3R - 79

REPORTS

DATE:

11/16/1994

BURLINGTON
ENVIRONMENTAL

November 16, 1994
Project 13164

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

Dear Mr. Bock:

Subject: Report for Semiannual Groundwater Sampling at the Meridian Oil Inc. Thomas No. 1 Location in Bloomfield, New Mexico

During October 1994, Burlington Environmental Inc. (Burlington) initiated a semiannual groundwater sampling program at the Meridian Oil Inc. (MOI) Thomas No. 1 production well location. The site is located in San Juan County, New Mexico in the southwest corner of Section 20, Township 29 North, Range 11 West, as shown in Figure 1.

The groundwater sampling included:

- collecting depth to groundwater measurements;
- purging a minimum of three casing volumes and monitoring pH, conductivity, and temperature until stable for Monitoring Wells 1 through 5 ; and
- 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 8020.

METHODOLOGY

Groundwater sampling of the five monitoring wells at the Thomas No. 1 took place on October 20, 1994, and was completed the same day. Burlington's field representative began 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 at the top of the well casing. The total 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 precleaned Teflon™ bailer with an approximate volume of one liter. Decontamination procedures for the bailers included scrubbing the bailer and bailer parts with an Alconox™ soap solution followed by a potable-water rinse and a final distilled-water triple rinse.

Field water-quality measurements of pH, conductivity and temperature were taken periodically during the purging of the well to ensure that the water sampled was representative of the groundwater. 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 the Teflon™ bailer directly into 60 milliliter amber glass containers with Teflon™ septum closures. All samples collected were preserved with hydrochloric acid and placed directly on ice and transported via Federal Express under strict chain-of-custody procedures to Burlington's corporate laboratory. Each sample was analyzed for benzene, toluene, ethylbenzene and xylenes by USEPA Method 8020. In addition to collecting samples from each well, a trip blank and a duplicate of MW-2 were analyzed for BTEX. These results are presented in Table 1.

All groundwater purged from each monitoring well was stored in buckets and transported by hand to a nearby above-ground storage tank for disposal as directed by MOI personnel.

RESULTS

Laboratory results showed BTEX values to be below detection limits for MW-1, MW-4 and MW-5. The samples from MW-2 and MW-3 reported BTEX compounds to be detected. The results from the semiannual 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.

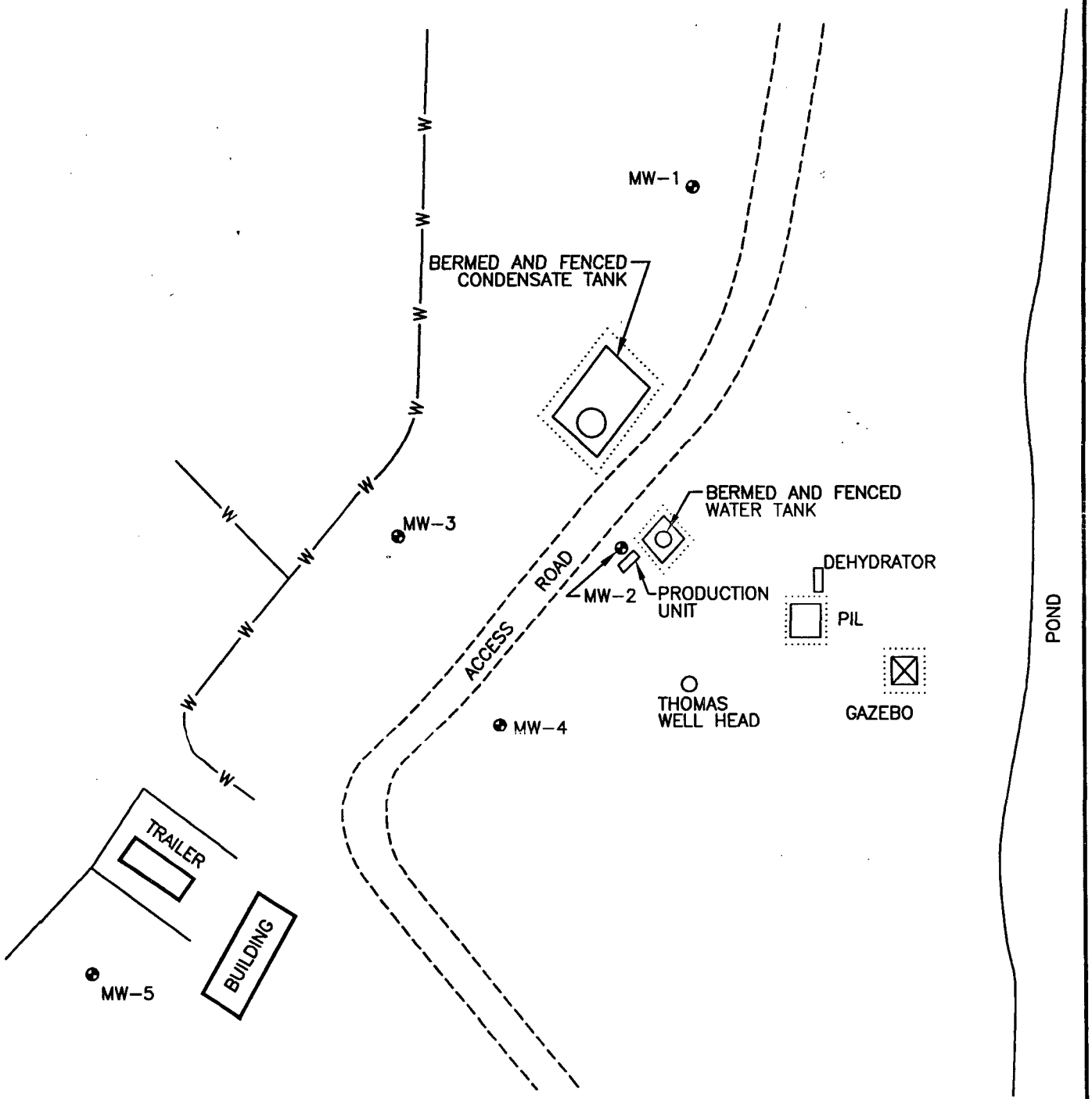
If you have any questions or require additional information please do not hesitate to contact me at (505) 326-2262.

Respectfully Submitted,

BURLINGTON ENVIRONMENTAL INC.

Scott T. Pope
Geologist

STP/lcc/216wl



BURLINGTON ENVIRONMENTAL
– A Phillips Environmental Company –

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

DWN: TMM	DES.:	PROJECT NO.: 13164
CHKD:	APPD:	MERIDIAN OIL INC.
DATE: 10/24/94	REV.:	FIGURE 1

COL 13184A-001

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	10/20/94	<0.3	<0.3	<0.3	<0.9
	6/15/93	ND	ND	ND	ND
	9/1/92	ND	ND	ND	ND
	11/1/91	ND	ND	ND	ND
MW-2	10/20/94	556	<0.3	79.4	569
	6/15/93	860	420	130	2,540
	12/7/92	850	291	98	912
	11/13/92	3.00	484	164	1,190
	10/28/92	1,230	570	113	2,750
	9/15/92	251	64	23	397
	9/1/92	251	64	23	346
	11/1/91	800	2,800	400	8,100
	8/31/91	800	2,800	400	8,100
	8/18/91	10	750	750	620
MW-3	10/20/94	521	10,900	455	4,040
	6/15/93	ND	7,800	780	7,100
	12/8/92	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
	9/15/92	ND	8,220	ND	3,630
	9/1/92	ND	8,220	ND	ND
	11/1/91	1,500	30,000	2,000	36,000
	8/31/91	1,500	30,000	2,000	38,000
	8/18/91	10	750	750	620
MW-4	10/20/94	<0.3	<0.3	<0.3	<0.9
	6/15/93	ND	ND	ND	ND
	9/1/92	ND	ND	ND	ND
	11/1/91	ND	ND	ND	ND
MW-5	10/20/94	<0.3	<0.3	<0.3	<0.9
	6/15/93	9.7	ND	ND	ND
	9/1/92	ND	ND	ND	ND
	11/1/91	ND	ND	ND	ND
Trip Blank	10/20/94	<0.3	<0.3	<0.3	<0.9
MW-2 Duplicate	10/20/94	610	<0.3	72	555

µg/L = micrograms per liter ND = Not Detected
BTEX Analysis by USEPA Method 8020

Table 2
Monitoring Well Sampling
Field Measurements

Location	Date	Elevation feet MSL	pH	Conductivity µmhos/cm	Temperature °F	Gallons Removed
MW-1	10/20/94	5,371.95	6.81	2,280	58.7	2.0
MW-2	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	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	10/20/94	5,371.04	7.02	2,310	58.5	1.75
MW-5	10/20/94	5,370.55	6.92	4,160	53.4	2.0

MSL = Mean Sea Level
µmhos/cm = micromhos per centimeter
°F = degrees Fahrenheit
pH, conductivity, and temperature are final measurements prior to sampling.
*Burlington assumes the reference point on these measurements to be the top of the well pipe.

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10-Nov-94

BURLINGTON ENVIRONMENTAL
4000 Monroe Road
Farmington, NM 87401
USA

Attn: Sarah Kelly
Project: 13164

Received: 21-Oct-94 16:42
PO #:

Job: 9410106

Status: Final

Water Samples

Sample Id	BENZENE 5030/8020 ug/L	TOLUENE 5030/8020 ug/L	ETHYLBENZENE 5030/8020 ug/L	m- & p- XYLENES 5030/8020 ug/L	o-XYLENE 5030/8020 ug/L	B.F.BENZENE 5030/8020 % Recovery
MW1	<0.3	<0.3	<0.3	<0.6	<0.3	98%
MW2	556.	<0.3	79.4	469.	100.	N
MW3	521.	10900.	455.	2870.	1170.	N
MW4	<0.3	<0.3	<0.3	<0.6	<0.3	126%
MW5	<0.3	<0.3	<0.3	<0.6	<0.3	123%
TRIP BLANK	<0.3	<0.3	<0.3	<0.6	<0.3	102%
MW-2 DUPLICATE	610.	<0.3	72.0	452.	103.	N
Sample+Spike(actual)	105.%	103.%	104.%	97.0%	106.%	108%
Sample+Spike(expected)	100.%	100.%	100.%	100.%	100.%	100%
Blank	<0.3	<0.3	<0.3	<0.6	<0.3	102%
QC Standard (actual)	110.%	115.%	99.0%	100.%	102.%	101%
QC Standard (expected)	100.%	100.%	100.%	100.%	100.%	100%
Repeat MW1	<0.3	<0.3	<0.3	<0.6	<0.3	104%

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Status: Final

Abbreviations:

Parameters:

BENZENE	: Benzene
TOLUENE	: Toluene
ETHYLBENZENE	: Ethylbenzene
m- & p- XYLENES	: m-XYLENE & p-XYLENE
o-XYLENE	: o-Xylene
B.F.BENZENE	: 4-Bromofluorobenzene (Surrogate Standard)

Methods:

5030/8020	: Methods 5030 and 8020 from US EPA SW-846

Units:

ug/L	: Micrograms per liter
% Recovery	: Percent Recovery

Quality codes:

%	: Percent
<	: Result obtained was below the detection limit
N	: Not Applicable

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Status: Final

Samples MW-2 and MW-3 were diluted by factors of 500 and 5000 respectively due to the high content of certain target compounds present. Therefore, no surrogate recoveries were reported for these samples.

Job approved by:

Signed: M. Riskallah

Medhat Riskallah, Ph.D., C.Chem.
Manager, Gas Chromatography Section

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Job: 9410106

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QUALITY CONTROL DATA SHEET

Received by: rcs Via: Sarah Kelly

Sample Container Type: Glass
Sample Type: Water
Preservative When Received: HCl
Additional Lab Preparation: None

Parameter	Method	M.D.L	Date Sampled	Date Extracted	Date Analysed
BTEX	SW5030/8020	0.3ug/L	Oct.20/94	Oct.25/94	Oct.25/94

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MW1	<0.3	<0.3	<0.3	<0.6	<0.3	98%
MW2	556.	<150.	<150.	469.	<150.	N
MW3	<1500.	10900.	<1500.	<3000.	<1500.	N
MW4	<0.3	<0.3	<0.3	<0.6	<0.3	126%
MW5	<0.3	<0.3	<0.3	<0.6	<0.3	123%
TRIP BLANK	<0.3	<0.3	<0.3	<0.6	<0.3	102%
MW-2 DUPLICATE	610.	<150.	<150.	452.	<150.	N
Sample+Spike(actual)	105.%	103.%	104.%	97.0%	106.%	108%
Sample+Spike(expected)	100.%	100.%	100.%	100.%	100.%	100%
Blank	<0.3	<0.3	<0.3	<0.6	<0.3	102%
QC Standard (actual)	110.%	115.%	99.0%	100.%	102.%	101%
QC Standard (expected)	100.%	100.%	100.%	100.%	100.%	100%
Repeat MW1	<0.3	<0.3	<0.3	<0.6	<0.3	104%

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Abbreviations:

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Job approved by:

Signed: .....M. Riskallah.....

Medhat Riskallah, Ph.D., C.Chem.
Manager, Gas Chromatography Section

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Sample Type: Water
Preservative When Received: HCl
Additional Lab Preparation: None

Parameter	Method	M.D.L	Date Sampled	Date Extracted	Date Analysed
BTEX	SW5030/8020	0.3ug/L	Oct.20/94	Oct.25/94	Oct.25/94

Burlington Environmental Inc.
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