

GW - 21

REPORTS

**GW Mon. Wells
Plugging**

6/11/2009



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2009 JUN 15 PM 1 20

ARCADIS
1004 North Big Spring Street
Suite 300
Midland
Texas 79701
Tel 432.687.5400
Fax 432.687.5401
www.arcadis-us.com

Mr. Terry Persaud, P.E.
Marathon Oil Company
P.O. Box 3487
Mail Stop 32:07
Houston, Texas 77253-3487

Subject:
Indian Basin Remediation Project Monitoring Well Plugging Report
Indian Basin Gas Plant
Eddy County, New Mexico

ENVIRONMENTAL

Dear Mr. Persaud:

Date:
June 11, 2009

The purpose of this letter is to document the field activities associated with the plugging and abandonment of 95 wells that were part of the Indian Basin Remediation Project (IBRP) located at the Indian Basin Gas Plant in Eddy County, New Mexico. The well abandonment program was approved through correspondence received from the New Mexico Oil Conservation Division (OCD) dated February 20, 2009 (Attachment A). It is important to note that the original list of wells proposed for plugging and abandonment and submitted to the OCD included three water supply wells at the site. The OCD approved the plugging and abandonment of 98 wells, which included the three water supply wells. However, Marathon Oil Company (MOC) did not plug the three water wells at this time since they are needed to supply water for site operations.

Contact:
Alan Reed

Phone:
432.687.5400

Email:
alan.reed@arcadis-us.com

Plugging and abandonment field activities were initiated on March 23, 2009. All site work was completed on April 24, 2009. In accordance with requirements specified in the February 20, 2009 OCD correspondence, the 95 wells were grouted in-place using a cement grout consisting of approximately three percent bentonite. The cement was delivered to the bottom of the well by means of a grout pump and tremie pipe. The well surface completions were removed and, attempts were made to remove the monitoring well casings. If the well casing could not be removed, it was cut off below existing grade. All surface completions, removed casing, and empty cement and bentonite sacks were placed in roll-off boxes and disposed at the Lea Land Landfill. All plugging and abandonment work was performed by a New Mexico licensed drilling contractor. Attachment B contains well plugging and abandonment documentation provided by the drilling contractor.

Our ref:
MT001010.0002.00001

The 95 wells that were plugged and abandoned included 32 monitoring wells and 2 sumps that were used to monitor the shallow zone groundwater and a total of 61 wells used to monitor the Lower Queen groundwater. The Lower Queen wells included 49 monitoring wells, 2 infiltration wells and 10 vapor extraction wells. A summary list of the plugged and abandoned wells is included in the attached Table 1. Based on the February 20, 2009 OCD correspondence, the OCD has conditionally approved the discontinuance of active remediation at the IBRP. The OCD is requiring at least annual groundwater monitoring for benzene, toluene, ethylbenzene

Imagine the result

ARCADIS

Mr. Terry Persaud, P.E.
June 11, 2009

and xylenes (BTEX), total dissolved solids (TDS) and chloride, and at least semi-annual gauging of depth to groundwater and non-aqueous phase liquid thickness at the 15 groundwater monitoring wells at the site listed in the attached Table 2. In addition, OCD is requiring submittal of an annual groundwater monitoring report.

At this time, the next annual groundwater monitoring event is scheduled to be completed in May 2009. Subsequently, the annual groundwater monitoring report will be prepared and submitted to the OCD in June 2009. Finally, the Indian Basin Gas Plant groundwater monitoring plan will be updated to document the transfer of the remaining 15 wells in the IBRP to the plan. The plan will be updated by the end of July 2009 and will conclude the active remediation work on the IBRP.

If you have any questions regarding this information, please contact us.

Very truly yours,

ARCADIS



Alan J. Reed, Jr., P.E.
Project Manager



Steven P. Tischer
Associate Vice President/SER Department Manager

Attachments:

- Attachment A – New Mexico OCD Correspondence dated February 20, 2009
- Attachment B – Well Plugging Documentation
- Table 1 – Wells Plugged and Abandoned
- Table 2 – Wells Retained for Groundwater Monitoring



Infrastructure, environment, building

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ARCADIS
1004 North Big Spring Street
Suite 300
Midland
Texas 79701
Tel 432.687.5400
Fax 432.687.5401

Transmittal Letter

To:
Ed Hansen
New Mexico Oil Conservation Division
1220 So. Saint Francis Drive
Santa Fe, New Mexico 87505

Copies:
3 - Terry Persaud, Marathon Oil Co
1 - File Copy

From:
Alan J. Reed, Jr.

Date:
June 11, 2009

Subject:
Indian Basin Remediation Project Monitoring
Well Plugging Report
Indian Basin Gas Plant
Eddy County, New Mexico

ARCADIS Project No.:
MT001010.0002.00001

We are sending you:

[X] Attached

[] Under Separate Cover Via _____ the Following Items:

- [] Shop Drawings
[] Prints
[] Other:

- [] Plans
[] Samples

- [] Specifications
[] Copy of Letter

- [] Change Order
[] Reports

Table with 6 columns: Copies, Date, Drawing No., Rev., Description, Action*. Row 1: 1, , , , Indian Basin Remediation Project Monitoring Well Plugging Report, FA

Action*

- [] A Approved
[] AN Approved As Noted
[] AS As Requested
[] Other:

- [] CR Correct and Resubmit
[] F File
[X] FA For Approval

- [] Resubmit ____ Copies
[] Return ____ Copies
[] Review and Comment

Mailing Method

- [X] U.S. Postal Service 1st Class
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[] Other:

- [] Courier/Hand Delivery
[] United Parcel Service (UPS)

- [] FedEx Priority Overnight
[] FedEx Standard Overnight

- [] FedEx 2-Day Delivery
[] FedEx Economy

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ATTACHMENT A

New Mexico OCD
Correspondence dated
February 20, 2009



New Mexico Energy, Minerals and Natural Resources Department

Bill Richardson
Governor

Joanna Prukop
Cabinet Secretary
Reese Fullerton
Deputy Cabinet Secretary

Mark Fesmire
Division Director
Oil Conservation Division



February 20, 2009

M. Paul Peacock
Marathon Oil Company
P.O. Box 3128
Houston, TX 77253-3128

**RE: Indian Basin Remediation Project Report and Proposed Well Plugging Request
for the Marathon's Indian Basin Gas Plant (GW-21)
Eddy County, New Mexico**

Dear Mr. Peacock:

The New Mexico Oil Conservation Division (OCD) has reviewed Marathon's report, Evaluation of Natural Attenuation, Indian Basin Remediation Project [IBRP], Eddy County, New Mexico, dated May 12, 2008, and Proposed IBRP Well Plugging Program [Request], dated February 5, 2009. The report and request are substantially acceptable to the OCD. Therefore, the OCD hereby conditionally approves the discontinuance of active remediation at the above-referenced site.

However, at least annual groundwater monitoring for BTEX, TDS and chloride at the 13 proposed wells as specified in the Well Plugging Request plus at an additional two groundwater monitoring wells, MW-81 and MW-113, for a total of 15 wells must continue unless otherwise approved by the OCD. Also, at least semi-annually gauging of depth to groundwater and non-aqueous phase liquid thickness at these 15 wells must continue unless otherwise approved by the OCD. Marathon must continue to submit an annual groundwater monitoring report to the OCD unless otherwise approved by the OCD.

In addition, the material used to plug the 98 (the 100 proposed minus the 2 rejected) groundwater monitoring wells as specified in the Request must be a cement grout with 1% to 3% bentonite. Please submit to the OCD a final plugging report within 180 days of receipt of this letter.



M. Paul Peacock
GW-21
February 20, 2009
Page 2

Please be advised that OCD approval of this report and request does not relieve the owner/operator of responsibility should operations pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the owner/operator of responsibility for compliance with any OCD, federal, state, or local laws and/or regulations.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Edward Hansen of my staff at 505-476-3489 or edwardj.hansen@state.nm.us.

Sincerely,



Wayne Price
Environmental Bureau Chief

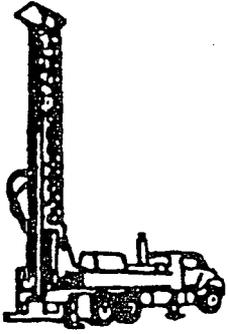
WP:EJH:ejh

cc: OCD; Artesia District Office
Terry Persaud, P.E., Marathon Oil Company, P.O. Box 3128, Houston, TX 77253-3128

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ATTACHMENT B

Well Plugging
Documentation



White Drilling Company, Inc.

- Environment
 - Geotechnical
 - Water Wells
 - Rock Coring
- 1113 S. Access Road West
P.O. Box 906 • Clyde, Texas 79510
(325) 893-2950 • (325) 893-4099

May 12, 2009

ARCADIS U.S., Inc.
Allen Reed
1004 N. Big Spring St., Suite 300
Midland, Texas 79701

Mr. Reed,

This letter is to inform you that the State of New Mexico State Engineer's Office does not have a State Plugging Report at this time. After contacting the State Engineer's Office, they instructed me to fill out 1 State Well Record with basic information then attach an excel spread sheet with all the well information for the plugging of the 95 Monitor Wells in the Indian Basin Gas Plant. If you have any questions or concerns please call at (325) 893-2950.

Sincerely,

A handwritten signature in black ink, appearing to read "JW White". The signature is stylized and cursive.

John W. White, President
White Drilling Company, Inc.



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION	POD NUMBER (WELL NUMBER) See Attached/95 wells				OSE FILE NUMBER(S)							
	WELL OWNER NAME(S) Marathon Oil Company/Terry Persaud, P.E.				PHONE (OPTIONAL) 713-296-3510							
	WELL OWNER MAILING ADDRESS P.O. Box 3487/Mail Stop 32:07				CITY Houston		STATE TX		ZIP 77253-3487			
	WELL LOCATION (FROM GPS)		DEGREES 32		MINUTES 27		SECONDS 39.90 N		* ACCURACY REQUIRED: ONE TENTH OF A SECOND			
		LONGITUDE 104		33		38.20 W		* DATUM REQUIRED: WGS 84				
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS Indian Basin Gas Plant/Eddy County, NM												
2. OPTIONAL	(2.5 ACRE) ¼		(10 ACRE) ¼		(40 ACRE) ¼		(160 ACRE) ¼		SECTION			
					TOWNSHIP 21		<input type="checkbox"/> NORTH <input checked="" type="checkbox"/> SOUTH		RANGE 23			
					<input checked="" type="checkbox"/> EAST <input type="checkbox"/> WEST		BLOCK NUMBER		UNIT/TRACT			
SUBDIVISION NAME						LOT NUMBER		MAP NUMBER		TRACT NUMBER		
HYDROGRAPHIC SURVEY												
3. DRILLING INFORMATION	LICENSE NUMBER WD-1456		NAME OF LICENSED DRILLER John W. White				NAME OF WELL DRILLING COMPANY White Drilling Company, Inc.					
	DRILLING STARTED 3/24/09		DRILLING ENDED 4/17/09		DEPTH OF COMPLETED WELL (FT)		BORE HOLE DEPTH (FT)		DEPTH WATER FIRST ENCOUNTERED (FT)			
	COMPLETED WELL IS: <input type="checkbox"/> ARTESIAN <input type="checkbox"/> DRY HOLE <input type="checkbox"/> SHALLOW (UNCONFINED)						STATIC WATER LEVEL IN COMPLETED WELL (FT)					
	DRILLING FLUID: <input type="checkbox"/> AIR <input type="checkbox"/> MUD <input type="checkbox"/> ADDITIVES - SPECIFY:											
	DRILLING METHOD: <input type="checkbox"/> ROTARY <input type="checkbox"/> HAMMER <input type="checkbox"/> CABLE TOOL <input type="checkbox"/> OTHER - SPECIFY:											
	DEPTH (FT)		BORE HOLE DIA. (IN)		CASING MATERIAL		CONNECTION TYPE (CASING)		INSIDE DIA. CASING (IN)		CASING WALL THICKNESS (IN)	
	FROM	TO										
4. WATER BEARING STRATA	DEPTH (FT)		THICKNESS (FT)		FORMATION DESCRIPTION OF PRINCIPAL WATER-BEARING STRATA (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)						YIELD (GPM)	
	FROM	TO										
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA								TOTAL ESTIMATED WELL YIELD (GPM)				

FOR OSE INTERNAL USE

WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER		POD NUMBER		TRN NUMBER	
LOCATION				PAGE 1 OF 2	

Marathon Oil Company
Indian Basin Gas Plant, Eddy County, NM

Well Number	Well Diameter (in)	Northing NAD 27 Con	Easting hddd,mm',ss.s"	Section, Township & Range	Date Plugged	Depth (ft) FROM	Depth (ft) TO	Material Type and Size	Amount (cubic feet)	Method of Placement
MW-4	2	32 27 39.9	104 33 38.2	S24,T21S,R23E	4/7/09	17.30	0.00	Type 2 Portland w/3% gel	0.37	pump mix w/tremmie pipe
MW-12	2	32 27 44.0	104 34 08.0	S23,T21S,R23E	3/25/09	23.00	0.00	Type 2 Portland w/3% gel	0.50	pump mix w/tremmie pipe
MW-13	2	32 27 42.4	104 34 01.1	S23,T21S,R23E	3/25/09	19.90	0.00	Type 2 Portland w/3% gel	0.44	pump mix w/tremmie pipe
MW-17	2	32 27 44.2	104 33 56.2	S23,T21S,R23E	3/24/09	18.00	0.00	Type 2 Portland w/3% gel	0.39	pump mix w/tremmie pipe
MW-19	2	32 27 45.5	104 33 54.0	S23,T21S,R23E	3/24/09	19.00	0.00	Type 2 Portland w/3% gel	0.41	pump mix w/tremmie pipe
MW-22	2	32 27 39.8	104 33 54.1	S23,T21S,R23E	3/25/09	16.00	0.00	Type 2 Portland w/3% gel	0.35	pump mix w/tremmie pipe
MW-24	2	32 27 44.6	104 33049.5	S24,T21S,R23E	3/25/09	11.00	0.00	Type 2 Portland w/3% gel	0.24	pump mix w/tremmie pipe
MW-26	2	32 27 41.8	104 33 48.1	S24,T21S,R23E	4/7/09	19.30	0.00	Type 2 Portland w/3% gel	0.44	pump mix w/tremmie pipe
MW-32	2	32 27 38.7	104 33 53.0	S23,T21S,R23E	3/25/09	14.00	0.00	Type 2 Portland w/3% gel	0.31	pump mix w/tremmie pipe
MW-47	2	32 27 52.6	104 34 05.6	S23,T21S,R23E	3/24/09	19.00	0.00	Type 2 Portland w/3% gel	0.41	pump mix w/tremmie pipe
MW-48	2	32 27 48.6	104 34 05.7	S23,T21S,R23E	3/25/09	17.85	0.00	Type 2 Portland w/3% gel	0.39	pump mix w/tremmie pipe
MW-50	2	32 28 00.4	104 34 03.4	S23,T21S,R23E	3/25/09	35.00	0.00	Type 2 Portland w/3% gel	0.76	pump mix w/tremmie pipe
MW-51	2	32 28 02.6	104 34 12.7	S23,T21S,R23E	3/25/09	18.00	0.00	Type 2 Portland w/3% gel	0.39	pump mix w/tremmie pipe
MW-112	1	32 27 32.9	104 33 29.1	S24,T21S,R23E	4/8/09	213.00	0.00	Type 2 Portland w/3% gel	2.34	pump mix w/tremmie pipe
MW-10	4	32 27 43.1	104 33 44.7	S24,T21S,R23E	4/7/09	18.00	0.00	Type 2 Portland w/3% gel	1.57	pump mix w/tremmie pipe
MW-11	4	32 27 43.1	104 34 08.1	S23,T21S,R23E	3/25/09	23.00	0.00	Type 2 Portland w/3% gel	0.5	pump mix w/tremmie pipe
MW-16	4	32 27 41.7	104 33 56.2	S23,T21S,R23E	3/25/09	20.00	0.00	Type 2 Portland w/3% gel	1.75	pump mix w/tremmie pipe
MW-41	4	32 27 52.5	104 33 54.0	S23,T21S,R23E	3/25/09	24.04	0.00	Type 2 Portland w/3% gel	2.1	pump mix w/tremmie pipe
MW-43	4	32 27 52.5	104 33 59.9	S23,T21S,R23E	3/24/09	22.00	0.00	Type 2 Portland w/3% gel	1.92	pump mix w/tremmie pipe
MW-54	4	32 27 56.7	104 33 44.6	S24,T21S,R23E	3/25/09	76.00	0.00	Type 2 Portland w/3% gel	6.63	pump mix w/tremmie pipe
MW-55	4	32 27 46.7	104 33 37.6	S24,T21S,R23E	4/7/09	63.40	0.00	Type 2 Portland w/3% gel	5.59	pump mix w/tremmie pipe
MW-56	4	32 27 37.1	104 33 32.9	S24,T21S,R23E	4/7/09	44.00	0.00	Type 2 Portland w/3% gel	3.84	pump mix w/tremmie pipe
MW-61	4	32 28 08.5	104 33 10.8	S24,T21S,R23E	4/2/09	57.00	0.00	Type 2 Portland w/3% gel	4.98	pump mix w/tremmie pipe
MW-65	4	32 27 18.7	104 33 14.2	S25,T21S,R23E	4/15/09	56.00	0.00	Type 2 Portland w/3% gel	4.89	pump mix w/tremmie pipe
MW-69	4	32 27 31.9	104 34 05.8	S23,T21S,R23E	4/2/09	51.00	0.00	Type 2 Portland w/3% gel	4.45	pump mix w/tremmie pipe
MW-90	4	32 27 19.1	104 33 42.5	S25,T21S,R23E	4/1/09	63.50	0.00	Type 2 Portland w/3% gel	5.59	pump mix w/tremmie pipe
MW-91	4	32 27 24.4	104 33 43.2	S24,T21S,R23E	4/1/09	72.37	0.00	Type 2 Portland w/3% gel	6.37	pump mix w/tremmie pipe
MW-100	4	32 27 14.1	104 33 31.2	S25,T21S,R23E	4/1/09	72.50	0.00	Type 2 Portland w/3% gel	6.37	pump mix w/tremmie pipe
MW-105	4	32 27 02.6	104 32 49.5	S25,T21S,R23E	4/15/09	74.20	0.00	Type 2 Portland w/3% gel	6.46	pump mix w/tremmie pipe
MW-109	4	32 27 53.0	104 34 15.9	S23,T21S,R23E	3/24/09	18.90	0.00	Type 2 Portland w/3% gel	1.66	pump mix w/tremmie pipe
MW-117	4	32 46 61.4	104 56 15.6	S23,T21S,R23E	3/24/09	44.85	0.00	Type 2 Portland w/3% gel	3.93	pump mix w/tremmie pipe
MW-57	4	32 27 29.9	104 33 40.1	S24,T21S,R23E	4/7/09	175.50	0.00	Type 2 Portland w/3% gel	53.78	pump mix w/tremmie pipe

Marathon Oil Company
Indian Basin Gas Plant, Eddy County, NM

Well Number	Well Diameter (in)	Northing NAD 27 Con	Eastings hddd,mm',ss.s"	Section, Township & Range	Date Plugged	Depth (ft) FROM	Depth (ft) TO	Material Type and Size	Amount (cubic feet)	Method of Placement
MW-59	4	32 27 48.2	104 33 20.7	S24,T21S,R23E	4/9/09	206.00	0.00	Type 2 Portland w/3% gel	53.95	pump mix w/tremmie pipe
MW-60	4	32 27 47.9	104 33 02.6	S24,T21S,R23E	4/6/09	223.18	0.00	Type 2 Portland w/3% gel	58.4	pump mix w/tremmie pipe
MW-61A	4	32 28 08.5	104 33 10.6	S24,T21S,R23E	4/2/09	217.00	0.00	Type 2 Portland w/3% gel	56.83	pump mix w/tremmie pipe
MW-62	4	32 27 32.5	104 33 18.3	S24,T21S,R23E	4/16/09	223.00	0.00	Type 2 Portland w/3% gel	58.4	pump mix w/tremmie pipe
MW-63	4	32 27 46.7	104 34 31.6	S23,T21S,R23E	3/31/09	222.00	0.00	Type 2 Portland w/3% gel	58.4	pump mix w/tremmie pipe
MW-64	4	32 27 31.0	104 32 56.8	S24,T21S,R23E	4/15/09	200.00	0.00	Type 2 Portland w/3% gel	52.38	pump mix w/tremmie pipe
MW-65A	4	32 27 18.8	104 33 14.2	S25,T21S,R23E	4/14/09	166.00	0.00	Type 2 Portland w/3% gel	43.48	pump mix w/tremmie pipe
MW-67	4	32 27 11.2	104 32 53.4	S25,T21S,R23E	4/15/09	163.00	0.00	Type 2 Portland w/3% gel	42.69	pump mix w/tremmie pipe
MW-68	4	32 27 42.2	104 34 51.7	S23,T21S,R23E	4/1/09	203.00	0.00	Type 2 Portland w/3% gel	53.17	pump mix w/tremmie pipe
MW-71	4	32 28 09.1	104 32 32.9	S19,T21S,R24E	4/2/09	234.00	0.00	Type 2 Portland w/3% gel	61.28	pump mix w/tremmie pipe
MW-87	4	32 27 40.6	104 32 38.1	S19,T21S,R24E	4/6/09	168.00	0.00	Type 2 Portland w/3% gel	44	pump mix w/tremmie pipe
MW-89	4	32 28 20.2	104 33 48.2	S13,T21S,R24E	3/31/09	234.00	0.00	Type 2 Portland w/3% gel	61.28	pump mix w/tremmie pipe
MW-95	4	32 27 00.3	104 32 56.7	S25,T21S,R23E	4/1/09	147.20	0.00	Type 2 Portland w/3% gel	38.5	pump mix w/tremmie pipe
MW-96	4	32 27 24.1	104 32 36.8	S30,T21S,R24E	4/15/09	126.00	0.00	Type 2 Portland w/3% gel	33	pump mix w/tremmie pipe
MW-97	4	32 27 06.8	104 32 34.6	S30,T21S,R24E	4/15/09	137.00	0.00	Type 2 Portland w/3% gel	35.88	pump mix w/tremmie pipe
MW-98	4	32 27 06.0	104 33 19.6	S25,T21S,R23E	4/14/09	165.30	0.00	Type 2 Portland w/3% gel	43.21	pump mix w/tremmie pipe
MW-108	4	32 27 04.9	104 32 54.0	S25,T21S,R23E	4/15/09	170.00	0.00	Type 2 Portland w/3% gel	29.68	pump mix w/tremmie pipe
MW-116	4	32 27 44.3	104 33 3.8	S24,T21S,R23E	4/8/09	221.50	0.00	Type 2 Portland w/3% gel	58.14	pump mix w/tremmie pipe
MW-118	4	32 27 12.1	104 33 16.0	S25,T21S,R23E	4/14/09	200.00	0.00	Type 2 Portland w/3% gel	52.38	pump mix w/tremmie pipe
MW-120	4	32 28 00.9	104 33 25.0	S24,T21S,R23E	4/9/09	236.00	0.00	Type 2 Portland w/3% gel	61.81	pump mix w/tremmie pipe
MW-121	4	32 27 50.5	104 33 27.4	S24,T21S,R23E	4/8/09	224.60	0.00	Type 2 Portland w/3% gel	58.67	pump mix w/tremmie pipe
MW-123	4	32 27 18.4	104 33 22.7	S25,T21S,R23E	4/14/09	215.00	0.00	Type 2 Portland w/3% gel	56.31	pump mix w/tremmie pipe
MW-130	4	32 27 26.5	104 33 23.7	S24,T21S,R23E	4/8/09	225.00	0.00	Type 2 Portland w/3% gel	58.93	pump mix w/tremmie pipe
MW-131	4	32 27 37.1	104 33 36.5	S24,T21S,R23E	4/8/09	240.00	0.00	Type 2 Portland w/3% gel	62.86	pump mix w/tremmie pipe
MW-83	6	32 27 25.7	104 33 15.9	S24,T21S,R23E	4/15/09	200.00	0.00	Type 2 Portland w/3% gel	117.78	pump mix w/tremmie pipe
MW-84	6	32 27 10.8	104 33 11.5	S25,T21S,R23E	4/14/09	169.00	0.00	Type 2 Portland w/3% gel	99.52	pump mix w/tremmie pipe
MW-104	6	32 27 26.5	104 32 55.6	S24,T21S,R23E	4/15/09	239.50	0.00	Type 2 Portland w/3% gel	141.34	pump mix w/tremmie pipe
MW-110	6	32 28 00.9	104 34 06.4	S23,T21S,R23E	4/9/09	233.00	0.00	Type 2 Portland w/3% gel	137.21	pump mix w/tremmie pipe
VE-19	6	32 27 19.1	104 33 16.8	S25,T21S,R23E	4/16/09	149.00	0.00	Type 2 Portland w/3% gel	87.75	pump mix w/tremmie pipe
MW-122	6.5	32 27 56.8	104 33 33.6	S24,T21S,R23E	3/31/09	227.00	0.00	Type 2 Portland w/3% gel	182.03	pump mix w/tremmie pipe
MW-125	6.5	32 27 39.7	104 33 45.0	S24,T21S,R23E	4/7/09	227.00	0.00	Type 2 Portland w/3% gel	182.03	pump mix w/tremmie pipe

Marathon Oil Company
Indian Basin Gas Plant, Eddy County, NM

Well Number	Well Diameter (in)	Northing NAD 27 Con	Easting hddd,mm',ss.s"	Section, Township & Range	Date Plugged	Depth (ft) FROM	Depth (ft) TO	Material Type and Size	Amount (cubic feet)	Method of Placement
MW-128	6.5	32 27 39.3	104 33 27.5	S24,T21S,R23E	4/8/09	223.00	0.00	Type 2 Portland w/3% gel	178.82	pump mix w/tremmie pipe
MW-129	6.875	32 27 44.4	104 33 58.0	S23,T21S,R23E	3/26/09	245.00	0.00	Type 2 Portland w/3% gel	196.47	pump mix w/tremmie pipe
MW-117A	7	32 27 57.9	104 34 08.6	S23,T21S,R23E	3/31/09	225.00	0.00	Type 2 Portland w/3% gel	234.6	pump mix w/tremmie pipe
MW-124	7	32 27 23.0	104 33 30.3	S25,T21S,R23E	4/7/09	191.00	0.00	Type 2 Portland w/3% gel	153.16	pump mix w/tremmie pipe
MW-78	7.875	32 27 25.5	104 33 32.2	S24,T21S,R23E	4/7/09	81.50	0.00	Type 2 Portland w/3% gel	42.94	pump mix w/tremmie pipe
MW-79	7.875	32 27 24.0	104 33 53.0	S26,T21S,R23E	4/1/09	82.04	0.00	Type 2 Portland w/3% gel	42.94	pump mix w/tremmie pipe
MW-76	7.875	32 27 34.5	104 33 48.7	S24,T21S,R23E	4/7/09	221.00	0.00	Type 2 Portland w/3% gel	232	pump mix w/tremmie pipe
VE-1	7.875	32 28 15.2	104 33 30.3	S24,T21S,R23E	3/31/09	224.00	0.00	Type 2 Portland w/3% gel	234.6	pump mix w/tremmie pipe
VE-2	7.875	32 28 15.2	104 33 28.5	S24,T21S,R23E	3/31/09	211.00	0.00	Type 2 Portland w/3% gel	231.45	pump mix w/tremmie pipe
VE-3	7.875	32 28 16.5	104 33 19.9	S13,T21S,R24E	4/2/09	203.00	0.00	Type 2 Portland w/3% gel	212.6	pump mix w/tremmie pipe
VE-4	7.875	32 28 14.2	104 33 00.8	S24,T21S,R23E	4/2/09	185.00	0.00	Type 2 Portland w/3% gel	193.75	pump mix w/tremmie pipe
VE-5	7.875	32 28 06.4	104 32 57.8	S24,T21S,R23E	4/2/09	169.00	0.00	Type 2 Portland w/3% gel	176.99	pump mix w/tremmie pipe
MW-72	8	32 27 56.5	104 33 24.3	S24,T21S,R23E	4/9/09	227.00	0.00	Type 2 Portland w/3% gel	316.98	pump mix w/tremmie pipe
MW-73	8	32 27 55.6	104 33 25.2	S24,T21S,R23E	4/9/09	216.00	0.00	Type 2 Portland w/3% gel	217.02	pump mix w/tremmie pipe
MW-74	8	32 27 55.1	104 33 27.6	S24,T21S,R23E	4/9/09	217.00	0.00	Type 2 Portland w/3% gel	217	pump mix w/tremmie pipe
MW-75	8	32 27 52.9	104 33 21.8	S24,T21S,R23E	4/9/09	221.50	0.00	Type 2 Portland w/3% gel	232.5	pump mix w/tremmie pipe
MW-82	8	32 27 40.1	104 33 19.7	S24,T21S,R23E	4/16/09	247.00	0.00	Type 2 Portland w/3% gel	258.69	pump mix w/tremmie pipe
MW-85	8	32 28 02.6	104 33 36.8	S24,T21S,R23E	4/9/09	240.00	0.00	Type 2 Portland w/3% gel	251.35	pump mix w/tremmie pipe
MW-86	8	32 28 00.6	104 33 51.4	S23,T21S,R23E	3/30/09	225.00	0.00	Type 2 Portland w/3% gel	235.64	pump mix w/tremmie pipe
MW-87A	8	32 27 40.7	104 32 37.8	S19,T21S,R24E	4/6/09	131.00	0.00	Type 2 Portland w/3% gel	137.2	pump mix w/tremmie pipe
MW-94	8	32 27 53.6	104 33 46.0	S24,T21S,R23E	3/31/09	232.00	0.00	Type 2 Portland w/3% gel	242.97	pump mix w/tremmie pipe
MW-114	8	32 27 32.8	104 34 08.0	S23,T21S,R23E	4/2/09	219.00	0.00	Type 2 Portland w/3% gel	229.36	pump mix w/tremmie pipe
MW-115	8	32 27 49.9	104 34 03.0	S23,T21S,R23E	3/30/09	224.00	0.00	Type 2 Portland w/3% gel	234.6	pump mix w/tremmie pipe
MW-119	8	32 28 00.9	104 33 44.0	S24,T21S,R23E	3/31/09	245.00	0.00	Type 2 Portland w/3% gel	256.59	pump mix w/tremmie pipe
VE-16	8	32 27 11.2	104 33 02.0	S25,T21S,R23E	4/16/09	149.00	0.00	Type 2 Portland w/3% gel	156.05	pump mix w/tremmie pipe
VE-17	8	32 27 13.0	104 33 05.7	S25,T21S,R23E	4/16/09	129.00	0.00	Type 2 Portland w/3% gel	135.1	pump mix w/tremmie pipe
VE-18	8	32 27 16.4	104 33 11.2	S25,T21S,R23E	4/16/09	153.00	0.00	Type 2 Portland w/3% gel	160.24	pump mix w/tremmie pipe
VE-20	8	32 27 20.7	104 33 20.1	S25,T21S,R23E	4/16/09	144.58	0.00	Type 2 Portland w/3% gel	166.52	pump mix w/tremmie pipe
IW-1	12	32 27 20.3	104 33 52.2	S26,T21S,R23E	4/14/09	260.00	0.00	Type 2 Portland w/3% gel	612.61	pump mix w/tremmie pipe
IW-2	12	32 45 04.4	104 56 46.9	S26,T21S,R23E	4/14/09	279.00	0.00	Type 2 Portland w/3% gel	657.38	pump mix w/tremmie pipe
Sump A10	24	32 27 44.2	104 34 13.7	S23,T21S,R23E	4/1/09	13.40	0.00	Type 2 Portland w/3% gel	62.84	pump mix w/tremmie pipe
Sump 16A	24	32 27 37.5	104 33 52.2	S23,T21S,R23E	4/1/09	17.40	0.00	Type 2 Portland w/3% gel	66.77	pump mix w/tremmie pipe

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TABLE 1

Wells Plugged
and Abandoned

Table 1. Wells Plugged and Abandoned
Marathon Oil Company, Indian Basin Remediation Project, Eddy County, New Mexico.

Monitoring Zone	Well ID	Well Type
Shallow Zone	MW-4	monitoring
Shallow Zone	MW-10	monitoring
Shallow Zone	MW-11	monitoring
Shallow Zone	MW-12	monitoring
Shallow Zone	MW-13	monitoring
Shallow Zone	MW-16	monitoring
Shallow Zone	MW-17	monitoring
Shallow Zone	MW-19	monitoring
Shallow Zone	MW-22	monitoring
Shallow Zone	MW-24	monitoring
Shallow Zone	MW-26	monitoring
Shallow Zone	MW-32	monitoring
Shallow Zone	MW-41	monitoring
Shallow Zone	MW-43	monitoring
Shallow Zone	MW-47	monitoring
Shallow Zone	MW-48	monitoring
Shallow Zone	MW-50	monitoring
Shallow Zone	MW-51	infiltration
Shallow Zone	MW-54	monitoring
Shallow Zone	MW-55	monitoring
Shallow Zone	MW-56	monitoring
Shallow Zone	MW-61	monitoring
Shallow Zone	MW-65	monitoring
Shallow Zone	MW-69	recovery
Shallow Zone	MW-78	monitoring
Shallow Zone	MW-79	monitoring
Shallow Zone	MW-90	monitoring
Shallow Zone	MW-91	monitoring
Shallow Zone	MW-100	monitoring
Shallow Zone	MW-105	monitoring
Shallow Zone	MW-109	monitoring
Shallow Zone	MW-117	phase II infill
Shallow Zone	Sump A10	monitoring
Shallow Zone	Sump 16A	monitoring

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Table 1. Wells Plugged and Abandoned
Marathon Oil Company, Indian Basin Remediation Project, Eddy County, New Mexico.

Monitoring Zone	Well ID	Well Type
Lower Queen	MW-57	monitoring
Lower Queen	MW-59	monitoring
Lower Queen	MW-60	monitoring
Lower Queen	MW-61A	monitoring
Lower Queen	MW-62	monitoring
Lower Queen	MW-63	monitoring
Lower Queen	MW-64	monitoring
Lower Queen	MW-65A	recovery
Lower Queen	MW-67	monitoring
Lower Queen	MW-68	recovery
Lower Queen	MW-71	monitoring
Lower Queen	MW-72	dual recovery
Lower Queen	MW-73	monitoring
Lower Queen	MW-74	monitoring
Lower Queen	MW-75	dual recovery
Lower Queen	MW-76	recovery
Lower Queen	MW-82	recovery
Lower Queen	MW-83	recovery
Lower Queen	MW-84	recovery
Lower Queen	MW-85	dual recovery
Lower Queen	MW-86	recovery
Lower Queen	MW-87	monitoring
Lower Queen	MW-87A	monitoring
Lower Queen	MW-89	monitoring
Lower Queen	MW-94	recovery
Lower Queen	MW-95	monitoring
Lower Queen	MW-96	monitoring
Lower Queen	MW-97	monitoring
Lower Queen	MW-98	monitoring
Lower Queen	MW-104	monitoring
Lower Queen	MW-108	monitoring
Lower Queen	MW-110	recovery
Lower Queen	MW-112	phase I infill
Lower Queen	MW-114	phase I infill
Lower Queen	MW-115	phase I infill
Lower Queen	MW-116	phase I infill
Lower Queen	MW-117A	phase II infill
Lower Queen	MW-118	phase II infill
Lower Queen	MW-119	phase II infill
Lower Queen	MW-120	phase II infill
Lower Queen	MW-121	phase II infill
Lower Queen	MW-122	phase II infill
Lower Queen	MW-123	phase II infill
Lower Queen	MW-124	phase II infill
Lower Queen	MW-125	phase II infill
Lower Queen	MW-128	phase II infill
Lower Queen	MW-129	phase II infill
Lower Queen	MW-130	phase II infill
Lower Queen	MW-131	phase II infill
Lower Queen	IW-1	infiltration

Table 1. Wells Plugged and Abandoned
Marathon Oil Company, Indian Basin Remediation Project, Eddy County, New Mexico.

Monitoring Zone	Well ID	Well Type
Lower Queen	IW-2	infiltration
Lower Queen	VE-1	vapor extraction
Lower Queen	VE-2	vapor extraction
Lower Queen	VE-3	vapor extraction
Lower Queen	VE-4	vapor extraction
Lower Queen	VE-5	vapor extraction
Lower Queen	VE-16	vapor extraction
Lower Queen	VE-17	vapor extraction
Lower Queen	VE-18	vapor extraction
Lower Queen	VE-19	vapor extraction
Lower Queen	VE-20	vapor extraction

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TABLE 2

Wells Retained for
Groundwater Monitoring

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Table 2. Wells Retained for Groundwater Monitoring
Marathon Oil Company, Indian Basin Remediation Project, Eddy County, New Mexico.

Monitoring Zone	Well ID	Well Type	Measuring Point Elevation (feet amsl)	Total Depth (feet btoc)	Top of Screen/ Open Hole Interval (feet btoc)	Screen/Open Hole Depth (feet)	Casing Diameter (inches)
Shallow Zone	MW-14	monitoring	3803.61	22.00	12.00	10.00	4
Shallow Zone	MW-45	monitoring	3808.68	24.00	9.50	14.50	2
Shallow Zone	MW-46	monitoring	3805.54	18.00	8.00	10.00	4
Shallow Zone	MW-49	monitoring	3805.61	24.00	14.00	10.00	2
Shallow Zone	MW-77	monitoring	3775.48	80.00	17.50	62.50	8
Shallow Zone	MW-106	monitoring	3721.97	92.00	12.50	79.5	4
Shallow Zone	MW-126	phase II infill	3795.58	70.00	30.00	40.00	7
Lower Queen	MW-58	recovery	3824.07	216.00	191.00	25.00	4
Lower Queen	MW-66	monitoring	3828.98	232.50	182.00	50.50	4
Lower Queen	MW-70	monitoring	3822.57	222.00	172.00	50.00	4
Lower Queen	MW-81	dual recovery	3817.03	225.00	71.00	154.00	8
Lower Queen	MW-88	monitoring	3789.7	175.00	142.50	32.50	8
Lower Queen	MW-111	monitoring	3824.44	230.00	190.00	40.00	4
Lower Queen	MW-113	phase I infill	3772.67	200.00	125.00	75.00	6
Lower Queen	MW-127	phase II infill	3825.17	245.00	195.00	50.00	4

Notes:

feet amsl

Feet above mean sea level

feet btoc

Feet below top of casing