AP - 42

STAGE 1 & 2 WORKPLANS

DATE:

June 22, 2005

EME Junction M-16-1

NMOCD Case No. 1R0427-93

Stage 1 Abatement Plan

Rice Operating Company
Hobbs, New Mexico

ARCADIS
Infrastructure, environment, buildings

ARCADIS

Sharon E. Hall
Site Evaluation Department Manager

EME Junction M-16-1 Stage 1 Abatement Plan
Rice Operating Company
Hobbs, New Mexico

Prepared for:
Rice Operating Company

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MT000856.0001.00001

Date:
June 22, 2005

Table of Contents

1.	**Executive Summary**	1
2.	**Chronology of Events**	1
3.	**Background**	2
4.	**Geology and Hydrogeology**	3
	4.1 Regional and Local Geology	3
	4.2 Regional and Local Hydrogeology	3
5.	**Subsurface Soils**	4
6.	**Groundwater Quality**	4
	6.1 Monitoring Program	5
	6.2 Hydrocarbons in Groundwater	5
	6.1 Other Constituents of Concern	5
7.	**Stage 1 Abatement Plan**	6
	7.1 Collect Regional Hydrogeologic Data	6
	7.2 Evaluate Concentrations of Constituents of Concern in Soil and Groundwater	6
	7.3 Report	7
8.	**Quality Assurance/Quality Control**	7
	8.1 Decontamination Procedures	8
9.	**Proposed Schedule of Activities**	8

Figures

1 Site Location Map

2 Trench, Boring and Monitor Well Locations

3 Proposed Monitor Well Locations

Appendices

A Boring Lithology Log

B March 2005 Laboratory Analytical Results

EME Junction M-16-1
Stage 1 Abatement Plan

Rice Operating Company
Hobbs, New Mexico

1. Executive Summary

The subject site is a junction box on the EME salt water disposal System, operated by Rice Operating Company (ROC). The site is located in Section 16, Township 20 south, Range 37 east, Lea County, New Mexico, near the town of Eunice (Figure 1). The disposal system transports produced water from oil and gas leases to a permitted well for disposal by subsurface injection.

Identification of soil impacts occurred during line replacement being performed as part of the approved Junction Box Upgrade Program. Soil investigation at the M-16-1 junction box was initiated in December 2001 with a back hoe by trenching to 12 feet below ground surface (bgs) in five locations. To further delineate depth of impact, a soil boring was completed to a depth of 35 feet bgs at the junction box location. Soil samples were analyzed in the field for chlorides using field-adapted Method 9253. The soil boring samples were additionally analyzed in the field for total petroleum hydrocarbons (TPH) using field-adapted Method 9253.

On January 9, 2002, a monitor well was installed southwest of junction box M-16-1 (Figure 2). Water level was recorded at 22.60 feet below measuring point. The monitor well has been sampled quarterly since installation.

Soil impacts at the site include chlorides and TPH. Groundwater samples exhibit elevated chloride concentrations. This Stage 1 Abatement Plan proposes delineation of soil and groundwater impacts.

2. Chronology of Events

Initial delineation began on December 11, 2001 and was performed as part of the Junction Box Upgrade Program. Soil samples were collected and analyzed in the field for chlorides. A soil boring was installed on December 20, 2001 to a depth of 35 feet bgs, and soil samples were collected and submitted for laboratory analysis for TPH and chlorides. On January 9, 2002, a monitor well was installed southwest of the junction box M-16-1. A groundwater sample was submitted for laboratory analysis for benzene, toluene, ethylbenzene and xylenes (BTEX) and chlorides. ROC notified the New Mexico Oil Conservation Division (NMOCD) of groundwater impacts on January 18, 2002. The monitor well has been sampled quarterly since installation, and a Monitor Well Report has been submitted annually. The most recent report was submitted on January 17, 2005.

An Investigation & Characterization Plan was submitted to the NMOCD on March 21, 2005. On May 05, 2005 Mr. Daniel Sanchez of the NMOCD wrote a letter to ROC indicating that several sites, including Junction M-16-1, require abatement plans pursuant to NMOCD Rule 19.

3. Background

Identification of soil impacts occurred during line replacement being performed as part of the approved Junction Box Upgrade Program. A soil boring and monitor well have been installed at the site, and the monitor well has been sampled quarterly since installation of the monitor well in January 9, 2002. The latest annual Monitor Well Report was submitted to the NMOCD on January 17, 2005. An Investigation and Characterization Plan was submitted to the NMOCD on March 23, 2005. On May 5, 2005, the NMOCD requested that ROC submit an abatement plan to the NMOCD pursuant to Rule 19. The requested abatement plan was to be submitted by July 15, 2005.

4. Geology and Hydrogeology

4.1 Regional and Local Geology

The subject site lies in southern Lea County in the Pecos valley section of the Great Plains physiographic province. The site lies within the Eunice Plain, which is bounded by the South Plain to the south, the Rattlesnake Ridge to the east, the High Plains to the northeast, the Laguna Valley and Gramma Ridge Area to the northwest, the San Simon Ridge and San Simon Sale to the west and the Antelope Ridge Area to the southwest. An estimated 80% of Southern Lea County is covered by sand. Shin oak, bear grass and burr grass dominate the areas of sand cover. Elsewhere, the vegetation is grama grass, burr grass and mesquite.

Monument Draw is the only major surface drainage feature in southern Lea County. The draw runs north and south slightly over two miles east of the M-16-1 junction box. Generally, the topography in the area of the site slopes gently to Monument Draw at an approximate dip of 35 feet per mile.

4.2 Regional and Local 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 Ogallala 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 Triassic redbeds. The regional groundwater gradient is to the east/southeast. Depth to groundwater at the subject site is approximately 23 feet bgs. Subsurface geology in the subject area consists of approximately 15 to 20 feet of loose, fine-grained, calcareous sand underlain by caliche to a depth of approximately 20 to 25 feet bgs. The caliche is underlain by fine-grained sand. The boring lithology log is included in Appendix A.

5. Subsurface Soils

Soil delineation field activities were conducted in December 2001. Initial delineation was begun by ROC as part of the Junction Box Upgrade Program. Investigation activities were conducted with a backhoe by trenching to 12 feet bgs in five locations. To further delineate depth of impact, a soil boring at the junction to 35 feet was completed. Soil samples were analyzed in the field for chlorides using field-adapted Method 9253. The soil boring samples were additionally analyzed in the field for TPH using field-adapted Method 9253. Field chlorides ranged from a concentration of 50 milligrams per kilogram (mg/kg) to 875 mg/kg. Laboratory analytical results for TPH indicate elevated TPH concentrations in soil samples collected from the soil boring at a depth of 16-18 feet bgs (4,100 mg/kg) and 18-20 bgs (9,600 mg/kg). Chloride concentrations in the boring samples range from 50 mg/kg to 400 mg/kg. The extent of delineation by backhoe and soil boring location are shown in Figure 2.

6. Groundwater Quality

On January 9, 2002, a monitor well was installed southwest of junction box M-16-1 (Figure 2). The water level was recorded at 22.60 feet below measuring point. The monitor well has been sampled quarterly since installation.

6.1 Monitoring Program

One monitor well, installed in January 2002, has been monitored quarterly since its installation. Analysis of groundwater includes BTEX using USEPA Method 8021B and inorganic compounds (total alkalinity, chloride, total dissolved solids sulfate, calcium, magnesium, sodium and potassium) using EPA Methods 310, 300, 160.1 and 6010B. Quarterly groundwater monitoring analytical results have been submitted annually to the NMOCD. First quarter 2005 (March 22, 2005) groundwater monitoring analytical results are included in Appendix B of the Abatement Plan.

6.2 Hydrocarbons in Groundwater

No free-phase hydrocarbons have been detected in groundwater. In only one sampling event, November 24, 2004, have hydrocarbons been detected in groundwater. Toluene, ethylbenzene and xylenes were detected at a concentration of 0.000766 miligrams per liter (mg/L), 0.00291 mg/L and 0.01019 mg/L, respectively, well below the New Mexico drinking water standard. These compounds were not detected in the March 2005 quarterly sampling event.

6.1 Other Constituents of Concern

Concentrations of inorganic compounds including chlorides, TDS, sulfate and sodium are elevated in the groundwater samples collected from the monitoring well. Background and upgradient concentrations of these compounds are unknown.

7. Stage 1 Abatement Plan

7.1 Collect Regional Hydrogeologic Data

Depth to groundwater at the subject site is approximately 23 feet bgs. Subsurface geology in the subject area consists of approximately 15 to 20 feet of loose, fine-grained, calcareous sand underlain by caliche to a depth of approximately 20 to 25 feet bgs. The caliche is underlain by fine-grained sand. The boring lithology log is included in Appendix B.

A one-mile water well inventory will be performed. The water well inventory will include a review of water well records listed on the New Mexico State Engineer Office and United States Geological Survey (USGS) websites and windmills indicated on applicable USGS topographic maps and visual site observation. ROC will locate each well listed on the one-mile well inventory and perform a well inspection to record water levels and to determine if each well can be sampled. ROC will also perform a one-mile physical search for observable water wells.

7.2 Evaluate Concentrations of Constituents of Concern in Soil and Groundwater

Further delineation of the vertical and lateral extent of impact will be accomplished with soil borings and/or excavation with a backhoe. Soil samples will be collected

from soil borings at regular intervals no less than five feet, screened in the field using a PID and field tested for chlorides. Soil lithology and the presence of any observed staining or odor will be recorded. 20% of the soil samples will be submitted for laboratory analysis as confirmation of the field sampling. The soil impacts will be delineated to a TPH concentration of 100 mg/kg and a chloride concentration of 250 mg/kg.

Depth to groundwater at the site is approximately 23 feet bgs. If existing monitoring and water wells are present near the site, the well constructions are determined to be sufficient for representative sampling, and access to the wells can be obtained, ROC will include the wells in their sampling program and sample the existing wells in lieu of installing additional monitoring wells. Additional monitoring wells may be installed based on delineation results and the presence or absence of existing wells. If existing wells are not present or ROC can not obtain access to existing wells, one upgradient and one downgradient well will be installed. The proposed well locations are shown in Figure 3.

7.3 Report

A report detailing investigation activities (completed to date and proposed) and results will be submitted to the OCD. The report will include recommendations for further action if necessary or for closure of the site.

8. Quality Assurance/Quality Control

Samples will be collected and analyzed in accordance with accepted practices and USEPA methods.

For collection of groundwater samples, conductivity, pH and temperature will be measured until three successive readings show stabilization. Successive readings will be within 5% for conductivity, 0.1 pH units for pH and 0.5°C for temperature.

Purge water and decontamination water will be collected, contained and transported to an ROC disposal well for disposal.

All samples, both soil and groundwater, will be immediately placed on ice and maintained at 4° C until received by the laboratory.

8.1 Decontamination Procedures

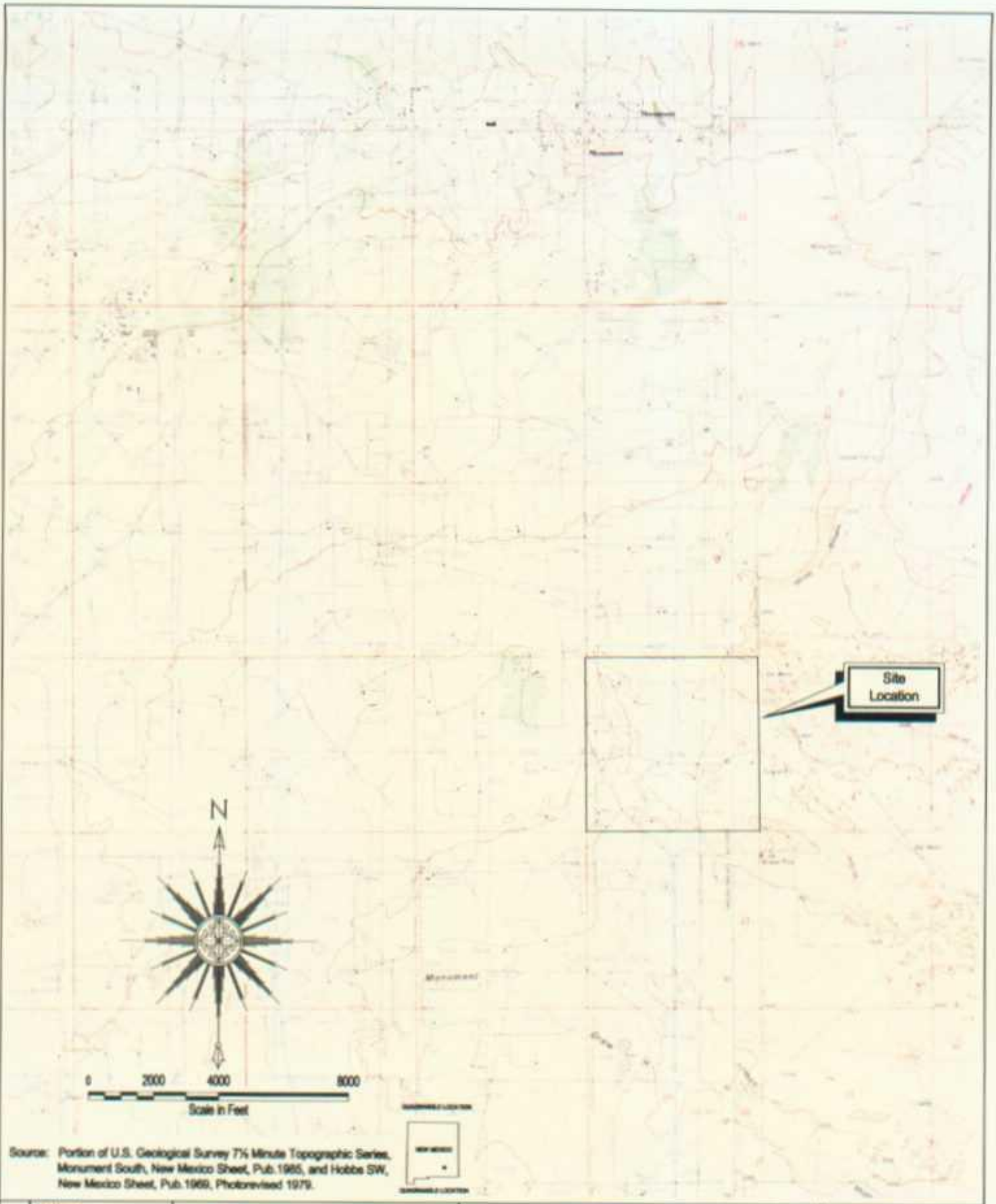
Non-disposable equipment will be decontaminated using the following procedures:

- Wash with Alconox® detergent and potable water solution;
- Rinse with potable water;
- Rinse with distilled water; and
- Allow to air dry.

It is anticipated that groundwater samples will be collected with disposable equipment (disposable bailers) and will, therefore do not require decontamination.

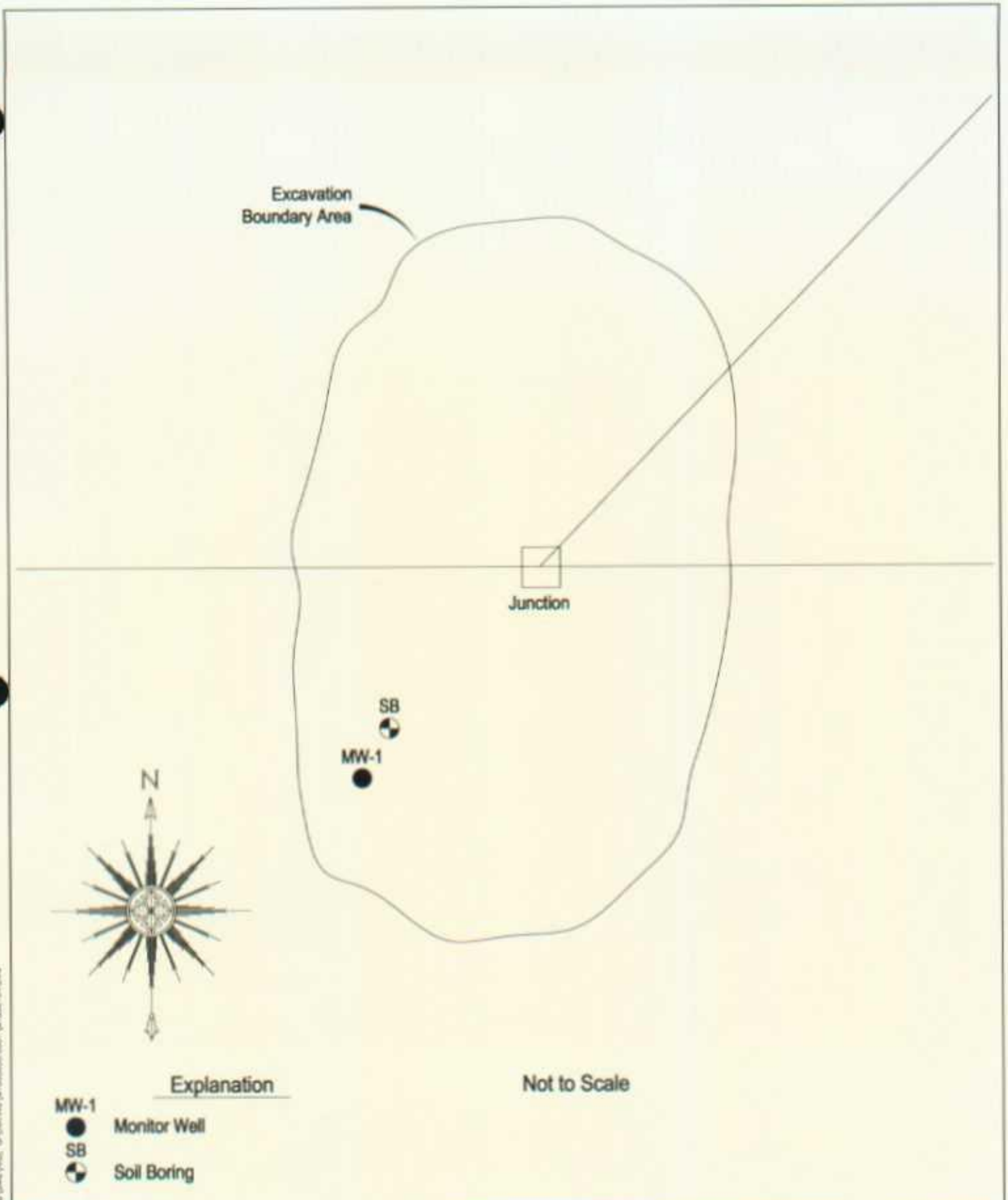
9. Proposed Schedule of Activities

Following approval of this Stage 1 Abatement Plan by the NMOCD, ARCADIS will schedule a driller and conduct the investigation proposed in the Abatement Plan. Based on the availability of a driller, ARCADIS anticipates completing field activities within 30 days of NMOCD approval. However, we request the flexibility to request an extension if a driller is not available. A Stage 1 Abatement Report will be submitted within 30 days of completion of field activities.

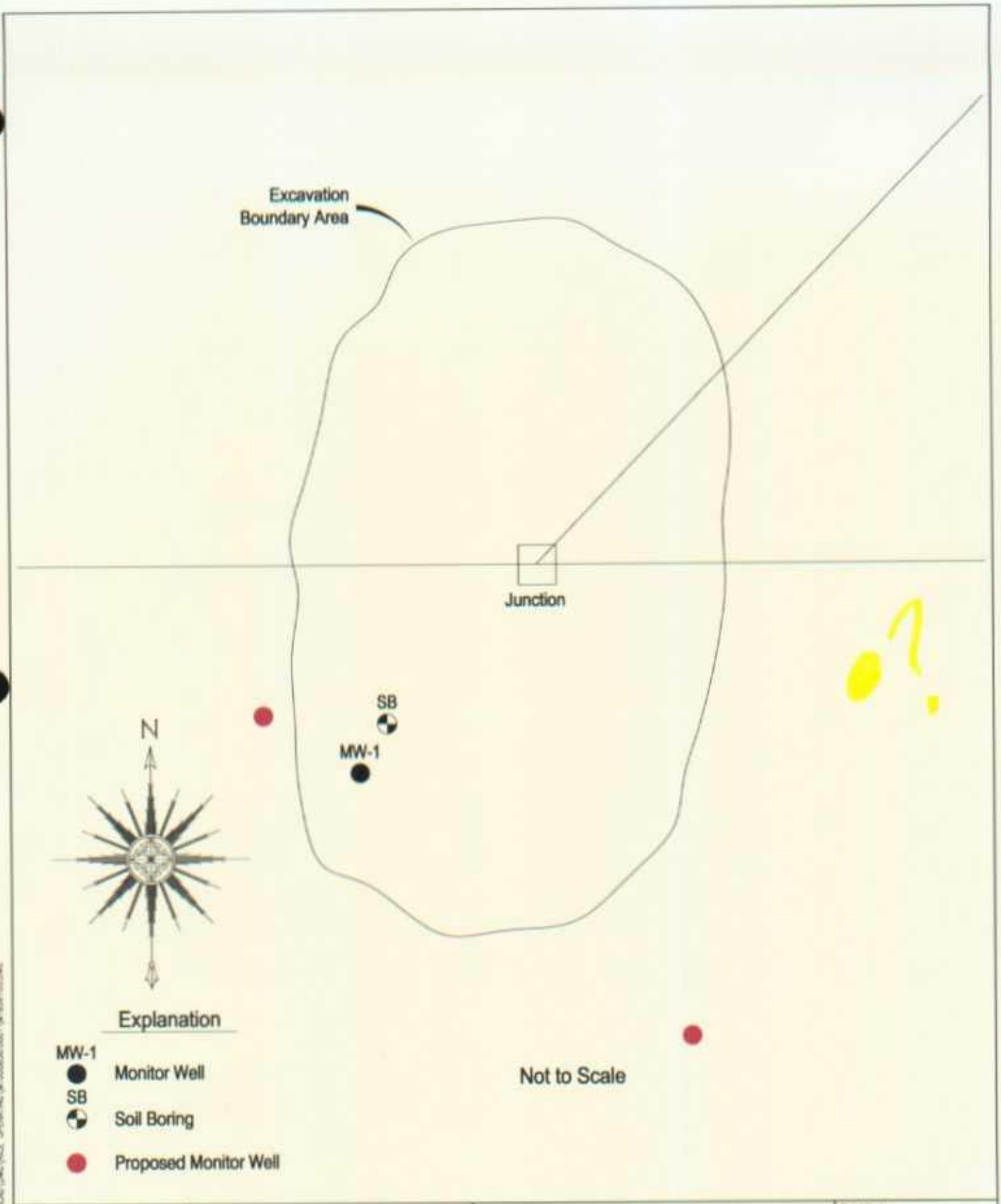


Source: Portion of U.S. Geological Survey 7½ Minute Topographic Series, Monument South, New Mexico Sheet, Pub.1985, and Hobbs SW, New Mexico Sheet, Pub.1969, Photorevised 1979.

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 M-16-1 Eunice Monument Eumont (EME) SWD System Site Location Map Unit 'M' Lea County, New Mexico	Project Number: MT000856.0001 Drawing Date: 21 June 2005 Figure: 1	



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 M-16-1 Eunice Monument Eumont (EME) SWD System Trench, Boring and Monitor Well Locations Unit 'M' Lea County, New Mexico	Project Number: MT000856.0001 Drawing Date: 21 June 2005 Figure: 2



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 M-16-1 Eunice Monument Eumont (EME) SWD System Proposed Monitor Well Locations Unit 'M' Lea County, New Mexico	Project Number: MT000656.0001 Drawing Date: 21 June 2005 Figure: 3

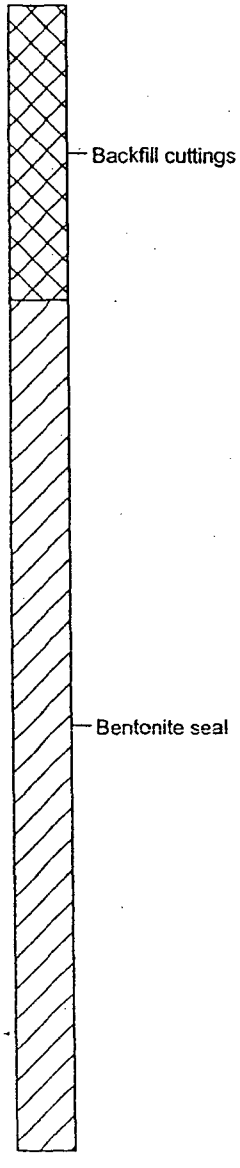
ARCADIS

Appendix A

Boring Lithology Log

Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 88202-3156	LOG OF BORING Rice M-16 ~ 1 TH1 (Page 1 of 1)
Rice Operating Company 122 West Taylor Hobbs, New Mexico 88240 Contact: Donnie Anderson Job #Riceoil.air.01	Date : 12-20-01 Drill Start : 830 Drill End : 0955 Site Location : 4 mi. South of Monument, NM Auger Type : Hollow Stem Logged By : Mort Bates Boring Location : South side of pit

Depth in feet	GRAPHIC	USCS	Samples	DESCRIPTION	Lab
0		SP		Poorly graded sand, tan, loose, dry	
20		SP		Poorly graded sand w/caliche, tan, firm, dry	
25		SS		Sandstone, tan, firm, dry	
30		SP		Poorly graded sand, tan, loose, moist	
35					
40					



12-21-2001 C:\MTECH46\RICEOIL\AIR\m-161-1.bor

ARCADIS

Appendix B

March 2005 Laboratory Analytical Results

ENVIRONMENTAL LAB OF

12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Sharon Hall

ARCADIS

1004 N. Big Spring Street

Midland, TX 79701

Project: MT 000643 0001

Project Number: MT 000643 0001

Location: Jct M-16-1

Lab Order Number: 5C23002

Report Date: 04/04/05

ARCADIS	Project: MT 000643 0001	Fax: (432) 687-5401
1004 N. Big Spring Street	Project Number: MT 000643 0001	**Reported:**
Midland TX, 79701	Project Manager: Sharon Hall	04/04/05 13:47

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	5C23002-01	Water	03/22/05 10:40	03/22/05 18:30

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

Organics by GC

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1 (5C23002-01) Water									
Benzene	ND	0.00100	mg/L	1	EC52314	03/23/05	03/23/05	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		*85.0 %*	*80-120*		"	"	"	"	

General Chemistry Parameters by EPA / Standard Methods
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1 (5C23002-01) Water									
Total Alkalinity	**372**	2.00	mg/L	1	EC52908	03/23/05	03/23/05	EPA 310.2M	
Chloride	**2470**	25.0	"	50	EC52513	03/24/05	03/24/05	EPA 300.0	
Total Dissolved Solids	**7810**	5.00	"	1	EC52507	03/24/05	03/25/05	EPA 160.1	
Sulfate	**2600**	25.0	"	50	EC52513	03/24/05	03/24/05	EPA 300.0	

Total Metals by EPA / Standard Methods
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1 (5C23002-01) Water									
Calcium	**331**	1.00	mg/L	100	EC53102	03/29/05	03/30/05	EPA 6010B	
Magnesium	**220**	0.100	"	"	"	"	"	"	
Sodium	**3130**	10.0	"	1000	"	"	"	"	
Potassium	**59.6**	2.50	"	50	EC53109	03/29/05	03/31/05	"	

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 EC52314 - EPA 5030C (GC)										
Blank (EC52314-BLK1)				Prepared & Analyzed: 03/23/05						
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	*20.3*		*ug/l*	*20.0*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*17.7*		*"*	*20.0*		*88.5*	*80-120*			
LCS (EC52314-BS1)				Prepared & Analyzed: 03/23/05						
Benzene	98.3		ug/l	100		98.3	80-120			
Toluene	103		"	100		103	80-120			
Ethylbenzene	107		"	100		107	80-120			
Xylene (p/m)	220		"	200		110	80-120			
Xylene (o)	108		"	100		108	80-120			
Surrogate: a,a,a-Trifluorotoluene	*21.8*		*"*	*20.0*		*109*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*18.3*		*"*	*20.0*		*91.5*	*80-120*			
LCS Dup (EC52314-BSD1)				Prepared & Analyzed: 03/23/05						
Benzene	98.1		ug/l	100		98.1	80-120	0.204	20	
Toluene	101		"	100		101	80-120	1.96	20	
Ethylbenzene	104		"	100		104	80-120	2.84	20	
Xylene (p/m)	212		"	200		106	80-120	3.70	20	
Xylene (o)	105		"	100		105	80-120	2.82	20	
Surrogate: a,a,a-Trifluorotoluene	*21.7*		*"*	*20.0*		*108*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*16.5*		*"*	*20.0*		*82.5*	*80-120*			
Calibration Check (EC52314-CCV1)				Prepared & Analyzed: 03/23/05						
Benzene	99.9		ug/l	100		99.9	80-120			
Toluene	101		"	100		101	80-120			
Ethylbenzene	104		"	100		104	80-120			
Xylene (p/m)	217		"	200		108	80-120			
Xylene (o)	107		"	100		107	80-120			
Surrogate: a,a,a-Trifluorotoluene	*23.1*		*"*	*20.0*		*116*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*18.2*		*"*	*20.0*		*91.0*	*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 EC52314 - EPA 5030C (GC)										
Matrix Spike (EC52314-MS1)	**Source: 5C18010-04**			Prepared & Analyzed: 03/23/05						
Benzene	102		ug/l	100	ND	102	80-120			
Toluene	106		"	100	ND	106	80-120			
Ethylbenzene	112		"	100	ND	112	80-120			
Xylene (p/m)	221		"	200	ND	110	80-120			
Xylene (o)	112		"	100	ND	112	80-120			
Surrogate: a,a,a-Trifluorotoluene	*22.4*		"	*20.0*		*112*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*22.6*		"	*20.0*		*113*	*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 EC52507 - General Preparation (WetChem)										
Blank (EC52507-BLK1)				Prepared: 03/24/05 Analyzed: 03/25/05						
Total Dissolved Solids	ND	5.00	mg/L							
Duplicate (EC52507-DUP1)	**Source: 5C23001-01**			Prepared: 03/24/05 Analyzed: 03/25/05						
Total Dissolved Solids	1140	5.00	mg/L		1140			0.00	20	
Batch EC52513 - General Preparation (WetChem)										
Blank (EC52513-BLK1)				Prepared & Analyzed: 03/24/05						
Chloride	ND	0.500	mg/L							
Sulfate	ND	0.500	"							
Blank (EC52513-BLK2)				Prepared & Analyzed: 03/24/05						
Sulfate	ND	0.500	mg/L							
Chloride	ND	0.500	"							
LCS (EC52513-BS1)				Prepared & Analyzed: 03/24/05						
Chloride	10.4		mg/L	10.0		104	80-120			
Sulfate	9.53		"	10.0		95.3	80-120			
LCS (EC52513-BS2)				Prepared & Analyzed: 03/24/05						
Sulfate	9.80		mg/L	10.0		98.0	80-120			
Chloride	10.5		"	10.0		105	80-120			
Calibration Check (EC52513-CCV1)				Prepared & Analyzed: 03/24/05						
Sulfate	9.93		mg/L	10.0		99.3	80-120			
Chloride	10.6		"	10.0		106	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 EC52513 - General Preparation (WetChem)										
Calibration Check (EC52513-CCV2)				Prepared & Analyzed: 03/24/05						
Sulfate	9.80		mg/L	10.0		98.0	80-120			
Chloride	10.6		"	10.0		106	80-120			
Duplicate (EC52513-DUP1)		Source: 5C23001-01		Prepared & Analyzed: 03/24/05						
Sulfate	216	5.00	mg/L		215			0.464	20	
Chloride	216	5.00	"		215			0.464	20	
Duplicate (EC52513-DUP2)		Source: 5C23018-07		Prepared & Analyzed: 03/24/05						
Sulfate	163	12.5	mg/L		163			0.00	20	
Chloride	1540	12.5	"		1530			0.651	20	
Batch EC52908 - General Preparation (WetChem)										
Blank (EC52908-BLK1)				Prepared & Analyzed: 03/23/05						
Total Alkalinity	ND	2.00	mg/L							
Calibration Check (EC52908-CCV1)				Prepared & Analyzed: 03/23/05						
Carbonate Alkalinity	0.0500		mg/L	0.0500		100	80-120			
Duplicate (EC52908-DUP1)		Source: 5C22002-01		Prepared & Analyzed: 03/23/05						
tal Alkalinity	221	2.00	mg/L		220			0.454	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 EC53102 - 6010B/No Digestion										
Blank (EC53102-BLK1)				Prepared: 03/29/05 Analyzed: 03/30/05						
Calcium	ND	0.0100	mg/L							
Magnesium	ND	0.00100	"							
Sodium	ND	0.0100	"							
Calibration Check (EC53102-CCV1)				Prepared: 03/29/05 Analyzed: 03/30/05						
Calcium	2.25		mg/L	2.00		112	85-115			
Magnesium	1.93		"	2.00		96.5	85-115			
Sodium	2.18		"	2.00		109	85-115			
Duplicate (EC53102-DUP1)		**Source: 5C23001-01**		Prepared: 03/29/05 Analyzed: 03/30/05						
Calcium	47.7	0.100	mg/L		51.6			7.85	20	
Magnesium	62.7	0.0200	"		59.3			5.57	20	
Sodium	247	1.00	"		252			2.00	20	
Batch EC53109 - 6010B/No Digestion										
Blank (EC53109-BLK1)				Prepared: 03/29/05 Analyzed: 03/31/05						
Potassium	ND	0.0500	mg/L							
Calibration Check (EC53109-CCV1)				Prepared: 03/29/05 Analyzed: 03/31/05						
Potassium	2.02		mg/L	2.00		101	85-115			
Duplicate (EC53109-DUP1)		**Source: 5C23001-01**		Prepared: 03/29/05 Analyzed: 03/31/05						
Potassium	10.1	0.500	mg/L		10.7			5.77	20	

Notes and Definitions

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: 4-04-05

Raland K. Tuttle, Lab Manager
Celey D. Keene, Lab Director, Org. Tech Director
Peggy Allen, QA Officer
Jeanne Mc Murrey, Inorg. Tech Director
James L. Hawkins, Chemist/Geologist
Sandra Sanchez, Lab Tech.

Environmental Lab of Texas
Variance / Corrective Action Report – Sample Log-In

Client: ARCADIS

Date/Time: 3/23/05 8:15

Order #: 5C23002

Initials: CH

Sample Receipt Checklist

Temperature of container/cooler?	Yes	No	1.5 C
Shipping container/cooler in good condition?	(Yes)	No	
Custody Seals intact on shipping container/cooler?	(Yes)	No	Not present
Custody Seals intact on sample bottles?	(Yes)	No	Not present
Chain of custody present?	(Yes)	No	
Sample Instructions complete on Chain of Custody?	(Yes)	No	
Chain of Custody signed when relinquished and received?	(Yes)	No	
Chain of custody agrees with sample label(s)	(Yes)	No	
Container labels legible and intact?	(Yes)	No	
Sample Matrix and properties same as on chain of custody?	(Yes)	No	
Samples in proper container/bottle?	(Yes)	No	
Samples properly preserved?	(Yes)	No	
Sample bottles intact?	(Yes)	No	
Preservations documented on Chain of Custody?	(Yes)	No	
Containers documented on Chain of Custody?	(Yes)	No	
Sufficient sample amount for indicated test?	(Yes)	No	
All samples received within sufficient hold time?	(Yes)	No	
VOC samples have zero headspace?	(Yes)	No	Not Applicable

Other observations:

_____

_____

_____

Variance Documentation:

Contact Person: _____ Date/Time: _____ Contacted by: _____

Regarding:

_____

_____

_____

Corrective Action Taken:

_____

_____

_____

_____

_____

_____

_____

_____

ARCADIS GERAGHTY & MILLER Laboratory Task Order No./P.O. No. _____ **CHAIN-OF-CUSTODY RECORD** Page 1 of 1

Project Number/Name MT 000645.0001
Project Location JCT M-16-1
Laboratory Envr Labs of Texas
Project Manager Sharon Hall
Sampler(s)/Affiliation Gurad Carrillo

Sample ID/Location	Matrix	Date/Time Sampled	Time ~~Lab ID~~	ANALYSIS / METHOD / SIZE: 2-40 mL VOA BTEX 8021B HCl	1-Liter Plastic Major Anions-Cations TDS Neat					Remarks	Total
MW-1	L	3.22.05	1040	2	1					SC23002-01	3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers: 5

					Seal Intact?
Relinquished by: [signature]	Organization: ARCADIS	Date 3/22/05	Time 1830		
Received by: Jane McMurry	Organization: Env-Lab of TX	Date 3/22/05	Time 1830		(Yes) No N/A
Relinquished by: _____	Organization: _____	Date / /	Time _____		Seal Intact?
Received by: _____	Organization: _____	Date / /	Time _____		Yes No N/A

Special Instructions/Remarks:
1.5°C Seals on containers + cooler
E-MAIL KRISTIN POPE

Delivery Method: ☐ In Person ☐ Common Carrier _____ SPECIFY ☐ Lab Courier ☐ Other _____ SPECIFY

AG 05-0597