

December 1, 2011

Mr. Mike Bratcher NMOCD District 2

Artesia, NM 88210

1301 West Grand Avenue

PECEIVED
DEC 01 2011
NMOCD ARTESIA

AMARILLO 92I North Bivins Amarillo. Texas 79107 Phone 806.467.0607 Fax 806.467.0622

Subject:

Soil Assessment and Remediation Work Plan

Quantum Resources Management, LLC Artesia Battery Transfer Line Release API # 30-015-01783 – 2RP-768

Revision

ARTESIA

408 West Texas Ave. Artesia, New Mexico 88210 Phone 575.746.8768 Fax 575 746.8905

AUSTIN

9II West Anderson Lane Suite 202 Austin, Texas 78757 Phone 5I2.989.3428 Fax 5I2.989.3487

HOBBS

318 East Taylor Street Hobbs, New Mexico 88240 Phone 575.393.4261 Fax 575.393.4658

MIDLAND

290I State Hwy 349 Midland, Texas 79706 Phone 432.522.2133 Fax 432.522.2180

SAN ANTONIO

II Commercial Place Schertz, Texas 78154 Phone 210.265.8025 Fax 210.568.2191

TULSA 525 South Main Street

Suite 535 Tulsa, Oklahoma 74103 Phone 918.742.0871 Fax 918.382.0232 Dear Mr. Bratcher,

Quantum Resources Management, LLC has contracted Talon/LPE (Talon) to perform soil assessment and remediation services at the referenced Artesia Battery Transfer Line release. The results of our soil assessment and proposed remediation activities consist of the following:

#### **Incident Date**

April 20, 2011

#### **Background Information**

The Artesia Battery Transfer Line is located approximately sixteen (16) miles southeast of Artesia, New Mexico. The legal location for the site is Section 2, Township 18 South and Range 28 East in Eddy County, New Mexico. More Specifically the latitude and longitude for the release are 32.7814 North and -104.14802 West.

This site lies on undulating plains and low hills consisting of wind worked sandy deposits. Drainage courses in this area are normally dry. The local surface and shallow geology consists of Quaternary Age sedimentary deposits comprised of alluvium and eolian sands under lain by sand stone and hard caliches. The New Mexico State Engineer web site indicates the nearest ground water data to be in S35-T18S-R28E. The ground water in Section 35 is reported to be 65' below ground surface (bgs). The referenced groundwater data is presented in Appendix I.

The ranking for this site is 10 based on the as following:

ENVIRONMENTAL CONSULTING ENGINEERING

DRILLING CONSTRUCTION SPILL MANAGEMENT GENERAL CONTRACTING Depth to ground water 50'-100'
Wellhead Protection Area >1000'
Distance to surface water body >1000'

Toll Free: 866.742.0742 www.talonlpe.com

#### **Incident Description**

On April 20, 2011 the water transfer line was found to be leaking. The line was shut-in, repaired and placed back into service. Fifteen (15) barrels of produced water was released with no fluids recovered. The release is located on the transfer line west of the Artesia Unit No. 34 well location. The impacted area was measured to be approximately 32-feet long by 21-feet wide. The visually impacted soil was immediately excavated to a depth of 4-feet and placed on a liner. The excavated area along the water transfer line measured approximately 32-feet long by 8-feet wide.

#### **Actions Taken**

On April 27, 2011 Talon mobilized personnel to begin the assessment and soil sampling for the construction of a work plan. Grab soil samples were collected utilizing a backhoe. The soil samples labeled S-1 were collected from the impacted area to a depth of 8-feet below land surface.

On May 26, 2011 Talon mobilized personnel again to the site for additional samplings at greater depths utilizing a split spoon auger rig. Grab soil samples from location S-2 were collected from inside the impacted area from the depth of 10-feet bgs to a depth of 20-feet bgs. Additional samples were collected at S-1 at a depth of 10-feet and 14-feet. Refusal was encountered at 20-feet below land surface.

All soil samples were collected by Talon personnel wearing clean nitrile gloves. The soil samples were placed in laboratory provided sample containers and transported to Cardinal Laboratories in Hobbs, New Mexico for analysis of chlorides using method SM4500Cl-B. The complete laboratory report is attached as Appendix II.

#### **Analytical Results**

Analytical results received from Cardinal Laboratories are summarized below:

May 2	25, 2011		June 4	4, 2011	
Samp	le, Depth	Chlorides (mg/kg)	Samp	le, Depth	Chlorides (mg/kg)
S-1	1'	51200	S-1	10'	32
S-1	2'	10400	S-1	14'	528
S-1	4'	15600	S-2	10'	320
S-1	6'	15200	S-2	14'	6080
S-1	8'	1500	S-2	20'	416

#### **Summary and Conclusion**

- Groundwater in the project vicinity is greater than 50-feet below land surface per the New Mexico State Engineer Database.
- Based upon the results of the laboratory data obtained for this investigation, the vertical impacts of the chloride release have been documented at 528 mg/kg at S-1 and 416 mg/kg in the soil sample S-2 at 20-feet bgs.

#### **Proposed Remedial Actions**

- The chloride impacted soil from this release will be excavated to the maximum extent practicable. The excavated soil will be transported to an NMOCD approved solid waste disposal facility.
- Post excavation soil samples will be collected from the side walls of the excavated area. The soil samples collected will be submitted to Cardinal Laboratories for analysis of total chlorides using method SM4500Cl-B.
- Upon NMOCD approval of the confirmation samples, a 20 Mil liner may be installed into the bottom of the excavated area.
- The excavated area will be backfilled to grade using new material transported from a local borrow pit, contoured to match existing terrain and seeded using an approved seed mixture for the area.
- A final report will be provided to the NMOCD Artesia Office including Form C-141.

If we can provide additional information or be of further assistance please contact our office at 575.746.8768.

Respectfully submitted,

TALON/LPE

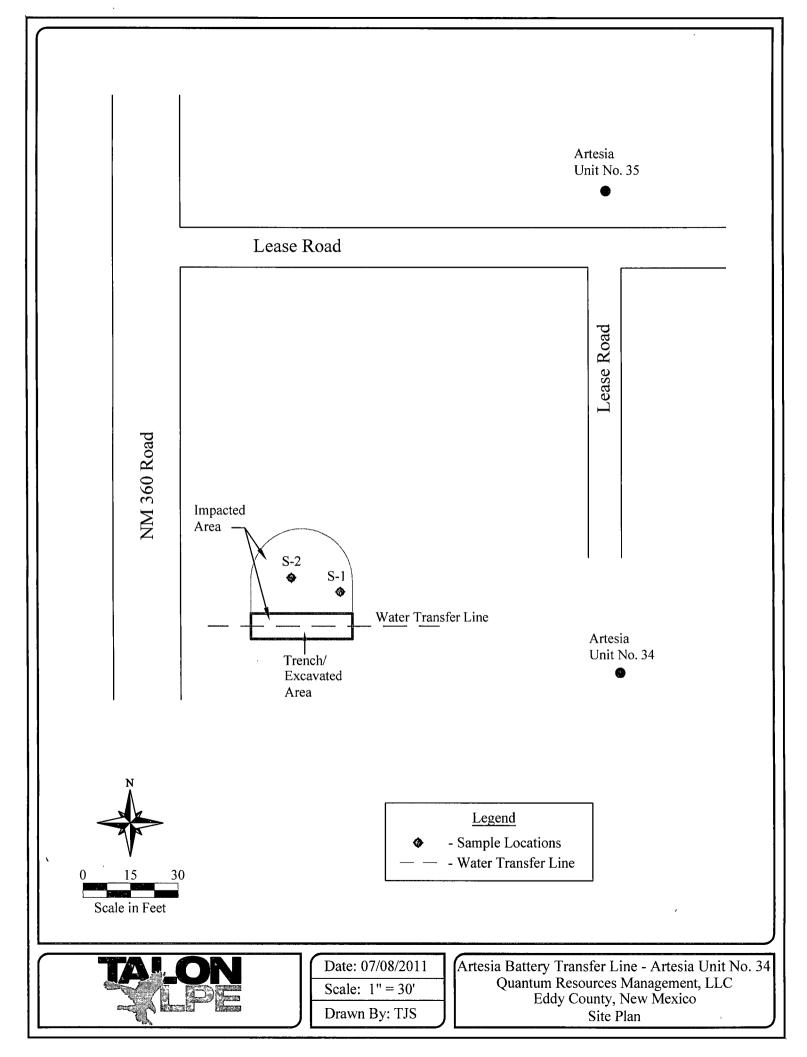
Mike Stubblefield

Project Manager

David J. Adkins

District Manager

#### SITE MAP



# APPENDIX I GROUNDWATER DATA INITIAL C-141



# New Mexico Office of the State Engineer Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a

(R=POD has been replaced, O=orphaned, C=the file is

(quarters are 1=NW 2=NE 3=SW 4=SE)

water right file.)	closed)	(quarte	ers are	sn	nalle	st to I	argest)	) (NAD8:	3 UTM in me	ters)	(1	n feet)	
POD Number	POD Code Subbasin (		Q Q 64:16		1	Tws	Rng	X	Y	Distance	Depth	Depth Water	
L 01142 POD1	L	LE	2	4	15	18S	28E	578921	3623453*	4416	80		
L 01150 POD1	L	LE	1	1	35	18S	28E	579344	3619433*	8254	135	65	70
RA 09588		ED	1	2	33	18S	28E	576976	3619384*	8913	300		
RA 04561		ED	4	2	26	17S	27E	570871	3630142*	9836	250		
									Averag	ge Depth to	Water:	65 1	feet
										Minimum	Depth:	65 1	feet
										Maximum	Depth:	65 1	feet

**Record Count: 4** 

UTMNAD83 Radius Search (in meters):

Easting (X): 580379

Northing (Y): 3627622

**Radius: 10000** 

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

#### State of New Mexico Energy Minerals and Natural Resources

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Form C-141 Revised October 10, 2003 Jubmit 2 Copies to appropriate

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

30-015	30-015-01783 Release Notification and Corrective Action													
AMUB 111	18509	97		24387	4	OPERA'	ΓOR			al Report	☐ Final	Report		
Name of Co	mpany Ou	antum Reso	urces Ma	nagement, LLC	1	Contact Gar	rett Newton							
				w Mexico 88210	) [	Telephone l	No. 575-513-023	30						
Facility Nar						Facility Typ	e Water Transfe	er line						
Surface Ow	ner State	<del>,</del>		Mineral O	wner S	tate			Lease 1	No.	<del></del>			
- Startage OW	not out			· · · · · · · · · · · · · · · · · · ·					1	<u> </u>				
Unit Letter	Section	Township	Range	Feet from the		NOF RE	Feet from the	Fact/W	/est Line	County				
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L	<u></u>	, , , , , , , , , , , , , , , , , , , ,	Latitu	de <u>32.78140N</u>		Longitude	104.14802W		<u>.                                    </u>	1				
				NAT	URE	OF RELI	EASE							
Type of Relea							Release 15 BBLS			Recovered -0-				
Source of Re	lease Water	Transfer line				Date and H 04/20/2011	our of Occurrence	e	Date and same	Hour of Disco	very			
Was Immedia	ate Notice C		- "			If YES, To	Whom?	<u></u>	Same					
			Yes 🗀	No Not Rec	quired		Aike Bratcher							
By Whom? G							our 04/20/2011 1							
Was a Watero	Was a Watercourse Reached?  ☐ Yes ☑ No  If YES, Volume Impacting the Watercourse.  fa Watercourse was Impacted, Describe Fully.*													
If a Watercou	rse was Imp	pacted, Descri	be Fully.									•		
										RECEI	VED			
Describe Cau	se of Proble	em and Remed	lial Action	1 Taken.*						APR 28	2811			
The Artesia B	Battery Tran	sfer line was i	found to b	e leaking. The line	was sh	ut-in, excava	ted and repaired.			7.1 K <b>2 0</b> .	-cy 1 7			
The impacted						•	•		NA	MOCD AF	RTESIA			
												• · · · · · · · · · · · · · · · · · · ·		
Describe Area					a Nio 2	4 molt toantie	The weether of		a aftha na	loogo woo dwy	and winds			
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work plan and					•	`	,							
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				is true and comple d/or file certain rel										
				e of a C-141 report										
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or the environment federal, state, or				ance of a C-141 re	port do	es not relieve	the operator of re	esponsib	ility for co	ompliance wit	n any other			
reuciai, state,	or local law	s and/or regul	acions.				OIL CONS	ERV	ATION	DIVISION	J			
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Signature.	Kales						DiSimed Byvice	4/4	Ben	West-				
Printed Name:	Garrett Ne	wton			A	pproved by I	District Otiporvisor							
Title: Field Su	pervisor				A	pproval Date	:4/28/2011	, E,	xpiration I	Date:				
E-mail Addres		@nytnetwork	s net			onditions of			,					
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Date: 04/22/2	011		Phone:	575-513-0230			MIT REMEDIAT							
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						5/28	LATER THAN:		()	/ 1 /	101			

# APPENDIX II LABORATORY RESULTS



May 25, 2011

MIKE STUBBLEFIELD

TALON LPE

408 W. TEXAS AVE.

ARTESIA, NM 88210

RE: ARTESIA BATTERY TRANSFER LINE

Enclosed are the results of analyses for samples received by the laboratory on 05/24/11 10:21.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021 Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260 Benzene, Toluene, Ethyl Benzene, and Total Xylenes

Method TX 1005

Total Petroleum Hydorcarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2 Haloacetic Acids (HAA-5)
Method EPA 524.2 Total Trihalomethanes (TTHM)
Method EPA 524.4 Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

Celeg & Keine

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager



TALON LPE
MIKE STUBBLEFIELD
408 W. TEXAS AVE.
ARTESIA NM, 88210
Fax To: (575) 745-8905

05/24/2011

Sampling Date:

04/27/2011

Received: Reported:

05/25/2011

Sampling Type:

Soil

Project Name:

Chloride, SM4500CI-B

ARTESIA BATTERY TRANSFER LINE

Sampling Condition:

\*\* (See Notes)

Project Number:

701402.010.01

Sample Received By:

Jodi Henson

Project Location:

SEC.2.T18S.R28E

mg/kg

#### Sample ID: S - 1 - 0' (H101056-01)

		<u> </u>							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	51200	16.0	05/25/2011	ND	432	108	400	0.00	
Sample ID: S - 1 - 2' (H1	01056-02)								
Chloride, SM4500CI-B	mg	/kg	Anaiyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	10400	16.0	05/25/2011	ND .	432	108	400	0.00	
Sample ID: S - 1 - 4' (H1	01056-03)	1							
Chloride, SM4500CI-B	mg <sub>.</sub>	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	15600	16.0	05/25/2011	ND	432	108	400	0.00	
Sample ID: S - 1 - 6' (H1	01056-04)								
Chloride, SM4500CI-B	mg	mg/kg		d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	15200	16.0	05/25/2011	ND	432	108	400	0.00	

Analyzed By: HM

#### Cardinal Laboratories

\*=Accredited Analyte

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



TALON LPE MIKE STUBBLEFIELD 408 W. TEXAS AVE. ARTESIA NM, 88210

Fax To: (575) 745-8905

Received:

05/24/2011

Sampling Date:

04/27/2011

Reported:

05/25/2011

Sampling Type:

Soil

Project Name:

ARTESIA BATTERY TRANSFER LINE

Sampling Condition:

\*\* (See Notes)

Project Number: Project Location:

701402.010.01

Sample Received By:

Jodi Henson

SEC.2.T18S.R28E

#### Sample ID: \$ - 1 - 8' (H101056-05)

Chloride, SM4500CI-B	mg/	kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	15000	16.0	05/25/2011	ND	432	108	400	0.00	

Cardinal Laboratories \*=Accredited Analyte

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



#### **Notes and Definitions**

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

\*\* Samples not received at proper temperature of 6°C or below.

\*\*\* Insufficient time to reach temperature.

- Chloride by SM4500CI-B does not require samples be received at or below 6°C

Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories \*=Accredited Analyte

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Celey D. Keene

## Laboratories

#### CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, MM 88240 (575) 393-2326 FAX (575) 393-2476 Company Mame: 2007-70 · · · Talon/LPE ANALYSIS REQUEST mile Oubblefield P.O. #: Project Manager: 40% W. Texas Auc. Company: Quantum Res. Address: Addin State: NA Zip: 88710 Aitn: 575-441-7754 Fax #: 575-746-8909 Address: Phone 2: 201402.010.01 Project Owner: Quantum Resources City: Project#: Artesia Battery Transfer Line Stale: Project Mame: Zin: Project Location: Ser. 2 . TRS . 878 E Phone #: in successed Fax #: Sampler Name: MATRIX SAMPLING PRESERV Ch Les Ide FOR LAB USE ONLY (G)RAB OR (C)OMP. ACID/BASE. ICE / COOL OTHER: Lab LO. Sample LD. SLUDĞE O'THER . H101056 DATE TIME 4/20/2011 3:16 1 4/20/2011 3: 536 1 G 4/82/2011 3:318 4/27/2011 3:420 ς PLEASE NOTE: Liabily and Damages. Cardinal's liability and clients enclusive remedy for any claim arising whether hissed in contract or fort, shall be limited to the circum, paid by the client for the enabyses. All claims including those for negligonice and any other cause whatsoever shall be deemed wowed upless nade in virtual and recoved by Cordinal within 30 days after completion of the applicable service. In no event shall Cordinal be liable for indicental or consequented demands, including without limitation, bitainoss interruptions, loss of use, or loss of profits incurred by client, its subsultance, affiliates or successors prising out of or related to the performance of services hereunder by Cardinal, reported service there such chum is based upon any of the roose stated reasons or otherwise if Received By:

| Received By: | Phone Rest ☐ Yes ☐ No Add'l Phone #: Phone Result: Far: Result: ☐ Yes ☐ No Add'I Fax it: REMARKS: mien stellful 10:214 Relinguished By: Date: Time: Delivered By: (Circle One) Sample Condition CHECKED BY: Cool Intact

† Cardinal cannot accept verbal changes. Please fax written changes to 505 893-247

Sampler - UPS - Bus - Other:

Yes Yes

Page 5 of 5



June 04, 2011

MIKE STUBBLEFIELD

TALON LPE

408 W. TEXAS AVE.

ARTESIA, NM 88210

RE: ARTESIA BATTERY TRANSFER LINE

Enclosed are the results of analyses for samples received by the laboratory on 06/02/11 11:45.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021 Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260 Benzene, Toluene, Ethyl Benzene, and Total Xylenes

Method TX 1005

Total Petroleum Hydorcarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2 Ha

Haloacetic Acids (HAA-5)

Method EPA 524.2

Total Trihalomethanes (TTHM)

Method EPA 524.4

Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

Celey D. Keine

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager



TALON LPE MIKE STUBBLEFIELD 408 W. TEXAS AVE. ARTESIA NM, 88210 (575) 745-8905 Fax To:

Received:

06/02/2011

Sampling Date:

05/26/2011

Reported:

Sampling Type:

Soil

400

Project Name:

Chloride

06/04/2011

528

16.0

Sampling Condition:

\*\* (See Notes)

3.77

Project Number:

ARTESIA BATTERY TRANSFER LINE 701402.010.01

Sample Received By:

416

104

Jodi Henson

Project Location:

SEC.2.T18S.R28E

Sample ID: S-1 10' (H101137-01)

Chloride, SM4500CI-B	mg	/kg	Analyze	ed By: HM					
Analyte	Result	, Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	06/03/2011	ND	416	104	400	3.77	
Sample ID: S-1 14' (H10	)1137-02)								
Chloride, SM4500Cl-B	mg	/kg	Analyze	ed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier

ND

#### Sample ID: S-2 10' (H101137-03)

Chloride, SM4500Cl-B	mg/	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	320	16.0	06/03/2011	ND	416	104	400	3.77	

06/03/2011

#### Sample ID: S-2 14' (H101137-04)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: HM					
Analyte	Result Reporting Limit		Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6080	16.0	06/03/2011	ND	416	104	400	3.77	

#### Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keine



TALON LPE
MIKE STUBBLEFIELD
408 W. TEXAS AVE.
ARTESIA NM, 88210
Fax To: (575) 745-8905

Received:

06/02/2011

Sampling Date:

05/26/2011

Reported:

06/04/2011

Sampling Type:

Soil

Project Name:

ARTESIA BATTERY TRANSFER LINE

Sampling Condition:

\*\* (See Notes)

Project Number:

701402.010.01

Sample Received By:

Jodi Henson

Project Location:

SEC.2.T18S.R28E

#### Sample ID: S-2 20' (H101137-05)

Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	416	16.0	06/03/2011	ND	432	108	400	3.77	

Cardinal Laboratories \*=Accredited Analyte

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Celeg & Keine

Celey D. Keene, Lab Director/Quality Manager

Page 3 of 5



#### **Notes and Definitions**

ND Analyte NOT DETECTED at or above the reporting limit

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Cardinal Laboratories \*=Accredited Analyte

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Celey D. Keine

### Laboratories

#### CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Warland, Hobbs, NW 88240 (675) 393-2320 FAX (676) 393-2476

Company Mame:	mpany Mame: Jalky > / KPE oject Manager:										:			 	ANA	LYS	SR	EQUI	EST					
Project Manager:							P.0																	
Address: 468 , Only: Attesed	W. Texas						Cor	npar	ıy: ζ	Ïaki	777	LPE		Ì										
City: acteses	State: N///	Zip:	18	210			Attı	1:																
Phone #: 57.5-7	46-8768 Fan 1:575	-79	16	54	<u>:)5</u>	•	Ade	iress	s:	.,,			1	9				1						
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† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476