



August 14, 2019

Mr. Jim Griswold
Environmental Bureau Chief
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Mr. John Winscott
Business Lease Manager
New Mexico State Land Office
310 Old Santa Fe Trail,
Santa Fe NM 87501

Delivered via e-mail: Jim.Griswold@state.nm.us; jwiscott@slo.state.nm.us

Re: Buckeye Disposal, LLC
Work Plan for Characterization and Remediation of State AF #003 SWD Site
Remediation Permits 1RP-4429 and 1RP-5056

Dear Messrs. Griswold and Winscott:

On behalf of Buckeye Disposal, Inc. (Buckeye), Daniel B. Stephens & Associates, Inc. (DBS&A) has prepared this work plan describing activities to characterize the extent of soil impacts caused by two releases of produced water at the off-loading facility at the State AF #003 SWD site (the site). The Site is operated by Buckeye. The facility is located on State of New Mexico Business Lease BL-2050 in Section 8, Township 18 South, Range 35 East, NMPM. This letter summarizes the two releases and actions taken to date, and provides proposed actions to complete site characterization.

Actions to Date

Buckeye submitted Release Notification Forms C-141 to the Oil Conservation Division (OCD) regarding the releases on August 20, 2016 and May 11, 2018. Both releases occurred within the tank containment area, which is lined with 40-mil high-density polyethylene (HDPE) flexible membrane. In response to these notifications, the OCD assigned remediation permit 1RP-4429 on September 7, 2016 and remediation permit 1RP-5056 on May 11, 2018.

On October 3, 2016, Buckeye submitted a work plan to the OCD in response to 1RP-4429. The work plan included the cleaning and removal of the containment liner, collection of soil samples to be submitted for laboratory analyses, removal and replacement of contaminated soil, installation of a new liner, and painting of the facility. A review of OCD's on-line records indicates that OCD received the work plan, but it is unclear whether OCD approved this work plan.

Daniel B. Stephens & Associates, Inc.

6020 Academy NE, Suite 100 505-822-9400

Albuquerque, NM 87109 FAX 505-822-8877

In response to the Release Notification Form C-141 dated May 11, 2018, OCD requested that Buckeye inspect the liner to determine its integrity and submit a report. OCD also issued 1R-5056, which generally reiterates requirements for site characterization provided in 19.15.29.11 NMAC.

In December 2018, e-mails between Buckeye and the State Land Office (SLO) indicated that Buckeye would take the following steps to characterize site conditions: cleaning and inspection of the liner, sampling and analysis of soils beneath the liner and outside the containment area, construction of a berm or other containment to prevent fluids from migrating off-site, removal of all unnecessary equipment from the site, and maintenance of the access road.

On February 14, 2019, a total of seven soil samples were collected from seven locations at the site, as shown on Figure 1. Samples were collected from depths up to 36 inches using a backhoe. The samples were submitted to Cardinal Laboratories in Hobbs, New Mexico and analyzed for total chloride. The sample results are shown on Figure 1 and Table 1. The laboratory report is provided as Attachment 1.

Information available online from the Office of the State Engineer (OSE) indicates that the depth to shallow groundwater at the well closest to the site is 105 feet below ground surface (bgs) (Figure 2). Based on the depth to shallow groundwater (greater than 100 feet), the OCD numerical limit for chloride is 20,000 milligrams per kilogram (mg/kg), as prescribed in Table 1 of 19.15.29.12 NMAC. Chloride concentrations in soil samples collected around the containment area in February 2019 range from 960 to 5,520 mg/kg, all well below the OCD numerical limit. Based on these results, chloride concentrations in soil outside the containment area do not require remediation.

Proposed Characterization

The structural integrity of the HDPE liner in the containment area has been compromised, and the liner needs to be replaced. For example, the liner is no longer secured to the tanks in some areas. Before additional investigation can be done, the HDPE liner will be removed and disposed of properly. OCD and SLO will be notified before this work is initiated.

Once the HDPE liner has been removed, the condition of the underlying soil will be inspected and photographed, and soil samples will be collected inside the containment at six locations. Sample locations will be determined after the liner is removed. A backhoe will be used to excavate into the heavily calichified soil. The lithology of soils encountered will be described. At least two soil samples from each test pit (highest observed contamination and deepest depth investigated) will be submitted for laboratory analysis. Soil samples will be collected directly from the backhoe bucket, placed in clean containers provided by the laboratory, properly labeled, and placed on ice. Chain-of-custody documents will be completed and the samples will be delivered to an analytical laboratory.

In accordance with Table 1 of 19.15.29.12 NMAC, for a site where groundwater is more than 100 feet deep, samples will be submitted for laboratory analysis for the following constituents:

- Total petroleum hydrocarbons (TPH), including gasoline-range organics (GRO) (C8-C10), diesel-range organics (DRO) (>C10-C28), and motor oil-range organics (MRO) (>C28-C36) using EPA method 8015 modified
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA method 8021B
- Chloride using standard method 4500-Cl-B.

In addition to the samples collected inside the containment, the two February 2019 sampling locations with the highest chloride concentrations will be resampled and analyzed for TPH and BTEX. This is being done because these compounds were not analyzed for in the February 2019 samples.

Laboratory results will be compared to the OCD numerical limits for sites where groundwater is more than 100 feet deep, per Table 1 of 19.15.29.12 NMAC. If soil results indicate the presence of contamination exceeding OCD numerical limits, additional samples will be collected if required to establish the lateral and vertical extent of contamination. Once the extent of contaminated soil has been established, the contaminated soil will be removed and properly disposed of. The excavated area will be backfilled with clean soil and compacted. A new HDPE liner will be installed within the containment.

Upon completion of site characterization and remediation, Buckeye will complete and submit the Site Characterization and Remediation portions of the Form C-141 to OCD.

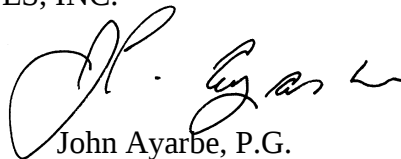
When your approval is received, Buckeye will implement this work plan. If you have any questions or comments regarding this work plan, please contact us at (505) 822-9400.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.



Bill Casadevall, C.P.G.
Geologist



John Ayarbe, P.G.
Senior Hydrologist

BC/rpf
Attachments

cc: Ryan Mann, State Land Office (rmann@slo.state.nm.us)
Vincent D'Alise, Standard Energy Services (vincent@thestandardenergy.com)
Saskia Bergstein Allen, Bergstein Enterprises (saskia@bergsteinenterprises.com)

Figures

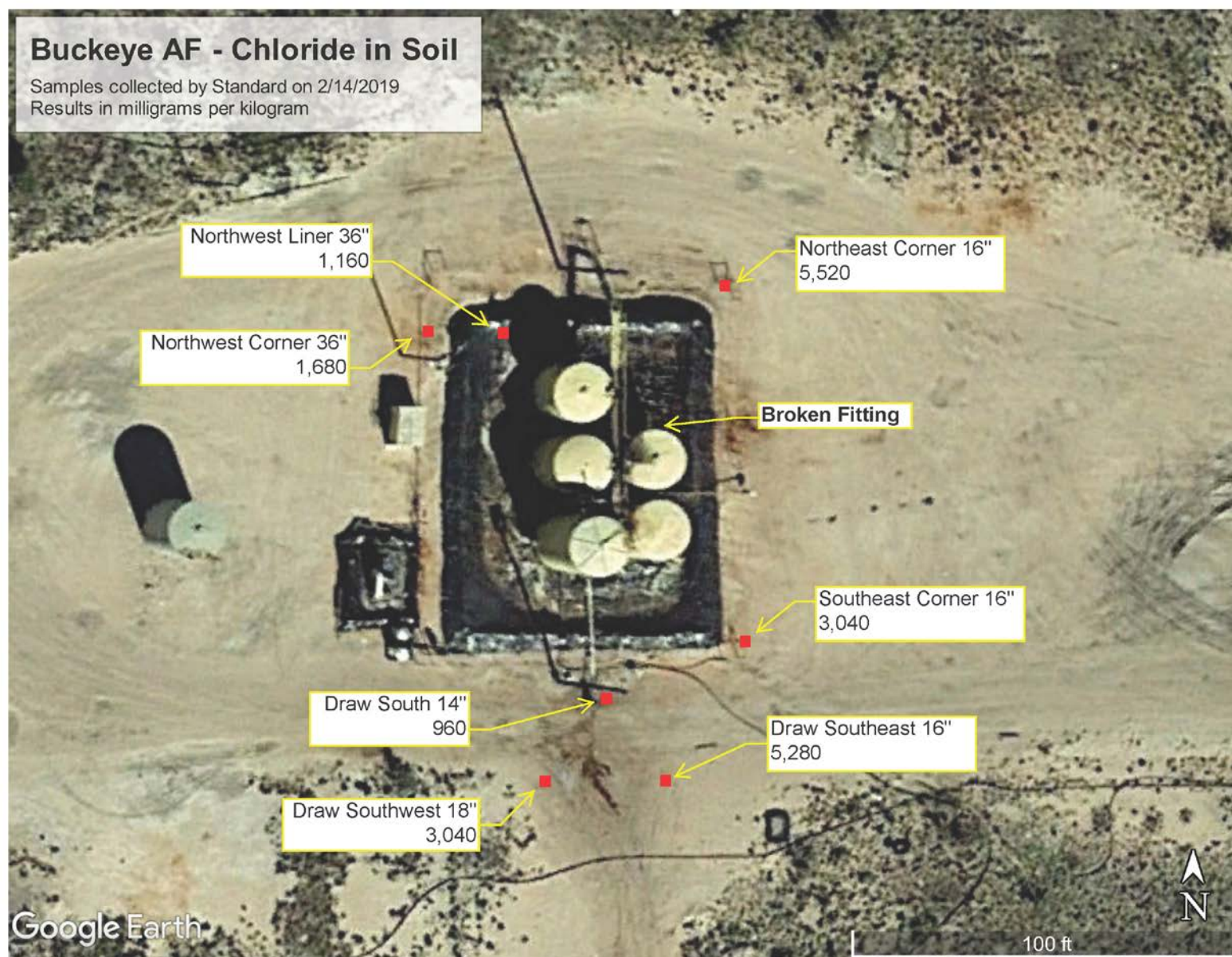


Figure 1



Daniel B. Stephens & Associates, Inc.

8/14/19

BUCKEYE STATE AF #003
Chloride in Soil



Figure 2



Daniel B. Stephens & Associates, Inc.

8/14/19

BUCKEYE STATE AF #003
Shallow Water Sources within ½ mile of Site

Table



Daniel B. Stephens & Associates, Inc.

Table 1. State AF #003 SWD Site Soil Chemistry, February 14, 2019

Analyte	Concentration (mg/kg)							
	OCD Limit ^a	Draw South 14"	Draw Southeast 16"	Draw Southwest 18"	Northeast Corner 16"	Southeast Corner 16"	Northwest Corner 36"	Northwest Liner 36"
Chloride	20,000	960	5,280	3,040	5,520	3,040	1,680	1,160

Source: Cardinal Laboratories, 2/19/2019

^a Standards from Table 1 of 19.15.29.12 NMAC for site where depth to groundwater >100 feet.

mg/kg = Milligrams per kilogram

OCD = Oil Conservation Division

Attachment 1
Laboratory Report



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

February 19, 2019

JIM SAYRE

BUCKEYE DISPOSAL, LLC

P. O. BOX 513

HOBBS, NM 88241

RE: BUCKEYE

Enclosed are the results of analyses for samples received by the laboratory on 02/15/19 8:05.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited 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 (V1, V2, V3)

Accreditation applies to public drinking water matrices.

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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

BUCKEYE DISPOSAL, LLC
JIM SAYRE
P. O. BOX 513
HOBBS NM, 88241
Fax To: UNK-NOWN

Received: 02/15/2019
Reported: 02/19/2019
Project Name: BUCKEYE
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 02/14/2019
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Tamara Oldaker

Sample ID: DRAW SOUTH 14" (H900609-01)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	960	16.0	02/19/2019	ND	432	108	400	0.00	

Sample ID: NORTH EAST CORNER 16" (H900609-02)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5520	16.0	02/19/2019	ND	432	108	400	0.00	

Sample ID: SOUTH EAST CORNER 16" (H900609-03)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3040	16.0	02/19/2019	ND	432	108	400	0.00	

Sample ID: DRAW SOUTHEAST 16" (H900609-04)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5280	16.0	02/19/2019	ND	432	108	400	0.00	

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 BUCKEYE DISPOSAL, LLC
 JIM SAYRE
 P. O. BOX 513
 HOBBS NM, 88241
 Fax To: UNK-NOWN

 Received: 02/15/2019
 Reported: 02/19/2019
 Project Name: BUCKEYE
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 02/14/2019
 Sampling Type: Soil
 Sampling Condition: ** (See Notes)
 Sample Received By: Tamara Oldaker

Sample ID: DRAW SOUTH WEST 18" (H900609-05)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3040	16.0	02/19/2019	ND	432	108	400	0.00		

Sample ID: NORTH WEST CORNER 36" (H900609-06)

Chloride, SM4500CI-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1680	16.0	02/19/2019	ND	432	108	400	0.00	

Sample ID: NORTH WEST LINER 36" (H900609-07)

Chloride, SM4500CI-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1160	16.0	02/19/2019	ND	432	108	400	0.00	

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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 SM4500Cl-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

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Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: <u>Buckeye Disposal</u>				BILL TO				ANALYSIS REQUEST																			
Project Manager: <u>JIM SAYRE</u>				P.O. #:																							
Address: <u>PO Box 513</u>				Company:																							
City: <u>Hobbs</u> State: <u>NM</u> Zip: <u>88240</u>				Attn:																							
Phone #: <u>575-361-5072</u> Fax #: <u>575-393-8352</u>				Address:																							
Project #: _____ Project Owner: _____				City:																							
Project Name: _____				State: _____ Zip: _____																							
Project Location: <u>Buckeye</u>				Phone #:																							
Sampler Name: <u>JIM SAYRE</u>				Fax #:																							
FOR LAB USE ONLY				MATRIX		PRESERV.		SAMPLING																			
Lab I.D.	Sample I.D.	GRAB OR (COMP.)	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME													
<u>H900609</u>																											
	<u>1 Draw South 14"</u>	<u>G</u>	<u>1</u>			☒							<u>2-14-19</u>	<u>17:30</u>	☒												
	<u>2 North East Corner 16"</u>																										
	<u>3 South East Corner 16"</u>																										
	<u>4 Draw South East 16"</u>																										
	<u>5 Draw South West 18"</u>																										
	<u>6 North West Corner 36"</u>																										
	<u>7 North West Liner 36"</u>																										

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Relinquished By: <u>J.D. Sayre</u>		Date: <u>2-15-19</u>	Received By: <u>Imara Oldat</u>		Phone Result: ☐ Yes ☐ No	Add'l Phone #:
		Time: <u>0805</u>			Fax Result: ☐ Yes ☐ No	Add'l Fax #:
Relinquished By:		Date:	Received By:		REMARKS:	
		Time:				
Delivered By: (Circle One) Sampler - UPS - Bus - Other:			Sample Condition Cool Intact ☐ Yes ☐ No	CHECKED BY: (Initials) <u>JS</u>	<u>JIM@thestandardenergy.com</u>	
<u>19.3c #97</u>						