Ocotillo ENVIRONMENTAL

Iroundwater impact? Sante

3/21/07

Dirt Work · On-Site Remediation

February 27, 2007

Mr. Larry Johnson Environmental Engineer Oil Conservation Division

New Mexico Energy, Minerals and Natural Resources Department

1625 N. French Drive

Hobbs, New Mexico 88240

Seried Received Received

Soil Testing • Excavation

Re:

Groundwater Investigation Workplan, Apache Corporation, Hawk A-5 #3, Unit Letter O (SW/4, SE/4), Section 5, Township 21 South, Range 37 East, Lea County, New Mexico (Latitude: N 32 deg. 30.095' / Longitude: W 103 deg. 10.932')

Dear Mr. Johnson:

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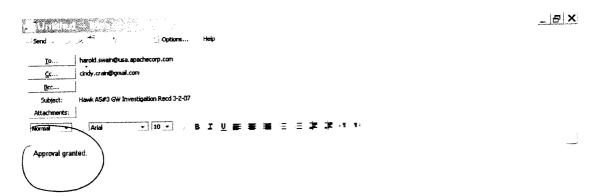
On behalf of Apache Corporation (Apache), Ocotillo Environmental, LLC (Ocotillo) began closure activities at the Hawk A-5 #3 drilling pit on January 25, 2007. Figure 1 shows the site location. Soil samples were collected below the pit liner on January 30, 2007, and submitted for laboratory analysis. Table 1 provides a summary of the laboratory results. Figure 2 shows the sample locations and chloride concentrations. The laboratory reports and chain of custody documentation are presented in Appendix A.

Referring to Table 1, the samples from the center (SS-3), the northeast corner (SS-7) and the southeast corner (SS-9) reported chloride concentrations below 250 mg/kg (99.1 mg/kg, 160 mg/kg, and 114 mg/kg, respectively). The samples collected from the northwest and southwest corners reported chloride concentrations above the clean up standard (250 mg/kg). Excavation continued on the west side of the pit, and samples were field tested for chloride concentrations. At a depth of 25 feet below ground surface (bgs), the chloride concentrations remained above the recommended clean up level (250 mg/kg).

Initial Investigation

On February 12, 2007, Ocotillo installed two (2) soil borings (BH-1 and BH-2) at the site, using an air rotary drilling rig, to assess the vertical limits of the chloride impact. Samples from the exploratory borings were collected from the currently excavated depth of twelve (12) feet bgs to a depth of approximately 82 feet bgs in boring BH-1, and to approximately 67 feet bgs in boring BH-2, using a split spoon sampling device. The sampling equipment was thoroughly cleaned between each sample interval with a solution of laboratory-grade detergent and potable water, and rinsed with distilled water. Figure 2 shows the locations of the soil borings. Appendix B presents the soil boring logs.

The soil samples from borings BH-1 and BH-2 were collected at approximately three (3) feet below the present surface and every five (5) feet thereafter. Samples were placed in clean glass sample jars, labeled, chilled in an ice chest, and delivered under chain-of-custody control to Environmental Lab of Texas (ELOT), located in Odessa, Texas. All soil samples collected from borings BH-1 and BH-2 were analyzed for chlorides by EPA method SW 846-9253. Table 2 presents a summary of laboratory analysis of soil samples. Laboratory analyses and chain of custody documentation are included in Appendix A.



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からTrusted sites うなくらんというした 9:14 AM Mr. Larry Johnson Page 2 February 27, 2007

Referring to Table 2, all samples collected from boring BH-1 reported chloride concentrations above 250 mg/kg until the sample collected at a depth of approximately 80 to 82 feet bgs (196 mg/kg). Samples collected from boring BH-2 reported chloride concentrations below 250 mg/kg, beginning at a depth of approximately 50 to 52 feet bgs (19 mg/kg).

Based on published literature (1961), well records of the New Mexico State Engineer, and well records of the United States Geological Survey, groundwater occurs at approximately 66 feet bgs in the well located nearest the Site. No indication of groundwater was observed during the soil boring installations.

Proposed Investigation

Apache proposes to install one (1) temporary monitoring well (MW-1) at the Site to determine an accurate depth to groundwater and determine whether a chloride impact has occurred. The proposed well location is presented on Figure 2.

An air-rotary drilling rig will be used to drill the well, and soil samples will be collected at five-foot intervals using a split-spoon sampling device. The samples will be tested for chlorides. The monitoring well will be constructed with 2-inch diameter schedule 40 PVC casing and screen. Approximately 20 feet of well screen will be placed in the well, with approximately 15 feet of screen extending into groundwater, and 5 feet extending above groundwater. Silica sand will be placed around the well screen to about 2 feet above the screen. A layer of bentonite pellets, approximately 2 feet thick, will be placed over the sand, and hydrated with potable water.

The well will be bailed after installation to remove fine-grained sediment disturbed during drilling. No sooner than 48 hours following well development, a groundwater sample will be collected from the well, and analyzed for chlorides. Depth-to-groundwater will be measured in the monitoring well before the well is purged and sampled. The groundwater sample will be collected using a dedicated disposable polyethylene bailer, and carefully poured into a laboratory-prepared container. The sample container will be labeled, immediately chilled in an ice chest, and transferred under chain-of-custody control to ELOT. The field observations will be documented in a bound field notebook, and a construction diagram and geologic log will be prepared for the monitoring well.

Following the receipt of laboratory results, the temporary monitoring well will be plugged if no groundwater impact has occurred. If an impact has occurred, the temporary monitoring well will be completed for further monitoring. The NMOCD will be notified at least 48 hours in advance of any activities at the site. A report will be submitted following the groundwater monitoring activities. If you have any questions or need additional information, please call Mr. Harold Swain at (432) 527-3311 or myself at (505) 441-7244. We may also be reached by email at Harold.Swain@usa.apachecorp.com or Cindy.Crain@gmail.com.

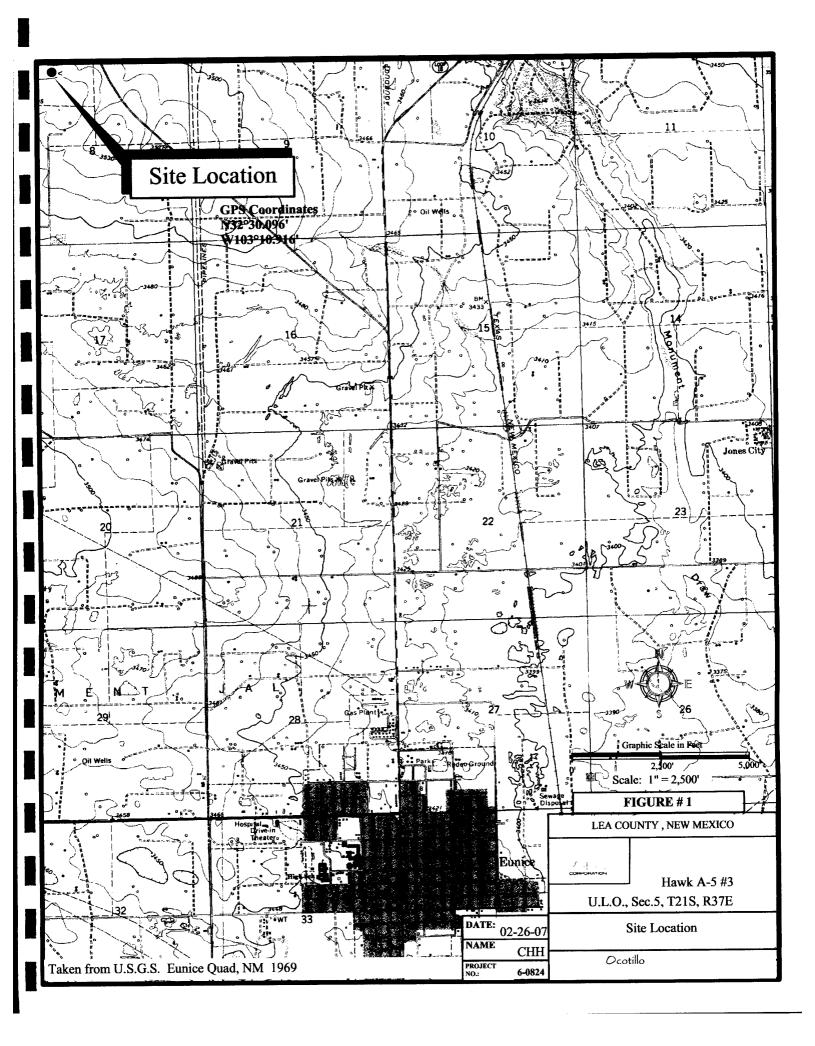
Sincerely,

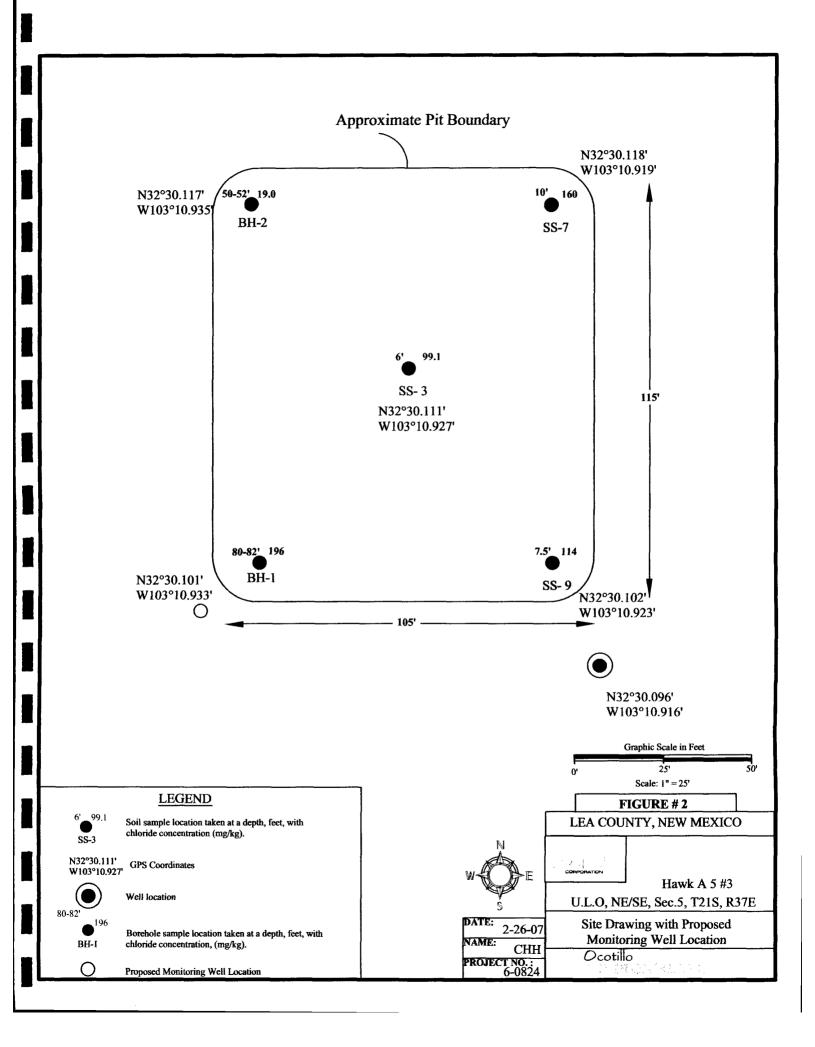
Ocotillo Environmental, LLC

Cindy K. Crain, P.G. Environmental Manager

cc: Harold Swain, Apache

FIGURES





TABLES

Table 1: Summary of Laboratory Analysis of Soil Samples
Apache Hawk A-5 #3
Unit Letter O, Section 5, Township 21 South, Range 37 East
Lea County, New Mexico

Sample Date	Soil Sample Number	Soil Sample Location	Sample Depth (feet BGS)	Chloride (mg/kg)
WQCC Stan	dard			250
1/30/07	SS-3	Center	6	99.1
1/30/07	SS-5	SW Corner	6	2,570
1/30/07	SS-6	SW Corner	9	9,820
1/30/07	SS-7	NE Corner	10	160
1/30/07	SS-8	NW Corner	10	12,000
1/30/07	SS-9	SE Corner	7.5	114
1/30/07	SS-10	NW Corner	12	10,900
1/30/07	SS-15	NW Corner	26	8,170
1/30/07	SS-17	NW Corner	30	13,000-
1/30/07	SS-20	NW Corner	40	12,100

Notes:

1. BGS:

Depth in feet below ground surface

2. mg/kg:

Milligrams per kilogram

Analysis conducted by Environmental Lab of Texas, Odessa, TX

Table 2: Summary of Laboratory Analysis of Soil from Borings
Apache Hawk A-5 #3
Unit Letter O, Section 5, Township 21 South, Range 37 East
Lea County, New Mexico

Sample Date	Soil Sample Number	Sample Depth	Chloride (mg/kg)	
	Number	(feet BGS)	(mg/kg)	
WQCC Stands	ard	(1000	250	
2/12/07	BH-1	15-17	6,890	
		20-22	14,200	
		25-27	10,600	
		30-32	8,880	
		35-37	9,140	•
		40-42	8,160	
		45-47	4,880	
		50-52	2,270	./
		55-57	1,700	
		60-62	1,410	
		65-67	545	
		70-72	402	
		75-77	357	
		80-82	196	
2/12/07	BH-2	26-28	8,170	
		30-32	_13,000	
	Ó	40-42	12,100	
		45-47	721	
		50-52	19	
		55-57	28.3	
		60-62	22.8	
		65-67	15.2	

Notes:

1. BGS: Depth in feet below ground surface

2. mg/kg: Milligrams per kilogram

Analysis conducted by Environmental Lab of Texas, Odessa, TX

APPENDIX A

Laboratory Report and Chain of Custody Documentation



A Xenco Laboratories Company

Analytical Report

Prepared for:

Cindy Crain
Ocotillo Environmental
2125 French Dr.
Hobbs, NM 88201

Project: Apache- Hawk A-5 #3
Project Number: None Given
Location: Eunice, NM

Lab Order Number: 7B01012

Report Date: 02/06/07

Project: Apache- Hawk A-5 #3

Project Number: None Given Project Manager: Cindy Crain

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS-3	7B01012-01	Soil	01/30/07 07:40	02-01-2007 14:25
SS-5	7B01012-02	Soil	01/30/07 07:45	02-01-2007 14:25
SS-6	7B01012-03	Soil	01/30/07 08:35	02-01-2007 14:25
SS-7	7B01012-04	Soil	01/30/07 08:55	02-01-2007 14:25
SS-8	7B01012-05	Soil	01/30/07 09:00	02-01-2007 14:25
SS-9	7B01012-06	Soil	01/30/07 09:30	02-01-2007 14:25
SS-10	7B01012-07	Soil	01/30/07 10:20	02-01-2007 14:25

Fax: (432) 367-6747

Project: Apache- Hawk A-5 #3

Project Number: None Given Project Manager: Cindy Crain Fax: (432) 367-6747

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-3 (7B01012-01) Soil									
Chloride	99.1	5.00	mg/kg	10	EB70303	02/03/07	02/03/07	EPA 300.0	
SS-5 (7B01012-02) Soil		-							
Chloride	2570	40.0	mg/kg	80	EB70303	02/03/07	02/03/07	EPA 300.0	
SS-6 (7B01012-03) Soil									
Chloride	9820	100	mg/kg	200	EB70303	02/03/07	02/03/07	EPA 300.0	
SS-7 (7B01012-04) Soil									
Chloride	160	5.00	mg/kg	10	EB70303	02/03/07	02/03/07	EPA 300.0	
SS-8 (7B01012-05) Soil									
Chloride	12000	200	mg/kg	400	EB70303	02/03/07	02/03/07	EPA 300.0	
SS-9 (7B01012-06) Soil									
Chloride	114	5.00	mg/kg	10	EB70303	02/03/07	02/03/07	EPA 300.0	
SS-10 (7B01012-07) Soil									
Chloride	10900	200	mg/kg	400	EB70303	02/03/07	02/03/07	EPA 300.0	

Project: Apache- Hawk A-5 #3

Project Number: None Given Project Manager: Cindy Crain

Fax: (432) 367-6747

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 EB70303 - Water Extraction										
Blank (EB70303-BLK1)				Prepared	& Analyze	ed: 02/03/	07			
Chloride	ND	0.500	mg/kg							
LCS (EB70303-BS1)				Prepared	& Analyzo	ed: 02/03/	07			
Chloride	11.1	0.500	mg/kg	10.0		111	80-120			
Calibration Check (EB70303-CCV1)				Prepared	& Analyzo	ed: 02/03/	07			
Chloride	11.0		mg/L	10.0		110	80-120			
Duplicate (EB70303-DUP1)	So	urce: 7B0101	12-01	Prepared	& Analyzo	ed: 02/03/	07			
Chloride	99.8	5.00	mg/kg		99.1			0.704	20	7
Matrix Spike (EB70303-MS1)	So	urce: 7B0101	12-01	Prepared	& Analyz	ed: 02/03/	07			
Chloride	217	5.00	mg/kg	100	99.1	118	80-120			

Ocotillo Environmental 2125 French Dr.

Hobbs NM, 88201

Project: Apache- Hawk A-5 #3

Project Number: None Given Project Manager: Cindy Crain

Fax: (432) 367-6747

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:

Brent Barron, Laboratory Director/Corp. Technical Director

Celey D. Keene, Org. Tech Director

Raland K. Tuttle, Laboratory Consultant

Date: 02/06/07

James Mathis, QA/QC Officer

Jeanne Mc Murrey, Inorg. Tech Director

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-563-1800.

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

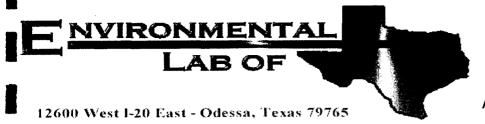
12600 West I-20 East Odessa, Texas 79765

Phone: 432-563-1800 Fax: 432-563-1713

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Variance/ Corrective Action Report- Sample Log-In

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#1 Temperature of container/ cooler?	Yes	No	12.5 °C	
#2 Shipping container in good condition?	Yes	No		
#3 Custody Seals intact on shipping container/ cooler?	Yes	No	Not Present	
#4 Custody Seals intact on sample bottles/ container?	Yes	No	Not Present	
#5 Chain of Custody present?	Xes .	No		
#6 Sample instructions complete of Chain of Custody?	Yes	No		
#7 Chain of Custody signed when relinquished/ received?	Yes .	No		
#8 Chain of Custody agrees with sample label(s)?	(E)	No	ID written on Cont./ Lid	
#9 Container label(s) legible and intact?	Xes	No	Not Applicable	
#10 Sample matrix/ properties agree with Chain of Custody?	Fes	No		
#11 Containers supplied by ELOT?	Yes	No		
#12 Samples in proper container/ bottle?)Xes	No	See Below	
#13 Samples properly preserved?	Yes	No	See Below	
#14 Sample bottles intact?	Yes	No		
#15 Preservations documented on Chain of Custody?	Yes	No		
#16 Containers documented on Chain of Custody?	Yeş	No		
#17 Sufficient sample amount for indicated test(s)?	Ves	No	See Below	
#18 All samples received within sufficient hold time?	Yes	No	See Below	
#19 Subcontract of sample(s)?	Yes	No	Not Applicable	
#20 VOC samples have zero headspace?	Yes	No	Not Applicable	
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A Xenco Laboratories Company

Analytical Report

Prepared for:

Cindy Crain
Ocotillo Environmental
2125 French Dr.
Hobbs, NM 88201

Project: Apache- Hawk A-5 #3
Project Number: 6-0824
Location: UL-o, Sec. 5, 21S, 37E

Lab Order Number: 7B13003

Report Date: 02/14/07

Project: Apache- Hawk A-5 #3

Project Number: 6-0824 Project Manager: Cindy Crain Fax: (432) 367-6747

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH-1 15-17	7B13003-01	Soil	02/12/07 10:44	02-13-2007 10:42
BH-1 20-22	7B13003-02	Soil	02/12/07 10:50	02-13-2007 10:42
BH-1 25-27	7B13003-03	Soil	02/12/07 10:56	02-13-2007 10:42
BH-1 30-32	7B13003-04	Soil	02/12/07 11:02	02-13-2007 10:42
BH-1 35-37	7B13003-05	Soil	02/12/07 11:04	02-13-2007 10:42
BH-1 40-42	7B13003-06	Soil	02/12/07 11:07	02-13-2007 10:42
BH-1 45-47	7B13003-07	Soil	02/12/07 11:14	02-13-2007 10:42
BH-1 50-52	7B13003-08	Soil	02/12/07 11:19	02-13-2007 10:42
BH-1 55-57	7B13003-09	Soil	02/12/07 11:24	02-13-2007 10:42
BH-1 60-62	7B13003-10	Soil	02/12/07 12:25	02-13-2007 10:42
BH-1 65-67	7B13003-11	Soil	02/12/07 12:46	02-13-2007 10:42
BH-1 70-72	7B13003-12	Soil	02/12/07 12:52	02-13-2007 10:42
BH-1 75-77	7B13003-13	Soil	02/12/07 12:56	02-13-2007 10:42
BH-1 80-82	7B13003-14	Soil	02/12/07 13:00	02-13-2007 10:42
SS-15 26-26	7B13003-15	Soil	01/31/07 08:50	02-13-2007 10:42
SS-17 30-30	7B13003-16	Soil	01/31/07 13:00	02-13-2007 10:42
SS-20 40-40	7B13003-17	Soil	01/31/07 16:00	02-13-2007 10:42
BH-2 45-47	7B13003-18	Soil	02/12/07 13:44	02-13-2007 10:42
BH-2 50-52	7B13003-19	Soil	02/12/07 13:52	02-13-2007 10:43
BH-2 55-57	7B13003-20	Soil	02/12/07 14:02	02-13-2007 10:43
BH-2 60-62	7B13003-21	Soil	02/12/07 14:10	02-13-2007 10:4
BH-2 65-67	7B13003-22	Soil	02/12/07 14:20	02-13-2007 10:4:

Project: Apache- Hawk A-5 #3

Project Number: 6-0824 Project Manager: Cindy Crain Fax: (432) 367-6747

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BH-1 15-17 (7B13003-01) Soil		· · · · · · · · · · · · · · · · · · ·		. ,					
Chloride	6890	100	mg/kg	200	EB71401	02/14/07	02/14/07	EPA 300.0	,
BH-1 20-22 (7B13003-02) Soil									
Chloride	14200	200	mg/kg	400	EB71401	02/14/07	02/14/07	EPA 300.0	
BH-1 25-27 (7B13003-03) Soil									
Chloride	10600	200	mg/kg	400	EB71401	02/14/07	02/14/07	EPA 300.0	
BH-1 30-32 (7B13003-04) Soil									
Chloride	8880	100	mg/kg	200	EB71401	02/14/07	02/14/07	EPA 300.0	
BH-1 35-37 (7B13003-05) Soil									
Chloride	9140	100	mg/kg	200	EB71401	02/14/07	02/14/07	EPA 300.0	
BH-1 40-42 (7B13003-06) Soil									
Chloride	8160	100	mg/kg	200	EB71401	02/14/07	02/14/07	EPA 300.0	
BH-1 45-47 (7B13003-07) Soil					_				
Chloride	4880	50.0	mg/kg	100	EB71401	02/14/07	02/14/07	EPA 300.0	
BH-1 50-52 (7B13003-08) Soil									
Chloride	2270	25.0	mg/kg	50	EB71401	02/14/07	02/14/07	EPA 300.0	
BH-1 55-57 (7B13003-09) Soil									
Chloride	1700	20.0	mg/kg	40	EB71401	02/14/07	02/14/07	EPA 300.0	
BH-1 60-62 (7B13003-10) Soil									
Chloride	1410	20.0	mg/kg	40	EB71401	02/14/07	02/14/07	EPA 300.0	

Project: Apache- Hawk A-5 #3

Project Number: 6-0824
Project Manager: Cindy Crain

Fax: (432) 367-6747

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BH-1 65-67 (7B13003-11) Soil									
Chloride	545	10.0	mg/kg	20	EB71401	02/14/07	02/14/07	EPA 300.0	
BH-1 70-72 (7B13003-12) Soil									
Chloride	402	110	mg/kg	220	EB71401	02/14/07	02/14/07	EPA 300.0	
BH-1 75-77 (7B13003-13) Soil									
Chloride	357	10.0	mg/kg	20	EB71401	02/14/07	02/14/07	EPA 300.0	
BH-2 80-82 (7B13003-14) Soil									
Chloride	196	5.00	mg/kg	10	EB71401	02/14/07	02/14/07	EPA 300.0	
SS-15 26-26 (7B13003-15) Soil									
Chloride	8170	100	mg/kg	200	EB71401	02/14/07	02/14/07	EPA 300.0	
SS-17 30-30 (7B13003-16) Soil									
Chloride	13000	200	mg/kg	400	EB71401	02/14/07	02/14/07	EPA 300.0	
SS-20 40-40 (7B13003-17) Soil									
Chloride	12100	200	mg/kg	400	EB71401	02/14/07	02/14/07	EPA 300.0	
BH-2 45-47 (7B13003-18) Soil									
Chloride	721	10.0	mg/kg	20	EB71401	02/14/07	02/14/07	EPA 300.0	
BH-2 50-52 (7B13003-19) Soil									
Chloride	19.0	5.00	mg/kg	10	EB71401	02/14/07	02/14/07	EPA 300.0	
BH-2 55-57 (7B13003-20) Soil									
Chloride	28.3	5.00	mg/kg	10	EB71401	02/14/07	02/14/07	EPA 300.0	·

Project: Apache- Hawk A-5 #3

Project Number: 6-0824
Project Manager: Cindy Crain

Fax: (432) 367-6747

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BH-2 60-62 (7B13003-21) Soil			· •		·				
Chloride	22.8	5.00	mg/kg	10	EB71402	02/14/07	02/14/07	EPA 300.0	
BH-2 65-67 (7B13003-22) Soil									
Chloride	15.2	5.00	mg/kg	10	EB71402	02/14/07	02/14/07	EPA 300.0	

Ocotillo Environmental

2125 French Dr.

Hobbs NM, 88201

Project: Apache- Hawk A-5 #3

Project Number: 6-0824 Project Manager: Cindy Crain Fax: (432) 367-6747

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 EB71401 - General Preparation	n (WetChem)									
Blank (EB71401-BLK1)			_	Prepared	& Analyze	ed: 02/14/0	07			
Chloride	ND	0.500	mg/kg	-						
LCS (EB71401-BS1)				Prepared	& Analyze	ed: 02/14/0	07			
Chloride	10.5	0.500	mg/kg	10.0		105	80-120			
Calibration Check (EB71401-CCV1)				Prepared .	& Analyze	ed: 02/14/0	07			
Chloride	9.07		mg/kg	10.0		90.7	80-120			
Duplicate (EB71401-DUP1)	Sour	ce: 7B1300	3-01	Prepared .	& Analyze	ed: 02/14/0	07			
Chloride	6930	100	mg/kg		6890			0.579	20	
Duplicate (EB71401-DUP2)	Sour	ce: 7B1300	3-11	Prepared	& Analyze	ed: 02/14/0	07			
Chloride	546	10.0	mg/kg		545			0.183	20	
Matrix Spike (EB71401-MS1)	Sour	ce: 7B1300	3-01	Prepared	& Analyze	ed: 02/14/0	07			
Chloride	9080	100	mg/kg	2000	6890	110	80-120			
Matrix Spike (EB71401-MS2)	Sour	ce: 7B1300	3-11	Prepared	& Analyze	ed: 02/14/0	07			
Chloride	746	0.01	mg/kg	200	545	100	80-120			
Batch EB71402 - General Preparation	n (WetChem)									
Blank (EB71402-BLK1)				Prepared	& Analyz	ed: 02/14/	07			
Chloride	ND	0.500	mg/kg							
LCS (EB71402-BS1)				Prepared	& Analyze	ed: 02/14/	07			
Chloride										

Ocotillo Environmental

2125 French Dr. Hobbs NM, 88201 Project: Apache- Hawk A-5 #3

Fax: (432) 367-6747

Chloride

Project Number: 6-0824 Project Manager: Cindy Crain

General Chemistry Parameters by EPA / Standard Methods - Quality Control **Environmental Lab of Texas**

				•						
		Reporting		Spike	Source		%REC		RPD	{
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch EB71402 - General Preparation (WetChem)

Calibration Check (EB71402-CCV1)				Prepared a	& Analyze	ed: 02/14/	07			
Chloride	9.40		mg/kg	10.0		94.0	80-120			
Duplicate (EB71402-DUP1)	Sour	ce: 7B1200)1-01	Prepared a	& Analyze	d: 02/14/	07			
Chloride	87.5	5.00	mg/kg		88.8			1.47	20	
Duplicate (EB71402-DUP2)	Sour	ce: 7B1300	1-04	Prepared a	& Analyze	ed: 02/14/	07			
Chloride	632	10.0	mg/kg		621			1.76	20	
Matrix Spike (EB71402-MS1)	Sour	ce: 7B1200	01-01	Prepared	& Analyzo	ed: 02/14/	07			
Chloride	268	5.00	mg/kg	100	88.8	179	80-120			QM-07
Matrix Spike (EB71402-MS2)	Sour	ce: 7B1300	01-04	Prepared	& Analyze	ed: 02/14/	07			

mg/kg

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80-120

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Ocotillo Environmental

Project: Apache- Hawk A-5 #3

Fax: (432) 367-6747

2125 French Dr. Hobbs NM, 88201 Project Number: 6-0824 Project Manager: Cindy Crain

Notes and Definitions

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS

recovery.

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:

Brent Barron, Laboratory Director/Corp. Technical Director

Celey D. Keene, Org. Tech Director

Raland K. Tuttle, Laboratory Consultant

Date: 2 / 19

James Mathis, QA/QC Officer

Jeanne Mc Murrey, Inorg. Tech Director

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-563-1800.

Project Manager:

Company Name

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST 12600 West I-20 East

Phone: 432-563-1800 Fax: 432-563-1713

Odessa, Texas 79765

W 37 3 Ħ ٧) Project Name: Acache Hawk A-5 3 500.5. 4280-9 Project Loc: 42-0. Project #: Ocotillo Environmental, LLC Cindy Crain

TRRP E Standard PO #: Report Format: (432) 272-0304 Fax No: Hobbs, NM 88241 (505) 441-7244 Company Address: PO Box 1816

□ NPDES

Analyze For:

cindy.crain@gmail.com

e-mail:

Sampler Signature:

Telephone No:

City/State/Zip:

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Temperature Upon Receipt:

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Relinquished by:

Ocotillo Environmental, LLC

Company Name

Cindy Crain

Project Manager:

Hobbs, NM 88241

City/State/Zip:

Company Address: PO Box 1816

(505) 441-7244

Telephone No:

Sampler Signature:

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST 12600 West I-20 East Odessa, Texas 79765

3 #

Project Name: Hache Hawk A-5 Phone: 432-563-1800 Fax: 432-563-1713

6-0824 Project #:

Project Loc: 412 - 0

37E

0

Standard

□ NPDES

(432) 272-0304

Fax No:

Report Format:

TRRP

cindy.crain@gmail.com e-mail:

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RUSH TAT (Pre-Schedule) 24, 48, 72 hrs

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CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST 12600 West I-20 East Phone: 432-563-1800 Odessa, Texas 79765

TAT bisbrist □ NPDES 3 37E RUSH TAT (Pre-Schedule & 24, 48, 72 hrs # 9 8/15 Project Name: Hawk A TRRP M.A.O.M. ВСІ 6 Sample Containers Intact? VOCs Free of Headspace? 6-0824 BLEX 8021B/2030 of BTEX 8260 ζ, Laboratory Comments Analyze 2 Standard Metals: As Ag Ba Cd Cr Pb Hg Se Project Loc: 4/2-0 TCLP: rotal: SAR / ESP / CEC nions (CL)SO4, Alkalinity) ₽0 # Project #: Cations (Ca, Mg, Na, K) Report Format: 9001 XT 2001 XT :Hd1 80158 M2108 1.814 :Hd1 Specify Other S DW=Drinking Water SL=Sludge Office (Specify) cindy.crain@gmail.com Preservation & # of Containers None 7 Na₂S₂O₃ HOBN ⁵OS^zH (432) 272-0304 HCI [€]ONH ce Total #. of Containers ield Filtered e-mail: Fax No: 1420 0141 Time Sampled 2/12/07 2/12/07 Date Sampled 67 62 Ending Depth 65 e Beginning Depth Ocotillo Environmental, LLC 24 hr TAT Hobbs, NM 88241 (505) 441-7244 Company Address: PO Box 1816 Cindy Crain FIELD CODE 10802 Rush. Sampler Signature: Project Manager: Company Name Telephone No: City/State/Zip: BH-2 BH.2 Special Instructions: (lab use only) ORDER #: (Ino seu del) # AA

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Labels on container(s)
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Custody seals on cooler(s)

Time

Date

Sample Hand Delivered

Time

Date

Variance/ Corrective Action Report- Sample Log-In

#1 Temperature of container/ cooler? #2 Shipping container in good condition? #3 Custody Seals intact on shipping container/ cooler? #4 Custody Seals intact on sample bottles/ container? #5 Chain of Custody present? #6 Sample instructions complete of Chain of Custody? #7 Chain of Custody signed when relinquished/ received? #8 Chain of Custody agrees with sample label(s)? Yes No No Not Present Yes No No Not Present Yes No No Not Present Yes No No Not Present Yes No No Not Present Yes No No Not Present Yes No No Not Present Yes No No Not Present Yes No Not Present Yes No No Not Present Yes No No Not Present Yes No Not Present Yes No Not Present Yes No Not Present Yes No No Not Present Yes No Not Present Yes No Not Present Yes No Not Present Yes No Not Present Yes No Not Present Yes No Not Present Yes No Not Present Yes No Not Present Yes No Not Present Yes No Not Present Yes No Not Present Yes No Not Present Yes No Not Present Yes No Not Present Yes No Not Present Yes No Not Present Yes No Not Present	ient Initials
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Temperature of container/ cooler? Shipping container in good condition? Custody Seals intact on shipping container/ cooler? Custody Seals intact on sample bottles/ container? Chain of Custody present? Sample instructions complete of Chain of Custody? Chain of Custody signed when relinquished/ received? Chain of Custody agrees with sample label(s)? Cooler Yes No Not Present No Not Present	ient Initials
Temperature of container/ cooler? Shipping container in good condition? Custody Seals intact on shipping container/ cooler? Custody Seals intact on sample bottles/ container? Chain of Custody present? Sample instructions complete of Chain of Custody? Chain of Custody signed when relinquished/ received? Chain of Custody agrees with sample label(s)? Yes No Not Present No Not Present	ient Initials
Shipping container in good condition? Shipping container in good condition? Custody Seals intact on shipping container/ cooler? Custody Seals intact on sample bottles/ container? Chain of Custody present? Sample instructions complete of Chain of Custody? Chain of Custody signed when relinquished/ received? Chain of Custody agrees with sample label(s)? No ID written on Container	
Shipping container in good condition? Custody Seals intact on shipping container/ cooler? Custody Seals intact on sample bottles/ container? Chain of Custody present? Sample instructions complete of Chain of Custody? Chain of Custody signed when relinquished/ received? Chain of Custody agrees with sample label(s)? No Different No Not Present No Not Present No Not Present No Not Present No Not Present No ID written on Container? No ID written on Container? No No No No No No No No No N	
Custody Seals intact on shipping container/ cooler? Custody Seals intact on sample bottles/ container? Chain of Custody present? Sample instructions complete of Chain of Custody? Chain of Custody signed when relinquished/ received? Chain of Custody agrees with sample label(s)? Chain of Custody agrees with sample label(s)?	
Custody Seals intact on sample bottles/ container? Chain of Custody present? Sample instructions complete of Chain of Custody? Chain of Custody signed when relinquished/ received? Chain of Custody agrees with sample label(s)? Yes No No ID written on Contactor	
Chain of Custody present? Sample instructions complete of Chain of Custody? Chain of Custody signed when relinquished/ received? Chain of Custody agrees with sample label(s)? No Yes No ID written on Cont	
Sample instructions complete of Chain of Custody? Chain of Custody signed when relinquished/ received? Chain of Custody agrees with sample label(s)? No ID written on Cont	
7 Chain of Custody signed when relinquished/ received? 8 Chain of Custody agrees with sample label(s)? Yes No ID written on Cont	
Chain of Custody agrees with sample label(s)? Yes No ID written on Contycloo	
9 Container label(s) legible and intact? Yes No Not Applicable	
10 Sample matrix/ properties agree with Chain of Custody?	
11 Containers supplied by ELOT?	
12 Samples in proper container/ bottle? See Below	
13 Samples properly preserved? No See Below	
14 Sample bottles intact?	
15 Preservations documented on Chain of Custody?	
16 Containers documented on Chain of Custody? No	
17 Sufficient sample amount for indicated test(s)? 18 No See Below	
18 All samples received within sufficient hold time? No See Below	
19 Subcontract of sample(s)? Yes No Not Applicable	
20 VOC samples have zero headspace? Yes No Not Applicable	
Variance Documentation	
Contact: Contacted by: Date/ Time:	
Dogarding:	
Regarding:	
Corrective Action Taken:	
Check all that Apply: See attached e-mail/ fax Client understands and would like to proceed with analysis	
Cooling process had begun shortly after sampling event	

APPENDIX B

Soil Boring Logs

Client: Apache

Project: Hawk A-5 # 3

Project No.: 6-0824

Location: U.L.O, Sec. 5, T21S, R37E, Lea County, New Mexico

Log: BH-1

Page: 1 of 2

Geologist: Cindy Crain

Loc	Callo	II. U.L.O, Sec. 3, 1213, R3	<i>,</i> 10, 100	a Cour	11, 110		
	SUE	SURFACE PROFILE	S	AMPI	E	Field Chloride	
Depth	Symbol	Description	Number	Type	Recovery	Data mg/kg 0 1,500 3,000	Laboratory Results
0		Ground Surface					
10		Inside excavated pit area at depth of 12' bgs. Clayey Sand Dark reddish brown, very fine grained, moderately well sorted, dry. Caliche Pinkish white, fine to very fine grained, indurated, dry.	2			> 3,000 > 3,000	15-17' bgs Chloride: 6,890 mg/kg 20-22' bgs Chloride: 14,200 mg/kg
30 —			4	11		> 3,000	Chloride: 10,600 mg/kg 30- 32' bgs Chloride: 8,880 mg/kg
			5			> 3,000	35 - 37' bgs Chloride: 9,140 mg/kg
40			7				40- 42' bgs Chloride: 8,160 mg/kg 45- 47' bgs Chloride: 4,880 mg/kg
	Moth	nd. Air Dotom	Ocot	tillo			Elevation: N/A
		od: Air Rotary					Checked by: CKC

Drill Date: 02/12/07

Hole Size:

2125 French Drive Hobbs, New Mexico 88240 (505) 393-6371

Checked by: CKC

Drilled by: Scarborough Drilling

Client: Apache

Project: Hawk A-5 # 3

Project No.: 6-0824

Location: U.L.O, Sec. 5, T21S, R37E, Lea County, New Mexico

Log: BH-1

Page: 2 of 2

Geologist: Cindy Crain

	ocano	II. U.L.O, Sec. 3, 1213, K3	<i>,</i> L, LC	a Cou	1119, 140	- IVICAICO	Georgist. Smay Stant
	SUI	BSURFACE PROFILE	S	AMPI	Æ	Field Chloride	
Depth	Symbol	Description	Number	Type	Recovery	Data mg/kg 0 1,500 3,000	Laboratory Results
50 —		Caliche Pinkish white, fine to very fine grained, indurated, dry.	8			2,500	50 -52' bgs Chloride: 2,270 mg/kg
		Silty Sand Light tan quartz sand, fine grained, moderately well sorted, loose, dry.	9			1,620	55-57' bgs Chloride: 1,700 mg/kg
- -			10			1,500	60-62' bgs Chloride: 1,410 mg/kg
- 70			11			750	65- 67' bgs Chloride: 545 mg/kg
	· .		12				70 - 72' bgs Chloride: 402 mg/kg
80 —			13			400	75- 77' bgs Chloride: 357 mg/kg
		TD: 82'	14				80- 82' bgs Chloride: 196 mg/kg
90 — —							
- - 100							
				ना			
		od: Air Rotary 02/12/07	Ocot	illo French F	Dei tyo		Elevation: N/A Checked by: CKC

Hole Size:

2125 French Drive Hobbs, New Mexico 88240 (505) 393-6371

Drilled by: Scarborough Drilling

Client: Apache Project No.: 6-0824

Project: Hawk A-5 # 3

Location: U.L.O, Sec. 5, T21S, R37E, Lea County, New Mexico

Log: BH-2

Page: 1 of 2

Geologist: Cindy Crain

Doode		,				,
SU	BSURFACE PROFILE	S	SAMPI		Field Chloride	
Depth Symbol	Description	Number	Type	Recovery	Data mg/kg 0 1,500 3,000	Laboratory Results
0	Ground Surface					
	Inside excavated pit area at depth of 12' bgs.					
20 —	Clayey Sand Dark reddish brown, very fine grained, moderately well sorted, dry.					
30	Caliche Pinkish white, fine to very fine grained, indurated, dry.					
40	Silty Sand Light tan quartz sand, fine grained,	1			• 550	45- 47' bgs
50	moderately well sorted, loose, dry.	Ocot	ناام			Chloride: 721 mg/kg
Drill Met	hod: Air Rotary	UC01	HIO			Elevation: N/A

Drill Method: Air Rotary

Drill Date: 02/12/07

Hole Size:

2125 French Drive Hobbs, New Mexico 88240 (505) 393-6371

Elevation: N/A

Checked by: CKC

Drilled by: Scarborough Drilling

Client: Apache

Drill Date: 02/12/07

Hole Size:

Project: Hawk A-5 # 3

Project No.: 6-0824

Location: U.L.O, Sec. 5, T21S, R37E, Lea County, New Mexico

Log: BH-2

Page: 2 of 2

Geologist: Cindy Crain

Checked by: CKC

Drilled by: Scarborough Drilling

De Ja tion.	O.E.O, 500. 3, 1215, 107					
SUBSU	URFACE PROFILE	S	AMPL		Field Chloride	
Depth Symbol	Description	Number	Type	Recovery	Data mg/kg 0 1,500 3,000	Laboratory Results
	Ity Sand	2			50	50 -52' bgs Chloride: 19.0 mg/kg
	ght tan quartz sand, fine grained, oderately well sorted, loose, dry.	3			50	
60						55-57' bgs Chloride: 28.3 mg/kg
		4	Ш		100	60-62' bgs Chloride: 22.8 mg/kg
	TD. (7)	5			25	65- 67' bgs
70 —	TD: 67'					Chloride: 15.2 mg/kg
-						
80 —			:			
			:			
90 —						
90 —						
100						
Drill Method:	Air Rotary	Ocot	illo			Elevation: N/A

2125 French Drive Hobbs, New Mexico 88240 (505) 393-6371