April 13, 2016 Reference No. 086232

Dr. Tomas Oberding
Energy, Minerals and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Dear Dr. Oberding:

Re: 2016 Work Plan
Bell Lake Compressor Station
Lea County, New Mexico
AP-120

On behalf of Transwestern Pipeline Company, LLC (Transwestern), GHD Services Inc. (GHD) appreciates the opportunity to submit this proposed work scope to assist in the development of a remediation strategy for the Bell Lake Compressor Station located in Lea County, New Mexico. The Bell Lake Compressor Station (Site) is located approximately 21 miles northeast of Jal, New Mexico. The legal description is Section 1, Township 24 South, Range 33 East in Lea County, New Mexico (Figure 1).

1. Project Understanding

The Bell Lake Gas Plant began operation in 1961. During past operations, natural gas pipeline liquid and process wastes were placed in three unlined impoundments located on the northeast quarter of the Site property. Wastes were also placed in one concrete lined impoundment located near the northwest corner of the property (Figure 2). Impacts to a shallow, unconfined, perched groundwater zone appear to have originated from the former unlined waste impoundments. Primary constituents of concern (COCs) at the Site are total dissolved solids (TDS), chloride, and benzene.

A soil vapor extraction (SVE) system with three SVE wells was installed in June 1996. The SVE system was expanded with four additional wells in 1997 and with six wells in 1999. Recovery of light, non-aqueous phase liquid (LNAPL) took place in SVE wells between 1998 and 2008.

SVE system monitoring results indicated that concentrations of volatile organic compounds content in extracted vapor declined from an initial concentration of 4,000 µg/L in January 1998 to a concentration of 140 µg/L in October 2012. As a result, operation of the SVE system was discontinued in October 2012.

GHD conducted a geophysical survey, confirmation soil sampling, and an aquifer pump test in 2014. The geophysical investigation indicated several potential areas of brine impact in the shallow subsurface. Analytical results for confirmation soil samples collected indicate that some total

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petroleum hydrocarbons (TPH) and chloride impacts exist in subsurface. Geophysical survey and soil sampling analytical data suggest that the majority of benzene, toluene, ethylbenzene, and xylene (BTEX) and chloride mass have migrated from soil to groundwater.

An aquifer pumping test indicated that while pumping SVE-9 at a rate ranging from 0.18 gallons per minute (gpm) to 0.32 gpm, the water level ranged from approximately 96 to 97 feet below ground surface (bgs) within the well with a drawdown of 4 to 5 feet. This indicates that the limited yield prevents development of a cone of depression at distances represented by the observation wells. Evaluation of the pumping test data indicated an estimated average hydraulic conductivity of 0.76 feet/day. Based on this low conductivity, a groundwater pump and treat system would not appear to be effective.

2. Proposed Scope of Work

2016 Tasks:

Task 1: Semiannual Groundwater Monitoring and Aquifer Testing

GHD will complete semi-annual groundwater monitoring events for 2016. The semiannual monitoring events have typically been performed in May and November. GHD proposes to sample the following monitoring wells: MW-2, MW-6, MW-7, MW-9, MW-12, MW-13, MW-14, MW-15, MW-16, SVE-3, SVE-5, and SVE-6 (See Figure 2). An oil/water interface probe will be used to measure groundwater depths and check for the presence of LNAPL in each of the monitoring wells. Before and after each use, the oil/water interface probe will be cleaned with an Alconox®/de-ionized water solution and rinsed with de-ionized water.

Monitoring wells will be purged and sampled using a dedicated, disposable polyethylene bailer or a low flow bladder pump. Field parameters including groundwater temperature, pH, TDS, conductivity, and oxidation/reduction potential (ORP) will be collected using an appropriate multi-parameter groundwater quality meter.

Following collection, groundwater samples will be labeled, placed on ice, and submitted to Hall Environmental Analysis Laboratory (HEAL) for laboratory analyses chlorides by Environmental Protection Agency (EPA) Method 300.0, BTEX by EPA Method 8260, and TDS by EPA Method 2540C.

Purge water generated during the monitoring event will be placed in the on-site tank and allowed to evaporate.

Aquifer Testing

An aquifer test was performed in 2015 that indicated a maximum pumping rate of 0.18 gallons per minute (GPM). The objective of the 2016 aquifer testing is to assess if that rate can be sustained for a significant period of time. The data may be used to support an argument that there is insufficient water for future use of the aquifer as a domestic and/or agricultural supply in accordance with New Mexico Administrative Code (NMAC) 20.6.2.3103.

It is anticipated that the aquifer test will be performed at the same time as one of the semi-annual groundwater monitoring events. The aquifer test will be performed on well SVE-9, whereby groundwater will be pumped from the well for a maximum period of 72 hours. To assess the radius of influence from pumping from SVE-9, water levels will be measured in wells SVE-8 (approximately 32 feet away) and SVE-12 (located approximately 33 feet away).

InSitu Level Troll 700 transducers will be used to collect water levels within the pumping well and listed monitoring wells. The Level Troll transducers will be placed in the wells a minimum of 8 hours prior to the start of the pump test to assess static water levels in these wells. In addition, manual water level measurements will be collected from the monitoring wells prior to the installation of the Level Trolls using a groundwater interface probe.

Water from the pump test will be containerized in the on-site tank located near SVE-12 and allowed to evaporate. Data from the aquifer test will be reduced to assess a constant flow rate for the formation.

Task 2: Site Closure Research

Data from the aquifer test may be used to pursue potential Site closure based on the lack of present or potential future use of the groundwater as a domestic or agricultural water supply as defined in Section 20.6.2.3101 NMAC. This task will consist of making a request for closure based on the site data and the regulation. GHD anticipates discussions with the NMOCD and possibly additional documentation may be required. Site closure through this pathway is not guaranteed, however, a best effort will be made. If the data collected from the aquifer test indicate that aquifer conditions would be insufficient to sustain domestic or agricultural use, proposed 2016 drilling activities (discussed below) will be postponed until a formal closure determination is made by the NMOCD.

Task 3: Groundwater Monitoring Well Installation

If drilling activities are not postponed by the aquifer test results, the new boring locations will be marked for utility location prior to mobilization of drilling equipment. GHD will confirm that the drilling subcontractor performs utility notifications at least 48-hours prior to mobilization as required by the State.

New monitoring wells (MW-17 and MW-18) will be installed in the locations indicated in Figure 2. Installation of the remaining three monitoring wells (MW-19, MW-20, and MW-21) will be deferred until 2017.

An air-rotary drilling rig will be used to advance the proposed borings to a depth of approximately 100 ft bgs (approximately 10 feet below the water table). The drilling rig will be operated by a licensed State of New Mexico water well driller. A GHD scientist will record the subsurface lithology and field screening data on soil boring logs. One sample from every 10 foot interval will be field screened for the presence of volatile organic vapors with a photo-ionization detector (PID) and chlorides using Hach QuanTab Chloride test strips. If the PID readings exceed 100 parts per million (ppm) or the chloride test strips indicate a concentration in excess of 250 ppm during field screening, then that sample may be subject to additional hydrocarbon or chloride analysis by laboratory methods. The total depth and construction of the well and nature of any soil sampling will be based on the professional judgment of the GHD scientist.

Upon completion of drilling, a groundwater monitoring well will be constructed in the boring. The groundwater monitoring well will be constructed with 2-inch (in) diameter polyvinyl chloride (PVC) casing and screen. The well screen interval will consist of 15 feet of 0.010-in machine-slotted screen. The well screen will be placed to straddle the vadose zone and groundwater. The annulus of the boring will be backfilled with 10/20 silica sand from the bottom of the boring to approximately 2 feet above the top of the well screen. A 3-foot thick bentonite seal will be placed above the sand pack. The remainder of the borehole annulus will be grouted with a cement/bentonite slurry. The well will be completed with an above ground surface completion placed within a minimum 24-in by 24-in by 4-in thick concrete pad.

The drill cuttings will be field screened for the presence of petroleum hydrocarbons and chlorides. If the field screening indicates that the cuttings are below regulatory limits, they will be thin spread on-Site. If field screening results indicate the soil cuttings are above 100 ppm for petroleum hydrocarbons or 250 mg/kg for chloride, soil cuttings will be placed in properly labeled 55-gallon steel drums, sampled for waste characterization by laboratory analysis, and staged for disposal. Once laboratory waste characterization results have been received, if levels are below regulatory limits, cutting will be thin spread onsite. If results are above regulatory limits, proper disposal will be coordinated.

The monitoring wells will be developed by bailing or pumping until parameters of pH, temperature, and conductivity readings stabilize (consisting of two readings within 10 percent of the average of the previous three readings). Well development water will be placed in the on-site tank and allowed to evaporate. Monitoring well locations and top of casing elevations will be surveyed by a New Mexico registered land surveyor.

Task 4: 2016 Annual Report Preparation

GHD will prepare an annual report summarizing the semi-annual groundwater monitoring and assessment data collected during the 2016 calendar year. The annual report will include tabulated analytical and gauging data, groundwater gradient and isopleth maps for contaminants of concern from the semiannual events, aquifer test results, details of monitoring well installation activities (if performed), and recommendations for future activities at the Site.

GHD appreciates the opportunity to submit this proposal to assist in the management, assessment, and closure of the Bell Lake Compressor Station project. Please feel free to contact either of us at 505-884-0672 if you have questions or comments.

Sincerely,

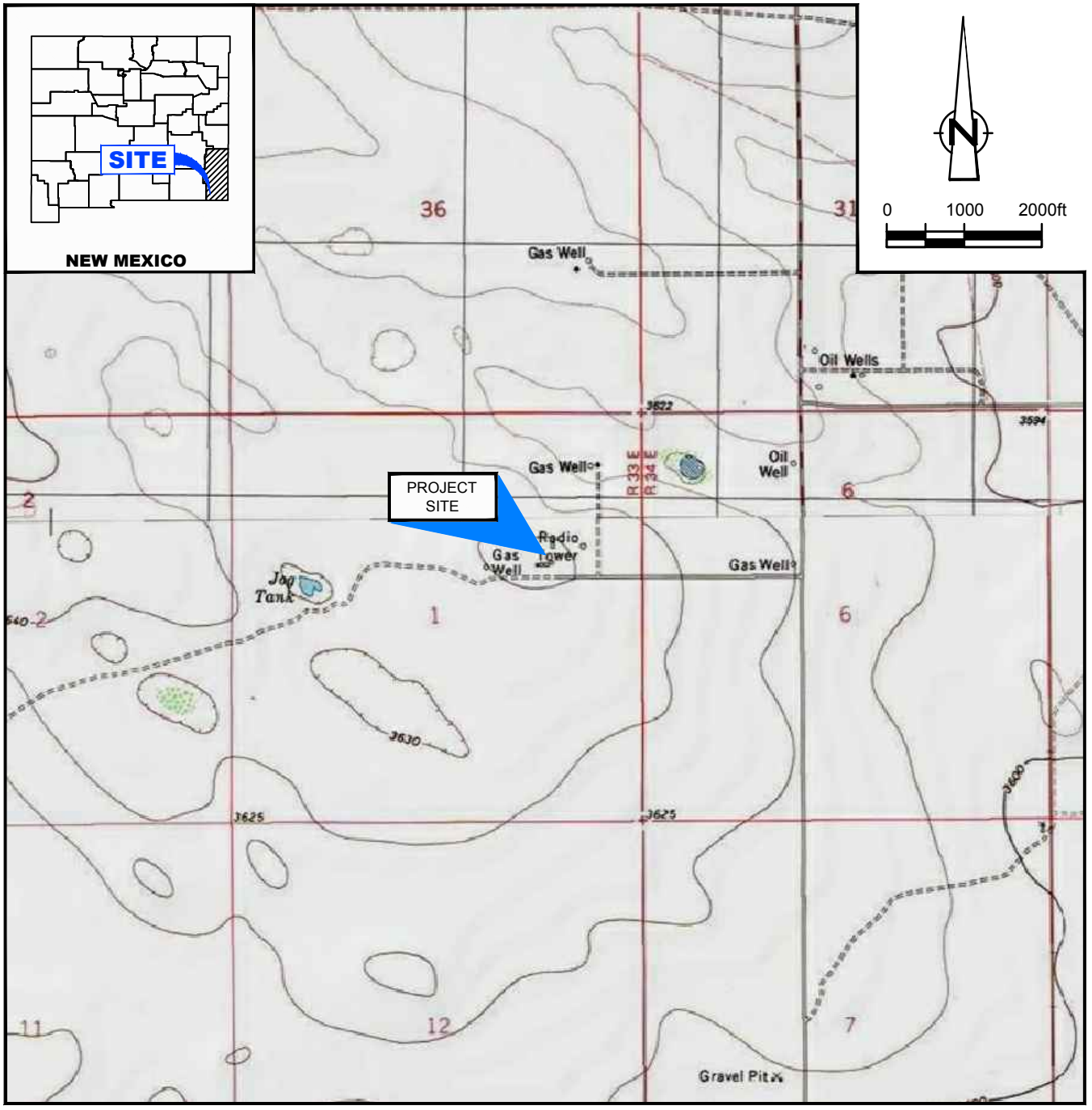
GHD

Cale Kanack
Project Scientist

Bernard Bockisch, PMP
Senior Project Manager

BB/mc/02

Figures



SOURCE: USGS 7.5 MINUTE QUAD
"BELL LAKE AND TIP TOP WELLS, NEW MEXICO"

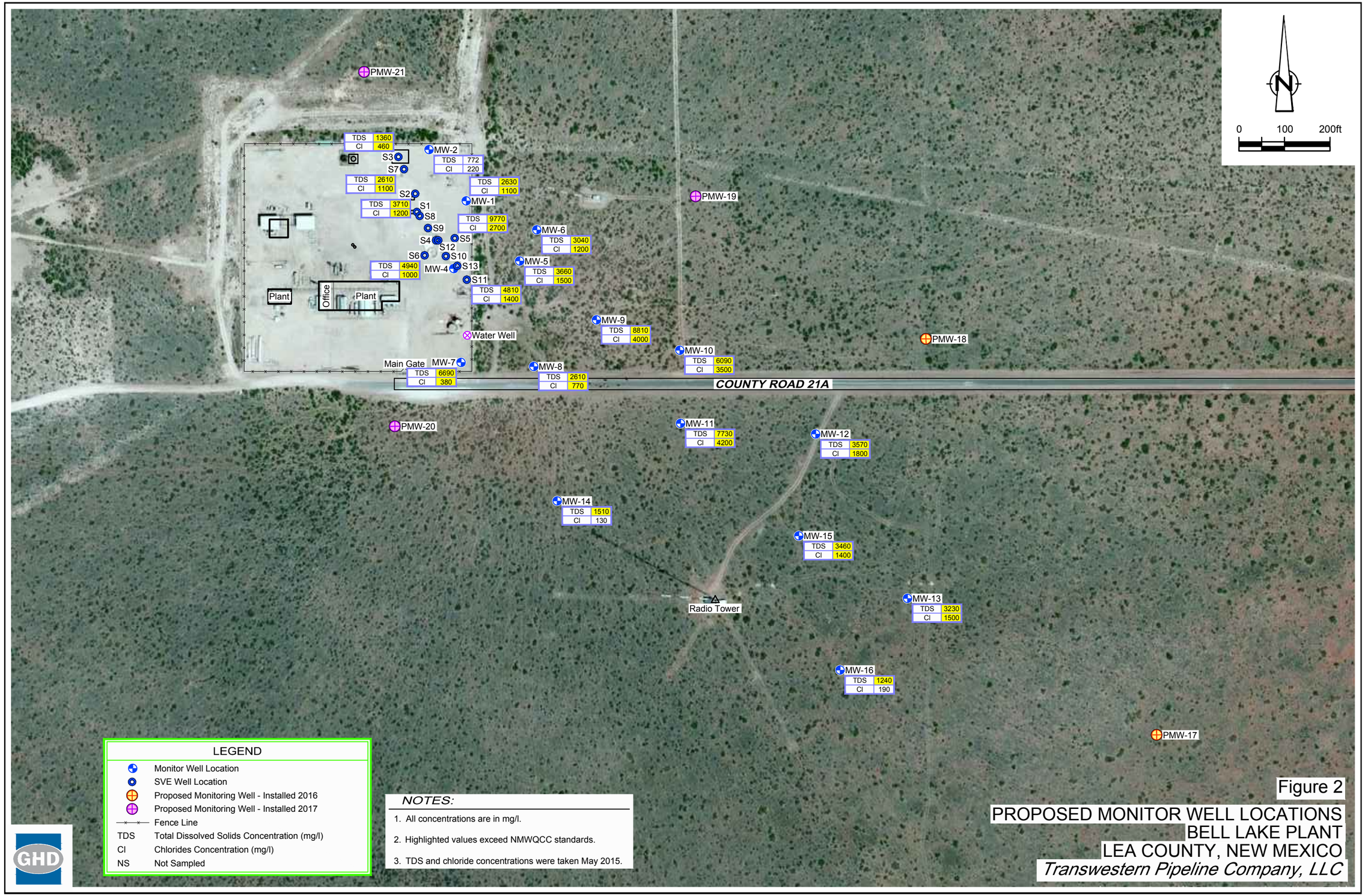
LAT/LONG: 32.2487° NORTH, 103.5215° WEST
COORDINATE: NAD83 DATUM, U.S. FOOT
STATE PLANE ZONE - NEW MEXICO EAST

Figure 1

SITE LOCATION MAP
BELL LAKE PLANT
LEA COUNTY, NEW MEXICO
Transwestern Pipeline Company, LLC

GHD

086232-00(003)GN-DL001 JUL 13/2015



LEGEND

	Monitor Well Location
	SVE Well Location
	Proposed Monitoring Well - Installed 2016
	Proposed Monitoring Well - Installed 2017
	Fence Line
TDS	Total Dissolved Solids Concentration (mg/l)
Cl	Chlorides Concentration (mg/l)
NS	Not Sampled

NOTES:

1. All concentrations are in mg/l.
2. Highlighted values exceed NMWQCC standards.
3. TDS and chloride concentrations were taken May 2015.

Figure 2

PROPOSED MONITOR WELL LOCATIONS
BELL LAKE PLANT
LEA COUNTY, NEW MEXICO
Transwestern Pipeline Company, LLC

086232-00(WORKPLAN)GN-DL004 MAR 24/2016