NM1 - ___3_____

4th Quarter 2019 Progress Report Milestone 3

Dec. 27, 2019

GORDON ENVIRONMENTAL PSC
333 Rio Rancho Blvd. NE, Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

December 27, 2019

Mr. Jim Griswold, Bureau Chief
Environmental Bureau
Oil Conservation Division
New Mexico Department of Energy,
Minerals and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

EMAIL: Jim.Griswold@state.nm.us

Reference: Fourth Quarter 2019 Progress Report
Sundance Services, Inc. Facility Closure

Dear Mr. Griswold:
Sundance Services continues their efforts to close the legacy facility represented by Sundance Services, Inc. (SSI). Gordon Environmental/PSC, on behalf of SSI, has compiled the following information related to closure efforts that have been accomplished in 2019.

The status of the conditions that modified permit NM1-3 and the approved closure plan are as follows:

Condition #1 Begin Closure by 12/31/2017:
- Complete.

Condition #2 Critical Path Schedule:
- Undertaken and updated here in this report.
- Sundance has completed efforts related to Milestone #3 (Item 7.c), closure of the two Jet-out Facilities.
- Sundance has initiated efforts related to Milestone #4 (Item 7.d), the draining of all process liquids and decommissioning of facility Ponds 5 and 6 removing over 400,000 barrels of liquid in the past year.
- Sundance has initiated efforts related to Milestone #5 (Item 7.e), the grading of the East Landfill Slopes completing the east and top slopes to the design grades.

Condition #3 Closure Completed by 12/31/2022:
- Underway and on schedule.

Condition #4 Identify each sump location:
- Completed for Produced Water Tanks.
- Completed for Jet-Out Facilities.

Condition #5 Abandonment of existing wells and the installation of the new vadose zone monitoring (VZM) wells:
- The installation of the new VZM wells was completed in 2017.
- The piezometer abandonment was completed in 2018.

Condition #6 Quarterly Monitoring events for the vadose zone monitoring wells:
- Based on your direction in our April 2018 meeting, we have discontinued Quarterly sampling.
- Efforts continued to dewater the saturated thickness south of the ponds.

GORDON ENVIRONMENTAL PSC

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- The piezometer abandonment was completed in 2018.

Condition #6 Quarterly Monitoring events for the vadose zone monitoring wells:
- Based on your direction in our April 2018 meeting, we have discontinued Quarterly sampling.
- Efforts continued to dewater the saturated thickness south of the ponds.

- The "Cut-Off" trench that was installed in an effort to minimize recharge from the ponds to this saturated zone has continued to capture liquids. The liquids entering this trench continue to be removed to limit additional liquids entering the zone of saturation south of the ponds. This liquids removal effort has decreased, removing approximately 100 barrels per week due to the limited discharge present into the trench.

Condition #7 Milestones:

a) Milestone #1-COMPLETE.
b) Milestone #2-COMPLETE.
c) Milestone #3-COMPLETE. The removal of all jet-out pits was accomplished on December 27, 2019. Replacement facilities were designed and constructed at Sundance Services West, Inc. (SSWI) that replaced the jet-out functions previously provided by the SSI facilities. The SSWI facilities became operational on December 15th and SSI completed the transition of operations by December 27th. **Attachment A** includes the Closure Report (West Jet-Out Pit) and photos of the closed East Jet-Out Pit (entombed in place within the landfill) for this Milestone.
d) Milestone #4-Draining of all process liquids and decommissioning of facility Ponds 5 and 6 on or before December 31, 2020.
    - SSI initiated the transfer of liquids from Pond 5 in 2018. Liquid levels have been reduced with the removal of up to 4,000 barrels per day during the last quarter of this year.
    - This effort is continuing with the transfer of liquids from both Ponds 5 & 6 to the evaporation ponds at SSWI.
    - With the elimination of drilling mud disposal at SSI, the introduction of additional liquids decanted from the drilling muds is diminishing.
e) Milestone #5-East Landfill Slopes must be at final grades on or before December 31, 2021.
    - SSI has completed earthmoving efforts with the relocation of over 440,000 cubic yards of material from the east side of the landfill and placed to final grades along the south fill boundary.
    - With the approval of the revised Final Grading Plan that provides enough capacity to contain the current volume of material that must be relocated, SSI proceeded with fill along the south landfill boundary establishing final cover subgrade elevations on these slopes.
    - In conformance with the conditions provided with the Final Grading Plan approval, SSI provides the following:
        1) Sundance Services, Inc. confirms that the previously agreed schedule for closure has not changed,
        2) SSI has included with this report an updated estimate of closure/post closure costs (**Attachment B**) that does not require an adjustment in financial assurance given the closure progress that has been accomplished to date.
        3) SSI continues to consult with the OCD on closure progress as evidenced by this report.
f) Milestone #6- Ponds 2, 3, and 9 must be stabilized, all materials removed, the pond area appropriately remediated, and all remaining landfill slopes must be at final grades on or before December 31, 2022.
    - SSI continued efforts to stabilize and remove materials from Ponds 2 and 3 for permanent disposal in the landfill closure area.

We appreciate your review of this Fourth Quarter 2019 Progress Report for the Sundance Services, Inc. Facility Closure. Please let us know if you have any questions about this information.

Sincerely,
GORDON ENVIRONMENTAL/PSC

Charles W. Fiedler, P.E., LEED, AP
Principal

cc: Arif Mussani, Sundance Services, Inc.
Hon. Andrew L. Wambsganss, Esq.

Attachments: A-Jet-Out Closure Report and Photos
B- Estimate of Closure/Post Closure Costs

Fourth Quarter 2019 Progress Report
Sundance Services, Inc. Facility Closure

Attachment A
Jet-Out Closure Report and Photos

Jet-Out Closure Report

Jet Out Pit Facility Closure

Sundance Services Inc.
NMOCD Surface Waste Management
Facility Permit No.: NM-01-003

Lea County, New Mexico

Submitted To:

New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division
Environmental Bureau
1220 South St Francis Drive
Santa Fe, NM 87505

Prepared For:

Sundance Services Inc.
1001 6th Street
Eunice, NM 88260

Prepared By:

Gordon Environmental/PSC
213 S. Camino del Pueblo
Bernalillo, NM 87004
505.867.6990

December 2019

Gordon/PSC Project #: 01011617

Sundance Services Inc.
Jet Out Pit Closure
Lea County, New Mexico

December 2019

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1.0 INTRODUCTION

This document contains a summary of closure actions on the Jet Out Pit (JOP) at the Sundance Services oilfield waste management facility (NMOCD Surface Waste Management Facility No. NM-01-003) in Lea County, NM. The JOP is one of several areas identified for corrective actions in the Sundance Services Closure Post Closure Plan (CPC Plan), submitted to the New Mexico Oil Conservation Division on September 29, 2016. Provisions for demolition and removal of infrastructure, excavation and removal of impacted media, and backfilling with clean soil at the JOP were set forth in Section 2.8 of the CPC Plan. The location of the JOP is shown on the site map in the CPC Plan (CPC Plan, Figure 3).

A below-grade concrete jet out pit and related infrastructure that were used to clean out oilfield waste transport trucks was formerly located at the facility. Pursuant to corrective action scoping, soil boring, sampling and analyses were performed at the facility on September 4, 2019. The JOP and related infrastructure were removed and the site was excavated on December 17, 2019. Soil samples were collected from the base of the excavation on December 18, 2019 and submitted for testing. Backfilling with clean fill was completed December 20, 2019. This submittal contains documentation of the site characterization efforts, as well as the excavation, confirmatory sampling and analysis and backfill operations for facility.

2.0 SOIL BORING SITE CHARACTERIZATION

Prior to removing the JOP and associated infrastructure, Hollow-Stem Auger (HSA) boring was used to drill through impacted media and to collect core samples for testing. The site boring was completed September 4, 2019. Eight soil borings were generally advanced into Dockum Group redbeds and samples of the redbeds were collected submitted for laboratory analysis. Each of the HSA cores was inspected for visual and olfactory evidence of crude oil or brine impact. Copies of soil boring logs are included with this submittal as **Appendix A**. Depth-referenced soil samples were collected from the borings and submitted for laboratory analysis. Locations of the site characterization borings are shown on the map in **Figure 1**.

The soil samples were delivered to Cardinal Laboratory in Hobbs for analysis of parameters set forth in NMOCD Release Remediation Criteria, 19.15.29.12, Table 1 NMAC, 7/24/2018. Boring soil samples were analyzed for Total Petroleum Hydrocarbons (Gasoline Range Organics, Diesel Range Organics and Motor Oil Range Organics) using EPA Methods 8015M, for, for Volatile Organic Contaminants (Benzene, Toluene, Ethylbenzene and Xylenes) using EPA Method 8021B and for Chlorides using Method SM-4500-Cl. Results of the sample analyses indicated that the samples were taken from beneath impacted media. A copy of the laboratory report for the site characterization boring samples is included as **Appendix B**. A summary of analytical testing results of the site characterization boring samples is presented in **Table 1**.

3.0 SITE EXCAVATION

JOP demolition and site excavation were completed on December 16, 2018. Concrete floor, walls and infrastructure were demolished and removed prior to site excavation. The excavation was advanced laterally approximately 10 feet beyond the margins of the jet out pit and vertically through 3-5 feet of overburden and an additional 4-5 feet into redbeds throughout the excavated area. Approximate geometry of the final excavation was determined using a handheld GPS receiver and was noted.

Upon completion of the excavation, 5 base grade confirmation soil samples were collected near the corners and in the approximate center of the excavation. Approximate locations of the base grade samples were determined with a handheld GPS receiver and noted. The soil samples were transmitted to Cardinal Laboratory in Hobbs for analysis of constituents set forth in NMOCD Release Remediation Criteria, 19.15.29.12, Table 1 NMAC, 7/24/2018, including:

- EPA Method 8015M for Total Petroleum Hydrocarbons (Gasoline Range Organics, Diesel Range Organics and Motor Oil Range Organics);
- EPA Method 8021B for Volatile Organic Compounds (Benzene, Toluene, Ethylbenzene and Xylenes);
- and SM-4500-CL for chlorides.

Excavation and base grade sample geometry data were used to prepare a map showing the lateral extent of the excavation and base grade sample locations as presented on the map in **Figure 2**. Photos of the excavation are included in **Appendix D.**

4.0 CONFIRMATION SAMPLE ANALYTICAL RESULTS

Base grade confirmation sample analytical results are summarized in **Table 1**. Hydrocarbon constituent and chloride concentrations were compared to maximum contaminant levels set forth in NMOCE Site Closure Criteria (19.15.29.12 NMAC Table 1, Groundwater Depth >100 feet).

Analytical results indicate that no Volatile Organic Compounds were detected in any of the site boring or base grade confirmation samples. Benzene, the most toxic and restrictive standard, was not detected in any sample. Total BTEX was also not detected. Total Petroleum Hydrocarbons (TPH), as the sum of Gasoline Range Organics, Diesel Range Organics and Motor Oil Range Organics (GRO+DRO+MRO), as well as the sum of (GRO+DRO) were not detected in any sample. Chlorides were detected in all boring and base grade samples, however none of the samples were found to contain chlorides in concentrations approaching the NMOCD standard.

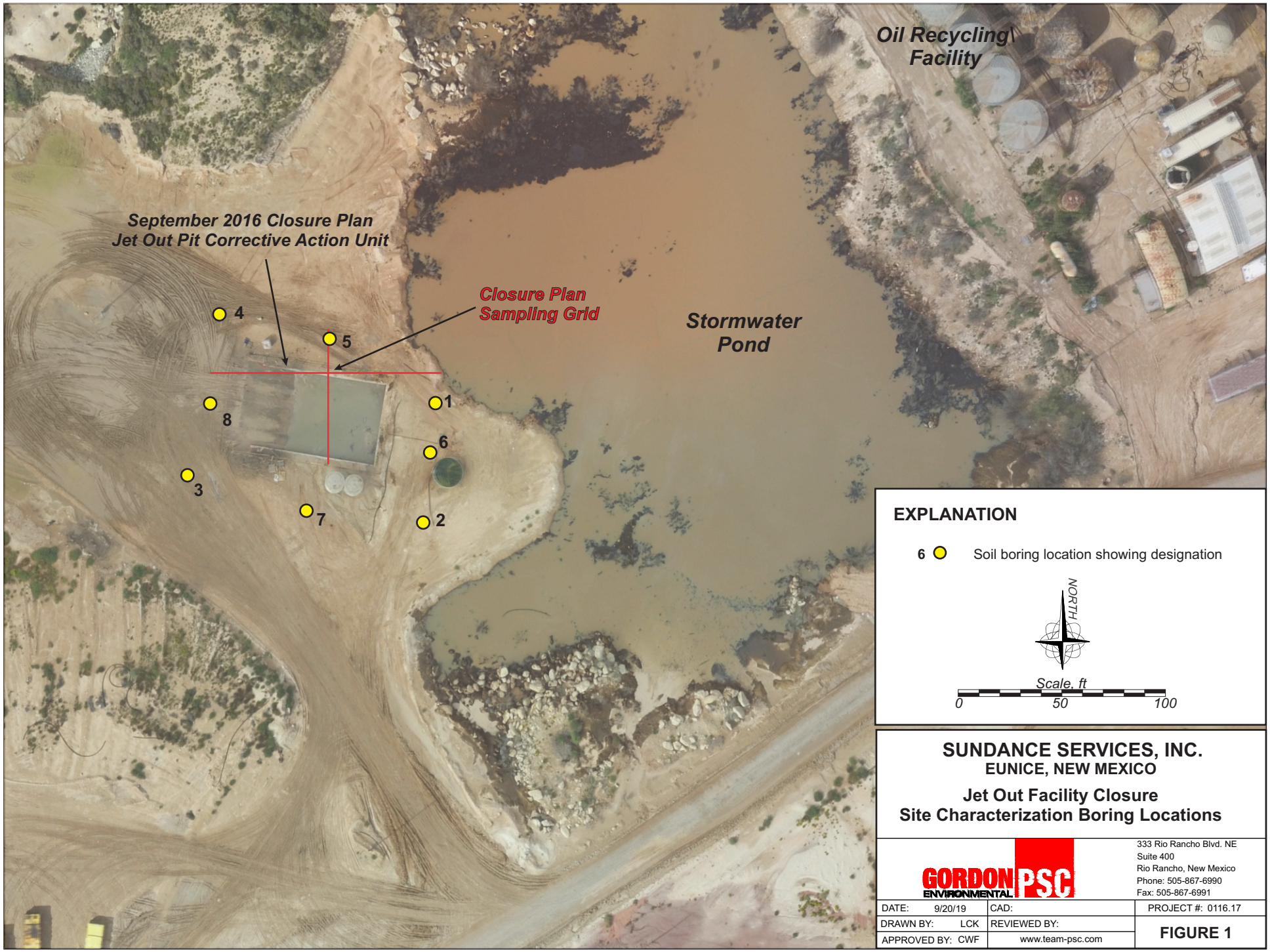
5.0 SITE RESTORATION

After receiving and reviewing the analytical results of the base grade confirmation sample analyses, it was determined that action level media had been successfully removed from the site. The excavation was backfilled with clean soil on December 20, 2019. Photos of the JOP site restoration are included in **Appendix D**

6.0 CONCLUSIONS

All of the concrete, related infrastructure and impacted surficial soils have been removed from the JOP facility site. Excavation confirmation soil sample results indicate that action level soil has been successfully removed from the site. The site has been backfilled to surrounding grade with clean backfill soil. Based upon these actions and supporting data, we conclude that corrective action commitments for the JOP facility set forth in the September 29, 2016 Closure Post Closure Plan have been met.

FIGURES

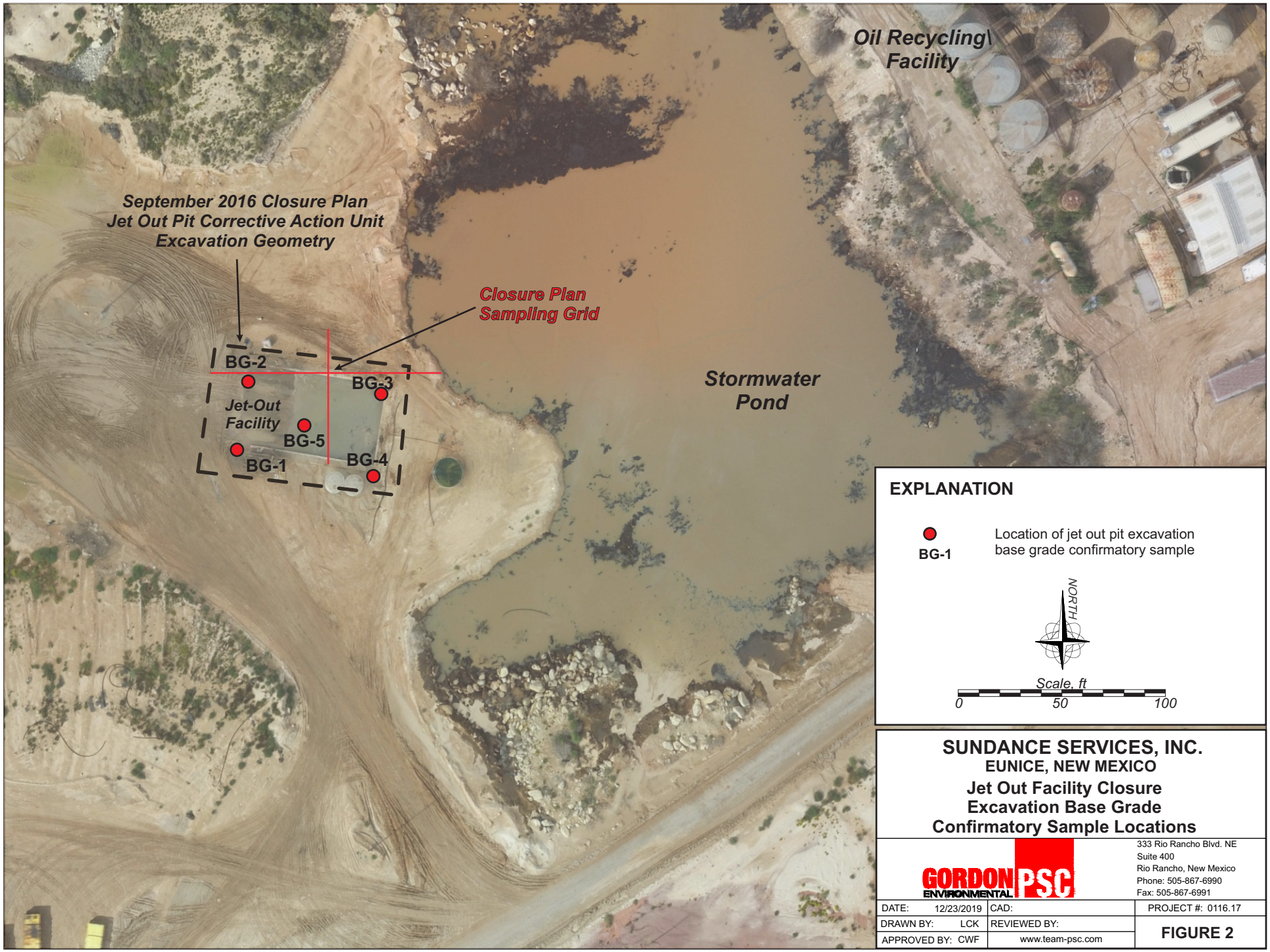


SUNDANCE SERVICES, INC.
EUNICE, NEW MEXICO

Jet Out Facility Closure
Site Characterization Boring Locations

GORDON PSC ENVIRONMENTAL
333 Rio Rancho Blvd. NE
Suite 400
Rio Rancho, New Mexico
Phone: 505-867-6990
Fax: 505-867-6991

DATE: 9/20/19	CAD:	PROJECT #: 0116.17
DRAWN BY: LCK	REVIEWED BY:	**FIGURE 1**
APPROVED BY: CWF	www.team-psc.com	



SUNDANCE SERVICES, INC.
EUNICE, NEW MEXICO
Jet Out Facility Closure
Excavation Base Grade
Confirmatory Sample Locations

GORDON PSC ENVIRONMENTAL
333 Rio Rancho Blvd. NE
Suite 400
Rio Rancho, New Mexico
Phone: 505-867-6990
Fax: 505-867-6991

DATE: 12/23/2019	CAD:	PROJECT #: 0116.17
DRAWN BY: LCK	REVIEWED BY:	**FIGURE 2**
APPROVED BY: CWF	www.team-psc.com	

TABLE

Table 1.--Sundance Jet Out Pit Soil Sample Test Data

Sample Designation	Date	Depth Below Grade (ft)	VOCs - EPA 8021B					TPH - EPA 8015M					SM 4500
			Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	GRO	DRO	MRO	TPH	GRO+DRO	Chlorides
NMOCD Remediation Criteria, Table 1			**10**				**50**				**2,500**	**1,000**	**20,000**
Site Characterization Borings 1-8													
Boring 1	9/4/2019	10.0	<0.05	<0.05	<0.05	<0.150	<0.30	<10.0	<10.0	<10.0	<30.0	<20.0	2680
Boring 2	9/4/2019	10.0	<0.05	<0.05	<0.05	<0.150	<0.30	<10.0	<10.0	<10.0	<30.0	<20.0	1220
Boring 3	9/4/2019	15.0	<0.05	<0.05	<0.05	<0.150	<0.30	<10.0	<10.0	<10.0	<30.0	<20.0	10000
Boring 3	9/4/2019	25.0	<0.05	<0.05	<0.05	<0.150	<0.30	<10.0	<10.0	<10.0	<30.0	<20.0	2280
Boring 4	9/4/2019	10.0	<0.05	<0.05	<0.05	<0.150	<0.30	<10.0	<10.0	<10.0	<30.0	<20.0	1740
Boring 5	9/4/2019	10.0	<0.05	<0.05	<0.05	<0.150	<0.30	<10.0	<10.0	<10.0	<30.0	<20.0	2000
Boring 6	9/4/2019	10.0	<0.05	<0.05	<0.05	<0.150	<0.30	<10.0	<10.0	<10.0	<30.0	<20.0	544
Boring 7	9/4/2019	10.0	<0.05	<0.05	<0.05	<0.150	<0.30	<10.0	<10.0	<10.0	<30.0	<20.0	6000
Boring 8	9/4/2019	10.0	<0.05	<0.05	<0.05	<0.150	<0.30	<10.0	<10.0	<10.0	<30.0	<20.0	448
Excavation Base Grade Samples 1-5													
Base Grade 1	12/18/2019	7	<0.05	<0.05	<0.05	<0.150	<0.30	<10.0	<10.0	<10.0	<30.0	<20.0	1800
Base Grade 2	12/18/2019	10	<0.05	<0.05	<0.05	<0.150	<0.30	<10.0	<10.0	<10.0	<30.0	<20.0	1840
Base Grade 3	12/18/2019	8	<0.05	<0.05	<0.05	<0.150	<0.30	<10.0	<10.0	<10.0	<30.0	<20.0	1300
Base Grade 4	12/18/2019	7	<0.05	<0.05	<0.05	<0.150	<0.30	<10.0	<10.0	<10.0	<30.0	<20.0	1040
Base Grade 5	12/18/2019	8	<0.05	<0.05	<0.05	<0.150	<0.30	<10.0	<10.0	<10.0	<30.0	<20.0	544

**All units in milligrams per kilogram*

APPENDIX A

BORING LOGS, JET OUT PIT FACILITY

SITE CHARACTERIZATON

GORDON ENVIRONMENTAL PSC
333 Rio Rancho Blvd.
Rio Rancho, NM 87124
505.867.6990

Environmental Soil Boring Log **Boring-1**

SITE NAME AND LOCATION: **Sundance Services**	DRILLING METHOD: **Hollow-Stem Auger**	BORING NO. **1**
	SAMPLING METHOD:	SHEET
NORTHING: **32°26'56.10"N**		DRILLING START / FINISH
EASTING: **103° 5'4.56"W**	WATER LEVEL	
DATUM: amsl	TIME	
ELEVATION:	DATE	DATE / DATE
	CASING DEPTH	
DRILL RIG:	SURFACE CONDITIONS:	
ANGLE: 90 BEARING: -		

DEPTH IN FEET (ELEVATION)	Sample Interval	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL (i.e., angularity, moisture, HCL reaction, cementation, max. particle size, gravel/cobble hardness, odor, interbeds, lam.)	% OVERSIZE[1]	% GRAVEL[2]	% SAND[2]	% FINES[2]	COLOR	CONSISTENCY / CEMENTATION	PLASTICITY (np, l, m, h)	OTHER TESTS
0		1' **Loose sand/soil fill mostly sand.**								
2										
4		5' **Heavy staining sand/caliche mix.**								
		6' **Sand loose; light staining.**								
6										
8										
10	10'	10' **Heavy red clay; Sample 13:08**								
12										
14										
16										
18										
20										
22										
24										

DRILLING CONTRACTOR: **Talon Drilling**

LOGGED BY: **D.Gray**

DATE: **9/4/19**

JOB NO. **116.17**

FILE NAME: **Jet-out Pit**

GORDON ENVIRONMENTAL PSC
333 Rio Rancho Blvd.
Rio Rancho, NM 87124
505.867.6990

Environmental Soil Boring Log **Boring-2**

SITE NAME AND LOCATION: **Sundance Services**

NORTHING: **32°26'55.51"N**
EASTING: **103° 5'4.56"W**
DATUM: amsl
ELEVATION:

DRILLING METHOD: **Hollow-Stem Auger**

SAMPLING METHOD:

BORING NO. **2**

SHEET

								DRILLING START	DRILLING FINISH
WATER LEVEL									
TIME									
DATE								DATE	DATE
CASING DEPTH									

DRILL RIG:
ANGLE: 90 BEARING: -

SURFACE CONDITIONS:

DEPTH IN FEET (ELEVATION)	Sample Interval	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL (i.e., angularity, moisture, HCL reaction, cementation, max. particle size, gravel/cobble hardness, odor, interbeds, lam.)	% OVERSIZE[1]	% GRAVEL[2]	% SAND[2]	% FINES[2]	COLOR	CONSISTENCY/ CEMENTATION	PLASTICITY (np, l, m, h)	OTHER TESTS
--- --- --- --- ----2 --- --- --- --- ----4 --- --- --- --- ----6 --- --- --- --- ----8 --- --- --- --- ----10 --- --- --- --- ----12 --- --- --- --- ----14 --- --- --- --- ----16 --- --- --- --- ----18 --- --- --- --- ----20 --- --- --- --- ----22 --- --- --- --- ----24	10'	**4'** **Caliche, white, sand clay mix.** **5'** **Soil mix w/black contamination, odor.** **6'-8'** **Clay/sand mix.** **9'-10'** **Heavy red clay; Sample 12:12.**								

DRILLING CONTRACTOR: **Talon Drilling**

LOGGED BY: **D.Gray**

DATE: **9/4/19**

JOB NO. **116.17**

FILE NAME: **Jet-out Pit**

GORDON ENVIRONMENTAL PSC
333 Rio Rancho Blvd.
Rio Rancho, NM 87124
505.867.6990

Environmental Soil Boring Log **Boring-3**

SITE NAME AND LOCATION: **Sundance Services**	DRILLING METHOD: **Hollow-Stem Auger**	BORING NO. **3**
	SAMPLING METHOD:	SHEET
NORTHING: **32°26'55.65"N**		DRILLING START / FINISH
EASTING: **103° 5'5.64"W**	WATER LEVEL	
DATUM: amsl	TIME	
ELEVATION:	DATE	DATE / DATE
	CASING DEPTH	
DRILL RIG:	SURFACE CONDITIONS:	
ANGLE: 90 BEARING: -		

DEPTH IN FEET (ELEVATION)	Sample Interval	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL (i.e., angularity, moisture, HCL reaction, cementation, max. particle size, gravel/cobble hardness, odor, interbeds, lam.)	% OVERSIZE[1]	% GRAVEL[2]	% SAND[2]	% FINES[2]	COLOR	CONSISTENCY / CEMENTATION	PLASTICITY (np, l, m, h)	OTHER TESTS
----2										
----4		**5'** **Caliche/sand fill odor and black staining @ Approx 4'.**								
----6										
----8										
		10' **Caliche fill no odor; Going deeper to verify.**								
----10		**11'-12'** **Wet saturated red clay.**								
----12										
		13' **Layers including brown blow sand.**								
----14		**14-15'** **Heavy sand/gravel pack.**								
	15'	**15-19'** **Loose gravel pack. Sample.**								
----16										
----18										
----20		**20'** **Tighter but still heavy gravel.**								
----22		**Loose gravel w/ clay mud; saturated.**								
----24										
----26		**25'** **Tight yellow/white sand; Sample.**								

DRILLING CONTRACTOR: **Talon Drilling**

LOGGED BY: **D.Gray**

DATE: **9/4/19**

JOB NO. **116.17**

FILE NAME: **Jet-out Pit**

GORDON ENVIRONMENTAL PSC
333 Rio Rancho Blvd.
Rio Rancho, NM 87124
505.867.6990

Environmental Soil Boring Log **Boring-4**

SITE NAME AND LOCATION: **Sundance Services**	DRILLING METHOD: **Hollow-Stem Auger**	BORING NO. **4**
	SAMPLING METHOD:	SHEET
NORTHING: **32°26'56.23"N**		DRILLING START / FINISH
EASTING: **103° 5'5.64"W**	WATER LEVEL	
DATUM: amsl	TIME	
ELEVATION:	DATE	DATE / DATE
	CASING DEPTH	
DRILL RIG:	SURFACE CONDITIONS:	
ANGLE: 90 BEARING: -		

DEPTH IN FEET (ELEVATION)	Sample Interval	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL (i.e., angularity, moisture, HCL reaction, cementation, max. particle size, gravel/cobble hardness, odor, interbeds, lam.)	% OVERSIZE[1]	% GRAVEL[2]	% SAND[2]	% FINES[2]	COLOR	CONSISTENCY / CEMENTATION	PLASTICITY (np, l, m, h)	OTHER TESTS
----2		**Caliche sand fill.**								
----4		**5'** **Hard caliche fill; Spot Staining.**								
----6		**6'** **Fill sand/caliche w/ rock.**								
		7' **Sand Layer.**								
----8		**8'-9'** **Caliche fines.**								
----10	**10'**	**10'** **Heavy red caliche; Sample 15:04.**								
----12										
----14										
----16										
----18										
----20										
----22										
----24										

DRILLING CONTRACTOR: **Talon Drilling**

LOGGED BY: **D.Gray**

DATE: **9/4/19**

JOB NO. **116.17**

FILE NAME: **Jet-out Pit**

GORDON ENVIRONMENTAL PSC
333 Rio Rancho Blvd.
Rio Rancho, NM 87124
505.867.6990

Environmental Soil Boring Log **Boring-5**

SITE NAME AND LOCATION: **Sundance Services**

NORTHING: **32°26'56.29"N**
EASTING: **103° 5'4.92"W**
DATUM: amsl
ELEVATION:

DRILLING METHOD: **Hollow-Stem Auger**
SAMPLING METHOD:

BORING NO. **5**
SHEET

								DRILLING START	DRILLING FINISH
WATER LEVEL									
TIME									
DATE								DATE	DATE
CASING DEPTH									

DRILL RIG:
ANGLE: 90 BEARING: -

SURFACE CONDITIONS:

DEPTH IN FEET (ELEVATION)	Sample Interval	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL (i.e., angularity, moisture, HCL reaction, cementation, max. particle size, gravel/cobble hardness, odor, interbeds, lam.)	% OVERSIZE[1]	% GRAVEL[2]	% SAND[2]	% FINES[2]	COLOR	CONSISTENCY/ CEMENTATION	PLASTICITY (np, l, m, h)	OTHER TESTS
--- --- --- --- ----2 --- --- --- --- ----4 --- --- --- --- ----6 --- --- --- --- ----8 --- --- --- --- ----10 --- --- --- --- ----12 --- --- --- --- ----14 --- --- --- --- ----16 --- --- --- --- ----18 --- --- --- --- ----20 --- --- --- --- ----22 --- --- --- --- ----24	10'	**Sand/caliche mix.** **5' Heavy black staining of fill soils.** **6' Stain fill.** **8' Clean-ish fill.** **10' Heavy red clay; Sample 14:34.** *** Most all holes were wet @ approx 5-8'**								

DRILLING CONTRACTOR: **Talon Drilling**
LOGGED BY: **D.Gray**
DATE: **9/4/19**
JOB NO. **116.17**
FILE NAME: **Jet-out Pit**

GORDON ENVIRONMENTAL PSC
333 Rio Rancho Blvd.
Rio Rancho, NM 87124
505.867.6990

Environmental Soil Boring Log **Boring-6**

SITE NAME AND LOCATION: **Sundance Services**	DRILLING METHOD: **Hollow-Stem Auger**	BORING NO. **6**
	SAMPLING METHOD:	SHEET
NORTHING: **32°26'55.79"N**		DRILLING START / FINISH
EASTING: **103° 5'4.56"W**	WATER LEVEL	
DATUM: amsl	TIME	
ELEVATION:	DATE	DATE / DATE
	CASING DEPTH	
DRILL RIG:	SURFACE CONDITIONS:	
ANGLE: 90 BEARING: -		

DEPTH IN FEET (ELEVATION)	Sample Interval	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL (i.e., angularity, moisture, HCL reaction, cementation, max. particle size, gravel/cobble hardness, odor, interbeds, lam.)	% OVERSIZE[1]	% GRAVEL[2]	% SAND[2]	% FINES[2]	COLOR	CONSISTENCY / CEMENTATION	PLASTICITY (np, l, m, h)	OTHER TESTS
0		1' **Sand caliche mix.**								
2		4.5' **Heavy black staining.**								
4		5' **Brown sand; no staining.**								
6		6' **Heavy red clay.**								
8										
10	10'	10' **Heavy red clay; Sample 12:38.**								
12										
14										
16										
18										
20										
22										
24										

DRILLING CONTRACTOR: **Talon Drilling**

LOGGED BY: **D.Gray**

DATE: **9/4/19**

JOB NO. **116.17**

FILE NAME: **Jet-out Pit**

GORDON ENVIRONMENTAL PSC
333 Rio Rancho Blvd.
Rio Rancho, NM 87124
505.867.6990

Environmental Soil Boring Log **Boring-7**

SITE NAME AND LOCATION: **Sundance Services**	DRILLING METHOD: **Hollow-Stem Auger**	BORING NO. **7**
	SAMPLING METHOD:	SHEET
NORTHING: **32°26'55.47"N**		DRILLING START / FINISH
EASTING: **103° 5'5.28"W**	WATER LEVEL / TIME / DATE / CASING DEPTH	
DATUM: amsl		
ELEVATION:		DATE / DATE
DRILL RIG:	SURFACE CONDITIONS:	
ANGLE: 90 BEARING: -		

DEPTH IN FEET (ELEVATION)	Sample Interval	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL (i.e., angularity, moisture, HCL reaction, cementation, max. particle size, gravel/cobble hardness, odor, interbeds, lam.)	% OVERSIZE[1]	% GRAVEL[2]	% SAND[2]	% FINES[2]	COLOR	CONSISTENCY/ CEMENTATION	PLASTICITY (np, l, m, h)	OTHER TESTS
0										
2		**2' Cutting black. Sand (brown)/caliche (white) mix.**								
4		**4.5' Heavy black staining.**								
		5' stained red clay mix/sand.								
6										
8										
10	**10'**	**9-10' Heavy hard red clay; Sample.**								
12										
14										
16										
18										
20										
22										
24										

DRILLING CONTRACTOR: **Talon Drilling**

LOGGED BY: **D.Gray**

DATE: **9/4/19**

JOB NO. **116.17**

FILE NAME: **Jet-out Pit**

GORDON ENVIRONMENTAL PSC
333 Rio Rancho Blvd.
Rio Rancho, NM 87124
505.867.6990

Environmental Soil Boring Log **Boring-8**

SITE NAME AND LOCATION: **Sundance Services**	DRILLING METHOD: **Hollow-Stem Auger**	BORING NO. **8**
	SAMPLING METHOD:	SHEET
NORTHING: **32°26'55.96"N**		DRILLING START / FINISH
EASTING: **103° 5'5.64"W**	WATER LEVEL	
DATUM: amsl	TIME	
ELEVATION:	DATE	DATE / DATE
	CASING DEPTH	
DRILL RIG:	SURFACE CONDITIONS:	
ANGLE: 90 BEARING: -		

DEPTH IN FEET (ELEVATION)	Sample Interval	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL (i.e., angularity, moisture, HCL reaction, cementation, max. particle size, gravel/cobble hardness, odor, interbeds, lam.)	% OVERSIZE[1]	% GRAVEL[2]	% SAND[2]	% FINES[2]	COLOR	CONSISTENCY/ CEMENTATION	PLASTICITY (np, l, m, h)	OTHER TESTS
----2										
----4		**5'** **Caliche/sand fill only 6".**								
----6										
----8										
----10	**10'**	**10'** **Started to hit red clay looks like black on top; still sand/caliche in sample.**								
----12		**11-12'** **Cutting red clay/sand mix; still smell oil.**								
----14		**13-15'** **Hard red clay; no odor.**								
----16										
----18										
----20										
----22										
----24										

DRILLING CONTRACTOR: **Talon Drilling**

LOGGED BY: **D.Gray**

DATE: **9/4/19**

JOB NO. **116.17**

FILE NAME: **Jet-out Pit**

APPENDIX B

LABORATORY ANALYTICAL REPORT

JET OUT PIT FACILITY

SITE CHARACTERIZATION BORING SAMPLES

CARDINAL Laboratories

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

September 09, 2019

CHARLES FIEDLER

GORDON ENVIROMENTAL - PCS

333 RIO RANCHO BLVD NE, STE 400

RIO RANCHO, NM 87124

RE: SUNDANCE SERVICES JET OUT PIT INVESTIGATION

Enclosed are the results of analyses for samples received by the laboratory on 09/04/19 16:00.

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 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 (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,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

GORDON ENVIROMENTAL - PCS
CHARLES FIEDLER
333 RIO RANCHO BLVD NE, STE 400
RIO RANCHO NM, 87124
Fax To:

Received:	09/04/2019	Sampling Date:	09/04/2019
Reported:	09/09/2019	Sampling Type:	Soil
Project Name:	SUNDANCE SERVICES JET OUT PIT INVE	Sampling Condition:	Cool & Intact
Project Number:	0116.17	Sample Received By:	Tamara Oldaker
Project Location:	SUNDANCE SERVICES - EUNICE NM		

Sample ID: BORING 1 ; DEPTH 10' (H903063-01)

BTEX 8021B mg/kg Analyzed By: BF

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/05/2019	ND	2.03	102	2.00	1.92	
Toluene*	<0.050	0.050	09/05/2019	ND	2.06	103	2.00	3.54	
Ethylbenzene*	<0.050	0.050	09/05/2019	ND	2.08	104	2.00	2.30	
Total Xylenes*	<0.150	0.150	09/05/2019	ND	6.35	106	6.00	1.85	
Total BTEX	<0.300	0.300	09/05/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *86.9 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2680**	16.0	09/06/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/05/2019	ND	198	99.0	200	1.22	
DRO >C10-C28*	<10.0	10.0	09/05/2019	ND	204	102	200	3.97	
EXT DRO >C28-C36	<10.0	10.0	09/05/2019	ND					

Surrogate: 1-Chlorooctane *75.4 %* *41-142*

Surrogate: 1-Chlorooctadecane *79.0 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

GORDON ENVIROMENTAL - PCS
CHARLES FIEDLER
333 RIO RANCHO BLVD NE, STE 400
RIO RANCHO NM, 87124
Fax To:

Received:	09/04/2019	Sampling Date:	09/04/2019
Reported:	09/09/2019	Sampling Type:	Soil
Project Name:	SUNDANCE SERVICES JET OUT PIT INVE	Sampling Condition:	Cool & Intact
Project Number:	0116.17	Sample Received By:	Tamara Oldaker
Project Location:	SUNDANCE SERVICES - EUNICE NM		

Sample ID: BORING 2 ; DEPTH 10' (H903063-02)

BTEX 8021B mg/kg Analyzed By: BF

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/05/2019	ND	2.03	102	2.00	1.92	
Toluene*	<0.050	0.050	09/05/2019	ND	2.06	103	2.00	3.54	
Ethylbenzene*	<0.050	0.050	09/05/2019	ND	2.08	104	2.00	2.30	
Total Xylenes*	<0.150	0.150	09/05/2019	ND	6.35	106	6.00	1.85	
Total BTEX	<0.300	0.300	09/05/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *88.3 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1220**	16.0	09/06/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/05/2019	ND	198	99.0	200	1.22	
DRO >C10-C28*	<10.0	10.0	09/05/2019	ND	204	102	200	3.97	
EXT DRO >C28-C36	<10.0	10.0	09/05/2019	ND					

Surrogate: 1-Chlorooctane *82.9 %* *41-142*

Surrogate: 1-Chlorooctadecane *86.6 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

GORDON ENVIROMENTAL - PCS
CHARLES FIEDLER
333 RIO RANCHO BLVD NE, STE 400
RIO RANCHO NM, 87124
Fax To:

Received:	09/04/2019	Sampling Date:	09/04/2019
Reported:	09/09/2019	Sampling Type:	Soil
Project Name:	SUNDANCE SERVICES JET OUT PIT INVE	Sampling Condition:	Cool & Intact
Project Number:	0116.17	Sample Received By:	Tamara Oldaker
Project Location:	SUNDANCE SERVICES - EUNICE NM		

Sample ID: BORING 3 ; DEPTH 15' (H903063-03)

BTEX 8021B mg/kg Analyzed By: BF

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	**0.050**	0.050	09/05/2019	ND	2.03	102	2.00	1.92	
Toluene*	<0.050	0.050	09/05/2019	ND	2.06	103	2.00	3.54	
Ethylbenzene*	<0.050	0.050	09/05/2019	ND	2.08	104	2.00	2.30	
Total Xylenes*	<0.150	0.150	09/05/2019	ND	6.35	106	6.00	1.85	
Total BTEX	<0.300	0.300	09/05/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *89.3 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**10000**	16.0	09/06/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/05/2019	ND	198	99.0	200	1.22	
DRO >C10-C28*	<10.0	10.0	09/05/2019	ND	204	102	200	3.97	
EXT DRO >C28-C36	<10.0	10.0	09/05/2019	ND					

Surrogate: 1-Chlorooctane *82.7 %* *41-142*

Surrogate: 1-Chlorooctadecane *84.9 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

GORDON ENVIROMENTAL - PCS
CHARLES FIEDLER
333 RIO RANCHO BLVD NE, STE 400
RIO RANCHO NM, 87124
Fax To:

Received:	09/04/2019	Sampling Date:	09/04/2019
Reported:	09/09/2019	Sampling Type:	Soil
Project Name:	SUNDANCE SERVICES JET OUT PIT INVE	Sampling Condition:	Cool & Intact
Project Number:	0116.17	Sample Received By:	Tamara Oldaker
Project Location:	SUNDANCE SERVICES - EUNICE NM		

Sample ID: BORING 4 ; DEPTH 10' (H903063-04)

BTEX 8021B mg/kg Analyzed By: BF

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/05/2019	ND	2.03	102	2.00	1.92	
Toluene*	<0.050	0.050	09/05/2019	ND	2.06	103	2.00	3.54	
Ethylbenzene*	<0.050	0.050	09/05/2019	ND	2.08	104	2.00	2.30	
Total Xylenes*	<0.150	0.150	09/05/2019	ND	6.35	106	6.00	1.85	
Total BTEX	<0.300	0.300	09/05/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *88.5 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1740**	16.0	09/06/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/05/2019	ND	198	99.0	200	1.22	
DRO >C10-C28*	<10.0	10.0	09/05/2019	ND	204	102	200	3.97	
EXT DRO >C28-C36	<10.0	10.0	09/05/2019	ND					

Surrogate: 1-Chlorooctane *80.2 %* *41-142*

Surrogate: 1-Chlorooctadecane *82.7 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

GORDON ENVIROMENTAL - PCS
CHARLES FIEDLER
333 RIO RANCHO BLVD NE, STE 400
RIO RANCHO NM, 87124
Fax To:

Received:	09/04/2019	Sampling Date:	09/04/2019
Reported:	09/09/2019	Sampling Type:	Soil
Project Name:	SUNDANCE SERVICES JET OUT PIT INVE	Sampling Condition:	Cool & Intact
Project Number:	0116.17	Sample Received By:	Tamara Oldaker
Project Location:	SUNDANCE SERVICES - EUNICE NM		

Sample ID: BORING 5 ; DEPTH 10' (H903063-05)

BTEX 8021B mg/kg Analyzed By: BF

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/05/2019	ND	2.03	102	2.00	1.92	
Toluene*	<0.050	0.050	09/05/2019	ND	2.06	103	2.00	3.54	
Ethylbenzene*	<0.050	0.050	09/05/2019	ND	2.08	104	2.00	2.30	
Total Xylenes*	<0.150	0.150	09/05/2019	ND	6.35	106	6.00	1.85	
Total BTEX	<0.300	0.300	09/05/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *87.4 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2000**	16.0	09/06/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/05/2019	ND	198	99.0	200	1.22	
DRO >C10-C28*	<10.0	10.0	09/05/2019	ND	204	102	200	3.97	
EXT DRO >C28-C36	<10.0	10.0	09/05/2019	ND					

Surrogate: 1-Chlorooctane *83.3 %* *41-142*

Surrogate: 1-Chlorooctadecane *86.4 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

GORDON ENVIROMENTAL - PCS
CHARLES FIEDLER
333 RIO RANCHO BLVD NE, STE 400
RIO RANCHO NM, 87124
Fax To:

Received:	09/04/2019	Sampling Date:	09/04/2019
Reported:	09/09/2019	Sampling Type:	Soil
Project Name:	SUNDANCE SERVICES JET OUT PIT INVE	Sampling Condition:	Cool & Intact
Project Number:	0116.17	Sample Received By:	Tamara Oldaker
Project Location:	SUNDANCE SERVICES - EUNICE NM		

Sample ID: BORING 6 ; DEPTH 10' (H903063-06)

BTEX 8021B mg/kg Analyzed By: BF

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/05/2019	ND	2.03	102	2.00	1.92	
Toluene*	<0.050	0.050	09/05/2019	ND	2.06	103	2.00	3.54	
Ethylbenzene*	<0.050	0.050	09/05/2019	ND	2.08	104	2.00	2.30	
Total Xylenes*	<0.150	0.150	09/05/2019	ND	6.35	106	6.00	1.85	
Total BTEX	<0.300	0.300	09/05/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *87.7 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**544**	16.0	09/06/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/05/2019	ND	198	99.0	200	1.22	
DRO >C10-C28*	<10.0	10.0	09/05/2019	ND	204	102	200	3.97	
EXT DRO >C28-C36	<10.0	10.0	09/05/2019	ND					

Surrogate: 1-Chlorooctane *80.8 %* *41-142*

Surrogate: 1-Chlorooctadecane *82.7 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

GORDON ENVIROMENTAL - PCS
CHARLES FIEDLER
333 RIO RANCHO BLVD NE, STE 400
RIO RANCHO NM, 87124
Fax To:

Received:	09/04/2019	Sampling Date:	09/04/2019
Reported:	09/09/2019	Sampling Type:	Soil
Project Name:	SUNDANCE SERVICES JET OUT PIT INVE	Sampling Condition:	Cool & Intact
Project Number:	0116.17	Sample Received By:	Tamara Oldaker
Project Location:	SUNDANCE SERVICES - EUNICE NM		

Sample ID: BORING 7 ; DEPTH 10' (H903063-07)

BTEX 8021B mg/kg Analyzed By: BF

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/05/2019	ND	2.03	102	2.00	1.92	
Toluene*	<0.050	0.050	09/05/2019	ND	2.06	103	2.00	3.54	
Ethylbenzene*	<0.050	0.050	09/05/2019	ND	2.08	104	2.00	2.30	
Total Xylenes*	<0.150	0.150	09/05/2019	ND	6.35	106	6.00	1.85	
Total BTEX	<0.300	0.300	09/05/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *86.6 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**6000**	16.0	09/06/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/05/2019	ND	198	99.0	200	1.22	
DRO >C10-C28*	<10.0	10.0	09/05/2019	ND	204	102	200	3.97	
EXT DRO >C28-C36	<10.0	10.0	09/05/2019	ND					

Surrogate: 1-Chlorooctane *81.3 %* *41-142*

Surrogate: 1-Chlorooctadecane *83.6 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

GORDON ENVIROMENTAL - PCS
CHARLES FIEDLER
333 RIO RANCHO BLVD NE, STE 400
RIO RANCHO NM, 87124
Fax To:

Received:	09/04/2019	Sampling Date:	09/04/2019
Reported:	09/09/2019	Sampling Type:	Soil
Project Name:	SUNDANCE SERVICES JET OUT PIT INVE	Sampling Condition:	Cool & Intact
Project Number:	0116.17	Sample Received By:	Tamara Oldaker
Project Location:	SUNDANCE SERVICES - EUNICE NM		

Sample ID: BORING 8 ; DEPTH 11' (H903063-08)

BTEX 8021B mg/kg Analyzed By: BF

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/05/2019	ND	2.03	102	2.00	1.92	
Toluene*	<0.050	0.050	09/05/2019	ND	2.06	103	2.00	3.54	
Ethylbenzene*	<0.050	0.050	09/05/2019	ND	2.08	104	2.00	2.30	
Total Xylenes*	<0.150	0.150	09/05/2019	ND	6.35	106	6.00	1.85	
Total BTEX	<0.300	0.300	09/05/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *86.2 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**448**	16.0	09/06/2019	ND	ND		400	200	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/05/2019	ND	198	99.0	200	1.22	
DRO >C10-C28*	<10.0	10.0	09/05/2019	ND	204	102	200	3.97	
EXT DRO >C28-C36	<10.0	10.0	09/05/2019	ND					

Surrogate: 1-Chlorooctane *83.0 %* *41-142*

Surrogate: 1-Chlorooctadecane *86.3 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

GORDON ENVIROMENTAL - PCS
CHARLES FIEDLER
333 RIO RANCHO BLVD NE, STE 400
RIO RANCHO NM, 87124
Fax To:

Received:	09/04/2019	Sampling Date:	09/04/2019
Reported:	09/09/2019	Sampling Type:	Soil
Project Name:	SUNDANCE SERVICES JET OUT PIT INVE	Sampling Condition:	Cool & Intact
Project Number:	0116.17	Sample Received By:	Tamara Oldaker
Project Location:	SUNDANCE SERVICES - EUNICE NM		

Sample ID: 3A 25' (H903063-09)

BTEX 8021B mg/kg Analyzed By: BF

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/05/2019	ND	2.03	102	2.00	1.92	
Toluene*	<0.050	0.050	09/05/2019	ND	2.06	103	2.00	3.54	
Ethylbenzene*	<0.050	0.050	09/05/2019	ND	2.08	104	2.00	2.30	
Total Xylenes*	<0.150	0.150	09/05/2019	ND	6.35	106	6.00	1.85	
Total BTEX	<0.300	0.300	09/05/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *88.0 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2280**	16.0	09/06/2019	ND	ND		400	200	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/05/2019	ND	198	99.0	200	1.22	
DRO >C10-C28*	<10.0	10.0	09/05/2019	ND	204	102	200	3.97	
EXT DRO >C28-C36	<10.0	10.0	09/05/2019	ND					

Surrogate: 1-Chlorooctane *81.6 %* *41-142*

Surrogate: 1-Chlorooctadecane *84.9 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

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

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name:	Gordon Environmental-PSC	**BILL TO**	
Project Manager:	Charles Fiedler cfiedler@team-psc.com	P.O. #:	
Address:	333 Rio Rancho Blvd. NE, Ste. 400	Company:	
City:	Rio Rancho State: NM Zip: 87124	Attn:	Charles Fiedler
Phone #:	505-867-6990 Fax #:	Address:	Gordon (same)
Project #:	0116.17 Project Owner:	City:	
Project Name:	Sundance Services Jet Out Pit Investigation	State: Zip:	
Project Location:	Sundance Services, Eunice NM	Phone #:	
Sampler Name:	Don Gray	Fax #:	

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	ANALYSIS REQUEST: Chloride (Sm4500 Cl B)	TPH IGRO+DRO+MRO), Method 8015M	BTEX, Method 8021B
H903063																	
1	Boring 1; depth 10'					X					X		9/4	1308	X	X	X
2	Boring 2; depth 10'					X					X		9/4	12:12	X	X	X
3	Boring 3; depth 15'					X					X		9/4	10:34	X	X	X
4	Boring 4; depth 10'					X					X		9/4	1504	X	X	X
5	Boring 5; depth 10'					X					X		9/4	1434	X	X	X
6	Boring 6; depth 10'					X					X		9/4	1238	X	X	X
7	Boring 7; depth 10'					X					X		9/4	1138	X	X	X
8	Boring 8; depth 11'					X					X		9/4	9:22	X	X	X
9	3A @ 25'					X					X		9/4	10:50	X	X	X

Relinquished By: Don Gray	Date: 9-4-19 Time: 16:00	Received By: Tamara Oldaker	
Relinquished By:	Date: Time:	Received By:	
Delivered By: (Circle One) 4.2° #97 Sampler - UPS - Bus - Other: Corrected 4.6°	Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No	CHECKED BY: (Initials) T.O.	

Phone Result:	☐ Yes	☐ No	Add'l Phone #:
Fax Result:	☐ Yes	☐ No	Add'l Fax #:
REMARKS:			

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

APPENDIX C
LABORATORY ANALYTICAL REPORT
JET OUT PIT FACILITY
BASE GRADE CONFIRMATION SAMPLES

CARDINAL Laboratories

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

December 19, 2019

CHARLES FIEDLER

GORDON ENVIROMENTAL - PCS

333 RIO RANCHO BLVD NE, STE 400

RIO RANCHO, NM 87124

RE: SUNDANCE SERVICES JET OUT PIT CLOSURE

Enclosed are the results of analyses for samples received by the laboratory on 12/18/19 13:45.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-19-12. 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 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 (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,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

GORDON ENVIROMENTAL - PCS
CHARLES FIEDLER
333 RIO RANCHO BLVD NE, STE 400
RIO RANCHO NM, 87124
Fax To:

Received:	12/18/2019	Sampling Date:	12/18/2019
Reported:	12/19/2019	Sampling Type:	Soil
Project Name:	SUNDANCE SERVICES JET OUT PIT CLOS	Sampling Condition:	Cool & Intact
Project Number:	0116.17	Sample Received By:	Jodi Henson
Project Location:	SUNDANCE SERVICES - EUNICE NM		

Sample ID: BASE GRADE SAMPLE 1 (H904225-01)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/19/2019	ND	1.77	88.6	2.00	16.2	
Toluene*	<0.050	0.050	12/19/2019	ND	1.74	86.9	2.00	15.6	
Ethylbenzene*	<0.050	0.050	12/19/2019	ND	1.77	88.5	2.00	16.8	
Total Xylenes*	<0.150	0.150	12/19/2019	ND	5.11	85.2	6.00	17.1	
Total BTEX	<0.300	0.300	12/19/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *100 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1800**	16.0	12/19/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/18/2019	ND	217	109	200	1.40	
DRO >C10-C28*	<10.0	10.0	12/18/2019	ND	224	112	200	3.01	
EXT DRO >C28-C36	<10.0	10.0	12/18/2019	ND					

Surrogate: 1-Chlorooctane *78.2 %* *41-142*

Surrogate: 1-Chlorooctadecane *83.3 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

GORDON ENVIROMENTAL - PCS
CHARLES FIEDLER
333 RIO RANCHO BLVD NE, STE 400
RIO RANCHO NM, 87124
Fax To:

Received:	12/18/2019	Sampling Date:	12/18/2019
Reported:	12/19/2019	Sampling Type:	Soil
Project Name:	SUNDANCE SERVICES JET OUT PIT CLOS	Sampling Condition:	Cool & Intact
Project Number:	0116.17	Sample Received By:	Jodi Henson
Project Location:	SUNDANCE SERVICES - EUNICE NM		

Sample ID: BASE GRADE SAMPLE 2 (H904225-02)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/19/2019	ND	1.77	88.6	2.00	16.2	
Toluene*	<0.050	0.050	12/19/2019	ND	1.74	86.9	2.00	15.6	
Ethylbenzene*	<0.050	0.050	12/19/2019	ND	1.77	88.5	2.00	16.8	
Total Xylenes*	<0.150	0.150	12/19/2019	ND	5.11	85.2	6.00	17.1	
Total BTEX	<0.300	0.300	12/19/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *99.3 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1840**	16.0	12/19/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/18/2019	ND	217	109	200	1.40	
DRO >C10-C28*	<10.0	10.0	12/18/2019	ND	224	112	200	3.01	
EXT DRO >C28-C36	<10.0	10.0	12/18/2019	ND					

Surrogate: 1-Chlorooctane *74.0 %* *41-142*

Surrogate: 1-Chlorooctadecane *76.9 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

GORDON ENVIROMENTAL - PCS
CHARLES FIEDLER
333 RIO RANCHO BLVD NE, STE 400
RIO RANCHO NM, 87124
Fax To:

Received:	12/18/2019	Sampling Date:	12/18/2019
Reported:	12/19/2019	Sampling Type:	Soil
Project Name:	SUNDANCE SERVICES JET OUT PIT CLOS	Sampling Condition:	Cool & Intact
Project Number:	0116.17	Sample Received By:	Jodi Henson
Project Location:	SUNDANCE SERVICES - EUNICE NM		

Sample ID: BASE GRADE SAMPLE 3 (H904225-03)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/19/2019	ND	1.77	88.6	2.00	16.2	
Toluene*	<0.050	0.050	12/19/2019	ND	1.74	86.9	2.00	15.6	
Ethylbenzene*	<0.050	0.050	12/19/2019	ND	1.77	88.5	2.00	16.8	
Total Xylenes*	<0.150	0.150	12/19/2019	ND	5.11	85.2	6.00	17.1	
Total BTEX	<0.300	0.300	12/19/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *99.5 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1300**	16.0	12/19/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/18/2019	ND	217	109	200	1.40	
DRO >C10-C28*	<10.0	10.0	12/18/2019	ND	224	112	200	3.01	
EXT DRO >C28-C36	<10.0	10.0	12/18/2019	ND					

Surrogate: 1-Chlorooctane *68.8 %* *41-142*

Surrogate: 1-Chlorooctadecane *69.9 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

GORDON ENVIROMENTAL - PCS
CHARLES FIEDLER
333 RIO RANCHO BLVD NE, STE 400
RIO RANCHO NM, 87124
Fax To:

Received:	12/18/2019	Sampling Date:	12/18/2019
Reported:	12/19/2019	Sampling Type:	Soil
Project Name:	SUNDANCE SERVICES JET OUT PIT CLOS	Sampling Condition:	Cool & Intact
Project Number:	0116.17	Sample Received By:	Jodi Henson
Project Location:	SUNDANCE SERVICES - EUNICE NM		

Sample ID: BASE GRADE SAMPLE 4 (H904225-04)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/19/2019	ND	1.77	88.6	2.00	16.2	
Toluene*	<0.050	0.050	12/19/2019	ND	1.74	86.9	2.00	15.6	
Ethylbenzene*	<0.050	0.050	12/19/2019	ND	1.77	88.5	2.00	16.8	
Total Xylenes*	<0.150	0.150	12/19/2019	ND	5.11	85.2	6.00	17.1	
Total BTEX	<0.300	0.300	12/19/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *98.9 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1040**	16.0	12/19/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/18/2019	ND	217	109	200	1.40	
DRO >C10-C28*	<10.0	10.0	12/18/2019	ND	224	112	200	3.01	
EXT DRO >C28-C36	<10.0	10.0	12/18/2019	ND					

Surrogate: 1-Chlorooctane *69.7 %* *41-142*

Surrogate: 1-Chlorooctadecane *71.0 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

GORDON ENVIROMENTAL - PCS
CHARLES FIEDLER
333 RIO RANCHO BLVD NE, STE 400
RIO RANCHO NM, 87124
Fax To:

Received:	12/18/2019	Sampling Date:	12/18/2019
Reported:	12/19/2019	Sampling Type:	Soil
Project Name:	SUNDANCE SERVICES JET OUT PIT CLOS	Sampling Condition:	Cool & Intact
Project Number:	0116.17	Sample Received By:	Jodi Henson
Project Location:	SUNDANCE SERVICES - EUNICE NM		

Sample ID: BASE GRADE SAMPLE 5 (H904225-05)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/19/2019	ND	1.77	88.6	2.00	16.2	
Toluene*	<0.050	0.050	12/19/2019	ND	1.74	86.9	2.00	15.6	
Ethylbenzene*	<0.050	0.050	12/19/2019	ND	1.77	88.5	2.00	16.8	
Total Xylenes*	<0.150	0.150	12/19/2019	ND	5.11	85.2	6.00	17.1	
Total BTEX	<0.300	0.300	12/19/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *100 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**544**	16.0	12/19/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/18/2019	ND	217	109	200	1.40	
DRO >C10-C28*	<10.0	10.0	12/18/2019	ND	224	112	200	3.01	
EXT DRO >C28-C36	<10.0	10.0	12/18/2019	ND					

Surrogate: 1-Chlorooctane *53.8 %* *41-142*

Surrogate: 1-Chlorooctadecane *54.5 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
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

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

RUSH!!

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name:	Gordon Environmental-PSC	**BILL TO**	
Project Manager:	Charles Fiedler cfiedler@team-psc.com	P.O. #:	
Address:	333 Rio Rancho Blvd. NE, Ste. 400	Company:	Gordon PSC
City:	Rio Rancho State: NM Zip: 87124	Attn:	Charles Fiedler
Phone #:	505-867-6990 Fax #:	Address:	Gordon (same)
Project #:	0116.17 Project Owner:	City:	
Project Name:	Sundance Services Jet Out Pit Closure	State: Zip:	
Project Location:	Sundance Services, Eunice NM	Phone #:	
Sampler Name:	Clay Kilmer	Fax #:	

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	Chloride (Sm4500 Cl B)	TPH IGRO+DRO+MRO), Method 8015M	BTEX, Method 8021B
H904224 5																	
-01	Base grade sample 1					X					X		12-18-19	12:46	X	X	X
02	Base grade sample 2					X					X		12-18-19	12:50	X	X	X
03	Base grade sample 3					X					X		12-18-19	12:52	X	X	X
04	Base grade sample 4					X					X		12-18-19	12:55	X	X	X
05	Base grade sample 5					X					X		12-18-19	12:59	X	X	X

Relinquished By: Clay Kilmer	Date: 12/18/19 Time: 13:45	Received By: Jodi Henson	
Relinquished By:	Date: Time:	Received By:	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	2.8°C 3.2°C corrected	Sample Condition Cool: Yes / No Intact: Yes / No	CHECKED BY: (Initials) #97

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS:
~~cfiedler~~
cfiedler@team-psc.com

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

APPENDIX D
SITE EXCAVATION AND RESTORATION PHOTOS

APPENDIX D - SITE PHOTOS

Photo 1.--View from the northwest corner of the completed excavation looking southeast.

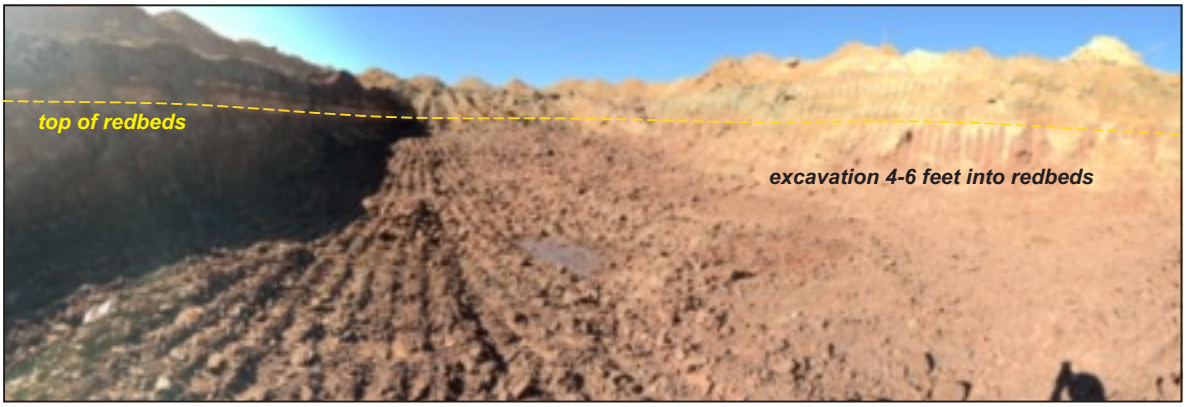


Photo 2.--View from the floor of the southeast corner of the excavation looking northwest.

APPENDIX D - SITE PHOTOS

Photo 3.--View to southeast, initial stripping after JOP concrete demolition and removal.

Photo 4.--View to northwest, after placing clean backfill and site restoration.

EAST JET-OUT CLOSURE PHOTOS

EAST JET-OUT CLOSURE PHOTOS

Fourth Quarter 2019 Progress Report
Sundance Services, Inc. Facility Closure

Attachment B
Estimate of Closure/Post Closure Costs

COST ESTIMATE TASK SUMMARY
CLOSURE/POST-CLOSURE
SUNDANCE SERVICES, INC.

TASK	COST ESTIMATE
1.0 LANDFILL CLOSURE CONSTRUCTION	$924,800
2.0 LANDFILL MAINTENANCE (Post-Closure)	$243,000
3.0 ENVIRONMENTAL MONITORING (Post-Closure)	$300,000
4.0 POND AND PROCESSING AREA CLOSURE CONSTRUCTION	$1,892,400
5.0 PROCESS AREA MAINTENANCE (Post-Closure)	$34,800
TOTAL COST ESTIMATE	$3,395,000

TASK 1.0
LANDFILL CLOSURE CONSTRUCTION
CLOSURE COST ESTIMATE
SUNDANCE SWERVICES, INC.

TASK 1.0	Unit	Unit Quantity	Unit Cost	Total Cost
1.0 Waste Relocation (Current Landfill COMPLETED)	CY	0	$1.00	$0
1.1 Final Cover Installation				
1.1.1 Final Grading & Contouring				
1.1.1.1 Current Landfill (Completed w/waste relocation)	AC	27.6	$0.00	$0
1.1.1.2 Closed Landfill	AC	16.4	$1,000.00	$16,400
1.1.1.3 Containment Ponds 1, 5, & 6 (Completed with relocation)	AC	44.5	$0.00	$0
1.1.2 Install and compact 6" Infiltration (Barrier) Layer				
1.1.2.1 Current Landfill	CY	22,500	$2.00	$45,000
1.1.2.2 Closed Landfill	CY	13,500	$2.00	$27,000
1.1.2.3 Containment Ponds 1, 5, & 6	CY	37,500	$2.00	$75,000
1.1.3 Install 24" Erosion (Vegetative) Layer				
1.1.3.1 Current Landfill	CY	90,000	$2.00	$180,000
1.1.3.2 Closed Landfill	CY	54,000	$2.00	$108,000
1.1.3.3 Containment Ponds 1, 5, & 6	CY	150,000	$2.00	$300,000
1.1.4 Vegetative Layer Seeding (Class A)				
1.1.4.1 Current landfill	AC	27.6	$1,500	$41,400
1.1.4.2 Closed Landfill	AC	16.4	$1,500	$24,600
1.1.4.3 Containment Ponds 1, 5, & 6	AC	44.5	$1,500	$66,750
			Task Subtotal	**$884,150**
1.2 Final Cover CQA				
1.2.1 Inspection and Testing	LS	1	$35,000	$35,000
1.2.2 Certification	LS	1	$5,650	$5,650
			Task Subtotal	**$40,650**
			TOTAL COST	**$924,800**

Notes:

1. Closure costs are based on contracting with a qualified third party to complete and certify closure. The activities included in this cost estimate are based on current dollars, previous experience with landfills located in arid climates, and current subcontractor costs.
2. Final cover installation costs assume that:
   - ▸ The greatest area requiring final cover is 88.5 acres ±.
   - ▸ All soils necessary for closure are available on-site.
3. CY = Cubic Yard
   AC = Acre
   LS = Lump Sum

TASK 2.0
LANDFILL MAINTENANCE
POST-CLOSURE COST ESTIMATE
SUNDANCE SERVICES, INC.

TASK 2.0	Unit Quantity	Unit	Unit Cost	Total Cost Per Year	Total Cost For 30 Years
2.1 Final Cover Inspection and Reporting					
2.1.1 Inspection	2	events/yr	$500	$1,000	$30,000
2.1.2 Recordkeeping and Reporting	2	events/yr	$500	$1,000	$30,000
			Task Subtotals	**$2,000**	**$60,000**
2.2 Final Cover Maintenance					
2.2.1 Cover Maintenance	1	AC/yr	$1,500	$1,500	$45,000
2.2.2 Vegetation	2	AC/yr	$1,500	$3,000	$90,000
			Task Subtotals	**$4,500**	**$135,000**
2.3 Surface Water Management System					
2.3.1 Inspection/Repairs	1	events/yr	$800	$800	$24,000
			Task Subtotals	**$800**	**$24,000**
2.4 Fencing					
2.4.1 Inspection/Repairs	1	events/yr	$800	$800	$24,000
			Task Subtotals	**$800**	**$24,000**
			TOTAL COST	**$8,100**	**$243,000**

Notes:

1. Post-closure maintenance costs are based on contracting with a qualified third party to conduct post-closure care maintenance for the landfill. The activities included in this cost estimate are based on current dollars, previous experience with landfills located in arid climates, and current subcontractor costs.
2. AC = Acre
   LS = Lump Sum

TASK 3.0
ENVIRONMENTAL MONITORING
POST-CLOSURE COST ESTIMATE
SUNDANCE SERVICES, INC.

TASK 3.0	Unit Quantity	Unit	Unit Cost	Total Cost Per Year	Total Cost for 30 Years
3.1 Vadose Zone Monitoring					
3.1.1 Field Services/Lab Analysis/Reporting	1	events/yr	$10,000	$10,000	$300,000
			Task Subtotal	**$10,000**	**$300,000**
			TOTAL COST	**$10,000**	**$300,000**

Notes:

1. Closure costs are based on contracting with a qualified third party to conduct post-closure monitoring for the landfill. The activities included in this cost estimate are based on current dollars, previous experience with landfills located in arid climates, and current subcontractor costs.
2. Assume monitoring 5 wells (i.e., sampling and analysis costs).
3. LS = Lump Sum

TASK 4.0

POND AND PROCESSING AREA CLOSURE CONSTRUCTION
CLOSURE COST ESTIMATE
SUNDANCE SERVICES, INC.

Task 4.0	Units	Unit Cost	Total Quantity	Total Cost
4.1 Evaporation Pond				
4.1.1 Liquids Transport/Disposal				
4.1.1.1 Transport Liquid	BBL	$0.03	100,000	$ 3,000
4.1.1.2 Disposal Liquids	BBL	$0.60	100,000	$ 60,000
4.1.1.3 Remove/Transport Sludge (included w/Pond Excavation)	CY	$2.50	0	$ -
4.1.1.4 Sludge Solidification	CY	$1.25	250,000	$ 312,500
			Task Subtotal	**$ 375,500**
4.1.2 Pond Excavation, Backfill and Contouring				
4.1.2.1 Excavate Ponds 2, 3, 4, & 9/Backfill in Ponds 1, 5 & 6	CY	$0.60	1,374,000	$ 824,400
			Task Subtotal	**$ 824,400**
4.1.3 Sampling	EA	$1,000	500	$ 500,000
4.1.3 Seeding Ponds 2, 3, 4, & 9	AC	$1,500	45	$ 67,500
			Task Subtotal	**$ 567,500**
Pond Closure Subtotal:			**$**	**1,767,400**
4.2 Site Work				
4.2.1 Tank Removal	LS		$	25,000
4.2.2 Building Removal	LS		$	25,000
4.2.3 Process Equipment Removal	LS		$	25,000
4.2.4 Earthwork	LS		$	10,000
Site Work Subtotal:			**$**	**85,000**
4.3 Engineering				
4.3.1 CQA/Certification	LS		$	40,000
Engineering Subtotal:	LS		**$**	**40,000**
Total:			**$**	**1,892,400**

Notes:

1. Closure costs are based on contracting with a qualified third party to complete and certify closure.
2. Assumes remaining, unevaporated capacity of ponds is remediated onsite.
3. Assumes remaining solids in each pond at closure are solidified and disposed onsite.
4. Site Sampling is conducted to a depth confirmed clean.
5. CY = Cubic Yard
   AC = Acre
   LS = Lump Sum
   EA = EachAcre
   BBL = Barrell (US)

TASK 5.0
POND AND TREATMENT PLANT MAINTENANCE
POST-CLOSURE COST ESTIMATE
SUNDANCE SERVICES, INC.

TASK 5.0	Unit Quantity	Unit	Unit Cost	Total Cost Per Year	Total Cost For 3 Years
5.1 Surface Inspection and Reporting					
5.1.1 Inspection	2	events/yr	$400	$800	$2,400
5.1.2 Recordkeeping and Reporting	2	events/yr	$400	$800	$2,400
			Task Subtotals	**$1,600**	**$4,800**
5.2 Surface Maintenance					
5.2.1 Cover Maintenance	1	AC/yr	$1,000	$1,000	$3,000
5.2.2 Vegetation	2	AC/yr	$1,500	$3,000	$9,000
			Task Subtotals	**$4,000**	**$12,000**
5.3 Fencing					
5.3.1 Inspection/Repairs	1	events/yr	$600	$600	$3,600
			Task Subtotals	**$600**	**$18,000**
			TOTAL COST	**$6,200**	**$34,800**

Notes:
1. Pond (Ponds 2, 3, 4, & 9) and Treatment Plant closure maintenance costs are based on contracting with a qualified third party to conduct post-closure care maintenance. The activities included in this cost estimate are based on current dollars, previous experience with closures located in arid climates, and current subcontractor costs.
2. AC = Acre
   LS = Lump Sum

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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 127412

CONDITIONS

Operator: SUNDANCE SERVICES, INC. P.O. Box 1737 Eunice, NM 88231	OGRID: 149972
	Action Number: 127412
	Action Type: [C-137] Non-Fee SWMF Submittal (SWMF NON-FEE SUBMITTAL)

CONDITIONS

Created By	Condition	Condition Date
bjones	None	7/20/2022