

AE Order Number Banner

Report Description

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App Number: pGRL1311953585

1RP - 2912

SIANA OPERATING LLC

7/27/2016



SPORT ENVIRONMENTAL SERVICES, PLLC

502 N. Big Spring Street, Midland, Texas 79701 Business: 432.683.1100 Fax: 888.500.0622

HOBBS OCD

MAR 0 5 2014

March 4, 2014

RECEIVED

Mr. Geoffrey R. Leking, Environmental Engineer State of New Mexico Oil Conservation Division, District 1 1625 N. French Drive Hobbs, New Mexico 88240 sent via email <u>GeoffreyR.Leking@state.nm.us</u>

Mr. Legion Brumley, Realty Compliance U.S. Department of the Interior Bureau of Land Management 620 East Greene Carlsbad, NM 88220 sent

sent via email rpair@blm.gov

RE: Site Remediation Action Plan and Encapsulation Proposal Siana Operating, LLC - Curry Federal #2 SWD Section 22, T-23-S, R-34-E, Lea County, New Mexico

Dear Mr. Leking and Mr. Brumley,

On behalf of Siana Operating, LLC, this Remediation Action Plan (RAP) is to describe the work that includes the remediation and encapsulation of chloride contaminated soil located at the aforementioned site per Bureau of Land Management (BLM) and NM Oil Conservation Division (NMOCD) requirements.

Current Status and Findings

Prior excavation and delineation to attain chloride concentrations (Cl) <1000 mg/kg had narrowed the areas of concern to the excavation floors of the vicinity encompassing sample points SP-1 and PP-4. Please refer to Attachment 1 for the Sample Plan denoting final sample points. As outlined in the previous RAP dated March 12, 2013, SP-1 and PP-4 were vertically delineated to attain <250 mg/kg Cl with the following results recorded in Attachment 2:

SP-1 showed 5010 mg/kg Cl at 10' and 2180 mg/kg Cl at 15'. Remaining samples taken at 5' depth increments were slightly above 2000 mg/kg Cl all the way down to 55' where the level

315

dropped to 1410 mg/kg Cl. The final sample showed 356 mg/kg Cl at 65', the depth limit of the air drilling rig.

• PP-4 showed 74 mg/kg Cl at 5', 80.8 mg/kg Cl at 10' and all samples taken at depths below 10' were non-detectable. Low Cl levels were expected at a shallow depth for this sample point as the excavation floor of the vicinity encompassing PP-4 is a layer of rock.

Work Plan

• The excavation area encompassing SP-1 is approximately 26'X32' and has been excavated to a depth of 3'. This area is composed of very sandy soil. Consequently, when the produced water spilled over the edge of the caliche pad much of it was rapidly absorbed by the sandy ground and continued to leach to an estimated depth of <100' based on results of the vertical delineation. Since the highest Cl concentrations are shown to be in the upper 10', the area encompassing SP-1 will be further excavated a minimum of 4' to remove approximately 16 more cubic yards of contaminated soil for disposal at Sundance Services in Eunice, New Mexico. Due to the proximity (less than 15 feet) of the excavation area South wall to the Curry Fed #2 location pad further excavation cannot be completed without encroaching onto the pad. The final excavation on the South wall of this area will follow the pitch of the Curry Fed #2 location pad drop off to avert slope stability problems and safety concerns.</p>

Three hundred – sixty (360) cubic yards of clean soil matching the natural geology of this location will be utilized for backfill. The excavation will be filled so that it is shaped in a crown fashion (see Attachment 3). A 55'X60' 20-mil poly-liner will be placed on top of the soil mound and extended with an overhang to prevent any further leaching of the Cl contained in the ground below. The liner shall be of sufficient length to avert sloughing and allow proper benching of the liner edges. The remaining clean soil will be backfilled on top of the liner to its previous level. The area will be feathered to blend with the natural contour of the land and the affected areas will be reseeded per BLM guidance and seed mixture specification. (see Attachment 3).

 The excavation area encompassing SP-2 is approximately 21'X36' and has been excavated to a depth of 3.5'. At the time of liner installation, the East wall, South wall and West wall will require additional excavation of 5 feet. We prefer not to encroach on the North wall as the edge of an existing liner was uncovered in this area during the previous excavation. The history and purpose of this liner is unknown to the current operator, the OCD, and the BLM.

Ninety-eight (98) cubic yards of clean soil matching the natural geology of this location will be utilized to backfill the excavation to its previous level. The area will be feathered to blend with the natural contour of the land and the affected areas will be reseeded per BLM guidance and seed mixture specification.

• The excavation area encompassing PP-2 is approximately 29'X42' and has been excavated to a depth of 4'. Previous delineation results show that this area has chloride concentrations less than 1,000 ppm and does not require additional excavation.

One hundred-eighty (180) cubic yards of clean soil matching the natural geology of this location will be utilized to backfill the excavation to its previous level. The area will be feathered to blend with the natural contour of the land and the affected areas will be reseeded per BLM guidance and seed mixture specification.

 The excavation area encompassing PP-4 is approximately 50'X50' and has been excavated to bedrock at a depth of 3.5'. Vertical delineation below the excavation floor shows that Cl contamination has not permeated the rock.

Twenty-seven (27) cubic yards of clean soil matching the natural geology of this location will be utilized to backfill the excavation to its previous level. The area will be feathered to blend with the natural contour of the land and the affected areas will be reseeded per BLM guidance and seed mixture specification.

If you have any questions or comments, please don't hesitate to contact me anytime at either my office (432-683-1100) or on my mobile (432-553-8555).

Sincerely,

T RUBO S. NOOME

Debi Sport Moore, M.E., R.E.P.A. President

Attatchments: 1. Sample Location Site Plan 2. Trace Analysis' Analytical Reports 3. Work Plan Drawing

Cc: Mr. Matt Doffer Siana Oil and Gas Co., LLC 601 N. Marienfeld, Suite 300 Midland, TX 79701 sent via email mdoffer@sianaoil.com



Attachment 2

TraceAnalysis Analytical Reports W.O. Nos. 13120616 and 13120617



Lubbock.

El Paso.

Midland.

Carroliton.

6701 Aberdeen Avenue, Suite 9 200 East Sunset Road, Suite E 5002 Basin Street, Suite A1 (BioAquate) 2501 Mayes Rd., Suite 100 E-Mail lab@traceanalysis com

Texas 79424 Texas 79922 800-378-1296 Texas 79703 Texas 75006 WEB www traceanalysis com

806-794-1298 FAX 806 . 794 . 1298 915-585-3443 FAX 915+585+4944 432-689-6301 FAX 432-689-6313 972-242 -7750

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Debi Sport Moore Sport Environmental Services 502 N. Big Spring Street Midland, TX, 79701

Report Date: December 17, 2013

Work Order: 13120616

Project Location: Jal, NM Project Name: Siana Curry Fed. #2 (SWD Release)

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
348219	SP1-5'	soil	2013-12-04	10:14	2013-12-06
348220	SP1-10'	soil	2013-12-04	10:15	2013-12-06
348221	SP1-15'	soil	2013-12-04	10:16	2013-12-06
348222	SP1-20'	soil	2013-12-04	10:17	2013-12-06
348223	SP1-25'	soil	2013-12-04	10:19	2013-12-06
348224	SP1-30'	soil	2013-12-04	13:23	2013-12-06
348225	SP1-35'	soil	2013-12-04	13:25	2013-12-06
348226	SP1-45'	soil	2013-12-04	13:32	2013-12-06
348227	SP1-55'	soil	2013-12-04	13:46	2013-12-06
348228	SP1-60'	soil	2013-12-04	13:48	2013-12-06
348229	SP1-65'	soil	2013-12-04	13:51	2013-12-06

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 16 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Notes:

All sample results are reported on a dry weight basis.

For inorganic analyses, the term MQL should actually read PQL.

Michael abel

Dr. Blair Leftwich, Director Dr. Michael Abel, Project Manager

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Work Order: 13120616 Siana Curry Fed. #2 (SWD Release) Page Number: 4 of 16 Jal, NM

Case Narrative

Samples for project Siana Curry Fed. #2 (SWD Release) were received by TraceAnalysis, Inc. on 2013-12-06 and assigned to work order 13120616. Samples for work order 13120616 were received intact at a temperature of 3.3 C.

Samples were analyzed for the following tests using their respective methods.

		Prep	Prep	QC	Analysis
Test	Method	Batch	Date	Batch	Date
Chloride (Titration)	SM 4500-Cl B	91073	2013-12-12 at 09:19	107599	2013-12-13 at 14:31
Chloride (Titration)	SM 4500-Cl B	91073	2013-12-12 at 09:19	107600	2013-12-13 at 15:05
Moisture Content	ASTM D 2216-05	91022	2013-12-11 at 13:26	107505	2013-12-12 at 13:26

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 13120616 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Work Order: 13120616 Siana Curry Fed. #2 (SWD Release)

Analytical Report

Note: All sample results are reported on a dry weight basis.

Sample: 348219 - SP1-5'

Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: QC Batch: 107599 Date Analyzed: 2013-12-13 Analyzed By: Prep Batch: 91073 Sample Preparation: 2013-12-12 Prepared By: SDL MQL Method Based Blank MQL M Parameter F C Result Result Units Dilution SDL (Unadjusted) (Unadjusted)	4 3.85	0 4	43.0	10	mg/Kg	<43.0	9780	9780			Chloride
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: QC Batch: 107599 Date Analyzed: 2013-12-13 Analyzed By: Prep Batch: 91073 Sample Preparation: 2013-12-12 Prepared By: SDL MQL Method MQL M	ljusted) (Unadjusted)	L (Unadjusted)	SDL	Dilution	Units	Result	Result	Result	С	F	Parameter
Analysis:Chloride (Titration)Analytical Method:SM 4500-Cl BPrep Method:QC Batch:107599Date Analyzed:2013-12-13Analyzed By:Prep Batch:91073Sample Preparation:2013-12-12Prepared By:	QL MDL	MQL				Method Blank	MQL Based	SDL Based			
Laboratory: Midland	Prep Method: N/A Analyzed By: AR Prepared By: AR	Prep M Analyz Prepar	В	SM 4500-Cl 2013-12-13 2013-12-12	Method: zed: paration:	Analytical I Date Analy Sample Pre		ration)	e (Tit	Laboratory: Midland Analysis: Chloride QC Batch: 107599 Prep Batch: 91073	

Sample: 348219 - SP1-5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Moisture Content 107505 91022		Analytical Date Analy Sample Pre	Analytical Method: Date Analyzed: Sample Preparation:		2216-05 2 1	Prep Method: Analyzed By: Prepared By:	N/A AR AR
				RI	6			
Parameter		F	С	Resul	t	Units	Dilution	RL
Moisture			1	10.	5	%	1	0

Sample: 348220 - SP1-10'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chlorid 107599 91073	d e (Tit	tration)		Analytical Method: Date Analyzed: Sample Preparation:		SM 4500-C 2013-12-13 2013-12-12	ΙB	Prep M Analyz Prepare	iethod: N/A ed By: AR ed By: AR
Parameter	F	С	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Chloride			5010	5010	<40.2	mg/Kg	10	40.2	4	3.85

Sample: 348220 - SP1-10'

Laboratory:	Midland				
Analysis:	Moisture Content	Analytical Method:	ASTM D 2216-05	Prep Method:	N/A

Report Date	e: December 17, 2013	Siana C	Work Order: 1312 Curry Fed. #2 (SV	20616 VD Release)	Page Number: 6 of 16 Jal, NM		
QC Batch: Prep Batch:	107505 91022	Date Ana Sample P	dyzed: 2013 reparation: 2013	3-12-12 3-12-11	Analyzed By: Prepared By:	AR AR	
			RL				
Parameter	F	C	Result	Units	Dilution	RL	
Moisture		1	4.21	%	1	0	

Sample: 348221 - SP1-15'

Laboratory: Analysis: QC Batch: Prep Batch:	Midlan Chlorid 107599 91073	d le (Tit	tration)		Analytical Date Analy Sample Pre	Method: zed: paration:	SM 4500-C 2013-12-13 2013-12-12	l B	Prep Method: Analyzed By: Prepared By:		N/A AR AR
Parameter	F	С	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MI (Unad	DL justed)
Chloride			2180	2180	<39.3	mg/Kg	10	39.3	4	3.	85

Sample: 348221 - SP1-15'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Moisture Content 107505 91022		Analytical Date Anal Sample Pr	Method: yzed: eparation:	ASTM D 2013-12-12 2013-12-11	2216-05 2 1	Prep Method: Analyzed By: Prepared By:	N/A AR AR
				RI				
Parameter		F	C	Resul	t	Units	Dilution	RL
Moisture			1	2.0	4	%	1	0

Sample: 348222 - SP1-20'

		0000	0000		171	10	10.0	1	10. 1	A #
F	С	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unad)	justed)
		Based	Based	Blank				MQL	MI	DL
		SDL	MQL	Method						
91073				Sample Pre	paration:	2013-12-12		Prepare	ed By:	AR
107600				Date Analy	zed:	2013-12-13		Analyz	ed By:	AR
Midland Chloride	i e (Tit	ration)		Analytical 1	Method:	SM 4500-C	B	Prep M	lethod:	N/A
	Midland Chlorid 107600 91073 F	Midland Chloride (Tit 107600 91073 F C	Midland Chloride (Titration) 107600 91073 SDL Based F C Result	Midland Chloride (Titration) 107600 91073 SDL MQL Based Based F C Result Result	Midland Chloride (Titration) Analytical 1 107600 Date Analy 91073 Sample Pre SDL MQL Method Based Based Blank F C Result Result Result	Midland Chloride (Titration) 107600 91073 SDL MQL Method Based Based Blank F C Result Result Units	Midland Chloride (Titration) 107600 91073 SDL MQL Method Based Based F C Result Result Units Dilution	Midland Chloride (Titration) 107600 91073 Sample Preparation: 2013-12-13 Sample Preparation: 2013-12-12 SDL MQL Method Based Blank F C Result Result Units Dilution SDL	Midland Chloride (Titration) Analytical Method: SM 4500-Cl B Prep M 107600 Date Analyzed: 2013-12-13 Analyz 91073 Sample Preparation: 2013-12-12 Prepara SDL MQL Method Based Based Blank MQL F C Result Result Units Dilution SDL (Unadjusted)	Midland Chloride (Titration) 107600 91073 Sample Preparation: 2013-12-13 SDL MQL Based Based F C Result Result Units Dilution SDL (Unadjusted) (Unadjusted)

Report Date	: December 17, 201	3	Work Order: 13120616 Siana Curry Fed. #2 (SWD Release)				Page Number: 7 of 1 Jal, NM		
Sample: 34	8222 - SP1-20'				_				
Laboratory:	Midland								
Analysis: Moisture Content			Analytical	Method:	ASTM D	2216-05	Prep Method:	N/A	
QC Batch:	107505		Date Analyzed:		2013-12-1	2	Analyzed By:	AR	
Prep Batch:	91022		Sample Pr	eparation:	2013-12-1	1	Prepared By:	AR	
				RI					
Parameter		F	С	Resul	t	Units	Dilution	RL	
Moisture			1	4.5	D	%	1	0	

Sample: 348223 - SP1-25'

Analysis: QC Batch: Prep Batch:	Chlorid 107600 91073	a le (Tit	tration)		Analytical Date Analy Sample Pre	Method: zed: paration:	SM 4500-C 2013-12-13 2013-12-12	ΙB	Prep M Analyze Prepare	ethod: N/A ed By: AR ed By: AR
			SDL	MQL	Method					
			Based	Based	Blank				MQL	MDL
Parameter	F	C	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Chloride			2040	2040	<49.2	mg/Kg	10	49.2	4	3.85

Sample: 348223 - SP1-25'

Laboratory: Midland Analysis: Moisture Conter QC Batch: 107505 Prep Batch: 91022			Analytical Date Anal Sample Pr	Method: yzed: reparation:	ASTM 2013-12 2013-12	D 2216-05 2-12 2-11	Prep Method: Analyzed By: Prepared By:	N/A AR AR
				RI	5			
Parameter		F	С	Resul	t	Units	Dilution	RL
Moisture			1	21.	7	%	1	0

Sample: 348224 - SP1-30'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107600	Date Analyzed:	2013-12-13	Analyzed By:	AR
Prep Batch:	91073	Sample Preparation:	2013-12-12	Prepared By:	AR

Report Date:	Decem	per 17	7, 2013	S	Work Jiana Curry	Page Number: 8 of 16 Jal, NM				
Parameter	F	С	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Chloride 20				2060	<39.3	mg/Kg	10	39.3	4	3.85

Sample: 348224 - SP1-30'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Moisture Content 107505 91022		Analytical Date Anal Sample Pr	Method: yzed: reparation:	ASTM D 2013-12-12 2013-12-11	2216-05 2 1	. 1	Prep Method: Analyzed By: Prepared By:	N/A AR AR
				RJ	L				
Parameter		F	С	Resul	t	Units	Di	lution	RL
Moisture			1	2.1	0	%		1	0

Sample: 348225 - SP1-35'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chlorid 107600 91073	d e (Ti	tration)		Analytical Date Analy Sample Pre	Method: zed: paration:	SM 4500-C 2013-12-13 2013-12-12	I B	Prep Method: Analyzed By: Prepared By:		/A R R
Parameter	F	С	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL	ed)
Chloride	-		2210	2210	<39.5	mg/Kg	10	39.5	4	3.85	

Sample: 348225 - SP1-35'

Moisture			1	2.50	3	%	1	0
Parameter		F	С	RI Resul	t.	Units	Dilution	RL
Laboratory: Midland Analysis: Moisture Content QC Batch: 107505 Prep Batch: 91022		Analytical Date Analy Sample Pro	Method: yzed: eparation:	ASTM D 2 2013-12-12 2013-12-11	216-05	Prep Method: Analyzed By: Prepared By:	N/A AR AR	

Sample: 348226 - SP1-45'

Laboratory: Midland

Report Date	: Decem	ber 17	7, 2013		Work Siana Curry	Page Number: 9 of 16 Jal, NM					
Analysis: QC Batch: Prep Batch:	Chlorid 107600 91073	le (Ti	tration)	Analytical Method: Date Analyzed: Sample Preparation:			SM 4500-C 2013-12-13 2013-12-12	1 B	Prep Method: Analyzed By: Prepared By:		N/A AR AR
Parameter	F	С	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	M (Unad	DL justed)
Chloride 2240 224				2240	<39.5	mg/Kg	10 39.5		4 3.		85

Sample: 348226 - SP1-45'

Parameter	51022	F	C.	RI RI Besul	2013-12-11	Units	Dilution	RL
Parameter		F	С	Resul	t	Units	Dilution	RL

Sample: 348227 - SP1-55'

Chloride			1410	1410	<39.6	mg/Kg	10	39.6	4	3.	85
Parameter	F	С	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unad	justed)
			SDL Based	MQL Based	Method Blank				MQL	M	DL
2C Batch: 107600 Prep Batch: 91073				Sample Pre	paration:	2013-12-13		Prepared By:		AR	
Laboratory: Midland Analysis: Chloride (Titration) QC Batch: 107600 Been Batch: 01072					Analytical I	Method:	SM 4500-C	в	Prep Method: Analyzed By:		N/A AR

Sample: 348227 - SP1-55'

Laboratory: Midland Analysis: Moisture Content QC Batch: 107505 Prep Batch: 91022			Analytical Date Anal Sample Pr	Method: yzed: eparation:	ASTM D 221 2013-12-12 2013-12-11	6-05	Prep Method: Analyzed By: Prepared By:	N/A AR AR
				RI	L			
Parameter		F	C	Resul	t Ui	nits	Dilution	RL
Moisture			1	2.7	7	%	1	0

Report Date	: Decem	ber 17	7, 2013	5	Work Siana Curry	Order: 13 Fed. #2 (e)	Page Number: 10 of 16 Jal, NM			
Sample: 34	8228 - 5	SP1-6	i0'								
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chlorid 107600 91073	d e (Tit	tration)		Analytical Method: Date Analyzed: Sample Preparation:			ΙB	Prep M Analyze Prepare	N/A AR AR	
Parameter	F	С	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	M (Unad	DL justed)
Chloride 1320					1320 <39.5 mg/Kg			10 39.5		4 3.80	

Sample: 348228 - SP1-60'

Laboratory: Analysis: QC Batch: Prep Batch:	aboratory: Midland nalysis: Moisture Content C Batch: 107505 rep Batch: 91022		Analytical Date Analy Sample Pre	Method: vzed: eparation:	ASTM D 22 2013-12-12 2013-12-11	216-05	Prep Method: Analyzed By: Prepared By:	N/A AR AR
				RI	1			
Parameter		F	С	Resul	t 1	Units	Dilution	RL
Moisture			1	2.54	1	%	1	0

Sample: 348229 - SP1-65'

Chloride			356	356	<19.8	mg/Kg	5	19.8	4	3.	85
Parameter	F	С	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unad	justed)
			Based	Based	Blank				MQL	M	DL
			SDL	MQL	Method						
Prep Batch: 91073				Sample Pre	paration:	2013-12-12		Prepared By:		AR	
QC Batch:	107600				Date Analy	zed:	2013-12-13		Analyz	ed By:	AR
Analysis:	Chlorid	e (Tit	tration)		Analytical	Method:	SM 4500-C	B	Prep M	lethod:	N/A
Laboratory:	Midland	4									

Sample: 348229 - SP1-65'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Moisture Content 107505 91022		Analytical Date Anal Sample Pr	Method: yzed: reparation:	ASTM D 2 2013-12-12 2013-12-11	216-05	Prep Method: Analyzed By: Prepared By:	N/A AR AR
				RI				
Parameter		F	C	Resul	t I	Units	Dilution	RL
Moisture			1	3.0	3	%	1	0

Report Date	e: December	17, 2013	Work Or Siana Curry Fed	der: 13120616 l. #2 (SWD Release)	Page Number: 11 of 1 Jal, N			
Meth	od Bl	anks						
Method Bl	ank (1)							
QC Batch: Prep Batch:	107599 91073		Date Analyzed: QC Preparation:	2013-12-13 2013-12-12		Analyzed By: AR Prepared By: AR		
Parameter		F	С	Result	Units	Reporting Limits		
Chloride				<3.85	mg/Kg	3.85		
Method Bl	ank (1)							
QC Batch:	107600		Date Analyzed:	2013-12-13		Analyzed By: AR		
Parameter	91015	F	C C	Result	Units	Reporting Limits		
Chloride				<3.85	mg/Kg	3.85		
Duplicate (QC Batch: Prep Batch:	 (2) Duplic 107505 91022 	ated Sample: 34	18231 Date Analyzed: QC Preparation:	2013-12-12 2013-12-11		Analyzed By: AR Prepared By: AR		

			Duplicate	Sample				RPD
Param	F	C	Result	Result	Units	Dilution	RPD	Limit
Moisture		1	9.11	9.85	%	1	8	20

Work Order: 13120616 Siana Curry Fed. #2 (SWD Release)

Limit

Result

Rec.

RPD

Limit

20

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch:	107599 91073			Date Analy QC Prepar	vzed: 2 ation: 2	013-12-13			Analy: Prepa	zed By: AR red By: AR
Param		F	С	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride				2360	mg/Kg	1	2500	<3.85	94	89.7 - 115.9
Percent recov	very is based on t	he spike re	sult.	RPD is ba	ased on th	he spike a	nd spike du	plicate res	ult.	
			LCS	8D		Snike	Matrix	F	Rec	RPD

Dil.

Amount

Units Chloride 2490 mg/Kg 2500 <3.85 100 89.7 - 115.9 5 1 Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

F C Result

Laboratory Control Spike (LCS-1)

Param

QC Batch:	107600	Date Analyzed:	2013-12-13	Analyzed By:	AR
Prep Batch:	91073	QC Preparation:	2013-12-12	Prepared By:	AR

Param		F	C F	LCS lesult	Units	Dil.	Spike Amount	M Re	atrix esult Rec.	F	tec. imit
Chloride				2670	mg/Kg	ç 1	2500	<	3.85 107	89.7	- 115.9
Percent recovery is based on th	ne spik	e re	sult. RP	D is bas	ed on t	he spike a	nd spike o	luplica	te result.		
			LCSD			Spike	Matrix		Rec.		RPD
Param	F	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			2520	mg/Kg	1	2500	<3.85	101	89.7 - 115.9	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 348221

QC Batch: Prep Batch:	107599 91073		G	ate Analy: C Prepara	zed: 201		Analyzed By: A Prepared By: A				
Param		F	С	MS Result	Units	Dil.	Spike	Matrix Result	Rec.	Rec. Limit	
Chloride	1 K. A. S			4660	mg/Kg	10	2500	2140	101	78.9 - 12	1

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: December 17, 2013		Siar	Work a Curry	Page Number: 13 of 16 Jal, NM							
Param	F	с	MSD C Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec.	RPD	RPD Limit
Chloride			4760	mg/Kg	10	2500	2140	105	78.9 - 121	2	20

Matrix Spi	ke (MS-1) Spil	ced S	amp	le: 34823	31							
QC Batch: Prep Batch:	107600 91073			Date QC	e Analyze Preparat	d: 20 ion: 20)13-12-13)13-12-12			Ana Prej	lyzed By pared By	AR AR
Param			F	CI	MS Result	Units	Dil.	Spike Amount	Ma Re	atrix esult Re	BC.	Rec.
Chloride					2530	mg/Kg	5	2500	7	2.8 9	8 78	.9 - 121
Percent recov	very is based on the	e spik	e re	sult. RP	D is base	d on th	e spike an	d spike du	uplicate	e result.		
				MSD			Spike	Matrix		Rec.		RPD
Param		F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride				2630	mg/Kg	5	2500	72.8	102	78.9 - 12	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Calibration Standards

Standard (CCV-1)

QC Batch:	107599			D	ate Analyzed:	2013-12-13		Analy	zed By: AR
Param		F	С	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date
Chloride				mg/Kg	100	99.3	99	85 - 115	2013-12-13

Standard (CCV-2)

QC Batch:	107599			Dat	e Analyzed:	2013-12-13		Analy	zed By: AR
Param		F	С	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride				mg/Kg	100	101	101	85 - 115	2013-12-13

Standard (CCV-1)

QC Batch:	107600			D	ate Analyzed:	2013-12-13		Analy	zed By: AR
Param		F	С	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride				mg/Kg	100	103	103	85 - 115	2013-12-13

Standard (CCV-2)

QC Batch:	107600			Da	te Analyzed:	2013-12-13		Analy	zed By: AR
					CCVs	CCVs	CCVs Percent	Percent	Date
Param		F	С	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride				mg/Kg	100	96.7	97	85 - 115	2013-12-13

Work Order: 13120616 Siana Curry Fed. #2 (SWD Release) Page Number: 15 of 16 Jal, NM

Limits of Detection (LOD)

					Spike	
Test	Method	Matrix	Instrument	Analyte	Amount	Pass
Chloride (Titration)	SM 4500-CI B	soil	N/A	Chloride	10.0	Pass

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

	Certifying	Certification	Laboratory
С	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-13-7	Midland

Standard Flags

- F Description
- B Analyte detected in the corresponding method blank above the method detection limit
- H Analyzed out of hold time
- J Estimated concentration
- Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
- Je Estimated concentration exceeding calibration range.
- MI1 Split peak or shoulder peak
- MI2 Instrument software did not integrate
- MI3 Instrument software misidentified the peak
- MI4 Instrument software integrated improperly
- MI5 Baseline correction
- Qc Calibration check outside of laboratory limits.
- Qr RPD outside of laboratory limits
- Qs Spike recovery outside of laboratory limits.
- Qsr Surrogate recovery outside of laboratory limits.
- U The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page. Please note, each attachment may consist of more than one page.

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Ontonia



 6701 Aberdeen Avenue, Suite 9
 Lubbock, Texas 79424
 800-378-1296
 806-794-1296
 FAX 806-794-1298

 200 East Sunsel Road, Suite E
 El Paso, Texas 79922
 915-585-3443
 FAX 915-585-4944

 5002 Basin Street, Suite A1
 Midland, Texas 79703
 432-689-6301
 FAX 432-689-6313

 (BicAquatic) 2501 Mayes Rd, Suite 100
 Cerrolton, Texas 75006
 972-242-7750

 E-Mail: labg/grinceanalysis com
 WEB: www traceanalysis com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Debi Sport Moore Sport Environmental Services 502 N. Big Spring Street Midland, TX, 79701

Report Date: December 17, 2013

Work Order: 13120617

Project Location: Jal, NM Project Name: Siana Curry Fed. #2 (SWD Release)

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
348230	PP4-5'	soil	2013-12-04	09:25	2013-12-06
348231	PP4-10'	soil	2013-12-04	09:26	2013-12-06
348232	PP4-15'	soil	2013-12-04	09:28	2013-12-06
348233	PP4-20'	soil	2013-12-04	09:30	2013-12-06
348234	PP4-25'	soil	2013-12-04	09:31	2013-12-06
348235	PAD-5'	soll	2013-12-04	10:55	2013-12-06
348236	PAD-10'	soil	2013-12-04	10:57	2013-12-06
348237	PAD-15'	soil	2013-12-04	11:00	2013-12-06
348238	PAD-20'	soil	2013-12-04	11:02	2013-12-06
348239	PAD-25	soil	2013-12-04	11:05	2013-12-06

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 17 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Notes:

All sample results are reported on a dry weight basis.

For inorganic analyses, the term MQL should actually read PQL.

Michael april

Dr. Blair Leftwich, Director Dr. Michael Abel, Project Manager

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Work Order: 13120617 Siana Curry Fed. #2 (SWD Release) Page Number: 4 of 17 Jal, NM

Case Narrative

Samples for project Siana Curry Fed. #2 (SWD Release) were received by TraceAnalysis, Inc. on 2013-12-06 and assigned to work order 13120617. Samples for work order 13120617 were received intact at a temperature of 3.3 C.

Samples were analyzed for the following tests using their respective methods.

		Prep	Prep	QC	Analysis
Test	Method	Batch	Date	Batch	Date
Chloride (Titration)	SM 4500-Cl B	91073	2013-12-12 at 09:19	107600	2013-12-13 at 15:05
Chloride (Titration)	SM 4500-Cl B	91073	2013-12-12 at 09:19	107601	2013-12-13 at 15:13
Moisture Content	ASTM D 2216-05	91022	2013-12-11 at 13:26	107505	2013-12-12 at 13:26
Moisture Content	ASTM D 2216-05	91075	2013-12-12 at 09:20	107590	2013-12-13 at 16:08

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 13120617 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Work Order: 13120617 Siana Curry Fed. #2 (SWD Release)

Analytical Report

Note: All sample results are reported on a dry weight basis.

Sample: 348230 - PP4-5'

Laboratory: Analysis: QC Batch: Prep Batch:	oratory: Midland dysis: Chloride (Titration) Batch: 107600 p Batch: 91073			Analytical Date Analy Sample Pre	Method: zed: paration:	SM 4500-C 2013-12-13 2013-12-12	B	Prep M Analyze Prepare	ethod: ed By: ed By:	N/A AR AR	
Parameter	F	С	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MI (Unad	DL justed)
Chloride			74.0	74.0	<24.4	mg/Kg	5	24.4	4	3.	85

Sample: 348230 - PP4-5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Moisture Content 107505 91022		Analytical Date Analy Sample Pre	Method: zed: paration:	ASTM D 2013-12-1 2013-12-1	2216-05 2 1	Prep Method: Analyzed By: Prepared By:	N/A AR AR
				R	L			
Parameter		F	C	Resul	t	Units	Dilution	RL
Moisture			1	21.	2	%	1	0

Sample: 348231 - PP4-10'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chlorid 107600 91073	d le (Tit	tration)		Analytical Date Analy Sample Pre	Method: zed: paration:	SM 4500-C 2013-12-13 2013-12-12	ΙB	Prep M Analyze Prepare	ethod: N/A ed By: AR ed By: AR	ł
Parameter	F	С	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Chloride			80.8	80.8	<21.4	mg/Kg	5	21.4	4	3.85	_

Sample: 348231 - PP4-10'

Laboratory:	Midland				
Analysis:	Moisture Content	Analytical Method:	ASTM D 2216-05	Prep Method:	N/A

Report Date	: December 17, 2013	3	Siana C	Work Order: 131 urry Fed. #2 (S	Page Number: 6 of 17 Jal, NM		
QC Batch: Prep Batch:	107505 91022	107505 91022		lyzed: 201 reparation: 201	Analyzed By: Prepared By:	AR AR	
				RL			
Parameter		F	С	Result	Units	Dilution	RL
Moisture		and the second second	1	9.85	%	1	0

Sample: 348232 - PP4-15'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chlorid 107601 91073	d e (Tit	tration)		Analytical Date Analy Sample Pre	Method: zed: paration:	SM 4500-C 2013-12-13 2013-12-12	ΙB	Prep M Analyze Prepare	lethod: ed By: ed By:	N/A AR AR
Parameter	F	С	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MI (Unadj)L usted)
Chloride	U		<21.9	<22.8	<21.9	mg/Kg	5	21.9	4	3.8	35

Sample: 348232 - PP4-15'

RL	RL
Ru R	RL RL Brancher F. C. Brancher Dilution Dilutio Dilution Dilution Dilution Dilution Dilution Dilution Dilution D
Parameter F C Result Units Dibu	Parameter F C Result Unite Dilution RI

Sample: 348233 - PP4-20'

Laboratory: Analysis: QC Batch: Prep Batch:	Midlan Chlorid 107601 91073	d le (Tit	tration)		Analytical Date Analy Sample Pre	Method: zed: paration:	SM 4500-C 2013-12-13 2013-12-12	l B	Prep M Analyz Prepara	lethod: ed By: ed By:	N/A AR AR
Deserved or	E	0	SDL Based	MQL Based	Method Blank	77.14	2011	0.01	MQL	M	DL
Parameter	L.	C	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unad	justed)
Chloride	U		<20.3	<21.0	<20.3	mg/Kg	5	20.3	4	3.	85

Report Date	: December 17, 201	3	Siana C	Work Order: 13120617 Siana Curry Fed. #2 (SWD Release)			Page Number: 7 of 17 Jal, NM		
Sample: 34	8233 - PP4-20'								
Laboratory:	Midland								
Analysis:	Analysis: Moisture Content		Analytical	Method:	ASTM 1	0 2216-05	Prep Method:	N/A	
QC Batch:	107590		Date Anal	lyzed:	2013-12-	13	Analyzed By:	AR	
Prep Batch:	91075		Sample Pr	reparation:	2013-12-	12	Prepared By:	AR	
				RI	5				
Parameter		F	С	Resul	t	Units	Dilution	RL	
Moisture			1	5.0	9	%	1	0	

Sample: 348234 - PP4-25'

Laboratory:	Midlan	d							_		
Analysis:	Chlorid	le (Tit	tration)		Analytical	Method:	SM 4500-C	l B	Prep M	ethod: N/J	Ł
Prep Batch:	91073				Sample Pre	paration:	2013-12-13		Prepare	ed By: AR	
			SDL	MQL	Method				MOL	MDI.	
Parameter	F	С	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Chloride	U		<24.6	<25.6	<24.6	mg/Kg	5	24.6	4	3.85	-

Sample: 348234 - PP4-25'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Moisture Content 107590 91075		Analytical Date Anal Sample Pr	Method: yzed: eparation:	ASTM D 2013-12-13 2013-12-13	2216-05 3 2	Prep Method: Analyzed By: Prepared By:	N/A AR AR
				RI				
Parameter		F	C	Resul	t	Units	Dilution	RL
Moisture			2	21.4	8	%	1	0

Sample: 348235 - PAD-5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	107601	Date Analyzed:	2013-12-13	Analyzed By:	AR
Prep Batch:	91073	Sample Preparation:	2013-12-12	Prepared By:	AR

Report Date: December 17, 2013			S	Work Order: 13120617 Siana Curry Fed. #2 (SWD Release)					Page Number: 8 of 17 Jal, NM		
Parameter	F	С	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)	
Chloride			19800	19800	<44.9	mg/Kg	10	44.9	4	3.85	

Sample: 348235 - PAD-5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Moisture Content 107590 91075		Analytical Date Anal Sample Pr	Method: yzed: eparation:	ASTM D 22 2013-12-13 2013-12-12	16-05	Prep Method: Analyzed By: Prepared By:	N/A AR AR
				RI	L.			
Parameter		F	С	Resul	t U	nits	Dilution	RL
Moisture			1	14.	3	%	1	0

Sample: 348236 - PAD-10'

•		SDL Based	MQL Based	Method Blank				MQL	M	DL
		SDL Based	MQL Based	Method Blank				MOL	M	DL
Laboratory: Analysis: QC Batch: Prep Batch:	boratory: Midland alysis: Chloride (Titration) 2 Batch: 107601 ep Batch: 91073		Analytical Date Analy Sample Pre	Method: zed: paration:	SM 4500-C 2013-12-13 2013-12-12	В	Prep Method: Analyzed By: Prepared By:		N/A AR AR	

Sample: 348236 - PAD-10'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Moisture Content 107590 91075		Analytical Date Anal Sample Pr	Method: yzed: reparation:	ASTM D 22 2013-12-13 2013-12-12	16-05	Prep Method: Analyzed By: Prepared By:	N/A AR AR
				RI				
Parameter		F	C	Result	t L	nits	Dilution	RL
Moisture			1	10.4	1	%	1	0

Sample: 348237 - PAD-15'

Laboratory: Midland

Report Date	: Decem	ber 17	, 2013		Work Siana Curry	Page Number: 9 of 17 Jal, NM					
Analysis: QC Batch: Prep Batch:	Chlorid 107601 91073	e (Tit	tration)	Analytical Method: Date Analyzed: Sample Preparation:			SM 4500-C 2013-12-13 2013-12-12	l B	Prep Method: Analyzed By: Prepared By:		N/A AR AR
Parameter	F	С	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	M (Unad	DL justed)
Chloride			269	269	<20.5	mg/Kg	5	20.5	4	3.	85

Sample: 348237 - PAD-15'

Laboratory:	Midland						
Analysis:	Moisture Content		Analytical l	Method:	ASTM D 2216-0	5 Prep Met	thod: N/A
QC Batch:	107590		Date Analy	zed:	2013-12-13	Analyzed	By: AR
Prep Batch: 91075			Sample Preparation:		2013-12-12	Prepared	By: AR
				RL			
Parameter		F	С	Result	Units	s Dilution	RL
Moisture			1	6.10) %	1	0

Sample: 348238 - PAD-20'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride 107601 91073	l e (Tit	tration)		Analytical Method: Date Analyzed: Sample Preparation:		SM 4500-C 2013-12-13 2013-12-12	В	Prep Method: Analyzed By: Prepared By:		N/A AR AR
Parameter	F	С	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	M (Unad	DL justed)
Chloride			136	136	<19.8	mg/Kg	5	19.8	4	3.	85

Sample: 348238 - PAD-20'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Moisture Content 107590 91075		Analytical Date Analy Sample Pro	Method: ASTM I yzed: 2013-12- eparation: 2013-12-		16-05	Prep Method: Analyzed By: Prepared By:	N/A AR AR
				RI				
Parameter		F	C	Resul	t I	Inits	Dilution	RL
Moisture			3	2.7	6	%	1	0

Report Date	: Decem	ber 17	7, 2013	5	Work Order: 13120617 Siana Curry Fed. #2 (SWD Release)					Page Number: 10 of 17 Jal, NM		
Sample: 34	8239 - 1	PAD-	25'									
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chlorid 107601 91073	d e (Tit	tration)		Analytical I Date Analy Sample Pre	Method: zed: paration:	SM 4500-C 2013-12-13 2013-12-12	ΙB	Prep M Analyz Prepare	ethod: ed By: ed By:	N/A AR AR	
Parameter	F	С	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	M (Unad	DL justed)	
Chloride			56.2	56.2	<19.4	mg/Kg	5	19.4	4	3.	.85	

Sample: 348239 - PAD-25'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Moisture Content 107590 91075		Analytical Date Anal Sample Pr	Method: lyzed: reparation:	ASTM 1 2013-12- 2013-12-	D 2216-05 13 12	Prep Method: Analyzed By: Prepared By:	N/A AR AR
				R	L			
Parameter		F	C	Resul	t	Units	Dilution	RL
Moisture			1	0.97	5	%	1	0

Report Date: December 17, 2	2013	Work Or Siana Curry Fed	der: 13120617 l. #2 (SWD Releas	P)	Page Number: 11 of 17 Jal, NM			
Method Blan	nks							
Method Blank (1)								
QC Batch: 107600 Prep Batch: 91073		Date Analyzed: QC Preparation:	2013-12-13 2013-12-12		Analyzed By Prepared By	AR AR		
Parameter	F	С	Result	Units	Re	porting imits		
Chiorae			< 3.60	nig/ Kg		0.00		
Method Blank (1)								
QC Batch: 107601 Prep Batch: 91073		Date Analyzed: QC Preparation:	2013-12-13 2013-12-12		Analyzed By Prepared By	: AR : AR		
Parameter	F	С	Result	Units	Re I	porting limits		
Chloride			<3.85	mg/Kg		3.85		
Duplicate (2) Duplicated QC Batch: 107505 Prep Batch: 91022	Sample:	348231 Date Analyzed: QC Preparation:	2013-12-12 2013-12-11		Analyzed By Prepared By	: AR : AR		
Param F	С	Duplicate Sam Result Res	aple ult Units	Dilution	RPD	RPD Limit		
Moisture	1	9.11 9.8	35 %	1	8	20		
Duplicate (1) Duplicated	Sample:	348239						

QC Batch:	107590	Date Analyzed:	2013-12-13	Analyzed By:	AR
Prep Batch:	91075	QC Preparation:	2013-12-12	Prepared By:	AR

continued ...

Report Date: D	ecember 17,	2013	Siana Cu	e)	Page Number	: 12 of 17 Jal, NM		
			Durlingto	Comolo	duplicate con	ntinued		000
Param	F	С	Result	Result	Units	Dilution	RPD	Limit
Param	F	С	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Moisture		ı	1.04	0.975	%	1	6	20

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch:	107600 91073			Q	ate Analy C Prepara	zed: 2 ation: 2	2013-12-13 2013-12-12			Analy Prepa	Analyzed By: Prepared By:	
Param			F	С	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	F	lec. mit
Chloride					2670	mg/Kg	ç 1	2500	<3.85	107	89.7	- 115.9
Percent recov	very is based on the	spil	æ re	sult. R	tPD is ba	sed on t	he spike a	nd spike o	iuplicate r	esult.		222
Param		F	С	Resul	t Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit

1

2500

<3.85

101

89.7 - 115.9

6

20

Laboratory Control Spike (LCS-1)

Chloride

QC Batch:	107601	Date Analyzed:	2013-12-13	Analyzed By:	AR
Prep Batch:	91073	QC Preparation:	2013-12-12	Prepared By:	AR

Param		F	С	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	FL	tec. imit
Chloride				2480	mg/Kg	g 1	2500	<3.85	99	89.7	- 115.9
Percent recovery is based on th	ne spil	e re	sult.	RPD is ba	sed on t	he spike a	nd spike d	uplicate rea	sult.		
Param	F	C	LCS	SD alt Units	a Dil	Spike	Matrix	Rec I	Rec.	RPD	RPD

	 					*****		A UN NP	*******
Chloride	2650	mg/Kg	1	2500	<3.85	106	89.7 - 115.9	7	20
	 and the second se								

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

2520

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

mg/Kg

Matrix Spike (MS-1) Spiked Sample: 348231

QC Batch: Prep Batch:	107600 91073		D Q	ate Analy C Prepara	zed: 20 ation: 20	13-12-13 13-12-12			Analyze Prepare	d By: AR d By: AR
Param		F	С	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride				2530	mg/Kg	5	2500	72.8	98	78.9 - 121

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: Decen		Sia	Page Number: 14 of 17 Jal, NM								
Param	F	C	MSD	Unito	Dil	Spike	Matrix	Pee	Rec.	RDD	RPD
Faram	r	C	result	Units	Du.	Amount	Result	nec.	Linnit	RFD.	Tunut
Chloride			2630	mg/Kg	5	2500	72.8	102	78.9 - 121	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 348239

QC Batch: Prep Batch:	107601 91073		I	Date Analyz QC Prepara	tion: 20)13-12-13)13-12-12			Analyze Prepare	d By: d By:	AR AR
Param		F	С	MS	Units	DI	Spike	Matrix Result	Bec	R	.ec. mit
Chloride		*	-	2660	mg/Kg	5	2500	55.7	104	78.9	- 121
Percent recon	very is based on	the snike re	sult	RPD is has	orl on th	e spike an	d spike dup	licato rosu	lt		

MSD Spike Rec. RPD Matrix Param F C Result Units Dil. Amount Result Rec. Limit RPD Limit Chloride 2750 mg/Kg 5 2500 55.7 108 78.9 - 121 3 20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Calibration Standards

Standard (CCV-1)

QC Batch:	107600			1	Date Analyzed:	2013-12-13		Analy	zed By: AR
Param		F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride				mg/Kg	100	103	103	85 - 115	2013-12-13

Standard (CCV-2)

QC Batch:	107600			Da	ate Analyzed:	2013-12-13		Analy	zed By: AR
Param		F	С	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride				mg/Kg	100	96.7	97	85 - 115	2013-12-13

Standard (CCV-1)

QC Batch:	107601			I	Date Analyzed:	2013-12-13		Analy	zed By: AR
Param		F	С	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride				mg/Kg	100	98.3	98	85 - 115	2013-12-13

Standard (CCV-2)

QC Batch:	107601			E	ate Analyzed:	2013-12-13		Analy	zed By: AR
					CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param		F	C	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride				mg/Kg	100	102	102	85 - 115	2013-12-13

Work Order: 13120617 Siana Curry Fed. #2 (SWD Release) Page Number: 16 of 17 Jal, NM

Limits of Detection (LOD)

					Spike	
Test	Method	Matrix	Instrument	Analyte	Amount	Pass
Chloride (Titration)	SM 4500-Cl B	soil	N/A	Chloride	10.0	Pass

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

С	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-13-7	Midland

Standard Flags

F Description

- B Analyte detected in the corresponding method blank above the method detection limit
- H Analyzed out of hold time
- J Estimated concentration
- Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
- Je Estimated concentration exceeding calibration range.
- MI1 Split peak or shoulder peak
- MI2 Instrument software did not integrate
- MI3 Instrument software misidentified the peak
- MI4 Instrument software integrated improperly
- MI5 Baseline correction
- Qc Calibration check outside of laboratory limits.
- Qr RPD outside of laboratory limits
- Qs Spike recovery outside of laboratory limits.
- Qsr Surrogate recovery outside of laboratory limits.
- U The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page. Please note, each attachment may consist of more than one page. LAB Order 10 # 1312 061

	TraceAnalysis. email: lab@traceanalysis.		6701 Aberdeen Ave, Ste 9 5002 Basin St Lubbock, Texas 79424 Midland, Te Tel (806) 794-1296 Tel (432) 6 Fax (806) 794-1298 Fax (432) 1 1 (800) 378-1296								Street, Texas 2) 689- 2) 689- 2) 689-	Suite A1 79703 6301 6313	1	200	El Pa Tel Fax	t Suni iso, T (915) : (915)	set R exas 585- 585	1, Sa 799) 3443 4944	une E 22 1		BioAquatic Testing 2501 Mayes Rd , Ste 100 Carroliton, Texas 75006 Tel (972) 242-7750														
Company Name:	Sport Environmental Service		Phone #: (432) 683-1100											ANALYSIS REQUEST																					
Address: 502 N. Big Spring Street, Midland, Texas 79701							Fax #: (888) 500-0622											1	1	10			1	pe			1		1	1	-,	11	I	1	
Contact Person: Debi S. Moore, M.E., R.E.P.A.						E-mail: debi@sportenvironmental.com														08/200										2				p	
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LAB #	FIELD CODE	# CONTAIN	Volume/Am	WATER	SOIL	AIR	SLUDGE	HCI	HNO	H,SO.	NaOH	ICE	NONE		DATE	TIME	MTBE 80218	BTEX 80218	PAH 827001	Total Metals A	TCLP Metels /	TCLP Volatilet	TCLP Semi Vo	TCLP Pesticid	GCIMS Vol 8	GC/MS Semi.	PC8's 8082/	Pesticides 80	B00, TSS, pH	CI F SO. N	Na, Ca, Mg, I	Volatiles by N		Turn Around	PloH
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