August 2016

C-147 Registration Package for Seely Recycling Containment and Recycling Facility Section 30 T18S R34E, Lea County

View to south-southeast showing staked southwest corner of containment. Low dunes stabilized by vegetation overlie 15-20 feet of caliche.

Prepared for:
McElvain Energy, Inc.
Denver, Colorado

Prepared by:

R.T. Hicks Consultants, Ltd.
901 Rio Grande NW
F-142
Albuquerque, New Mexico

And

Pettigrew and Associates
100 E. Navajo Drive
Suite 100
Hobbs, New Mexico

R. T. HICKS CONSULTANTS, LTD.

Artesia ▲ Carlsbad ▲ Durango ▲ Midland
901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

August 8, 2016

Mr. Jamie Keyes
Dr. Tomas Oberding
NMOCD District 1
1625 French Drive
Hobbs, NM 88240
Via E-Mail

Robert Gomez
Carlsbad Field Office
620 East Greene Street
Carlsbad, NM. 88220
Via E-Mail

RE: McElvain Energy Seely Recycling Facility and Containment
C-147 Registration Package

Dear Dr. Oberding, Mr. Keyes and Mr. Gomez:

Enclosed is a C-147 registration for a recycling facility and containment located in Section 30 T18S R34E. We believe the attached package meets all of the criteria specified in NMOCD Rules. Although this proposed containment is not the first such on Federal surface in New Mexico, we understand that the Seely containment will be the first to be reviewed and, hopefully, approved by the Carlsbad District.

We look forward to working with both agencies. For any questions your first point of contact should be Mr. Tony Cooper of McElvain (303-893-0933 x331). Pettigrew and Associates provided all engineering services on this project and are listed as authors..

Sincerely,
R.T. Hicks Consultants

Randall Hicks
Principal

Copy: McElvain Energy
Pettigrew and Associates

C-147 and
Site Specific Information

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

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

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

Form C-147
Revised March 31, 2015

Recycling Facility and/or Recycling Containment

Type of Facility: ☒ Recycling Facility ☒ Recycling Containment*****

Type of action: ☐ Permit ☒ Registration
☐ Modification ☐ Extension
☐ Closure ☐ Other (explain) _____

*** At the time C-147 is submitted to the division for a Recycling Containment, a copy shall be provided to the surface owner.**

Be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1.

Operator: McElvain Energy, Inc. (For multiple operators attach page with information) OGRID #: 22044

Address: 1050 17th St. Suite 2500, Denver, CO 80265

Facility or well name (include API# if associated with a well): Seely Containment and Recycling Facility

OCD Permit Number: _____(For new facilities the permit number will be assigned by the district office)

U/L or Qtr/Qtr _____ Section 30 Township 18S Range 34E County: Lea

Surface Owner: ☒ Federal ☐ State ☐ Private ☐ Tribal Trust or Indian Allotment

2.

☒ **Recycling Facility:**

Location of recycling facility (if applicable): Latitude _____ Longitude _____ NAD: ☐1927 ☒ 1983

Proposed Use: ☒ Drilling* ☒ Completion* ☒ Production* ☒ Plugging *

The re-use of produced water may NOT be used until fresh water zones are cased and cemented

☐ Other, ***requires permit for other uses. Describe use, process, testing, volume of produced water and ensure there will be no adverse impact on groundwater or surface water.***

☒ Fluid Storage

☒ Above ground tanks ☒ Recycling containment ☐ Activity permitted under 19.15.17 NMAC explain type_____

☐ Activity permitted under 19.15.36 NMAC explain type:_____ ☐ Other explain _____

☐ For multiple or additional recycling containments, attach design and location information of each containment

☐ **Closure Report (required within 60 days of closure completion):** ☐ Recycling Facility Closure Completion Date:_____

3.

☒ **Recycling Containment:** Seely Containment

☐ Annual Extension after initial 5 years (attach summary of monthly leak detection inspections for previous year)

Center of Recycling Containment (if applicable): Latitude 32.716429 Longitude -103.607521 NAD: ☐1927 ☒ 1983

☐ For multiple or additional recycling containments, attach design and location information of each containment

☒ Lined ☒ Liner type: Thickness 60 mil HDPE primary and 30-mil LLDPE-r secondary ☒ LLDPE ☒ HDPE ☐ PVC ☐ Other _____

☒ String-Reinforced OR 60-MIL HDPE PRIMARY AND 40-MIL HDPE FOR SECONDARY

Liner Seams: ☒ Welded ☒ Factory ☒ Other Field Welds Volume: 400,200+ bbl Dimensions: L 366 x W 366 x D 18.3 (at sump)

☐ Recycling Containment Closure Completion Date:_____

4.

Bonding:

☒ Covered under bonding pursuant to 19.15.8 NMAC per 19.15.34.15(A)(2) NMAC **(These containments are limited to only the wells owned or operated by the owners of the containment.)**

☐ Bonding in accordance with 19.15.34.15(A)(1). Amount of bond $_____ **(work on these facilities cannot commence until bonding amounts are approved)**

☐ Attach closure cost estimate and documentation on how the closure cost was calculated.

5.

Fencing:

☒ Four foot height, four strands of barbed wire evenly spaced between one and four feet

☒ Alternate. Please see registration for secondary fence specifications_____

6.

Signs:

☒ 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers

☐ Signed in compliance with 19.15.16.8 NMAC

7.

Variances:

Justifications and/or demonstrations that the proposed variance will afford reasonable protection against contamination of fresh water, human health, and the environment.

Check the below box only if a variance is requested:

☐ Variance(s): Requests must be submitted to the appropriate division district for consideration of approval. If a Variance is requested, include the variance information on a separate page and attach it to the C-147 as part of the application.

If a Variance is requested, it must be approved prior to implementation.

8.

Siting Criteria for Recycling Containment

Instructions: The applicant must provide attachments that demonstrate compliance for each siting criteria below as part of the application. Potential examples of the siting attachment source material are provided below under each criteria.

General siting

Ground water is less than 50 feet below the bottom of the Recycling Containment. NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☒ No ☐ NA
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; written approval obtained from the municipality	☐ Yes ☒ No ☐ NA
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Minerals Division	☐ Yes ☒ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; topographic map	☐ Yes ☒ No
Within a 100-year floodplain. FEMA map	☐ Yes ☒ No
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; aerial photo; satellite image	☐ Yes ☒ No
Within 500 horizontal feet of a spring or a fresh water well used for domestic or stock watering purposes, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database search; visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; topographic map; visual inspection (certification) of the proposed site	☐ Yes ☒ No

9.
Recycling Facility and/or Containment Checklist:
Instructions: Each of the following items must be attached to the application. Indicate, by a check mark in the box, that the documents are attached.

- ☒ Design Plan - based upon the appropriate requirements.
- ☒ Operating and Maintenance Plan - based upon the appropriate requirements.
- ☒ Closure Plan - based upon the appropriate requirements.
- ☒ Site Specific Groundwater Data -
- ☒ Siting Criteria Compliance Demonstrations –
- ☒ **Certify that notice of the C-147 (only) has been sent to the surface owner(s)**

10.
Operator Application Certification:
I hereby certify that the information and attachments submitted with this application are true, accurate and complete to the best of my knowledge and belief.

Name (Print): Tony Cooper Title: ES&H Specialist

Signature: Tony Cooper Date: August 8, 2016

e-mail address: tony.cooper@mcelvain.com Telephone: 303-893-0933 x331

11.
OCD Representative Signature: **Approval Date:**

Title: **OCD Permit Number:**

- ☐ OCD Conditions
- ☐ Additional OCD Conditions on Attachment

Distance to Groundwater

Figure 1, Figure 2, and the discussion below demonstrates that groundwater (fresh water as defined by NMOCD Rules) at the location is greater than 50 feet beneath the containment

Figure 1 is a geologic/ topographic map that shows:
1. The location of the proposed containment with the surface elevation.
2. Water wells from the OSE database are plotted as a blue triangle inside colored circles that indicate well depth (see legend). OSE wells are often mis-located in the WATERS database as older wells are plotted in the center of the quarter, quarter, quarter, of the Section Township and Range.
3. Water wells from the USGS database as large colored triangles that represent the unit in which the well was completed.
4. Water wells, which are not documented in the public databases but were identified by field inspection or other published reports as colored squares.
5. The depth-to-water from the most recent available measurement for each well is provided adjacent to the well symbol.

Geology

Our examination of the geology of the area near the proposed containment causes us to conclude that, on a regional basis, the uppermost water-bearing zone lay in the Triassic Chinle Formation, the basal unit of which is the Santa Rosa Sandstone. Existing data do not allow us to determine if the water in the Chinle is unconfined or confined. For a confined aquifer, the depth to groundwater is the top of the permeable unit (e.g. 100 feet) but the depth to groundwater (the potentiometric surface) can be a few feet below the ground surface.

Saturated alluvium exists east and southwest of the location. The alluvial aquifer is perched upon the claystone and siltstone that is the dominant lithology of the Chinle Formation. The hydrogeology of the area is described in the next section.

The Ogallala Aquifer is absent in the area of the containment but is the principal water bearing unit east of Mescalero Ridge (the Caprock).

Figure 2a is a larger scale than Figure 1 that uses the potentiometric surface map of Open File Report 95[1] as a base and shows:
1. The location of the proposed containment.
2. Water wells measured by the USGS or other professionals, the formation completion depth of the well (see Figure 2 Legend) and the calculated elevation of the groundwater surface and the date of the observation.
3. Isocontour lines displaying the elevation of the groundwater surface of the Chinle Formation.

[1] https://geoinfo.nmt.edu/publications/openfile/downloads/0-99/95/ofr_95.pdf

Figure 2b shows the extent of saturation in the alluvium that overlies the Chinle. The base map for this figure is the geologic map of Ground Water Report #6[2] that displays the elevation of the Chinle/Alluvium contact (the paleo-erosional surface of the Chinle).

Hydrogeology

We relied upon the most recent data measured by the USGS to create the water table elevation map shown in Figures 2a and 2b as well as the "Misc" well data (see Figure 1). The Misc data are measured water levels in wells or logged borings for hydrogeologic information. This dataset can contain errors (generally of location) that are not often present in the USGS data; but all of the Misc wells shown in Figure 2 have been inspected by Hicks Consultants in the field or on aerial imagery. Water level data from the OSE database rely upon observed water levels by drillers during the completion of the water well. The OSE dataset provides some useful data in certain areas. The area near the containment contains sufficient high-quality data that we did not rely on OSE data.

For the potentiometric surface map (Figure 2a and 2b), we honored all data that we know are accurate to the best of our knowledge. For example, USGS well 1080 exhibits a water elevation of 3924.93 on 12/15/10 while a 4:30 pm measurement on 5/5/16 measurement is 3896.6. We believe the data from the USGS is more accurate as communication with the rancher/owner suggested that this well had been pumping "a little" earlier in the day. The rancher also commented on the poor recovery of wells completed in this area.

At the containment location, the potentiometric surface of groundwater in the Chinle (Figure 2a) is about 3775 feet amsl, based upon the data presented. Thus, the depth to groundwater at the location of the containment would be (3873-3775=) 98 feet. However, McElvain drilled an exploratory boring on the McElvain #8 production pad, located about 500 feet east of the proposed containment. The driller's log for this well, which is included at the end of this section, suggests that a sufficient supply of groundwater does not exist to a depth of 500 feet. As the boring was drilled with mud, low-producing water-bearing units that could be suitable for a stock well may have been missed using this drilling technique.

Figure 2b shows the potentiometric surface and limit of alluvial groundwater (the blue hatched equipotential contour 3800). This boundary between the Chinle aquifer and the Ogallala/Alluvial aquifer is slightly different from that drawn on Figure 2a (Open File Report 95). This difference is due to the different scale of the base map relative to that shown in Figure 2b as well as some data available after the 1978 publication. However, the rationale for this boundary is described on page 59 of Ground Water Report #6 and remains reasonable today:

- Beneath Mescalero Ridge is a buried ridge on the Chinle/Ogallala erosional surface (see 3850 contour in the northeastern portion of Figure 2b). This buried ridge is a groundwater divide that separates the southeast-flowing Ogallala Aquifer on the east from west-southwest flowing alluvial groundwater zones to the west.
- In some areas, the elevation of the buried Alluvium/Chinle contact is (or was) lower than the potentiometric surface of the Ogallala, resulting in recharge of the alluvium from the

[2] https://geoinfo.nmt.edu/publications/water/gw/6/plates/GW6_Plate1.pdf

Ogallala. At present groundwater elevation of the Ogallala is below this buried ridge and groundwater does not flow over the buried ridge to recharge the Alluvium. In the area of the containment, such flow/recharge probably never existed.

- The topographic change between Mescalero Ridge and the Querecho Plains to the west may be sufficient to cause slightly more precipitation along this boundary than west of Mescalero Ridge. The highly permeable pediment deposits (Qp on Figure 1) allow infiltration and recharge.

The steeply sloped groundwater surface of the alluvial aquifer (100 feet over a distance of about 0.5 miles), is based upon the data from USGS wells shown on Figure 2a and data north of the edge of Figure 2b. This potentiometric surface in the alluvium is significantly steeper than the sloping surface of the Chinle/Alluvium contact, resulting in a "pinch-out" of the aquifer where shown in Figure 2b. The absence of wells west of this pinch-out of saturated alluvium provides further evidence that the hypothesis presented in Ground Water Report #6 and echoed above makes sense.

Ground Water Report #6 explains the presence of localized perched aquifers, like that shown about 5 miles southeast of the proposed containment, as small-scale depressions in the Chinle/Alluvium contact that are not obvious by the 50-foot contour interval displayed in Figure 2b. The authors of the report hypothesize that such depressions are caused by solution of deep salt and minor collapse of the overlying Chinle. Adjacent to well USGS-1025 is a closed depression that may be a surface expression of such collapse. Well USGS-979 lies on the northeastern margin of a valley that terminates in the closed depression that is Laguna Tonto. Thus, the presence of alluvial water in these two wells fits with the hypothesis presented in Ground Water Report #6 and the facts.

From these data and the driller's log from the nearby exploratory well, we conclude:

- Based upon the groundwater map of the regional aquifer (permeable units in the upper Chinle/Dockum), the elevation of the groundwater surface beneath the proposed containment is about 3775 feet above mean sea level.
- The perched, shallow groundwater zones present east and southeast of the containment do not extend to the area beneath the proposed containment.
- The minimum distance between the bottom of a 20-foot deep containment and the potentiometric surface of the regional aquifer is approximately (3,873-20-3775 =) 78 feet.
- As depth to water in several nearby wells completed in the Dockum redbeds exceed 150 feet feet and the exploratory well did not encounter a significant show of water to the 500-foot total depth, we can conclude with a high degree of confidence that the shallowest water in the Dockum redbeds is deeper than 78 feet and pressurized (confined) groundwater is present in these stratum.

Distance to Surface Water

Figure 3 and the site visit demonstrates that the location is not within 300 feet of a continuously flowing watercourse or any other significant watercourse or 200 feet from lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).

- No continuously flowing watercourses or other water bodies, as defined by NMOCD Rules, exist within the prescribed setback criteria for containment.
- The nearest surface water body is a lake/pond located east of the Caprock
- There is no evidence of sinkhole features in the area.

Distance to Permanent Residence or Structures

Figure 4 and the site visit demonstrates that the location is not within 1000 feet from an occupied permanent residence, school, hospital, institution, church, or other structure in existence at the time of initial application.

- The nearest structures are oil and gas wells and tank batteries.

Distance to Non-Public Water Supply

Figures 1 and Figure 2 demonstrates that the location is not within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1,000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application.

- Figure 1 shows the locations of all area water wells, active or plugged.
- The nearest water wells completed in the Chinle are about 2 miles west.
- There are no known domestic water wells located within 1,000 feet of the proposed containment.
- No springs were identified within the mapping area (see Figure 3).

Distance to Municipal Boundaries and Fresh Water Fields

Figure 5 demonstrates that the location is not within incorporated municipal boundaries or within defined municipal fresh water well fields covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended

- The closest municipality is Hobbs, NM approximately 25 miles to the east.
- The closest public well field is located approximately 15 miles to the north.

Distance to Wetlands

Figure 6 demonstrates the location is not within 300 feet of wetlands.

- The nearest designated wetlands are a “freshwater pond” located approximately 1.5 miles to the northeast

Distance to Subsurface Mines

Figure 7 and our general reconnaissance of the area demonstrate that the nearest mines are caliche pits. This location is not within an area overlying a subsurface mine.

- The nearest mapped caliche pit is located approximately 1 mile to the north.

Distance to High or Critical Karst Areas

Figure 8 shows the location of the temporary containments with respect to BLM Karst areas.

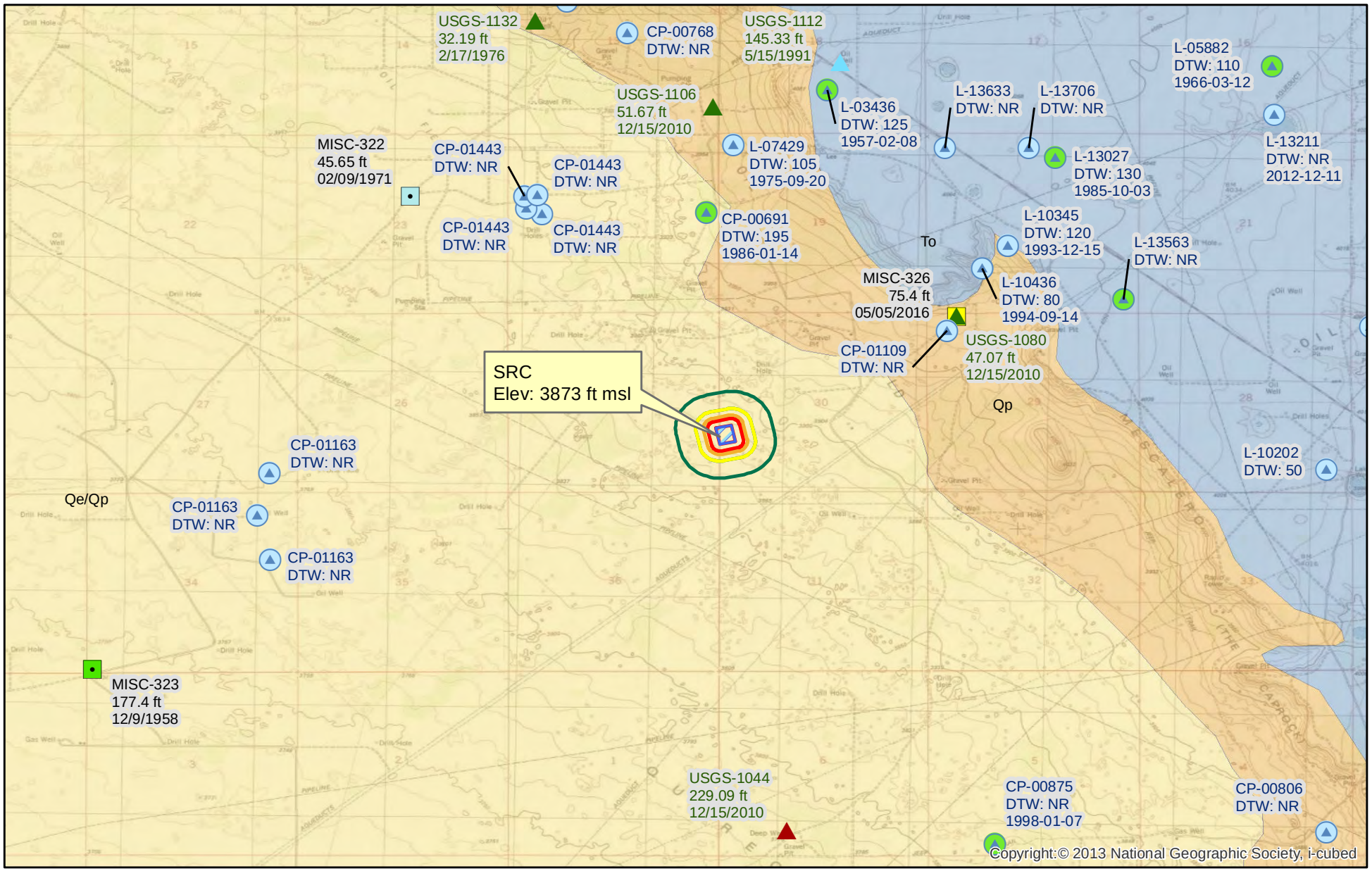
- The proposed temporary containment is located within a “low” potential karst area.

- The nearest "high" or "critical" potential karst area is located approximately 20 miles west of the site.
- No evidence of solution voids were observed near the site during the field inspection.
- A professional geologist (Randall Hicks) conducted the field survey and concluded that the ground is stable.

Distance to 100-Year Floodplain

Figure 9 demonstrates that the location is within Zone D as designated by the Federal Emergency Management Agency with respect to the Flood Insurance Rate 100-Year Floodplain.

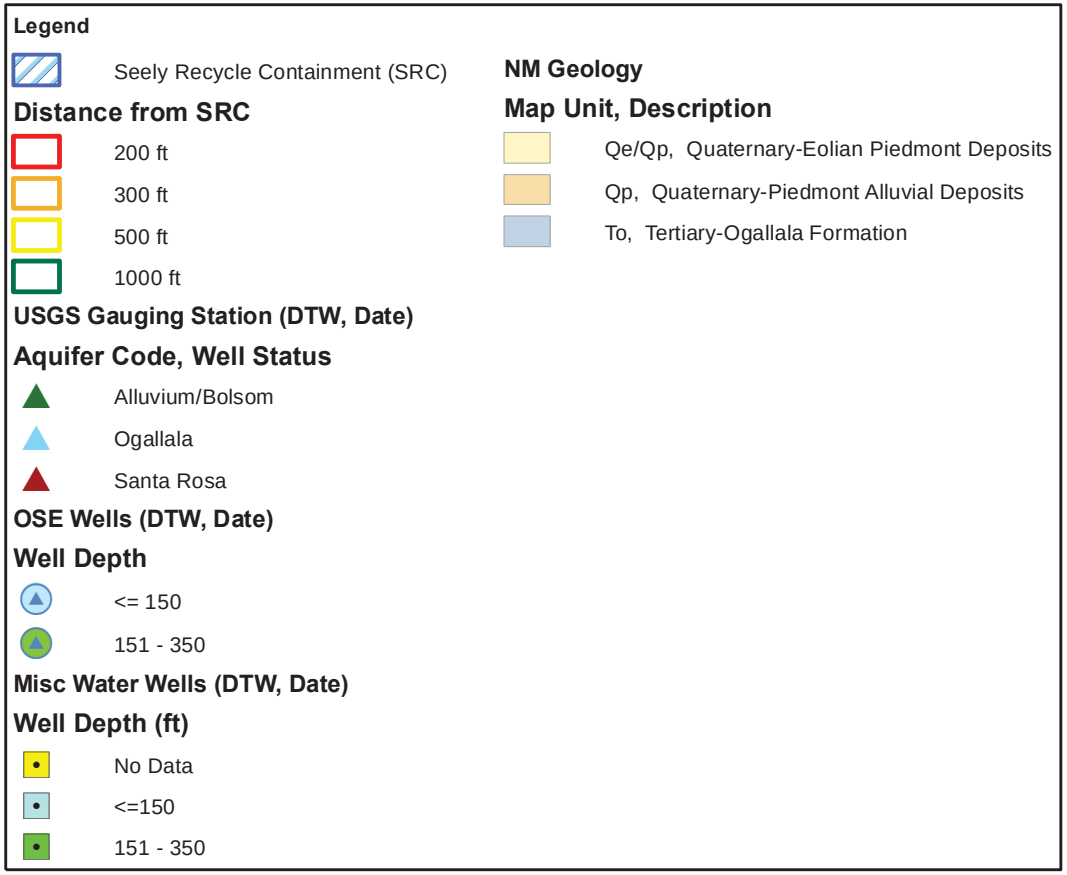
- Zone D is described as areas with possible but undetermined flood hazards. No flood hazard analysis has been conducted.
- Our field inspection and examination of the topography permits a conclusion that the location is not within any floodplain and has low risk for flooding.



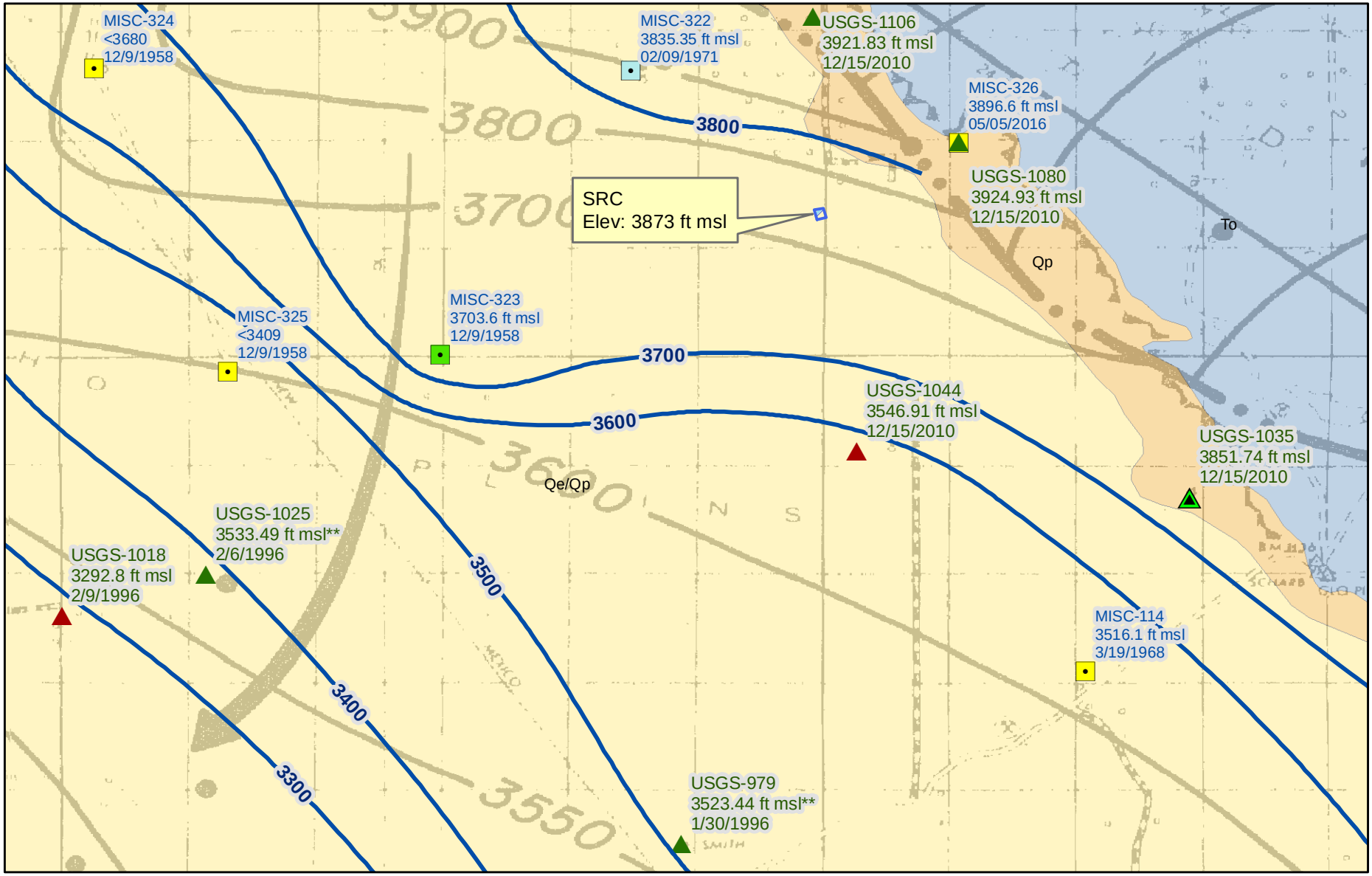
N
W E
S

0 0.5 1 Miles

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Depth To Water and Geology	Figure 1
	McElvain Energy, Inc: Seely Recycle Containment (SRC)	May 2016



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Legend - Depth To Water and Geology	Figure 1 Legend
	McElvain Energy, Inc: Seely Recycle Containment (SRC)	May 2016



Base Map: Groundwater elevation from OFR-95

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

Potentiometric Surface and Groundwater Elevation in the Santa Rosa/Chinle Formation

Figure 2a

McElvain Energy, Inc: Seely Recycle Containment (SRC)

May 2016

Legend

Seely Recycle Containment (SRC)

Potentiometric Surface (ft msl)

in the Santa Rosa/Chinle Formation

Isocontour

USGS Gauging Station (GW Elev, Date)

Aquifer Code, Well Status

Alluvium/Bolsom

110AVMB, Water level was affected by pumping at the time of the measurement.

Santa Rosa

Misc. Water Wells (GW Elev, Date)

Total Depth (ft)

No Data

<= 150

151 - 350

NM Geology

Map Unit, Description

Qe/Qp, Quaternary-Eolian Piedmont Deposits

Qp, Quaternary-Piedmont Alluvial Deposits

To, Tertiary-Ogallala Formation

Notes:

** Ground water elevation not used. Perched groundwater zone in the Alluvium/Bolsom.

Base Map: Groundwater elevation from OFR-95

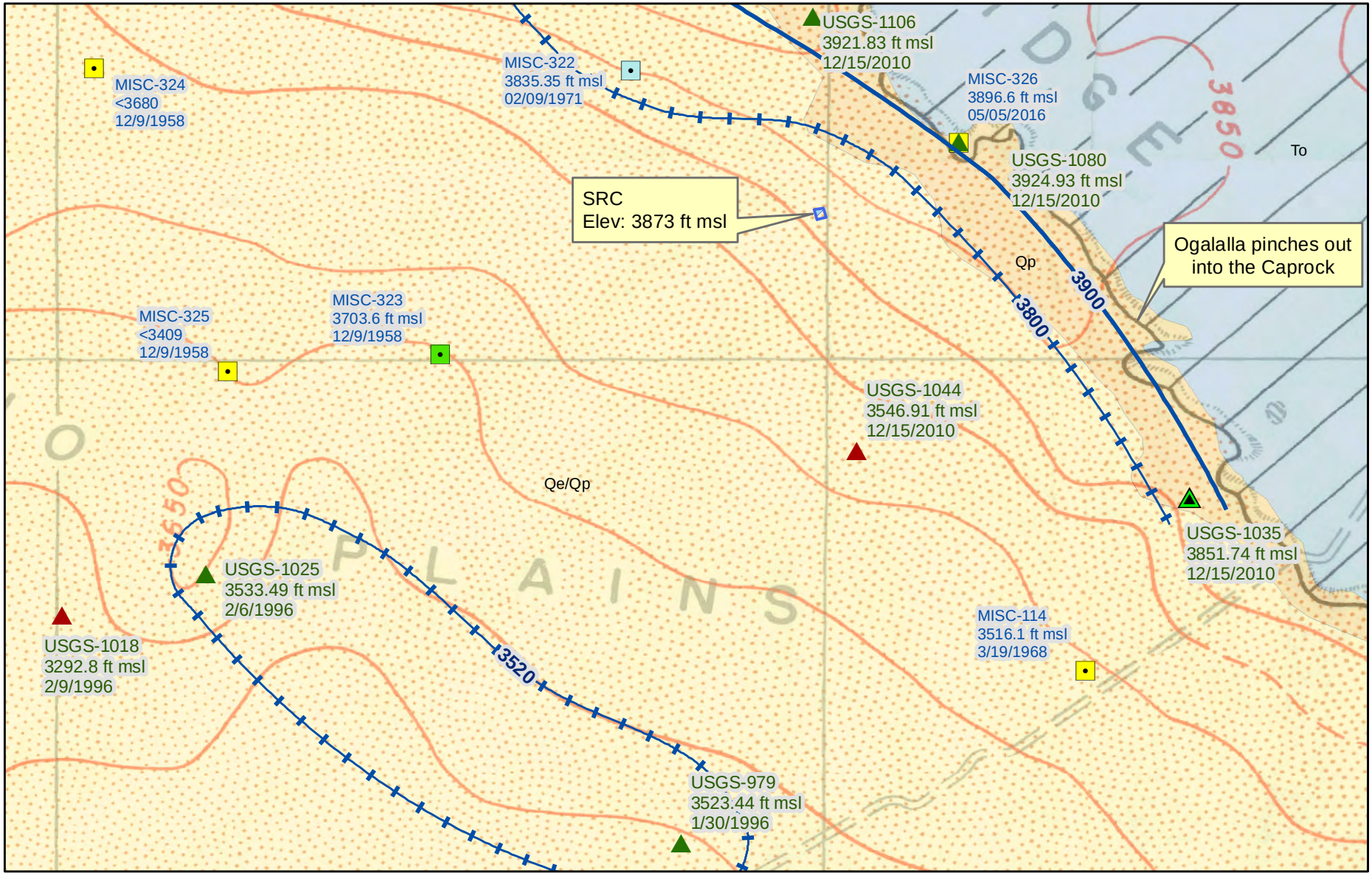
R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Potentiometric Surface and Groundwater Elevation in the Santa Rosa/Chinle Formation

McElvain Energy, Inc: Seely Recycle Containment (SRC)

Figure 2a
LEGEND

May 2016



Base Map: Top of redbed elevation (Nicholson & Clebsch)

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

Potentiometric Surface and Groundwater Elevation in the Alluvium

Figure 2b

McElvain Energy, Inc: Seely Recycle Containment (SRC)

May 2016

Legend

Seely Recycle Containment (SRC)

Potentiometric Surface (ft msl)

in the Alluvium

Isocontour

Area of variable or no saturation

USGS Gauging Station (GW Elev, Date)

Aquifer Code, Well Status

Alluvium/Bolsom

110AVMB, Water level was affected by pumping at the time of the measurement.

Santa Rosa

Misc. Water Wells (GW Elev, Date)

Total Depth (ft)

No Data

<= 150

151 - 350

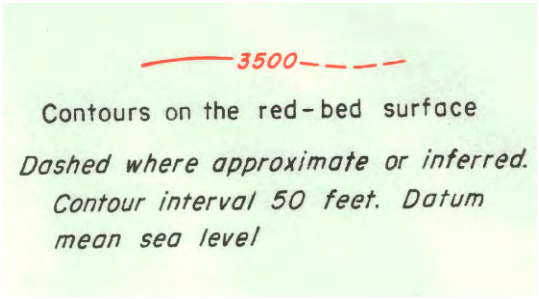
NM Geology

Map Unit, Description

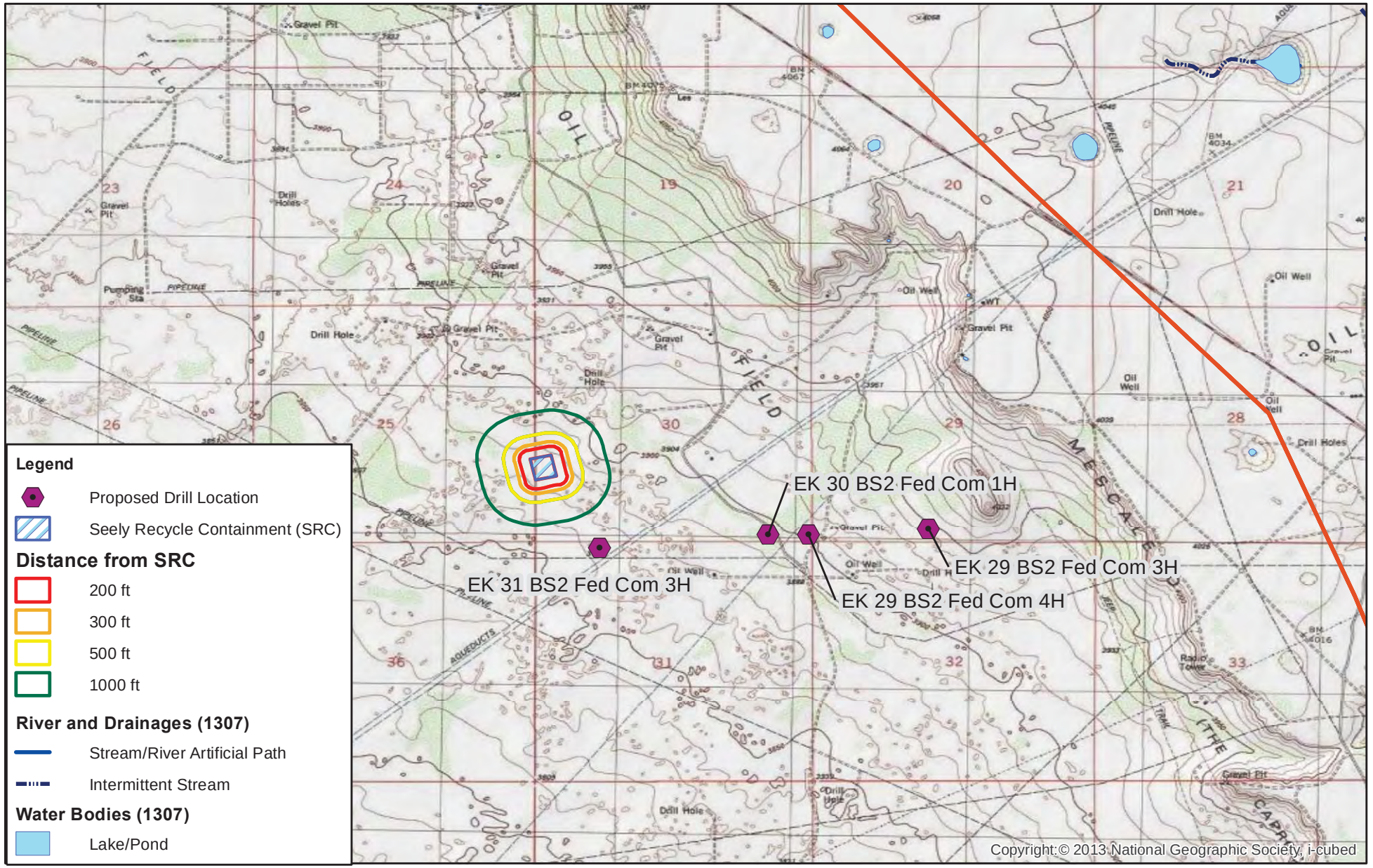
Qe/Qp, Quaternary-Eolian Piedmont Deposits

Qp, Quaternary-Piedmont Alluvial Deposits

To, Tertiary-Ogallala Formation



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Potentiometric Surface and Groundwater Elevation in the Alluvium	Figure 2b LEGEND
	McElvain Energy, Inc: Seely Recycle Containment (SRC)	May 2016

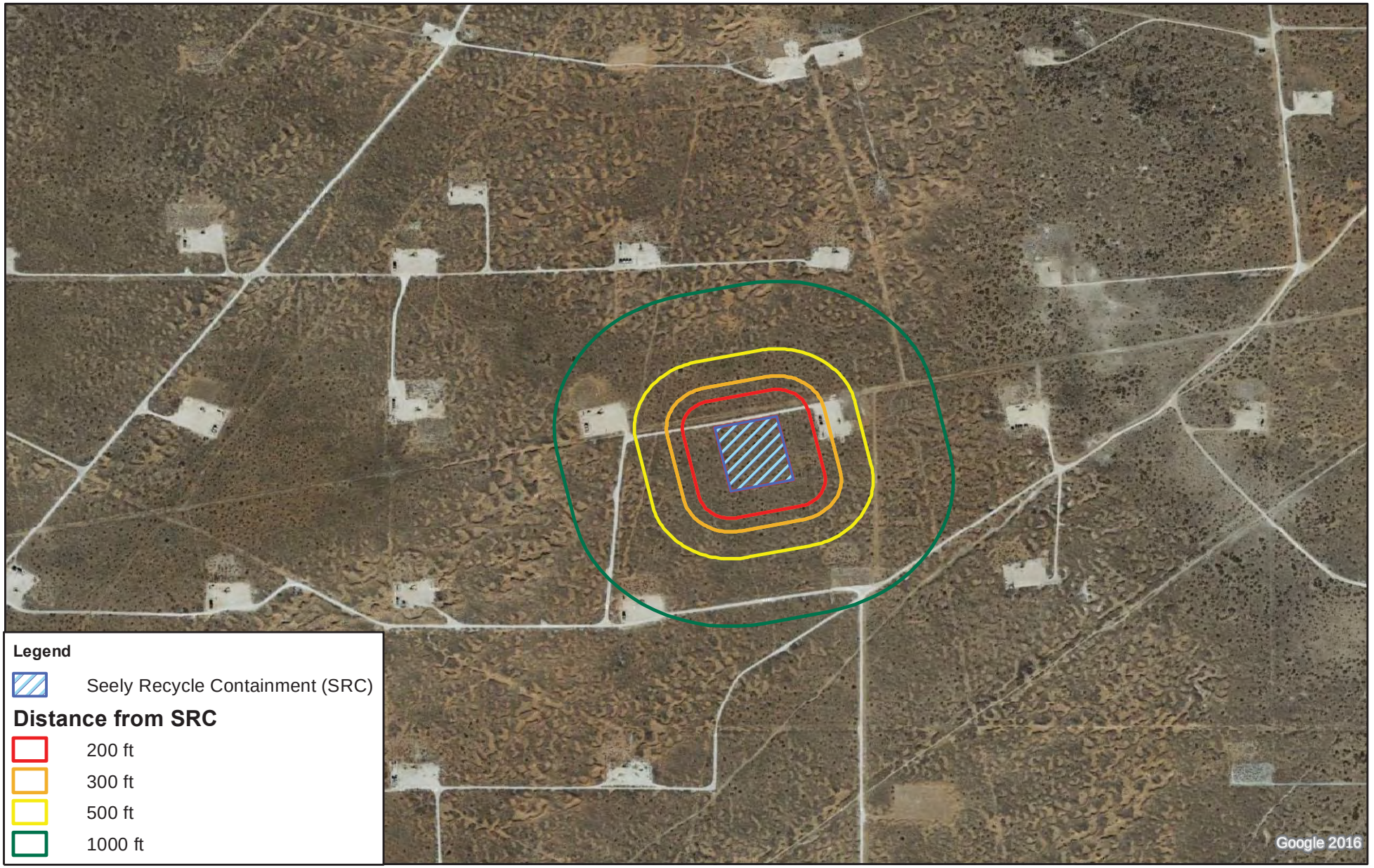


N
W E
S

0 1,500 3,000
Feet

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

Surface Water and Topography	Figure 3
McElvain Energy, Inc: Seely Recycle Containment (SRC)	May 2016



N
W E
S

0 500 1,000
Feet

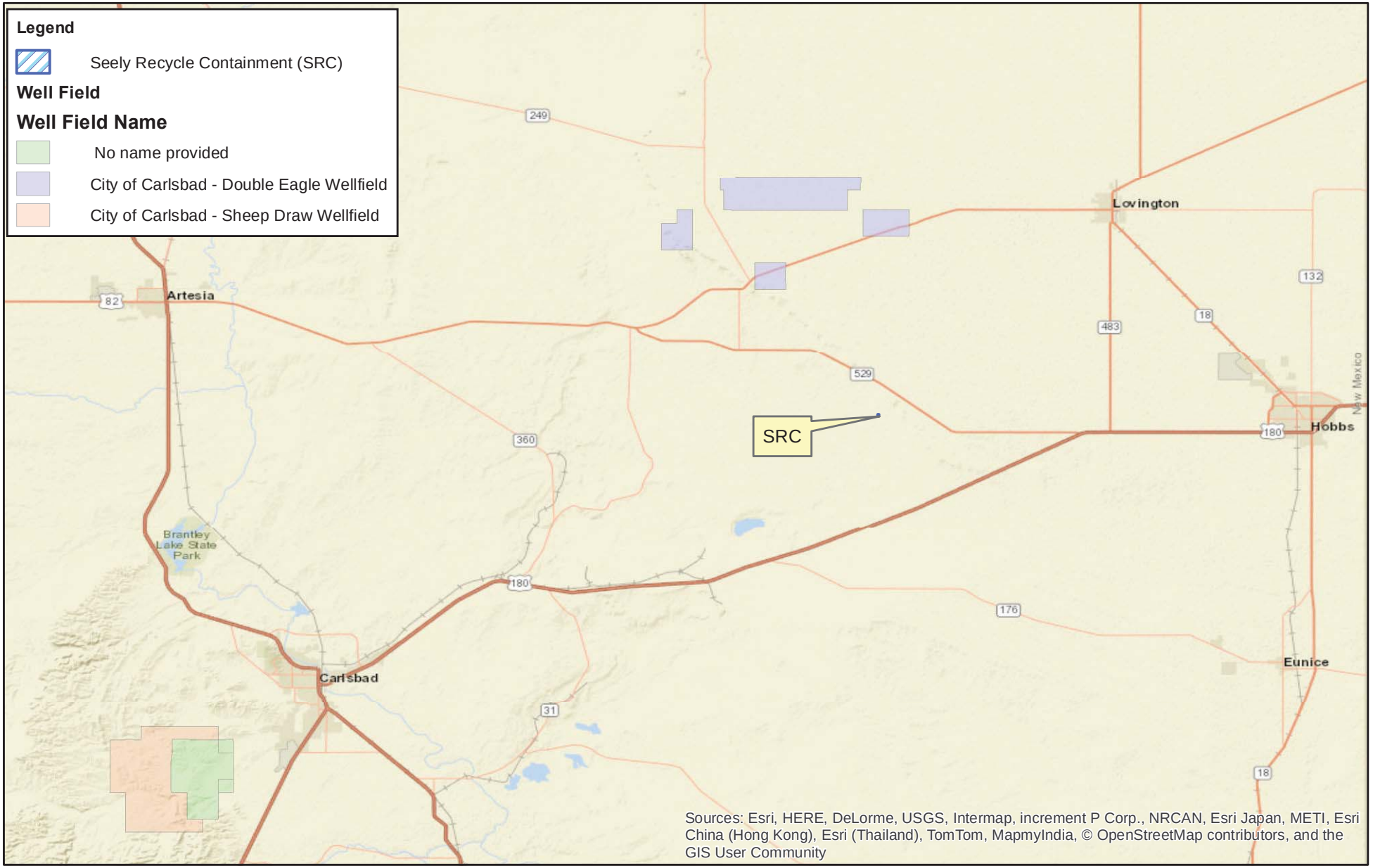
R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Nearby Structures

Figure 4

McElvain Energy, Inc: Seely Recycle Containment (SRC)

May 2016

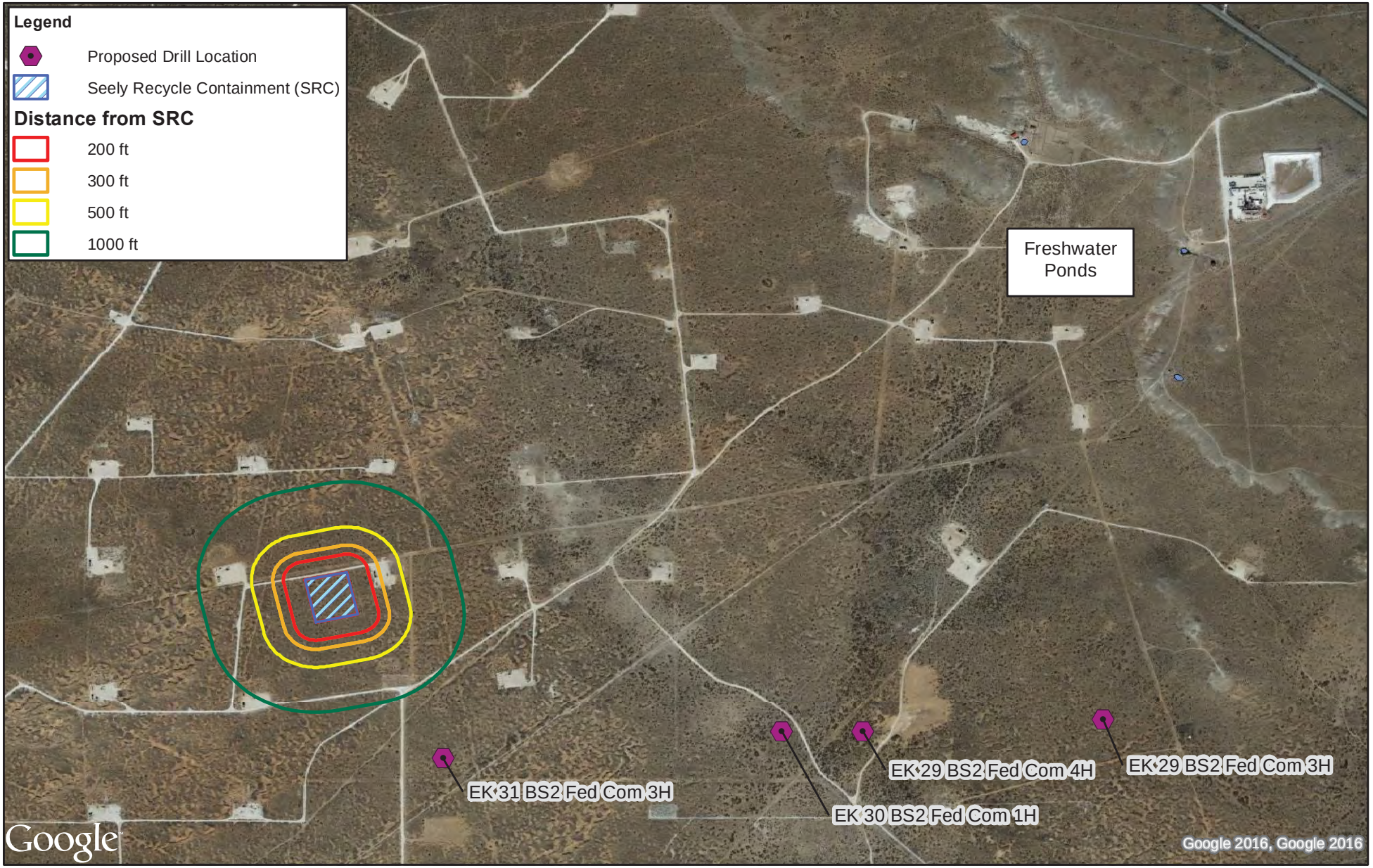


N
W E
S

0 5 10
Miles

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

Nearby Municipalities and Well Fields	Figure 5
McElvain Energy, Inc: Seely Recycle Containment (SRC)	May 2016

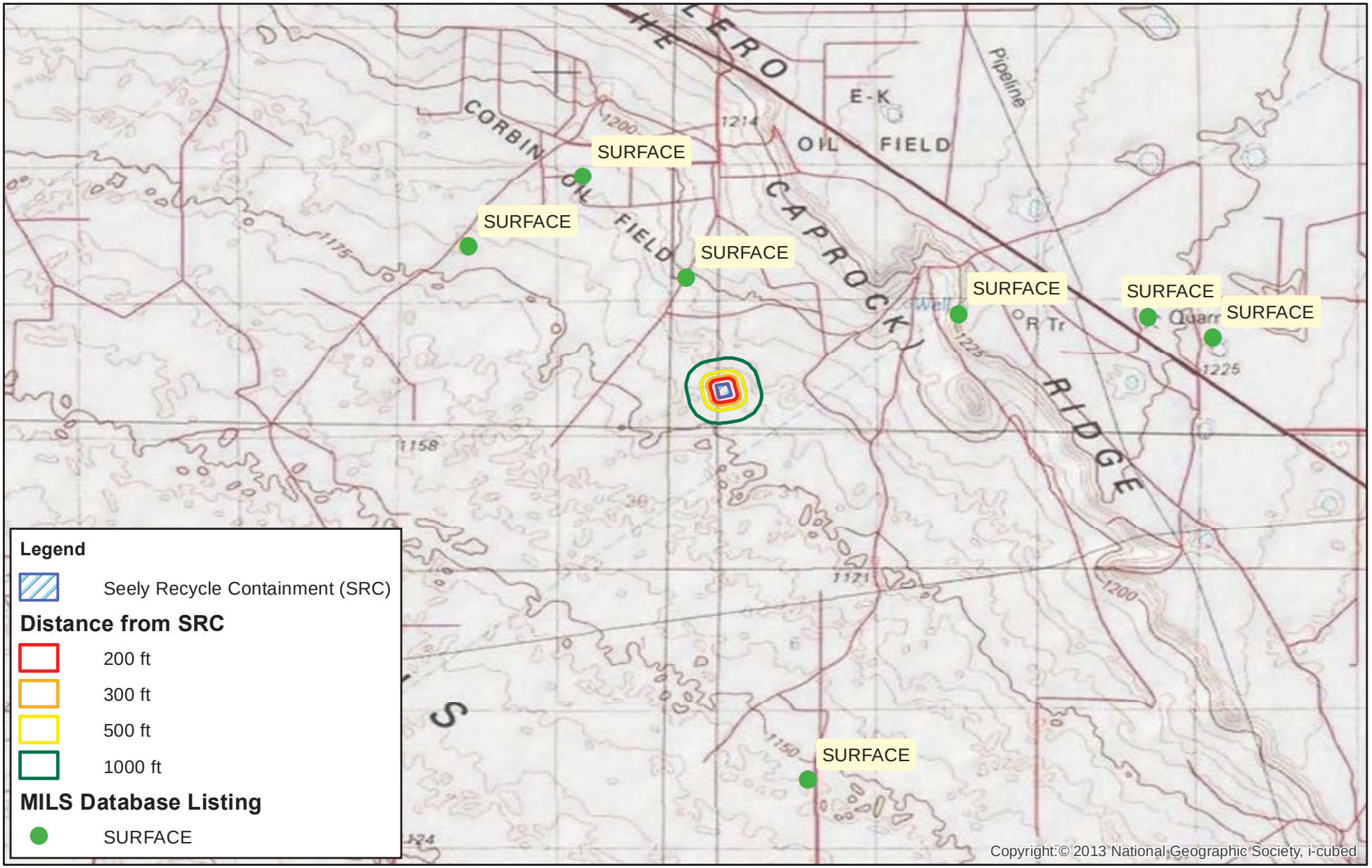


N
W E
S

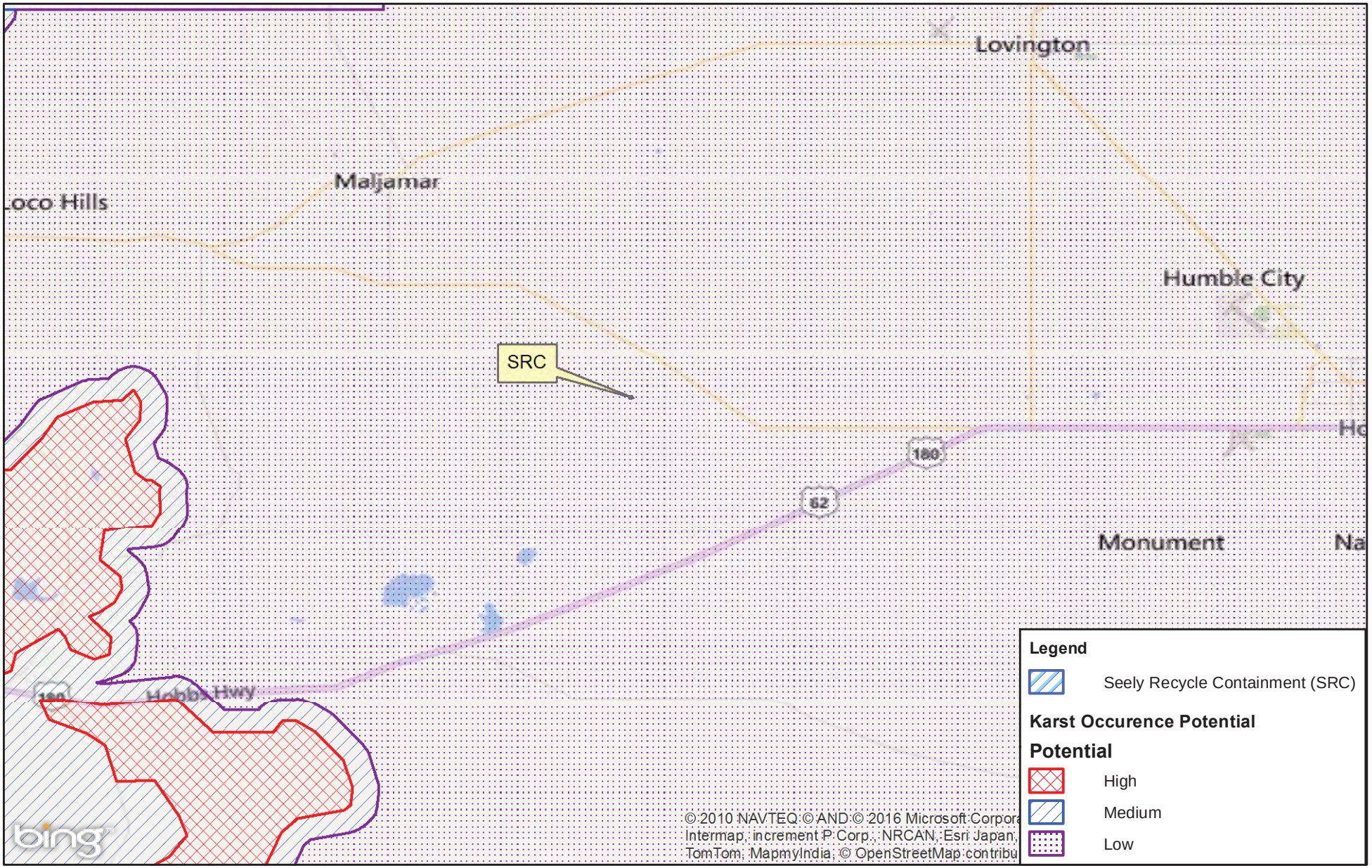
0 1,000 2,000 Feet

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

Nearby Wetlands	Figure 6
McElvain Energy, Inc: Seely Recycle Containment (SRC)	May 2016



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearby Mines and Minerals	Figure 7
	McElvain Energy, Inc: Seely Recycle Containment (SRC)	May 2016

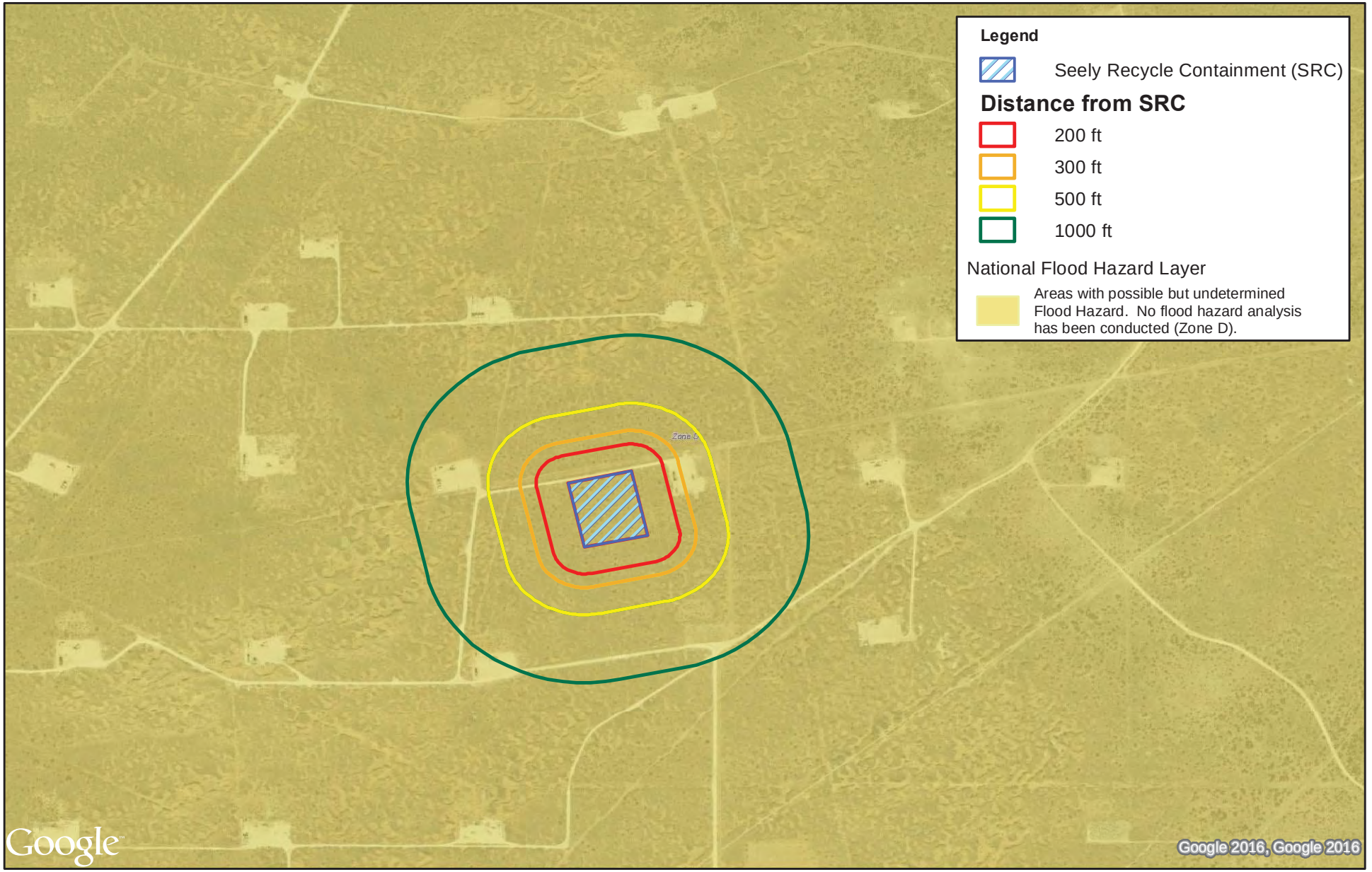


N W E S

0 3 6 Miles

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

Karst Potential	Figure 8
McElvain Energy, Inc: Seely Recycle Containment (SRC)	May 2016



FEMA Source: https://hazards.fema.gov/gis/nfhl/services/public/NFHLWMS/MapServer/WMSServer

N
W E
S

0 500 1,000
Feet

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

FEMA Flood Map	Figure 9
McElvain Energy, Inc: Seely Recycle Containment (SRC)	May 2016

Site Inspection Photographs and Survey

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

View is to the west showing northeast corner of "turn around' where treatment system will be placed. Lease road is in foreground.

View east-southeast from southeast corner of containment. Low, stabilized sand dunes characterize the general area.

Panoramic view from south (right) to east (left) shows location of containment within the stabilized dune field. About 30 feet of caliche underlies the 6-foot sand layer.

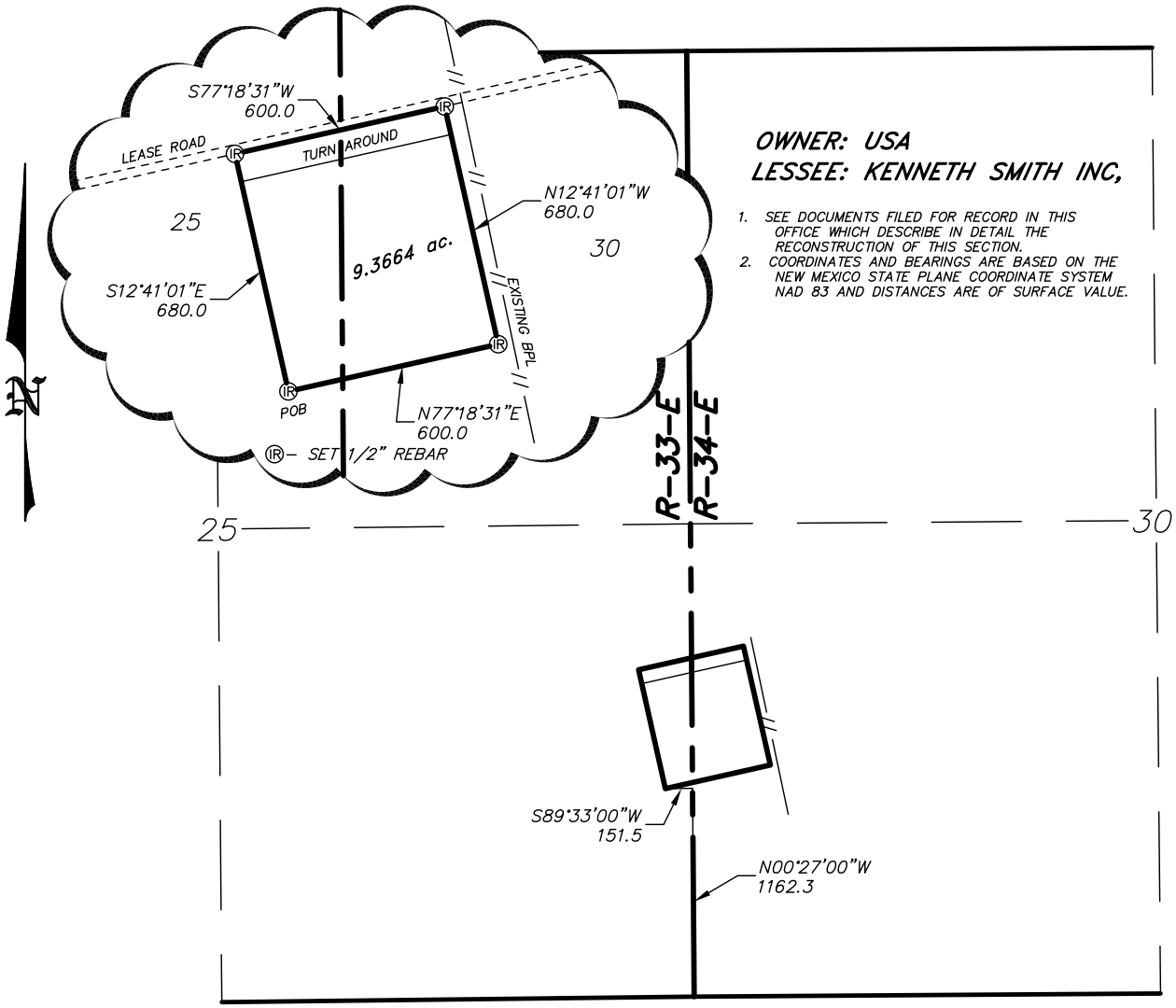
View to south-southeast showing staked southwest corner of containment.

Location of exploratory water well is shown in this image in the northwest corner of production pad for McElvain #8. The proposed containment is south of the east-west lease road in this west-facing image. The well log for this boring shows:

0-4 feet	loose sand
4-28 feet	caliche
28-52	sandy clay
52-500 feet	red bed

SECTION 25, TOWNSHIP 18 SOUTH, RANGE 33 EAST. N.M.P.M.,
SECTION 30, TOWNSHIP 18 SOUTH, RANGE 34 EAST. N.M.P.M.,

LEA COUNTY, **NEW MEXICO.**



OWNER: USA
LESSEE: KENNETH SMITH INC,

1. *SEE DOCUMENTS FILED FOR RECORD IN THIS OFFICE WHICH DESCRIBE IN DETAIL THE RECONSTRUCTION OF THIS SECTION.*
2. *COORDINATES AND BEARINGS ARE BASED ON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM NAD 83 AND DISTANCES ARE OF SURFACE VALUE.*

LEGAL DESCRIPTION

A TRACT OF LAND LOCATED IN SECTION 25, TOWNSHIP 18 SOUTH, RANGE 33 EAST AND SECTION 30, TOWNSHIP 18 SOUTH, RANGE 34 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS: BEGINNING AT A POINT WHICH LIES N00°27'00"W., 1162.3 FEET AND S89°33'00"W., 151.5 FEET FROM THE SOUTHEAST CORNER OF SAID SECTION 25; THENCE N77°18'31"E., 600.0 FEET; THENCE N12°41'01"W., 680.0 FEET; THENCE S77°18'31"W., 600.0 FEET; THENCE S12°41'01"E., 680.0 FEET TO THE POINT OF BEGINNING. SAID TRACT OF LAND BEING 9.37 ACRES, MORE OR LESS.

SECTION 30 = 5.79 ACRES
SECTION 25 = 3.58 ACRES

I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY AND MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THIS STATE.

GARY L. JONES, N.M. P.S. No. 7977
TEXAS P.L.S. No. 5074

1000 0 1000 2000 FEET

McELVAIN ENERGY, INC

REF: FRAC TRACT

A TRACT OF LAND LOCATED ON USA LAND IN

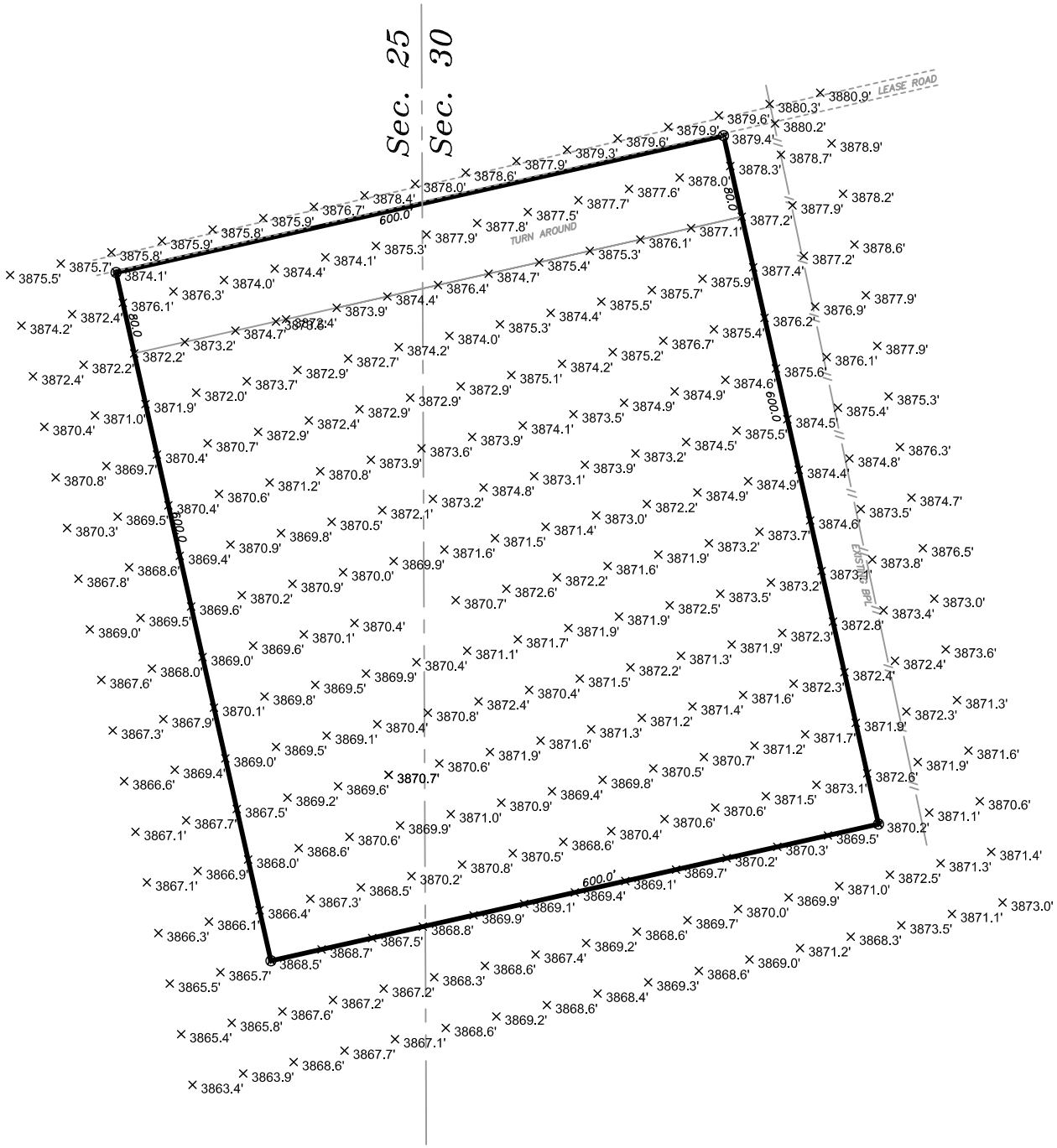
SECTION 30, TOWNSHIP 18 SOUTH, RANGE 34 EAST,
SECTION 25, TOWNSHIP 18 SOUTH, RANGE 33 EAST,

N.M.P.M., LEA COUNTY, NEW MEXICO.

basin surveys
focused on excellence in the oilfield
P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 – Office
(575) 392-2206 – Fax
basinsurveys.com

W.O. Number: 32381	Drawn By: J GOAD	Date: 7-18-2016	Survey Date: 7-13-2016	Sheet 1 of 2 Sheets

SECTION 25, TOWNSHIP 18 SOUTH, RANGE 33 EAST. N.M.P.M.,
SECTION 30, TOWNSHIP 18 SOUTH, RANGE 34 EAST. N.M.P.M.,
LEA COUNTY, NEW MEXICO.



N

100 0 100 200 FEET

I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY AND MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THIS STATE.

GARY L. JONES N.M. P.S. No. 7977
TEXAS P.L.S. No. 5074

basin Surveys
focused on excellence in the oilfield
P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 – Office
(575) 392-2206 – Fax
basinsurveys.com

McELVAIN ENERGY, INC

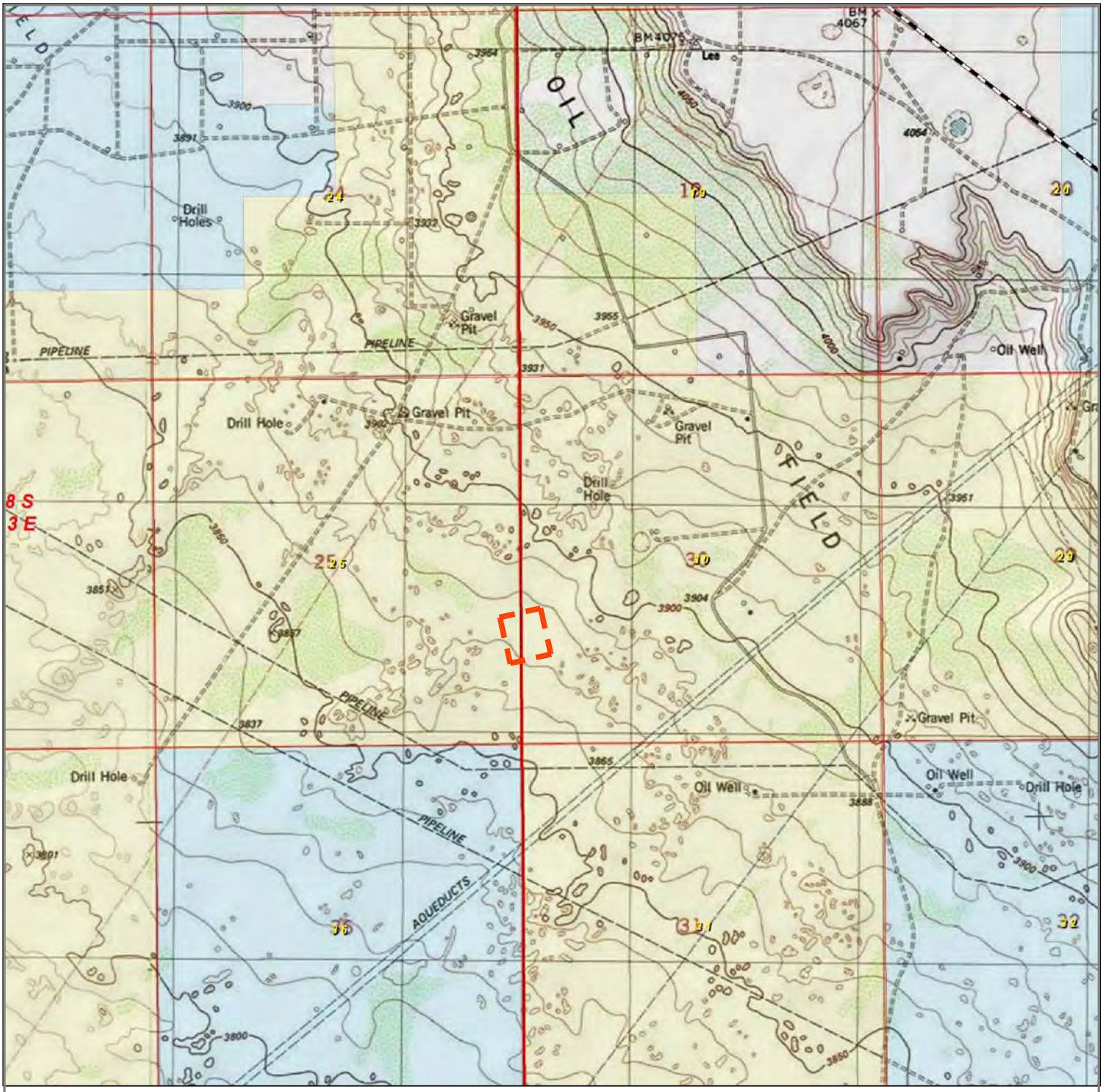
REF: FRAC TRACT TOPO

A TRACT OF LAND LOCATED ON USA LAND IN

SECTION 30, TOWNSHIP 18 SOUTH, RANGE 34 EAST,
SECTION 25, TOWNSHIP 18 SOUTH, RANGE 33 EAST,

N.M.P.M., LEA COUNTY, NEW MEXICO.

W.O. Number: 32381	Drawn By: J GOAD	Date: 7-18-2016	Survey Date: 7-13-2016	Sheet 2 of 2 Sheets



FRAC TRACT

Section 30, Township 18 South, Range 34 East,
Section 25, Township 18 South, Range 33 East,
N.M.P.M., Lea County, New Mexico.

basin surveys
focused on excellence in the oilfield

P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 – Office
(575) 392-2206 – Fax
basinsurveys.com

0' 1000' 2000' 3000' 4000'
SCALE: 1" = 2000'

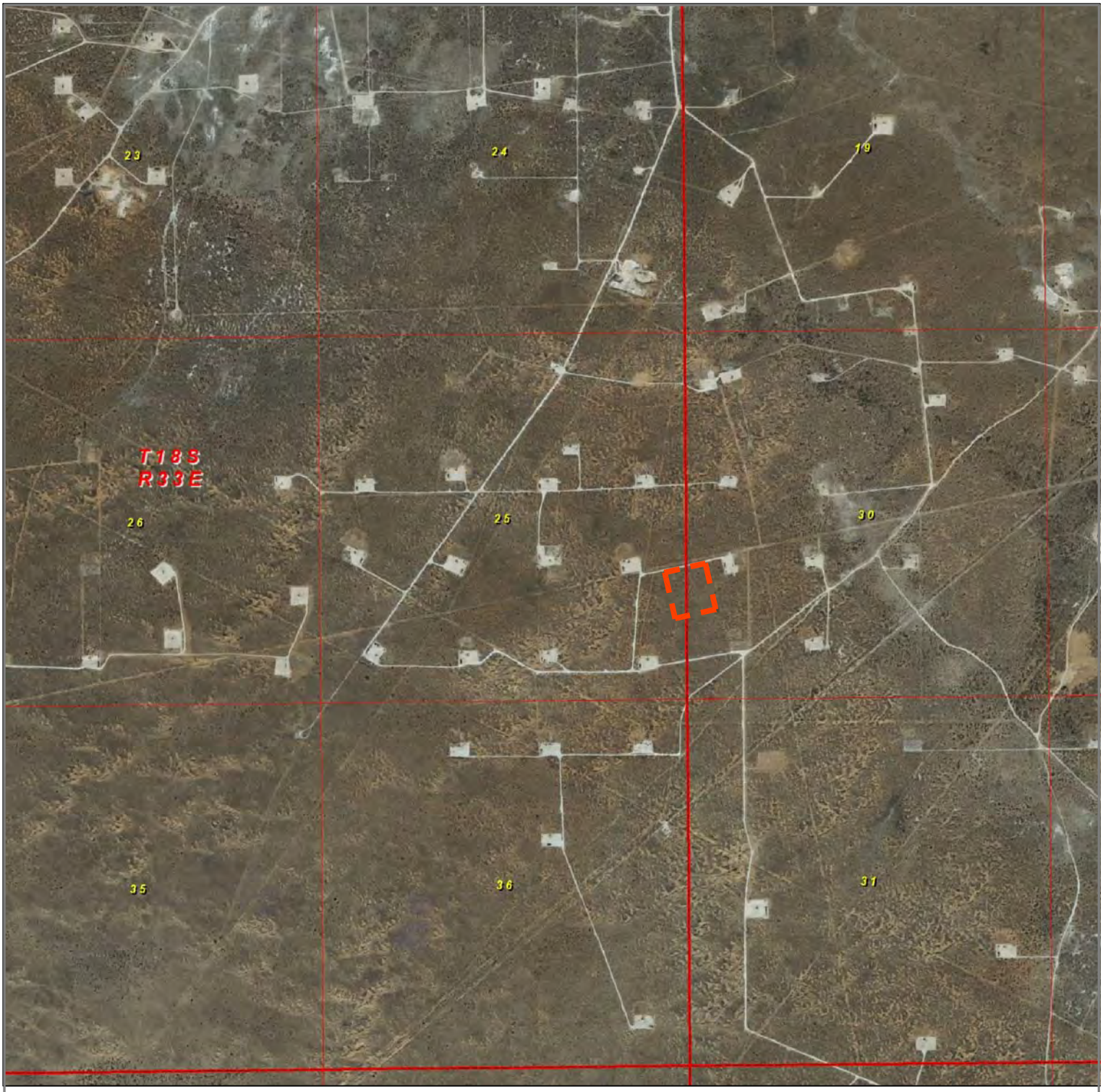
W.O. Number: JG 32381

Survey Date: 7-13-2016

YELLOW TINT – USA LAND
BLUE TINT – STATE LAND
NATURAL COLOR – FEE LAND

N

McELVAIN ENERGY, INC



FRAC TRACT

Section 30, Township 18 South, Range 34 East,
Section 25, Township 18 South, Range 33 East,
N.M.P.M., Lea County, New Mexico.

basin surveys
focused on excellence in the oilfield

P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 – Office
(575) 392-2206 – Fax
basinsurveys.com

0' 1000' 2000' 3000' 4000'
SCALE: 1" = 2000'

W.O. Number: JG 32381

Survey Date: 7-13-2016

YELLOW TINT – USA LAND
BLUE TINT – STATE LAND
NATURAL COLOR – FEE LAND

N

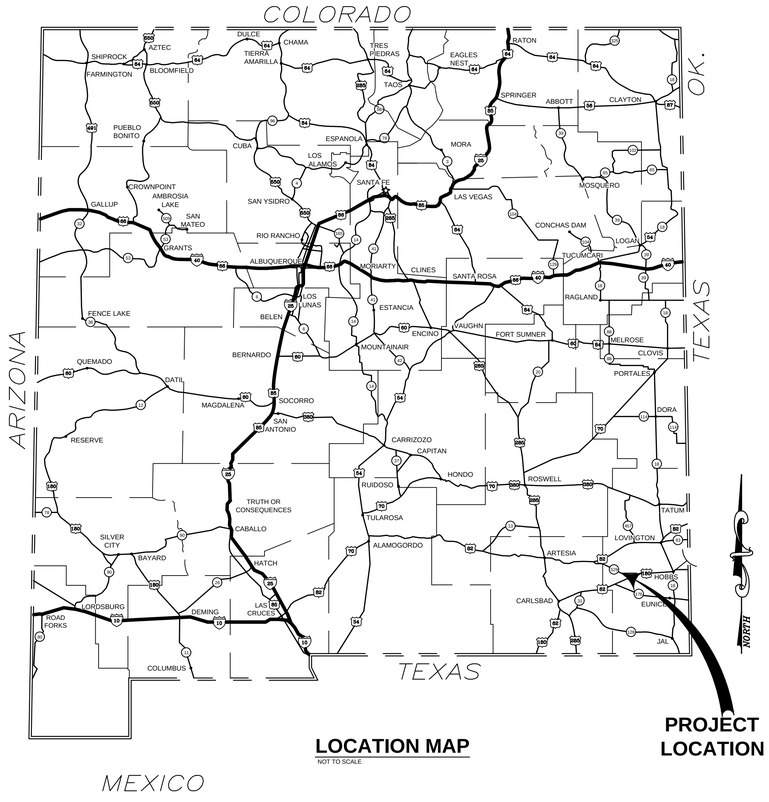
McELVAIN ENERGY, INC

Appendix A

Engineering Drawings

SEELY CONTAINMENT
MCELVAIN ENERGY, INC.
LEA COUNTY, NEW MEXICO
S 25 T 18S R 33E
S 30 T 18S R 34E

INDEX OF DRAWINGS



LOCATION MAP
NOT TO SCALE

VICINITY MAP
NOT TO SCALE

811 Know what's **below.** **Call** before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

BENCHMARKS				
POINT	NORTH (FT)	EAST (FT)	ELEVATION (FT)	DESCRIPTION
5005	625102.31	764284.80	3873.5	BENCHMARK NUMBER 1
5006	625216.46	764791.99	3878.4	BENCHMARK NUMBER 2
THESE COORDINATES ARE SHOWN IN STATE PLANE NM-EAST FOOT NAD 83 COORDINATE SYSTEM. BASED ON BASIN SURVEYS TRACT W.O. NUMBER: 32381 DATED: 7-18-2016				

FLOOD NOTE

THIS PROJECT IS LOCATED IN AN AREA WITHOUT A PRINTED FLOOD MAP CORRESPONDING TO FEMA FIRM PANEL 35025C1275D

CONTACTS

OWNER
MCELVAIN ENERGY INC.
1050 17 TH. STREET, SUITE 2500
DENVER, CO 80265
303 893-0933 EXT 331
TONY COOPER, SENIOR EHS SPECIALIST

CIVIL ENGINEERING
PETTIGREW & ASSOCIATES, P.A.
100 E NAVAJO DRIVE, SUITE 100
HOBBS, NM 88240
(575) 393-9827
CLAUDIUS SANCHEZ CZYZEWSKA, PE

PETTIGREW & ASSOCIATES PA
ENGINEERING | SURVEYING | TESTING
DEFINING QUALITY SINCE 1965
100 E. Navajo Drive Suite 100 Hobbs New Mexico 88240
T 575 393 9827 F 575 393 1543
Pettigrew.us

CLAUDIUS SANCHEZ CZYZEWSKA NEW MEXICO 22897 PROFESSIONAL ENGINEER

08/05/2016

PROJECT ENGINEER: Claudius Sanchez Czyzewska, PE
PROJECT DESIGNER: Teo Cano, EI, Miguel Martinez
DRAWN BY: TC, MM

REVISIONS

No.	DATE	DESCRIPTION

COVER SHEET

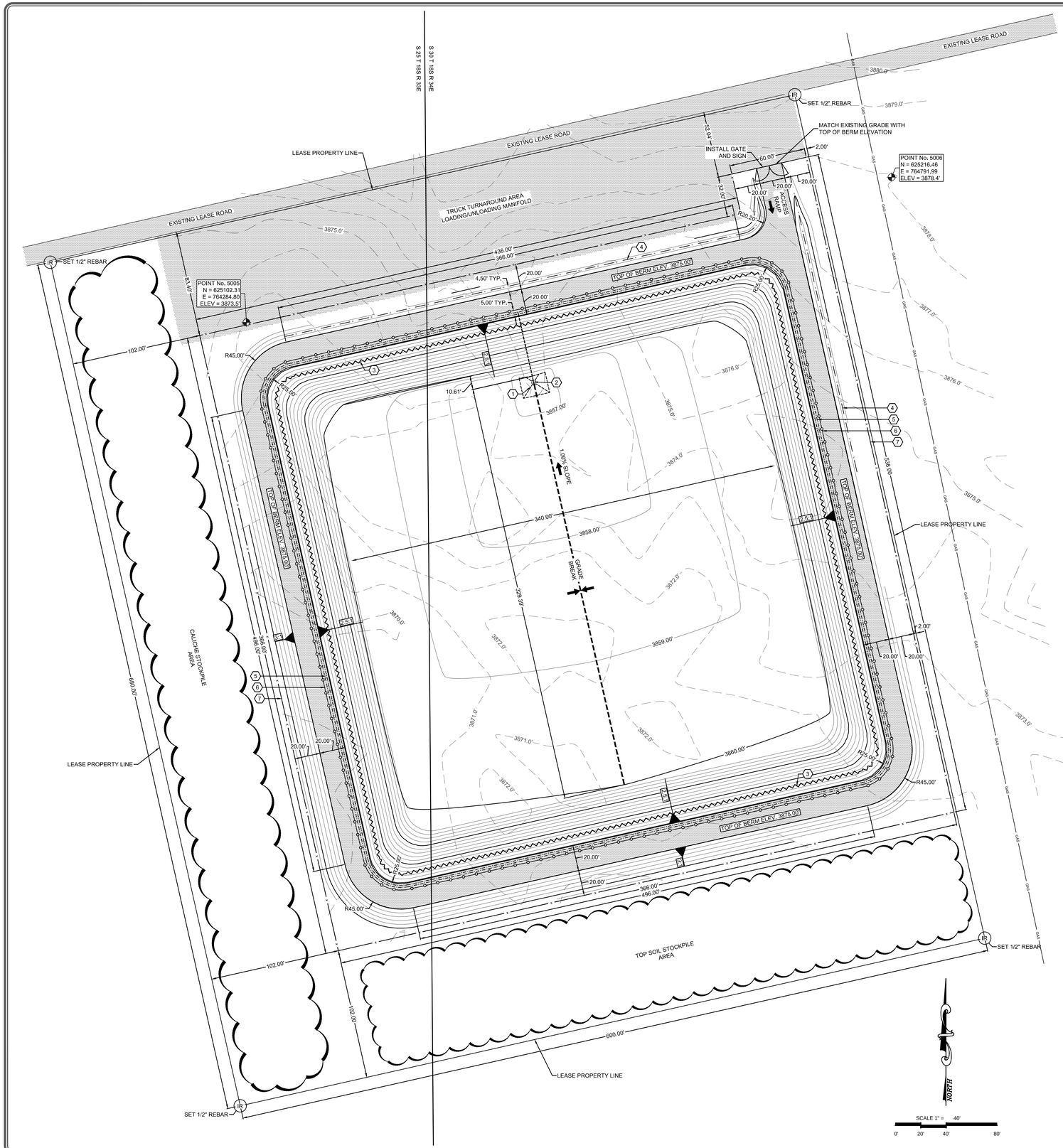
SEELY
CONTAINMENT
MCELVAIN ENERGY INC.

S 25, T 18S, R 33E
S 30, T 18S, R 34E
LEA COUNTY, NEW MEXICO

PROJECT NUMBER: 2016.1145

SHEET: C-001

Z:\2016.1145\Engineering\ACAD\C - 001.dwg 8/5/2016 11:46 AM



KEYED NOTES

1. 3'X3' LEAK DETECTION SUMP PER DETAIL 1, SHEET CS-501
2. LEAK DETECTION SYSTEM PIPING- 4" SCHEDULE 80. PVC PER DETAILS 2 & 3, SHEET CS-501
3. 3' FREEBOARD DEPTH (ELEV. 3872.00')
4. DITCH FLOWLINE PER DETAIL 5, SHEET CS-501 (GRADE TO DRAIN)
5. ANCHOR TRENCH PER DETAIL 4, SHEET CS-501
6. CONTAINMENT FENCE WITH NETTING
7. 4 STRAND BARBED WIRE PERIMETER FENCE PER DETAIL 6, SHEET CS-501

GENERAL NOTES

1. THE PROPOSED DESIGN IS BASED ON TOPOGRAPHIC AND BOUNDARY INFORMATION OBTAINED FROM BASIN SURVEYS TRACT W.O. NUMBER: 32381 DATED: 7-18-2016.
2. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT CONSTRUCTION PLANS OF THE REGISTRATION/PERMIT. NEW MEXICO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION LATEST EDITION SHALL APPLY TO THIS PROJECT.
3. EXISTING GAS LINE IS LOCATED OUTSIDE THE PROPERTY. THE LOCATION OF THESE LINES IS BASED ON THE BASIN SURVEY PLAT. ALL DATA SHOWN HEREIN CONCERNING EXISTING PRIVATE AND/OR PUBLIC OWNED UTILITIES HAVE BEEN OBTAINED FROM THE OWNERS AND/OR FIELD OBSERVATIONS. THESE MAY OR MAY NOT BE ACCURATE. THE CONTRACTOR IS CAUTIONED THAT HE IS RESPONSIBLE FOR THE EXACT LOCATION AND PROTECTION OF ALL LINES DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING, IN ADVANCE OF HIS/HER CONSTRUCTION OPERATIONS, IF OVERHEAD UTILITY LINES, SUPPORT STRUCTURES, POLES, GUYS, ETC. ARE AN OBSTRUCTION TO CONSTRUCTION OPERATIONS. IF ANY OBSTRUCTION IS EVIDENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE APPROPRIATE UTILITY OWNER TO REMOVE OR SUPPORT THE UTILITY OBSTRUCTION. ANY COST ASSOCIATED WITH THIS EFFORT IS INCIDENTAL TO THE PROJECT.
4. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO SECURE AND SUPPLY WATER FOR THE PROJECT.
5. THE BOTTOM OF PIT SHALL BE SLOPED AT A MINIMUM 1.0% AS SHOWN.
6. THE PERIMETER OF PIT SHALL BE ENCLOSED WITH BARBED WIRE FENCE OR GAME FENCE AS PRESCRIBED BY DESIGN/CONSTRUCTION PLAN IN REGISTRATION/PERMIT APPLICATION.
7. STRIP AND STOCKPILE TOP SOIL FOR FUTURE CLOSURE USE. NEW MEXICO ACT CODE SPECIFICATIONS, 19.15.34 NMAC AND (DESIGN AND CONSTRUCTION SPECIFICATIONS FOR A RECYCLING CONTAINMENT IN REGISTRATION/PERMIT) SHALL APPLY TO THIS PROJECT.
8. THE RECYCLING CONTAINMENT SHALL HAVE A PROPERLY CONSTRUCTED FOUNDATION AND INTERIOR SLOPES CONSISTING OF A FIRM, UNYIELDING BASE, SMOOTH AND FREE OF ROCKS, DEBRIS, SHARP EDGES OR IRREGULARITIES TO PREVENT THE LINER'S RUPTURE OR TEAR. GEOTEXTILE IS REQUIRED UNDER AND OVER THE LINER WHEN NEEDED TO REDUCE LOCALIZED STRESS-STRAIN OR PROTUBERANCES THAT OTHERWISE MAY COMPROMISE THE LINER'S INTEGRITY.
9. AS DESCRIBED IN THE DESIGN/CONSTRUCTION PLANS OF THE REGISTRATION/PERMIT, ALL PRIMARY (UPPER) LINERS IN A RECYCLING CONTAINMENT SHALL BE GEOMEMBRANE LINERS COMPOSED OF AN IMPERVIOUS, SYNTHETIC MATERIAL THAT IS RESISTANT TO ULTRAVIOLET LIGHT, PETROLEUM HYDROCARBONS, SALTS AND ACIDIC AND ALKALINE SOLUTIONS. ALL PRIMARY LINERS SHALL BE 30-MIL FLEXIBLE PVC, 45-MIL LLDPE STRING REINFORCED OR 60-MIL HDPE LINERS. SECONDARY LINERS SHALL BE 30-MIL LLDPE STRING REINFORCED OR EQUIVALENT WITH A HYDRAULIC CONDUCTIVITY NO GREATER THAN 1 X 10-9 CM/SEC. LINER COMPATIBILITY SHALL MEET OR EXCEED THE EPA SW-846 METHOD 9090A OR SUBSEQUENT RELEVANT PUBLICATIONS.
10. LINER SEAMS SHALL BE MINIMIZED AND ORIENTED UP AND DOWN, NOT ACROSS, A SLOPE OF THE LEVEE. FACTORY WELDED SEAMS SHALL BE USED WHERE POSSIBLE.
11. UNLESS DIFFERENTLY STATED IN THE CONSTRUCTION PLAN OF THE REGISTRATION PERMIT,THE OPERATOR SHALL ENSURE FIELD SEAMS IN GEOSYNTHETIC MATERIAL ARE THERMALLY SEAMED. PRIOR TO FIELD SEAMING, THE OPERATOR SHALL OVERLAP LINERS FOUR TO SIX INCHES. THE OPERATOR SHALL MINIMIZE THE NUMBER OF FIELD SEAMS AND CORNERS AND IRREGULARLY SHAPED AREAS. THERE SHALL BE NO HORIZONTAL SEAMS WITHIN FIVE FEET OF THE SLOPE'S TOE. QUALIFIED PERSONNEL SHALL PERFORM FIELD WELDING AND TESTING.
12. AT A POINT OF DISCHARGE INTO OR SUCTION FROM THE RECYCLING CONTAINMENT, THE OPERATOR SHALL INSURE THAT THE LINER IS PROTECTED FROM EXCESSIVE HYDROSTATIC FORCE OR MECHANICAL DAMAGE. EXTERNAL DISCHARGE OR SUCTION LINES SHALL NOT PENETRATE THE LINER.
13. THE OPERATOR SHALL POST AN UPRIGHT SIGN NO LESS THAN 12 INCHES BY 24 INCHES WITH LETTERING NOT LESS THAN TWO INCHES IN HEIGHT IN A CONSPICUOUS PLACE ON THE FENCE SURROUNDING THE CONTAINMENT. THE OPERATOR SHALL POST THE SIGN IN A MANNER AND LOCATION SUCH THAT A PERSON CAN EASILY READ THE LEGEND. THE SIGN SHALL PROVIDE THE FOLLOWING INFORMATION: THE OPERATOR'S NAME, THE LOCATION OF THE SITE BY QUARTER-QUARTER OR UNIT LETTER, SECTION, TOWNSHIP AND RANGE, AND EMERGENCY TELEPHONE NUMBERS.
14. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT NEW MEXICO 811 (FORMERLY NEW MEXICO ONE CALL) A MINIMUM OF 48 HOURS BEFORE EXCAVATION. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL DESIGNATED UNDERGROUND UTILITIES. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
15. DURING CONSTRUCTION OF THE CONTAINMENT, THE CONTRACTOR WILL REPORT AND RESPOND TO ANY SPILLS OF HAZARDOUS MATERIALS SUCH AS GASOLINE, DIESEL, MOTOR OILS, SOLVENTS, CHEMICALS. TOXIC OR CORROSIVE SUBSTANCES, ETC. A SPILL IS DEFINED AS ANY RELEASE OF A CORROSIVE, HAZARDOUS, TOXIC OR RADIOACTIVE SUBSTANCE THAT MAY BE A THREAT TO PUBLIC HEALTH OR THE ENVIRONMENT. REPORTS OF SPILLS WILL BE MADE IMMEDIATELY TO BOTH THE NEW MEXICO ENVIRONMENT DEPARTMENT EMERGENCY RESPONSE TEAM (505-827-9329 OR 866-428-6535) AND THE LEA COUNTY EMERGENCY DISPATCHER (575-616-7155). THE CONTRACTOR WILL BE RESPONSIBLE FOR REPORTING AND CLEANUP OF ANY SPILL ASSOCIATED WITH PROJECT CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE FOR REPORTING ANY DISCOVERIES OF PAST SPILLS OR CURRENT SPILLS NOT ASSOCIATED WITH CONSTRUCTION.
16. CONTRACTOR MUST OBTAIN CLIENT PERMISSION BEFORE SALVAGING ANY ITEMS SPECIFIED FOR REMOVAL AND DISPOSAL AFTER COMPLETION OF CONSTRUCTION OF THE CONTAINMENT.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING DISPOSAL SITES THAT ARE ENVIRONMENTALLY SUITABLE FOR DISPOSAL OF ITEMS NOT SPECIFIED TO BE SALVAGED. THE CONTRACTOR IS EXPECTED TO ABIDE BY ALL FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS IN OBTAINING THE NECESSARY PERMITS FROM ALL APPLICABLE AGENCIES AND/OR PRIVATE PROPERTY OWNERS. ALL COSTS ASSOCIATED WITH OBTAINING THESE PERMITS SHALL BE INCIDENTAL TO THE COMPLETION OF THE PROJECT AND NO DIRECT MEASUREMENT OR PAYMENT SHALL BE MADE THEREFORE. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH COPIES OF ALL PERTINENT INFORMATION, AGREEMENTS, AND PERMITS RELATED TO DISPOSAL SITES UTILIZED. BORROW MATERIAL, ROCK WASTE, AND VEGETATIVE DEBRIS SHALL NOT BE PLACED IN WETLANDS, ARROYOS, OR AREAS THAT MAY IMPACT THREATENED OR ENDANGERED SPECIES. ARCHEOLOGICAL AND ENVIRONMENTAL CLEARANCES MUST BE OBTAINED BEFORE DISPOSAL.

RECYCLING CONTAINMENT	
TOP OF BERM ELEVATION	3875.00 FT
HIGH WATER ELEVATION	3872.00 FT
BOTTOM OF POND ELEVATION	3860.00 FT
SUMP ELEVATION	3856.70 FT
TOTAL CONTAINMENT VOLUME	400,200 BBL
TOTAL FLUID VOLUME BELOW 3' FREEBOARD ELEVATION	320,000 BBL

PETTIGREW & ASSOCIATES PA
ENGINEERING | SURVEYING | TESTING
DEFINING QUALITY SINCE 1965
100 E. Navajo Drive Suite 100 Hobbs New Mexico 88240
T 575 393 9827 F 575 393 1543
Pettigrew.us

CLAUDIUS SANCHEZ CZYZEWSKA NEW MEXICO 22897 PROFESSIONAL ENGINEER

08/05/2016

PROJECT ENGINEER:	Claudius Sanchez Czyzewska, PE
PROJECT DESIGNER:	Teo Cano, EI, Miguel Martinez
DRAWN BY:	TC, MM

LEGEND

- BARBED WIRE PERIMETER FENCE
- DITCH FLOWLINE
- EXIST. GRADE 1.0' CONTOUR
- EXIST. GRADE 5.0' CONTOUR
- FINISHED GRADE 1.0' CONTOUR
- FINISHED GRADE 5.0' CONTOUR
- DRIVING SURFACE
- 3' FREEBOARD DEPTH
- GAS — EXISTING GAS LINE
- CONTAINMENT FENCE
- ANCHOR TRENCH

REVISIONS

No.	DATE	DESCRIPTION

SITE GRADING PLAN
AND
GENERAL NOTES

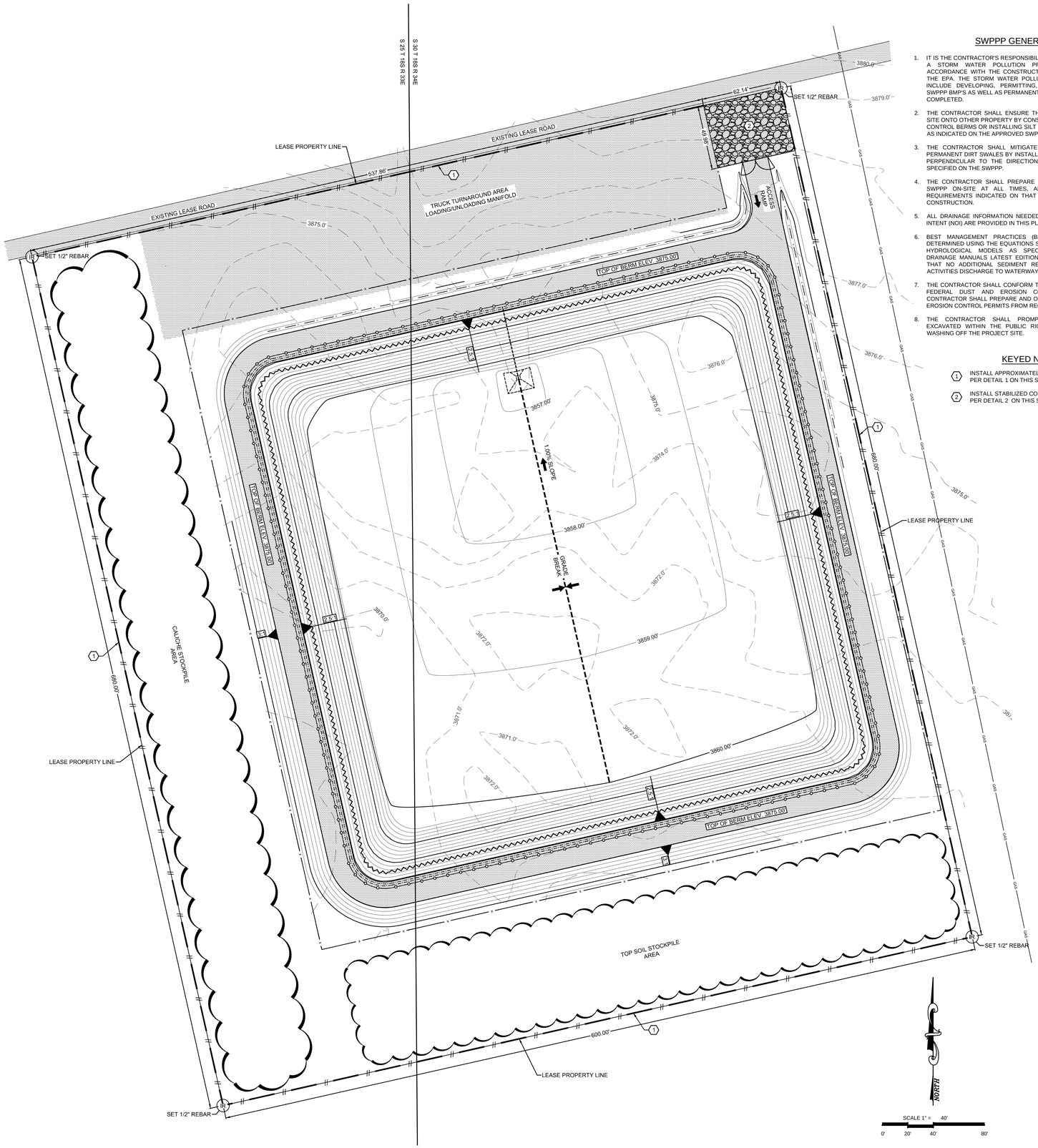
SEELY
CONTAINMENT
MCELVAIN ENERGY INC.

S 25, T 18S, R 33E
S 30, T 18S, R 34E
LEA COUNTY, NEW MEXICO

PROJECT NUMBER:
2016.1145

SHEET:
CS-101

Z:\2016.1145\Engineering\ACAD\CS-101.dwg 8/5/2016 11:53 AM

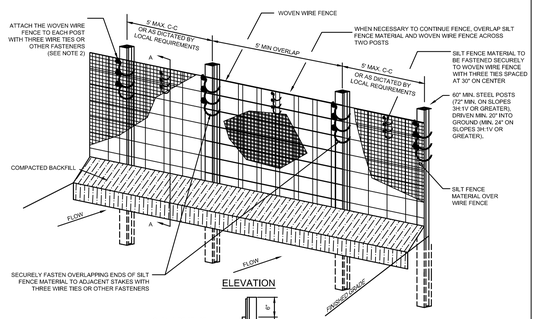


SWPPP GENERAL NOTES

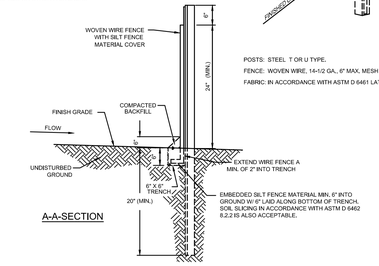
1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DEVELOP AND IMPLEMENT A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT (CGP) OF THE EPA. THE STORM WATER POLLUTION PREVENTION PLAN SHALL INCLUDE DEVELOPING, PERMITTING, INSTALLING AND MAINTAINING SWPPP BMP'S AS WELL AS PERMANENT SEEDING WHEN THE PROJECT IS COMPLETED.
2. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE ONTO OTHER PROPERTY BY CONSTRUCTING TEMPORARY EROSION CONTROL BERMS OR INSTALLING SILT FENCES AT THE PROPERTY LINES AS INDICATED ON THE APPROVED SWPPP.
3. THE CONTRACTOR SHALL MITIGATE EROSION OF TEMPORARY OR PERMANENT DIRT SWALES BY INSTALLING CHECK DAMS IN THE SWALES PERPENDICULAR TO THE DIRECTION OF FLOW, AND AT INTERVALS SPECIFIED ON THE SWPPP.
4. THE CONTRACTOR SHALL PREPARE AND MAINTAIN A COPY OF THE SWPPP ON-SITE AT ALL TIMES, AND SHALL COMPLY WITH THE REQUIREMENTS INDICATED ON THAT PLAN. COST IS INCIDENTAL TO CONSTRUCTION.
5. ALL DRAINAGE INFORMATION NEEDED TO COMPLETE THE NOTICE OF INTENT (NOI) ARE PROVIDED IN THIS PLAN.
6. BEST MANAGEMENT PRACTICES (BMPS) SHOWN ON TESCP ARE DETERMINED USING THE EQUATIONS SHON ON THIS SHEET AND OTHER HYDROLOGICAL MODELS AS SPECIFIED IN THE DEPARTMENT'S DRAINAGE MANUALS LATEST EDITION. BMPS CONTROL SEDIMENT SO THAT NO ADDITIONAL SEDIMENT RESULTING FORM CONSTRUCTION ACTIVITIES DISCHARGE TO WATERWAYS.
7. THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE AND FEDERAL DUST AND EROSION CONTROL REGULATIONS. THE CONTRACTOR SHALL PREPARE AND OBTAIN ANY NECESSARY DUST OR EROSION CONTROL PERMITS FROM REGULATORY AGENCIES.
8. THE CONTRACTOR SHALL PROMPTLY REMOVE ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY TO KEEP IT FROM WASHING OFF THE PROJECT SITE.

KEYED NOTES

1. INSTALL APPROXIMATELY 2,500 FT OF SILT FENCE PER DETAIL 1 ON THIS SHEET
2. INSTALL STABILIZED CONSTRUCTION ENTRANCE PER DETAIL 2 ON THIS SHEET



ELEVATION



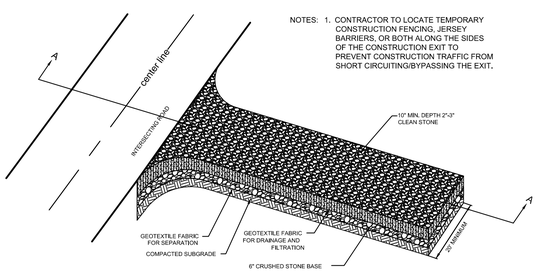
A-A-SECTION

1. INSTALLATION SHALL COMPLY WITH ASTM D 6462 LATEST EDITION.
2. ATTACH THE WOVEN WIRE FENCE TO EACH POST AND THE GEOTEXTILE TO THE WOVEN WIRE FENCE (SPACED EVERY 30") WITH THREE WIRE TIES OR OTHER FASTENERS, ALL SPACED WITHIN THE TOP 8" OF THE FABRIC. ATTACH EACH TIE DIAGONALLY 45 DEGREES THROUGH THE FABRIC, WITH EACH PUNCTURE AT LEAST 1" VERTICALLY APART. ALSO, EACH TIE PLACED ON A POST SHOULD BE POSITIONED TO HANG ON A POST NIPPLE WHEN TIGHTENED TO PREVENT SAGGING.
3. WHEN TWO SECTIONS OF SILT FENCE MATERIAL ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED A MINIMUM OF 60" ACROSS TWO POSTS, AS SHOWN.
4. MAINTENANCE SHALL BE PERFORMED AS NOTED IN THE SWPPP. DEPTH OF ACCUMULATED SEDIMENTS MAY NOT EXCEED ONE-HALF THE HEIGHT OF THE FENCE. MAINTENANCE CLEANOUT MUST BE CONDUCTED REGULARLY TO PREVENT ACCUMULATED SEDIMENTS FROM REACHING ONE-HALF THE HEIGHT OF THE SILT FENCE MATERIAL ABOVE GRADE.
5. ALL SILT FENCE SHALL INCLUDE WIRE SUPPORT UNLESS THE STATIC SLICING EQUIPMENT IS UTILIZED TO INSTALL THE FENCE.
6. WRAP APPROXIMATELY 6" OF FABRIC AROUND THE END POSTS AND SECURE WITH 3 TIES.
7. COMPACT THE SOIL IMMEDIATELY NEXT TO THE SILT FENCE FABRIC WITH THE FRONT WHEEL OF THE TRACTOR, SKID STEER, OR ROLLER EXERTING AT LEAST 60 POUNDS PER SQ. INCH. COMPACT THE UPSTREAM SIDE FIRST. COMPACT EACH SIDE TWICE FOR A TOTAL OF FOUR TRIPS.
8. ADD POST CAPS AS NEEDED BASED ON SITE CONDITIONS AND APPLICABLE AGENCY REQUIREMENTS.

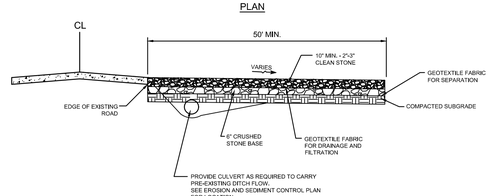
1 SILT FENCE DETAIL

SCALE: N.T.S.

NOTES: 1. CONTRACTOR TO LOCATE TEMPORARY CONSTRUCTION FENCING, JERSEY BARRIERS, OR BOTH ALONG THE SIDES OF THE CONSTRUCTION EXIT TO PREVENT CONSTRUCTION TRAFFIC FROM SHORT CIRCUITING/BYPASSING THE EXIT.



PLAN



SECTION A-A

2 CONSTRUCTION ENTRANCE DETAIL

SCALE: N.T.S.

PETTIGREW & ASSOCIATES PA
ENGINEERING | SURVEYING | TESTING
DEFINING QUALITY SINCE 1965
100 E. Navajo Drive Suite 100 Hobbs New Mexico 88240
T 575 393 9827 F 575 393 1543
Pettigrew.us

CLAUDIUS SANCHEZ CZYZEWSKA NEW MEXICO 22897 PROFESSIONAL ENGINEER

08/05/2016

PROJECT ENGINEER:	Claudius Sanchez Czyzewska, PE
PROJECT DESIGNER:	Teo Cano, EI. Miguel Martinez
DRAWN BY:	TC, MM

LEGEND

- BARBED WIRE PERIMETER FENCE
- DITCH FLOWLINE
- EXIST. GRADE 1.0' CONTOUR
- EXIST. GRADE 5.0' CONTOUR
- FINISHED GRADE 1.0' CONTOUR
- FINISHED GRADE 5.0' CONTOUR
- DRIVING SURFACE
- 3' FREEBOARD DEPTH
- GAS — EXISTING GAS LINE
- CONTAINMENT FENCE
- ANCHOR TRENCH
- SILT FENCE
- STABILIZED CONSTRUCTION ENTRANCE

REVISIONS

No.	DATE	DESCRIPTION

SEDIMENT CONTROL AND EROSION PROTECTION PLAN

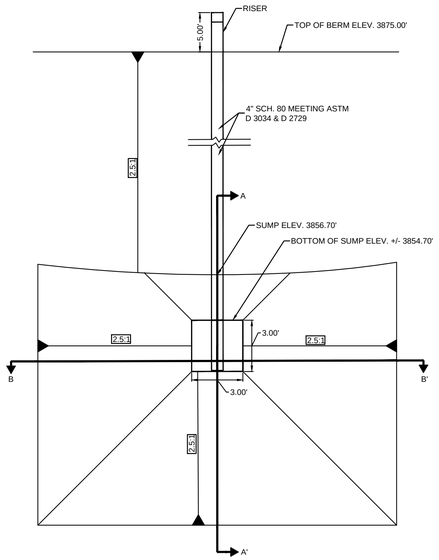
SEELY
CONTAINMENT
MCELVAIN ENERGY INC.

S 25, T 18S, R 33E
S 30, T 18S, R 34E
LEA COUNTY, NEW MEXICO

PROJECT NUMBER:
2016.1145

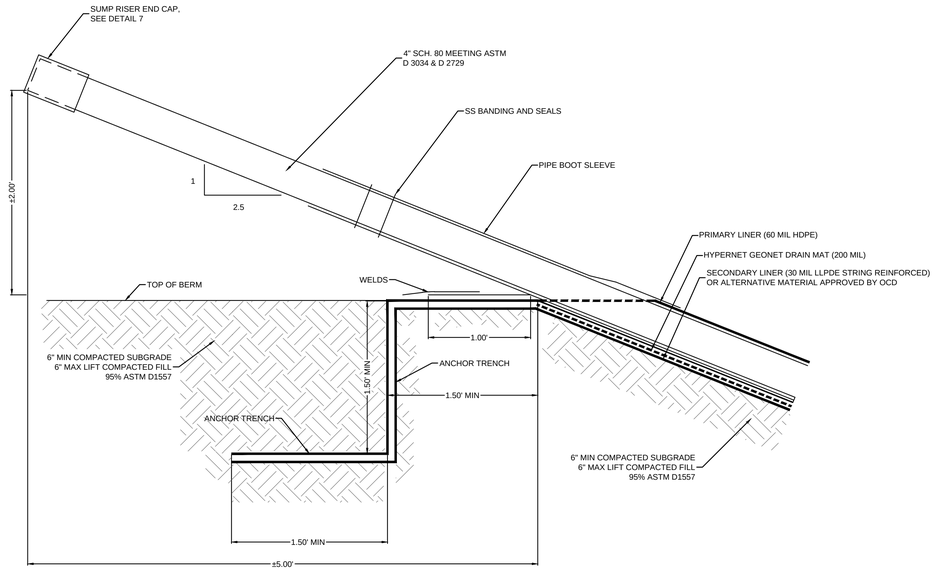
SHEET:
CS-201

Z:\2016.1145\Engineering\ACAD\CS-201.dwg 8/5/2016 11:54 AM



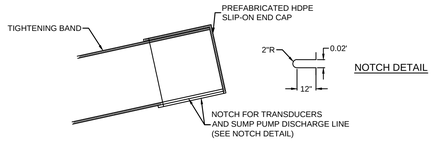
1 LEAK DETECTION SYSTEM SUMP PLAN

SCALE: N.T.S.



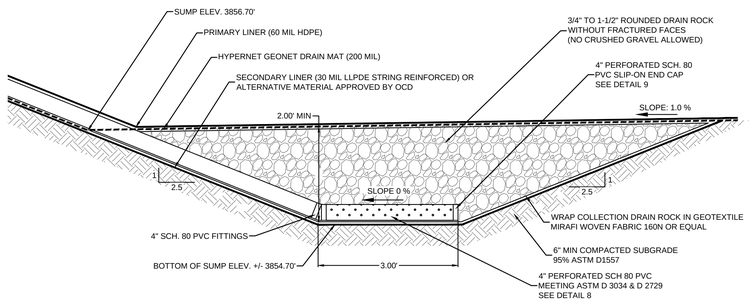
4 LEAK DETECTION SYSTEM TYPICAL ANCHOR TRENCH AND RISER DETAIL

SCALE: N.T.S.



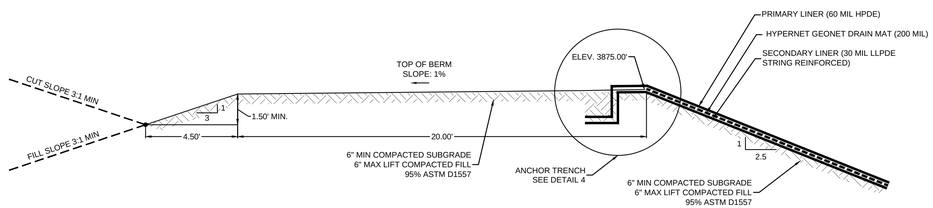
7 SUMP RISER END CAP

SCALE: N.T.S.



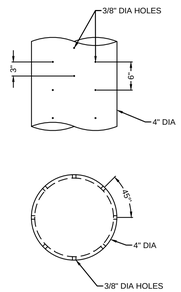
2 LEAK DETECTION SYSTEM SUMP DETAIL SECTION A-A'

SCALE: N.T.S.



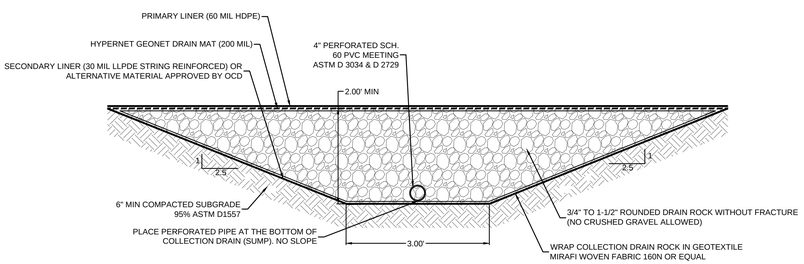
5 TOP OF BERM AND TYPICAL CONTAINMENT EDGE DETAIL

SCALE: N.T.S.



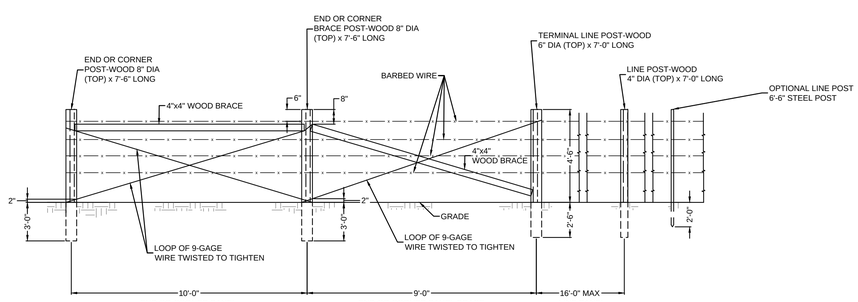
8 LEAK DETECTION SYSTEM PIPE PERFORATION DETAIL

SCALE: N.T.S.



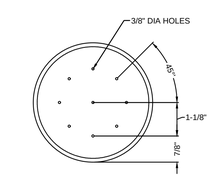
3 LEAK DETECTION SYSTEM SUMP DETAIL SECTION B-B'

SCALE: N.T.S.



6 4 STRAND BARBED WIRE FENCE

SCALE: N.T.S.



9 LEAK DETECTION SYSTEM PERFORATED END CAP DETAIL

SCALE: N.T.S.

PETTIGREW & ASSOCIATES PA
ENGINEERING | SURVEYING | TESTING
DEFINING QUALITY SINCE 1965
100 E. Navajo Drive Suite 100 Hobbs New Mexico 88240
T 575 393 9827 F 575 393 1543
Pettigrew.us

CLAUDIUS SANCHEZ CZYZEWSKA
NEW MEXICO
22897
PROFESSIONAL ENGINEER

08/05/2016

PROJECT ENGINEER:	Claudius Sanchez Czyzewska, PE
PROJECT DESIGNER:	Teo Cano, EI, Miguel Martinez
DRAWN BY:	TC, MM

REVISIONS

No.	DATE	DESCRIPTION

DETAILS

SEELY
CONTAINMENT
MCELVAIN ENERGY INC.

S 25, T 18S, R33E
S 30, T 18S, R 34E
LEA COUNTY, NEW MEXICO

PROJECT NUMBER:
2016.1145

SHEET:
CS-501

Appendix B

Design/Construction Plan

C-147 Supplemental Information:Appendix B
Design and Construction Plan - Lined Earthen Containments

Applicable mandates in Rule 34 are underlined. This plan addresses construction of lined earthen containments. Appendix A presents Preliminary Design Plans. Appendix C provides liner and geotextile specifications. As-built plans will be submitted to the OCD and surface owner upon completion of the containment.

Field conditions may create the need for minor modification of the containment design (e.g. changing the length, width or depth.

Dike Protection and Structural Integrity

Design elements are addressed in the section of this submission containing the engineering drawings. The recommendations for compaction and preparation of the liner foundation will be based on site-specific and nearby data. The operator, engineer, and selected contractor will review the recommendations prior to beginning work on the liner foundation and adhere to the specific recommendations.

The design and operation provide for the confinement of produced water, to prevent releases and to prevent overtopping due to wave action or rainfall. Additionally, the design prevents run-on of surface water as the containment is surrounded by an above-grade levee (a berm) and diversion ditch (between the levee and the soil stockpile) to prevent run-on of surface water.

Stockpile Topsoil

Where topsoil is present, prior to constructing containment, the operator will strip and stockpile the topsoil for use as the final cover or fill at the time of closure. The topsoil will be stockpiled adjacent to containment levee, outside of working areas. The operator will take care to limit the height of the soil stockpile to allow the soil to remain aerobic.

Signage

The design calls for an upright sign no less than 12 inches by 24 inches with lettering not less than two inches in height in a conspicuous place on the fence surrounding the containment. The sign is posted in a manner and location such that a person can easily read the legend. The sign will provide the following information:

- the operator's name,
- the location of the site by quarter-quarter or unit letter, section, township and range, and
- emergency telephone numbers

Fencing

The design provides for a fence to enclose the recycling containment in a manner that deters unauthorized wildlife and human access. The design calls for a two fence systems around the containment to exclude wildlife (see detail on last page of engineering design). The perimeter fence is the minimum required: a barbed wire fence with four strands evenly spaced in the interval between one foot and four feet above ground level. The second fence system is part of the containment netting and is shown in the design draw. As stated in the O&M plan, the operator will ensure that all gates associated with the fence are closed and locked when responsible personnel are not onsite.

Figure B-1: The secondary fence system supports the netting and excludes wildlife. Rather than chain link fencing as shown above, McElvain will employ 4-strand barbed wire. The pipes leading from the containment to the work area outside of the fence are for pumping water to E&P activities. The small pipe between the steel pipes is the riser for the leak detection system.

Netting and Protection of Wildlife

The perimeter fence will be effective in excluding stock and some terrestrial wildlife. The secondary fence (4-strand barbed wire) can include a fine mesh from the base to 1 foot above the ground to exclude the small reptiles (e.g. dune sagebrush lizard) if requested by the surface owner.

The recycling containment is netted to be protective of wildlife, including migratory birds. The O&M plan calls for the operator to inspect for and, within 30 days of discovery, report the discovery of dead migratory birds or other wildlife to the appropriate wildlife agency and to the division district office in order to facilitate assessment and implementation of measures to prevent incidents from reoccurring.

Earthwork

As part of this plan, geotechnical testing will be performed during construction to develop recommendations regarding the foundation for the containment liner. The containment will have a properly constructed foundation and interior slopes consisting of a firm, unyielding base, smooth and free of rocks, debris, sharp edges or irregularities to prevent the liner's rupture or tear. Geotextile may be placed under the liner when needed to reduce localized stress-strain or protuberances that otherwise may compromise the liner's integrity.

Appendix A shows the

a. levee has inside grade no steeper than two horizontal feet to one vertical foot (2H: 1V).

b. levee outside grade is no steeper than three horizontal feet to one vertical foot (3H: 1V)
a. top of the levee is wide enough to install an anchor trench and provide adequate room for inspection and maintenance.
b. caliche gravel placed on the outside levee provides additional erosion control.
c. The containment is excavated into the ground such that most of fluid force lies against native earth and the engineered foundation (see Appendix A)

Field conditions may create the need for changes to the design. Any changes to the construction or grade requirements due to unforeseen conditions will be reviewed and approved prior to initiating installation of the liner system. Any design change that does not conform to the NMOCD Rule will be the subject of a variance request and will be submitted to the OCD for review and approval.

Liner and Drainage Geotextile Installation

The containment has a primary (upper) liner and a secondary (lower) liner with a leak detection system appropriate to the site's conditions.

The primary (upper) liner is a geomembrane liner composed of an impervious, synthetic material that is resistant to ultraviolet light, petroleum hydrocarbons, salts and acidic and alkaline solutions. It is 60-mil HDPE. The secondary liner is 30-mil LLDPE string reinforced. Liner compatibility meets or exceeds a subsequent relevant publication to EPA SW -846 method 9090A.

The recycling containment design has a leak detection system between the upper and lower geomembrane liners of 200-mil geonet to facilitate drainage. The leak detection system consists of a properly designed drainage and collection and removal system placed above the lower geomembrane liner in depressions and sloped to facilitate the earliest possible leak detection. The containment floor design calls for a slope of approximately 1% toward the sump in the northeast corner. This slope combined with the highly transmissive geonet drainage layer provide for the earliest possible leak detection.

The liners and drainage material will be installed consistent with the Manufacture's specifications (See Appendix C). In addition to any specifications of the Manufacturer, protocols for liner installation include measures to:

i. minimizing liner seams and orient them up and down, not across, a slope of the levee.
ii. use factory welded seams where possible.
iii. use field seams in geosynthetic material are thermally seamed and prior to field seaming, overlap liners four to six inches.
iv. minimize the number of field seams and comers and irregularly shaped areas.
v. provide for no horizontal seams within five feet of the slope's toe.
vi. use qualified personnel to perform field welding and testing.
vii. avoid excessive stress-strain on the liner
viii. The edges of all liners are anchored in the bottom of a compacted earth-filled

trench that is at least 18 inches deep

At points of discharge into the lined earthen containment the pipe configuration effectively protects the liner from excessive hydrostatic force or mechanical damage during filling.

The design show that at any point of discharge into or suction from the recycling containment, the liner is protected from excessive hydrostatic force or mechanical damage. External discharge or suction lines do not penetrate the liner.

Pumping from the containment to hydraulic fracturing operations is the responsibility of stimulation contractors. Typically, lines are permanently placed in the containment with floats attached to prevent damage to the liner system. The containment may be equipped with permanent HDPE stinger (supported by a sacrificial liner or geotextile) for withdrawal of fluid if the owner deems necessary during operations. Appendix A shows the details of the outflow pipes.

External discharge or suction lines do not penetrate the liner.

Leak Detection and Fluid Removal System Installation

The leak detection system, contains the following design elements

a. The 200-mil Hypernet drainage material between the primary and secondary liner that is sufficiently permeable to allow the transport of fluids to the observation ports (Appendices A and G).
b. The containment floor is sloped towards the monitoring riser pipe facilitate the earliest possible leak detection of the containment bottom. A pump may be placed in the observation port to provide for fluid removal.
c. Piping will withstand chemical attack from any seepage; structural loading from stresses and disturbances from overlying water, cover materials, equipment operation or expansion or contraction (see Appendix A).
d. The slope of the interior sub-grade is approximately 1%

Appendix C

Operating and Maintenance Plan

Operating and Maintenance Procedures

In this plan, underlined text represents the language of the Rule.

The operator will operate and maintain the lined earthen containment to contain liquids and solids (blow sand and minimal precipitates from the treated produced water) and maintain the integrity of the liner system in a manner that prevents contamination of fresh water and protects public health and the environment as described below. The purpose of the lined earthen containment is to facilitate recycling, reuse and reclamation of produced water derived from nearby oil and gas wells. During periods when water for E&P operations is not needed, produced water will discharge to one of the injection wells in the operator's SWD system. The containment will not be used for the disposal of produced water or other oilfield waste.

.

The operation of the containment is summarized below.

A. Via pipeline, produced water generated from nearby oil and gas wells is delivered to a treatment system located as indicated in the C-147.
B. After treatment, the produced water discharges into the containment
C. When required, treated produced water is removed from the containment for E&P operations. At this time, treated produced water will be used for drilling beneath the fresh water zones (beneath surface casing), for well stimulation (e.g. hydraulic fracturing) and other E&P uses as approved by OCD.
D. Whenever the maximum fluid capacity of the containment is reached, treatment and discharge to the containment ceases (see Freeboard and Overtopping Plan, below)
E. The operator will keep accurate records and shall report monthly to the division the total volume of water received for recycling, with the amount of fresh water received listed separately, and the total volume of water leaving the facility for disposition by use on form C-148.
F. The operator will maintain accurate records that identify the sources and disposition of all recycled water that shall be made available for review by the division upon request.
G. The containment shall be deemed to have ceased operations if less than 20% of the total fluid capacity is used every six months following the first withdrawal of produced water for use. The operator will report cessation of operations to the appropriate division district office. The appropriate division district office may grant an extension to this determination of cessation of operations not to exceed six months.

The operation of the lined earthen containment will follow the mandates listed below:

1. The operator will not discharge into or store any hazardous waste (as defined by 40 CFR 261 and NMAC 19.15.2.7.H.3) in the containments.
2. If the containment's primary liner is compromised above the fluid's surface, the operator will repair the damage or initiate replacement of the primary liner within 48 hours of discovery or seek an extension of time from the division district office.
3. If the primary liner is compromised below the fluid's surface, the operator will remove all fluid above the damage or leak within 48 hours of discovery, notify the division district office and repair the damage or replace the primary liner.
4. If any penetration of the containment liner is confirmed by sampling of fluid in the leak detection system (see Inspection and monitoring plan), The operator will

a. Begin and maintain fluid removal from the leak detection/pump-back system
b. Notify the district office within 48 hours (phone or email) of the discovery
c. Identify the location of the leak and
d. Repair the damage or, if necessary, replace the containment liner

5. The operator will install, or maintain on site, an oil absorbent boom or other device to contain an unanticipated release and the operator will remove any visible layer of oil from the surface of the recycling containment.
6. The operator will report releases of fluid in a manner consistent with NMAC 19.15.29
7. The containment will be operated to prevent the collection of surface water run-on.
8. The operator will maintain the containment free of miscellaneous solid waste or debris.
9. The operator will maintain at least three feet of freeboard for the containment and will use a free-standing staff gauge to allow easy determination of the required 3-foot of freeboard.
10. As described in the design/construction plan, the injection or withdrawal of fluids from the containment is accomplished through a hardware that prevents damage to the liner by erosion, fluid jets or impact from installation and removal of hoses or pipes.
11. The operator shall ensure that all gates associated with the fence are closed and locked when responsible personnel are not onsite.
12. The operator will maintain the fences in good repair

Monitoring, Inspection, and Reporting Plan

The operator will inspect the recycling containment and associated leak detection systems weekly while it contains fluids. The operator shall maintain a current log of such inspections and make the log available for review by the division upon request.

Weekly inspections consist of

- reading and recording the fluid height of staff gauges
- recording any evidence that the pond surface shows visible oil
- visually inspecting the containment's exposed liners
- checking the leak detection system for any evidence of a loss of integrity of the primary liner.

As stated above, if a liner's integrity is compromised, or if any penetration of the liner occurs above the water surface, then the operator will notify the District office within 48 hours (phone or email).

Monthly, the operator will

A. Inspect diversion ditches and berms around the containment to check for erosion and collection of surface water run-on.
B. Inspect the leak detection system for evidence of damage or malfunction and monitor for leakage
C. Inspect the containment for dead migratory birds and other wildlife. Within 30 days of discovery, report the discovery of dead migratory birds or other wildlife to the appropriate wildlife agency and to the division district office in order to facilitate assessment and implementation of measures to prevent incidents from reoccurring.
D. Report to the division the total volume of water received for recycling, with the amount of fresh water received listed separately, and the total volume of water leaving the facility for disposition by use on form C-148.

E. Record sources and disposition of all recycled water

The operator will maintain a log of all inspections and make the log available for the appropriate Division district office's review upon request. An example of the log is attached to this section of the permit application.

Freeboard and Overtopping Prevention Plan

The method of operation of the containment allows for maintaining freeboard with very few potential problems. When the capacity of the containment is reached (3-feet of freeboard), the discharge of treated produced water ceases and the produced water generated by nearby oil and gas wells is managed by one of the injection wells identified in Appendix E.

If rising water levels suggest that 3-feet of freeboard will not be maintained, the operator will implement one or more of the following options

I. Cease discharging treated produced water to the containment
II. Accelerate re-use of the treated produced water for purposes approved by the Division
III. Transfer treated produced water from the containment to injection wells

The reading of the staff gauge typically occurs daily when treatment operations are ongoing and weekly when discharge to the containment is not occurring.

Protocol for Leak Detection Monitoring, Fluid Removal and Reporting

As shown in Appendix A, the leak detection system includes a monitoring system. Any fluid released from the primary liner will flow to the collection sump where fluid level monitoring is possible at the monitoring riser pipe associated with the leak detection system (see Appendix A).

Staff may employ a portable electronic water level meter to determine if fluid exists in the monitoring riser pipe. Obtaining accurate readings of water levels in a sloped pipe beneath a containment can be a challenge. An electrician's wire snake may be required to push the probe to the bottom of the port and the probe may be fixed in a 2-inch pipe "dry housing" to avoid false readings due to water condensation on the pipe. There are many techniques to determine the existence of water in the sumps – including low flow pumps and a simple small bailer affixed to an electrician's snake. The operator will use the method that works best for this containment.

If seepage from the containment into the leak detection system is suspected by a positive fluid level measurement, the operator will

1. Re-measure fluid levels in the monitoring riser pipe on a daily basis for one week to determine the rate of seepage.
2. Collect a water sample from the monitoring riser pipe to confirm the seepage is treated produced water from the containment via field conductivity and chloride measurements.
3. Notify NMOCD of a confirmed positive detection in the system within 48-hours of sampling (initial notification).
4. Install a pump into the monitoring riser pipe sump to continually (manually on a daily basis or via automatic timers) remove fluids from the leak detection

system into the containment until the liner is repaired or replaced.

5. Dispatch a liner professional to inspect the portion of the containment suspected of leakage during a “low water” monitoring event.
6. Provide NMOCD a second report describing the inspection and/or repair within 20 days of the initial notification

If the point of release is obvious from a low water inspection, the liner professional will repair the loss of integrity. If the point of release cannot be determined by the inspection, the liner professional will develop a more robust plan to identify the point(s) of release. The inspection plan and schedule will be submitted to OCD with the second report. The operator will implement the plan upon OCD approval.

Appendix D
Closure Plan

In this plan, underlined text represents the language of the Rule.

After operations cease, the operator will remove all fluids within 60 days and close the containment within six months from the date the operator ceases operations from the containment for use.

The operator shall substantially restore the impacted surface area to

- the condition that existed prior to the construction of the recycling containment or
- to a condition imposed by federal, state trust land or tribal agencies on lands managed by those agencies as these provisions govern the obligations of any operator subject to those provisions,

As this containment will excavate caliche for future use and pay the surface owner (BLM) for the harvest and use of this material. We anticipate the surface owner will impose a closure design that conforms to one of a caliche mine rather than the condition that existed prior to construction. Until a change to closure as a caliche mine is required by BLM, the prescriptive mandates set forth in this plan will be in effect. The operator understands that a variance will be submitted to OCD to allow for any alternative closure protocol.

Excavation and Removal Closure Plan – Protocols and Procedures

The containment is expected to hold a small volume of solids, the majority of which will be windblown sand and dust with some mineral precipitates from the water

1. The operator will remove all liquids from the pits and either:
    a. Dispose of the liquids in a division-approved facility, or
    b. Recycle, reuse or reclaim the water for reuse in drilling and stimulation.
2. The operator will close the recycling containment by first removing all fluids, contents and synthetic liners and transferring these materials to a division approved facility.
3. After the removal of the pit contents and liners, soils beneath the containment will be tested by collection of a five-point (minimum) composite sample which includes stained or wet soils, if any, and that sample shall be analyzed for the constituents listed in Table I of 19.15.34.14.
4. After review of the laboratory results
    a. If any contaminant concentration is higher than the parameters listed in Table I, additional delineation may be required and the operator must receive approval before proceeding with closure.
    b. If all contaminant concentrations are less than or equal to the parameters listed in Table I, then the operator will proceed to
        i. backfill with non-waste containing, uncontaminated, earthen material. Or
        ii. undertake an alternative closure process pursuant to a variance request after approval by OCD

Reclamation and Re-vegetation

a. The operator will reclaim the containment's location to a safe and stable condition that blends with the surrounding undisturbed area.
b. Topsoils and subsoils shall be replaced to their original relative positions and contoured so as to achieve erosion control, long-term stability and preservation of surface water flow patterns.

c. The disturbed area shall then be reseeded in the first favorable growing season following closure of a recycling containment.

Closure Documentation

Within 60 days of closure completion, the operator shall submit a closure report on form C-147, including required attachments, to document all closure activities including sampling results and the details on any backfilling, capping or covering, where applicable. The closure report shall certify that all information in the report and attachments is correct and that the operator has complied with all applicable closure requirements and conditions specified in division rules or directives.

The operator shall notify the division when reclamation and re-vegetation are complete. Specifically the notice will document that all ground surface disturbing activities at the site have been completed, and a uniform vegetative cover has been established that reflects a life-form ratio of plus or minus fifty percent (50%) of pre-disturbance levels and a total percent plant cover of at least seventy percent (70%) of pre-disturbance levels, excluding noxious weeds.

