

R. T. HICKS CONSULTANTS, LTD.

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~~June 13~~September 7, 2011

US Bureau of Land Management
Terry Gregston
Jim Amos
620 E. Green Street
Carlsbad, NM 88220

Re: Surface Remedy for Arco Federal Battery, Southwest Royalties
T17S, R30E, Section 17, Unit K

Ms. Gregston and Mr. Amos,

This letter is based upon our June 13, 2011 letter – changes to the June 13 letter are shown in blue. Thank you both for meeting with us on the above referenced project. After speaking with Jim today, we will mobilize to the site no later than Tuesday September 12 to begin implementing the surface remedy.

The surface remedy developed by putting all of our heads together is simple and straightforward. Below is the step-by-step protocol, which we believe is consistent with our agreements at the meeting.

I. Pre-Construction

- a. Stake location of ~~burial~~ trench for one-call before ~~June 15~~ September 8
- b. Stake location of proposed excavation footprint, which is based upon the “likely extent of impact” shown in Figure 1
- c. Call BLM after staking to allow for inspection
- d. Conduct one-call ~~on~~before ~~June 15~~ September 8

II. Proposed Construction ~~June 20-24~~ September 12-16

- a. Remove caliche from road “turn out” and place on west side of lease road to allow for excavation/removal of part of lease road within excavation footprint
- b. Stockpile any residual caliche from turn out
- c. Remove the 0.5-foot layer of caliche from excavation footprint to a stockpile
- d. Excavate ~~the burial~~ ~~la~~ trench to ~~accommodate~~ ~~provide about 30,000~~ 17,000 cubic feet of ~~compacted salt impacted~~ clean fill and soil for the remedy (see Figure 2). If the soil expands by about 30% after excavation from the trench, the trench dimensions will be about 12 5-feet deep, 100 feet long and about 26 feet wide. One end of the trench will have a steep ramp to provide an escape route for any small wildlife.
- e. Excavation of the ~~burial~~ trench will create two stockpiles
 - i. sandy loam on the northeast side of the trench and
 - ii. caliche on the south side of the trench
- f. Fence the trench for safety when construction ceases each day

- g. Adjacent to the trench, place 20-mil drilling pit liner material that is about 120 feet long and about 30 feet wide (as a single sheet or use several overlapping sheets)
 - h. Excavate and ~~remove to the trench~~place on the liner the top 1-foot of the footprint while testing the soil (titration) to determine the horizontal extent of impacted soil.
 - i. Repeat excavation and field sampling at 2 and 4 feet below grade within the original 1-foot excavation as shown in Figure 2. There should be about 30,000 cubic feet of impacted soil (>1,500 mg/kg) removed from the excavation footprint (see Figure 2) and placed ~~in the Burial Trench~~on the liner. Hard caliche will not be excavated from the footprint; although in most locations the caliche horizon is below 4-feet deep (see Figure 3).
 - j. Call BLM about 24 hours before excavation of footprint is complete.
 - k. Collect four samples from edges of excavation for submission to the laboratory to demonstrate capture of horizontal extent of salt-impaired soil.
 - l. Place about 1-foot of caliche gravel from the ~~burial~~-trench stockpile over ~~the any~~ caliche surface exposed in the excavation footprint (see Figure 3). Placing clean gravel above the impacted caliche can create a capillary break, minimizing any upward migration of salt.
 - m. Place the clean sandy-loam from the ~~burial~~-trench stockpile into the footprint excavation – mixing in organic material (e.g. rotted hay). If more soil is required to fill the excavation footprint to natural grade, find some nearby dunes with mesquite and **no oak**, and take that topsoil – mesquite roots and all – and place it in the excavation.
 - ~~n. Put a liner over the impacted soil in the burial trench then cover the liner with at least 4 feet of soil – mix in organic matter if practical. Use extra liner (or other methods) to cover the stockpiled salty soil to minimize wind erosion.~~
 - n. Install perimeter fence to prevent intrusion by grazers onto the reclaimed surface.
- III. Post construction
- a. Maintain safety fence around the trench until final decision regarding disposition of excavated soil
 - b. In October or November, the NMOCD should render a decision regarding the disposition of the stockpiled soil, less than 30 days after the decision, we will
 - i. Deepen the trench and bury the stockpiled soil in the trench in accordance with the BLM-approved plan of June 13 or
 - ii. Export the stockpiled soil to a landfill if necessary to comply with the NMOCD decision
 - c. Seed the excavation footprint, ~~burial trench footprint~~ and other areas disturbed by installation of the remedy with BLM-recommended mixture in March 2012 or an earlier time if appropriate
 - d. Pray for rain
 - e. Monitor re-vegetation and condition of safety fence around trench
 - f. Kill any mesquite that grows within the fence

9/7/2011

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| ~~We have reserved the days of June 21-24 to install the remedy.~~ Thanks again for your help in moving this project forward.

Sincerely,

A handwritten signature in black ink, appearing to read "Randall Hicks", with a stylized flourish at the end.

Randall Hicks
Principal

Copy: Luis Gonzales, SW Royalties
Mike Bratcher, NMOCD District 2

Figure 1

Southwest Royalties
Arco Federal Battery
T-17-S, R-30-E, Sec 17 (K)
Eddy County, New Mexico



Likely Extent of Impact
Based on Historic Water
Pit, Site Visit, and 2005
Aerial Photo
(10,500 sq ft)

Trench #5 / F		
Depth (feet)	Sample Date	Chloride (mg/kg)
0-1	5-6-11	1,160
1	1-18-11	757
2	1-18-11	787
3	5-6-11	1,970
4	12-17-10	4,160
4	1-18-11	885
6	5-6-11	972
9	5-6-11	1,640
12	5-6-11	1,170
14	5-6-11	1,720

Trench C		
Depth (feet)	Sample Date	Chloride (mg/kg)
0-1	5-4-11	2,060

Trench D		
Depth (feet)	Sample Date	Chloride (mg/kg)
0-1	5-4-11	23.1
3	5-4-11	36.4
6	5-4-11	39.7
9	5-6-11	60.1
12	5-6-11	47.1

Trench B		
Depth (feet)	Sample Date	Chloride (mg/kg)
0-1	5-4-11	74.9

Trench A		
Depth (feet)	Sample Date	Chloride (mg/kg)
0-1	5-4-11	74.9

Trench #1		
Depth (feet)	Sample Date	Chloride (mg/kg)
2	12-17-10	1,180

No. 1

Area of Historic
Water Pit

Trench #2 / E		
Depth (feet)	Sample Date	Chloride (mg/kg)
0-1	5-4-11	3,590
1	1-18-11	2,359
2	1-18-11	3,646
3	5-4-11	4,640
6	5-6-11	5,370
9	5-6-11	4,920
10	1-18-11	6,750
12	5-6-11	760
15	5-6-11	475

Trench #3		
Depth (feet)	Sample Date	Chloride (mg/kg)
2	1-18-11	3,160

Trench #6		
Depth (feet)	Sample Date	Chloride (mg/kg)
1	1-18-11	ND

Trench #4 / G		
Depth (feet)	Sample Date	Chloride (mg/kg)
0-1	5-6-11	3,990
3	5-6-11	8,410
6	5-6-11	7,420
8	12-17-10	5,200
9	5-6-11	4,650
12	5-6-11	898
13	5-6-11	315

Sept. 2010
Spill Area
(2,680 sq ft)

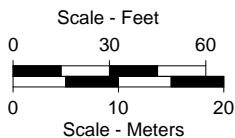


Figure 2

Southwest Royalties
Arco Federal Battery
T-17-S, R-30-E, Sec 17 (K)
Eddy County, New Mexico



Burial Trench: 2,583 sq ft x 12 = 31,000 cu. ft.

Burial Trench

No. 1

No. 2

No. 5

No. 3

No. 6

No. 4

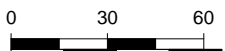
1 Ft Excavation: $(10,432 - 3,843) \times 1 = 6,589$ cu. ft.

2 Ft Excavation: $(3,843 - 1,235) \times 2 = 5,214$ cu. ft.

4 Ft Excavation: $1,235 \times 4 = 4,940$ cu. ft.

Total Excavation: $6,589 + 5,214 + 4,940 = 16,743$ cu. ft.

Scale - Feet



Scale - Meters

