R. T. HICKS CONSULTANTS, LTD.

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April 30, 2018

Olivia Yu NMOCD District 1 1625 N. French Dr. Hobbs, NM 88240

PRELIMINARY RESULTS

Via Email

RE: Advance Energy –Merchant State 503H Release(s) 1RP-4953 Characterization Report and Excavation and Removal Remediation Plan

Dear Ms. Yu:

Hicks Consultants has elected to use the proposed language in NMOCD's application to repeal and replace Rule 19.15.29 NMAC (the Rule) as guidance for delineation and remediation of the above referenced release. The proposed Rule does not cause conflict with the existing Rule. Rather the proposed Rule provides clarity, recognition of decades of data and certitude whereas the existing Rule relied upon 1993 guidance and relied upon the varied expertise and sometimes conflicting decisions of Districts. We are fully confident that OCD would not be the sponsor of the proposed Rule if the changes did not support the legal mandate of protecting fresh water, public health and the environment.

The proposed Rule also recognizes the fact that the existing Rule and decades of previous practice did not require submission and approval of a characterization work plan. The proposed Rule does incorporate appropriate elements of the directive of Mr. Griswold (attached to the signed C-141 from OCD).

This is a stand-alone document and thus includes information previously submitted as well as the delineation data and the proposed corrective action. Attachment A provides the Characterization Report and Remediation Plan for the *Battle 34 Site*. Attachments B and C are the Characterization Reports and Remediation Plans for the *West of MP Site* and the *Latitude 36 22 50 Site*.

Depth to Groundwater

Review of nearby water wells available from the New Mexico Office of the State Engineer (OSE) online database (See Table 1 and Figure 1) shows that the depth to the water-bearing zone exceeds 700 feet below land surface, as evidenced by the "top of water bearing strata" column.

Table 1: OSE Water Well Log Data Summary						
POD Number	Date	Top of Water Bearing Strata	Bottom of Water Bearing Strata	Depth to Water	Source	Height Above Confining Layer
		Feet	Feet	Feet		Feet
CP 01349 POD 1	7/18/2014	960	1188	572	Artesian	388
CP 01356 POD 1	8/9/2014	765	1092	555	Artesian	210
CP 01355 POD 1	7/29/2014	925	1185	582	Artesian	343
CP 01357 POD 1	8/26/2014	945	1286	578	Artesian	367
CP 00854	6/22/1996	755	890	600	Artesian	155
CP 1411 POD 1	10/14/2014	800	1145	NA	Artesian	

OSE well logs show that the nearby wells have a minimum of 155 feet of pressure head above the confining layer (height above confining layer). It is important to recognize that in CP 854 ground water is at a depth of 755 feet and confining pressure causes the water column to rise 155 feet for a perceived depth to water of 600 feet bgs.

We recognize that thin water-bearing units above the regional water-bearing zone may not have been recorded by the well drillers. However, more shallow water-bearing zones would be sandstone units within the Dockum Group redbeds and, like the regional water-bearing zone, would be under artesian pressure.

Ground water flow is to the southwest as demonstrated on the potentiometric map (Figure 2). We relied on the USGS water wells to generate the potentiometric surface. Regionally, USGS water wells show that ground water is within the Santa Rosa and Chinle Formation. The potentiometric surface indicates that the depth to water, which is under artesian flow, is approximately 200 feet bgs at the West of MC Jnct site and 191 feet at the 32 25 50/-103 33 50 site.

Background Environmental Data

Figures 1-9, from our March 12, 2018¹ report, demonstrate that the release sites are not within:

- 300 feet of any continuously flowing watercourse or any other significant watercourse or 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark);
- 2) 300 feet from an occupied permanent residence, school, hospital, institution or church;
- 3) 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes. However, as Figure 1 shows, two sites are within 1,000 feet of fresh water well (CP 1355). Because the water well is hydraulically up-gradient from the release sites and, more importantly,
 - a) The top of the groundwater zone for this water well is at a depth of 925 feet (see well log in Appendix A)

¹ Advanced Energy – Merchant Containment/Merchant Site State 503H Release(s) Delineation Plan and Potential Corrective Actions – 1RP-4953)

- b) The well has cement grout circulated to the surface from ground level to a depth of 757 feet
- c) The screened interval is 874-1,192 feet below grade and
- d) The static water level after drilling is reported as 582 feet, or 343 feet above the groundwater zone and 175 feet above the base of the annular seal.
- e) The location of this well within the 1,000-foot radius of the spill is of no environmental consequence.
- within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended,
- 5) within 100 feet of a wetland;
- 6) within the area overlying a subsurface mine;
- 7) within an unstable area; or
- 8) within a 100-year floodplain.

Submission of Figures 1-9 satisfies the requirements of the proposed Rule 19.15.29.12.B.4 and 19.15.29.11.A (subsections 2-4). Attachments A, B and C satisfy the other requirements of proposed Rule 19.15.29.11-13. Thus, these Figures and Attachments exceed the requests of the OCD "Directive" attached to the C-141s.

Summary of Proposed Corrective Actions

Please refer to Appendix A, B, and C for details.

- A. Battle 32: Dig-haul-dispose of release area to a deep of 4-feet. Adjust excavation extent based upon chloride field testing.
- B. West of Merchant Pit: Dig-haul-dispose of the area around sampling trench T4. The area requiring remediation is due east of the lease road and comprises about 40 square yards (about 50 cubic yards). The dimensions of this area is about 6-feet (east/west) and 50 feet (north/south). Adjust excavation extent based upon chloride field testing.
- C. Latitude 32 26 50: Dig-haul-dispose an area of 75 square yards near the release point. Excavation will be limited to the sand or the upper 4-feet. Adjust excavation extent based upon chloride field testing.

All excavated material will be disposed at an OCD permitted disposal facility and replacement of the excavated volume with four feet of non-waste material containing, uncontaminated, earthen material with chloride concentrations less than 600 mg/kg as analyzed by EPA Method 300.0. Backfilling of excavated material will occur upon laboratory confirmation that excavation sidewall soils are less that \leq 600 mg/kg chloride.

April 30, 2018 Page 4

Sincerely, R.T. Hicks Consultants, Ltd.

2M/

Randall Hicks Principal

Copy: Merchant Livestock Clabe Pearson (<u>clabe@merchantlivestock.com</u>) Brad Blevins (<u>bblevins5252@gmail.com</u>)

FIGURES

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Attachment A

Attachment A

Characterization Results and Remediation Plan for Battle 34 Produced Water Transfer Line Site

Hydrocarbons were not detected in the initial response samples obtained in January 2018. In conformance with the proposed Rule, the Table I closure criteria (and the delineation limits) for chloride are:

Closure Criteria Depth (below ground surface)	Chloride Limit
0-4 feet	600 mg/kg
>4 feet	20,000 mg/kg

Final closure samples will include representative samples for GRO, DRO, MRO (TPH via 8015M) and BTEX as described in this plan.

To reiterate, the information presented in this Attachment meets the mandates of the existing Rule and complies with the language of the proposed Rule. The closure criteria for this site is appropriate and

- Is based upon data from numerous sites evaluated by OCD
- Agrees with testimony accepted by the Oil Conservation Commission, and
- Conforms to the Laws of Fluid Mechanics.

Figures 1-9 show that this site meets the criteria established by proposed Section 19.15.29.12.B.3 and B.4.

Table A-1, attached, presents the result of all sampling conducted at the site. Plate A-1 presents the average chloride concentration observed from ground surface and 3 to 4 feet below ground surface (bgs) at each location from either the January 2018 or March 2018 sampling event.

Site Map

Plate A-1 is a scaled map showing the locations of the samples obtained to quantify the horizontal and vertical extent of the release in compliance with Table I of the proposed Rule. The data for each sampling point is also shown on Plate A-1

Vertical and Horizontal Characterization of the Battle 34 Site

The footprint of this release and the other two releases that are the subject of 1RP-4953 were mapped by Bradley Blevins of Merchant Livestock. Hicks Consultants inspected the sites with Mr. Blevins and we believe the sketches of Merchant Livestock are accurate. The horizontal extent is defined by the spill footprint (polygon with white fill) mapped by Mr. Blevins shown on Plate A-1.

Table A-1 and Plate A-1present the results of the vertical delineation samples of March 6, 2018 as well as the samples obtained on January 30 for the initial evaluation. From these

data we conclude the following regarding the vertical extent of chloride impacts above the proposed closure/delineation criteria.

- 1. Samples obtained east of the road (sample points T5, T2 and T1 on Road) all encountered hard caliche at 2-feet below the road (about 3 feet below natural grade). The data show
 - a. The sand above the caliche is impacted above the 600 mg/kg closure criteria
 - b. The three (3) caliche samples beneath the sand meets the closure criteria for the upper 4-feet
- 2. Samples in the area of pooling of released water (T3, T4, B1 and B2) show
 - a. From grade to 4-feet below grade
 - i. Near the road (T3) chloride in sand is below closure criteria
 - ii. On the east margin of the pooling area (B1) only the uppermost $\frac{1}{2}$ foot of sand exceeds closure criteria
 - iii. On the southern margin of the area (T4S), the uppermost 4-feet is below closure criteria
 - iv. Within the pooling area (B2 and T4 N), the uppermost 4 feet exceed the closure criteria
 - b. Below 4-feet and within the pooling area, the sand and caliche in T4 MID meet the closure criteria

Remediation Plan for Battle 34 Site

The proposed Rule 19.15.29.12.B.1 requires that the following information.

(a) delineation results, including laboratory analysis

Delineation results are presented in Plate A-1 and Table A-1. Laboratory reports are included in Appendix B

(b) a scaled sitemap showing release area with horizontal and vertical delineation points

Plate A-1 is the scaled map showing the mapped footprint of the release and the sample points

(c) estimated volume of impacted material to be remediated

Along the eastern edge of the access road, we estimate excavation and removal of (475 feet long x 2 feet wide x 2 feet deep = 1888 cubic feet) 70 cubic yards. This is based on

- Excavation of the road is not anticipated as infiltration of water on the packed surface will be limited to the upper 1-2 inches. This depth of penetration estimate is based upon visual observations in the road and testing of the lease road at the adjacent release site (site 32 26 50 / -103 33 50)
- Excavation and removal will be limited to the area of the eastern 1-3 foot swale between the road and the natural ground.

The mapped pooling area footprint is about 190 square yards. The sample data suggest that about 50% of the upper 4-feet exceeds the closure standard of 600 mg/kg. The maximum volume of material to be excavated and removed to approved disposal is (190 yrds x 0.5 yrds x 1.33 yrds=) 126 cubic yards.

(d) proposed remediation technique

Excavation of impacted sand and removal to an OCD permitted disposal facility and replacement of the excavated volume with four feet of non-waste material containing,

uncontaminated, earthen material with chloride concentrations less than 600 mg/kg as analyzed by EPA Method 300.0. The technique for removal is

- i. Excavate and remove to disposal four (4) loads or about 80 cubic yards of impacted material from the center of the pooling footprint to a depth of 4-feet. This will be an area of about 40 feet by 40 feet by 4 feet deep.
- ii. Collect two samples on each sidewall of the excavation resulting in
 - a. Four samples from ground level to 2-feet deep
 - b. Four samples from 2 feet to 4-feet deep
- Use field techniques to measure the chloride concentration of each sample.
 Excavation extent will be adjusted in the field, as necessary, per results of field chloride testing (results > 600 mg/kg chloride). Cease excavation where the average of the two field chloride tests (0-2 feet and 2-4 feet) suggests that upper four feet of earth is below the closure criteria of 600 mg/kg chloride.
- iv. While field testing of the 8 samples from the pooling area, begin excavation of the 70 cubic yards of impacted material on the east side of the lease road.
- v. Collect four samples from the east and west sidewall of the trench such that the samples are about 100-feet apart resulting in
 - a. Eight samples from ground level to 2-feet deep
 - b. Eight samples from 2 feet to 4-feet deep
- vi. Use field techniques to measure the chloride concentration of each sample. Excavation extent will be adjusted in the field, as necessary, per results of field chloride testing (results > 600 mg/kg chloride). Cease excavation where the average of the two field chloride tests (0-2 feet and 2-4 feet) suggests that upper four feet of earth is below the closure criteria of 600 mg/kg chloride.
- vii. A temporary fence will be installed around the excavation area until chloride results from the laboratory confirm chloride is below 600 mg/kg in the upper 4-feet, as discussed below.
- viii. Prior to backfilling the excavations, collect a minimum six (6) sidewall samples in the pooling area excavation and six (6) sidewall samples in the road trench for laboratory analysis of chloride using EPA Method 300. The samples will be collected as near as possible to the field-tested sample locations.
- ix. Compare the laboratory results with the field tests.
- x. If the laboratory and field testing demonstrate that average chloride concentrations of the upper four feet of earth are less than 600 mg/kg, the excavations will be backfilled with non-waste material containing, uncontaminated, earthen material with chloride concentrations less than 600 mg/kg as analyzed by EPA Method 300.0.
- xi. Restore the excavated surface areas to the condition that existed prior to the release. Backfill must be replaced to the near original relative positions and contoured to achieve erosion control, long-term stability and preservation of surface water flow patterns.
- xii. Retain all field notes, photographs, field analyses and laboratory results in order to submit a closure report within 90 days of Remediation Plan approval that contains:
 - a. a scaled site map and sampling diagram
 - b. photographs of the remediated site prior to backfill
 - c. laboratory analyses of final sampling; and
 - d. a description of all remedial activities.

(e) proposed timeline for remediation activities

We anticipate commencing excavation and removal within 30-days of OCD approval of this complete Remediation Plan (including Attachments B and C).

To comply with proposed Rule 19.15.29.13 Advance will cause reseeding of the release footprint in the first favorable growing season following closure of the site. Advance will consider reclamation of all disturbed areas complete when uniform vegetative cover has been established that reflects a total percent plant cover of at least seventy percent of pre-disturbance levels, excluding noxious weeds. Advance will notify the OCD when reclamation and revegetation are complete.

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Release Location	Date	Time	Sample ID	Depth (feet)	Chloride (mg/kg)	Comments
Battle 34	1/30/18	1309	B1	0.5	3100	
Battle 34	1/30/18	1311	B1	1.0	95	
Battle 34	1/30/18	1315	B1	2.0	220	
Battle 34	1/30/18	1332	B2	0.5	6800	
Battle 34	1/30/18	1335	B2	1.0	2100	
Battle 34	1/30/18	1335	B2	1.3	1900	
Battle 34	1/30/18	1351	B3	0.5	4100	
Battle 34	1/30/18	1356	B3	1.0	1300	
Battle 34	1/30/18	1402	B3	2.0	1100	
Battle 34	3/6/18	1459	T1 on Road	1.0	5100	
Battle 34	3/6/18	1501	T1 on Road	2.0	ND	Caliche
Battle 34	3/6/18	1503	T1 on Road	3.0	320	Caliche
Battle 34	3/6/18	1514	T2	1.0	1600	
Battle 34	3/6/18	1515	T2	1.1	290	Caliche
Battle 34	3/6/18	1539	T3	1.0	310	
Battle 34	3/6/18	1538	T3	2.0	ND	
Battle 34	3/6/18	1536	T3	3.0	47	
Battle 34	3/6/18	1534	T3	4.0	200	
Battle 34	3/6/18	1601	T4 MID	5.0	10000	
Battle 34	3/6/18	1606	T4 MID	6.0	77	
Battle 34	3/6/18	1608	T4 MID	7.0	900	Caliche
Battle 34	3/6/18	1558	T4 N	1.0	7200	
Battle 34	3/6/18	1600	T4 N	2.0	6000	
Battle 34	3/6/18	1556	T4 S	1.0	30	
Battle 34	3/6/18	1554	T4 S	2.0	35	
Battle 34	3/6/18	1618	T5	1.0	2700	
Battle 34	3/6/18	1622	T5	2.0	ND	
Closure Criteria				0-4'	600	
Closure Criteria				>4'	20,000	

 Table A-2 - Analytical Data from Sampling Battle 34 Site

Attachment B

Attachment B

Characterization Results and Remediation Plan for West of Merchant Pit (W of MP) Produced Water Transfer Line Site

Hydrocarbons were not evaluated as part of the characterization process as the release was treated produced water and evaluation of chloride only was the most appropriate to define the extent of impact. In conformance with the proposed Rule, Table I closure criteria (and the delineation limits) for chloride are:

Closure Criteria Depth (below ground surface)	Chloride Limit
0-4 feet	600 mg/kg
>4 feet	20,000 mg/kg

Final closure samples will include representative samples for GRO, DRO, MRO (TPH via 8015M) and BTEX as described in this plan.

To reiterate, the information presented in this Attachment meets the mandates of the existing Rule and complies with the language of the proposed Rule. The closure criteria for this site is appropriate and

- Is based upon data from numerous sites evaluated by OCD
- Agrees with testimony accepted by the Oil Conservation Commission, and
- Conforms to the Laws of Fluid Mechanics.

Figures 1-9 show that this site meets the criteria established by proposed Section 19.15.29.12.B.3 and B.4.

Table B-1, attached, presents the result of all sampling conducted at the site. Plate B-1 presents the location and chloride concentrations observed from the January 2018 and March 2018 sampling evens.

Site Map

Plate B-1 is a scaled map showing the locations of the samples obtained to quantify the horizontal and vertical extent of the release in compliance with Table I of the proposed Rule. The data for each sampling point is also shown on Plate B-1

Vertical and Horizontal Characterization of the West of Merchant Pit Site

The footprint of this release and the other two releases that are the subject of 1RP-4953 were mapped by Bradley Blevins of Merchant Livestock. Hicks Consultants inspected the sites with Mr. Blevins and we believe the sketches of Merchant Livestock are accurate. The horizontal extent is defined by the spill footprint mapped by Mr. Blevins shown on Plate B-1 as a transparent green polygon with red outline.

Table B-1 and Plate B-1present the results of the vertical delineation samples of January 2018 and March 2018. From these data we conclude the following regarding the vertical extent of chloride impacts above the proposed closure criteria.

- 1. Samples BH-1 and T-1 are at the same location, within the pooling area at the release point from the lay-flat pipe that transmitted treated produced water to the hydraulic stimulation.
 - a. Beneath the pooling area, which extends north from T-1 to the northern limit of the release footprint and south to about ½ the distance to T5S & T6N, the upper four feet of earth exceeds the closure criteria of 600 mg/kg.
 - b. At T-1 @ Jnct, the earth below the 4-foot depth chloride concentrations are below closure criteria (20,000 mg/kg)
 - Note the difference of laboratory results from the split sample from 6 feet (290 mg/kg v. 750 mg/kg), which demonstrate the natural variability due to the heterogeneity of soil samples.
 - c. Sample T5S and T6N represent the impact of flowing produced water on the lease road. These samples were taken from the same trench T5S on the south edge of the trench and T6N was obtained about 12 feet north., In the upper two feet, chloride concentrations were either below laboratory detection levels or significantly lower than 600 mg/kg. It is highly unlikely that chloride concentrations will exceed closure criteria for the upper 4-feet. Therefore, we conclude that the mass of infiltrated produced water was insufficient to cause a material impact and remediation of the lease road is not required. All of the flow from the pooling area to the area of T2 and T3 was on the road surface, there was no ditch on the road edges as sometimes will occur.
 - d. Pooling of produced water occurred in the area of T2. In this sample, chloride concentrations exceed the closure criteria of 600 mg/kg for the uppermost 4 feet.
 - e. Although evidence of surface flow was obvious in the area of T3 and T4, the laboratory did not detect chloride in these samples within the upper 2-feet. We conclude that the infiltration of produced water did not cause sufficient mass of salt to generate impairment of the soil.

Remediation Plan for West of Merchant Pit Site

The proposed Rule 19.15.29.12.B.1 requires that the following information.

(a) delineation results, including laboratory analysis

Delineation results are presented in Plate B-1 and Table B-1. Laboratory reports are included in Appendix B

(b) a scaled sitemap showing release area with horizontal and vertical delineation points

Plate B-1 is the scaled map showing the mapped footprint of the release and the sample points

(c) estimated volume of impacted material to be remediated

The pooling area is defined as a triangular area about 80 feet north/south along the west edge of the lease road that is about 15 feet wide at the road junction (see Plate B-1). The

pooling area footprint is about 75 square yards and given the 4-foot depth of impact, results in a volume of slightly less than 100 cubic yards that require remediation.

Around sampling trench T4, the area requiring remediation is due east of the lease road and comprises about 40 square yards (about 50 cubic yards). The dimensions of this area is about 6-feet (east/west) and 50 feet (north/south).

Remediation of the north/south lease road and the abandoned east/west road (See Plate B-1) is not anticipated as infiltration of water on the packed surface was limited to the upper 1-2 inches. This depth of penetration estimate is based upon visual observations in the roads and testing of T5S, T5N, T3 and T4.

(d) proposed remediation technique

Excavation of impacted sand and removal to an OCD permitted disposal facility and replacement of the excavated volume with four feet of non-waste material containing, uncontaminated, earthen material with chloride concentrations less than 600 mg/kg as analyzed by EPA Method 300.0. The technique for removal is

- i. Excavate and remove to disposal five (5) loads or about 100 cubic yards of impacted material from the pooling footprint near the intersection of the lease roads to a depth of 4-feet.
- ii. Collect two samples on each sidewall of the excavation resulting in
 - a. Four samples from ground level to 2-feet deep
 - b. Four samples from 2 feet to 4-feet deep
- Use field techniques to measure the chloride concentration of each sample.
 Excavation extent will be adjusted in the field, as necessary, per results of field chloride testing (results > 600 mg/kg chloride). Cease excavation where the average of the two field chloride tests (0-2 feet and 2-4 feet) suggests that upper four feet of earth is below the closure criteria of 600 mg/kg chloride.
- iv. While field testing of the 8 samples from the pooling area, begin excavation of the 50 cubic yards of impacted material on the east side of the north/south lease road
- v. Collect one samples from each sidewall of the trench resulting in
 - a. Four samples from ground level to 2-feet deep
 - b. Four samples from 2 feet to 4-feet deep
- vi. Use field techniques to measure the chloride concentration of each sample. Excavation extent will be adjusted in the field, as necessary, per results of field chloride testing (results > 600 mg/kg chloride). Cease excavation where the average of the two field chloride tests (0-2 feet and 2-4 feet) suggests that upper four feet of earth is below the closure criteria of 600 mg/kg chloride.
- vii. A temporary fence will be installed around the excavation area until chloride results from the laboratory confirm chloride is below 600 mg/kg in the upper 4-feet, as discussed below.
- viii. Prior to backfilling the excavations, collect a minimum six (6) sidewall samples in each pooling area excavation for laboratory analysis of chloride using EPA Method 300. The samples will be collected as near as possible to the fieldtested sample locations.
- ix. Compare the laboratory results with the field tests
- x. If the laboratory and field testing demonstrate that average chloride concentrations of the upper four feet of earth are less than 600 mg/kg, the

excavations will be backfilled with non-waste material containing, uncontaminated, earthen material with chloride concentrations less than 600 mg/kg as analyzed by EPA Method 300.0.

- xi. Restore the excavated surface areas to the condition that existed prior to the release. Backfill must be replaced to the near original relative positions and contoured to achieve erosion control, long-term stability and preservation of surface water flow patterns.
- xii. Retain all field notes, photographs, field analyses and laboratory results in order to submit a closure report within 90 days of Remediation Plan approval that contains:
 - a. a scaled site map and sampling diagram
 - b. photographs of the remediated site prior to backfill
 - c. laboratory analyses of final sampling; and
 - d. a description of all remedial activities.

(e) proposed timeline for remediation activities

We anticipate commencing excavation and removal within 30-days of OCD approval of this complete Remediation Plan (including Attachments A and C).

To comply with proposed Rule 19.15.29.13 Advance will cause reseeding of the release footprint in the first favorable growing season following closure of the site. Advance will consider reclamation of all disturbed areas complete when uniform vegetative cover has been established that reflects a total percent plant cover of at least seventy percent of pre-disturbance levels, excluding noxious weeds. Advance will notify the OCD when reclamation and revegetation are complete.

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1		Plate B-1			
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Sample ID	Date	Depth (feet)	Chloride (mg/kg)	Comments
BH-1	1/30/2018	0.5	3,300	
BH-1	1/30/2018	1	3,600	
BH-1	1/30/2018	2	5,100	
T1 @ Jnct	3/6/2018	0.5	5,300	
T1 @ Jnct	3/6/2018	1	3,100	
T1 @ Jnct	3/6/2018	2	3,700	
T1 @ Jnct	3/6/2018	4	8,700	
T1 @ Jnct	3/6/2018	5	1,700	Caliche
T1 @ Jnct	3/6/2018	6	290	
T1 @ Jnct	3/6/2018	6	750	Merchant
T1 @ Jnct	3/6/2018	7	390	
T2	3/6/2018	1	2,300	
T2	3/6/2018	2	1,900	
T2	3/6/2018	3	3,900	
T2	3/6/2018	4	72	
T2	3/6/2018	4.5	1,200	Caliche
T3	3/6/2018	1	ND	
T3	3/6/2018	1	ND	Merchant
T3	3/6/2018	2	ND	
T4 on side rd	3/6/2018	1	ND	
T4 on side rd	3/6/2018	2	ND	
T5 S	3/6/2018	1	ND	
T5 S	3/6/2018	2	35	
T6 N	3/6/2018	1	ND	
T6 N	3/6/2018	2	ND	

 Table B-1 - Analytical Data from Sampling West of MP

Attachment C

Attachment C

Characterization Results and Remediation Plan for Latitude 32 26 50 Produced Water Transfer Line Site

Hydrocarbons were not evaluated as part of the characterization process as the release was treated produced water and evaluation of chloride only was the most appropriate to define the extent of impact. In conformance with the proposed Rule, Table I closure criteria (and the delineation limits) for chloride are:

Closure Criteria Depth (below ground surface)	Chloride Limit
0-4 feet	600 mg/kg
>4 feet	20,000 mg/kg

Final closure samples will include representative samples for GRO, DRO, MRO (TPH via 8015M) and BTEX as described in this plan.

To reiterate, the information presented in this Attachment meets the mandates of the existing Rule and complies with the language of the proposed Rule. The closure criteria for this site is appropriate and

- Is based upon data from numerous sites evaluated by OCD
- Agrees with testimony accepted by the Oil Conservation Commission, and
- Conforms to the Laws of Fluid Mechanics.

Figures 1-9 show that this site meets the criteria established by proposed Section 19.15.29.12.B.3 and B.4.

Table C-1, attached, presents the result of all sampling conducted at the site. Plates C-1 presents the location and chloride concentrations observed from the January 2018 and March 2018 sampling evens.

Site Map

Plates C-1 and C-2 are scaled maps showing the locations of the samples obtained to quantify the horizontal and vertical extent of the release in compliance with Table I of the proposed Rule. The data for each sampling point is also shown on the Plates.

Vertical and Horizontal Characterization of the Latitude 32 26 50 Site

The footprint of this release and the other two releases (Battle 34 and W of MP) that are the subject of 1RP-4953 were mapped by Bradley Blevins of Merchant Livestock. Hicks Consultants inspected the sites with Mr. Blevins and we believe the sketches of Merchant Livestock are accurate. The horizontal extent is defined by the spill footprint mapped by Mr. Blevins shown on Plate C-1 as transparent yellow and green polygons with red outline.

Table C-1 and Plates C-1 and C-2 present the results of the vertical delineation samples of January 2018 and March 2018. From these data we conclude the following regarding the vertical extent of chloride impacts above the proposed closure criteria.

- 1. Samples BH1 and "Release Pt" are at the same location, taken at the point of release from the lay-flat pipe that transmitted treated produced water to the hydraulic stimulation.
 - a. Beneath the release point, the upper four feet of earth exceeds the closure criteria of 600 mg/kg
 - b. Samples from "S of Release Pt" below 4-feet meet the proposed closure criteria.
- 2. The sample "Flowpath Dune" lies about 4 horizontal feet and 2 vertical feet north of Release Pt. The upper 1-foot of soil tested at 720 mg/kg chloride and the two underlying samples did not detect chloride above 30 mg/kg. Given the steep slope of the dune, the small depth of penetration is not surprising.
- 3. Samples Road #1 and Road NW were obtained within the flow path of the release and, as the sample name suggests, within the road. Much of the road between these two samples is constructed on exposed caliche; hence penetration with a backhoe was not possible below 6-inches (0.5 feet). Given the data showing chloride concentrations varying by an order of magnitude between samples obtained at 0.2 and 0.5 feet and the lack of penetration due to caliche, it is impossible to determine if the upper 4-feet (road and underlying caliche) exceed 600 mg/kg chloride. However, it is highly unlikely, based upon the Laws of Fluid Mechanics and other data, that the caliche below 4-feet will exceed 20,000 mg/kg chloride.
- 4. "S of Release Pt" and BH2 are at the same location and are within the flow path shown by the yellow highlighted area of the footprint mapped by Merchant Livestock. Chloride data from the upper 2-feet of sand at this location are about the same as that observed at "Release Pt" and BH1.
- 5. From these data, we conclude that
 - a. flow to the north of the release point followed a steep downward gradient and did not penetrate below 2 feet.
 - b. Flow south of the release point was in dune sand and a vertical profile with chloride above the 600 mg/kg closure criteria in the upper 4-feet soil horizon.

Remediation Plan for Latitude 32 26 50 Site

The proposed Rule 19.15.29.12.B.1 requires that the following information.

(a) delineation results, including laboratory analysis

Delineation results are presented in Plate C-1 and Table C-1. Laboratory reports are included in Appendix B

(b) a scaled sitemap showing release area with horizontal and vertical delineation points

Plate C-1 is the scaled map showing the mapped footprint of the release and the sample points. It is important to note that the flow path north of the release point was restricted to the road. The flow followed the road, westward and downhill. The road is excavated into the surrounding dunes and there are no drainage ditches to capture flow.

(c) estimated volume of impacted material to be remediated

The spill footprint shown in the yellow highlight in the Plates is slightly more than 75 square yards and given the 4-foot depth of impact, results in a volume of slightly less than 100 cubic yards that require remediation. However, we believe that this area would benefit by additional sampling during the proposed excavation and removal process to better define the volume of material requiring remediation.

We believe that the data from samples north of the release point (Flowpath Dune and Road #1) and extending west to the Road NW location permit a conclusion that excavation and removal would cause more environmental harm than benefit. Moreover, after one rainfall event, the chloride in the upper 1-foot at the Flowpath Dune sample will disperse and revegetation will be possible. Additionally, because vegetation within the road is obviously not warranted and the release does not endanger fresh water, remediation of this area of the road is not necessary at this time.

(d) proposed remediation technique

Within the 75 square yard area shown by the yellow highlight, we propose excavation of impacted sand and removal to an OCD permitted disposal facility and replacement of the excavated volume with four feet of non-waste material containing, uncontaminated, earthen material with chloride concentrations less than 600 mg/kg as analyzed by EPA Method 300.0. The technique for removal is

- i. Excavate and remove to disposal five (5) loads or about 100 cubic yards of impacted material from the footprint north of the release point
- ii. Near the release point, collect one sample from 0-2 feet deep and one from 2-4 feet deep and submit the sample to the laboratory for analysis of hydrocarbons (GRO+DRO+MRO and BTEX) using appropriate EPA Methods.
- iii. Collect two samples on each sidewall of the excavation resulting in
 - a. Four samples from ground level to 2-feet deep
 - b. Four samples from 2 feet to 4-feet deep or the depth of hard caliche
 - c. Within the excavation footprint, collect samples of caliche below the sand if the excavation is not 4-feet deep. Use a sample density for caliche samples of one for every 25 square yards.
- iv. Use field techniques to measure the chloride concentration of each sample. Excavation extent will be adjusted in the field, as necessary, per results of field chloride testing (results > 600 mg/kg chloride). Cease excavation
 - a. where the average of the two field chloride tests (0-2 feet and 2-4 feet) suggests that upper four feet of earth is below the closure criteria of 600 mg/kg chloride, or
 - b. where hard caliche prevents excavation to a depth of 4-feet.
- v. A temporary fence will be installed around the excavation area until chloride results from the laboratory confirm chloride is below 600 mg/kg in the upper 4-feet of sand, as discussed below.
- vi. Prior to backfilling the excavations, collect a minimum six (6) sidewall samples and bottom samples from parts of the excavation that are shallower than 4-feet..
 Submit these samples for laboratory analysis of chloride using EPA Method 300. The samples will be collected as near as possible to the field-tested sample locations.
- vii. Compare the laboratory results with the field tests
- viii. If the laboratory and field testing demonstrate that average chloride concentrations of the upper four feet of earth are less than 600 mg/kg, the excavations will be backfilled with non-waste material containing,

uncontaminated, earthen material with chloride concentrations less than 600 mg/kg as analyzed by EPA Method 300.0.

- ix. If the excavation is not 4-feet deep and the samples of caliche suggest chloride impact above 600 mg/kg, provide the data to OCD and the surface owner. Also provide a justification to cease excavation in a manner outlined as a "variance" in the proposed Rule.
- x. Upon completion of excavation and replacement with clean sand, restore the excavated surface areas to the condition that existed prior to the release. Backfill must be replaced to the near original relative positions and contoured to achieve erosion control, long-term stability and preservation of surface water flow patterns.
- xi. Retain all field notes, photographs, field analyses and laboratory results in order to submit a closure report within 90 days of Remediation Plan approval that contains:
 - a. a scaled site map and sampling diagram
 - b. photographs of the remediated site prior to backfill
 - c. laboratory analyses of final sampling; and
 - d. a description of all remedial activities.

(e) proposed timeline for remediation activities

We anticipate commencing excavation and removal within 30-days of OCD approval of this proposed Remediation Plan (including Attachments A and B).

To comply with proposed Rule 19.15.29.13 Advance will cause reseeding of the release footprint in the first favorable growing season following closure of the site. Advance will consider reclamation of all disturbed areas complete when uniform vegetative cover has been established that reflects a total percent plant cover of at least seventy percent of pre-disturbance levels, excluding noxious weeds. Advance will notify the OCD when reclamation and revegetation are complete.

Table	C-1
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Release Location	Date	Sample ID	Depth	Chloride	Comments
			(ft)	(mg/kg)	
35 26 50	1/30/2018	BH1	0.5	840	
36 26 50	1/30/2018	BH1	1.0	2,900	
32 26 50	1/30/2018	BH2	0.5	5,200	
33 26 50	1/30/2018	BH2	1.0	5,400	
34 26 50	1/30/2018	BH2	2.0	5,500	caliche
32 26 50	3/7/2018	Flowpath Dune	1.0	720	caliche
32 26 50	3/7/2018	Flowpath Dune	2.0	ND	
32 26 50	3/7/2018	Flowpath Dune	3.0	ND	
32 26 50	3/7/2018	Road NW	1.0	120	
32 26 50	3/7/2018	Road NW	0.5	1,500	
32 26 50	3/7/2018	Release Pt	1.0	1,100	
32 26 50	3/7/2018	Release Pt	2.0	2,100	caliche
32 26 50	3/7/2018	Release Pt	3.0	2,900	
32 26 50	3/7/2018	Release Pt	4.0	5,100	
32 26 50	3/7/2018	Release Pt	5.0	9,000	
32 26 50	3/7/2018	Release Pt	5.0	7,200	
32 26 50	3/7/2018	Road #1	0.1	46	
32 26 50	3/7/2018	Road #1	0.2	2,500	
32 26 50	3/7/2018	Road #1	0.5	540	caliche
32 26 50	3/7/2018	S of Release Pt	1.0	4,400	
32 26 50	3/7/2018	S of Release Pt	2.0	3,500	caliche
Closure Criteria			0-4	600	
Closure Criteria			>4	20,000	

Table C-1





WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

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STALE ENGINEER OFFICE

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J.	757'	815'	58'	Red & Brown Shale	C Y O N
WEL	815'	840'	25'	Blue Clay & Shale	
e e	840'	925'	85'	Red and Brown Shale (some sandrock)	C Y O N
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WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

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E.	DESCRIPTIO	N RELATI	NG WE	LL LOCATION TO STREE	TADDRESS AND COMMC	N LANDMARKS - PLS	S (SECTION, T	OWNSHJIP, RANG	E) WHERE AVAILABLE	anna a chuna anna an dealach aire ann a'					
	NE/NW/S	SW Sec	c. 27,	T21S, R33E on I	Merchants Livest	ock Land									
Anthony and	LICENSE NU	JMBER		NAME OF LICENSED	DRILLER	annoning and a state of the second		1987.680 ¹ de anno 1	NAME OF WELL DR	ILLING COMPANY					
	WD 421		- c	Corky Glenn					Glenn's Water	Well Service, Inc.					
	DRILLING STARTED DRILLING ENDED DEPTH OF COMPLETED WELL (FT) BORE HOLE DEPTH (FT) DEPTH WATER FIRST ENCOUNTERED (FT)														
	7/29/14 8/2/14 1192' 1192' 925'														
							1		STATIC WATER LE	VEL IN COMPLETED WI	ELL (FT)				
COMPLETED WELL IS: • ARTESIAN C DRY HOLE C SHALLOW (UNCONFINED) 582'															
TIO	DRILLING F	LUID;	(C MUD	ADDITIVES - SPI	CIFY:				· · · · · · · · · · · · · · · · · · ·				
ORMA	DRILLING M	1ETHOD	. (ROTARY	C HAMMER C	C OTHE	R – SPECIFY:								
NFC	DEPTH	(feet bg	l)	BORE HOLE	CASING MATER	RIAL AND/OR		SINC	CASING		I STOT				
5	FROM TO DIA		DIAM	GRA	DE	CONN	ECTION	INSIDE DIAM.	THICKNESS	SIZE					
SIS				(inches)	(include each cas note sections	ing string, and of screen)	Т	YPE	(inches)	(inches)	(inches)				
े अ	0'	40'		20"	16"	· · ·	None		15 1/2"	.250					
ŊZ	0'	757'		14 3/4"	9 5/8"		Thread	and Collar	.352	36 lbs.	none				
	757'	1192	<u>2'</u>	8 3/4'	7"		Thread	and Collar	6.5"	23 lbs.	1/8"				
		······	•. • • •												
2. D									· ····································						
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						·····									
					· · · ·										
						a da andarahika persona - V" , sa	<u> </u>		L	1					
	DEPTH	(feet bg	(I)	BORE HOLE	LIST ANN	JULAR SEAL MA	ATERIAL A	ND	AMOUNT	METHO	D OF				
्रम् ी	FROM	TC)	DIAM. (inches)	GRAVEL PA	CK SIZE-RANG	E BY INTE	RVAL	(cubic feet)	PLACEN	MENT				
ER	0'	40'		20"	Cemented				2 yds	Top Pour					
EAT	0'	757'		14 3/4"	Float and Shoe	Surface		1034	Circulated						
RN								<u></u>		<u> </u>					
T						· ·									
							·		<u> </u>						
۲Ę –					· · · · · · · · · · · · · · · · · · ·				:						
<u>م</u> ا				,					· · · · ·						
										· · ·	,				
FOR	OSE INTER	NAL U	SE					WR-20	WELL RECORD	& LOG (Version 06/0	8/2012)				

				1111 IV 11000 KD	
FILE NUMBER	CP-	1355	POD NUMBER /	TRN NUMBER	549450
LOCATION	EXD		215.33E:	27.312	PAGE 1 OF 2
	·····		· · · · ·		

	una sao ner usok nussea.	Call Transfer Contractor	and a supervision of the second second						
	DEPTH (FROM	feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER- BEARING			
	C'	אי אי	<i>A</i> '	Soil		ZUNES (gpm)			
	0 4'	4 20'	4						
	4 79'	20	2 4 07'	Calectie Sand and Clay					
	120	260'	140'	Bed Clay					
	120	757	407	Red and Brown Shale and Clay(come blue)					
	200	/3/	49/ CO1	Red and Brown Shale and Clay(some blue)					
ELC.	737 015'	015	00 05'	Red and brown Shale					
्र	815	040	25	Dide Cidy and Shale		· · · · · · · · · · · · · · · · · · ·			
ි ප	840	925	85	Red and Brown Shale(some sandrock)					
ΓŌ	925	975	50	Watersand and Gravel					
G	975	1185	210	Watersand(brown sandrock)					
010	1185'	1192'	7'	Red Shale					
)GE									
DRC									
HY					$O^{\mathbf{Y}} O^{\mathbf{N}}$				
	-				$O^{Y} O^{N}$				
					$C^{Y} C^{N}$				
					$O^{Y} O^{N}$				
			1		$O^{\mathbf{Y}} O^{\mathbf{N}}$				
					O ^Y O ^N				
					C Y C N				
	METHOD U	JSED TO ES	STIMATE YIELI	O OF WATER-BEARING STRATA: (PUMP	TOTAL ESTIMATED				
	C AIR LIF	т С	BAILER C	OTHER - SPECIFY:	WELL YIELD (gpm): ~	, v			
		TEST		ACH A CODY OF DATA COLLECTED DIDING WELL TESTNIC, NO					
N. S.	WELL TES	ST STAR	T TIME, END TI	ME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVE	R THE TESTING PERIO	D.			
ISIC	MISCELLA	NEQUS INI	ORMATION		the set of	Made from the contra			
ERV									
SUP	0' to 757	⁷ drilled w	ith mud. 757/	' to 1192' drilled with air and foam.					
RIG									
EST;	PRINT NAT	ME(S) OF D	RILL RIG SUPE	RVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CON-	TRUCTION OTHER TH				
E.					indenion offick in	AN EICENDEL.			
	THE UNDE	RSIGNED I	IEREBY CERTI	FIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELI	F, THE FOREGOING IS	A TRUE AND			
Z	CORRECT AND THE	RECORD O PERMIT HO	F THE ABOVE I LDER WITHIN :	DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RI 20 DAYS AFTER COMPLETION OF WELL DRILLING:	CORD WITH THE STAT	TE ENGINEER			
AT		_	10						
NG.		h.	Han.	Carky Glassing S	The lice				
1 9	SIGNATURE OF DRILLER / PRINT SIGNEE NAME								
Star Star	1. aaloonta (j. 1. 1925)					n Lessen and statements of white			
FO	R OSE INTER	NAL USE		WR-20 WE	L RECORD & LOG (Ver	sion 06/08/2012)			
FIL	E NUMBER	CP-	-1355	POD NUMBER / TRN NUMB	er 54945	\mathcal{O}			
LO	CATION	EX	p1	215.33E.27.3	12	PAGE 2 OF 2			

APPENDIX B



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: <u>www.hallenvironmental.com</u>

February 15, 2018

Randall Hicks R.T. Hicks Consultants, LTD 901 Rio Grande Blvd. NW Suite F-142 Albuquerque, NM 87104 TEL: (505) 266-5004 FAX (505) 266-0745

RE: Battle 34 Fed 4H Jnct

OrderNo.: 1802028

Dear Randall Hicks:

Hall Environmental Analysis Laboratory received 9 sample(s) on 2/1/2018 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 <u>www.hallenvironmental.com</u> 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 #NM0190

Sincerely,

andia

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Lab Order: 1802028

Hall Enviro	nmental Analys	sis Laborat	ory, Inc.		Date Reported: 2/15/2018
CLIENT: Project:	R.T. Hicks Consultant Battle 34 Fed 4H Jnct	ts, LTD			Lab Order: 1802028
Lab ID:	1802028-001			Collection D	Pate: 1/30/2018 1:09:00 PM
Client Sample ID	: BH 6"			Ma	trix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30	00.0: ANIONS				Analyst: MRA
Chloride		3100	150	mg/Kg	100 2/14/2018 3:40:31 AM 36462
Lab ID:	1802028-002			Collection D	Pate: 1/30/2018 1:11:00 PM
Client Sample ID	: BH 12"			Ma	trix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30	00.0: ANIONS				Analyst: MRA
Chloride		95	30	mg/Kg	20 2/12/2018 2:18:35 PM 36462
Lab ID:	1802028-003			Collection D	Pate: 1/30/2018 1:15:00 PM
Client Sample ID	: BH 24"			Ma	trix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30	00.0: ANIONS				Analyst: MRA
Chloride		220	30	mg/Kg	20 2/12/2018 2:30:59 PM 36462
Lab ID:	1802028-004			Collection D	Pate: 1/30/2018 1:56:00 PM
Client Sample ID	: BH3 12"			Ma	trix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30	00.0: ANIONS				Analyst: MRA
Chloride		1300	75	mg/Kg	50 2/14/2018 3:52:55 AM 36462
Lab ID:	1802028-005			Collection D	Pate: 1/30/2018 1:51:00 PM
Client Sample ID	: BH3 6"			Ma	trix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30	00.0: ANIONS				Analyst: MRA
Chloride		4100	150	mg/Kg	100 2/14/2018 4:05:20 AM 36462

- 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
- Value above quantitation range Е
- J Analyte detected below quantitation limits Page 1 of 3
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order: 1802028

	innentai Anaiysis		ory, me.		Date Reported: 2/15/2018
CLIENT: Project:	R.T. Hicks Consultants, Battle 34 Fed 4H Jnct	LTD			Lab Order: 1802028
Lab ID:	1802028-006		(Collection	Date: 1/30/2018 1:35:00 PM
Client Sample ID	: BH2 12"			Ma	atrix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30	00.0: ANIONS				Analyst: MRA
Chloride		2100	75	mg/Kg	50 2/14/2018 4:17:45 AM 36462
Lab ID:	1802028-007			Collection 2	Date: 1/30/2018 1:32:00 PM
Client Sample ID	: BH2 6"			Ma	atrix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30	00.0: ANIONS				Analyst: MRA
Chloride		6800	300	mg/Kg	200 2/14/2018 4:30:09 AM 36462
Lab ID:	1802028-008			Collection 2	Date: 1/30/2018 1:35:00 PM
Client Sample ID	: BH2 16"			Ma	atrix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30	00.0: ANIONS				Analyst: MRA
Chloride		1900	75	mg/Kg	50 2/14/2018 4:42:33 AM 36462
Lab ID:	1802028-009			Collection	Date: 1/30/2018 2:02:00 PM
Client Sample ID	: BH3 24"			Ma	atrix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30	00.0: ANIONS				Analyst: MRA
Chloride		1100	30	mg/Kg	20 2/12/2018 4:10:16 PM 36462

Hall Environmental Analysis Laboratory Inc

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
- 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 В
- Value above quantitation range Е
- J Analyte detected below quantitation limits Page 2 of 3
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client: Project:	R.T. H Battle 3	icks Consultants, LTD 34 Fed 4H Jnct			
Sample ID	MB-36462	SampType: mblk	TestCode: EPA Method	300.0: Anions	
Client ID:	PBS	Batch ID: 36462	RunNo: 49047		
Prep Date:	2/12/2018	Analysis Date: 2/12/2018	SeqNo: 1579653	Units: mg/Kg	
Analyte		Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Chloride		ND 1.5			
Sample ID	LCS-36462	SampType: Ics	TestCode: EPA Method	300.0: Anions	
Client ID:	LCSS	Batch ID: 36462	RunNo: 49047		
Prep Date:	2/12/2018	Analysis Date: 2/12/2018	SeqNo: 1579654	Units: mg/Kg	
Analyte		Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Chloride		14 1.5 15.00	0 919 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 Detection Limit
- W Sample container temperature is out of limit as specified

Page 3 of 3

WO#: **1802028**

HALL ENVIRONMENTAL ANALYSIS LABORATORY	Hull Kertronmental Ilhi TEL: 505-345-1975 Website: www.hq	Anaby 196 Nguerg FAX: tleavit	sus Lab II Hawi Ins, Mic 505-34 renawa	oratory kinx NI 187109 5-4107 tal.com	Sar	nple Log-In Check List
Client Name. RT HICKS	Work Order Number:	1803	2028			ReptNo: 1
Received By: Erin Melendrez	2/1/2018 10:19:00 AM			ú	NA	5
Completed By Erin Melendrez Reviewed By DDS	211/2018 11:29 07 AM 2/1/18 01/18			U.	ULA	8-C
Calberty sy she	21000					
1 la Chain of Custody		Max		b.L	20	Not Descent
2. How was the sample delivered?		res <u>Clier</u>	ut ∎	IN.	1	Not Present
Log In 3. Was an attempt made to cool the samples?		Yes		No	•	
 Were all samples received at a temperature of 	>0° C to 6.0°C	Yes	~	No		
5. Sample(s) in proper container(s)?		Yes	✓	No		
6. Sufficient sample volume for indicated test(s)?		Yes	V	No		
7. Are samples (except VOA and ONG) properly	preserved?	Yes	1	No		
3. Was preservative added to bottles?		Yes		No	•	NA 🗆
9. VOA vials have zero headspace?		Yes		No		No VOA Vials 🗹
0. Were any sample containers received broken?		Yes		No		# of preserved
 Does paperwork match bottle labels? (Note discrepancies on chain of custody) 		Yes	Y	No		for pH: (<2 or >12 unless noted
2, Are matrices correctly identified on Chain of Cu	istody?	Yes	~	No		Adjusted?
3, is it clear what analyses were requested?		Yes	~	No	E	
 Were all holding times able to be met? (If no, notify customer for authorization.) 		Yes	~	No	E	Checked by:
pecial Handling (if applicable)						
5. Was client notified of all discrepancies with the	s order?	Yes		No		NA V
Person Notified:	Date:					
By Whom:	Via:	eMa	1	Phone 🗌	Fax	C in Person
Regarding:						
Client Instructions:						
Additional remarks:						
17. Cooler Information Cooler No Temp °C Condition Sea	Intact Sent No. 1 - Se	eal De	ite I	Signer	By	ſ
1 0.8 Good Not P	resent		1	and web		t

Client: Mailing	hain AD R Address	of-CL VANC	E FRAC LE FRAC Les Consult	Turn-Around Standard Project Nam BATTLE Project #:	Time: I □ Rust e: 34 F6	D 4H JNCT		49 Te	01 H	H awki 5-34	HA WWW ins I	LL AL w.ha NE - 975	Henv Alt	NV SIS (Iron)	/IF S L men erqu 505	RO All tal.co ie, N	NN BO om M 87	109	NT/	RY	
Phone email o QA/QC LXStan Accred	#: 5 r Fax#: Package: idard itation	05-7 R@	38-9515 Htticks consult. 40	Rroject Mana	ager. Vall+1	la	1B's (8021)	H (Gas only)	DRO / MRO)			3 SIMS)	mal	02,PO4,SO4) S	82 PCB's	ues	1				
Date	AP (Type)_ Time	 Other Matrix 	Sample Request ID	On Ice: Sample Tem Container Type and #	Preservative Type	HEAL NO.	BTEX + MTBE + TN	BTEX + MTBE + TP	TPH 8015B (GRO /	TPH (Method 418.1	EDB (Method 504.1	PAH's (8310 or 827)	RCRA 8 Metals	Anions (F,CI,NO ₃ ,NO	3081 Pesticides / 50	3260B (VOA)	3270 (Semi-VOA)	Chloride			Air Bubbles (Y or N)
130	1309 1311 1315 1356 1356 1355 1335 1335 1402	501	BH 24" BH 24" BH 3 12" BH 3 6" BH 3 6" BH 2 6" BH 2 6" BH 2 16" BH 2 16" BH 3 24"	I GLASS		-001 -002 -003 -004 -005 -006 -007 -008 -009												XXXXXXXXX			
Date: 2/(Date:	Timo: \0/19 Tune	Relinquishe	ad by: mlat M	Received by	2 2	Date Time 7/18 10 9 Date Time	Rer	narks													

If necessary samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be cleanly noticed on the analytical report.



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: <u>www.hallenvironmental.com</u>

March 28, 2018

Randall Hicks R.T. Hicks Consultants, LTD 901 Rio Grande Blvd. NW Suite F-142 Albuquerque, NM 87104 TEL: (505) 266-5004 FAX (505) 266-0745

RE: BATTLE

OrderNo.: 1803616

Dear Randall Hicks:

Hall Environmental Analysis Laboratory received 18 sample(s) on 3/9/2018 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 <u>www.hallenvironmental.com</u> 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 #NM0190

Sincerely,

andia

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Lab Order: 1803616

Hall Enviro	nmental Analysis	Labora	tory, Inc.		Date Reported: 3/28/	/2018
CLIENT: Project:	R.T. Hicks Consultants, L BATTLE	TD			Lab Order: 18036	516
Lab ID:	1803616-001			Collection Dat	e: 3/6/2018 2:59:00 PM	
Client Sample ID	: T1 on Rd 1 Ft			Matri	x: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				Ana	alyst: MRA
Chloride		5100	300	mg/Kg	200 3/21/2018 5:11:43	AM 37103
Lab ID:	1803616-002			Collection Dat	e: 3/6/2018 3:01:00 PM	
Client Sample ID	: T1 on Rd 2 Ft Caliche			Matri	x: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				Ana	alyst: MRA
Chloride		ND	30	mg/Kg	20 3/20/2018 12:38:57	'PM 37127
Lab ID:	1803616-003			Collection Dat	e: 3/6/2018 3:03:00 PM	
Client Sample ID	: T1 on Rd 3 Ft Caliche			Matri	x: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				Ana	alyst: MRA
Chloride		320	30	mg/Kg	20 3/20/2018 12:51:22	2 PM 37127
Lab ID:	1803616-004			Collection Dat	e: 3/6/2018 3:14:00 PM	
Client Sample ID	: T2 1 Ft			Matri	x: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				Ana	alyst: CJS
Chloride		1600	75	mg/Kg	50 3/23/2018 5:36:05	PM 37127
Lab ID:	1803616-005			Collection Dat	e: 3/6/2018 3:15:00 PM	
Client Sample ID	: T2 1 Ft Caliche			Matri	x: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				Ana	alyst: MRA
Chloride		290	30	mg/Kg	20 3/20/2018 2:05:49	PM 37127

...

- 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
- Value above quantitation range Е
- J Analyte detected below quantitation limits Page 1 of 5
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order: 1803616

Hall Enviro	nmental Analysi	is Laborat	ory, Inc.		Date Reported: 3/28	/2018
CLIENT: Project:	R.T. Hicks Consultants BATTLE	s, LTD			Lab Order: 18036	516
Lab ID:	1803616-006			Collection D	Date: 3/6/2018 3:39:00 PM	[
Client Sample ID	: T3 1 Ft			Ma	trix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				Ana	alyst: MRA
Chloride		310	30	mg/Kg	20 3/20/2018 2:18:13	PM 37127
Lab ID:	1803616-007			Collection D	oate: 3/6/2018 3:38:00 PM	[
Client Sample ID	: T3 2 Ft			Ma	trix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				Ana	alyst: MRA
Chloride		ND	30	mg/Kg	20 3/20/2018 2:30:38	PM 37127
Lab ID:	1803616-008			Collection D	Date: 3/6/2018 3:36:00 PM	[
Client Sample ID	: T3 3 Ft			Ma	trix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				Ana	alyst: MRA
Chloride		47	30	mg/Kg	20 3/20/2018 2:43:03	PM 37127
Lab ID:	1803616-009			Collection D	Date: 3/6/2018 3:34:00 PM	[
Client Sample ID	: T3 4 Ft Caliche			Ma	trix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				Ana	alyst: MRA
Chloride		200	30	mg/Kg	20 3/20/2018 2:55:28	PM 37127
Lab ID:	1803616-010			Collection D	Date: 3/6/2018 3:56:00 PM	[
Client Sample ID	: T4 S 1 Ft			Ma	trix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				Ana	alyst: MRA
Chloride		ND	30	mg/Kg	20 3/20/2018 3:07:53	PM 37127

- 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
- Value above quantitation range Е
- J Analyte detected below quantitation limits Page 2 of 5
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order: 1803616

Hall Enviro	nmental Analys	is Laborat	ory, Inc.		Date Reported: 3/2	28/2018
CLIENT: Project:	R.T. Hicks Consultant BATTLE	s, LTD			Lab Order: 180	3616
Lab ID:	1803616-011			Collection D	Pate: 3/6/2018 3:54:00 P	М
Client Sample ID	: T4 S 2 Ft			Ma	trix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				A	nalyst: MRA
Chloride		35	30	mg/Kg	20 3/20/2018 3:20:1	7 PM 37127
Lab ID:	1803616-012			Collection D	ate: 3/6/2018 3:58:00 P	М
Client Sample ID	: T4 N 1 Ft			Ma	trix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				A	nalyst: CJS
Chloride		7200	300	mg/Kg	200 3/23/2018 5:48:3	0 PM 37127
Lab ID:	1803616-013			Collection D	ate: 3/6/2018 4:00:00 P	М
Client Sample ID	: T4 N 2 Ft			Ma	trix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				A	nalyst: CJS
Chloride		6000	300	mg/Kg	200 3/23/2018 6:00:5	4 PM 37127
Lab ID:	1803616-014			Collection D	ate: 3/6/2018 4:01:00 P	М
Client Sample ID	: T4 Mid 5 Ft			Ma	trix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				A	nalyst: CJS
Chloride		10000	750	mg/Kg	500 3/23/2018 6:13:1	8 PM 37127
Lab ID:	1803616-015			Collection D	ate: 3/6/2018 4:06:00 P	М
Client Sample ID	: T4 Mid 6 Ft			Ma	trix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				A	nalyst: MRA
Chloride		77	30	mg/Kg	20 3/20/2018 4:59:3	4 PM 37127

...

- 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
- Value above quantitation range Е
- J Analyte detected below quantitation limits Page 3 of 5
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order: 1803616

Hall Enviro	nmental Analysis	Laborat	ory, Inc.		Date Reported: 3/28/2018
CLIENT: Project:	R.T. Hicks Consultants, L BATTLE	.TD			Lab Order: 1803616
Lab ID:	1803616-016			Collection	Date: 3/6/2018 4:08:00 PM
Client Sample ID	: T4 Mid 7 Ft Caliche			Μ	atrix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30	00.0: ANIONS				Analyst: MRA
Chloride		900	30	mg/Kg	20 3/20/2018 5:11:59 PM 37127
Lab ID:	1803616-017			Collection	Date: 3/6/2018 4:18:00 PM
Client Sample ID	: T5 1 Ft			Μ	atrix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30	00.0: ANIONS				Analyst: CJS
Chloride		2700	75	mg/Kg	50 3/23/2018 6:50:32 PM 37127
Lab ID:	1803616-018			Collection	Date: 3/6/2018 4:22:00 PM
Client Sample ID	: T5 2 Ft			Μ	atrix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30	00.0: ANIONS				Analyst: MRA
Chloride		ND	30	mg/Kg	20 3/20/2018 5:36:47 PM 37127

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
- 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 В
- Value above quantitation range Е
- J Analyte detected below quantitation limits Page 4 of 5
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client:	R.T. Hick	s Consultants,	LTD							
Project:	DATILE									
Sample ID	MB-37103	SampType:	mblk	Tes	tCode: EPA	A Method	300.0: Anion	s		
Client ID:	PBS	Batch ID:	37103	R	unNo: 49 9	922				
Prep Date:	3/19/2018	Analysis Date:	3/19/2018	S	64 SeqNo: 161	16189	Units: mg/K	g		
Analyte		Result PQ	L SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chioride		ND 1	.5							
Sample ID	LCS-37103	SampType:	lcs	Tes	tCode: EP/	A Method	300.0: Anion	S		
Client ID:	LCSS	Batch ID:	37103	R	unNo: 499	922				
Prep Date:	3/19/2018	Analysis Date:	3/19/2018	S	SeqNo: 161	16190	Units: mg/K	g		
Analyte		Result PQ	L SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		14 1	.5 15.00	0	92.1	90	110			
Sample ID	MB-37127	SampType:	mblk	Tes	tCode: EPA	A Method	300.0: Anion:	s		
Client ID:	PBS	Batch ID:	37127	R	unNo: 49 9	932				
Prep Date:	3/20/2018	Analysis Date:	3/20/2018	S	SeqNo: 161	17478	Units: mg/K	g		
Analyte		Result PQ	L SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		ND 1	.5							
Sample ID	LCS-37127	SampType:	lcs	Tes	tCode: EPA	A Method	300.0: Anion:	S		
Client ID:	LCSS	Batch ID:	37127	R	unNo: 49 9	932				
Prep Date:	3/20/2018	Analysis Date:	3/20/2018	S	SeqNo: 161	17479	Units: mg/K	g		
Analyte		Result PQ	L SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		14 1	.5 15.00	0	93.5	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 Detection Limit
- W Sample container temperature is out of limit as specified

Page 5 of 5

HALL ENVIR ANAL LABOI	RONMENTAL YSIS RATORY	Hall Environmental Alb TEL: 505-345-3975 Website: www.ho	Analysis Labord 4901 Hawkin uquerque, NM 8 5 FAX: 505-345- ullenvironmental	atory s NE 7109 San 4107 .com	nple Log-In Check List
Client Name:	RT HICKS	Work Order Number	1803616		RcptNo: 1
Received By:	Anne Thorne	3/9/2018 1:05:00 PM		am A.	· · · · · · · · · · · · · · · · · · ·
Completed By:	Erin Melendrez	3/12/2018 11:32:23 AM	И	IN WA	
Reviewed By:	1040	3 17 18	-		
<u>Chain of Cus</u>	<u>tody</u>				
1. Is Chain of Cu	ustody complete?		Yes 🖌	No 🗌	Not Present
2. How was the	sample delivered?		<u>Client</u>		
Log In 3. Was an attem	npt made to cool the samples?		Yes 🗌	No 🔽	NA 🗌
4. Were all samp	ples received at a temperature (of >0° C to 6.0°C	Yes 🗌 🗌	No 🗹	
5. Sample(s) in p	proper container(s)?		Yes 🗹 [±]	No 🗌	
6. Sufficient sam	ple volume for indicated test(s)	?	Yes 🗹	No 🗌	
7. Are samples (e	except VOA and ONG) properly	/ preserved?	Yes 🔽	No 🗌	
8. Was preservat	tive added to bottles?		Yes 🗌	No 🗹	NA 🗌
9. VOA vials have	e zero headspace?		Yes 🗌	No 🗌	No VOA Vials 🔽
10. Were any sam	ple containers received broker	ı? - /	Yes	No 🗹	
11.Does paperwo	rk match bottle labels?		Yes 🔽	No 🗌	# of preserved bottles checked for pH:
12 Are matrices of	orrectly identified on Chain of C	Custodu?	Yee M		(<2 or >12 unless noted) Adjusted?
13 Is it clear what	analyses were requested?	Justouy	Ves V		
14. Were all holdin (If no, notify cu	ing times able to be met? Istomer for authorization.)		Yes 🗹	No 🗌	Checked by:
Special Handli	ing (if applicable)				
15. Was client not	tified of all discrepancies with th	nis order?	Yes 🗌	No 🗌	NA 🔽
Person I	Notified:	Date:			
By Whor	m:	Via:] eMail 🔄 Pl	none 🗌 Fax	In Person
Regardir	ng:	an a	······		Han mar an
Client In	structions:	nelle alle de la de la de la desta construir d'hydrige de la de	1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -	alaraan ahaa ahaa ahaa ahaa ahaa ahaa ahaa	in a funda a funda a funda a funda da da da da da funda da funda a funda a funda a funda da funda da funda da f In a funda da
16. Additional rem	narks:		· · · ·		
17. <u>Cooler Inform</u> Cooler No	<u>nation</u> │ Temp ºC │ Condition │ Sea	al Intact Seal No Se	eal Date	Signed Bv	
1	20.9 Good Not	Present		<u> </u>	

Client:	Chain-of R.T. Hicks (f-Cust	ody Record	Turn-Around	Time;			HALL ENVIRONMENTAL					AL				
Mailing Ac	idress.		901 Rio Grande NW F-142	Project Name	BATTLE		1	4901	Haw	www.	w hall	enviror	nment	al.cor	n 8710		
			Albuquerque NM 98104	Project #:				Tel	505-3	45-3	075	Eau	505	245 4	107	·	
Phone #:		505 238	9515					161.	100-0	40-0	a/Q.	- F βA	909-	243-4	107		
email or F	ax#:	r@rthicks	sconsult.com	Project Mana	iger:			-				-1-			-	11	
QAVQC Pad	skage: lard		Level 4 (Full Validation)	(Randall Hick	\$											
Accreditat	ion:			Sampler:	RTH												
		D Other		On Ice:	D Yes	W/No						1					Nac
T EDD (1	ype)	-		Sample Tem	perature:	20.7							11				2
Date	Time	Malnx	Sample Request ID	Container Type and #	Preservative Type	HEAL NO. 1903(016	Chloride										Air Buhhlee
3/6/2018	1459	Soil	T1 on Rd 1 ft			-001	×		1 =								
3/6/2018	1501	Soil	T1 on Rd 2 ft caliche	1		-00Z	x			101	2					1.1	
3/6/2018	1503	Soil	T1 on Rd 3 ft caliche	1		-003	x			\leq		1					11
3/6/2018	1514	Soil	T21ft	1	(t	-004	×					1					
3/6/2018	1515	Soil	T2 1 ft caliche			-005	x					1.1	1 I				
3/6/2018	1539	Soil	T3 1 foot	1		-006	×			L							
3/6/2018	1538	Soil	T3 2.ft	1		-007	x			1					1		
3/6/2018	1536	Soil	T3 3 ft	-		-008	x		1	100	-						
3/6/2018	1534	Söll	T3 4 fl caliche	· · · · · · · · · · · · · · · · · · ·		-00A	x										
3/6/2018	1556	Soil	T4 5 1 ft			-010	x	14	i in								
3/6/2018	1554	Soil	T4 S 2 ft		1 b	-011	x			1.1							
3/6/2018	1558	Soil	TANIR,	1 IL	2	-012	x	41	fini	1-1							
Date: 3/9/10	Time: 1305	Relinquishe	amilark	Received by:	den -	Date 03 09/18	Ren	harks:									
Date	Time	Relincú sho	d by	Received by:		Date Time											

If necessary, samples submitted to I tall Environmental may be subcontracted to other accredited faboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report

of-Custody Record	Turn-Around	Time: E Rush				H	ALL NAL	ENV. YSIS		ORA	NTA	L RY
901 Bio Grande NW E-142		BATTLE			4901	Hawkin	s NE -	Albuque	roue NM	87109		
Albuquerque NM 98104	Project #:	Print and			Tel !	05-345	-3975	Fax 5	05-345-4	107		
505 238 9515	1				19114							
r@rthicksconsult.com	Project Mana	ager:					1					
Level 4 (Full Validation)		Randall Hick	s									
	Sampler	RTH										19
I Other	On loe:	E Yes	X No									arb
4	Sample Tem	perature:	20.9							11		2
Matrix Sample Request ID	Gontainer Type and #	Preservative Type	HEAL NO. 1803616	Chloride								Air Bubble
500 Soil T4 N 2 ft			-013	x	11						-	
01 Soil T4 Mid 5 ft			-014	×								
06 Soil T4 Mid 6 ft			-015	x				100				
08 Soil T4 mid 7 ft caliche			-016	×				101.00				
18 Soil T5 1 ft			-017	x				-				2.1
22 Soil T5 2 ft			-018	×				L		11.1		
Soil				x								1.1
Sail				x			13:11	$= \{0\}$			11	
Soil				x						-	1.1	· · · · · ·
Soil				x	-		1.1				100	
Soil				x								11.1
Soil A				x	-		111				1444	10772
Relinquished by:	Received by:	lun	Date 1305 Date Time	Ren	narks:							
Soil Relinquisher Refinquisher	a tay: Mall	d by: South Received by: Boy: Received by: Received by:	d by: Sull Received by: d by: Received by:	d by: d by: d by: d by: Beceived by: Beceived by: Date Time	d by:	d by:	d by:	d by:	d by:	d by:	d by:	d by:

W necessary samples submitted to Hall Environmental may be subcontracted to other accepted laboratories. This serves as notice of this possibility. Any sub-contracted data will be dearly notated on the analytical report



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: <u>www.hallenvironmental.com</u>

February 19, 2018

Randall Hicks R.T. Hicks Consultants, LTD 901 Rio Grande Blvd. NW Suite F-142 Albuquerque, NM 87104 TEL: (505) 266-5004 FAX (505) 266-0745

RE: West of MP Jnct

OrderNo.: 1802042

Dear Randall Hicks:

Hall Environmental Analysis Laboratory received 3 sample(s) on 2/1/2018 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 <u>www.hallenvironmental.com</u> 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 #NM0190

Sincerely,

andia

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Lab Order: 1802042

Hall Enviro	nmental Analysis	s Laborat	ory, Inc.		Date Reported: 2/19/2018	
CLIENT: Project:	R.T. Hicks Consultants, West of MP Jnct	LTD			Lab Order: 1802042	
Lab ID:	1802042-001			Collection	Date: 1/30/2018 3:19:00 PM	
Client Sample ID	: BH1 6"			Μ	atrix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch	ID
EPA METHOD 30 Chloride	00.0: ANIONS	3300	150	mg/Kg	Analyst: MR 100 2/14/2018 4:54:58 AM 364	A 62
Lab ID:	1802042-002			Collection	Date: 1/30/2018 3:23:00 PM	
Client Sample ID	: BH1 12"			Μ	atrix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch	ID
EPA METHOD 30	00.0: ANIONS				Analyst: MR	A
Chloride		3600	150	mg/Kg	100 2/14/2018 5:07:23 AM 364	62
Lab ID:	1802042-003		(Collection	Date: 1/30/2018 3:27:00 PM	
Client Sample ID	: BH1 24"			Μ	atrix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch	ID
EPA METHOD 30	00.0: ANIONS				Analyst: CJ:	S
Chloride		5100	300	mg/Kg	200 2/16/2018 5:27:47 PM 364	.95

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
- 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 В
- Value above quantitation range Е
- J Analyte detected below quantitation limits Page 1 of 2
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client:	R.T. 1	Hicks Consultants, LTD				
Project:	West	of MP Jnct				
Sample ID	MB-36462	SampType: mblk	TestCode: EPA Method	300.0: Anions		
Client ID:	PBS	Batch ID: 36462	RunNo: 49047			
Prep Date:	2/12/2018	Analysis Date: 2/12/2018	SeqNo: 1579653	Units: mg/Kg		
Analyte		Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual	
Chloride		ND 1.5				
Sample ID	LCS-36462	SampType: Ics	TestCode: EPA Method	300.0: Anions		
Client ID:	LCSS	Batch ID: 36462	RunNo: 49047			
Prep Date:	2/12/2018	Analysis Date: 2/12/2018	SeqNo: 1579654	Units: mg/Kg		
Analyte		Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual	
Chloride		14 1.5 15.00	0 91.9 90	110		
Sample ID	MB-36495	SampType: mblk	TestCode: EPA Method	300.0: Anions		
Client ID:	PBS	Batch ID: 36495	RunNo: 49085			
Prep Date:	2/13/2018	Analysis Date: 2/13/2018	SeqNo: 1583564	Units: mg/Kg		
Analyte		Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual	
Chloride		ND 1.5				
Sample ID	LCS-36495	SampType: Ics	TestCode: EPA Method	300.0: Anions		
Client ID:	LCSS	Batch ID: 36495	RunNo: 49085			
Prep Date:	2/13/2018	Analysis Date: 2/13/2018	SeqNo: 1583565	Units: mg/Kg		
Analyte		Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual	
Chloride		14 1.5 15.00	0 92.3 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 Detection Limit
- W Sample container temperature is out of limit as specified

Page 2 of 2

HALL ENVIRONMENTAL ANALYSIS LABORATORY	Hall Environmental Add Albuqu TEL, 503-342-3975 FA Website: www.haller	alysis Labor 1901 Hawkin erque: NM 8 X: 505-345- wironmeniai	atory 12 NE 17109 San 4107 Leom	nple Log-In C	heck List
Client Name: RT HICKS	Work Order Number: 18	802042		RcptNo	1
Received By: Erin Melendrez 2/1	1/2018 10:25:00 AM		MA	7	
Completed By, Erin Melendrez 2/ Reviewed By Solo 02/01/18	1/2018 1:35:55 PM		ulut	N.	
Cabella 134- PD)					
1 Is Chain of Custody complete?	v		No 🗌	Not Present	
2. How was the sample delivered?	CI	ient			
Log In					
3. Was an attempt made to cool the samples?	Ye	es 🗹	No 🗌	NA 🗌	
Were all samples received at a temperature of >	0° C to 6.0°C Ye	s 🔽	No 🗌	NA 🗌	
5. Sample(s) in proper container(s)?	Ye	rs 🔽	No 🗌		
6. Sufficient sample volume for indicated test(s)?	Ye	s 🔽	No 🗌		
7. Are samples (except VOA and ONG) properly pre	eserved? Ye	s 🔽	No 🗌		
8. Was preservative added to bottles?	Ye	s 🗆	No 🗹	NA 🗆	
VOA vials have zero headspace?	Ye	s 🗌	No 🗌	No VOA Vials 🗹	
Q, Were any sample containers received broken?	Ye	5	No 🗹	# of preserved	
1. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Ye	s 🔽	No 🗌	for pH: (<2 or 3	12 unless noted)
2. Are matrices correctly identified on Chain of Custo	ody? Ye	s 🗹	No	Adjusted?	
3, Is it clear what analyses were requested?	Ya	•	No		
 Were all holding times able to be met? (If no, notify customer for authorization.) 	Ye	s 🔽	No 🗌	Checked by:	
pecial Handling (if applicable)					
15. Was client notified of all discrepancies with this of	order? Ye	s 💷	No 📖	NA 🗹	
Person Nolified: By Whom: Regarding:	Date (Via: 🗌 e	Mail 🗍 P	hone 🗍 Fax	In Person	
Client Instructions:					
10. Additional remarks:					
Cooler No. Team % Condition Seal in	tact Seal No. Seal	Date 1	Signed By	A	

	AU	NHN (E FRA	Droject Name	C Rush			1	A	NAL	YS.	IS	A	00	RAT	OR
Mailing	g Addres:	12	HCKS CONSULTING	Westo	AMP 1	INCT		H 1061	w	ww.ha	Albu	onmer	Ital.co	m M 87	109	
				Project #:			_	Tel. 50	15-345	-3975	E.	x 505	345	4107		
Phone	:#:									4	Analys	is Re	duest			
email (or Fax#:			Project Mana	ger: ,		((O) (Á)	-			(**		1	-	
CALOC XStar	- Package: ndard	2	Level 4 (Full Validation)	Kau	dall An	cha	1208) s	HW / OE	_	(SMIS	e ou	PCB's				
Accred	ditation	D Othe		Sampler:			8MT	Hall	(13	02Z		2808		(-	-
	A VELLAN			Un Ice:	A Yes	O VI CUIVI	+ 3) 7 7 7 7 7 7 7 7	314	20c	s	/ 56		VO	ð,	
	adki) n			vample rem	Derature: ,C	0-1-0(C+)-0.2	181)) g	por	pol	etal	icid.	(VC	∧- II	179	
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL NO. 1802042	M + XƏTB		TPH (Meth	119M) 603 8) 8'HA9	N 8 ARDR	(m) anoine (1299 1 808	SV) 80928	ues) 0758	CNIN	
08/1	1579	2.1	BH 1 6 11	1 Grass		100-			1				-		Y	
-1	1523		BH#1 21	E		200-						-			×	
-	1527	2	ILA EHS	A		-003						-			X	
			RH1 ms)									-	
			65 Per 8H						1							
												-				
			5										10			
			1						-			-				
Date 1 / 10;	TIME;	Reinquish	and all I	Received by L		Z./VB 1025	Rema	rks.		1						
Date.	Time:	Refinquish	1. Jran Ad pa	Received by:		Date Time										



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: <u>www.hallenvironmental.com</u>

March 26, 2018

Randall Hicks R.T. Hicks Consultants, LTD 901 Rio Grande Blvd. NW Suite F-142 Albuquerque, NM 87104 TEL: (505) 266-5004 FAX (505) 266-0745

RE: W OF MP

OrderNo.: 1803589

Dear Randall Hicks:

Hall Environmental Analysis Laboratory received 22 sample(s) on 3/9/2018 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 <u>www.hallenvironmental.com</u> 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 #NM0190

Sincerely,

andia

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Lab Order: 1803589

Hall Enviro	nmental Analys	is Laborat	ory, Inc.		Date Reported: 3/26	/2018
CLIENT: Project:	R.T. Hicks Consultants W OF MP	s, LTD		Ι	Lab Order: 18035	589
Lab ID:	1803589-001			Collection Date	: 3/6/2018 1:21:00 PM	[
Client Sample ID	: T1 @ Jnct 1 Ft			Matrix	: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				Ana	alyst: MRA
Chloride		3100	150	mg/Kg	100 3/21/2018 2:55:12	AM 37083
Lab ID:	1803589-002			Collection Date	: 3/6/2018 1:24:00 PM	[
Client Sample ID	: T1 @ Jnct 2 Ft			Matrix	: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				Ana	alyst: MRA
Chloride		3700	150	mg/Kg	100 3/21/2018 3:07:37	AM 37083
Lab ID:	1803589-003			Collection Date	: 3/6/2018 1:26:00 PM	[
Client Sample ID	: T1 @ Jnct 3 Ft			Matrix	: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				Ana	alyst: MRA
Chloride		5300	150	mg/Kg	100 3/21/2018 3:20:02	AM 37083
Lab ID:	1803589-004			Collection Date	: 3/6/2018 1:28:00 PM	[
Client Sample ID	: T1 @ Jnct 4 Ft			Matrix	: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				Ana	alyst: MRA
Chloride		8700	750	mg/Kg	500 3/21/2018 3:32:26	AM 37085
Lab ID:	1803589-005			Collection Date	: 3/6/2018 1:31:00 PM	[
Client Sample ID	: T1 @ Jnct 5 Ft			Matrix	: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				Ana	alyst: MRA
Chloride		1700	75	mg/Kg	50 3/21/2018 3:44:50	AM 37085

- 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
- Value above quantitation range Е
- J Analyte detected below quantitation limits Page 1 of 6
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order: 1803589

Hall Enviro	nmental Analysis	Laborat	ory, Inc.		Date Reported: 3/26	/2018
CLIENT: Project:	R.T. Hicks Consultants, I W OF MP	LTD			Lab Order: 18035	89
Lab ID:	1803589-006			Collection I	Date: 3/6/2018 1:33:00 PM	
Client Sample ID	: T1 @ Jnct 6 Ft			Ma	trix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				Ana	alyst: MRA
Chloride		290	30	mg/Kg	20 3/18/2018 6:29:47	PM 37085
Lab ID:	1803589-007			Collection I	Date: 3/6/2018 1:38:00 PM	
Client Sample ID	T1 @ Jnct 6 Ft Merch	ant		Ma	trix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				Ana	alyst: MRA
Chloride		750	30	mg/Kg	20 3/18/2018 6:42:12	PM 37085
Lab ID:	1803589-008			Collection I	Date: 3/6/2018 1:40:00 PM	
Client Sample ID	: T1 @ Jnct 7 Ft Calicher	e		Ma	trix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				Ana	alyst: MRA
Chloride		390	30	mg/Kg	20 3/18/2018 6:54:37	PM 37085
Lab ID:	1803589-009			Collection I	Date: 3/6/2018 1:58:00 PM	
Client Sample ID	: T2 1 Ft			Ma	trix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				Ana	alyst: MRA
Chloride		2300	150	mg/Kg	100 3/21/2018 3:57:15	AM 37085
Lab ID:	1803589-010			Collection I	Date: 3/6/2018 1:56:00 PM	
Client Sample ID	: T2 2 Ft			Ma	trix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				Ana	alyst: MRA
Chloride		1900	75	mg/Kg	50 3/21/2018 4:34:28	AM 37085

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

Qualifiers:

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- * 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
- Value above quantitation range Е
- J Analyte detected below quantitation limits Page 2 of 6
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order: 1803589

Han Environmental Analysis Laboratory, Inc.					Date Reported: 3/2	26/2018
CLIENT: Project:	R.T. Hicks Consultants, W OF MP	LTD			Lab Order: 180	3589
Lab ID: Client Sample ID	1803589-011 : T2 3 Ft			Collection I Ma	Date: 3/6/2018 1:54:00 P trix: SOIL	М
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				A	nalyst: MRA
Chloride		3900	150	mg/Kg	100 3/21/2018 4:46:5	53 AM 37085
Lab ID:	1803589-012			Collection I	Date: 3/6/2018 1:52:00 P	М
Client Sample ID	: T2 4 Ft			Ma	trix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30 Chloride	00.0: ANIONS	72	30	mg/Kg	A 20 3/18/2018 8:33:5	nalyst: MRA 52 PM 37085
Lab ID:	1803589-013			Collection I	Date: 3/6/2018 2:03:00 P	M
Client Sample ID	: T2 4.5 Ft			Ma	trix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				A	nalyst: MRA
Chloride		1200	30	mg/Kg	20 3/18/2018 8:46:1	6 PM 37085
Lab ID:	1803589-014		1	Collection I	Date: 3/6/2018 2:28:00 P	M
Client Sample ID	: T3 1 Ft Merchant			Ma	trix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				A	nalyst: MRA
Chloride		ND	30	mg/Kg	20 3/18/2018 8:58:4	1 PM 37085
Lab ID:	1803589-015			Collection I	Date: 3/6/2018 2:13:00 P	M
Client Sample ID	: T3 1 Ft			Ma	trix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				A	nalyst: MRA
Chloride		ND	30	mg/Kg	20 3/18/2018 9:11:0	6 PM 37085

Hall Environmental Analysis Laboratory Inc

- 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 В
- Value above quantitation range Е
- J Analyte detected below quantitation limits Page 3 of 6
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order: 1803589

Hall Enviro	nmental Analysis	Date Reported: 3/26/2018				
CLIENT: Project:	R.T. Hicks Consultants, W OF MP	LTD		L	ab Order: 1803:	589
Lab ID:	1803589-016		(Collection Date:	3/6/2018 2:15:00 PM	1
Client Sample ID	: T3 2 Ft			Matrix:	SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				An	alyst: MRA
Chloride		ND	30	mg/Kg	20 3/18/2018 9:23:31	PM 37085
Lab ID:	1803589-017			Collection Date:	3/6/2018 2:18:00 PM	1
Client Sample ID	: T4 1 Ft on Side Rd			Matrix:	SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				An	alyst: MRA
Chloride		ND	30	mg/Kg	20 3/18/2018 9:35:56	PM 37085
Lab ID:	1803589-018			Collection Date:	3/6/2018 2:20:00 PM	1
Client Sample ID	: T4 2 Ft on Side Rd			Matrix:	SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				An	alyst: MRA
Chloride		ND	30	mg/Kg	20 3/18/2018 9:48:21	PM 37085
Lab ID:	1803589-019			Collection Date:	3/6/2018 2:36:00 PM	1
Client Sample ID	: T5 1 Ft S			Matrix:	SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				An	alyst: MRA
Chloride		ND	30	mg/Kg	20 3/18/2018 10:00:4	5 PM 37085
Lab ID:	1803589-020			Collection Date:	3/6/2018 2:37:00 PM	1
Client Sample ID	: T5 2 Ft S			Matrix:	SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				An	alyst: MRA
Chloride		35	30	mg/Kg	20 3/18/2018 10:13:1	0 PM 37085

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
- Analyte detected in the associated Method Blank В
- Value above quantitation range Е
- J Analyte detected below quantitation limits Page 4 of 6
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order: 1803589

Hall Enviro	nmental Analysi		Date Reported: 3/26/2018			
CLIENT: Project:	R.T. Hicks Consultants W OF MP	, LTD			Lab Order: 1803	3589
Lab ID: Client Sample ID	1803589-021 : T6 1 Ft N			Collection D Mat	ate: 3/6/2018 1:41:00 P.	М
Analyses		Result	PQL Qu	al Units	DF Date Analyzed	Batch ID
EPA METHOD 30 Chloride	00.0: ANIONS	ND	30	mg/Kg	A 20 3/18/2018 10:25:	nalyst: MRA 35 PM 37085
Lab ID: Client Sample ID	1803589-022 : T6 2 Ft N			Collection D Mat	pate: 3/6/2018 1:42:00 P. trix: SOIL	М
Analyses		Result	PQL Qu	al Units	DF Date Analyzed	Batch ID
EPA METHOD 30	00.0: ANIONS				A	nalyst: MRA
Chloride		ND	30	mg/Kg	20 3/18/2018 11:02:	49 PM 37085

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

Qualifiers:

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- 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 В
- Value above quantitation range Е
- J Analyte detected below quantitation limits Page 5 of 6
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client: Project:	R.T. H W OF	Hicks Consulta: 5 MP	nts, LT	D							
Sample ID	MB-37085	SampTy	vpe: m l	olk	Tes	tCode: El	PA Method	300.0: Anion	s		
Client ID:	PBS	Batch	ID: 37	085	R	RunNo: 4	9914				
Prep Date:	3/18/2018	Analysis Da	ate: 3/	18/2018	S	SeqNo: 1	615651	Units: mg/k	ζg		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		ND	1.5								
Sample ID	LCS-37085	SampTy	pe: Ics	5	Tes	tCode: El	PA Method	300.0: Anion	s		
Client ID:	LCSS	Batch	ID: 37	085	R	RunNo: 4	9914				
Prep Date:	3/18/2018	Analysis Da	ate: 3/	18/2018	S	SeqNo: 1	615652	Units: mg/ #	ίg		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		15	1.5	15.00	0	97.1	90	110			

Qualifiers:

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- 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 Detection Limit
- W Sample container temperature is out of limit as specified

1803589 26-Mar-18

WO#:

Page 6 of 6

HALL ENVIRONMENTAL ANALYSIS LABORATORY	Hall Environme TEL: 505-345-3 Website: www	ntal Analysis Labor 4901 Hawkin Albuquerque, NM 8 1975 FAX: 505-345- w.hallenvironmental	alory 18 NE 17109 San 4107 Leom	nple Log-In Check Lis	it
Client Name: RT HICKS	Work Order Num	ber: 1803589		RcptNo: 1	
Received By: Anne Thorne	3/9/2018 1:05:00 P	м	anne A.	~	
Completed By: Erin Melendrez	3/12/2018 8:21:22	AM	MA	>	
Reviewed By:	3/12/18 106	eled by	: cPX	a de la companya de l	
Chain of Custody			U		
1. Is Chain of Custody complete?		Yes 🔽	No 🗌	Not Present	
2. How was the sample delivered?		<u>Client</u>			
Log In 3. Was an attempt made to cool the sampl	es?	Yes 🗌	No 🔽		
4. Were all samples received at a temperat	ure of >0° C to 6.0°C	r Yes □	No 🗹		
5. Sample(s) in proper container(s)?		Yes 🗹	No 🗌		
6. Sufficient sample volume for indicated te	st(s)?	Yes 🗸	No 🗌		
7. Are samples (except VOA and ONG) pro	perfy preserved?	Yes 🔽	No 🗌		
8. Was preservative added to bottles?		Yes 🗌	No 🗹	NA 🗔	
9. VOA vials have zero headspace?		Yes	No 🗔	No VOA Viais 🗹	
10. Were any sample containers received br	oken?	Yes 🗆	No 🔽	# of preserved	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)		Yes 🗸	No 🗌	for pH: (<2 or >12 unless note	ed)
12. Are matrices correctly identified on Chain	of Custody?	Yes 🔽	No 🗌	Adjusted?	
13. Is it clear what analyses were requested?		Yes 🗹	No 🗌		
14. Were all holding times able to be met? (If no, notify customer for authorization.)		Yes 🗹	No 🗌	Checked by:	
Special Handling (if applicable)					
15. Was client notified of all discrepancies w	th this order?	Yes 🗌	No 🗌	NA 🗹	
Person Notified:	Date:				
By Whom:	Via:	🗌 eMail 📃 Pl	hone 🗌 Fax	In Person	
Regarding:	niyaldi yi 1940-la	and a second	44998-04-10424-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-		
16. Additional remarks:				· · · · · · · · · · · · · · · · · · ·	
17. <u>Cooler Information</u> Cooler No Temp °C Condition	Seal Intact Seal No	Seal Date	Signed By		
P					

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Client	hain-ot R.T. Hicks	Consultan	ody Record	Turn-Around	Time: Rush		_	HALL ENVIRONMENTAL ANALYSIS LABORATORY		
Mailing Add	ress	- 1	901 Rio Grande NW F-142		WOFMP			4901 Hawkins NE - Albuquerque, NM 87109		
			Albuquerque NM 98104	Project #:				Tel. 505-345-3975 Fax 505-345-4107		
Phone #:		505 238	9515							
email or Fax# r@rthicksconsult.com		Project Mana	iger:		11					
QA/QC Pack	age.			1000	Randall Hick	S				
LIX Standa	ra	-	Level 4 (Full Validation)				-			
Accreditatio	n:	D Other		Sampler:	IT Yes	V No				
CI EDD (Ty	pe)	La Guier,		Sample Tem	perature:	209	-			
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL NO. 18035991	Chloride	Ar Bubbles		
3/6/2018	1321	Soil	T1 @ Jncl 1 ft	1 glass		-001	x			
3/5/2018	1324	Soil	T1 @ Jnct 21	1 glass		-002	×			
3/5/2018	1326	Soil	T1 @ Junct 3 fl	1 glass		-003	×			
3/5/2018	1328	Soil	T1 @ Jnct 4 ft	1 glass	1	-004	×			
3/5/2018	1331	Soil	T1 @ Jnct 5 ft	1 glass	1	-005	×			
3/5/2018	1333	Soil	T1 @ Jnct 6 ft	1 glass		-006	×			
3/5/2018	1338	Soil	T1 @ Jnct 6 ft Merchant	1 glass		-007	x			
3/5/2018	1340	Soil	T1 @ Jnct 7 ft caliche	1 glass		-008	x			
3/6/2018	1358	Soil	T2 1 ft	1 glass	· · · · · · · · · · · · · · · · · · ·	-009	×			
3/5/2018	1356	Soil	T2.2 ft	1 glass		-010	×			
3/6/2018	1354	Sol	T23ft	1 glass		-D11	×			
3/5/2015	1352	Soil	/ T24ft	1 glass /	1	7012	x			
Date: // 0 Date:	Time: 1305 Time:	Relinquishe	tan Add / / /	Received by	m	Date Time 130 Date Time	P Rer	marks:		

It recessery, samples submitted to Hall Environmental may be subcontracted to other accordited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report
Client: R.T. Hicks Consultants			Iurn-Around Time: I Standard I Rush Project Name:			HALL ENVIRONMENTAL ANALYSIS LABORATOR					
Mailing Add	ress		901 Rio Grande NW F-142		W OF MP			4901 Hawkins NE - Albuquerque, NM 87109			
			Albuquerque NM 98104	Project #:				Tel. 505-345-3975 Fax 505-345-4107			
Phone #:		505 238	9515	· · · · ·	-						
email or Fax	x#:	r@rthick	sconsult.com	Project Mana	iger:						
QA/QC Package.			(contraction of the second se	Randall Hicks	3						
Accreditatio	ani-			Sampler:		-1					
I NELAP		D Other		On Ice:	Yes	DX No					
EDD (Ty	pe)	_		Sample Tem	perature:	20.7	-				
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	Chloride				
3/6/2018	1403	Soil	T2 4.5 ft	1 glass		-013	x				
3/6/2018	1428	Soil	T3 1 ft Merchant	1 glass		-014	×				
3/6/2018	1413	Soil	T31ft	1 glass		-015	×				
3/6/2018	1415	Soll	T32 ft	1 glass		-016	×				
3/6/2018		Soil		1 glass		0.3	x				
3/6/2018		Soil		1 glass			×				
3/6/2018	1418	Soil	t4 1 ft on side rd	1 glass		-017	x				
3/6/2018	1420		T4 2ft on side rd	1 glass		-018	x				
3/6/2018	1436	Soil	T51ft S	1 glass		-019	×				
3/5/2018	1437	Soil	T52ftS	1 glass		-070	×				
3/6/2018	1341	Soil	T6 1ft N	1 glass		-021	×				
3/6/2018	1342	Soil	/ T62 ft N	1 glass	1 1	-022	x				
Date: 1/19 Date:	Time:	Relinquish	ed by	Received by	in A	Date Time 0 3/09/07 13.5 Date Time	Remarks:				

If necessary, samples submitted to Hall Environmental may be subcontracted to other accordited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: <u>www.hallenvironmental.com</u>

February 15, 2018

Randall Hicks R.T. Hicks Consultants, LTD 901 Rio Grande Blvd. NW Suite F-142 Albuquerque, NM 87104 TEL: (505) 266-5004 FAX (505) 266-0745

RE: 32 26 50 / 103 33 50

OrderNo.: 1802026

Dear Randall Hicks:

Hall Environmental Analysis Laboratory received 5 sample(s) on 2/1/2018 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 <u>www.hallenvironmental.com</u> 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 #NM0190

Sincerely,

andia

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Analytical Report

Lab Order: 1802026

Hall Enviro	nmental Analys	is Laborat	ory, Inc.		Date Reported: 2/15/2018
CLIENT: Project:	R.T. Hicks Consultant: 32 26 50 / 103 33 50	s, LTD			Lab Order: 1802026
Lab ID: Client Sample ID	1802026-001 : BH2 6"			Collection Da Mati	nte: 1/30/2018 2:51:00 PM rix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30 Chloride	00.0: ANIONS	5200	300	mg/Kg	Analyst: MRA 200 2/14/2018 2:26:03 AM 36462
Lab ID: Client Sample ID	1802026-002 : BH2 12"			Collection Da Mati	nte: 1/30/2018 2:57:00 PM rix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30 Chloride	00.0: ANIONS	5400	300	mg/Kg	Analyst: MRA 200 2/14/2018 2:38:28 AM 36462
Lab ID: Client Sample ID	1802026-003 : BH2 24"			Collection Da Mati	nte: 1/30/2018 3:02:00 PM rix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30 Chloride	00.0: ANIONS	5500	300	mg/Kg	Analyst: MRA 200 2/14/2018 2:50:52 AM 36462
Lab ID: Client Sample ID	1802026-004 : BH1 6"			Collection Da Mati	nte: 1/30/2018 2:32:00 PM rix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30 Chloride	00.0: ANIONS	840	30	mg/Kg	Analyst: MRA 20 2/12/2018 1:41:21 PM 36462
Lab ID: Client Sample ID	1802026-005 : BH1 12"	D 14		Collection Da Mati	nte: 1/30/2018 2:37:00 PM rix: SOIL
Analyses		Kesult	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30 Chloride	00.0: ANIONS	2900	75	mg/Kg	Analyst: MRA 50 2/14/2018 3:03:17 AM 36462

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

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

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 В
- Value above quantitation range Е
- J Analyte detected below quantitation limits Page 1 of 2
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client: Project:	R.T. H 32 26	Iicks Consultants 50 / 103 33 50	, LTD						
Sample ID	MB-36462	SampType	: mblk	Tes	tCode: EPA Metho	d 300.0: Anior	IS		
Client ID:	PBS	Batch ID:	36462	F	RunNo: 49047				
Prep Date:	2/12/2018	Analysis Date:	2/12/2018	\$	SeqNo: 1579653	Units: mg/k	٢g		
Analyte		Result PO	QL SPK value	e SPK Ref Val	%REC LowLimi	t HighLimit	%RPD	RPDLimit	Qual
Chloride		ND	1.5						
Sample ID	LCS-36462	SampType	: Ics	Tes	tCode: EPA Metho	d 300.0: Anior	IS		
Client ID:	LCSS	Batch ID:	36462	F	RunNo: 49047				
Prep Date:	2/12/2018	Analysis Date:	2/12/2018	Ş	SeqNo: 1579654	Units: mg/k	٢g		
Analyte		Result P	QL SPK value	e SPK Ref Val	%REC LowLimi	t HighLimit	%RPD	RPDLimit	Qual
Chloride		14	1.5 15.00	0 C	91.9 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 Detection Limit
- W Sample container temperature is out of limit as specified

Page 2 of 2

WO#: **1802026** *15-Feb-18*

Client Name: RT HICKS	Work Order Number.	180	2026			ReptNo: T
Received By Erin Melendrez	2/1/2018 10:09:00 AM			Vh	4E	E.
Completed By. Erin Melendrez Reviewed By: DTDS	2/1/2018 11:10:09 AM 2/1/18			12	W.E	-
Lubeled By She 0710	UTY					
Chain of Custody						
1. Is Chain of Custody complete?		Yes	~	No		Not Present
2. How was the sample delivered?		Clier	<u>11</u>			
Log In			1.1	1212	-	
Was an attempt made to cool the samples?		Yes		No		NA 🗀
4. Were all samples received at a temperature of	of >0° C to 5.0°C	Yes		No		NA' 🗔
5. Sample(s) in proper container(s)?		Yes	V	No		
6. Sufficient sample volume for indicated test(s)	2	Yes	V	No		
7. Are samples (except VOA and ONG) properly	preserved?	Yes	~	No		
8. Was preservative added to bottles?		Yes		No	~	NA 🗌
9. VOA vials have zero headspace?		Yes	ш.	No	2	No VOA Vials 🗹
10, Were any sample containers received broken	?	Yes	<u>_</u>	No	•	
11. Does paperwork match boilte labels?		Yes	v	No	п	# of preserved bottles checked for pH
(Note discrepancies on chain of custody)			_		2	(<2 of >12 unless not
12. Are matrices correctly identified on Chain of C	ustody?	Yes	V	No	4	Adjusted?
13. Is it clear what analyses were requested?		Yes		No	-	Checked but
(If no, notify customer for authorization.)		Yes	×	NO		Спескей by.
Special Handling (if applicable)						
15. Was client notified of all discrepancies with th	is order?	Yes		No	_	NA Z
Person Notified:	Date:					
By Whom:	Via:	eMa	il 🗌 P	hone 🗌	Fax	In Person
Regarding:						
Client Instructions:						
16 Additional remarks						

	ADVAWCE Fax#: R.C. Fax#: R.C. Fax#: R.C. Fax#: R.C. Fax#: R.C. Fax#: R.C. Fat and and the strenge
BH BH BH BH	Time Matro HST N HST N H32 H32 Matro Matro Solutions Matro M



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: <u>www.hallenvironmental.com</u>

March 22, 2018

Randall Hicks R.T. Hicks Consultants, LTD 901 Rio Grande Blvd. NW Suite F-142 Albuquerque, NM 87104 TEL: (505) 266-5004 FAX (505) 266-0745

RE: 32 26 50

OrderNo.: 1803615

Dear Randall Hicks:

Hall Environmental Analysis Laboratory received 16 sample(s) on 3/9/2018 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 <u>www.hallenvironmental.com</u> 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 #NM0190

Sincerely,

andia

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Analytical	Report
1 Mary uca	incport

Hall Enviroi	nmental Analysis I	Laborat	tory, Inc.		Date Reported: 3/22/2018
CLIENT: Project:	R.T. Hicks Consultants, L ² 32 26 50	ГD			Lab Order: 1803615
Lab ID:	1803615-001			Collection I	Date: 3/7/2018 10:31:00 AM
Client Sample ID	: Release Pt 1 Ft			Ma	trix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30	0.0: ANIONS				Analyst: MRA
Chloride		1100	75	mg/Kg	50 3/21/2018 5:36:32 AM 37103
Lab ID:	1803615-002			Collection I	Date: 3/7/2018 10:32:00 AM
Client Sample ID	: Release Pt 2 Ft			Ma	trix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30	00.0: ANIONS				Analyst: MRA
Chloride		2100	75	mg/Kg	50 3/21/2018 5:48:57 AM 37103
Lab ID:	1803615-003			Collection I	Date: 3/7/2018 10:33:00 AM
Client Sample ID	: Release Pt 3 Ft			Ma	trix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30	0.0: ANIONS				Analyst: MRA
Chloride		2900	150	mg/Kg	100 3/21/2018 6:01:21 AM 37103
Lab ID:	1803615-004			Collection I	Date: 3/7/2018 10:34:00 AM
Client Sample ID	: Release Pt 4 Ft			Ma	trix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30	00.0: ANIONS				Analyst: MRA
Chloride		5100	150	mg/Kg	100 3/21/2018 6:13:45 AM 37103
Lab ID:	1803615-005			Collection I	Date: 3/7/2018 10:37:00 AM
Client Sample ID	: Release Pt 5 Ft Caliche			Ma	trix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30	00.0: ANIONS				Analyst: MRA
Chloride		9000	750	mg/Kg	500 3/21/2018 6:26:10 AM 37103

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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
- Analyte detected in the associated Method Blank В
- Value above quantitation range Е
- J Analyte detected below quantitation limits Page 1 of 5
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Analytic	al Report
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Hall Environ	nmental Analysis I	Laborat	tory, Inc.		Date Reported: 3/22/2018
CLIENT: Project:	R.T. Hicks Consultants, LT 32 26 50	٢D			Lab Order: 1803615
Lab ID:	1803615-006			Collection I	Date: 3/7/2018 10:44:00 AM
Client Sample ID	: Release Pt 5 Ft Caliche			Ma	itrix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30	00.0: ANIONS				Analyst: MRA
Chloride		7200	300	mg/Kg	200 3/21/2018 7:03:24 AM 37103
Lab ID:	1803615-007			Collection I	Date: 3/7/2018 10:55:00 AM
Client Sample ID	: Flowpath Dune 1 Ft			Ma	itrix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30 Chloride	00.0: ANIONS	720	30	mg/Kg	Analyst: MRA 20 3/19/2018 9:31:56 PM 37103
Lah ID:	1803615 008			Collection I	Dete: 3/7/2018 10:57:00 AM
Client Sample ID	 Flowpath Dune 3 Ft 			Conection I Ma	atrix: SOII
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
FPA METHOD 30	0.0: ANIONS				Analyst: MRA
Chloride		ND	30	mg/Kg	20 3/19/2018 9:44:20 PM 37103
Lab ID:	1803615-009			Collection I	Date: 3/7/2018 10:56:00 AM
Client Sample ID	: Flowpath Dune 2 Ft			Ma	itrix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30	0.0: ANIONS				Analyst: MRA
Chloride		ND	30	mg/Kg	20 3/19/2018 9:56:44 PM 37103
Lab ID:	1803615-010			Collection I	Date: 3/7/2018 10:01:00 AM
Client Sample ID	Road #1 1 inch Caliche			Ma	itrix: SOIL
Analyses		Result	PQL Qual	Units	DF Date Analyzed Batch ID
EPA METHOD 30	00.0: ANIONS				Analyst: MRA
Chloride		46	30	mg/Kg	20 3/19/2018 10:09:09 PM 37103

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

- Qualifiers:
- * Value exceeds Maximum Contaminant Level. Sample Diluted Due to Matrix
- D
- 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
- Value above quantitation range Е
- J Analyte detected below quantitation limits Page 2 of 5
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Analytical	Report
1 Mary uca	incport

Hall Enviro	nmental Analysis	Labora	tory, Inc.		Date Reported: 3/22/2018	}
CLIENT: Project:	R.T. Hicks Consultants, L' 32 26 50	TD			Lab Order: 1803615	
Lab ID:	1803615-011			Collection I	Date: 3/7/2018 10:02:00 AM	
Client Sample ID	: Road #1 2 inch Caliche			Ma	atrix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed Ba	tch ID
EPA METHOD 30	00.0: ANIONS				Analyst:	MRA
Chloride		2500	75	mg/Kg	50 3/21/2018 7:15:48 AM	37103
Lab ID:	1803615-012			Collection I	Date: 3/7/2018 10:04:00 AM	
Client Sample ID	: Road #1 6 inch Caliche			Ma	ntrix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed Ba	tch ID
EPA METHOD 30	00.0: ANIONS	540	20	malka	Analyst:	MRA
Chionde		540	50	iiig/itg	20 3/13/2010 11.23.30 FW	57105
Lab ID:	1803615-013			Collection l	Date: 3/7/2018 11:52:00 AM	
Client Sample ID	: Rd NW 1'			Ma	atrix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed Ba	tch ID
EPA METHOD 30	00.0: ANIONS				Analyst:	MRA
Chloride		120	30	mg/Kg	20 3/19/2018 11:36:03 PM	37103
Lab ID:	1803615-014			Collection I	Date: 3/7/2018 11:51:00 AM	
Client Sample ID	: Rd NW 6"			Ma	atrix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed Ba	tch ID
EPA METHOD 30	00.0: ANIONS				Analyst:	MRA
Chloride		1500	75	mg/Kg	50 3/21/2018 7:28:13 AM	37103
Lab ID:	1803615-015			Collection I	Date: 3/7/2018 12:09:00 PM	
Client Sample ID	: S of Release Pt 1'			Ma	atrix: SOIL	
Analyses		Result	PQL Qual	Units	DF Date Analyzed Ba	tch ID
EPA METHOD 30	00.0: ANIONS				Analyst:	MRA
Chloride		4400	300	mg/Kg	200 3/21/2018 7:40:37 AM	37103

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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
- Analyte detected in the associated Method Blank В
- Value above quantitation range Е
- J Analyte detected below quantitation limits Page 3 of 5
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Analy	vtical	Rer	ort
Analy	ucai	INCL	π

Hall Envir	onmental Analysis		Date Reported: 3/22/2018							
CLIENT: Project:	R.T. Hicks Consultants, 32 26 50	LTD			Lab Order:	1803615				
Lab ID:	1803615-016			Collection D	Date: 3/7/2018 12:1	2:00 PM				
Client Sample	ID: S of Release Pt 2'			Ma	trix: SOIL					
Analyses		Result	PQL Qua	al Units	DF Date Ana	lyzed Ba	tch ID			
EPA METHOD	300.0: ANIONS					Analyst:	MRA			
Chloride		3500	150	mg/Kg	100 3/21/2018	7:53:02 AM	37103			

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
- 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 Page 4 of 5
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client: Project:	R.T. Hicl 32 26 50	ks Consultants,	LTD								
Sample ID	MB-37103	SampType:	mblk	Tes	tCode: EPA Metho	d 300.0: Anion	s				
Client ID:	PBS	Batch ID:	Batch ID: 37103 RunNo: 49922								
Prep Date:	3/19/2018	Analysis Date:	3/19/2018	S	SeqNo: 1616189	Units: mg/Kg					
Analyte		Result PC	QL SPK value	SPK Ref Val	%REC LowLimit	t HighLimit	%RPD	RPDLimit	Qual		
Chloride		ND	1.5								
Sample ID	LCS-37103	SampType:	lcs	Tes	tCode: EPA Metho	d 300.0: Anion	s				
Client ID:	LCSS	Batch ID:	37103	F	RunNo: 49922						
Prep Date:	3/19/2018	Analysis Date:	3/19/2018	5	SeqNo: 1616190	Units: mg/K	ζg				
Analyte		Result PC	QL SPK value	SPK Ref Val	%REC LowLimit	t HighLimit	%RPD	RPDLimit	Qual		
Chloride		14	1.5 15.00	0	92.1 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 Detection Limit
- W Sample container temperature is out of limit as specified

Page 5 of 5

HALL ENVIRONMENTAL ANALYSIS LABORATORY	Hall Environm TEL: 505-345 Website: wy	eental Analysis Laborat 4901 Hawkins Albuquerque, NM 87 -3975 FAX: 505-345-4 vw.hallenvironmental.c	lory NE 109 San 107 com	nple Log-In Check List
Client Name: RT HICKS	Work Order Nur	mber: 1803615		ReptNo: 1
Received By: Anne Thorne	3/9/2018 1:05:00	PM	ann An	~
Completed By: Erin Melendrez	3/12/2018 11:13:2	25 AM	int	-
Reviewed By: IMO	3/12/18	labeled	by:	AZ
Chain of Custody				2
1. Is Chain of Custody complete?		Yes 🔽	No 🗌	Not Present
2. How was the sample delivered?		Client		
Log In 3. Was an attempt made to cool the sample	s?	Yes 🗌	No 🗹	
4. Were all samples received at a temperatu	re of ≥0° C to 6.0°C	: Yes □	No 🗹	
5. Sample(s) in proper container(s)?		Yes 🗹 🗖	No 🗌	
6. Sufficient sample volume for indicated tes	t(s)?	Yes 🗹	No 🗌	
7. Are samples (except VOA and ONG) prop	erly 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 bro	ken?	Yes	No 🗹	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)		Yes 🔽	No 🗌	# of preserved bottles checked for pH: (<2 or >12 upless noted)
12. Are matrices correctly identified on Chain	of Custody?	Yes 🔽	No 🗌	Adjusted?
13. Is it clear what analyses were requested?	-	Yes 🗹	No 🗌	
14. Were all holding times able to be met? (If no, notify customer for authorization.)		Yes 🗹	No 🗌	Checked by:
Special Handling (if applicable)				
15. Was client notified of all discrepancies wi	th this order?	Yes 🗌	No 🗌	NA 🔽
Person Notified:	Date	e:		
By Whom:	Via:	🗌 eMail 📋 Ph	one 📋 Fax	In Person
Regarding:				
ID. Additional remarks:				
17. <u>Cooler Information</u> Cooler No Temp ^o C Condition 1 20.9 Good r	Seal Intact Seal No Not Present	Seal Date S	Signed By	

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Client:	nain-o R.T. Hicks	f-Cust Consulta	tody Record	Turn-Around Time:				HALL ENVIRONMENTAL ANALYSIS LABORATORY									
Mailing Add	Mailion Address'						www.hallenvironmental.com										
901 Rio Grande NW F-142		32 26 50			4901 Hawkins NE - Albuquerque, NM 87109												
	_		Albuquerque NM 98104	Project #:			-	Tel 505-345-3975 Fax 505-345-4107									
Phone #:	-	505 238	9515														
email or Fai	(# <u>`</u>	n@rthicks	sconsult.com	Project Mana	iger												
QA/QC Pack □X Standa	age: rd		Level 4 (Full Validation)		Randall Hick	s											
Accreditatio	n:			Sampler:	RTH			2									
D NELAP		I Other		On loe:	E Yes	R No											
EDD (TY	pe)			Sample Tem	perature;	~0.7											
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL NO. 1903605	Chloride	Air Bubble									
3/7/2018	1031	Soil	Release Pt 1 ft	1 glass		-001	x										
3/7/2018	1032	Soll	Release Pt 2 ft	1 glass		500-	x										
3/7/2018	1033	Soil	Release Pt 3 ft	1 glass		-003	x										
3/7/2018	1034	Soil	Release Pt 4 ft	1 glass		-004	×										
3/7/2018	1037	Soil	Release Pt 5 ft caliche	1 glass		-005	×										
3/7/2018	1044	Soil	Release Pt 5 ft caliche	1 glass		-006	x										
3/7/2018	1055	Soil	Flowpath Dune 1 ft	1 glass	_	-107	x										
3/7/2018	1057	Soil	Flowpath Dune 3 ft	1 glass		-008	x										
3/7/2018	1056	Soil	Flowpath Dune 2 ft	1 glass		-009	x										
3/7/2018	1001	Soil	Road #1 1 inch caliche	1 glass		-010	x										
3/7/2018	1002	Soil	Road #1 2 inch caliche	1 glass		-011	x										
3/7/2018	1004	Soil /	Road #1 6 inch caliche	1 glass	1 1	901Z	×										
Date: 3/cAll i Date:	17mes 1305 Times	Relinquiste	Nell I	Received by	her	Date Time Color/1) Color/1) SoS	Ren	marks:									
Didio.	Tunis'	, canned a suc	× •1	incontra by		Colo: Table											

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laborationes. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Chain-of-Custody Record			Turn-Around Time: □ Standard □ Rush Project Name: 32, 2(4,57)			HALL ENVIRONMENTAL ANALYSIS LABORATORY www.hallenvironmental.com											RY		
				Project #:	0	. 1/1		19	1 50	3WKI 5-34	15 NE	: · /	Eax	505	10, N	M 87	7		
Phone	#:	_			Kandal	thek						An	alysis	Red	lnes	t			
email o QA/QC	r Fax#: Package dard	Ke	- Level 4 (Full Validation)	Project Mana	ager:		s (8021)	(Gas only)	RO / MRO)	1		siMS)	PO4,SO4)	2 PCB's					
Accred	tation AP	TT Otho		Sampler:	RTH		TMB	Hdl	D/DI	2	Ê	510	NO	808					2
	(Type)			On Ice: Sample Tem	D Yes	20.9	+ ==	+ 38	GRC	1418	1 504	or g	NO3	les /		(VOV	6		Yor
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL NO. 1803615	BTEX + MTE	BTEX + MTE	TPH 8015B	TPH (Method	EDB (Method	PAHS (8310	Anions (F,Cl,	8081 Pesticio	8260B (VOA	8270 (Semi-V	Chlore		Air Bubbles (
3/7/4	1152	Si.	Rd NW 11	1 cileso	_	-03											X		
1	1151	1	Rd NW 611	1		-014											X		
5	1209	5	51 Release Pt1"			-015											X		
1	1212		5 of Release Pt 21	1		-016									_		X		
\rightarrow		5	2	2			1	1	=		-						1	-	
A		V						-	-	-	+	-		_				-	
-	-	-		-	-				-	+	+	-	-	-	_		-	+	
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	-				· · · · · ·														
		1-1																	
		1		~	1		-												
Date: D3/G/IN Date:	Time.	Relinquishe	d dy / /	Received by	h	Date Time Date Time	Ren	iarks											

if necessary samples submitted to Hall Environmental may be subcontracted to other accredited lacoratories. This serves as notice of this possibility. Any sub-contracted data will be userly motated on the analytical report.