

# **RELEASE SITE CHARACTERIZATION AND REMEDIATION CLOSURE REPORT JUNIPER 10" LINE RELEASE SECTION 3, TOWNSHIP 24S, RANGE 29E**

**Report Prepared for:** 

Lucid Energy Delaware

Prepared by:

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MGant

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Lucid Energy Group

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# Summary of Release

Site Name	Juniper 8"						
Location	Lat.	Long.	Unit Letter, Section, Township, Range				
	32.248098°	-103.972614°	Unit Letter F, Section 03, Township 24S, Range 29E				
District RP/ Incident ID	2RP-5566; NA	B1922059305					
Estimated Date of Release	7/15/2019						
Date Reported	7/15/2019						
Reported By	Michael Gant – Lucid Energy Group						
Reported To	NMOCD and BLM						
Surface Owner	Federal						
Cause of Release	Flow erosion on the gas pipeline resulted in a release that ignited an overhead electrical line, subsequently melting saltwater polyethylene line.						
Released Material/Volume(s)	Gas and Prod	uced Water/1.5MN	MCF and 20 bbls				
Depth to Groundwater/Nearest Surface Water	>100 ft bgs/Pe	ecos River 2.1 mile	es SW				
Site Characterization	Three areas of investigation complete. Site investigation, over 60 soil samples field screened and 20 analyzed at the laboratory.						
Remediation Area(s)	Main = 305 sq yd; Electrical fire = 245 sq yd; Off RoW = 232 sq yd						
Confirmatory Sampling	Three excavated areas analyzed; 28 soil composite samples collected and submitted to an accredited laboratory; 8 soil samples re-assessed						
Recommendations	Request file to	be closed					

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### 1.0 INTRODUCTION

HRL Compliance Solutions (HRL) was retained by Lucid Energy Delaware LLC (Lucid) to conduct a site assessment and characterization program at the Juniper Pipeline release site located within Section 3, Township 24 South, Range 29 East (Figure 1). The release was discovered on July 15, 2019 and notification was sent to New Mexico Oil Conservation Division (NM OCD; see Appendix A–C141).

In brief, the Lucid Juniper 8" gas line cracked (32°14′53.2" N, 103°58′21.4" W) which resulted in an overhead electrical line to ignite. The fire caused the pole to collapse and the heat from the fire resulted in the neighbouring EOG Resources (EOG) polyethylene water line to melt. Both the Lucid gas line and the EOG water line share the same right-of-way. The produced water extinguished the fire and continued to flow off the right-of-way following the local topography. The leading edge of the plume was mapped to a low-lying vegetative patch approximate 275 ft southeast of the release point (Figure 2). The purpose of this site assessment and characterization program was to determine the extent of the soil impacts, mitigate any potential environmental adverse effect, and develop an effective remediation program protective of identified receptors.

# 2.0 AREA DESCRIPTION

# 2.1 Regional Physiography

The Juniper pipeline is within Eddy County located in the southeastern part of New Mexico approximately 20 miles southeast of Carlsbad and 7.5 miles from Loving, NM (Figure 1). The area is within the Chihuahuan Desert ecoregion, specifically the Chihuahuan Basins and Playas. The playas and basin floors have saline or alkaline soils and areas of salt flats, dunes, and windblown sands.

The area generally showcases flat to rolling plains that gently slope towards the Pecos River. The predominant land use is grazing, irrigation agriculture, potash mining, and oil & gas development. Locally, the surrounding area consists of limited cattle grazing, a couple large potash mines, and oil & gas operations as part of the Permian Basin.

The lower elevations (i.e., <4,500 ft) of this area result in a hot and arid climate. The vegetation is typical of desert shrubs and grasses, dominated by creosote bush, tarbush, fourwing saltbush, gyp grama, and similar species that can withstand large diurnal temperature ranges, low moisture, and a high evapotranspiration rate. An area topographical map is provided on Figure 3.

# 2.2 Regional Geology

The site location is in the northwestern part of the Delaware Basin, at the southern boundaries of Nash Draw, a partially closed depression. The Delaware Basin has been described as a deep, oval, sedimentary basin 75 miles wide and 135 miles long. The basin lithology is made up of crystalline sedimentary rocks overlain by evaporites deposited in the late Permian Period. As seawater evaporated, the deep marine environment of limestone and dolomite transitioned to a shallower marine and eventually dry environment of gypsum, halite, anhydrite, and potassium salts. Early assessment conducted by USGS, as part of the Project Gnome site, noted several thousand feet of accumulated salt deposits on the basin floor.

The composition of the highly soluble rock within the subsurface has the potential for karst formations or features to be present in the vicinity of the area of investigation. Figure 4 presents the mapped karst areas of southeastern New Mexico in relation to the area of investigation.

# 2.3 Regional Hydrogeology

The Pecos River Basin alluvial aquifer consists of generally unconsolidated, poorly to moderately sorted deposits of gravel, sand, silt, and clay; as well as small amounts of gypsum and caliche formed by chemical processes. Groundwater in the Cenozoic alluvium is an important resource as the surrounding area receives an average annual rainfall of less than 12 inches (USGS Groundwater Atlas). Natural concentrations of total dissolved solids (TDS) in water in the alluvial aquifer typically exceeds 1,000 mg/L. Freshwater is defined as having a TDS concentration of <1,000 mg/L. Groundwater for the alluvial aquifer is mainly used for irrigation. Water well sustainability is variable based on the proximity to the Pecos River.

Initially during the site characterization, the groundwater data available on NM Office of the State Engineer (NMOSE) was beyond the OCD required 0.5-mile radius. After rejection of the initial closure request a secondary review of the NMOSE water well database presented 8 grounding wells within a 0.5-mile radius and none of the wells encountered groundwater at total depth. The United States Geological Survey (USGS) National Water Information System depicted water wells greater than 3 miles from location, within a 5-mile radius the water level ranged depending on the proximity to the Pecos River. Figure 5 shows the radius of water wells. The corresponding water levels are in Table 1.

The closest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is the Pecos River. The Malaga Bend of the river is the closest bank to the site of investigation at a distance of 2.15 miles (Figure 3).

### 2.4 Local Setting

The Juniper pipeline release point is located in Section 3, Township 24S, Range 29E at an elevation of approximately 3,070 feet above sea level (Figure 2). The right of way is shared by an EOG saltwater line. In the vicinity of the area under investigation, the native soil and subsurface material was locally shown to be highly disturbed due to the number of buried pipelines.

According to the National Resources Conservation Services Web-based Soil Survey, the soil composition is mainly of the Pajarito unit and the typical profile is loamy fine sand to 13 inches, with fine sandy loam upwards of 60 inches in areas. The parent material of this unit is mixed alluvium and/or eolian sands. The area is susceptible to severe wind erosion, drifting sand, and is well drained, with very low runoff. The area slopes are found to be less than 3%.

The northern portion of subject location also borders Upton gravelly loam unit that is a result of weathered limestone. Upton soils are typically shallow (<13 inches) over indurated caliche. The natural drainage is considered to be well drained, with runoff classified as high. The area slopes are 0 to 9 percent.

The nearest waterbody is Pecos River located 2.1 miles southwest of the site investigation and Salt Lake is 2.8 miles north. There are no identified springs or wetlands in the area.

The local area is mainly populated with oil and gas operations, with a number of right-ofway's and access roads/trails.

### 3.0 SCOPE OF WORK

The objective of this site investigation was to map the extent of any chemicals of concern (COC) from the reported fire incident and to determine if there may be a potential for an adverse effect to surrounding receptors. In order to meet these objectives, the following tasks were conducted:

- Review public databases for subsurface conditions and soil lithology.
- Review the New Mexico OSE water column reports and the USGS National Water Information System database, as well as any maps to determine depth to groundwater and distance to any significant watercourses.
- Review requirements for an archaeological survey outside the existing right of way.
- Initiate a NM One-call and notify all pipeline owners in the vicinity.
- Collect initial soil samples based on visual release footprint and submit select soil samples to the laboratory to characterize potential chemicals of concerns.

- Field screen soil samples using a Hanna electrical conductivity (EC) meter to attempt to correlate EC values with chloride concentrations.
- Horizontally and vertically delineate the COC and submit select soil samples to Hall Environmental Analysis Laboratory.
- Excavate impacted subsurface material and dispose of at R360 waste management facility.
- Obtain confirmatory soil samples to meet Table I *Closure Criteria for Soils Impacted by a Release* (19.15.29 NMAC).
- Reclaim excavated areas with clean caliche, and in vegetated areas add at least 12 inches of topsoil and seed with BLM approved seed mix.

# 4.0 SITE CHARACTERIZATION

### 4.1 Field Program

Field events took place between July 18 to September 20, 2019. During this time a number of composite soil samples were collected from the release area and in the southeast direction following the path of the plume. For ease of description, the area of investigation was broken up into 3 zones - 1) Main Excavation; 2) Area Around Electrical Pole; 3) Access Area & BLM off right of way (RoW). The field screening results can be found in Table 2a. Appendix B contains area photographs that illustrates the described site conditions.

- 1. Main Excavation
  - July 18: Soil samples were collected from around the riser, and the base and walls of the pipeline repair excavation, to better understand the chemicals of concern and to investigate any residual impacts. Two samples were collected from the leading edge of the plume based on visual demarcation. Hydrocarbon and chloride concentrations were analyzed in 12 soil samples. Chlorides from the produced water line release was determined to be the chemical of concern and the parameter that would be investigated to influence remediation.
  - July 30: Field screen for EC values along the extent of the entire excavation. Area broken up into north and south (width of excavation), and east, central, west (length of excavation). Composite samples collected from base and walls to further aid in the excavation.
  - July 31/August 1: Additional excavation around the release point, field screen for EC values and continue to remove elevated material around the sono column near the release point. Excavation depths in the vicinity of the column approximately12ft below

ground surface (bgs). The material was noted to be very heterogeneous, and the EC values were inconsistent. Submit 3 soil composite soil samples for detailed analysis of cations and anions.

- August 7: Assess the base and wall around the new sono column that was installed at 16ft bgs. Samples taken at 8ft bench and 16ft base
- 2. Area Around Electrical Pole (Fire)
  - July 31/August 1: Hydrovac Oxy and Enterprise pipelines and have representatives onsite to witness soil removal. Field screen EC values in the vicinity of each of these pipelines to vertically assess potential chloride impacts. Advance two test pits to approximately 3 feet below ground surface where caliche was encountered. Field EC values of the caliche material was less than 500 µS/cm. Remove approximately 2ft of material.
  - August 7: Map out the area to delineate chloride concentrations (#1 #9). Base samples collected between 1.5 and 2 feet bgs. Submit select samples for analysis of chloride.
- 3. Access Area & BLM Off ROW
  - August 1: Screen EC values from the surface material within the access area (i.e. the area between the release RoW and the vegetation). Remove approximately 6 inches and re-screen.
  - August 8: Excavate area closest to the access road, transition area before vegetation. Depth of excavation between 2 and 5ft bgs, with the deeper excavation closest to the access road. The material was very heterogenous likely due to the number of pipelines right of ways in the area vicinity.

# 4.2 Soil Sampling – Confirmatory

On August 14 and 15, 2019, a confirmatory sampling program was initiated at all three areas. The results are presented in Table 2b. Results were compared to Table A – Closure Criteria (below).

1. Main Excavation (Figure 7a): Eight base samples and 6 wall samples were field screened for EC and submitted to Hall Environmental Analysis Laboratory for chloride concentrations. The base samples were 5-point composite grab samples between 6ft and 8ft bgs, and the wall samples were 5-point composite samples collected less than 4ft. One background sample at surface, outside the footprint of the release was also sampled.

- 2. Area Around Electrical Pole (Figure 7b): Six base samples were field screened for EC and submitted to Hall Environmental Analysis Laboratory for chloride concentrations. The base samples were 5-point composite grab samples at approximately 2ft bgs. The chloride concentration met the closure criteria of 10,000 mg/kg. The chloride concentrations were collected less than 4ft bgs and did not meet the reclamation requirements of 600 mg/kg, except sample point Base 14. Due to the extensive buried infrastructure and the overhead electrical line, further excavation in the area of the RoW was not considered to be executed without safety concerns. The area is not an area that was or will be vegetated (see Appendix B Photos). Remediating the rooting zone to 600 mg/kg is not believed to be warranted. Area of excavation = 245 sq yd.
- 3. Access Area & BLM Off ROW (Figure 7c): Two samples were collected from the access area and 4 samples were collected from the vegetated off RoW land; all 6 samples were submitted to Hall Environmental Analysis Laboratory for chloride concentrations and met the closure criteria of 10,000 mg/kg. Three of the samples were greater than the reclamation criteria of 600 mg/kg and the areas were re-assessed.

# 4.3 Soil Sampling – Vegetated re-assessed

Area 3 was reassessed between August 27 and September 5, 2019. The excavation was extended around BLM sample points 3 and 4 (Figure 7c). The final depth at sample point 3 reached 5ft and at sample point 4 the excavation was to 3ft. The initial visual surface footprint of the impacted area became considerably larger at depth. The Mesquite water line to the south of the excavation needed to be hydrovac'd and the company representative was onsite during the excavation program. The subsurface material in this area was highly disturbed as the Mesquite pipeline had just recently been installed. Additional sampling was obtained on August 28-29, and September 4-5, the results are shown in Table 2c. All soil samples collected met closure criteria and the reclamation criteria at less than 4ft. Area of excavation = 231 sq yd.

>100 feet	Chloride***	EPA 300.0 or SM4500	20,000 mg/kg
		Cl B	
	TPH (GRO+DRO+MRO)	EPA SW-846 Method	2,500 mg/kg
		8015M	
	GRO+DRO	EPA SW-846 Method	1,000 mg/kg
		8015M	
	BTEX	EPA SW-846 Method	50 mg/kg
		8021B or 8260B	
	Benzene	EPA SW-846 Method	10 mg/kg
		8021B or 8260B	

Table A: Closure Criteria for Soils Im	pacted by a Release (19.15.29 NMAC)

#### 5.0 CONCLUSION

#### 5.1 Summary

The initial C141 report for this release was provided to NM OCD on July 29, 2019 (Appendix A). The Bureau of Land Management (BLM) was also informed of the release as being the landowners of the property. Initial conversations between Kerry Egan (Lucid) and Jim Amos (BLM) discussed the Off-RoW release portion and the possibility of a resource specialist to conduct an archeological survey. A follow up conversation with Mr. Amos resulted in dismissing the archeological requirement.

The three areas of investigation showed a heterogeneous subsurface component. The depth to caliche varied as did the thickness of the fine sandy loam. The variation in the subsurface composition correlated with pipeline installations and associated disturbance. The latest pipeline installation being the Mesquite saltwater line only a few months before the release in the area off the RoW.

The depth of groundwater beneath the site of investigation was determined to be greater than 100ft bgs, after a secondary review of the NMOSE groundwater database (Figure 6). The initially applicable chloride closure criteria limits of 10,000 mg/kg concentrations were met in all confirmatory samples analyzed. Tables 2a, 2b, and 2c show that the chloride concentrations were remediated, and the laboratory analytical reports are in Appendix C. The initial confirmatory sampling program conducted off the RoW, downgradient from the initial release point, measured elevated chloride concentrations based on depth not on the closure criteria of 10,000 mg/kg chloride. Further remediation was conducted in order to bring the chloride concentrations to the reclamation standard of 600 mg/kg in the rooting zone considered to be 4 ft bgs. Since this area is vegetated the rooting zone was deemed an applicable receptor.

Table 2c verifies the rooting zone meets 600 mg/kg chloride. One composite sample exceeded 600 mg/kg, but this location was at a depth greater than 4 feet (1,700 mg/kg @ 5ft).

### 5.2 Closure Request

The assessment conducted by HRL followed New Mexico remediation requirements and pertinent regulations. The site investigation and subsequent remediation was completed utilizing appropriate soil sampling protocol and best management practices (NRCS Field Guide). As described in Section 5.1 above, the footprint of the release has been remediated that delivers human health and ecological protection. Based on the site investigation and analytical results, it is recommended that the Lucid Juniper pipeline release site located at 32.248098, -103.972614 be consider closed.

Please see the photographs in Appendix B that depicts the site investigation and area surroundings.

### 6.0 LIMITATIONS

HRL Compliance Solutions certify that we supervised and carried out the work as described in this report. The report is based on and limited by circumstances and conditions referred to throughout the report and on information available at the time of the site investigation. HRL Compliance Solutions has exercised reasonable skill, care and diligence to assess the information acquired during the preparation of this report. HRL Compliance Solutions believes this information is accurate but cannot guarantee or warrant its accuracy or completeness. Information provided by others was believed to be accurate but cannot be guaranteed.

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**FIGURES** 

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# Figure 6: Juniper site 0.5 mile radius wells



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Plugged

**GIS WATERS PODs** 

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New Mexico State Trust Lands Conveyances Subsurface Estate

Ditch

OSE District Boundary

Both Estates

SiteBoundaries



USDA FSA, GeoEye, Maxar, Esri, HERE, iPC, U.S. Department of Energy Office of Legacy Management, Esri, HERE, Garmin, iPC



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# TABLES

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Map ID	Well ID	Water Level	Distance from		
		(ft)	Release (mi)		
		OSE Well Database			
1	C04481 POD 1	>135	0.42		
2	C04481 POD 2	>120	0.42		
3	C04481 POD 3	>120	0.42		
4	C04481 POD 4	>150	0.44		
5	C04481 POD 5	>120	0.42		
6	C04481 POD 6	>120	0.44		
7	C04481 POD 7	>110	0.44		
8	C04481 POD 8	>125	0.44		
9	1627	NA	1.74		
10	2707	18	2.29		
11	2797	NA	2.80		
12	2721	NA	3.01		
13	3587	44	2.59		
14	3615 POD1	36	2.99		
15	3615 POD2	26	2.57		
16	863	NA	2.49		
17	463	4	2.98		
	U	SGS - NWIS Database			
18	321717103561001	50.26	3.51		
19	321321103544101	168.08	3.96		
20	321355104012001	51.78	3.11		
21	321205103544701	231.02	4.75		
22	321615104014601	35.62	3.71		
23	321742103552601	66.1	4.29		
24	321339103541801	178.34	4.22		

### TABLE 1 - Water Well within 5-mile radius Lucid Energy Juniper Pipeline Release Juniper Section 3 - Twp 24S - RR 29E

TABLE 2a - SOIL QUALITY - Initial Screening and Site Assessment Lucid Energy Juniper Pipeline Release

Juniper Section 3 - Twp 24S - RR 29E

AREA	ID	Date	Field EC (µS/cm)*	Lab EC (µhos/cm)**	Chloride (mg/kg)	Fluoride (mg/kg)	Nitrite-N (mg/kg)	Nitrate-N (mg/kg)	Bromide (mg/kg)	Sulfate (mg/kg)	Calcium (mg/kg)	Magnesium (mg/kg)	Potassium (mg/kg)	Sodium (mg/kg)	Benzene (mg/kg)	BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	MRO (mg/kg)
PRELIMINARY			<u> </u>		, .,	, .,	, .,	, .,	, .,				, .,	, .,	(8/8/	(6/6/	(8/8/	(8/8/	
Riser - North of Release Poi	nt Lab Order 1907A63																		
Initial Characterizat	tion East - Surface	18-Jul-19	6510		15000										ND	ND	ND	ND	ND
Initial Characterizat	tion East - 4ft	18-Jul-19	235		220										ND	ND	ND	ND	ND
Initial Characterizat	tion West - Surface	18-Jul-19	6150		22000										ND	ND	ND	ND	ND
Initial Characterizat	tion West - 4ft	18-Jul-19	257		200										ND	ND	ND	ND	ND
Trench - Release Point - Fill	material surface, with increasing depth heterogeneo	us varying thickness of	caliche with	zone(s) of sandy	loam										ND	ND	ND	ND	ND
Initial Characterizat	tion East - Base	18-Jul-18	7690		24000										ND	ND	ND	ND	ND
		18-Jul-18	2620		4300 5400										ND				ND
Initial Characterizat	tion Release Area - Base	18-Jul-18	2030 7530		21000										0.076	6.116	100	140	95
Initial Characterizat	tion Release Area - South Wall	18-Jul-18	2590		9000										ND	ND	ND	ND	ND
Initial Characterizat	tion Release Area - North Wall (Sono Column)	18-Jul-18	15160		35000										ND	ND	9.9	25	ND
	South - West Base	30-Jul-19	252																
	South - Central Base	30-Jul-19	147																
	South - East Base	30-Jul-19	325																
	North - Sono Column Base	30-Jul-19	5490																
	North - Sono Column Base (#2)	30-Jul-19	2500																
	North - Sono Column Base (#3)	30-Jul-19	4500																
	North - Wall	30-Jul-19	835																
	North - West Base	30-Jui-19	789	7070	2000	0.24	ND	0.06	27	080	82000	4500	640	1700					
	Wall - North near Sono Column	1-Aug-19	1930	3970	1400	0.54	ND	2.8	13	300	66000	4300	710	710					
	West - Base @8'	1-Aug-19	2700	7500	4700	0.43	ND	1.4	50	640	150000	4300	580	2500					
	Base - Sono Column @16' (new install depth)	7-Aug-19	862	,500		0110				0.10	100000		500	2000					
	Base - slope toward new cement base @8'	7-Aug-19	922		840														
	East - Base @8'	7-Aug-19	2270																
	Wall - East of Column @8' bench	7-Aug-19	2160		3300														
Surrounding Electrical Pole	within RoW - Burnt ground - mixed materical - soil ar	nd caliche																	
	Enterprise Line - Surface	31-Jul-19	11600																
	Enterprise Line - @1'	31-Jul-19	5160																
	Enterprise Line - @3'	31-Jul-19	1015																
	Caliche material	31-Jul-19	389																
	Oxy Line - Surface	31-Jul-19	1980																
	Oxy Line - West Test nit @3'	1-Aug-19	173																
Removal	12ft #1	7-Aug-19	2730		4600														
	#2	7-Aug-19	366																
	#3	7-Aug-19	230																
	#4	7-Aug-19	605																
	#5	7-Aug-19	4440		8000														
	#6	7-Aug-19	4050																
	#7	7-Aug-19	3210																
	#8	7-Aug-19	1110		3300														
Vegetative Law Area Mive	#9 d. number of DoW constructed and your ing backfill y	7-Aug-19	2430		1ft) frichles		(likely CaCO2)	) yanuina dau	aths of colishs										
Initial Characterian	a, number of Kow constructed and varying backfill u	18-101-10	5 native sand		11000	owaery soll	(inkely CaCO3	i, varying der	puis of callche						ND	ND	ND	ND	ND
Initial Characterizat	tion SE - outside of visual path	18-Jul-18	44		ND										ND	ND	ND	ND	ND
	SE - Crestwood Gas Line@1'	1-Aug-19	94															110	
Removal	I 1ft Start point near Access and head SE - Base	8-Aug-19	2280																
	North Base (@4')	8-Aug-19	434																
	South Base	8-Aug-19	2100																
	South Base #2 (@5')	8-Aug-19	101																
Removal	2 ft North Base	8-Aug-19	4650																
	South Base	8-Aug-19	4140																
	North Base (@3.5')	8-Aug-19	2160																
	bdSe (@4.5) Near Crestwood Gas Line - bydrovac area	8-Aug-19	109																
	Surface	8-Aug-19	879																
	East of Crestwood Gas Line	8-Aug-19	131																
Access area - SE Toward Ver	getation, outside RoW - Caliche Road Material	5 Aug 13																	
	Nearest release point #1	1-Aug-19	497																
	Heading SE #2	1-Aug-19	10020																
	Closest to Vegetation area #3	1-Aug-19	19740																
Remova	ı 6" #1	1-Aug-19	123																
	#2	1-Aug-19	486																
	#3	1-Aug-19	1037																

TABLE 2b - SOIL QUALITY - Confirmatory Lucid Energy Juniper Pipeline Release Juniper Section 3 - Twp 24S - RR 29E

				Cl (mg/kg)	DRO	MRO	GRO	Benzene	BTEX
AREA	ID	Date	Field EC (µS/cm)		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Confirmatory									
Main Trench Area -	Base > 4ft and Wall < 4ft (5 p	oint composite). See	Figure #						
	Base 1	14-Aug-19	9 1400	2300					
	Base 2	14-Aug-19	9 141	110					
	Base 3	14-Aug-19	286	250					
	Base 4	14-Aug-19	399	410					
	Base 5	14-Aug-19	566	1100					
	Base 6	14-Aug-19	260	220					
	Base 7	14-Aug-19	370	500					
	Base 8	14-Aug-19	307	320					
	Wall 1	14-Aug-19	153	210					
	Wall 2	14-Aug-19	9 181	160					
	Wall 3	14-Aug-19	9 160	60					
	Wall 4	14-Aug-19	624	980					
	Wall 5	14-Aug-19	9 170	250					
	Wall 6	14-Aug-19	264	200					
	Background (surface)	14-Aug-19	142	150					
Downgradient of Tr	ench - RoW Area near Electri	cal Pole. See Figure #	ł						
	Base 9	14-Aug-19	708	1900					
	Base 10	14-Aug-19	2530	4800					
	Base 11	14-Aug-19	1034	2400					
	Base 12	14-Aug-19	2560	5900					
	Base 13	14-Aug-19	856	1200					
	Base 14	14-Aug-19	142	ND					
Downgradient - Acc	cess								
	Road #1	15-Aug-19	850	550					
	Road #2/BLM1	15-Aug-19	3600	8800^					
Downgradient - Off	RoW Vegetation - Base 1-5ft								
	BLM2	15-Aug-19	9 1410	180					
	BLM3	15-Aug-19	9 1460	3300^					
	BLM4	15-Aug-19	878	1100^					
	BLM5	15-Aug-19	9 150	ND					
	Background #2	15-Aug-19	66	ND					
TOP SOIL - fill BLM Vegetated lands	Rawhide Road Pile	15-Aug-19	)	ND	ND	ND	ND	ND	ND

^ remove additional material and resample

14-Aug-19 Lab Order 1908928 15-Aug-19 Lab Order 1908962 TABLE 2c - SOIL QUALITY - Confirmatory Lucid Energy Juniper Pipeline Release Juniper Section 3 - Twp 24S - RR 29E

			Field EC					
AREA	ID	Date	(µS/cm)	CI (mg/kg)				
Additional Excava	Additional Excavation removal around BLM 3 & 4 - including wall sampling. See Figure 7c							
Downgradient - A	ccess							
	Road #2/BLM1	5-Sep-19	100	79				
	North Wall @ 2-4ft	28-Aug-19	257	200				
	South Wall @ 2-4ft	28-Aug-19	236	280				
Downgradient - O	off RoW Vegetation - Base 3-	5ft						
	BLM3 - Base @ 5ft	29-Aug-19	1045	1700				
	North Wall @ 2-4ft	29-Aug-19	629	580				
	South Wall @ 2-4ft	4-Sep-19	245	ND				
	East Wall (Between	29-Aug-19	89	ND				
	#3 and #4 sample pt)							
	BLM4 - Base @ 3ft	5-Sep-19	460	600				

 August 28-29, 2019
 Lab Order 1909004

 September 4-5, 2019
 Lab Order 1909317

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Appendix A

Form C-141

Released to Imaging: 6/24/2021 1:53:15 PM

Received by OCD: 7/29/2019 3-17-42 PM Received by OCD: 4/30/2021 2:53:06 PM

> District I 1625 N. French Dr., Hobbs, NM 88240 District II 811 S. First St., Artesia, NM 88210 District III 1000 Rio Brazos Road, Aztec, NM 87410 District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico Energy Minerals and Natural Resources Department

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Form C-141 Revised August 24, 2018 Submit to appropriate OCD District office

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Incident ID	
District RP	
Facility ID	
Application ID	

# **Release Notification**

# **Responsible Party**

Responsible Party	Lucid Energy Delaware, LLC.	OGRID 372422		
Contact Name	Michael Gant	Contact Telephone 575 748 4555		
Contact email Mgant@lucid-energy.com		Incident # (assigned by OCD)		
Contact mailing address 201 S. 4th St., Artesia, NM 88210				

# **Location of Release Source**

Latitude 32.248196°

Longitude -103.972532°

(NAD 83 in decimal degrees to 5 decimal places)

Site Name Juniper Pipeline release	Site Type Natural gas gathering
Date Release Discovered 7/15/2019	API# (if applicable)

Unit Letter	Section	Township	Range	County
F	3	24S	29E	Eddy

Surface Owner: State V Federal Tribal Private (Name: Bureau of Land Management

# Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
Produced Water	Volume Released (bbls) 20 bbls	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	Yes No
Condensate	Volume Released (bbls)	Volume Recovered (bbls)
Natural Gas	Volume Released (Mcf) 1.5 MMcf	Volume Recovered (Mcf)
Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

The release was caused by flow erosion of the Juniper 8" polyethylene gas line. The release of gas was then ignited by nearby electrical power lines causing a fire which melted through the now exposed produced water line. The fire melted the produced water line and released approximately 20 bbls of produced water.

age 2			T 11 TD	
	Oil Conservation Division		District RP	
0			Facility ID	
			Application ID	
Was this a major	If YES, for what reason(s) does the respo	nsible party consider	this a major release?	acod
19.15.29.7(A) NMAC	?	në of hatural gas and	produced water relea	1560.
Ves 🗌 No				
If YES, was immediat Immediate notificatic Monday 7/15/19 via	e notice given to the OCD? By whom? To winn was provided to OCD by Kerry Egan to email.	hom? When and by v Rob Hamlet/ Victor	vhat means (phone, e a Venegas/ Mike E	email, etc)? Bratcher in District 2 on
	Initial R	esponse		
The responsi	ble party must undertake the following actions immediate	ly unless they could create	a safety hazard that woul	d result in injury
<ul> <li>✓ The impacted area</li> <li>✓ Released material</li> <li>✓ All free liquids an</li> <li>If all the actions descr</li> </ul>	has been secured to protect human health and s have been contained via the use of berms or o d recoverable materials have been removed an	the environment. dikes, absorbent pads d managed appropria	, or other containmer tely.	nt devices.
Free liquids were remove The affected area has bee	d by vac truck immediately following shut down of su en barricaded with fencing to prevent entrance by live	wity. rrounding wells and pov estock and the public.	rer lines.	
Free liquids were remove The affected area has been Per 19.15.29.8 B. (4) I has begun, please atta within a lined contain I hereby certify that the is	NMAC the responsible party may commence to ch a narrative of actions to date. If remedial ment area (see 19.15.29.11(A)(5)(a) NMAC), j	rrounding wells and pov estock and the public. remediation immedia efforts have been su please attach all infor best of my knowledge	rer lines. Tely after discovery o ccessfully completed mation needed for clean and understand that pur	f a release. If remediation or if the release occurred osure evaluation.
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Facility ID	
Application ID	

# Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	(ft bgs)
Did this release impact groundwater or surface water?	🗌 Yes 🔽 No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	🗌 Yes 🛛 No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	🗌 Yes 🛛 No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	🗌 Yes 🛛 No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	🗌 Yes 🛛 No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	🗌 Yes 🛛 No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	🗌 Yes 🛛 No
Are the lateral extents of the release within 300 feet of a wetland?	🗌 Yes 🛛 No
Are the lateral extents of the release overlying a subsurface mine?	🗌 Yes 🛛 No
Are the lateral extents of the release overlying an unstable area such as karst geology?	🗌 Yes 🛛 No
Are the lateral extents of the release within a 100-year floodplain?	🗌 Yes 🛛 No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	🔽 Yes 🗌 No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

#### Characterization Report Checklist: Each of the following items must be included in the report.

- Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
   Field data
- Data table of soil contaminant concentration data
- $\overline{\mathbf{\nabla}}$  Depth to water determination
- Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- Boring or excavation logs
- Photographs including date and GIS information
- Topographic/Aerial maps
- ✓ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

Page 3

Received by OCD: 4/30/202	21 2:53:06 PM	Page 31 of
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ge 4 Oil	Oil Conservation Division	District RP
		Facility ID
		Application ID
regulations all operators are public health or the environr failed to adequately investig addition, OCD acceptance or and/or regulations. Printed Name: Michael Signature: Mgan email: MGant@lucid-e	Gant Gant Comparison of the contamination that pose a the contamination that pose a the c	Description       Interstation that pursuant to OcD futes and differences which may endanger DCD does not relieve the operator of liability should their operations have eat to groundwater, surface water, human health or the environment. In Fresponsibility for compliance with any other federal, state, or local laws
OCD Only Received by:		Date:

Received by OCD: 4/30/2021 2:53:06 PM Form C-141 State of New Mexico

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Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

# **Remediation Plan**

**<u>Remediation Plan Checklist</u>**: Each of the following items must be included in the plan.

Detailed description of proposed remediation technique

Scaled sitemap with GPS coordinates showing delineation points

Estimated volume of material to be remediated

Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC

Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: Each of the following items must be confirmed as part of any request for deferral of remediation.			
Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.			
Extents of contamination must be fully delineated.			
Contamination does not cause an imminent risk to human health	, the environment, or groundwater.		
I handly contify that the information given shows is two	a to the best of my knowledge and understand that murrent to OCD		
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.			
Printed Name: Michael Gant Title: Environmental Coordinator			
Signature: MGant	Date: 4/30/2021		
email: MGant@lucid-energy.com	Telephone: 3143307876		
OCD Only			
Received by:	Date:		
Approved Approved with Attached Conditions of A	Approval Denied Deferral Approved		
Signature:	Date:		

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Incident ID	
District RP	
Facility ID	
Application ID	

# Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: Each of the following items must be included in the closure report.

A scaled site and sampling diagram as described in 19.15.29.11 NMAC

Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

\_\_\_\_\_\_ <sub>Title:</sub> Environmental Coordinator Printed Name: Michael Gant

Signature: *MGant* email: MGant@lucid-energy.com

Chad Hensley

Date: 4/30/2021

Telephone: 3143307876

**OCD Only** 

Page 6

Received by:

Date: 06/24/2021

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by:	Date:06/24/2021
Printed Name: Chad Hensley	Title: Environmental Specialist Advanced



Appendix B

**Photographic Log** 





Photo 1: Initial Release Surficial Path – looking NW at Release Point



Photo 2: Burnt Area from Electrical Fire - looking South

Lucid Juniper Line - Fire July 15, 2019





Photo 3: Main Excavation Pipeline Repair



Photo 4: Main Excavation

Lucid Juniper Line - Fire July 15, 2019




Photo 5: Main Excavation – looking SE toward new electrical pole



Photo 6: Main Excavation (12ft)- mixture of caliche and soil at depth





Photo 7: Main Excavation- heterogeneous subsurface caliche and soil



Photo 8: Main Excavation – new sono column (TD = 16ft)





Photo 9: Area Around Electrical Pole and Burnt Surface – looking South



Photo 10: Area Around Electrical Pole and Burnt Surface – looking NW at pole





Photo 11: Area Around Electrical Pole and Burnt Surface – Test Pit showing ~20" of unconsolidated material overlying hardpan (caliche)



Photo 12: Access Area – scraping surface looking SE





Photo 13: Off Right of Way – migration of water impacts looking SE



Photo 14: Off Right of Way Excavation – looking NW toward release point (electrical pole in distance)





Photo 15: Off Right of Way Excavation – looking East – heterogeneous material north wall



Photo 16: Off Right of Way Excavation - looking North - heterogeneous material north wall





Photo 17: Off Right of Way Excavation – looking SE at south wall



Photo 18: Off Right of Way Excavation – looking SE at final excavation area





Photo 19: Restoration of Access and Area Around Electrical Pole– looking SE at final excavation area and clean caliche backfill pile



Photo 20: Off Right of Way Surface Restoration – looking SE

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Appendix C

**Groundwater Data** 

Released to Imaging: 6/24/2021 1:53:15 PM

PAGE 1 OF 2

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# WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

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LOC	CATION	34	1	T245 R 29E See 3 WELL TAG ID NO	$\lambda/A$	PAGE 2 OF 2



Appendix D

# Laboratory Analytical Reports



August 08, 2019

Lori O'Brien Lucid Energy Delaware 326 West Quay St Artesia, NM 88210 TEL: (575) 513-8988 FAX:

OrderNo.: 1908144

Hall Environmental Analysis Laboratory

TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

4901 Hawkins NE

Albuquerque, NM 87109

RE: Juniper Release

Dear Lori O'Brien:

Hall Environmental Analysis Laboratory received 8 sample(s) on 8/3/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

andy

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

### Hall Environmental Analysis Laboratory, Inc.

Lab Order 1908144

Date Reported: 8/8/2019

CLIENT: Lucid Energy Delaware Project: Juniper Release		Clie Co	ent Sample ID ollection Date	: Ba : 8/1	se @ 12Ft /2019			
Lab ID: 1908144-001	Matrix: SOIL	R	Received Date	d Date: 8/3/2019 9:30:00 AM				
Analyses	Result	RL (	Qual Units	DF	Date Analyzed	Batch		
EPA METHOD 300.0: ANIONS					Analyst	CAS		
Fluoride	0.34	0.30	mg/Kg	1	8/5/2019 10:44:43 AM	46581		
Chloride	3800	150	mg/Kg	100	8/5/2019 1:26:02 PM	46581		
Nitrogen, Nitrite (As N)	ND	6.0	mg/Kg	20	8/5/2019 10:57:07 AM	46581		
Bromide	37	6.0	mg/Kg	20	8/5/2019 10:57:07 AM	46581		
Nitrogen, Nitrate (As N)	0.96	0.30	mg/Kg	1	8/5/2019 10:44:43 AM	46581		
Sulfate	980	30	mg/Kg	20	8/5/2019 10:57:07 AM	46581		
RESISTIVITY AND EC SOIL					Analyst	JRR		
Conductivity	7070	1.00	µmhos/c	1	8/6/2019 8:36:00 AM	46596		
EPA METHOD 6010B: SOIL METALS					Analyst	bcv		
Calcium	82000	490	mg/Kg	20	8/6/2019 9:33:03 PM	46603		
Magnesium	4500	120	mg/Kg	5	8/6/2019 5:39:29 PM	46603		
Potassium	640	240	mg/Kg	5	8/6/2019 5:39:29 PM	46603		
Sodium	1700	120	mg/Kg	5	8/6/2019 5:39:29 PM	46603		

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:** 

- \* Value exceeds Maximum Contaminant Level. D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

Page 1 of 10

### Hall Environmental Analysis Laboratory, Inc.

Lab Order 1908144

Date Reported: 8/8/2019

CLIENT: Lucid Energy Delaware Project: Juniper Release		Cli (	ient Sample ID Collection Date	: Ba : 8/1	se @ 8Ft /2019	
Lab ID: 1908144-002	Matrix: SOIL		<b>Received Date</b>	/2019 9:30:00 AM		
Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Fluoride	0.43	0.30	mg/Kg	1	8/5/2019 11:09:31 AM	46581
Chloride	4700	300	mg/Kg	200	) 8/5/2019 1:38:27 PM	46581
Nitrogen, Nitrite (As N)	ND	6.0	mg/Kg	20	8/5/2019 11:21:56 AM	46581
Bromide	50	6.0	mg/Kg	20	8/5/2019 11:21:56 AM	46581
Nitrogen, Nitrate (As N)	1.4	0.30	mg/Kg	1	8/5/2019 11:09:31 AM	46581
Sulfate	640	30	mg/Kg	20	8/5/2019 11:21:56 AM	46581
RESISTIVITY AND EC SOIL					Analyst	JRR
Conductivity	7500	1.00	µmhos/c	1	8/6/2019 8:36:00 AM	46596
EPA METHOD 6010B: SOIL METALS					Analyst	bcv
Calcium	150000	1200	mg/Kg	50	8/6/2019 9:36:26 PM	46603
Magnesium	4300	120	mg/Kg	5	8/6/2019 5:41:10 PM	46603
Potassium	580	240	mg/Kg	5	8/6/2019 5:41:10 PM	46603
Sodium	2500	120	mg/Kg	5	8/6/2019 5:41:10 PM	46603

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:** 

- \* Value exceeds Maximum Contaminant Level. D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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### Hall Environmental Analysis Laboratory, Inc.

Lab Order 1908144

Date Reported: 8/8/2019

CLIENT: Lucid I Project: Juniper	Energy Delaware r Release	Client Sample ID: Wall-Comp Collection Date: 8/1/2019									
Lab ID: 190814	44-003	Matrix: SOIL	_	Received Date	e: 8/3	3/2019 9:30:00 AM					
Analyses		Result	RL	Qual Units	DF	Date Analyzed	Batch				
EPA METHOD 30	00.0: ANIONS					Analyst	CAS				
Fluoride		1.1	0.30	mg/Kg	1	8/5/2019 11:34:20 AM	46581				
Chloride		1400	75	mg/Kg	50	8/5/2019 1:50:52 PM	46581				
Nitrogen, Nitrite (A	As N)	ND	6.0	mg/Kg	20	8/5/2019 11:46:45 AM	46581				
Bromide		13	0.30	mg/Kg	1	8/5/2019 11:34:20 AM	46581				
Nitrogen, Nitrate	(As N)	2.8	0.30	mg/Kg	1	8/5/2019 11:34:20 AM	46581				
Sulfate		300	30	mg/Kg	20	8/5/2019 11:46:45 AM	46581				
RESISTIVITY AN	ID EC SOIL					Analyst	JRR				
Conductivity		3970	1.00	µmhos/o	: 1	8/6/2019 8:36:00 AM	46596				
EPA METHOD 60	010B: SOIL METALS					Analyst	bcv				
Calcium		66000	480	mg/Kg	20	8/6/2019 9:39:49 PM	46603				
Magnesium		4100	120	mg/Kg	5	8/6/2019 5:42:52 PM	46603				
Potassium		710	240	mg/Kg	5	8/6/2019 5:42:52 PM	46603				
Sodium		710	120	mg/Kg	5	8/6/2019 5:42:52 PM	46603				

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:** 

- \* Value exceeds Maximum Contaminant Level. D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Hall Environmental Analy	sis Laboratorv. I	nc.			Analytical Report Lab Order 1908144 Date Reported: 8/8/201	10	
CLIENT: Lucid Energy Delaware Project: Juniper Release		Clien	t Sample I lection Dat	<b>D:</b> SP	1/2019		
Lab ID: 1908144-004	Matrix: SOIL         Received Date: 8/3/2019 9:30:00 AM						
Analyses	Result	RL Qu	ıal Units	DF	Date Analyzed	Batch	
EPA METHOD 300.0: ANIONS					Analys	t: CAS	
Chloride	3700	150	mg/Kg	50	8/5/2019 2:03:16 PM	46581	

Qualifiers:

- \* Value exceeds Maximum Contaminant Level.D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Analytical Report       Lab Order 1908144         Hall Environmental Analysis Laboratory, Inc.       Date Reported: 8/8/2         ELIENT: Lucid Energy Delaware       Client Sample ID: SP2         roject:       Juniper Release       Collection Date: 8/1/2019         ab ID:       1908144-005       Matrix: SOIL       Received Date: 8/3/2019 9:30:00 AM         Analyses       Result       RL       Qual       Units       DF       Date Analyzed         EPA METHOD 300.0: ANIONS       Analy		19						
CLIENT: Lucid Energy Delaware Project: Juniper Release		Clien	t Sample II lection Dat	D: SP e: 8/1	2			
Lab ID: 1908144-005	Matrix: SOILReceived Date: 8/3/2019 9:30:00 AM							
Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch		
EPA METHOD 300.0: ANIONS					Analys	t: CAS		
Chloride	3700	150	mg/Kg	50	8/5/2019 2:15:40 PM	46581		

Qualifiers:

- \* Value exceeds Maximum Contaminant Level.D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Analytical Report       Lab Order 1908144         Hall Environmental Analysis Laboratory, Inc.       Client Sample ID: SP3         CLIENT: Lucid Energy Delaware       Client Sample ID: SP3         Project:       Juniper Release       Collection Date: 8/1/2019         Jub ID:       1908144-006       Matrix: SOIL       Received Date: 8/3/2019 9:30:00 AM         Analyses       Result       RL Qual Units       DF Date Analyzed         EPA METHOD 300.0: ANIONS       Analyse		19						
CLIENT: Lucid Energy Delaware Project: Juniper Release		Clien Col	t Sample I lection Dat	<b>D:</b> SP	'3 1/2019			
Lab ID: 1908144-006	Matrix: SOILReceived Date: 8/3/2019 9:30:00 AM							
Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch		
EPA METHOD 300.0: ANIONS					Analys	t: CAS		
Chloride	3700	150	mg/Kg	50	8/5/2019 2:28:04 PM	46581		

Qualifiers:

- \* Value exceeds Maximum Contaminant Level.D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Analytical Report       Lab Order 1908144         Lab Order 1908144       Date Reported: 8/8/2019         Client Sample ID: SP4       Collection Date: 8/1/2019         roject:       Juniper Release       Collection Date: 8/1/2019         ab ID:       1908144-007       Matrix: SOIL       Received Date: 8/3/2019 9:30:00 AM         Analyses       Result       RL Qual Units       DF Date Analyzed				19		
CLIENT: Lucid Energy Delaware Project: Juniper Release		Clien Coll	t Sample II lection Dat	<b>D:</b> SP te: 8/1	24 1/2019	
Lab ID: 1908144-007	Matrix: SOIL	Re	ceived Dat	t <b>e:</b> 8/3	3/2019 9:30:00 AM	
Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analys	st: CAS
Chloride	5100	150	mg/Kg	50	8/5/2019 3:05:19 PM	46581

Qualifiers:

- \* Value exceeds Maximum Contaminant Level.D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Analytical Report       Lab Order 1908144         Hall Environmental Analysis Laboratory, Inc.       Client Sample ID: SP5         CLIENT:       Lucid Energy Delaware       Client Sample ID: SP5         Project:       Juniper Release       Collection Date: 8/1/2019         Jub ID:       1908144-008       Matrix: SOIL       Received Date: 8/3/2019 9:30:00 AM         Analyses       Result       RL       Qual Units       DF       Date Analyzed         EPA METHOD 300.0: ANIONS       Analysis       Analyses       Analyses		19				
CLIENT: Lucid Energy Delaware Project: Juniper Release		Clien	t Sample I lection Dat	<b>D:</b> SP	<b>25</b>	
Lab ID: 1908144-008	Matrix: SOIL	Re	ceived Dat	<b>:::</b> 8/3	3/2019 9:30:00 AM	
Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analys	t: CAS
Chloride	1500	60	mg/Kg	20	8/5/2019 1:13:37 PM	46581

Qualifiers:

- \* Value exceeds Maximum Contaminant Level.D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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# QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client: Project:	Lu Jur	cid Energy Delaw niper Release	are								
Sample ID: M	B-46581	SampTy	ype: ME	BLK	Tes	tCode: El	PA Method	300.0: Anion	s		
Client ID: PE	BS	Batch	ID: 46	581	F	RunNo: 61901					
Prep Date: 8	8/5/2019	Analysis Da	ate: <b>8/</b>	5/2019	S	BeqNo: 2	099842	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride		ND	0.30								
Chloride		ND	1.5								
Nitrogen, Nitrite (A	As N)	ND	0.30								
Bromide		ND	0.30								
Nitrogen, Nitrate (A	As N)	ND	0.30								
Sulfate		ND	1.5								
Sample ID: LC	CS-46581	SampTy	ype: LC	s	Tes	tCode: El	PA Method	300.0: Anion	S		
Client ID: LC	css	Batch	ID: 46	581	F	RunNo: 6	1901				
Prep Date: 8	8/5/2019	Analysis Da	ate: <b>8/</b>	5/2019	S	SeqNo: 2	099843	Units: mg/K	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride		1.5	0.30	1.500	0	97.9	90	110			
Chloride		14	1.5	15.00	0	92.1	90	110			
Nitrogen, Nitrite (A	As N)	2.8	0.30	3.000	0	93.7	90	110			
Bromide		7.0	0.30	7.500	0	94.0	90	110			
Nitrogen, Nitrate (A	As N)	7.3	0.30	7.500	0	96.7	90	110			
Sulfate		28	1.5	30.00	0	94.8	90	110			

Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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1908144

08-Aug-19

WO#:

# QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client: Project:	Lucid I Juniper	Energy Delav r Release	vare										
Sample ID:	MB-46603	SampT	ype: ME	BLK	TestCode: EPA Method 6010B: Soil Metals								
Client ID:	PBS	Batch	D: 46	603	RunNo: 61954								
Prep Date: 8/5/2019		Analysis Date: 8/6/2019		SeqNo: 2101426			Units: mg/Kg						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Calcium		ND	25										
Magnesium		ND	25										
Potassium		ND	50										
Sodium		ND	25										
Sample ID: I	LCS-46603	SampT	ype: LC	S	Tes	tCode: El	PA Method	6010B: Soil I	Metals				
Client ID:	LCSS	Batch	ID: 46	603	F	RunNo: 6	1954						
Prep Date:	8/5/2019	Analysis D	ate: 8/	6/2019	S	SeqNo: 2	101428	Units: mg/K	٢g				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Calcium		2600	25	2500	0	104	80	120					
Magnesium		2500	25	2500	0	101	80	120					
Potassium		2500	50	2500	0	99.9	80	120					
Sodium		2500	25	2500	0	99.2	80	120					

Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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1908144

08-Aug-19

WO#:

HALL ENVIRONMENTAL ANALYSIS LABORATORY	.H T	Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com Work Order Number: 1908144					Sample Log-In Check List				
Client Name: LUCID ENER	GY DELAW Wor	k Order Numbe	er: 190	8144			RcptNo: 1				
Received By: Erin Melendr	ez 8/3/20	19 9:30:00 AM			UL.	NE	-				
Completed By: Erin Melendr	ez 8/3/20	19 10:33:13 AI	M		UL.	MA,					
Reviewed By: DAD \$151	19					Ú					
Chain of Custody											
1. Is Chain of Custody complete	?		Yes		No		Not Present				
2. How was the sample delivere	d?		Cou	rier							
Log In											
3. Was an attempt made to cool	the samples?		Yes		No		NA 🗌				
4. Were all samples received at	a temperature of >0° C	C to 6.0°C	Yes		No						
5. Sample(s) in proper container	(s)?		Yes		No						
6. Sufficient sample volume for in	ndicated test(s)?		Yes		No						
7. Are samples (except VOA and	ONG) properly present	ved?	Yes		No						
8. Was preservative added to bo	ttles?		Yes		No	V	NA 🗌				
9. VOA vials have zero headspace	ce?		Yes		No		No VOA Vials 🗹				
10. Were any sample containers r	eceived broken?		Yes		No		# of preserved	/			
11. Does paperwork match bottle (Note discrepancies on chain o	abels? of custody)		Yes		No		for pH: (<2 or >12 unles	s noted)			
12. Are matrices correctly identifie	d on Chain of Custody	?	Yes	V	No		Adjusted?				
13, Is it clear what analyses were	requested?		Yes	V	No						
<ol> <li>Were all holding times able to (If no, notify customer for authors)</li> </ol>	be met? orization.)		Yes		No		Checked by: ENM	8/5/19			
Special Handling (if applic	able)										
15. Was client notified of all discre	epancies with this order	r?	Yes		No		NA 🔽				
Person Notified:		Date:									
By Whom:		Via:	eMa	ail 🗌 Ph	none 🗌	Fax [	In Person				
Regarding:											
Client Instructions:											
16. Additional remarks:											
17. <u>Cooler Information</u> Cooler No Temp °C C	Condition Seal Intact	Seal No	Seal D	ate	Signed I	By					
1 4.0 Go	od Yes		1 - 10 - E								

Page 1 of 1

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I = I	naina	· 6/2	4/20	21 1	-53-15	PM	1	L										_	I		30



August 13, 2019

Lori O'Brien Lucid Energy Delaware 326 West Quay St Artesia, NM 88210 TEL: (575) 513-8988 FAX: TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory

OrderNo.: 1908494

RE: Juniper Release

Dear Lori O'Brien:

Hall Environmental Analysis Laboratory received 9 sample(s) on 8/9/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

andy

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Hall Enviror	nmental Analysis L	aboratory, Inc	•			I I	Analytical Rep Lab Order: 19084 Date Reported: 8	ort 194 3/13/2	.019
CLIENT: Project:	Lucid Energy Delaware Juniper Release				Ι	.ab (	<b>)rder:</b> 19	0849	4
Lab ID:	1908494-001		0	Collecti	on Date	<b>e:</b> 8/	7/2019 7:00:00	PM	
Client Sample ID:	: SP #3				Matrix	: SC	DIL		
Analyses		Result	RL	Qual	Units	DF	Date Analyze	d	Batch ID
EPA METHOD 30 Chloride	00.0: ANIONS	4900	150		mg/Kg	50	8/12/2019 12:0	Analy 7:23 F	yst: <b>CAS</b> PM 46711
Lab ID:	1908494-002		0	Collecti	on Date	e: 8/	7/2019 7:00:00	PM	
Client Sample ID:	: SP #4				Matrix	s: SC	DIL		
Analyses		Result	RL	Qual	Units	DF	Date Analyze	d	Batch ID
EPA METHOD 30	0.0: ANIONS							Analy	yst: CAS
Chloride		4900	150		mg/Kg	50	8/12/2019 12:1	9:47 F	PM 46711
Lab ID:	1908494-003		0	Collecti	on Date	<b>e:</b> 8/	7/2019 7:00:00	PM	
Client Sample ID:	: Wall East				Matrix	s: SC	DIL		
Analyses		Result	RL	Qual	Units	DF	Date Analyze	d	Batch ID
EPA METHOD 30 Chloride	00.0: ANIONS	3300	150		mg/Kg	50	8/12/2019 12:3	Analy 2:11 F	yst: <b>CAS</b> PM 46711
Lab ID:	1908494-004		0	Collecti	on Date	e: 8/	7/2019 7:00:00	PM	
Client Sample ID:	Surf Exc #1				Matrix	s: sc	DIL		
Analyses		Result	RL	Qual	Units	DF	Date Analyze	d	Batch ID
EPA METHOD 30 Chloride	00.0: ANIONS	4600	150		mg/Kg	50	8/12/2019 12:4	Analy 4:35 F	yst: <b>CAS</b> PM 46711
Lab ID:	1908494-005		0	Collecti	on Date	e: 8/	7/2019 7:00:00	PM	
Client Sample ID:	: Surf Exc #5				Matrix	: SC	DIL		
Analyses		Result	RL	Qual	Units	DF	Date Analyze	d	Batch ID
EPA METHOD 30	0.0: ANIONS							Analy	yst: CAS
Chloride		8000	300		mg/Kg	10	0 8/12/2019 1:21	:49 Pl	M 46711

\* Value exceeds Maximum Contaminant Level. Qualifiers:

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix s

Analyte detected in the associated Method Blank Е Value above quantitation range

Analyte detected below quantitation limits J

Sample pH Not In Range Р

RL Reporting Limit

в

Page 1 of 3

Hall Environ	mental Analysis La	aboratory, Inc.				A I I	Analytical R Lab Order: 19 Date Reported	leport 08494 :: 8/13,	/2019	
CLIENT: I Project: J	Lucid Energy Delaware uniper Release				L	.ab C	)rder:	19084	.94	
Lab ID:	1908494-006		C	Collecti	on Date	: 8/7	7/2019 7:00:	00 PM		
Client Sample ID:	Surf Exc #8				Matrix	: SC	DIL			
Analyses		Result	RL	Qual	Units	DF	Date Anal	yzed	Bat	ch ID
EPA METHOD 300 Chloride	0.0: ANIONS	3300	150		mg/Kg	50	8/12/2019 1	Ana 1:34:14	alyst: PM	<b>CAS</b> 46711
	1002404 007		-		D (	0./7	7/2010 7.00	00 DM		
Lab ID: Client Semple ID:	1908494-007 Tranch Pasa		C	ollecti	on Date Motrix	8. 8/ / 	//2019 /:00: )]]	00 PM		
Analyses	Trench Base	Result	RL	Qual	Units	DF	Date Anal	yzed	Bat	ch ID
EPA METHOD 300 Chloride	).0: ANIONS	840	59		mg/Kg	20	8/9/2019 7:	Ana 01:20 P	alyst: M	<b>CAS</b> 46711
Lab ID:	1908494-008		C	Collecti	on Date	: 8/7	7/2019 7:00:	00 PM		
Client Sample ID:	SP #1				Matrix	s: SC	DIL			
Analyses		Result	RL	Qual	Units	DF	Date Anal	yzed	Bat	ch ID
EPA METHOD 300 Chloride	0.0: ANIONS	1100	60		mg/Kg	20	8/9/2019 7:	Ana 13:44 P	alyst: M	<b>CAS</b> 46711
Lab ID:	1908494-009		C	Collecti	on Date	: 8/7	7/2019 7:00:	00 PM		
Client Sample ID:	SP #2				Matrix	: SC	DIL			
Analyses		Result	RL	Qual	Units	DF	Date Anal	yzed	Bat	ch ID
EPA METHOD 300 Chloride	).0: ANIONS	1100	60		mg/Kg	20	8/9/2019 7:	Ana 26:09 P	alyst: M	<b>CAS</b> 46711

Qualifiers:

\* Value exceeds Maximum Contaminant Level.

- D Sample Diluted Due to Matrix
  - H Holding times for preparation or analysis exceeded
  - ND Not Detected at the Reporting Limit
  - PQL Practical Quanitative Limit
  - % Recovery outside of range due to dilution or matrix s

- Analyte detected in the associated Method Blank Е Value above quantitation range
- Analyte detected below quantitation limits J
- Sample pH Not In Range Р
- RL Reporting Limit

в

Page 2 of 3

Client: Project:	Lucid Junip	Energy Delaw er Release	vare								
Sample ID:	MB-46711	SampT	ype: ME	BLK	Tes	tCode: EF	PA Method	300.0: Anion	s		
Client ID:	PBS	Batch	ID: 46	711	F	RunNo: 62	2026				
Prep Date:	8/9/2019	Analysis D	ate: 8/	9/2019	S	SeqNo: 21	105614	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		ND	1.5								
Sample ID:	LCS-46711	SampT	ype: LC	S	Tes	tCode: EF	PA Method	300.0: Anion	s		
Client ID:	LCSS	Batch	ID: 46	711	F	RunNo: 62	2026				
Prep Date:	8/9/2019	Analysis D	ate: 8/	9/2019	S	SeqNo: 21	105615	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		14	1.5	15.00	0	93.9	90	110			

### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

1908494

13-Aug-19

WO#:

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HALL ENVIRONMENTAL ANALYSIS LABORATORY	Hall Environmental Albu TEL: 505-345-3975 Website: www.ha	Analysis Labora 4901 Hawkins iquerque, NM 87 FAX: 505-345-4 llenvironmental.	tory 109 <b>Sam</b> 107 com	ple Log-In Check	List
Client Name: LUCID ENERGY DELAW	Work Order Number:	1908494		RcptNo: 1	
Received By: Danel M.	8/9/2019 8:30:00 AM				
Completed By: Leah Baca	8/9/2019 10:02:15 AM		Look Baca		
Reviewed By:	8/9/19		//		
Chain of Custody		_		_	
1. Is Chain of Custody complete?		Yes 🗹	No 🗌	Not Present	
2. How was the sample delivered?		<u>Courier</u>			
Log In 3. Was an attempt made to cool the samples?		Yes 🗹	No 🗌	NA 🗌	
4. Were all samples received at a temperature	of >0° <b>C</b> to 6.0°C	Yes 🗹	No 🗌		
5. Sample(s) in proper container(s)?		Yes 🗹	No 🗌		
6. Sufficient sample volume for indicated test(s	s)?	Yes 🗹	No 🗌		
7. Are samples (except VOA and ONG) proper	ly preserved?	Yes 🗹	No 🗌		
8. Was preservative added to bottles?		Yes 🗌	No 🗹	NA 🗆	
9. VOA vials have zero headspace?		Yes 🗌	No 🗌	No VOA Vials 🗹	
10. Were any sample containers received broke	en?	<sub>Yes</sub> □	No 🗹 👔		
11. Does paperwork match bottle labels?		Yes 🗹	No 🗌	# of preserved bottles checked for pH:	
(Note discrepancies on chain of custody)	Custodu?	Vaa 🖌		Adjusted?	ss noted)
12. Is it clear what analyses were requested?	Custody?	Ves 🗸		. /	
14. Were all holding times able to be met? (If no, notify customer for authorization.)		Yes 🗹		Checked by: DAD 8	3 <u>/9/</u> 19
Special Handling (if applicable)				ł	
15. Was client notified of all discrepancies with	this order?	Yes	No 🗌		
Person Notified: By Whom: Regarding: Client Instructions:	Date Via:	] eMail 🗌 P	hone 🗌 Fax		
16. Additional remarks:					
17. <u>Cooler Information</u> Cooler No. Temp <sup>o</sup> C Condition § 1 4.2 Good Ye 2 5.5 Good Ye	eal intact Seal No S 15 15	eal Date	Signed By		

Page 1 of 1

Received by OCD: 4/30/2021 2:53:06 PM

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August 19, 2019

Kerry Egan Lucid Energy Delaware 326 WEst Quay St Artesia, NM 88210 TEL: (575) 513-8988 FAX: Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

OrderNo.: 1908762

RE: Juniper Pit

Dear Kerry Egan:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/14/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

andy

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

### Hall Environmental Analysis Laboratory, Inc.

Lab Order 1908762

Date Reported: 8/19/2019

CLIENT:	Lucid Energy Delaware		Cl	ient Sample II	D: SP	P 1	
Project:	Juniper Pit		(	Collection Dat	e: 8/1	12/2019 3:15:00 PM	
Lab ID:	1908762-001	Matrix: SOIL		<b>Received Date</b>	<b>e:</b> 8/1	14/2019 9:00:00 AM	
Analyses		Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA MET	THOD 300.0: ANIONS					Analyst	CAS
Chloride		1500	60	mg/Kg	20	8/15/2019 12:19:01 PM	46814
EPA MET	THOD 8015D MOD: GASOLIN	NE RANGE				Analyst	: JMR
Gasoline	e Range Organics (GRO)	ND	4.9	mg/Kg	1	8/15/2019 2:59:53 PM	46788
Surr: I	BFB	91.4	70-130	%Rec	1	8/15/2019 2:59:53 PM	46788
EPA MET	THOD 8015M/D: DIESEL RAM	NGE ORGANICS				Analyst	: JME
Diesel R	ange Organics (DRO)	ND	9.7	mg/Kg	1	8/16/2019 9:00:26 AM	46811
Surr: I	DNOP	119	70-130	%Rec	1	8/16/2019 9:00:26 AM	46811
EPA MET	THOD 8260B: VOLATILES SI	HORT LIST				Analyst	JMR
Benzene	9	ND	0.024	mg/Kg	1	8/15/2019 2:59:53 PM	46788
Toluene		ND	0.049	mg/Kg	1	8/15/2019 2:59:53 PM	46788
Ethylben	izene	ND	0.049	mg/Kg	1	8/15/2019 2:59:53 PM	46788
Xylenes,	Total	ND	0.098	mg/Kg	1	8/15/2019 2:59:53 PM	46788
Surr:	1,2-Dichloroethane-d4	99.6	70-130	%Rec	1	8/15/2019 2:59:53 PM	46788
Surr: 4	4-Bromofluorobenzene	98.3	70-130	%Rec	1	8/15/2019 2:59:53 PM	46788
Surr: I	Dibromofluoromethane	103	70-130	%Rec	1	8/15/2019 2:59:53 PM	46788
Surr:	Toluene-d8	99.2	70-130	%Rec	1	8/15/2019 2:59:53 PM	46788

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:** 

- \* Value exceeds Maximum Contaminant Level. D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

Page 1 of 5

Client: Project:	Lucio Juniț	l Energy Delawar ber Pit	e								
Sample ID:	MB-46814	SampType	e: <b>m</b> k	olk	Tes	tCode: EF	PA Method	300.0: Anion	s		
Client ID:	PBS	Batch ID	: 46	814	R	RunNo: 62	2163				
Prep Date:	8/15/2019	Analysis Date	e: <b>8/</b>	15/2019	S	SeqNo: 2'	111358	Units: <b>mg/K</b>	g		
Analyte		Result F	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		ND	1.5								
Sample ID:	LCS-46814	SampType	e: Ics	5	Tes	tCode: EF	PA Method	300.0: Anion	s		
Client ID:	LCSS	Batch ID	: 46	814	R	RunNo: 62	2163				
Prep Date:	8/15/2019	Analysis Date	e: <b>8/</b>	15/2019	S	SeqNo: 2	111359	Units: mg/K	g		
Analyte		Result F	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		14	1.5	15.00	0	93.2	90	110			

#### **Qualifiers:**

- Value exceeds Maximum Contaminant Level. \*
- D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- Analyte detected in the associated Method Blank в
- Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

1908762

19-Aug-19

WO#:

Value above quantitation range

# QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client:	Lucid Ene	ergy Delawa	are								
Project:	Juniper Pi	t									
Sample ID:	MB-46811	SampTy	pe: <b>M</b>	BLK	Tes	tCode: EF	PA Method	8015M/D: Die:	sel Rang	e Organics	
Client ID:	PBS	Batch	ID: 46	811	R	unNo: 62	2182				
Prep Date:	8/15/2019	Analysis Da	ite: <b>8/</b>	16/2019	S	eqNo: 2	111126	Units: mg/Kg	J		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range (	Organics (DRO)	ND	10								
Surr: DNOP		12		10.00		117	70	130			
Sample ID:	LCS-46811	SampTy	pe: LC	S	Tes	tCode: EF	PA Method	8015M/D: Die:	sel Rang	e Organics	
Client ID:	LCSS	Batch	ID: <b>46</b>	811	R	unNo: 62	2182				
Prep Date:	8/15/2019	Analysis Da	ite: 8/	16/2019	S	eqNo: 21	111132	Units: mg/Kg	J		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range (	Organics (DRO)	54	10	50.00	0	108	63.9	124			
Surr: DNOP		5.2		5.000		105	70	130			
Sample ID:	MB-46844	SampTy	pe: ME	BLK	Tes	tCode: EF	PA Method	8015M/D: Dies	sel Rang	e Organics	
Client ID:	PBS	Batch	ID: <b>46</b>	844	R	unNo: 62	2182				
Prep Date:	8/16/2019	Analysis Da	ite: <b>8/</b>	16/2019	S	eqNo: 2	111354	Units: %Rec			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP		9.5		10.00		95.1	70	130			
Sample ID:	LCS-46844	SampTy	pe: <b>LC</b>	s	Tes	tCode: EF	PA Method	8015M/D: Die:	sel Rang	e Organics	
Client ID:	LCSS	Batch	ID: 46	844	R	unNo: 62	2182				
Prep Date:	8/16/2019	Analysis Da	ite: <b>8/</b>	16/2019	S	SeqNo: 21	111920	Units: %Rec			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP		4.5		5.000		90.3	70	130			

Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 3 of 5

1908762

19-Aug-19

WO#:

# QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client: Project:	Lucid Energy I Juniper Pit	Delawar	9								
Sample ID: Ics-4678	38 S	ampType	: LC	S	Tes	tCode: El	PA Method	8260B: Volat	tiles Short	List	
Client ID: LCSS		Batch ID	467	788	F	RunNo: 6	2184				
Prep Date: 8/14/20	019 Anal	ysis Date	8/	15/2019	S	SeqNo: 2	111236	Units: mg/K	٢g		
Analyte	Res	sult P	QL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0	.88 0.	025	1.000	0	88.0	68	135			
Toluene	0	.95 0.	050	1.000	0	94.8	70	130			
Surr: 1,2-Dichloroethan	e-d4 0	.50		0.5000		101	70	130			
Surr: 4-Bromofluorober	nzene 0	.49		0.5000		97.5	70	130			
Surr: Dibromofluoromet	thane 0	.51		0.5000		101	70	130			
Surr: Toluene-d8	0	.48		0.5000		96.4	70	130			
Sample ID: mb-467	<b>88</b> S	ampType	: Me	BLK	Tes	tCode: El	PA Method	8260B: Volat	tiles Short	List	
Client ID: PBS		Batch ID	467	788	F	RunNo: 6	2184				
Prep Date: 8/14/20	019 Anal	ysis Date	8/	15/2019	S	SeqNo: 2	111237	Units: mg/K	٢g		
Analyte	Re	sult P	QL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene		ND 0.	025								
Toluene		ND 0.	050								
Ethylbenzene		ND 0.	050								
Xylenes, Total		ND (	0.10								
Surr: 1,2-Dichloroethan	e-d4 0	.48		0.5000		96.4	70	130			
Surr: 4-Bromofluorober	nzene 0	.50		0.5000		100	70	130			
Surr: Dibromofluoromet	thane 0	.50		0.5000		99.7	70	130			
Surr: Toluene-d8	0	.51		0.5000		102	70	130			

Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 4 of 5

1908762

19-Aug-19

WO#:
## QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client: Project:	Lucid End Juniper P	ergy Delav it	vare								
Sample ID:	lcs-46788	SampT	ype: LC	S	Tes	tCode: EF	PA Method	8015D Mod:	Gasoline	Range	
Client ID:	LCSS	Batch	n ID: 46	788	R	RunNo: 62	2184				
Prep Date:	8/14/2019	Analysis D	ate: 8/	15/2019	S	SeqNo: 2	111350	Units: mg/k	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range	e Organics (GRO)	21	5.0	25.00	0	83.6	70	130			
Surr: BFB		450		500.0		90.8	70	130			
Sample ID:	mb-46788	SampT	ype: ME	BLK	Tes	tCode: EF	PA Method	8015D Mod:	Gasoline	Range	
Client ID:	PBS	Batch	n ID: 46	788	R	RunNo: 62	2184				
Prep Date:	8/14/2019	Analysis D	ate: <b>8/</b>	15/2019	S	SeqNo: 2'	111351	Units: mg/k	ſg		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range	e Organics (GRO)	ND	5.0								
Surr: BFB		470		500.0		94.8	70	130			

Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 5 of 5

1908762

19-Aug-19

WO#:

	RONMENTAL YSIS RATORY	Hall Environmental Alb TEL: 505-345-3975 Website: www.hc	Analys 4901 uquerqu FAX: S allenviro	is Laboratory Hawkins NE 105-345-4107 https://www.com		Sam	ple Log-In Che	ck List
Client Name:	LUCID ENERGY DELAW	Work Order Number	: 1908	762			ReptNo: 1	
Received By:	Desiree Dominguez	8/14/2019 9:00:00 AM		-	Ð	Ž		
Completed By: Reviewed By:	Erin Melendrez	8/14/2019 9:35:06 AM Thill G		V	G	n.	2	
Chain of Cus	stody							
1. Is Chain of C	ustody complete?		Yes	$\checkmark$	No		Not Present	
2. How was the	sample delivered?		<u>Couri</u>	er				
<u>Log In</u> 3. Was an atten	npt made to cool the samples?	,	Yes		No			
4. Were all sam	ples received at a temperature	of >0° C to 6.0°C	Yes	<b>~</b>	No			
5. Sample(s) in	proper container(s)?		Yes		No			
6. Sufficient sam	npie volume for indicated test(s	;)?	Yes [		No			
7. Are samples (	(except VOA and ONG) proper	ly preserved?	Yes		No			
8. Was preserva	tive added to bottles?		Yes		No	✓	NA 🗌	
9. VOA vials hav	/e zero headspace?		Yes [		No		No VOA Vials 🖌	
10. Were any sar	mple containers received broke	en?	Yes (		No		# of preserved	
11. Does paperwo (Note discrepa	ork match bottle labels? ancies on chain of custody)		Yes [		No		for pH: (<2 or >12	unless noted)
12. Are matrices of	correctly identified on Chain of	Custody?	Yes [		No		Adjusted?	
13. Is it clear wha	t analyses were requested?		Yes		No			
14. Were all holdi (If no, notify ci	ng times able to be met? ustomer for authorization.)		Yes	✓	No		Checked by: DA	<u> 8/14/19</u>
Special Handl	ing (if applicable)							
15. Was client no	otified of all discrepancies with	this order?	Yes		No		NA 🗹	
Person	Notified:	Date:						
By Who	om:	Via:	eMai	I D Phone	e 🗌	Fax	In Person	
Regard	ing:	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·		
Client II	nstructions:							
16. Additional re	marks:						رو	
17. <u>Cooler Infor</u> Cooler No	mation Temp °C Condition S	eal Intact Seal No S	eal Da	e Sigi	ned l	By -		
1	1.9 Good Ye	S						

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	Rush48		d d							19-0.	tive	19  - 		-						_		-		No.	Dat	x 8/14	atories. This se
d Time:	لم لك و	ne:	Ni per	\$		lager:			K Tes	D(including CF).	    Tvne	TCE							_					VIA	Via:	COULT	ccredited labora
Turn-Arour	□ Standa	Project Nar	R	Project #:		Project Mar		Sampler:	<u>ur iue.</u> # of Coolers	Cooler Tem	Container Tvpe and #	4oz Sei 11				i							and Mind		eceived of .		tracted to other a
lecord					1	- Energy. com	ull Validation)				me													<u> </u>			mental may be subcor
ustody F	heray	)	Pile"	I	07874	it @ lucid	🗆 Level 4 (F	ompliance r			Sample Na	SP.1											ed thur	aut	¢d by:		mitted to Hall Enviror
n-of-C	eid E		iss: KON		u 33	- MG av	<u>i</u> 1	□ Az C □ Othe		 	Matrix	S											Relinauish	NA	Relinquist	D	y, samples sut
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	Client	Ţ	Mailin		Phone	email DA/DC	□ Sta	Accrec			Date	8/12			i					ł			Date:	m/c1/8	Date:	013119	-



August 26, 2019

Lori O'Brien Lucid Energy Delaware 201 South 4th St. Artesia, NM 88210 TEL: (575) 513-8988 FAX:

OrderNo.: 1908928

Hall Environmental Analysis Laboratory

TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

4901 Hawkins NE

Albuquerque, NM 87109

**RE:** Juniper Release

Dear Lori O'Brien:

Hall Environmental Analysis Laboratory received 21 sample(s) on 8/16/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

andy

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Hall Environ	mental Analysis La	aboratory, Inc.				I I	<b>Analyt</b> Lab Ord Date Re	i <b>cal Repo</b> er: <b>19089</b> 2 ported: <b>8</b> /	rt 28 /26/201	9
CLIENT: Project:	Lucid Energy Delaware Juniper Release				L	.ab (	)rder:	190	)8928	
Lab ID:	1908928-001		C	Collecti	on Date	: 8/2	14/201	9		
Client Sample ID:	Base 1				Matrix	: SC	DIL			
Analyses		Result	RL	Qual	Units	DF	Date	Analyzed	I B	atch ID
EPA METHOD 30 Chloride	0.0: ANIONS	2300	60		mg/Kg	20	8/22/2	<i>4</i> :2019 4:16	Analyst 35 PM	:: <b>CAS</b> 46985
Lab ID:	1908928-002		С	Collecti	on Date	: 8/	14/201	9		
<b>Client Sample ID:</b>	Base 2				Matrix	s: sc	DIL			
Analyses		Result	RL	Qual	Units	DF	Date	Analyzed	I B	atch ID
EPA METHOD 30	0.0: ANIONS							Ļ	Analyst	CAS
Chloride		110	60		mg/Kg	20	8/22/2	2019 4:29:0	00 PM	46985
Lab ID:	1908928-003		С	Collecti	on Date	: 8/	14/201	9		
Client Sample ID:	Base 3				Matrix	s: sc	DIL			
Analyses		Result	RL	Qual	Units	DF	Date	Analyzed	I B	atch ID
EPA METHOD 30	0.0: ANIONS							Ļ	Analyst	CAS
Chloride		250	60		mg/Kg	20	8/22/2	2019 4:41:	25 PM	46985
Lab ID:	1908928-004		С	Collecti	on Date	: 8/	14/201	9		
Client Sample ID:	Base 4				Matrix	: SC	DIL			
Analyses		Result	RL	Qual	Units	DF	Date	Analyzed	I B	atch ID
EPA METHOD 30 Chloride	0.0: ANIONS	410	60		mg/Kg	20	8/22/2	۹ 2019 5:43:	Analyst 27 PM	:: <b>CAS</b> 46993
Lab ID:	1908928-005		С	Collecti	on Date	<b>: 8</b> /2	14/201	9		
Client Sample ID:	Base 5				Matrix	s: sc	DIL			
Analyses		Result	RL	Qual	Units	DF	Date	Analyzed	I B	atch ID
EPA METHOD 30	0.0: ANIONS							ļ	Analyst	CAS
Chloride		1100	60		mg/Kg	20	8/22/2	2019 5:55:	52 PM	46993

Value exceeds Maximum Contaminant Level.

- \* Qualifiers: D Sample Diluted Due to Matrix
  - H Holding times for preparation or analysis exceeded
  - ND Not Detected at the Reporting Limit
    - PQL Practical Quanitative Limit
    - % Recovery outside of range due to dilution or matrix s

- Analyte detected in the associated Method Blank Е Value above quantitation range
- Analyte detected below quantitation limits J
- Sample pH Not In Range Р
- RL Reporting Limit

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Page 1 of 6

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Released to Imaging: 6/24/2021 1:53:15 PM

Hall Environ	mental Analysis La	aboratory, Inc.				]	<b>An</b> Lab Dat	alytical R Order: 19 The Reported	leport 08928 : 8/26	5/2019	I
CLIENT:	Lucid Energy Delaware Juniper Release				I	.ab (	Oro	der:	19089	928	
Lab ID:	1908928-006		C	Collecti	on Date	: 8/	14/	/2019			
<b>Client Sample ID:</b>	Base 6				Matrix	: SC	JIC				
Analyses		Result	RL	Qual	Units	DF	i D	Date Anal	yzed	Ba	tch ID
EPA METHOD 30 Chloride	0.0: ANIONS	220	61		mg/Kg	20	) {	8/22/2019 6	An 08:16:	alyst: PM	<b>CAS</b> 46993
Lab ID:	1908928-007		C	Collecti	on Date	: 8/	14/	/2019			
Client Sample ID:	Base 7				Matrix	: SC	JII				
Analyses		Result	RL	Qual	Units	DF	r D	Date Anal	yzed	Ba	tch ID
EPA METHOD 30	0.0: ANIONS								An	alyst:	CAS
Chloride		500	60		mg/Kg	20	) {	8/22/2019 6	3:20:41	PM	46993
Lab ID:	1908928-008		C	Collecti	on Date	: 8/	14/	/2019			
Client Sample ID:	Base 8				Matrix	s: so	JIC				
Analyses		Result	RL	Qual	Units	DF	i D	Date Anal	yzed	Ba	tch ID
EPA METHOD 30	0.0: ANIONS								An	alyst:	CAS
Chloride		320	60		mg/Kg	20	) 8	8/22/2019 6	33:05	PM	46993
Lab ID:	1908928-009		C	Collecti	on Date	: 8/	14/	/2019			
Client Sample ID:	Base 9				Matrix	s: SC	JIC				
Analyses		Result	RL	Qual	Units	DF	i D	Date Anal	yzed	Ba	tch ID
EPA METHOD 30 Chloride	0.0: ANIONS	1900	60		mg/Kg	20	) (	8/22/2019 6	An 6:45:30	alyst: PM	<b>CAS</b> 46993
Lah ID.	1002022 010		6	1. II 4		. 0/	/1.4	/2010			
LaD ID: Client Sample ID:	1908928-010 Base 10		Ľ	Jonecti	on Date Matriv	: 8/ : S(	14/ 011	2019			
Analyses	Dust 10	Result	RL	Qual	Units	DF	F E	_ Date Analy	yzed	Ba	tch ID
EPA METHOD 30	0.0: ANIONS								An	alyst:	CAS
Chloride		4800	150		mg/Kg	50	) {	8/23/2019 3	3:21:03	PM	46993

\* Value exceeds Maximum Contaminant Level. Qualifiers:

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix s

Analyte detected in the associated Method Blank Е Value above quantitation range

Analyte detected below quantitation limits J

Sample pH Not In Range

Р RL Reporting Limit

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Page 2 of 6

Hall Environ	mental Analysis La	aboratory, Inc.				I I	Analytical Lab Order: Date Report	l <b>Report</b> 1908928 ted: 8/20	: 5/2019	
CLIENT: I Project: J	Lucid Energy Delaware Juniper Release				L	.ab (	Order:	1908	928	
Lab ID:	1908928-011		C	Collecti	on Date	: 8/	14/2019			
Client Sample ID:	Base 11				Matrix	:: S(	JIL			
Analyses		Result	RL	Qual	Units	DF	Date An	alyzed	Ba	tch ID
EPA METHOD 300 Chloride	0.0: ANIONS	2400	60		mg/Kg	20	8/22/201	An 9 7:59:59	alyst: PM	<b>CAS</b> 46993
Lab ID:	1908928-012		С	Collecti	on Date	e: 8/	14/2019			
Client Sample ID:	Base 12				Matrix	s: sc	JIL			
Analyses		Result	RL	Qual	Units	DF	Date An	alyzed	Ba	tch ID
EPA METHOD 30	0.0: ANIONS							An	alyst:	CAS
Chloride		5900	300		mg/Kg	10	0 8/23/201	9 3:33:27	PM	46993
Lab ID:	1908928-013		C	Collecti	on Date	: 8/	14/2019			
Client Sample ID:	Base 13				Matrix	: SC	JIL			
Analyses		Result	RL	Qual	Units	DF	Date An	alyzed	Ba	tch ID
EPA METHOD 30	0.0: ANIONS							An	alyst:	CAS
Chloride		1200	60		mg/Kg	20	8/22/201	9 8:24:48	PM	46993
Lab ID:	1908928-014		C	Collecti	on Date	: 8/	14/2019			
Client Sample ID:	Base 14				Matrix	: SC	JIL			
Analyses		Result	RL	Qual	Units	DF	Date An	alyzed	Ba	tch ID
EPA METHOD 30	0.0: ANIONS							An	alyst:	CAS
Chloride		ND	60		mg/Kg	20	8/22/201	9 8:37:12	PM	46993
Lab ID:	1908928-015		C	Collecti	on Date	: 8/	14/2019			
Client Sample ID:	Wall 1				Matrix	: SC	JIL			
Analyses		Result	RL	Qual	Units	DF	Date An	alyzed	Ba	tch ID
EPA METHOD 30	0.0: ANIONS							An	alyst:	CAS
Chloride		210	60		mg/Kg	20	8/22/201	9 8:49:37	PM	46993

Level. B Analyte detected in the associated Method Blank

Qualifiers: \* Value exceeds Maximum Contaminant Level. D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 3 of 6

Hall Environ	mental Analysis La	aboratory, Inc.				I	Analytica Lab Order: Date Repo	al Report 1908928 rted: 8/20	; 5/2019	
CLIENT: I Project: J	Lucid Energy Delaware Juniper Release				L	.ab (	Order:	1908	928	
Lab ID:	1908928-016		C	Collecti	on Date	: 8/	14/2019			
Client Sample ID:	Wall 2				Matrix	: SC	DIL			
Analyses		Result	RL	Qual	Units	DF	Date A	nalyzed	Bat	ch ID
EPA METHOD 300 Chloride	0.0: ANIONS	160	60		mg/Kg	20	8/22/20	An 19 9:26:49	alyst: PM	<b>CAS</b> 46993
Lab ID:	1908928-017		C	Collecti	on Date	: 8/	14/2019			
Client Sample ID:	Wall 3				Matrix	s: sc	DIL			
Analyses		Result	RL	Qual	Units	DF	Date A	nalyzed	Bat	ch ID
EPA METHOD 300	0.0: ANIONS							An	alyst:	CAS
Chloride		60	60		mg/Kg	20	8/22/20	19 9:39:13	5 PM	46993
Lab ID:	1908928-018		C	Collecti	on Date	: 8/	14/2019			
Client Sample ID:	Wall 4				Matrix	: SC	DIL			
Analyses		Result	RL	Qual	Units	DF	Date A	nalyzed	Bat	ch ID
EPA METHOD 300	0.0: ANIONS							An	alyst:	CAS
Chloride		980	60		mg/Kg	20	8/22/20	19 10:16:2	7 PM	46993
Lab ID:	1908928-019		C	Collecti	on Date	: 8/	14/2019			
Client Sample ID:	Wall 5				Matrix	: SC	DIL			
Analyses		Result	RL	Qual	Units	DF	Date A	nalyzed	Bat	ch ID
EPA METHOD 300	0.0: ANIONS							An	alyst:	CAS
Chloride		250	60		mg/Kg	20	8/22/20	19 10:28:5	1 PM	46993
Lab ID:	1908928-020		C	Collecti	on Date	: 8/	14/2019			
Client Sample ID:	Wall 6				Matrix	: SC	DIL			
Analyses		Result	RL	Qual	Units	DF	Date A	nalyzed	Bat	ch ID
EPA METHOD 300	0.0: ANIONS							An	alyst:	CAS
Chloride		200	60		mg/Kg	20	8/22/20	19 10:41:1	6 PM	46993

Value exceeds Maximum Contaminant Level. B Analyte detected in the associated Method Blank

- Qualifiers:
   \*
   Value exceeds Maximum Contaminant Level.

   D
   Sample Diluted Due to Matrix
  - H Holding times for preparation or analysis exceeded
  - ND Not Detected at the Reporting Limit
    - PQL Practical Quanitative Limit
    - S % Recovery outside of range due to dilution or matrix

- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 4 of 6

Hall Envi	ronmental Analysis La	aboratory, Inc	•		An Lal Da	alytical Report o Order: 1908928 te Reported: 8/26	5/2019
CLIENT: Project:	Lucid Energy Delaware Juniper Release			I	.ab Or	der: 19089	928
Lab ID: Client Sample	1908928-021 e ID: Bkgrnd (1)		Col	llection Date Matrix	e: 8/14 c: SOII	/2019 L	
Analyses		Result	RL (	Qual Units	DF I	Date Analyzed	Batch ID
EPA METHO Chloride	D 300.0: ANIONS	150	60	mg/Kg	20	An 8/22/2019 10:53:4	alyst: <b>CAS</b> 1 PM 46993

Qualifiers:

- \* Value exceeds Maximum Contaminant Level.D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

E Value above quantitation range

Analyte detected in the associated Method Blank

- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Page 5 of 6

## QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client: Project:	Lucid I Juniper	Energy Delaware Release								
Sample ID:	MB-46985	SampType: <b>m</b>	blk	Tes	tCode: EPA	A Method	300.0: Anions	5		
Client ID:	PBS	Batch ID: 40	6985	R	RunNo: 623	50				
Prep Date:	8/22/2019	Analysis Date: 8	/22/2019	S	SeqNo: 211	9770	Units: mg/K	g		
Analyte Chloride		Result PQL ND 1.5	SPK value	SPK Ref Val	%REC I	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sample ID:	LCS-46985	SampType: Ic	s	Tes	tCode: EPA	A Method	300.0: Anions	6		
Client ID:	LCSS	Batch ID: 40	6985	R	RunNo: 623	50				
Prep Date:	8/22/2019	Analysis Date: 8	/22/2019	S	SeqNo: 211	9771	Units: mg/K	g		
Analyte		Result PQL	SPK value	SPK Ref Val	%REC I	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		14 1.5	15.00	0	95.0	90	110			
Sample ID:	MB-46993	SampType: m	blk	Tes	tCode: EPA	A Method	300.0: Anion:	6		
Client ID:	PBS	Batch ID: 40	6993	R	RunNo: 623	50				
Prep Date:	8/22/2019	Analysis Date: 8	/22/2019	S	SeqNo: 211	9810	Units: mg/K	g		
Analyte		Result PQL	SPK value	SPK Ref Val	%REC I	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		ND 1.5								
Sample ID:	LCS-46993	SampType: Ic	s	Tes	tCode: EPA	A Method	300.0: Anions	6		
Client ID:	LCSS	Batch ID: 40	6993	R	RunNo: 623	50				
Prep Date:	8/22/2019	Analysis Date: 8	/22/2019	S	SeqNo: 211	9811	Units: mg/K	g		
Analyte		Result PQL	SPK value	SPK Ref Val	%REC I	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		15 1.5	15.00	0	98.7	90	110			

Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

1908928

26-Aug-19

WO#:

<b>Acceived by OCD.</b> 4/30/2021 2.33.00 F M	<b>Received</b> by	OCD:	4/30/2021	2:53:06 PM
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HALL ENVIR ANAL LABOI	RONMENTAL YSIS Ratory	Hall Environmental Albu Albu TEL: 505-345-3975 Website: www.hai	Analys 490 querqu FAX: 1 lenvire	sis Laboratory 1 Hawkins NE ue, NM 87109 505-345-4107 onmental.com	Sar	nple Log-In C	heck List
Client Name:	LUCID ENERGY DELAW	Work Order Number:	1908	3928		RcptNo:	1
Received By:	Leah Baca	8/18/2019 10:15:00 AM	I	L	col Bre	4.	
Completed By:	Leah Baca	8/16/2019 11:04:51 AN	I	],	nl Bac	4	
Reviewed By:	m	08/16/19					
<u>Chain of Cus</u>	stody						
1. Is Chain of C	ustody complete?		Yes		No 🗌	Not Present 🗌	
2. How was the	sample delivered?		<u>Cour</u>	rier			
<u>Log In</u> 3. Was an atten	npt made to cool the samples	?	Yes		No 🗌	na 🗆	
4. Were all sam	ples received at a temperatur	e of ≥0° C to 6.0°C	Yes		No 🗌		
5. Sample(s) in	proper container(s)?		Yes		No 🗆		
6. Sufficient san	nple volume for indicated test	(s)?	Yes		No 🗌		
7. Are samples	(except VOA and ONG) prope	erly preserved?	Yes	$\checkmark$	No 🗌		
8. Was preserva	ative added to bottles?		Yes		No 🗹	NA 🗌	
9. VOA vials hav	ve zero headspace?		Yes		No 🗌	No VOA Vials 🗹	/
10, Were any sa	mple containers received brol	ken?	Yes		No 🗹	# of preserved	
11. Does paperw (Note discrep	ork match bottle labels? ancies on chain of custody)		Yes		No 🗌	for pH:	>12 unless noted)
12. Are matrices	correctly identified on Chain of	of Custody?	Yes		No 🗌	Adjusted?	
13. Is it clear what	at analyses were requested?		Yes			Charling by E	i mignina
14. Were all hold (If no, notify c	ing times able to be met? customer for authorization.)		Yes		No 🗀		NM DIWI
Special Hand	ling (if applicable)						
15. Was client n	otified of all discrepancies wit	h this order?	Yes		No 🗌	NA 🗹	
Persor By Wh Regard Client	n Notified: om: ding: Instructions:	Date <b>j</b> Via: [	] eM	ail 🗌 Phon	e [] Fax	C In Person	
16. Additional re	emarks:						
17. <u>Cooler Info</u> Cooler No	rmation o Temp °C Condition	Seal Intact Seal No	eal D	ate Sia	ned By		

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1	2	2.3	Good	Yes			

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District I 1625 N. French Dr., Hobbs, NM 88240 Phone:(575) 393-6161 Fax:(575) 393-0720 District II

811 S. First St., Artesia, NM 88210 Phone:(575) 748-1283 Fax:(575) 748-9720

District III

1000 Rio Brazos Rd., Aztec, NM 87410 Phone:(505) 334-6178 Fax:(505) 334-6170

District IV 1220 S. St Francis Dr., Santa Fe, NM 87505 Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Operator:	OGRID:
LUCID ENERGY DELAWARE, LLC	372422
201 S. Fourth Street	Action Number:
Artesia, NM 88210	26499
	Action Type:
	[C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
chensley	For future reference please follow the below conditions.	6/24/2021
chensley	The OCD does not accept EC for closure criteria. The rule says, "The samples must be analyzed for the constituents listed in Table I of 19.15.29.12 NMAC or constituents from other applicable remediation standards". This requires all samples to be tested for Chlorides, TPH, BTEX, and Benzene. Very few of your samples were tested for TPH, BTEX, and Benzene. We need evidence through lab analyzed samples.	6/24/2021

CONDITIONS

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Action 26499