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**Domestic Production** 

Southern U.S. Business Unit

June 11, 2002

Mr. Denny Foust Deputy Oil & Gas Inspector State of New Mexico Energy Mineral and Natural Resources Department **Oil Conservation Division** 1000 Rio Brazos Road Aztec, New Mexico 87410

Re: Site Closure Report Owens 1A Tank Release San Juan County, New Mexico

Dear Mr. Foust:

Marathon has completed site closure activities associated with the Owens 1A Tank Release located in Unit K, of Section 7, of T31N, R12W in San Juan County, New Mexico at Lat. 36.9121 and Long. 108.1364 (See Appendix A - Site Topo Map). The release occurred on or about March 5, 2002 due to a split in the bottom of the tank, which was caused by freezing and thawing. The tank leak resulted in the release of approximately 105 barrels (bbls) of condensate and 20 bbls of water inside the diked area around the tank, of which 10 bbls of condensate was recovered. The release was reported to Mr. Steve Hayden of the New Mexico Oil Conservation Division (NMOCD) office in Aztec, NM at 8:40 am on March 6, 2002 (See Appendix B - Form C-141).

The NMOCD soil cleanup levels are determined on a site-by-site basis, and are based on a ranking criteria consisting of; depth to groundwater, wellhead protection area, and distance to surface water. The New Mexico Office of the State Engineer (NMOSE) website was searched for water wells and depth to groundwater information. The NMOSE website Water Column Report indicated that the nearest water well was approximately 8,000 feet east-southeast of the site and the depth to groundwater in the well was 142 feet (See Appendix C - NMOSE Report). Also, the La Plata quadrangle 7.5-minute topographic map was reviewed to evaluate distance to surface water. No surface water was indicated on the topographic map or from site observations within 1,000 feet of the site.

The table below illustrates the ranking criteria, used by the NMOCD.

Criteria	Site Characteristics	Ranking Score					
Depth to Ground Water	>100 feet	0					
Wellhead Protection Area	>1000 feet	0					
Distance to Surface Water	>1000 feet	0					
	Total Ranking Score	0					

Based on the site characteristics, the ranking criteria soil cleanup levels of 10 mg/kg Benzene, 50 mg/kg total BTEX, and 5,000 mg/kg Total Petroleum Hydrocarbons (TPH) were established for closure of the site. These site cleanup levels were confirmed during your site inspection on March 26, 2002 with Marathon's Area Engineer, Ms. Trenis Sondresen.

Remediation activities began on March 6, 2002, by excavating the affected soil (See Appendix D - Photo 1). The excavation was monitored by field screening the soil from the limits of the excavation using a photo-ionization detector (PID) organic vapor meter (OVM). Laboratory confirmation grab samples were collected from the limits of the excavation on March 12, for Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) and TPH analyses by EPA methods 8021B and 8015, respectively. The grab samples were collected from the bottom four corners of the excavation at 12 feet below ground surface (bgs), from the north and south sidewalls at 11 feet bgs, and from the bottom center of the excavation at 12 feet bgs (See Appendix E - Site Excavation Diagram). The samples exhibited Benzene, total BTEX, and TPH concentrations below the NMOCD site cleanup levels of 10 mg/kg, 50 mg/kg and 5,000 mg/kg, respectively, except for the sample from the bottom center at 12 feet, which exhibited a total BTEX concentration of 237.15 mg/kg. A summary of laboratory soil analyses is presented in Table I of Appendix F along with laboratory analytical reports.

On March 15, Marathon resampled the bottom center of the excavation approximately three feet east and west of the original sample at a depth of 12.5 feet bgs. This was the depth of auger refusal, due to a hard indurated siltstone layer (Photo 2). The laboratory analyses of the two samples from the bottom center of the excavation at 12.5 feet indicated Benzene, total BTEX, and TPH concentrations below the site cleanup levels of 10 mg/kg, 50 mg/kg and 5,000 mg/kg, respectively (See Appendix F - Table I). However, on March 26, based on the total BTEX concentration of the original bottom sample and at your request, Marathon applied 55 gallons of peroxide to the bottom center of the excavation to facilitate oxidation of the volatile organic hydrocarbons remaining in the soil (Photo 3). In addition, at your request, Marathon collected one composite sample of the four sidewalls at a depth of approximately six feet bgs on March 22. Laboratory analysis of the NSEW Sidewall Comp @ 6 ft sample indicated non-detectable concentrations of Benzene and TPH and a total BTEX concentration of 0.146 mg/kg, which is below the site cleanup level of 50 mg/kg (See Appendix F - Table I).

Approximately 800 cubic yards (CY) of affected soil was excavated from the tank release area (Photo 4). The excavated soil was spread out over the location approximately 1-1.5 feet thick to allow for aeration of the volatile organic hydrocarbons and to facilitate representative composite sampling (See Appendix G - Stockpiled Soil Diagram). The stockpiled soil was also bermed to prevent stormwater runoff and to collect stormwater for enhanced bioremediation.

The excavated stockpiled soil was gridded-off into eight 100 CY quadrants and five-point composite samples were collected from each quadrant for BTEX and TPH laboratory analyses on March 15. The laboratory analyses of the stockpile composite samples indicated that three of the eight quads (4 SC, 7 SC, & 8 SC) exhibited Benzene, total BTEX, and TPH concentrations below the site cleanup levels, and that the remaining five quads exhibited Benzene and TPH concentrations below their respective cleanup levels, but exhibited total BTEX concentrations above the site cleanup level of 50 mg/kg (See Appendix F -Table I). Therefore, on March 27, with your approval, Marathon placed the 300 CY of soil from Quads 4 SC, 7 SC, and 8 SC back into the excavated area (Photo 5). The remaining stockpiled soil was then spread out thinner (approximately eight inches thick) across the location to further promote aeration of the volatile organic hydrocarbons.

On April 9, after screening samples with the PID, Marathon collected one five-point composite sample (5 pt Composite) from the remaining 500 CY of stockpiled soil for BTEX laboratory confirmation analysis. The laboratory analysis indicated that the sample exhibited a total BTEX concentration of 5.19 mg/kg, which is below the site cleanup level of 50 mg/kg (See Appendix F - Table I).

Therefore, based on the laboratory analyses and with your approval, Marathon closed the site on April 26, 2002 by placing the remaining 500 CY of stockpiled soil back into the original excavation (Photo 6). The new tank battery facility was then rebuilt over a portion of the backfilled excavated area (Photos 7 & 8).

Mr. Foust we appreciate your cooperation and guidance in helping Marathon to achieve closure on this site. If you have any questions concerning the site closure activities, please contact Ms. Trenis Sondresen at (505) 320-6944 or myself at (915) 687-8136.

Sincerely,

## Marathon Oil Company

Aaron B. Wilson, Jr., P.G. Advanced HES Professional

aron B. Wilson Jr.

## **APPENDICIES:**

Appendix A - Site Topo Map

Appendix B - NMOCD Form C-141

Appendix C - NMOSE Water Column Report

Appendix D - Site Photographs

Appendix E - Site Excavation Diagram

Appendix F - Table I - Summary of Laboratory Soil Analyses

Laboratory Analytical Reports

Appendix G - Stockpiled Soil Diagram

ABW: HES Files/Owens 1A Rem/E701-001

(RR - 300 mos.)

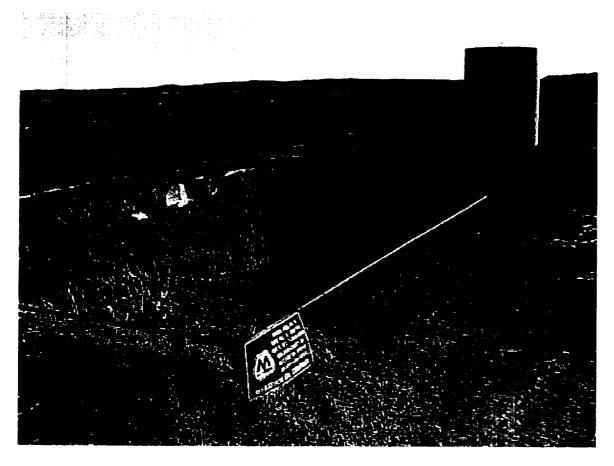


Photo 1. View looking northeast at affected soil excavation. Note fencing and diking (covered with gray rock) around southwest corner of former tank battery area.

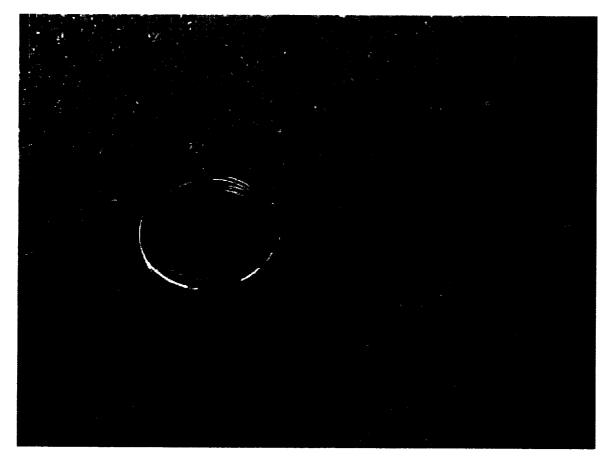


Photo 2. View of hard indurated siltstone (right of glass jar) at approximately 12.5 feet below ground surface in bottom of excavation where auger refusal was encountered.

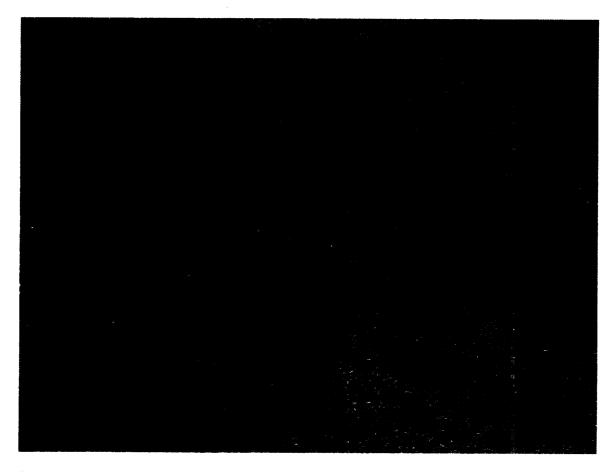
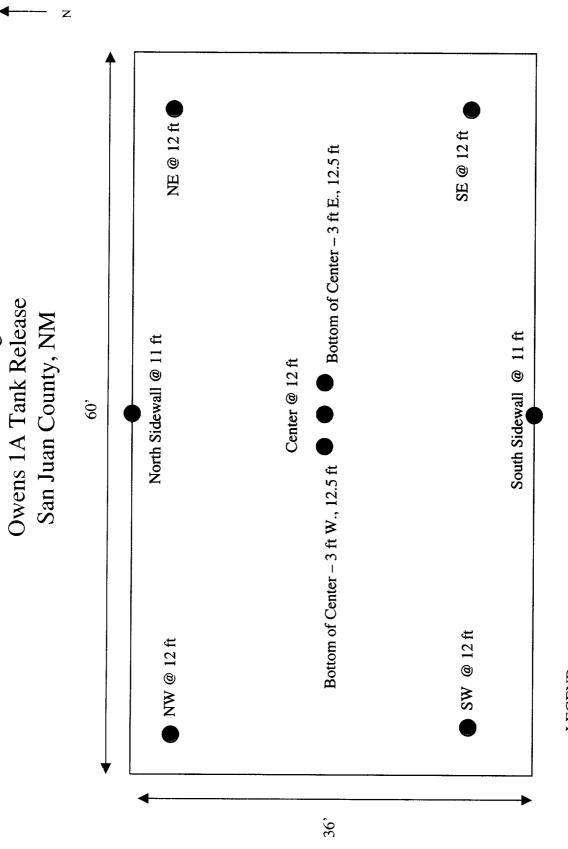


Photo 3. View of treated area saturated with peroxide in bottom center of excavation at 12 feet below ground surface. Note shovel in bottom center of photo for scale.



Photo 4. View looking south at excavated affected soil stockpiled on plastic sheeting until it could be spread out on location for remediation by aeration.



Site Excavation Diagram

LEGEND

NW @ 12 ft = Grab soil sample location and depth

## SUMMARY OF LABORATORY SOIL ANALYSES OWENS 1A TANK RELEASE SAN JUAN COUNTY, NM MARATHON OIL COMPANY **TABLE**

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OCARBONS	TOTAL TPH	(ma/kg)	52	QN	149	QN	430	QN	2,750	1,547	2,995	1,576	2,091	1.747	805	3.130	1.835	581	1 075	QN	NA
TOTAL PETROLEUM HYDROCARBONS	OH2	(mg/kg)	QN	QN	57	QN	09	QN	1210	86.5	265	376	671	377	311	1250	425	81.1	195	QN	NA
TOTAL PET	OHO	(mg/kg)	52	QN	92	QN	370	QN	1540	1,460	2730	1200	1420	1370	494	1880	1410	200	880	QN	NA
TOTAL	BTEX	(mg/kg)	0.31	QN	2.72	62	7.75	0.244	237.15	4.83	37.9	50.7	121.9	54.3	45.6	246	59.7	3.62	28.3	0.146	5.19
	XYLENES	(mg/kg)	0.31	QN	2.28	62	9.9	0.19	195	4.15	33.9	42.7	103	46.1	39.3	198	51	3.22	25	0.146	4.9
	BENZENE XYLENES	(mg/kg)	ΩN	QΝ	0.13	QN	0.5	ND	15	0.29	2	3.2	5.9	3.2	2.5	14	3.6	0.19	1.4	Q	0.29
	TOLUENE	(mg/kg)	ND	ND	0.31	ND	0.65	0.054	27	0.39	2	4.8	13	5	3.8	34	5.1	0.21	1.9	ΔN	QN
	BENZENE	(mg/kg)	ND	ND	ND	ND	ND	Ω	0.15	ND	ND	ND	ND	ND	ND	ND	ND	QN	QN	QN	ND
	DATE	A STATE OF THE PROPERTY OF	03/12/02	03/12/02	03/12/02	03/12/02	03/12/02	03/12/02	03/12/02	03/15/02	03/15/02	03/15/02	03/15/02	03/15/02	03/15/02	03/15/02	03/15/02	03/15/02	03/12/02	03/22/02	04/09/02
	SAMPLEID		NW @ 12 ft	NE @ 12 ft	SE @ 12 ft	SW @ 12 ft	South Sidewall @ 11 ft	North Sidewall @ 11 ft	Center @ 12 ft	Bottom of Center 3 ft W., 12.5 ft	Bottom of Center 3 ft E., 12.5 ft	Quad 1 SC	Quad 2 SC	Quad 3 SC	Quad 4 SC	Quad 5 SC	Quad 6 SC	Quad 7 SC	Quad 8 SC	NSEW Sidewall Comp @ 6 ft	5 pt Composite

Note: ND = Non Detectable

NA = Not Analyzed Quad 1-8 SC = Stockpile Composite samples per every 100 cubic yards of excavated soil. 5 pt Composite = Composite sample of remaining 500 cubic yards of excavated soil.

