AP - 008

ANNUAL MONITORING REPORT

YEAR(S):

2004

ARCADIS

Infrastructure, buildings, environment, communications

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Wayne Price
New Mexico Oil Conservation Division
1220 So. Saint Francis Drive
Santa Fe, New Mexico 87505

Certified Mail

Subject:
Rice Operating Company Junction I-9, Hobbs, New Mexico
2004 Annual Report Submittal

Date:
30 September 2004

Contact:
Sharon Hall

Phone:
432 687-5400

Email:
shall@arcadis-us.com

Our ref:
MT000643.0001

Dear Mr. Price,

On behalf of Rice Operating Company, ARCADIS G&M respectfully submits this Annual report due October 15 for the Junction I-9 site located in Hobbs, New Mexico. The report details the Stage 2 Abatement activities and results.

If you have any questions or require additional information please do hesitate to call me at (432) 687-5400 or Carolyn Haynes at (505) 393-9174.

Sincerely,

ARCADIS G&M, Inc.

Sharon E. Hall

Sharon E. Hall
Site Evaluation Department Manager

Copies:
Carolyn Haynes- Rice Operating Company

Attachment:
Report

JUNCTION I-9

2004 Annual Report

Rice Operating Company
Hobbs, New Mexico

ARCADIS

Infrastructure, buildings, environment, communications

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Sharon E. Hall
Site Evaluation Department Manager

Junction I-9 2004 Annual Report
Rice Operating Company
Hobbs, New Mexico

Prepared for:
Rice Operating Company

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Our Ref.:
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Date:
September 30, 2004

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Rice Operating Company
Hobbs, New Mexico

1. Introduction

The subject site is a former pipeline connection point on the Rice Operating Company (ROC) Hobbs Salt Water Disposal System. The abandoned pipeline transported produced water from oil and gas leases to a permitted well for disposal by subsurface injection. The site is located in southwest Hobbs, New Mexico approximately 0.6 miles south of the intersection of Grimes Street and Stanolind Road (Section 9, T19S-R38E, Lea County) (Figure 1).

2. Site History

A pipeline leak was discovered and repaired at the subject site on June 5, 1998. Notification of an accidental release was submitted to the New Mexico Oil Conservation Division (NMOCD) District I Office located in Hobbs, New Mexico. A Stage I Abatement Plan was submitted to the NMOCD on January 19, 1999. Interim abatement site activities including assessment of impacts to soil and groundwater and excavation of impacted soil were conducted from August 24, 1998 to September 2, 1999. Recovery of phase-separated hydrocarbons (PSH) from groundwater has been conducted from January 18 to May 7, 1999. A total of four monitor wells, one recovery well and nine boreholes was installed at the subject site. A Stage 1 Abatement Plan report detailing the results of the Stage 1 Abatement investigation was submitted to the NMOCD on September 10, 1999.

A Stage 2 Abatement Plan Proposal was submitted to the NMOCD on January 10, 2000. Following requests for additional information from the NMOCD, three Revised Stage 2 Abatement Plan proposals were submitted. (December 13, 2000, March 31, 2001 and December 13, 2001). A final Stage 2 Abatement Plan Proposal revision was requested by ROC on April 5, 2004 and approved by the NMOCD on June 4, 2004. Copies of the plan, revisions and NMOCD approvals are on file at the NMOCD office in Santa Fe. The approved Stage 2 Abatement Plan Proposal is as follows:

- Sampling monitor wells 1, 3, 4 and the McNeil well quarterly for four quarters and analyzing for benzene, toluene, ethylbenzene and xylenes (BTEX), general quality and New Mexico Water Quality Control Commission (WQCC) metals. Based on sample results for four quarters, the sampling frequency will be reviewed and may be revised.

- Sampling will be discontinued when eight quarters of sample results indicate that BTEX concentrations are below WQCC Title 20, Chapter 6, Part 2 standards.

- Excavation of soils in the area where hydrocarbons were detected in groundwater until the soil associated with the PSH is removed. When groundwater is encountered, excavation will be discontinued just below the depth where groundwater is encountered.

- Installation of a 12-15" compacted clay layer that meets or exceeds 95% of a Proctor Test ASTM-D-98 and permeability equal to or less than 1×10^{-7} cm/sec over the area excavated to groundwater. The liner extended 10 feet in all directions beyond the excavated area.

- Following backfilling, installation of a 12-15" compacted clay layer that meets or exceeds 95% of a Proctor Test ASTM-D-98 and permeability equal to or less than 1×10^{-7} cm/sec over the entire excavated area at a depth of 6-7 feet below ground surface (bgs).

- Excavation of soils exceeding total petroleum hydrocarbon (TPH), BTEX, benzene and chloride concentrations of 100 milligrams per kilogram (mg/kg), 50 mg/kg, 10 mg/kg and 250 mg/kg, respectively.

- Backfilling of blended soils not exceeding TPH, BTEX, benzene and chloride concentrations of 100 mg/kg, 50 mg/kg, 10 mg/kg and 1,099 mg/kg, respectively.

- Grading of the site to prevent ponding of rain water.

A Stage 2 Abatement Report was submitted to NMOCD on July 14, 2004 and approved by the NMOCD on August 17, 2004. NMOCD requested an annual report be submitted by October 15 each year until approval is given for no further monitoring. NMOCD requested that the annual report format will be the same as the Stage 2 Abatement Report format. The Stage 2 Abatement Report approval is included in Appendix A.

3. Geology and Hydrogeology

The Ogallala Formation is the principal source of groundwater in the subject area. Depth to groundwater in Lea County ranges from approximately 12 to approximately 300 feet bgs. The Ogalllala consists of predominantly coarse fluvial conglomerate and sandstone and fine-grained Eolian siltstone and clay. Where present in the subject area, the Ogallala unconformably overlies Triasssic redbeds. The regional and site groundwater gradient is to the south/southeast.

Depth to groundwater at the subject site is approximately 36 bgs. Groundwater elevations measured in the monitor wells at the subject site are shown in Table 1.

Table 1
GROUNDWATER ELEVATIONS
Junction I-9 Site
HOBBS, NEW MEXICO

MONITORING WELL	TOP OF CASING (feet)*	DATE	DEPTH TO GROUNDWATER (feet)*	WATER ELEVATION (feet)*
MW-1	3595.37	01/12/99	31.75	3563.62
MW-1	3595.37	01/16/99	32.04	3563.33
MW-1	3595.37	08/31/99	29.03	3566.34
MW-1	3595.37	03/02/04	36.78	3558.59
MW-2	3595.58	01/12/99	31.82	3563.76
MW-2	3595.58	01/16/99	32.04	3563.54
MW-2	3595.58	08/31/99	28.89	3566.69
MW-2	3595.58	03/02/04	Dry	-
MW-3	3595.62	01/12/99	30.58	3565.04
MW-3	3595.62	01/06/99	31.85	3563.77
MW-3	3595.62	08/31/99	26.24	3569.38
MW-3	3595.62	03/02/04	35.58	3560.04
MW-4	3595.15	09/02/99	28.98	3566.17
MW-4	3595.15	03/02/04	36.80	3558.35

*Based on survey data provided by Rice Operating Company. Used surveyed benchmark = top of casing on MW-3.

4. Stage 2 Abatement Field Activities

Stage 2 Abatement field activities were conducted between September 15, 2000 and October 3, 2000 and September 26, 2003 and February 4, 2004. Stage 2 Abatement field activities included sampling of three monitoring wells and an agricultural well, excavation of impacted soils, installation of an upper and lower liner and backfilling and grading of the site. All field activities were performed in accordance with the Stage 2 Abatement Plan Proposal and revisions as approved by the NMOCD. Soil Excavation

Stage 2 excavation activities were performed at the site between September 15, 2000 and October 3, 2000 and September 26, 2003 and February 4, 2004. Excavation activities were continued in the area where hydrocarbons were detected on the groundwater until the soil associated with the PSH was removed. Soil in this area was excavated to 30-32' bgs. When groundwater was encountered, excavation was discontinued just below the depth where groundwater was encountered in order to maintain safe and practical excavation of soils. PSH was recovered with absorbent material where possible. Soil excavation continued until no visible staining of the soils occurred and no photoionization detecter (PID) detections were observed. Soil samples were collected to confirm that impacted soils had been removed and that TPH, BTEX, benzene and chloride concentrations did not exceed the concentrations as approved for the Stage 2 Abatement Plan. Confirmation sample results and PID readings are shown in Table 2. The area of excavation and sample locations are shown in the figures included in Appendix B. Laboratory analysis is included in Appendix B.

A 12-15" compacted clay layer was installed according to NMOCD clay layer specifications (meet or exceed 95% of a Proctor Test ASTM-D-698 an permeability equal to or less than 1×10^{-7} cm/sec) over the area excavated to the groundwater interface in order to inhibit downward migration of constituents and to protect the groundwater interface that was exposed. Once the excavation was backfilled, an additional compacted clay layer was installed (to NMOCD specifications) approximately 6-7 feet below bgs over the entire excavation in order to inhibit downward migration of potential constituents in soils below the compacted clay layer. Liner design specifications were submitted to the OCD on March 30, 2001. Proctor and Density test results are included in Appendix C.

Approximately 11,000 loose cubic yards of impacted soils were disposed at an NMOCD-approved facility during initial Stage 2 Abatement activities. All remaining excavated soils, between 70,000 and 80,000 cubic yards, were blended with

overburden/replacement soils and returned to the excavation as backfill. TPH, BTEX, benzene and chloride concentrations in the blended backfill material did not exceed the concentrations as approved for the Stage 2 Abatement Plan.

Following excavation the site was graded to prevent ponding of water and seeded with a blend of native vegetation.

4.1 Sampling of Monitor Wells

A total of four monitor wells and one recovery well were installed in the subject area. An additional existing well referred to as the McNeil well has been added to the monitor well sampling program. Monitor well MW-2 was dry and, therefore, not sampled in the March 2004 sampling event. The recovery well was removed during excavation activities. Well locations are shown in the figures included in Appendix B.

Groundwater samples were collected from MW-1, MW-2 and MW-3 on January 16, 1999 and analyzed for volatile organics, semi-volatile organics, general chemistry and metals using USEPA Methods 8260, 8270C, 325.3, 4500, 150.1, 120.1, 375.4, 160.1, and 6010B.

MW-1 and MW-2 were resampled on July 7, 1999 to determine if BTEX concentrations were representative of downgradient aquifer conditions. The groundwater samples were submitted for analysis for BTEX using USEPA Method 8021B.

MW-4 was sampled on September 2, 1999 and analyzed for volatile organics, semi-volatile organics, general chemistry and metals using USEPA Methods 8260, 8270C, 325.3, 4500, 150.1, 120.1, 375.4, 160.1 and 6010B.

MW-1, MW-3, MW-4 and the McNeil well were sampled on March 2, 2004 and analyzed for volatile organics, gasoline range organics, diesel range organics and total hydrocarbon, die organics, general chemistry and metals using USEPA Methods 8260B, 8015M, 310.2M, 340.1, 325.3, 4500, 150.1, 120.1, 375.4, 160.1 and 7470A and 6010B. Laboratory analysis for March 2, 2004 sampling event is included in Appendix B. Groundwater analytical results are summarized in Table 3.

Benzene was detected in the samples collected from MW-1 and MW-2 on January 16, 1999 and July 7, 1999 at a concentration of 0.008 milligrams per liter (mg/L), 0.017 mg/L, 0.262 mg/L and 0.289 mg/L, respectively. Toluene was detected in the samples

collected from MW-1 on July 7, 1999 at a concentration of 0.01 mg/L. Ethylbenzene was detected in the samples collected from MW-1 and MW-2 on January 16, 1999 and July 7, 1999 at a concentration of 0.032 mg/L, 0.007 mg/L, 0.286 mg/L and 0.061 mg/L, respectively. Xylenes were detected in the samples collected from MW-1 and MW-2 on January 16, 1999 and July 7, 1999 at a concentration of 0.012 mg/L, 0.012 mg/L, 0.131 mg/L and 0.008 mg/L, respectively. 1,2,4-trimethylbenzene was detected in the January 1999 sample collected from MW-1 at a concentration of 0.007 mg/L. No other analyzed organic compounds were detected.

Naturally-occurring inorganic analytes (metals, chlorides, pH, sulfate, TDS, calcium, potassium, bicarbonate, manganese and sodium) were detected in the groundwater samples collected from MW-1, MW-2, MW-3 and MW-4.

No hydrocarbons (TPH or BTEX) were detected in any of the wells during the March 2004 groundwater sampling event. Metals analysis indicates a decrease in metals concentrations since the July and September 1999 sampling. Aluminum and lead were detected at concentrations in excess of New Mexico Water Quality Control Commission (WQCC) standards; however, the concentrations of these compounds have decreased since the wells were last sampled. Boron was detected at a concentration in excess of the WQCC standard. Boron has not previously been analyzed. Total dissolved solids and sodium were detected at a concentration above the WQCC standard, and chlorides were detected above the WQCC standard in one well, MW-3.

A quarterly groundwater sampling event was performed on September 2, 2004 following final approval of the Stage 2 Abatement workplan and Stage 2 Abatement report. Laboratory analytical results are included in Appendix B. No hydrocarbons were detected in any of the groundwater samples. Chloride concentrations were below New Mexico standard of 250 mg/L in all of the wells. Naturally occurring inorganic compounds including barium, iron and manganese were detected at concentrations excess of New Mexico Water Quality Control Commission (WQCC) standards.

No free product is evidenced at the site. During excavation activities the site was excavated to groundwater in the source area. No product was evidenced in the excavation.

5. Conclusions

Soils exceeding TPH, BTEX, benzene and chloride concentrations of 100 mg/kg, 50 mg/kg, 10 mg/kg and 250 mg/kg, respectively have been excavated and two clay liners installed as described in this report. Backfill material (blended soils) concentrations did not exceed TPH, BTEX, benzene and chloride concentrations of 100 mg/kg, 50 mg/kg, 10 mg/kg and 1,099 mg/kg, respectively. The site has been graded to prevent ponding of rainwater.

No hydrocarbons (TPH or BTEX) were detected in any of the wells during the March 2004 groundwater sampling event. Metals analysis indicates a decrease in metals concentrations since the July and September 1999 sampling. Aluminum and lead were detected at concentrations in excess of WQCC standards; however, the concentrations of these compounds have decreased since the wells were last sampled. Boron was detected at a concentration in excess of the WQCC standard. Boron has not previously been analyzed. Total dissolved solids and sodium were detected at a concentration above the WQCC standard, and chlorides were detected above the WQCC standard in one well, MW-3.

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No free product is evidenced at the site. During excavation activities the site was excavated to groundwater in the source area. No measurable product was evidenced in the excavation.

ROC will continue groundwater sampling of Monitor Well 1, 3, 4 and the McNeil well quarterly for a total of four quarters (three additional quarters) and analyze for BTEX, general quality and WQCC metals. Based on sample results for four quarters the sampling frequency will be reviewed and may be revised.

Sampling will be discontinued when a total of eight quarters (seven additional quarters) of sample results indicate that BTEX concentrations are below WQCC Title 20, Chapter 6, Part 2 standards.

6. References

Groundwater Handbook; United States Environmental Protection Agency, Office of Research and Development, Center for Environmental Research Information; 1992.

Hydrology and Hydrochemistry of the Ogallala Aquifer, Southern High Plains, Texas Panhandle and Eastern New Mexico; Report Number 177; Bureau of Economic Geology; 1988.

Hydrogeochemistry and Water Resources of the Lower Dockum Group in the Texas Panhandle and Eastern New Mexico; Report Number 161; Bureau of Economic Geology; 1986.

New Mexico Water Quality Control Commission, Title 20 Chapter 6, Part 2, Subpart I.

Junction I-9 Release Site, Stage 1 Abatement Report (Site Assessment Investigation); ARCADIS Geraghty and Miller; September 10, 1999

Junction I-9 Stage 2 Abatement Report; ARCADIS Geraghty and Miller; July 2004

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Table 2
Soil Analytical Results

Date	Lab Number	Comment	Lab GRO	Lab DRO	Lab CL	Field PID	Field Cl	Benzene	Toluene	Ethyl Benzene	Total Xylenes
2/5/2004	H8435	Surface 5pt Comp	<10	<10	144			N/A	N/A	N/A	N/A
1/29/2004	H8420	1st 5' lift after clay liner @ 8' S. 1/2	<10	<10	112	NW 4.0	104	N/A	N/A	N/A	N/A
"						NE 4.8		N/A	N/A	N/A	N/A
"						Center 3.6		N/A	N/A	N/A	N/A
"						SW 6.0		N/A	N/A	N/A	N/A
"						SE 5.3		N/A	N/A	N/A	N/A
1/26/2004	H8407	1st 5' lift after clay liner @ 8' N. 1/2	<10	<10	176	3.4	183	N/A	N/A	N/A	N/A
"						2.9		N/A	N/A	N/A	N/A
"						2.7		N/A	N/A	N/A	N/A
"						2.2		N/A	N/A	N/A	N/A
"						2.3		N/A	N/A	N/A	N/A
1/12/2004	H8347	N 1/2 4th 5' lift	<10	<10	128	NE 3.3	126	N/A	N/A	N/A	N/A
"						NW 6.9		N/A	N/A	N/A	N/A
"						Center 3.6		N/A	N/A	N/A	N/A
"						SE 4.8		N/A	N/A	N/A	N/A
"						SW 2.0		N/A	N/A	N/A	N/A
1/6/2004	H8331	S 1/2 4th 5' lift	<10	<10	96	SE 13.8	105	N/A	N/A	N/A	N/A
"						NE 1.4		N/A	N/A	N/A	N/A
"						Center 4.5		N/A	N/A	N/A	N/A
"						NW 3.5		N/A	N/A	N/A	N/A
"						SW 9.3		N/A	N/A	N/A	N/A
12/30/2003	H8307	N. 3rd 5' lift comp	<10	<10	80	SE 5.3	129	N/A	N/A	N/A	N/A
"						NE 5.8		N/A	N/A	N/A	N/A
"						Center 10.3		N/A	N/A	N/A	N/A
"						SW 15.0		N/A	N/A	N/A	N/A
"						NW 3.3		N/A	N/A	N/A	N/A
12/23/2003	H8289	S. 3rd 5' lift by MW #1	<10	<10	80	NW 3.4	101	N/A	N/A	N/A	N/A
"						NE 3.3		N/A	N/A	N/A	N/A
"						Center 10.9		N/A	N/A	N/A	N/A
"						SE 3.6		N/A	N/A	N/A	N/A
"						SW 37.2		N/A	N/A	N/A	N/A
12/17/2003	H8265	S. 2nd 5' lift by MW #1	<10	34.2	96	NE 4.8	156	N/A	N/A	N/A	N/A

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Table 2
Soil Analytical Results

Date	Lab Number	Comment	Lab GRO	Lab DRO	Lab CL	Field PID	Field Cl	Benzene	Toluene	Ethyl Benzene	Total Xylenes
"						NW 5.2		N/A	N/A	N/A	N/A
"						Center 9.3		N/A	N/A	N/A	N/A
"						SE 6.3		N/A	N/A	N/A	N/A
"						SW 3.0		N/A	N/A	N/A	N/A
12/11/2003	H8246	S. 1st 5' lift 4th clay liner	<10	<10	128	3.2	101	N/A	N/A	N/A	N/A
"						3.5		N/A	N/A	N/A	N/A
"						3.8		N/A	N/A	N/A	N/A
"						3.7		N/A	N/A	N/A	N/A
"						1.9		N/A	N/A	N/A	N/A
12/9/2003	H8236	2nd lift 3rd clay liner	<10	<10	176	2.1	82	N/A	N/A	N/A	N/A
12/5/2003	H8230-1	S. wall 2pt comp	<10	<10	144			N/A	N/A	N/A	N/A
"	H8230-2	S. end @ GW @ 36'	<10	<10	80			N/A	N/A	N/A	N/A
"	H8230-3	5pt comp S. end bttm	<10	<10	96			N/A	N/A	N/A	N/A
12/4/2003	H8223-1	E. wall 5pt comp N. 1/2	<10	<10	80	1.1	115	N/A	N/A	N/A	N/A
"						0.5		N/A	N/A	N/A	N/A
"						0.4		N/A	N/A	N/A	N/A
"						0.6		N/A	N/A	N/A	N/A
"						1.3		N/A	N/A	N/A	N/A
12/4/2003	H8223-2	E. wall 5pt comp S. 1/2	<10	<10	112	4.4	95	N/A	N/A	N/A	N/A
"						0.5		N/A	N/A	N/A	N/A
"						1.1		N/A	N/A	N/A	N/A
"						0.5		N/A	N/A	N/A	N/A
"						1.3		N/A	N/A	N/A	N/A
12/2/2003	H8214	5pt comp 3rd liner 1st 5' lilft	<10	<10	160	34.5	180	N/A	N/A	N/A	N/A
11/21/2003	H8202-1	4pt comp @ GW 36'	<10	<10	112	1.7	105	N/A	N/A	N/A	N/A
"	H8202-2	5pt base comp @ 30'	<10	<10	144	1.8	177	N/A	N/A	N/A	N/A
11/6/2003	H8148	GW backfill S. end	<10	<10	96			N/A	N/A	N/A	N/A
10/31/2003	H8133-1	S. wall comp E. end	<10	<10	32	2.5	110	N/A	N/A	N/A	N/A
"	H8133-2	S. wall comp W. end	<10	<10	16	2.6	105	N/A	N/A	N/A	N/A
10/30/2003	H8129	S. @ GW 36'	<10	<10	48	6.1	203.44	N/A	N/A	N/A	N/A
10/24/2003	H8113	Water table backfill	<10	<10	160	0.2		N/A	N/A	N/A	N/A
10/21/2003	H8102-1	7pt comp @ GW 36'	<10	28.8	80			<0.005	<0.005	<0.005	<0.015

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Table 2
Soil Analytical Results

Date	Lab Number	Comment	Lab GRO	Lab DRO	Lab CL	Field PID	Field Cl	Benzene	Toluene	Ethyl Benzene	Total Xylenes
"	H8102-2	W. wall S. 1/2 5pt comp	<10	16.7	96			<0.005	<0.005	<0.005	<0.015
"	H8102-3	W. wall N. 1/2 5pt comp	<10	<10	64			<0.005	<0.005	<0.005	<0.015
10/1/2003	H8053-1	Btm #1	<10	<10	64	1.3	200	<0.005	<0.005	<0.005	<0.015
"	H8053-2	Btm #2	<10	<10	64	1	234	<0.005	<0.005	<0.005	<0.015
"	H8053-3	Btm #3	<10	<10	253	2.5	366	<0.005	<0.005	<0.005	<0.015
"	H8053-4	Btm #4	<10	<10	448	2.3	680	<0.005	<0.005	<0.005	<0.015
"	H8053-5	Btm #5	<10	<10	112	0.7	231	<0.005	<0.005	<0.005	<0.015
	Lab ID	ELOT									
11/26/2003	0308006-01	N. wall E. 1/2 comp	<10	<10	<20			N/A	N/A	N/A	N/A
"	0308006-02	N. wall W. 1/2 comp	<10	<10	21.3			N/A	N/A	N/A	N/A
10/6/2003	0307653-01	1st lift #1	<10	26.4	35.4	1.3	185.55	N/A	N/A	N/A	N/A
"	0307653-02	1st lift #2	<10	<10	53.2	2	147.46	N/A	N/A	N/A	N/A
"	0307653-03	1st lift #3	<10	<10	35.4	0.7	360.89	N/A	N/A	N/A	N/A
"	0307653-04	1st lift #4	<10	12.1	35.4	1.5	153.76	N/A	N/A	N/A	N/A
"	0307653-05	1st lift #5	<10	18.9	35.4	1.7	154.46	N/A	N/A	N/A	N/A
"	0307653-06	W. wall bttm #6	<10	11.6	106	18.1	176.45	N/A	N/A	N/A	N/A
"	0307653-07	W. wall bttm #7	<10	<10	<20	1.6	162.35	N/A	N/A	N/A	N/A
"	0307653-08	W. wall bttm #8	<10	<10	<20	6.6	114.96	N/A	N/A	N/A	N/A
"	0307653-09	W. wall bttm #9	71.4	401	1770	96	2044.36	N/A	N/A	N/A	N/A

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TABLE 3
GROUNDWATER ANALYTICAL RESULTS

Well Name	MW-1				MW-2		MW-3			MW-4			McNeil Well		B-3	B-4
Date Sampled	1/16/1999	7/7/1999	3/2/2004	9/2/2004	1/16/1999	7/7/1999	1/16/1999	3/2/2004	9/2/2004	9/2/1999	3/2/2004	9/2/2004	3/2/2004	9/2/2004	10/21/1998	10/21/1998
Compound Name	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
VOCs																
Benzene	0.008	0.262	ND	ND	0.017	0.289	ND	ND	J[0.000671]	ND	ND	ND	ND	ND	14.200	0.618
Bromobenzene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromochloromethane	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-butylbenzene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-butylbenzene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-butylbenzene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorodibromomethane	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorotoluene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorotoluene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorethane	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-dichloroethene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-dichloroethene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichloropropane	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-Dichloropropane	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloropropene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	0.032	0.286	ND	ND	0.007	0.061	ND	ND	J[0.000413]	ND	ND	ND	ND	ND	1.310	0.182
Hexachlorobutadiene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-isopropytoluene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-propylbenzene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	ND	0.01	ND	ND	ND	<0.005	ND	ND	ND	ND	ND	ND	ND	ND	<0.050	0.331
1,2,3-Trichlorobenzene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA

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TABLE 3
GROUNDWATER ANALYTICAL RESULTS

Well Name	MW-1				MW-2		MW-3			MW-4			McNeil Well		B-3	B-4
Date Sampled	1/16/1999	7/7/1999	3/2/2004	9/2/2004	1/16/1999	7/7/1999	1/16/1999	3/2/2004	9/2/2004	9/2/1999	3/2/2004	9/2/2004	3/2/2004	9/2/2004	10/21/1998	10/21/1998
Compound Name	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
1,1,2-Trichloroethane	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.007	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes, total	0.012	0.131	ND	ND	0.012	0.008	ND	ND	J(0.000990)	ND	ND	ND	ND	ND	0.78	0.226
Acetone	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl acetate	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloethylvinylether	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-dichloropropene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-dichloropropene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs																
Acenaphthene	ND	NA	NA	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA
Acenaphthylene	ND	NA	NA	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA
Aniline	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ND	NA	NA	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	ND	NA	NA	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	ND	NA	NA	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	ND	NA	NA	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA
Benzoic acid	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	ND	NA	NA	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA
Benzyl alcohol	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenylphenyl ether	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butybenzylphthalate	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-butyl phthalate	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroethoxy)methane	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroethyl)ether	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenylphenyl ether	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ND	NA	NA	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	ND	NA	NA	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA
Dibenzofuran	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA

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TABLE 3
GROUNDWATER ANALYTICAL RESULTS

Well Name	MW-1				MW-2		MW-3			MW-4			McNeil Well		B-3	B-4
Date Sampled	1/16/1999	7/7/1999	3/2/2004	9/2/2004	1/16/1999	7/7/1999	1/16/1999	3/2/2004	9/2/2004	9/2/1999	3/2/2004	9/2/2004	3/2/2004	9/2/2004	10/21/1998	10/21/1998
Compound Name	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
1,4-Dichlorobenzene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3-Dichlorobenzidine	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Diphenylhydrazine	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ND	NA	NA	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA
Fluorene	ND	NA	NA	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopehtadiene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ND	NA	NA	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA
Isophorone	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	ND	NA	NA	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA
2-Nitroaniline	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-nitrosodiphenylamine	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-nitroso-di-n-propylamine	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	ND	NA	NA	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA
Phenol	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	ND	NA	NA	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA
Pyridine	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gasoline Range C6-C12	NA	NA	ND	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	NA	NA	NA
Diesel Range >C12-C35	NA	NA	ND	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	NA	NA	NA
TPH C6-C35	NA	NA	ND	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	NA	NA	NA
General Chemistry																
Resistivity	0.74	NA	NA	NA	0.58	NA	0.53	NA	NA	0.0009	NA	NA	NA	NA	NA	NA
Specific Gravity	0.982	NA	NA	NA	0.985	NA	0.996	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	128	NA	195	186	230	NA	195	319	142	100	164	160	81.5	79.8	230	2400

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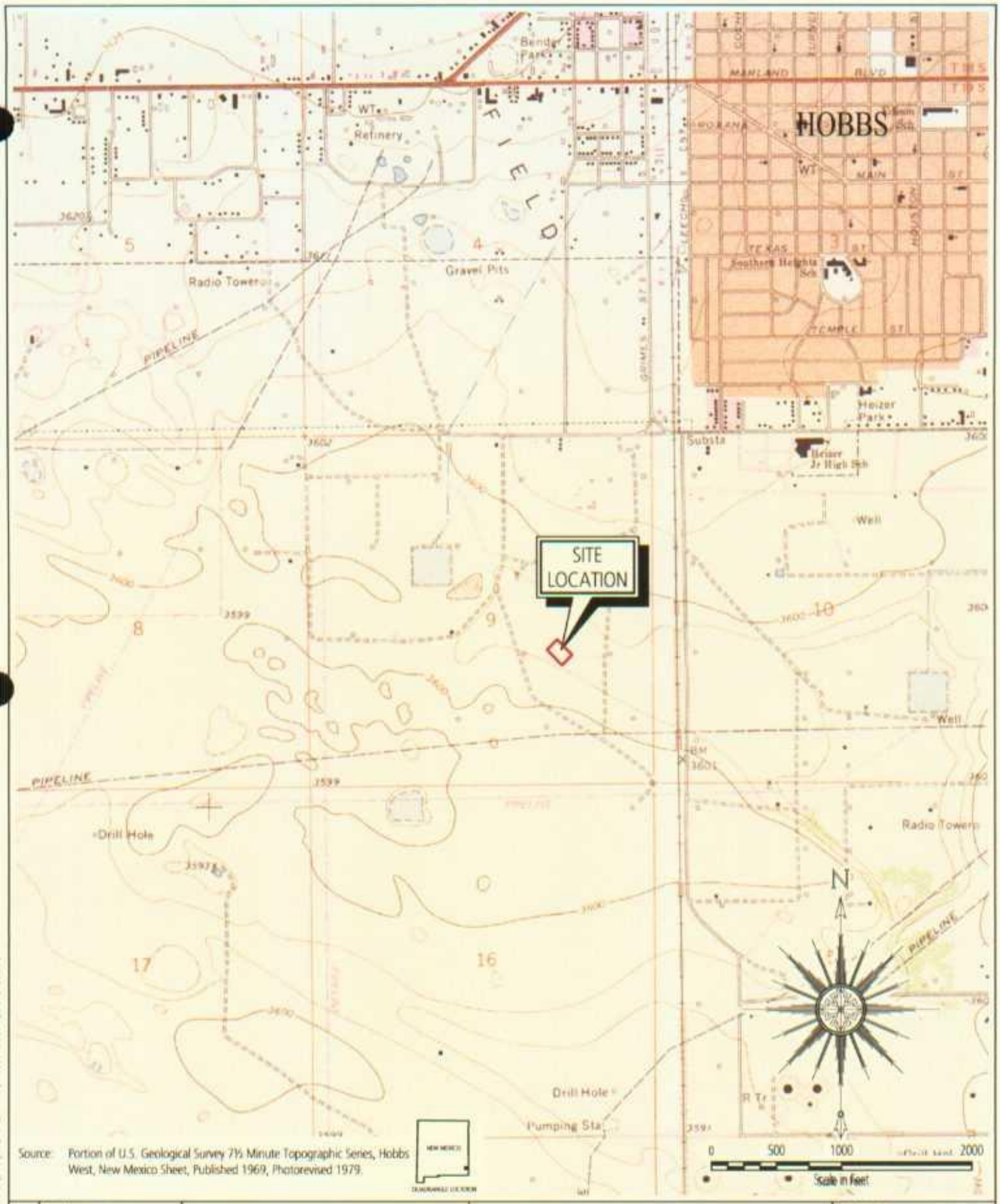
TABLE 3
GROUNDWATER ANALYTICAL RESULTS

Well Name	MW-1				MW-2		MW-3			MW-4			McNeil Well		B-3	B-4
Date Sampled	1/16/1999	7/7/1999	3/2/2004	9/2/2004	1/16/1999	7/7/1999	1/16/1999	3/2/2004	9/2/2004	9/2/1999	3/2/2004	9/2/2004	3/2/2004	9/2/2004	10/21/1998	10/21/1998
Compound Name	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Carbonate ($CaCO_3$)	ND	NA	ND	NA	ND	NA	ND	ND	NA	ND	ND	NA	ND	NA	NA	NA
Bicarbonate ($CaCO_3$)	332	NA	478	NA	322	NA	370	380	NA	220	264	NA	185	NA	NA	NA
Hydroxide Alkalinity	NA	NA	ND	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	NA	NA	NA
pH	7.29	NA	7.22	NA	7.51	NA	7.51	6.99	NA	NA	7.03	NA	7.52	NA	NA	NA
Sulfate	318	NA	440	NA	372	NA	483	499	NA	180	367	NA	69.2	NA	NA	NA
Total dissolved solids	890	NA	1720	NA	1190	NA	1340	1320	NA	770	1040	NA	468	NA	1710	5460
Calcium	727	NA	72.8	NA	578	NA	1255	94.4	NA	93	100	NA	25.9	NA	NA	NA
Potassium	3	NA	4.45	NA	30	NA	8	2.7	NA	2.4	1.85	NA	2.95	NA	NA	NA
Sodium	144	NA	244	NA	171	NA	310	200	NA	124	129	NA	104	NA	NA	NA
Specific Conductance	NA	NA	1870	NA	NA	NA	NA	1740	NA	NA	1380	NA	724	NA	NA	NA
Fluoride	NA	NA	1.57	NA	NA	NA	NA	1.91	NA	NA	1.89	NA	1.03	NA	NA	NA
Nitrate as N	NA	NA	0.2	NA	NA	NA	NA	0.1	NA	NA	0.2	NA	0.4	NA	NA	NA
Metals																
Silver	ND	NA	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Aluminum	12.3	NA	7	NA	16.5	NA	32.7	15.7	NA	3.1	1.14	NA	0.0491	NA	NA	NA
Arsenic	0.019	NA	ND	0.0213	0.025	NA	0.028	0.0127	0.0413	0.03	ND	ND	0.0467	0.0622	NA	NA
Barium	0.87	NA	0.446	0.903	0.970	NA	3.91	1.87	4.35	0.11	0.0932	0.128	0.0543	0.0587	NA	NA
Boron	NA	NA	1.38	NA	NA	NA	NA	0.999	NA	NA	0.592	NA	0.127	NA	NA	NA
Cadmium	ND	NA	ND	0.00240	ND	NA	ND	ND	0.00310	ND	0.0134	ND	ND	0.00110	NA	NA
Cobalt	ND	NA	J[0.0008]	NA	ND	NA	ND	0.0047	NA	ND	ND	NA	ND	NA	NA	NA
Chromium	ND	NA	J[0.0024]	0.0193	0.02	NA	0.03	0.0139	0.0484	ND	ND	ND	ND	J[0.00350]	NA	NA
Copper	0.02	NA	0.0044	0.0538	0.02	NA	0.02	ND	0.0183	0.03	ND	0.00840	ND	0.0117	NA	NA
Iron	9.34	NA	5.58	9.72	11.6	NA	26.4	13.8	25.4	2.4	1.06	1.53	0.0609	0.0485	NA	NA
Magnesium	NA	NA	28.1	NA	NA	NA	NA	38.8	NA	NA	31.2	NA	3.93	NA	NA	NA
Mercury	ND	NA	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	0.00202	NA	NA
Manganese	0.214	NA	0.0741	0.234	0.288	NA	0.535	0.458	0.775	0.03	0.0524	0.0642	0.0221	0.0181	NA	NA
Molybdenum	ND	NA	ND	NA	ND	NA	0.03	ND	NA	0.02	ND	NA	ND	NA	NA	NA
Nickel	0.02	NA	ND	NA	ND	NA	0.05	ND	NA	0.1	ND	NA	ND	NA	NA	NA
Lead	0.005	NA	ND	ND	0.007	NA	0.013	ND	ND	0.008	ND	ND	ND	ND	NA	NA
Selenium	ND	NA	ND	ND	ND	NA	ND	ND	ND	0.02	ND	ND	ND	ND	NA	NA
Zinc	0.05	NA	0.098	0.0533	0.04	NA	0.04	0.0342	0.186	0.04	0.0863	0.0547	0.0331	0.0857	NA	NA

All results are reported in milligrams per liter (mg/L)
NA - Not analyzed
ND - Not detected



Source: Portion of U.S. Geological Survey 7½ Minute Topographic Series, Hobbs West, New Mexico Sheet, Published 1969, Photorevised 1979.

Area Manager: A. Schmidt Project Manager: S. Hall Task Manager: S. Hall Technical Review: S. Tischer	ARCADIS 1004 North Big Spring Street Suite 300 Midland, TX 79701-3383 Tel: 432-687-5400 Fax: 432-687-5401 www.arcadis-us.com	Rice Operating Company Junction I-9 Release Site, 09-T19S-R38E, Hobbs SWD System Abatement Site Location Map Lea County, New Mexico	Project Number: MT000643.0001 Drawing Date: 09 July 2004 Figure: 1

Appendix A

Stage 2 Abatement Report Approval

Hall, Sharon E.

From: Price, Wayne [WPrice@state.nm.us]
Sent: Tuesday, August 17, 2004 4:00 PM
To: Carolyn Doran Haynes (E-mail)
Cc: Hall, Sharon E.; Sheeley, Paul; Johnson, Larry
Subject: Rice I-9 AP#8

The OCD is in receipt of the Stage 2 letter and Abatement Report dated July 14, 2004. OCD hereby approves of the closure activities of the excavated area. In addition, OCD approves of the long term groundwater monitoring plan. Please submit an annual report due on October 15 of each year. The report will follow the same outline as the Stage 2 Abatement report. Please plot constituents of concern and include conclusions and recommendations.

Please be advised that NMOCD approval of this plan does not relieve (Rice Operating Company) of liability should their operations fail to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD approval does not relieve (Rice Operating Company) of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Sincerely:

Wayne Price
New Mexico Oil Conservation Division
1220 S. Saint Francis Drive
Santa Fe, NM 87505
505-476-3487
fax: 505-476-3462
E-mail: WPRICE@state.nm.us

ARCADIS

Appendix B

Groundwater Analytical Results
September 2004

ENVIRONMENTAL LAB OF

12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Kristin Farris Pope

ARCADIS

1004 N. Big Spring Street

Midland, TX 79701

Project: I-9 SWD

Project Number: I-9 SWD

Location: Rice Operating/Hobbs

Lab Order Number: 4I03015

Report Date: 09/15/04

ARCADIS	Project: I-9 SWD	Fax: (432) 687-5401
1004 N. Big Spring Street	Project Number: I-9 SWD	**Reported:**
Midland TX, 79701	Project Manager: Kristin Farris Pope	09/15/04 15:15

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-3	4I03015-01	Water	09/02/04 10:20	09/03/04 14:40
MW-1	4I03015-02	Water	09/02/04 11:20	09/03/04 14:40
MW-4	4I03015-03	Water	09/02/04 11:50	09/03/04 14:40
McNeill's Well	4I03015-04	Water	09/02/04 12:25	09/03/04 14:40
Trip Blank	4I03015-05	Water	09/02/04 00:00	09/03/04 14:40

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

ARCADIS	Project: I-9 SWD	Fax: (432) 687-5401
1004 N. Big Spring Street	Project Number: I-9 SWD	**Reported:**
Midland TX, 79701	Project Manager: Kristin Farris Pope	09/15/04 15:15

Organics by GC

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-3 (4I03015-01) Water									
Benzene	**J [0.000671]**	0.00100	mg/L	1	EI41004	09/08/04	09/08/04	EPA 8021B	J
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	**J [0.000413]**	0.00100	"	"	"	"	"	"	J
Xylene (p/m)	**J [0.000552]**	0.00100	"	"	"	"	"	"	J
Xylene (o)	**J [0.000990]**	0.00100	"	"	"	"	"	"	J
Surrogate: a,a,a-Trifluorotoluene		*109 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*94.5 %*	*80-120*		"	"	"	"	
MW-1 (4I03015-02) Water									
Benzene	ND	0.00100	mg/L	1	EI41004	09/08/04	09/08/04	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*112 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*82.5 %*	*80-120*		"	"	"	"	
MW-4 (4I03015-03) Water									
Benzene	ND	0.00100	mg/L	1	EI41004	09/08/04	09/08/04	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*111 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*106 %*	*80-120*		"	"	"	"	
McNeill's Well (4I03015-04) Water									
Benzene	ND	0.00100	mg/L	1	EI41004	09/08/04	09/08/04	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*95.5 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*95.5 %*	*80-120*		"	"	"	"	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

ARCADIS	Project: I-9 SWD	Fax: (432) 687-5401
1004 N. Big Spring Street	Project Number: I-9 SWD	**Reported:**
Midland TX, 79701	Project Manager: Kristin Farris Pope	09/15/04 15:15

Organics by GC

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Trip Blank (4I03015-05) Water									
Benzene	ND	0.00100	mg/L	1	EI41004	09/08/04	09/08/04	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*111 %*		*80-120*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*106 %*		*80-120*	"	"	"	"	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

ARCADIS	Project: I-9 SWD	Fax: (432) 687-5401
1004 N. Big Spring Street	Project Number: I-9 SWD	**Reported:**
Midland TX, 79701	Project Manager: Kristin Farris Pope	09/15/04 15:15

General Chemistry Parameters by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-3 (4I03015-01) Water									
Chloride	**142**	5.00	mg/L	1	EI40805	09/07/04	09/07/04	EPA 325.3M	
MW-1 (4I03015-02) Water									
Chloride	**186**	5.00	mg/L	1	EI40805	09/07/04	09/07/04	EPA 325.3M	
MW-4 (4I03015-03) Water									
Chloride	**160**	5.00	mg/L	1	EI40805	09/07/04	09/07/04	EPA 325.3M	
McNeill's Well (4I03015-04) Water									
Chloride	**79.8**	5.00	mg/L	1	EI40805	09/07/04	09/07/04	EPA 325.3M	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

ARCADIS	Project: I-9 SWD	Fax: (432) 687-5401
1004 N. Big Spring Street	Project Number: I-9 SWD	**Reported:**
Midland TX, 79701	Project Manager: Kristin Farris Pope	09/15/04 15:15

Total Metals by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-3 (4I03015-01) Water									
Mercury	ND	0.000500	mg/L	1	EI41501	09/14/04	09/15/04	EPA 7470A	
Arsenic	**0.0413**	0.00800	"	"	EI41415	09/13/04	09/14/04	EPA 6010B	
Barium	**4.35**	0.00100	"	"	"	"	"	"	
Cadmium	**0.00310**	0.00100	"	"	"	"	"	"	
Chromium	**0.0484**	0.00500	"	"	"	"	"	"	
Copper	**0.0183**	0.00200	"	"	"	"	"	"	
Lead	ND	0.0110	"	"	"	"	"	"	
Iron	**25.4**	0.0200	"	10	"	"	"	"	
Manganese	**0.775**	0.00100	"	1	"	"	"	"	
Selenium	ND	0.00400	"	"	"	"	"	"	
Silver	ND	0.00500	"	"	"	"	"	"	
Zinc	**0.186**	0.00100	"	"	"	"	"	"	
MW-1 (4I03015-02) Water									
Mercury	ND	0.000500	mg/L	1	EI41501	09/14/04	09/15/04	EPA 7470A	
Arsenic	**0.0213**	0.00800	"	"	EI41415	09/13/04	09/14/04	EPA 6010B	
Barium	**0.903**	0.00100	"	"	"	"	"	"	
Cadmium	**0.00240**	0.00100	"	"	"	"	"	"	
Chromium	**0.0193**	0.00500	"	"	"	"	"	"	
Copper	**0.0538**	0.00200	"	"	"	"	"	"	
Lead	ND	0.0110	"	"	"	"	"	"	
Iron	**9.72**	0.0100	"	5	"	"	"	"	
Manganese	**0.234**	0.00100	"	1	"	"	"	"	
Selenium	**ND**	0.00400	"	"	"	"	"	"	
Silver	ND	0.00500	"	"	"	"	"	"	
Zinc	**0.0533**	0.00100	"	"	"	"	"	"	
MW-4 (4I03015-03) Water									
Mercury	ND	0.000500	mg/L	1	EI41501	09/14/04	09/15/04	EPA 7470A	
Arsenic	**ND**	0.00800	"	"	EI41415	09/13/04	09/14/04	EPA 6010B	
Barium	**0.128**	0.00100	"	"	"	"	"	"	
Cadmium	**ND**	0.00100	"	"	"	"	"	"	
Chromium	**ND**	0.00500	"	"	"	"	"	"	
Copper	**0.00840**	0.00200	"	"	"	"	"	"	
Iron	**1.53**	0.00200	"	"	"	"	"	"	
Lead	ND	0.0110	"	"	"	"	"	"	
Manganese	**0.0642**	0.00100	"	"	"	"	"	"	
Selenium	ND	0.00400	"	"	"	"	"	"	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Total Metals by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-4 (4I03015-03) Water									
Silver	ND	0.00500	mg/L	1	EI41415	09/13/04	09/14/04	EPA 6010B	
Zinc	**0.0547**	0.00100	"	"	"	"	"	"	
McNeill's Well (4I03015-04) Water									
Mercury	**0.00202**	0.000500	mg/L	1	EI41501	09/14/04	09/15/04	EPA 7470A	
Arsenic	**0.0622**	0.00800	"	"	EI41415	09/13/04	09/14/04	EPA 6010B	
Barium	**0.0587**	0.00100	"	"	"	"	"	"	
Cadmium	**0.00110**	0.00100	"	"	"	"	"	"	
Chromium	**J [0.00350]**	0.00500	"	"	"	"	"	"	J
Copper	**0.0117**	0.00200	"	"	"	"	"	"	
Iron	**0.0485**	0.00200	"	"	"	"	"	"	
Lead	ND	0.0110	"	"	"	"	"	"	
Manganese	**0.0181**	0.00100	"	"	"	"	"	"	
Selenium	ND	0.00400	"	"	"	"	"	"	
Silver	**ND**	0.00500	"	"	"	"	"	"	
Zinc	**0.0857**	0.00100	"	"	"	"	"	"	

Organics by GC - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EI41004 - EPA 5030C (GC)										
Blank (EI41004-BLK1)				Prepared & Analyzed: 09/08/04						
Benzene	ND	0.00100	mg/L							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00100	"							
Xylene (o)	ND	0.00100	"							
Surrogate: a,a,a-Trifluorotoluene	*23.4*		*ug/l*	*20.0*		*117*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*18.3*		"	*20.0*		*91.5*	*80-120*			
LCS (EI41004-BS1)				Prepared: 09/08/04 Analyzed: 09/10/04						
Benzene	93.0		ug/l	100		93.0	80-120			
Toluene	95.0		"	100		95.0	80-120			
Ethylbenzene	95.1		"	100		95.1	80-120			
Xylene (p/m)	196		"	200		98.0	80-120			
Xylene (o)	104		"	100		104	80-120			
Surrogate: a,a,a-Trifluorotoluene	*16.7*		"	*20.0*		*83.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*18.6*		"	*20.0*		*93.0*	*80-120*			
LCS Dup (EI41004-BSD1)				Prepared: 09/08/04 Analyzed: 09/10/04						
Benzene	96.3		ug/l	100		96.3	80-120	3.49	20	
Toluene	99.4		"	100		99.4	80-120	4.53	20	
Ethylbenzene	99.5		"	100		99.5	80-120	4.52	20	
Xylene (p/m)	206		"	200		103	80-120	4.98	20	
Xylene (o)	105		"	100		105	80-120	0.957	20	
Surrogate: a,a,a-Trifluorotoluene	*18.0*		"	*20.0*		*90.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*21.9*		"	*20.0*		*110*	*80-120*			
Calibration Check (EI41004-CCV1)				Prepared & Analyzed: 09/08/04						
Benzene	94.3		ug/l	100		94.3	80-120			
Toluene	95.8		"	100		95.8	80-120			
Ethylbenzene	102		"	100		102	80-120			
Xylene (p/m)	207		"	200		104	80-120			
Xylene (o)	105		"	100		105	80-120			
Surrogate: a,a,a-Trifluorotoluene	*23.0*		"	*20.0*		*115*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*18.6*		"	*20.0*		*93.0*	*80-120*			

Organics by GC - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EI41004 - EPA 5030C (GC)										
Matrix Spike (EI41004-MS1)	**Source: 4I07001-01**			Prepared: 09/08/04 Analyzed: 09/10/04						
Benzene	97.5		ug/l	100	ND	97.5	80-120			
Toluene	101		"	100	ND	101	80-120			
Ethylbenzene	97.8		"	100	ND	97.8	80-120			
Xylene (p/m)	203		"	200	ND	102	80-120			
Xylene (o)	102		"	100	ND	102	80-120			
Surrogate: a,a,a-Trifluorotoluene	*17.2*		"	*20.0*		*86.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*20.9*		"	*20.0*		*104*	*80-120*			
Matrix Spike Dup (EI41004-MSD1)	**Source: 4I07001-01**			Prepared: 09/08/04 Analyzed: 09/10/04						
Benzene	99.0		ug/l	100	ND	99.0	80-120	1.53	20	
Toluene	101		"	100	ND	101	80-120	0.00	20	
Ethylbenzene	99.6		"	100	ND	99.6	80-120	1.82	20	
Xylene (p/m)	201		"	200	ND	100	80-120	1.98	20	
Xylene (o)	100		"	100	ND	100	80-120	1.98	20	
Surrogate: a,a,a-Trifluorotoluene	*16.5*		"	*20.0*		*82.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*19.3*		"	*20.0*		*96.5*	*80-120*			

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EI40805 - General Preparation (WetChem)										
Blank (EI40805-BLK1)				Prepared & Analyzed: 09/07/04						
Chloride	ND	5.00	mg/L							
Matrix Spike (EI40805-MS1)		**Source: 4I07001-06**		Prepared & Analyzed: 09/07/04						
Chloride	1670	5.00	mg/L	500	1170	100	90-110			
Matrix Spike Dup (EI40805-MSD1)		**Source: 4I07001-06**		Prepared & Analyzed: 09/07/04						
Chloride	1660	5.00	mg/L	500	1170	98.0	90-110	0.601	20	
Reference (EI40805-SRM1)				Prepared & Analyzed: 09/07/04						
Chloride	4960		mg/L	5000		99.2	80-120			

Total Metals by EPA / Standard Methods - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EI41415 - EPA 3005A										
Blank (EI41415-BLK1)				Prepared & Analyzed: 09/14/04						
Arsenic	ND	0.00800	mg/L							
Barium	ND	0.00100	"							
Cadmium	ND	0.00100	"							
Chromium	ND	0.00500	"							
Copper	ND	0.00200	"							
Iron	ND	0.00200	"							
Lead	ND	0.0110	"							
Manganese	ND	0.00100	"							
Selenium	ND	0.00400	"							
Silver	ND	0.00500	"							
Zinc	ND	0.00100	"							
LCS (EI41415-BS1)				Prepared & Analyzed: 09/14/04						
Arsenic	0.817	0.00800	mg/L	0.800		102	85-115			
Barium	0.213	0.00100	"	0.200		106	85-115			
Cadmium	0.202	0.00100	"	0.200		101	85-115			
Chromium	0.203	0.00500	"	0.200		102	85-115			
Copper	0.198	0.00200	"	0.200		99.0	85-115			
Lead	1.10	0.0110	"	1.10		100	85-115			
Iron	0.206	0.00200	"	0.200		103	85-115			
Manganese	0.204	0.00100	"	0.200		102	85-115			
Selenium	0.421	0.00400	"	0.400		105	85-115			
Silver	0.107	0.00500	"	0.100		107	85-115			
Zinc	0.230	0.00100	"	0.200		115	85-115			
LCS Dup (EI41415-BSD1)				Prepared & Analyzed: 09/14/04						
Arsenic	0.827	0.00800	mg/L	0.800		103	85-115	1.22	20	
Barium	0.210	0.00100	"	0.200		105	85-115	1.42	20	
Cadmium	0.202	0.00100	"	0.200		101	85-115	0.00	20	
Chromium	0.205	0.00500	"	0.200		102	85-115	0.980	20	
Copper	0.202	0.00200	"	0.200		101	85-115	2.00	20	
Lead	1.10	0.0110	"	1.10		100	85-115	0.00	20	
Iron	0.207	0.00200	"	0.200		104	85-115	0.484	20	
Manganese	0.203	0.00100	"	0.200		102	85-115	0.491	20	
Selenium	0.415	0.00400	"	0.400		104	85-115	1.44	20	
Silver	0.103	0.00500	"	0.100		103	85-115	3.81	20	
Zinc	0.230	0.00100	"	0.200		115	85-115	0.00	20	

Total Metals by EPA / Standard Methods - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EI41415 - EPA 3005A										
Calibration Check (EI41415-CCV1)				Prepared & Analyzed: 09/14/04						
Arsenic	0.974		mg/L	1.00		97.4	90-110			
Barium	1.01		"	1.00		101	90-110			
Cadmium	0.978		"	1.00		97.8	90-110			
Chromium	0.974		"	1.00		97.4	90-110			
Copper	0.954		"	1.00		95.4	90-110			
Iron	0.960		"	1.00		96.0	90-110			
Lead	0.980		"	1.00		98.0	90-110			
Manganese	0.959		"	1.00		95.9	90-110			
Selenium	0.968		"	1.00		96.8	90-110			
Silver	0.514		"	0.500		103	90-110			
Zinc	1.02		"	1.00		102	90-110			
Matrix Spike (EI41415-MS1)	**Source: 4I03015-01**			Prepared & Analyzed: 09/14/04						
Arsenic	0.729	0.00800	mg/L	0.800	0.0413	86.0	75-125			
Barium	4.61	0.00100	"	0.200	4.35	130	75-125			QM-05
Cadmium	0.157	0.00100	"	0.200	0.00310	77.0	75-125			
Chromium	0.207	0.00500	"	0.200	0.0484	79.3	75-125			
Copper	0.185	0.00200	"	0.200	0.0183	83.4	75-125			
Iron	26.0	0.0200	"	0.200	25.4	300	75-125			QM-05
Lead	0.837	0.0110	"	1.10	ND	76.1	75-125			
Manganese	0.949	0.00100	"	0.200	0.775	87.0	75-125			
Selenium	0.340	0.00400	"	0.400	ND	85.0	75-125			
Silver	0.0925	0.00500	"	0.100	ND	92.5	75-125			
Zinc	0.257	0.00100	"	0.200	0.186	35.5	75-125			QM-05
Matrix Spike Dup (EI41415-MSD1)	**Source: 4I03015-01**			Prepared & Analyzed: 09/14/04						
Arsenic	0.739	0.00800	mg/L	0.800	0.0413	87.2	75-125	1.36	20	
Barium	4.60	0.00100	"	0.200	4.35	125	75-125	0.217	20	
Cadmium	0.156	0.00100	"	0.200	0.00310	76.4	75-125	0.639	20	
Chromium	0.201	0.00500	"	0.200	0.0484	76.3	75-125	2.94	20	
Copper	0.180	0.00200	"	0.200	0.0183	80.8	75-125	2.74	20	
Iron	25.7	0.0200	"	0.200	25.4	150	75-125	1.16	20	QM-05
Lead	0.824	0.0110	"	1.10	ND	74.9	75-125	1.57	20	QM-05
Manganese	0.934	0.00100	"	0.200	0.775	79.5	75-125	1.59	20	
Selenium	0.330	0.00400	"	0.400	ND	82.5	75-125	2.99	20	
Silver	0.0868	0.00500	"	0.100	ND	86.8	75-125	6.36	20	
Zinc	0.254	0.00100	"	0.200	0.186	34.0	75-125	1.17	20	QM-05

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Total Metals by EPA / Standard Methods - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EI41501 - EPA 7470A										
Blank (EI41501-BLK1)				Prepared: 09/14/04 Analyzed: 09/15/04						
Mercury	ND	0.000500	mg/L							
LCS (EI41501-BS1)				Prepared: 09/14/04 Analyzed: 09/15/04						
Mercury	0.000780	0.000500	mg/L	0.000733		106	85-115			
LCS Dup (EI41501-BSD1)				Prepared: 09/14/04 Analyzed: 09/15/04						
Mercury	0.000790	0.000500	mg/L	0.000733		108	85-115	1.27	20	
Calibration Check (EI41501-CCV1)				Prepared: 09/14/04 Analyzed: 09/15/04						
Mercury	0.000900		mg/L	0.00100		90.0	90-110			
Matrix Spike (EI41501-MS1)		**Source: 4I03015-01**		Prepared: 09/14/04 Analyzed: 09/15/04						
Mercury	0.000740	0.000500	mg/L	0.000733	ND	101	75-125			
Matrix Spike Dup (EI41501-MSD1)		**Source: 4I03015-01**		Prepared: 09/14/04 Analyzed: 09/15/04						
Mercury	0.000740	0.000500	mg/L	0.000733	ND	101	75-125	0.00	20	

Notes and Definitions

QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Raland K Tuttle Date: 9/15/04

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