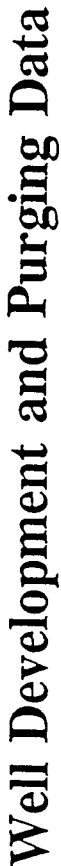
Container Type: G = Clear Glass; A = Amber Glass; P = Plastic; V = VOA Vial (Glass); O = Other (Specify)
Preservatives: H = HCl; N = HNO₃; S = H₂SO₄; A = NaOH; O = Other (Specify); - = None

Analytical Parameter List	Container			Field Filtered		Preserved	Cooled During Collection		Comments
	Number	Type	Volume (mL)	Yes	No		Yes	No	
<u>BTEX</u>	<u>2</u>	<u>A</u>	<u>40</u>		<u>X</u>	<u>HCL</u>	<u>X</u>		<u>1025</u>

Filter Type _____ Chain-of-Custody Form Number C 1906

Comments _____

Signature Sam T. Pope Date 11/10/96 Reviewer STP Date 2/21/96



Well Number

Serial No. WDPD-

Project Name Mexican Thins No 1

Project Manager S. Papp

Project No. 13164

Client Company Mevidian Oil Inc

Phase.Task No. 0077.77

Site Name Thomas No. 1 Site Address Bloomfield, Ind, NW

Development Criteria

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

Water Volume Calculation

Initial Depth of Well (feet)	7.96
------------------------------	------

Initial Depth to Water (feet) 3.12

Height of Water Column in Well (feet) 4.84

Diameter (inches): Well _____ Gravel Pack _____

Methods of Development

- Pump**
- ☐ Centrifugal
 - ☐ Submersible
 - ☐ Peristaltic
 - ☐ Other
- Bailer**
- ☒ Bottom Valve
 - ☐ Double Check Valve
 - ☐ Stainless-steel Kemmerer
 - ☐

Instruments

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

Serial No. (If applicable)

Water Disposal

IN TANK CINSITE

Water Removal Data

[illegible]

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

Comments

Developer's Signature(s) 

Date 1/10/96

Reviewer SPD Date 2/21/96



Water Sampling Data

Location No. MW-2Serial No. WSD-Group List Number Sample Type: ☒ Groundwater ☐ Surface Water ☐ Other Date 11/10/96Project Name Thomas No. 1 Project No. 13164Project Manager S. Pope Phase/Task No. 0077 . 77Site Name Thomas No. 1

Sampling Specifications

Requested Sampling
Depth Interval (feet) TOP 3'
Requested Wait Following
Development/Purging (hours) None

Initial Measurements

Time Elapsed From Final Development/Purging (hours) .25
Initial Water Depth (feet) 3.68
Nonaqueous Liquids Present (Describe) MTA Light Sheen

Water Quality/Water Collection

DO = Dissolved Oxygen; Cond. = Conductivity

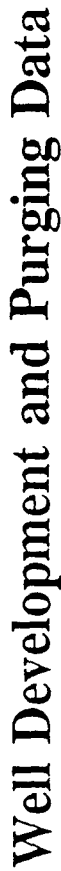
Date	Time	Sampler Initials	Water Quality Readings				Water Collection Data				Notes (Explain in Comments Below)	
			Temp. (°C)	pH	DO (mg/L)	Cond. (µmhos/ cm)	Volume Removed (gallons)	Removal Rate (gal/min)	Pump Intake Depth (feet)	Bail		Final Water Depth (feet)
-	See	Purging	Data	Sheet								

Sample Containers

Container Type: G = Clear Glass; A = Amber Glass; P = Plastic; V = VOA Vial (Glass); O = Other (Specify)
Preservatives: H = HCl; N = HNO₃; S = H₂SO₄; A = NaOH; O = Other (Specify); - = None

Analytical Parameter List	Container			Field Filtered		Preserved	Cooled During Collection		Comments
	Number	Type	Volume (mL)	Yes	No		Yes	No	
BTEX	2	A	40		X	H	X		1125
BTEX	2	A	40		X	H	X		MW-52 D-4p 1130

Filter Type Chain-of-Custody Form Number C1906Comments Signature Sam T. Pope Date 11/10/96 Reviewer STP Date 2/21/96



mw-2

Serial No. WDPD-

Page / of /

Thermos No. 1

S. Pope

Project No. 13164

Phase, Task No. 0077.77

Bloomfield, N.J.

Site Address

Water Volume Calculation

Initial Depth of Well (feet)	725
Initial Depth to Water (feet)	3.68
Height of Water Column in Well (feet)	

Instruments

☒ pH Meter

Duster

☐ DO Monitor

)

☒ Conductivity Meter☒ Temperature Meter☐ Other

Pump

☐ Other

Water Removal Data

[illegible]

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

Comments * No Samples for water quality taken due to heavy contamination

— T. —

Date 01/10/86

Reviewer STP Date 6/21/96



Water Sampling Data

Location No. MW-3Serial No. WSD-Group List Number Sample Type: ☒ Groundwater ☐ Surface Water ☐ Other Date 11/10/96Project Name Thomas No. 1 Project No. 13164Project Manager S. Pope Phase Task No. 0077.77Site Name Thomas No. 1

Sampling Specifications

Requested Sampling

Depth Interval (feet) TOP 3'

Requested Wait Following

Development/Purging (hours)

Initial Measurements

Time Elapsed From Final Development/Purging (hours) .75Initial Water Depth (feet) 2.35Nonaqueous Liquids Present (Describe) N/A

Water Quality/Water Collection

DO = Dissolved Oxygen; Cond. = Conductivity

Date	Time	Sampler Initials	Water Quality Readings				Water Collection Data					Notes (Explain in Comments Below)
			Temp. (°C)	pH	DO (mg/L)	Cond. (µmhos/ cm)	Volume Removed (gallons)	Removal Rate (gal/min)	Pump Intake Depth (feet)	Bail	Final Water Depth (feet)	
			See Purge Data Sheet									

Container Type: G = Clear Glass; A = Amber Glass; P = Plastic; V = VOA Vial (Glass); O = Other (Specify)

Sample Containers

Preservatives: H = HCl; N = HNO₃; S = H₂SO₄; A = NaOH; O = Other (Specify); -- = None

Analytical Parameter List	Container			Field Filtered		Preserved	Cooled During Collection		Comments
	Number	Type	Volume (mL)	Yes	No		Yes	No	
BTEX	2	A	40		X	H	X		1330

Filter Type Chain-of-Custody Form Number C1906Comments Signature S. T. Pope Date 11/10/96 Reviewer STP Date 2/21/96

Well Number

22-3

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S: Pope

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Phase.Task No. 0077.77

Bromfield. Apr

Instruments

Initial Depth of Well (feet)

Instruments

~~☐~~ pH Meter

☐ DO Monitor

Diameter (inches): Well 2" Gravel pack —

Pump

☐ Centrifugal

☐ Submersible

☐ Peristaltic

☐ Other

Bailer

☒ Bottom Valve

☐ Double Check Valve

☐ Stainless-steel Kemmerer

Water Disposal

In Tank on Site

[illegible]

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

Comments * Boiled Dry after Remov^Uing 1.0 gallon @ 1210, Boiled Dry after additional 5 gal. Nos. 1230, Boiled Dry after addition 15 gal.

Developer's Signature(s)

Date 11/10/96

Reviewer STP Date 2/21/96



Water Sampling Data

Location No. MW-4

Serial No. WSD- _____

Group List Number _____

Sample Type: ☒ Groundwater ☐ Surface Water ☐ Other _____ Date 1/10/96Project Name Thomas No. 1 Project No. 13164Project Manager S. Pope Phase Task No. 0077.77Site Name Thomas No. 1

Sampling Specifications

Requested Sampling

Depth Interval (feet) TOP 3'

Requested Wait Following

Development/Purging (hours) None

Initial Measurements

Time Elapsed From Final Development/Purging (hours) .17Initial Water Depth (feet) 2.5Nonaqueous Liquids Present (Describe) N/A

Water Quality/Water Collection

DO = Dissolved Oxygen; Cond. = Conductivity

Date	Time	Sampler Initials	Water Quality Readings				Water Collection Data				Notes (Explain in Comments Below)
			Temp. (°C)	pH	DO (mg/L)	Cond. (µmhos/ cm)	Volume Removed (gallons)	Removal Rate (gal/min)	Pump Intake Depth (feet)	Bail	
See Purging Data Sheet											

Container Type: G = Clear Glass; A = Amber Glass; P = Plastic; V = VOA Vial (Glass); O = Other (Specify)

Sample Containers

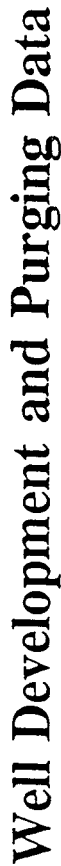
Preservatives: H = HCl; N = HNO₃; S = H₂SO₄; A = NaOH; O = Other (Specify); -- = None

Analytical Parameter List	Container			Field Filtered		Preserved	Cooled During Collection		Comments
	Number	Type	Volume (mL)	Yes	No		Yes	No	
<u>BTEX</u>	<u>2</u>	<u>A</u>	<u>40</u>		<u>X</u>	<u>H</u>	<u>X</u>		<u>1415</u>

Filter Type _____ Chain-of-Custody Form Number C1906

Comments _____

Signature S. T. Pope Date 1/10/96 Reviewer STP Date 2/21/96

☐ Development
☒ Purging

Well Number

MW-4

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Thomas No. 1

Project Manager

Page

Project No.

Client Company Meredian Oil Inc

Thomas No 1

Site Address

Water Volume Calculation

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

Initial Depth of Well (feet) 4.39
Initial Depth to Water (feet) 2.5
Height of Water Column in Well (feet) 1.89

Diameter (inches): Well $\geq$ 1" Gravel Pack $\geq 1/4$

Pump

☐ Centrifugal

☐ Submersible

☐ Peristaltic

☐ Other

Bailer

☒ Bottom Valve

☐ Double Check Valve

☐ Stainless-steel Kemmerer

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		3	3
Gravel Pack			
Drilling Fluids			
Total			3 = 9

Instruments

struments Serial No. (If applicable)

☒ pH Meter Oyster

☐ DO Monitor

☒ Conductivity Meter☒ Temperature Meter☐ Other

Water Disposal

ater Disposal
In Tank on Site

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 (µmhos/cm)	Dissolved Oxygen (mg/L)	Comments
		Pump	Bailer				Increment	Cumulative	Increment	Cumulative					
1/10/96	1344		X					.5	.5		8.6	7.58	2570		Brown Cloudy
	1354							.5	1.0		8.4	7.54	2640		Brown, Slightly Cloudy
	1458							.5	1.5		8.5	7.52	2710		Brown, Slightly Cloudy

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 (µmhos/cm)	Dissolved Oxygen (mg/L)	Comments
		Pump	Ballot				Increment	Cumulative	Increment	Cumulative					
1/10/96	1344	X					.5	.5			8.6	7.58	2570		Brown Cloudy
	1354						.5	1.0			8.4	7.54	2640		Very Slightly E
	1358						.5	1.5			8.5	7.52	2760		Mostly Clear
	1404						.5	2.0			8.4	7.52	2770		" "

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

Comments

Developer's Signature(s)

Date 1/20/96

Reviewer S770

Date 2/21/96



Water Sampling Data

Location No. MW-5Serial No. WSD-Group List Number Sample Type: ☒ Groundwater ☐ Surface Water ☐ Other Date 1/10/96Project Name Thomas No. 1 Project No. 13164Project Manager S. Pope Phase/Task No. 0077 . 77Site Name Thomas No. 1

Sampling Specifications

Requested Sampling

Depth Interval (feet) TOP 3'

Requested Wait Following

Development/Purging (hours) None

Initial Measurements

Time Elapsed From Final Development/Purging (hours) .33Initial Water Depth (feet) 3.9Nonaqueous Liquids Present (Describe) N/A

Water Quality/Water Collection

DO = Dissolved Oxygen; Cond. = Conductivity

Date	Time	Sampler Initials	Water Quality Readings				Water Collection Data					Notes (Explain in Comments Below)
			Temp. (°C)	pH	DO (mg/L)	Cond. (µmhos/ cm)	Volume Removed (gallons)	Removal Rate (gal/min)	Pump Intake Depth (feet)	Bail	Final Water Depth (feet)	
See Purge Data Sheet												

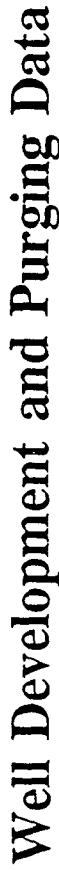
Container Type: G = Clear Glass; A = Amber Glass; P = Plastic; V = VOA Vial (Glass); O = Other (Specify)

Sample Containers

Preservatives: H = HCl; N = HNO₃; S = H₂SO₄; A = NaOH; O = Other (Specify); - = None

Analytical Parameter List	Container			Field Filtered		Preserved	Cooled During Collection		Comments
	Number	Type	Volume (mL)	Yes	No		Yes	No	
<u>BTEX</u>	<u>2</u>	<u>HA</u>	<u>40</u>		<u>X</u>	<u>H</u>	<u>X</u>		<u>1530</u>

Filter Type Chain-of-Custody Form Number Comments Signature S. T. Pope Date 1/10/96 Reviewer STP Date 2/21/96



21W-5

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CCc

Project No. 13164

Phase.Task No. 0017.77

1

Water Volume Calculation

Diameter (inches): Well _____ Gravel Pack _____

ions to

removed

42

☐ Other _____

Water Disposal

[illegible]

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

Comments

Reviewer STP Date 2/21/16

**BURLINGTON
ENVIRONMENTAL**

A Philip Environmental Company

Chain-of-Custody Record

4000 Monroe Road
Farmington, NM 87401
(505) 326-2262 Phone
(505) 326-2388 FAX

COC Serial No. C 1906

Project Name		Phase, Task		Type of Analysis and Bottle	Total Number of Bottles	Comments
Project Number	Samplers	Laboratory	Name			
Thomas No. 1	13164	STP	Assaigi			
			Location			
			Albuquerque NM			
Sample Number (and depth)	Date	Time	Matrix			
MW-1	11/10/96	1025	H ₂ O	2	X	
MW-2		1125		2	X	
MW-5a		1130		2	X	
MW-3		1330		2	X	
MW-4		1415		2	X	
MW-5	11/10/96	1530	H ₂ O	2	X	

Relinquished by:

Received By:

	Signature	Date	Time	Signature	Date	Time
	[Signature]	11/10/96	1630			

Samples Iced: ☒ Yes ☐

Preservatives (ONLY for Water Samples)

☐ Cyanide Sodium hydroxide (NaOH)

☒ Volatile Organic Analysis Hydrochloric acid (HCl)☐ Metals Nitric acid (HNO₃)

☐ **TPH (418.1)** Sulfuric acid (H₂SO₄)

☐ Other (Specify) _____

☐ Other (Specify) _____ ☐ Other (Specify) _____

Carrier: UPS
Shipping and Lab Notes:

g and Lab Notes:

Airbill No. 0690408027