

3R - 79

# REPORTS

DATE:

1/24/1995



## **BURLINGTON ENVIRONMENTAL**

January 24, 1995  
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 January 4, 1995, 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



Page 2  
Mr. Bock  
January 24, 1995

by pouring groundwater from the Teflon™ bailer directly into 40 milliliter 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 BTEX by USEPA Method 8020. In addition to collecting samples from each well, a duplicate of MW-2 (identified as MW-52) was also analyzed. 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.

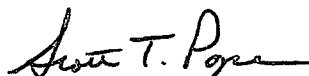
## RESULTS

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.

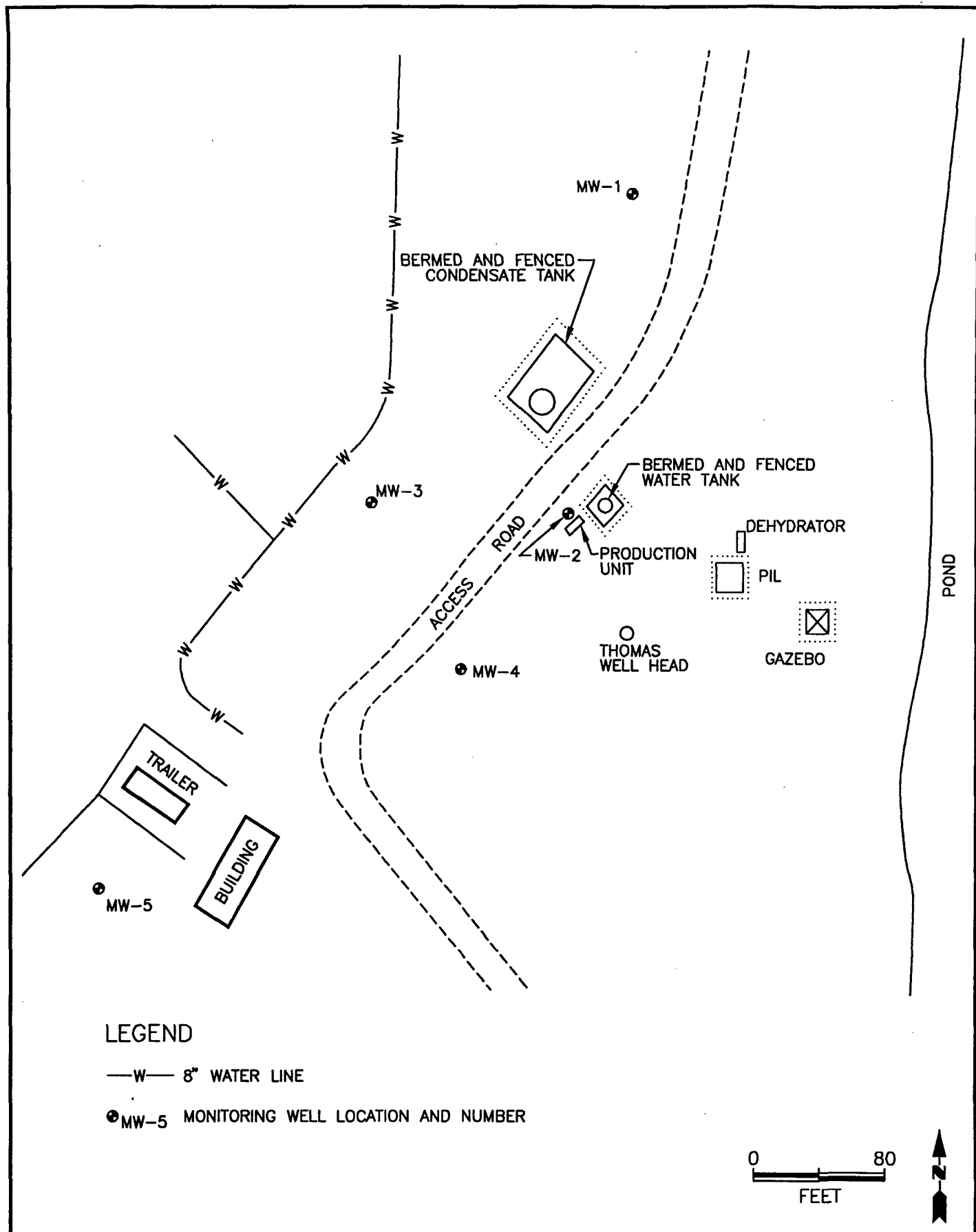
Respectfully Submitted,

BURLINGTON ENVIRONMENTAL INC.



Scott T. Pope  
Geologist

STP/lcc/255wl



# LEGEND

—W— 8" WATER LINE

● MW-5 MONITORING WELL LOCATION AND NUMBER

0 80  
FEET



COL 13164A-001



**BURLINGTON  
ENVIRONMENTAL**  
— A Field Environmental Company —

TITLE:

Meridian Oil Inc.,  
Thomas #1 Well Site

DWN:  
TMM

CHKD:

DATE:  
10/24/94

DES.:

APPD:

REV.:

PROJECT NO.:

13164

MERIDIAN OIL INC.

FIGURE 1

**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	1/04/95	<0.3	<0.3	<0.3	<0.9
	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	1/04/95	448	8.3	48.0	340
	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
MW-3	8/18/91	10	750	750	620
	1/04/95	122	2700	155	1,322
	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

µg/L = micrograms per liter  
 BTEX Analysis by USEPA Method 8020

ND = Not Detected

**Table 1**  
**BTEX Results from Groundwater Sampling**  
**Meridian Oil Inc.**  
**Thomas Number 1**  
**Continued**

	Date	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Total Xylenes µg/L
MW-4	1/04/95	<0.3	<0.3	<0.3	0.5
	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	1/04/95	<0.3	<0.3	<0.3	<0.9
	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-52	1/04/95	294	44.0	33.0	238
(Duplicate of MW-2)	10/20/94	610	<0.3	72.0	555

µg/L = micrograms per liter  
 BTEX Analysis by USEPA Method 8020

ND = Not Detected

**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	1/04/95	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	1/04/95	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	1/04/95	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	1/04/95	5,370.80	6.99	1,970	44.7	1.0
	10/20/94	5,371.04	7.02	2,310	58.5	1.75
MW-5	1/04/95	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

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.

**APPENDIX A**





**BURLINGTON  
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**BURLINGTON ENVIRONMENTAL**  
3010 Greens Road  
Houston, TX 77032  
USA

19-Jan-95

Page: 1  
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Attn: Ms. Sarah Kelly  
Project: 13164

PO #:

Received: 5-Jan-95 12:18

Job: 9510001

Status: Final

**Water Samples**

Sample Id	BENZENE		TOLUENE		ETHYLBENZENE m-		p- XYLENES		o-XYLENE B.F.BENZENE	
	5030/8020	ug/L	5030/8020	ug/L	5030/8020	ug/L	5030/8020	ug/L	5030/8020	% Recovery
MW1	<0.3		<0.3		<0.3		<0.6		<0.3	105%
MW2	448.		8.3		48.0		297.		43.0	N
MW3	122.		2700.		155.		988.		334.	N
MW4	<0.3		<0.3		<0.3		<0.6		0.5	120%
MW5	<0.3		<0.3		<0.3		<0.6		<0.3	108%
MW52	294.		44.0		33.0		204.		34.0	N
Sample+Spike (found)	83.0%		105.%		92.0%		88.0%		120.%	115%
Sample+Spike (expected)	100.%		100.%		100.%		100.%		100.%	100%
Blank	<0.3		<0.3		<0.3		<0.6		<0.3	107%
QC Standard (found)	100.%		105.%		106.%		107.%		107.%	108%
QC Standard (expected)	100.%		100.%		100.%		100.%		100.%	100%
Repeat MW1	<0.3		<0.3		<0.3		<0.6		<0.3	100%

Burlington Environmental Inc.  
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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

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Status: Final

% Recovery : Percent Recovery

Quality codes:

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

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Status: Final

Samples MW2, MW3 and MW52 were diluted by factors of 400, 2000, and 200 respectively due to the presence of high concentrations of certain target compounds. 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: 9510001

Status: Final

**QUALITY CONTROL DATA SHEET**

Received by: frank

Via: Sarah Kelly

Sample Container Type: Glass  
Sample Type: Water

Parameter	Method	M.D.L.	Preservative	Analyst	Date of Analysis
BTEX	5030/8020	0.3 ug/L	None	Tsehay	1/10

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