R. T. HICKS CONSULTANTS, LTD.

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August 4, 2014

Mr. Soloman Hughes
Bureau of Land Management
620 E. Greene St
Carlsbad, NM 88220
Via E-mail

Mr. Mike Bratcher
NMOCD District 2
811 S. First Street
Artesia, New Mexico 88210
Via E-mail and US Mail

RE: Southwest Royalties North Hackberry Yates Well #105

Dear Mr. Hughes and Mr. Bratcher:

Southwest Royalties asked Hicks Consultants to examine the file associated with this release, visit the site and speak to Mr. Black regarding a possible path forward that might prove to be in the best interest of the environment while complying with BLM mandates and OCD Rules. Below are my understanding of the facts associated with this release

- The pipeline to the well released fluids on more than one occasion in June 2014.
- At the bequest of Southwest Royalties, Hungry Horse excavated and removed to a disposal site the standing fluids, all the highly impacted soil, and an additional volume of soil with relatively high salt content.
- What now remains at the site is
    a. an excavation along the pipeline,
    b. stockpiles of clean soil that were also excavated from the arroyo and
    c. remnants of some very old releases, the origin of which could be the #105 well or other sources
    d. residual salt in soil within the excavation.
- Attachment 1 provides photo documentation of the site and surroundings during my site visits of 7/16/14 and 7/30/14.
- The release footprint was characterized by sampling (Plate 1).

Based upon my familiarity with BLM standards and OCD Rules, the goals of a reclamation proposal at this site would be:

A. Cause the currently excavated site to blend with the surrounding landscape from a topographic perspective.
B. Address the obvious un-natural erosion taking place along the pipeline (which was present before the reported release)
C. Cause vegetation in the area of the leak to return to a condition that is similar to the surrounding area
D. Address any residual issues that could result in a material threat to fresh water (i.e. groundwater or surface water)

Below is my proposed remedy that I believe meets the four goals listed above.

1. Grade the area near the southeast corner of the location to cause stormwater to follow the original drainage and fill in the erosion gully shown in Figure 2.
2. Remove the asphalt material in the original drainage (Figure 3) and place this material in the bottom of the pipeline excavation.
3. Place some of the stockpiled clean soil in the excavation
4. Grade the placed fill such that at least 4 feet exist between the top of the impacted material and the natural grade of the surrounding low dunes and the surface of the fill is sloped to shed any moisture

5. Place a 20-mil LLDPE geomembrane cover over the fill
6. Place at least 4-feet of the clean sand fill over the geomembrane cover
7. Grade the sand to blend with the surroundings and seed the sand to BLM specifications

With respect to the potential impact of this release to groundwater quality, I offer these opinions

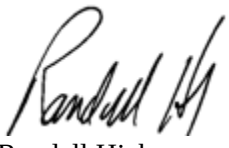
- Depth to groundwater in the valley alluvium near the spill is about 40 feet below surface. Depth to groundwater in the well downstream from Hackberry Lake is 40-feet, according to Open File Report 95 (see well Misc-177 on Plate 2). However, the alluvium downstream from the potash mine tailings pond (about 1.25 miles northwest of the release) and upstream from Hackberry Lake is likely completely degraded by seepage from the unlined tailings pond.
- Groundwater in the bedrock units of the Rustler Formation is probably impaired by leakage the alluvium. Groundwater in the Rustler at well Misc.-175 is 99 feet below surface, which places the elevation of groundwater only 20-30 feet lower than the measured elevation of groundwater in the shallow alluvium (Misc-177).

Leaving residual salt impacted material beneath a geomembrane cap and 4-feet of an evapotranspiration cover will protect both groundwater and the soil zone. This closure protocol is equivalent to a closure of a drilling pit and is consistent with OCD Rules and BLM Conditions of Approval for the closure of drilling pits. The Pit Rule, which was supported by technical testimony, allows the burial of dry material with the following chemical characteristics, provided that such burial is beneath a geomembrane cap and a 4-foot thick soil cover:

Chloride	20,000 mg/kg
TPH	100 mg/kg
BTEX	50 mg/kg
Benzene	10 mg/kg

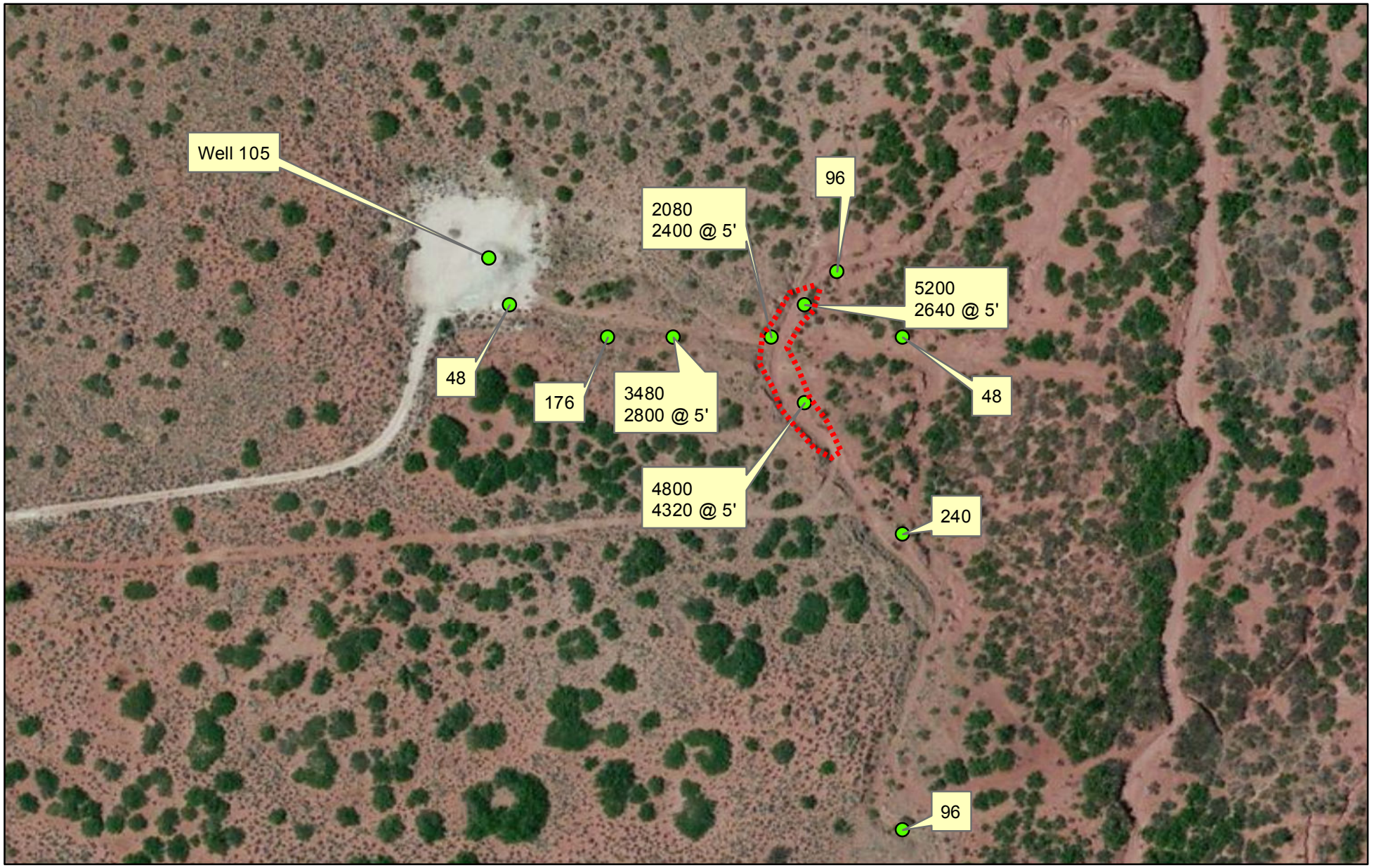
Thus, the removal of all of the excavated impacted soil to a disposal facility went far beyond the requirements of OCD and BLM – we could have stopped excavating after we reached the elevation of 4-feet below the final reclaimed grade. Please contact me if you have any questions regarding this remedy as Southwest Royalties stands ready to implement this protocol upon BLM and OCD approval.

Sincerely,
R.T. Hicks Consultants

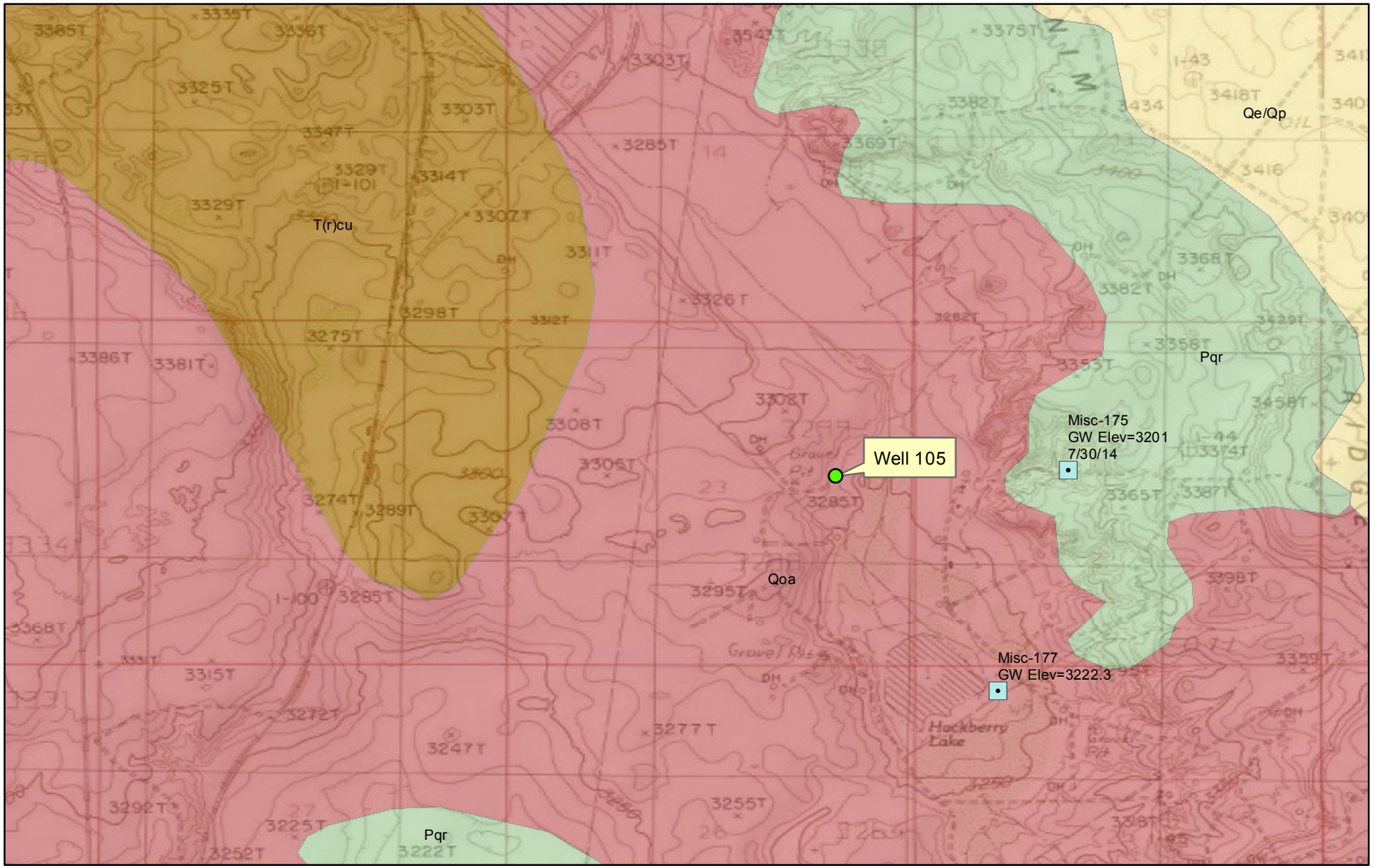


Randall Hicks

Copy: Southwest Royalties



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Chloride Concentrations after Initial Excavation	Plate 1
	Southwest Royalties - North Hackberry Yates #105	July 2014



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Geologic Map And Groundwater Elevation

Plate 2

Southwest Royalties - North Hackberry Yates #105

Aug 2014

Figure 1- View uphill from active arroyo showing excavation on July 16.

Figure 2- Erosion from pad runoff (July 16)

Figure 3 - Asphalt material in original drainage area, south of pipeline excavation

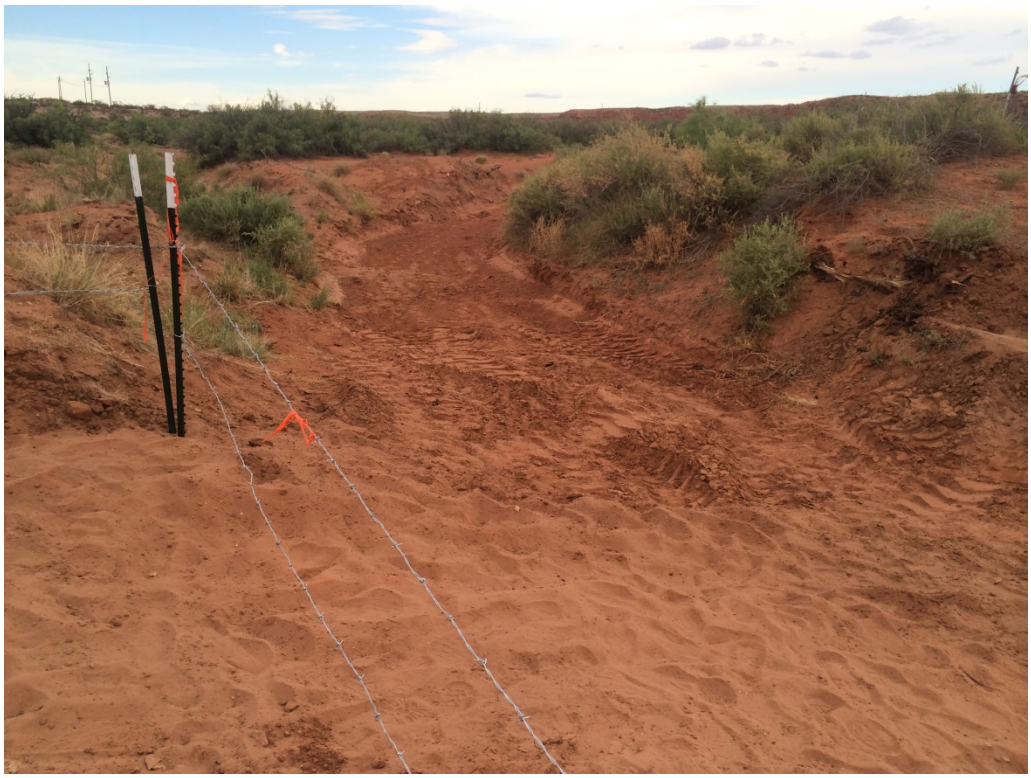

Figure 4- Nature of active arroyo upstream from the fencing surrounding the excavation on July 16.

Figure 5- Nature of active arroyo downstream from fenced area of pipeline excavation on July 16

Figure 6- View north from edge of pipeline excavation showing natural vegetation and low dunes

Figure 7: Nature of excavation after removal of additional impacted material (July 30). Stockpile of clean fill is left of excavation.

Figure 8: Nature of arroyo after removal of additional impacted material (July 30)