July 24, 2019

Mr. Jacob Evans
Noble Energy, Inc.
2115 117th Avenue
Greeley, Colorado 80631

Re: Proposed Monitoring Well Locations
Bierig 1-26
40.373436, -104.742267
NENE, Sec 26, 5N66W
Weld County, Colorado
Location ID: 322612

Dear Mr. Evans:

Apex Companies, LLC (Apex) submits this proposal for the installation of groundwater monitoring wells following soil excavation remediation at the Bierig 1-26 site (Location ID: 322612). Apex understands this work is being conducted to monitor groundwater quality following the soil remediation at this location. Soil remediation included both ex-situ soil treatment utilizing hydrogen peroxide and the excavation, transport, and disposal of impacted soil.

Monitoring Well Installation

Apex proposes the entire remediation area, including both the soil treatment area and the excavation area, be divided into four separate quadrants. The quadrants are divided based on the total depth of excavation in each area which ranges from 10 – 18 feet below ground surface (bgs). These depths were confirmed through the collection of base samples during the remediation processes. The total depth of the monitoring wells in each quadrant will be installed, at a minimum, five feet below the deepest base sample collected in that area, or five feet below the water table. Quadrant #1 consists of the soil excavation remediation area overseen by Apex. Quadrants #2 through #4 consist of those areas where soil treatment using hydrogen peroxide was conducted. The monitoring well locations are shown on Figure 1.

The following quadrants areas, and associated well depths in feet bgs, are proposed:

- Quadrant #1: Five monitoring wells are proposed in this quadrant. Monitoring wells MW1 through MW4 will be installed to 20 feet bgs based on the deepest base sample of 15 feet bgs. MW5 will be installed to 23 feet bgs based on the depth of the base samples in that area of the quadrant (18 feet bgs).

- Quadrant #2: Four monitoring wells are proposed in this quadrant. Monitoring wells MW6 through MW9 will be installed to 15 feet bgs based on the deepest base sample of 10 feet bgs.

- Quadrant #3: Four monitoring wells are proposed in this quadrant. Monitoring wells MW10 through MW13 will be installed to 17 feet bgs based on the deepest base samples being between 10 and 12 feet bgs.

- Quadrant #4: Four monitoring wells are proposed in this quadrant. Monitoring wells MW14 through MW7 will be installed to 18 feet bgs based on the deepest base sample of 12.5 feet bgs.

In addition to the seventeen wells placed in the four quadrants, four additional monitoring wells will be installed up-gradient, down-gradient, and cross-gradient of the remediation areas. These wells will be placed as follows:

- Two cross-gradient wells (MW18 and MW19), one down-gradient well (MW20), and one up-gradient well (MW21). These wells are outside the remediation areas and the final depths will be determined based on depth to groundwater observed during installation.

Prior to the initiation of drilling activities, all boring locations will be "potholed" to six feet bgs in order to verify that no underground utilities will be impacted. All monitoring wells will be installed as 1-inch diameter, schedule 40 PVC stand-alone wells, via hollow-stem auger technology, with each monitoring well being completed to industry standards. The monitoring wells will be completed at the surface with high-visibility lockable steel stickups. Each monitoring well will be surveyed to a relative datum for groundwater gradient estimations, and all wells will be developed prior to the initial groundwater sampling event. Collected groundwater samples will be submitted to Summit Scientific (Summit) in Golden, Colorado, for benzene, toluene, ethylbenzene and total xylenes (BTEX) laboratory analysis.

Soil Borings

In addition to the proposed monitoring wells, three soil borings (BH1, BH2, and BH3) will be placed in the vicinity of confirmation samples W02 and W03 and test pit TP26. Soil samples will be collected from these borings and submitted to Summit and analyzed for BTEX, naphthalene, total petroleum hydrocarbons-gasoline range organics (TPH-GRO), and total petroleum hydrocarbons-diesel range organics (TPH-DRO). These samples will be used to verify that soil remediation is complete in the area between where sample W02 and test pit TP26 were located. The proposed soil boring locations are presented on Figure 1.

Schedule

A drilling subcontractor will be scheduled to perform the soil borings and well installations following the approval of this proposal by the Colorado Oil & Gas Conservation Commission (COGCC). A site walk will be conducted prior to drilling to stake the proposed monitoring well and boring locations for utility clearances (811 OneCall and private utility locator). Apex estimates that three to four days will be required for utility clearance, potholing, drilling, and completion activities.

If you have any questions, please don't hesitate to contact me at 303.487.1020.

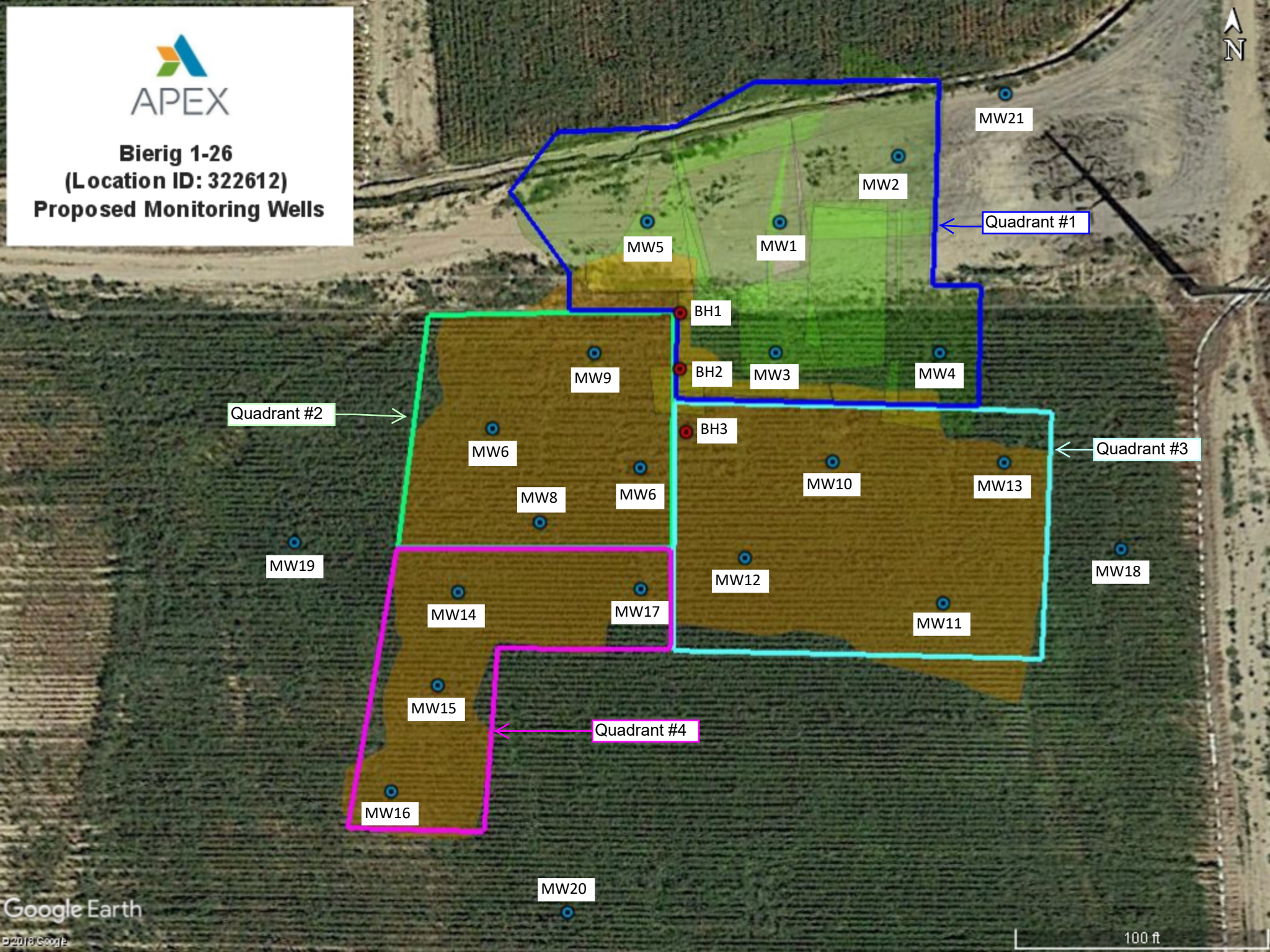
Sincerely,
Apex Companies, LLC

Ken Worthington

Ken Worthington
Project Manager

Attachments:

Figure 1 – Bierig 1-26– Proposed Monitoring Wells


APEX
Bierig 1-26
(Location ID: 322612)
Proposed Monitoring Wells
N
MW21
MW2
Quadrant #1
MW5
MW1
BH1
BH2
MW3
MW4
MW9
Quadrant #2
BH3
Quadrant #3
MW6
MW10
MW13
MW8
MW6
MW19
MW12
MW18
MW14
MW17
MW11
MW15
Quadrant #4
MW16
MW20
Google Earth
100 ft