R. T. HICKS CONSULTANTS, LTD.
901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

July 15, 2016

Mike Bratcher
NMOCD District 2
811 South First Street
Artesia, New Mexico 88210

RE: Clayton Williams Energy, Inc. – Jenna Com Release 2RP-2458-0

Dear Mr. Bratcher:

This remediation plan presents the results of all previous sampling at the site, including the deep borings conducted in May of 2016. We believe that the data provide sufficient characterization of the various releases to permit NMOCD consideration of the remedy presented herein. In summary:

- Laboratory analysis of the uppermost groundwater zone beneath the site showed a TDS concentration of 11,900 mg/L and a chloride concentration of 3010 mg/L
- Depth to groundwater at the site is 78 feet in auger hole AH-1
- The unsaturated zone from
    - 0-14 feet is sand and caliche
    - 15-78 feet is Rustler Formation, which is dominantly siltstone and claystone with thin beds of sandstone and gypsum/anhydrite
- The depth of salt penetration from releases over time stops at 10-20 feet below surface, which coincides with the top surface of Rustler formation siltstone/claystone
- Background chloride concentration in the Rustler siltstone and claystone is 200-400 mg/kg based upon results from deep samples at auger boring AH-2

Groundwater in the vicinity is probably usable for stock if derived from thin fractured sandstone beds that lie beneath the uppermost zone penetrated by AH-1. The uppermost groundwater zone does not meet OCD's definition of fresh water. Nevertheless, the depth of salt penetration and the fine-grained nature of the unsaturated zone will probably cause the released produced water to be sequestered "in place" for several millennia – perhaps eons.

The proposed remedy is to accelerate natural salt flushing of the soil zone by

1. Tilling the near surface material and adding straw to increase permeability
2. Directing storm water flow from the lease road and the location onto the footprint of the spill for the next 1-2 years
3. Controlling the run-on of storm water to allow ponding in three soil "flushing cells"
4. Implementing a sampling and inspection plan to ensure that the water moving from the location and road onto the flushing cells is low salinity and suitable for restoring the deep soil zone and encouraging re-vegetation.

Regional Environmental Characterization

Figure 1 shows the elevation of the groundwater surface in the general area plotted on a topographic map with metric contour lines. Beneath the site, these data suggested the potentiometric surface is about 3530 feet above sea level. Given the 3604 surface elevation of the Jenna Com #1 well, the depth to groundwater is (3604-3530 =) 74 feet. The May 2016 auger boring documented groundwater at 78 feet below grade.

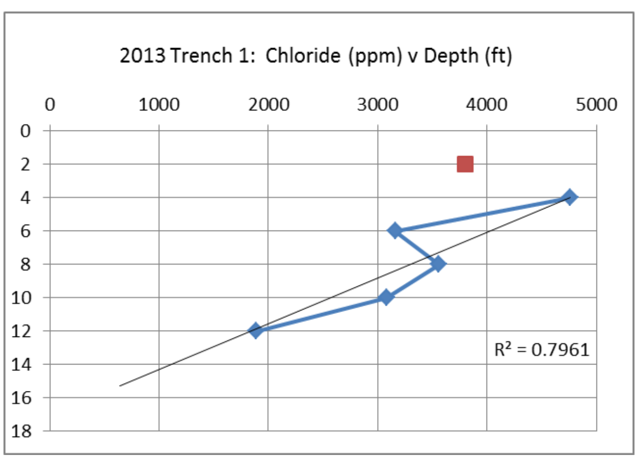
Nearby surface water features are depicted in Figure 2. The closest mapped intermittent stream is about 900 feet to the northeast. While a small swale exists due north of the spill footprint, a watercourse with a defined bed and bank does not exist in this grassy low spot. We also checked our system and found no nearby mapped wetlands.

Figure 3 shows a somewhat surprising interpretation of karst potential of this area. We are not surprised that the area to the west of the Jenna site, due east of the Turkey Track Ranch HQ, is mapped as high karst. We observed sinkholes in this area that was previously mapped by BLM as low karst. The area near the Jenna Com #1, however, shows no signs of sinkholes, fissures or solution features or unstable ground.

Site Sampling Results and Interpretations

Figure 4 provides the data from the first field program of 2013. These data were included in an October 4, 2013 submission to OCD. Figure 5 shows the results of a 2014 trench sampling program to characterize the vertical extent of chloride beneath the footprint of a 2014 release, which occurred over the footprint of the 2013 release. Figure 5 also presents the most recent surficial soil sampling conducted in March of 2016. The May deep borehole investigation results are shown in Figure 6 and 7.

Figure 4 shows the near-surface chloride values that resulted from the 2013 release plus historic releases. The low spot where the 2013 release pooled (Grid A-2), and presumably where legacy releases may also have pooled, showed the highest chloride concentration of 6480 mg/kg. The northwest grid points, furthest from the point of release, are near background conditions.

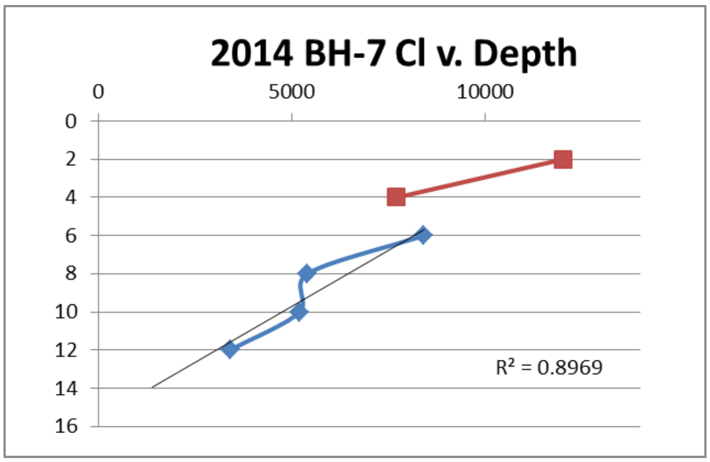


A 2013 trench at the "worst case" location in grid A-2 shows a decline of chloride concentration with depth. We projected the data from 4-12 feet below grade to provide an estimate of the depth where a concentration of 250 mg/kg would be expected. This trendline has a relatively high correlation coefficient of 0.796 and predicts that the 2013 and historic releases penetrated to a depth of about 16 feet.

Also shown on Figure 4 are results of two discrete samples of material removed from the spill footprint to the south side of the location (this is now the bioremediation cell). The chloride concentration of the pile is consistent with the surface concentrations observed in the grid sampling.

As documented by the data from the excavated soil pile, EPA Method 418.1 exaggerates the actual TPH by an order of magnitude. An examination of the laboratory reports show that GRO is not detected in the samples and thus the TPH concentration using Method 8015 is 505 mg/kg for the top of the pile and 454 mg/kg for the bottom of the pile.

Figure 5 presents data responding to a 2014 release from the battery. Four deep soil sampling points were obtained using a backhoe from within the footprint of the release.



All four trench samples show a decline of chloride with depth. The "worst case" location is plotted in the graphic to the left. Using the data from 6 feet to 12 feet, a simple trend line projection predicts a depth of penetration of about 14 feet. The correlation coefficient of 0.897 is quite good.

The 2016 surface samples present a materially different picture than those collected in 2013. Grid A-2 remains an area of pooling. However, since 2014, precipitation runoff has pooled in this area creating a lower chloride concentration, probably due to chloride flushing. Grid B-1 is an area of higher elevation within the release footprint and the value of 3900 mg/kg is essentially identical to that observed in 2013 (4680 mg/kg). In general, time plus precipitation has reduced the chloride concentrations by an order of magnitude wherever infiltration of precipitation occurs.

Data from the south soil bioremediation cell tell a similar story of chloride flushing plus reduction of hydrocarbons over time. In 2016, we collected samples from three locations from depths of 0-6 inches in order to gain some insight about the success of the remedy proposed to OCD in 2013. Chloride and hydrocarbon concentrations of the near-surface material are one order of magnitude less than that observed in 2013.

The May 2016 auger boring data are presented in Figures 6 and 7. The data from borholes show that natural chloride concentrations in the siltstone and claystone of the Rustler Formation range from 150 to 400 mg/kg. This finding is based upon the data from samples from 20-30 feet in AH-2 and samples from 15-36 feet in AH-1.

As AH-1 lies between two previously-sampled trenches (BH-7 and BH-9), these data are also shown on Figure 6. These data plus the lithology shown in Figure 7 permit a conclusion that the depth of salt penetration stops about 15 feet below surface, at the top of the Rustler Formation siltstone and claystone. At AH-2, the depth of salt penetration stops between 15 and 20 feet below surface.

The most important findings of this field program is that the uppermost groundwater zone, penetrated at 78 feet below grade, has a TDS of about 12,000 mg/L. We believe groundwater in the vicinity is probably usable for stock if derived from thin fractured sandstone beds that lie beneath the uppermost zone penetrated by AH-1. While this uppermost groundwater zone does not meet OCD's definition of fresh water, the depth of salt penetration and the fine-grained nature of the unsaturated zone will probably cause the released produced water to be sequestered "in place" for several millennia.

Proposed Remediation Plan

The salinity caused by the 2013, 2014 and historic releases will be flushed from the surface to below the root zone by periodic pooling of storm water runoff over the impacted area. During large precipitation events (> ½ inch/24 hours) diversion of storm water from the production pad and Old Loco Road into the three "flushing basins" of the remedy should cause a significant volume of precipitation to pool in the chloride flushing basins (see blue arrows on Figure 8). We believe smaller precipitation events will cause minimal diversion of fresh water into the basins. The highest elevation (southern) basin will overflow into the second basin when the water level exceeds the elevation of the lined spillway. Less flow will obviously enter the second basin and third basin where chloride concentrations are currently lower than the first basin. We believe it highly unlikely that any flow will leave the flushing basins to the small swale that lies north of the site.

The remediation plan also calls for building berms around the injection well and placing all injection lines on the downhill (west) of the berms (Figure 8). If the lines or well develops a leak, flow (green arrow on Figure 8) will move west then north, away from the production pad. Produced water would flow into a lined catchment for rapid removal (see Figure 8).

Stormwater from Old Loco Road will also be divereted onto the phytoremediation cell that is on the south side of the production pad.

After visual observation of vegetation grown confirms that salt flushing is complete, the flushing area will be graded to eliminate ponding, to maintain revegetation and to blend with the surrounding area.

The south bioremediation pile will be tilled, contour furrowed and seeded to further enhance reduction of concentrations via phytoremediation. Storm water flow from Old Loco Road will be diverted onto the bioremediation cell to encourage plant growth. Three near-surface samples from this cell were obtained in March of 2016 and show very encouraging results.

	Chloride	GRO	DRO	MRO	TPH
South Cell NW	130	ND	180	300	480
South Cell S	1600	ND	300	700	1000
South Cell Middle	510	ND	150	340	490
Average	747		210	447	657

Remediation Contractor Instructions

A. Grade the site to create three (3) areas of level ground separated by 1-2 foot high berms. The former spill site will look like three irrigated terraces: with the southern terrace being about 6-inches higher than the middle terrace and 1-2 feet higher than the northern terrace.
B. Use a plow or other tool to break up and till what is now hardened earth inside of the terraces into 1-2 feet of permeable, loose, soil-like material. Blend in rotted hay if necessary to increase permeability and organic content.
C. Divert stormwater from much of the production pad and road to the highest (southern) flushing basin. As shown on Figure 6, use small berms and swales (about 2-3 inches high/deep) to direct stormwater flow without interfering with E&P operations.
D. Berms divert stormwater near the injection well to the west to avoid any input of salt to the remediation basins due to unexpected releases.
E. Install a lined spillway on the west side of the southern basin 4-6 inches above the level surface to allow overflow of stormwater into the second basin (red arrows).
F. Install similar spillways between the second and third basin.
G. The lowest point of the northern basin lies in the northeast corner where spillways will allow any residual stormwater to drain into the ditch on the side of the road.
H. Furrow the surface of each terrace and seed the area with a mixture approved by the surface owner (State Land Office).
I. At the south bioremediation pile,
    a. deep plow the material to loosen, adding rotted hay if necessary
    b. grade and furrow the loose material
    c. seed the material to create the final phytoremediation cell

Most of the work outlined above is complete.

Proposed Monitoring

Post construction monitoring will be conducted as follows:

1. After conditional approval of this plan, Hicks Consultants will collect surface samples (0-3 inches) from the production pad (5 samples) and lease road (4 samples) and evaluate these samples for chloride using the field titration technique. Figure 8 shows the proposed locations of these samples.
2. We will report the results of the sampling to OCD and recommend any necessary action to divert storm water run-on that may contain high salt concentrations from entering the flushing basins.
3. On a monthly basis, Clayton-Williams staff will inspect the berms that create the soil flushing area and the phytoremediation cell for any evidence of erosion and initiate repairs if necessary.

4. On a quarterly basis, Clayton-Williams will submit photo-documentation of vegetative growth in the flushing basins and the phytoremediation cell

Criteria for Closure of the Regulatory File

Because the potential that the releases will cause groundwater impairment is so small as to be nil, the Remediation Plan objectives are

A. elimination of the cause of the release
B. restoration of the soil root zone to allow for reestablishment of vegetation within the spill footprint
C. elimination of crude or sodic clay "hard pan" that prevents moisture infiltration and impairs revegetation and
D. establishing a surface contour and vegetation cover to minimize the potential of erosion and soil loss

Given the environmental setting of the area and the remedial action objectives outlined above, the closure criteria are:

1. a uniform vegetative cover of at least seventy percent (70%) of pre-disturbance levels, excluding noxious weeds and
2. documentation that infrastructure that should be improved to prevent future releases has been installed

After inspections document compliance with the criteria of this plan, the berms graded to allow the basins and the phytoremediation cell to blend with the surrounding area.

Schedule of Implementation

The area of the chloride flushing basins is now fenced to prevent intrusion of stock. We request that OCD provide approval of this work plan providing the following conditions are met:

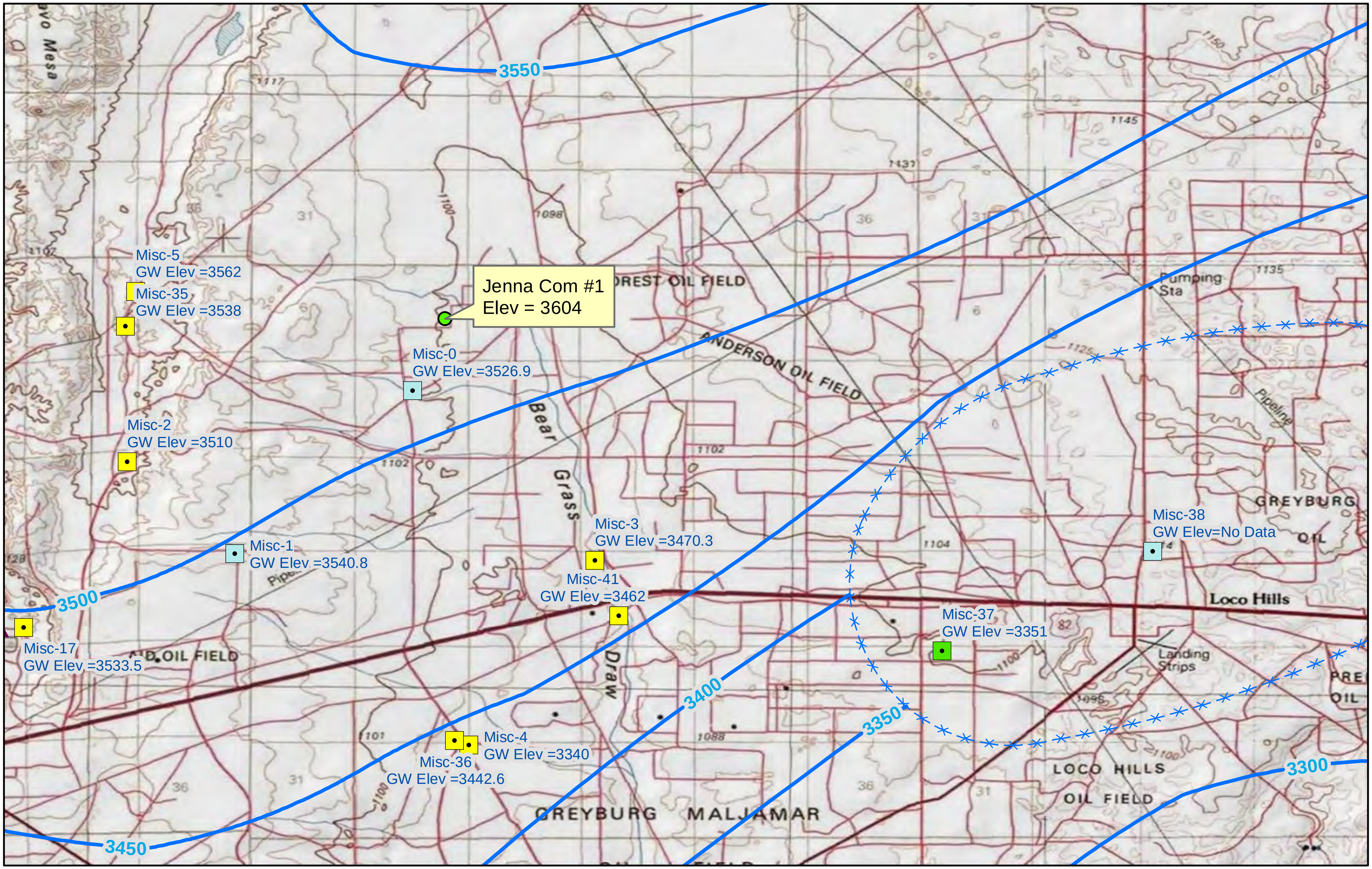
A. Sampling of the lease road and production pad with a report to OCD as outlined in the proposed monitoring plan
B. Submission of a description of the actions taken by Clayton-Williams to prevent future releases from the battery

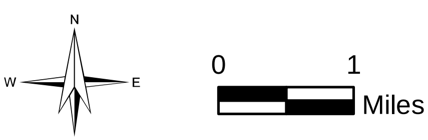
Please contact me if you have any questions relating to this proposal.

Sincerely,
R.T. Hicks Consultants, Ltd.

Randall T. Hicks
Principal

Copy – Clayton Williams





R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Groundwater Elevation	Figure 1
	Southwest Royalties - Jenna Com #1	April 2016

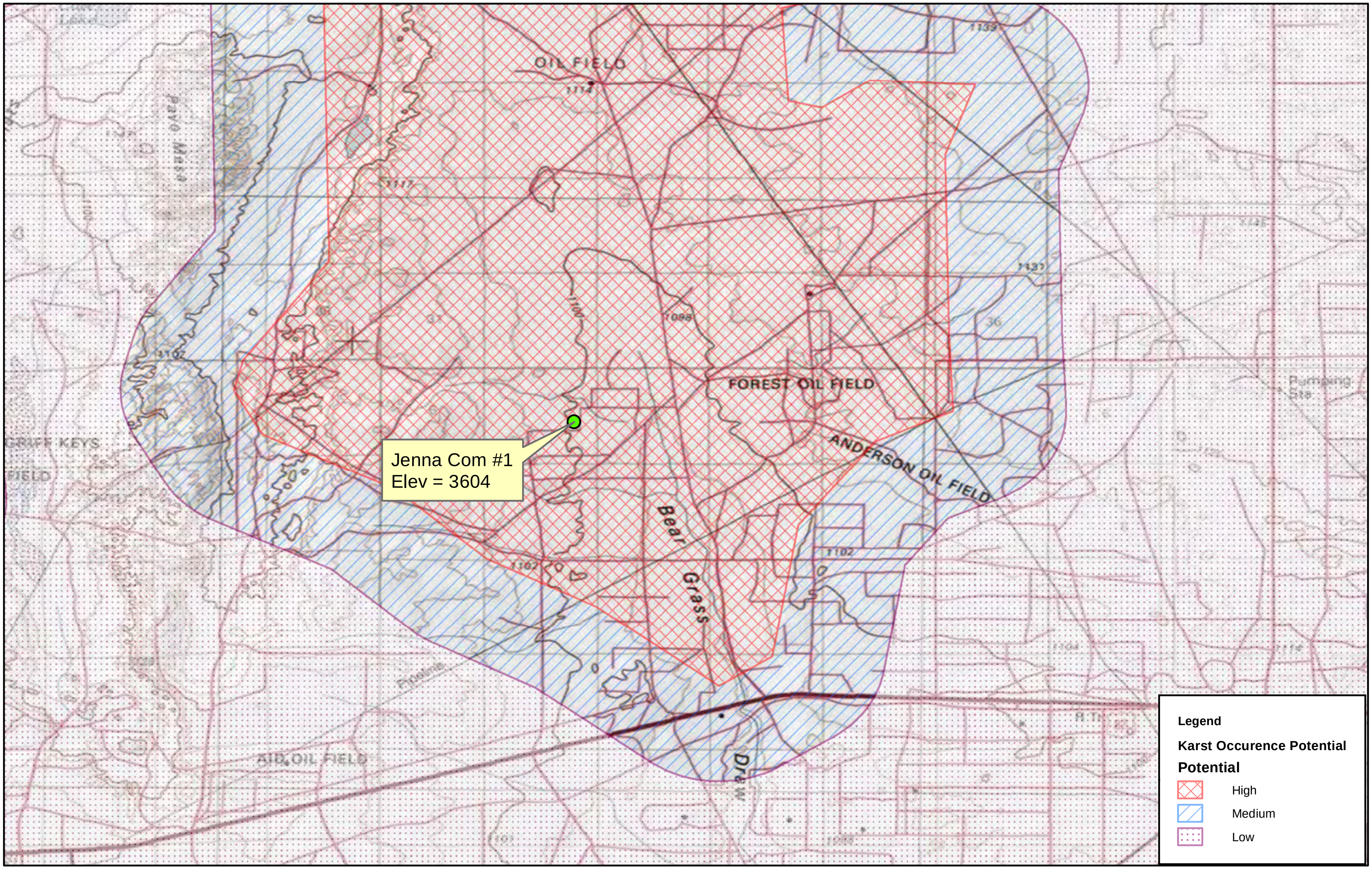
R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Nearby Surface Water

Figure 2

Southwest Royalties - Jenna Com #1

April 2016

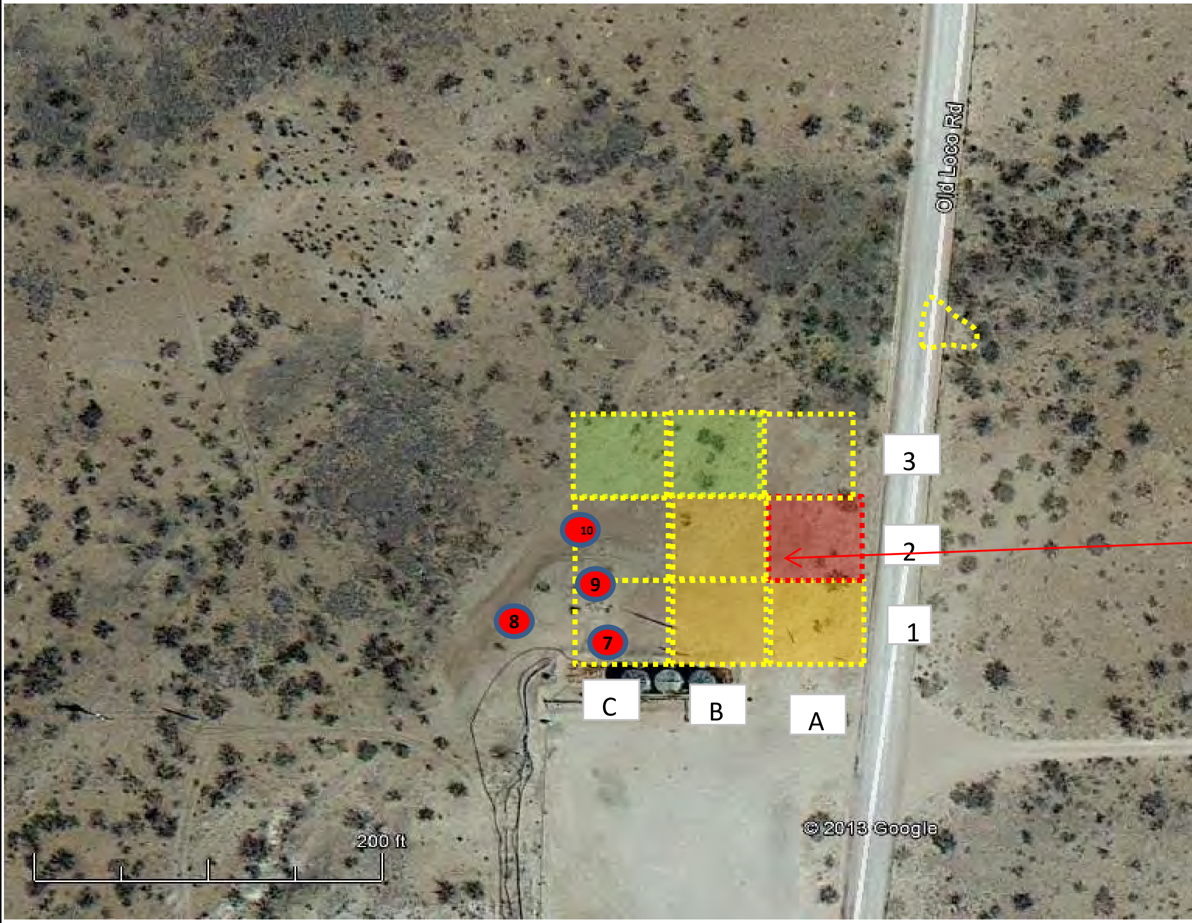


N
W E
S

0 1 Miles

R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

BLM Karst Potential Map	Figure 3
Southwest Royalties - Jenna Com #1	April 2016

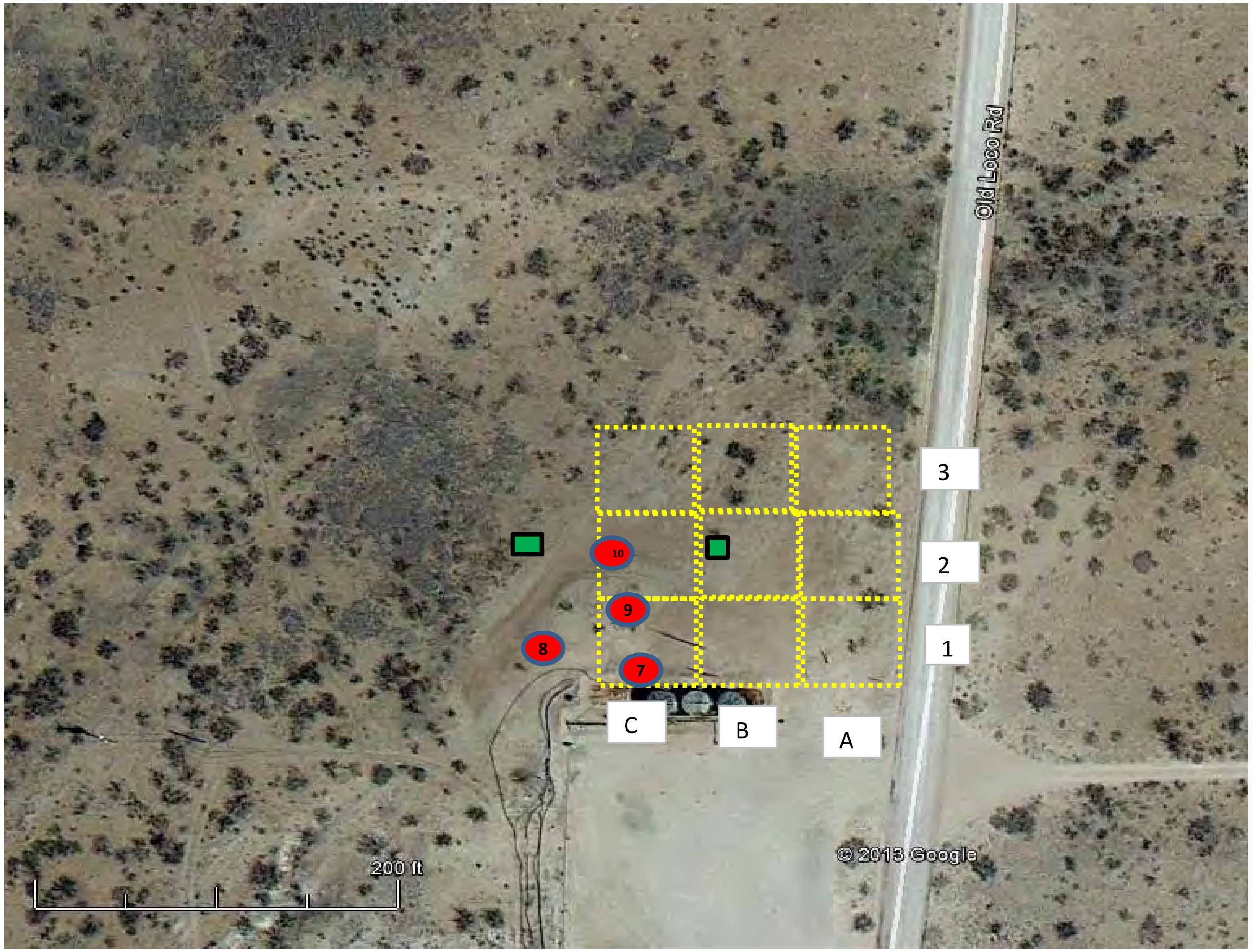


Excavated Soil from Spill Footprint - Results in mg/kg				
	Cl	DRO	EXT DRO	TPH
Top of Pile	3480	270	135	1610
Pile Bottom	2800	333	121	2300

Trench Results in mg/kg			
		depth (ft)	Cl - mg/kg
Trench 1	T-1	2	3800
	T-1	4	4760
	T-1	6	3160
	T-1	8	3560
	T-1	10	3080
	T-1	12	1890
Background Beneath On-Site Remediation of Pile			
Trench 2	T-2	2	432
		5	1940

Composite Grid Sampling Results of Excavated Surface						
	Cl		Cl		Cl	
C3	400	B3	304	A3	1280	mg/kg
C2	1680	B2	2600	A2	6480	mg/kg
C1	2440	B1	4680	A1	4240	mg/kg
East of Road			1500			

R.T. Hicks Consultants Albuquerque, NM	2013 Google Earth Image Showng Sampling Locations and Results from 2013 Sampling	Figure 4
	Clayton Williams - Jenna Com	Jul-16



2014 Sample Trenches 7-10

Location	Depth	Cl (mg/kg)
BH-7	2	12000
BH-7	4	7700
BH-7	6	8400
BH-7	8	5400
BH-7	10	5200
BH-7	12	3400
BH-8	2	3600
BH-8	4	1600
BH-8	6	550
BH-8	8	71
BH-8	10	92
BH-8	12	190
BH-9	2	2700
BH-9	4	2800
BH-9	6	1600
BH-9	8	1300
BH-9	10	290
BH-9	12	360
BH-10	2	3600
BH-10	4	2800
BH-10	6	3500
BH-10	8	2800
BH-10	10	1300
BH-10	12	780

2016 Surface Soil Sampling

Grid	Depth (in)	Cl (ppm)
A-2	0-6	190
A-3	0-6	180
B-1	0-6	3900
B-3	0-6	ND
W of C-1	0-6	120

Phytoremediation Cell on South Side of Location

	Depth	Cl	DRO	MRO	GRO+DRO
Northwest	0-6	130	180	300	480
South	0-6	1600	300	700	1000
Middle	0-6	510	150	340	490
Average		747	210	447	657

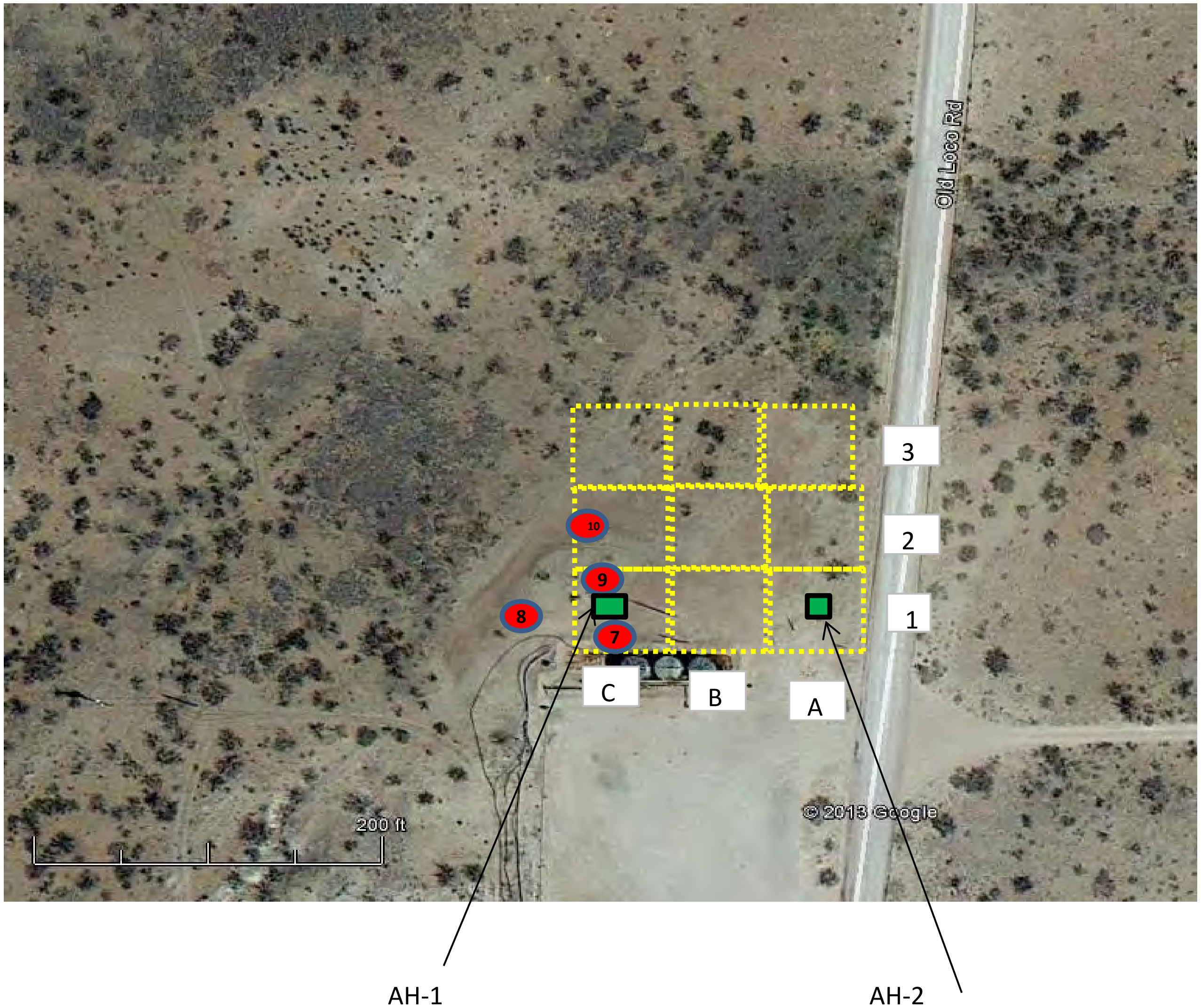
R.T. Hicks Consultants
Albuquerque, NM

2013 Google Earth Image Showng Sampling Locations and Results from 2014 and 2016 Sampling

Figure 5

Clayton Williams - Jenna Com

Apr-16



2016 Deep Boring Sampling

Location	Depth	Lab Cl (mg/kg)	Field Cl (mg/kg)
BH-9	2	2700	
BH-9	4	2800	
BH-9	6	1600	
BH-9	8	1300	
BH-9	10	290	
BH-9	12	360	
AH-1	15	126	141
AH-1	24.8	387	141
AH-1	36	137	141
BH-7	2	12000	
BH-7	4	7700	
BH-7	6	8400	
BH-7	8	5400	
BH-7	10	5200	
BH-7	12	3400	
AH-2	5	2170	1063
AH-2	10	475	425
AH-2	15	365	212
AH-2	20	214	141
AH-2	25	239	141
AH-2	30	338	141

		Chloride	TDS
Groundwater	AH-1	3010	11900

R.T. Hicks Consultants Albuquerque, NM	**2013 Google Earth Image Showng Sampling Locations and Results from 2016 Deep Borings**	**Figure 6**
	Clayton Williams - Jenna Com	**Jul-16**

Logger:	Randall Hicks	**Client:**	**Well ID:**
Driller:	Butch's Rat Hole Service	Clayton Williams	
Drilling Method:	Auger	**Project Name:**	
Start Date:	5/5/2016	Jenna Com #1	**BH-1**
End Date:	5/5/2016	**Location:**	

Depth (feet)	**Description**	**Lithology**	**Comments**	**Chloride Concentrations** Field	Lab	
0.0						0.0
2.0						2.0
4.0						4.0
6.0	Surface to 15 feet, red/orange silty sand with caliche					6.0
8.0						8.0
10.0						10.0
12.0						12.0
14.0						14.0
16.0				141	126	16.0
18.0	15-22 feet, red silt and clay with 15% sand and some white caliche					18.0
20.0						20.0
22.0						22.0
24.0	22-30 feet, deep maroon silty sand and clay with sandstone clasts - Rustler Formation			141	387	24.0
26.0						26.0
28.0						28.0
30.0						30.0
32.0						32.0
34.0	30-36 feet sandy siltstone, little clay		Hard Drilling			34.0
36.0				141	137	36.0
38.0						38.0
40.0						40.0
42.0	36-50 feet green and maroon claystone with thin sandstone layers and gypsum layers					42.0
44.0						44.0
46.0						46.0
48.0						48.0
50.0						50.0
52.0						52.0
54.0	50-58 feet Siltsone					54.0
56.0						56.0
58.0						58.0
60.0			Hard Drilling			60.0
62.0						62.0
64.0	58-70 feet maroon and green claystone with thin sand layers of Rustler					64.0
66.0						66.0
68.0						68.0
70.0						70.0
72.0	70-76 feet hard drilling green and red siltstone		Hard Drilling			72.0
74.0						74.0
76.0				Groundwater Analysis		76.0
78.0	78 feet Groundwater			Cl = 3010 mg/L	TDS = 11900 mg/L	78.0
80.0						80.0
82.0						

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 505-266-5004	**Clayton Williams - Jenna Com**	Figure 7
	Boring Log	Jul-16

R.T. Hicks Consultants Albuquerque, NM	Sketch of Remedation Plan Componets	Figure 8
	Clayton-Williams Jenna Con #1	Jul-16