

**FEATHER 31-15**

**PRODUCED WATER TANK RELEASE**

**API #: 05-123 -21075**

**Spill/Release Point ID #: 444673**

**Remediation Project #: Not Assigned**

## **EXCAVATION AND SITE ASSESSMENT REPORT**

March 31, 2017



Image: Google 2015

### **PREPARED ON BEHALF OF**

Noble Energy, Inc.  
1600 Broadway  
Denver, CO 80202



### **PREPARED BY**

Tasman Geosciences, Inc.  
6899 Pecos Street, Unit C  
Denver, CO 80221



March 31, 2017

Mr. Jacob Evans  
Noble Energy Inc.  
1600 Broadway  
Denver, CO 80202

Subject:       **Site Assessment Report**  
                  ***Feather 31-15 Produced Water Tank Release***  
                  Spill/Release Point ID: 444673  
                  NWNE S15 T2N R64W  
                  Weld County, Colorado

Dear Mr. Evans:

Below please find a copy of the above referenced Site Assessment Report (Report) for the Feather 31-15 Produced Water Tank Release site (Site) in Weld County, Colorado. The text below describes environmental remediation and associated confirmation sampling activities conducted between January 26, 2016 and January 24, 2017.

## **Introduction**

The purpose of this document is to describe the assessment activities, including soil and groundwater sampling, conducted at the Site. The activities described below were performed in response to a release discovered below the Feather 31-15 produced water tank.

## **Facility Background**

The Site is located approximately 2.07 miles north-northwest of Keenesburg in Weld County, Colorado (Figure 1). Surrounded by agricultural crop land, the Site legal description is the northwest 1/4 of the northeast 1/4 of Section 15, Township 2 north, Range 64 west, of the 6<sup>th</sup> Principal Meridian. The Site is located on relatively flat terrain that slopes gradually to the north-northeast. The Site is approximately 3,500 feet (ft.) east of County Road 55 and approximately 380 ft. north of the Feather 31-15 wellhead, and has coordinates of 40.145495°, -104.534330°.

As reported on the initial Form 19, a loss of produced water was detected at the Site, and production equipment was subsequently shut in.

## **Previous Field Activities**

### **Site Assessment – Soil**

On January 26, 2016, Tasman was retained to assess the soil and groundwater in an area adjacent to the Feather 31-15 produced water tank and produced water dump line. Nine boreholes and two groundwater monitoring wells were installed. Borehole and monitoring well locations are illustrated on Figure 2, and boring logs are included in Attachment A. During boring operations, soil samples were collected and field screened for volatile organic compounds (VOC) using a photoionization detector (PID) and standard headspace sampling techniques. Nine soil samples were submitted for laboratory analyses of benzene, toluene, ethylbenzene, and total xylenes (collectively referred to as BTEX), naphthalene, and total petroleum hydrocarbons-gasoline range organics (TPH-GRO) using

United States Environmental Protection Agency (USEPA) Method 8260B, and total petroleum hydrocarbons-diesel range organics (TPH-DRO) using USEPA Method 8015. Additionally, BH02@6 was analyzed for Sodium Adsorption Ratio (SAR) by USEPA Method 6020/United State Department of Agriculture (USDA) Method 60 6(2,3A) and Specific Conductance (EC) and pH via American Public Health Association (APHA)/American Society for Testing and Materials (ASTM)/USEPA methods.

## **Excavation Activities**

Excavation activities were conducted between March 2 and March 3, 2016. In order to guide the excavation and designate the appropriate removal of impacted material, soil samples were collected and field screened for volatile organic compounds (VOC) using a photoionization detector (PID) and standard headspace sampling techniques. A total of seven confirmation soil samples (SS01@16', SS02@16', SS03@16', SS04@16', SS05@16', SS06@16', and SS07@16') were retained during the excavation activities and submitted to Summit Scientific Laboratory in Golden, Colorado for laboratory analysis of BTEX, naphthalene, TPH-GRO using USEPA Method 8260B, and TPH-DRO using USEPA Method 8015. As summarized in Table 1 and illustrated on Figure 3, benzene and TPH were detected in samples SS01, SS02, SS04, SS05, SS06, and SS07 above Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1 soil standards. Approximately 600 cubic yards of impacted soil was removed during the excavation activities and transported to the Waste Management Buffalo Ridge landfill for disposal under signed waste manifests. Soil removal activities produced an excavation with final dimensions of approximately 38 ft. by 23 ft. by 20 ft. bgs, while 5-8 ft. of the overburden was surveyed with the PID during removal and retained as backfill. The excavation was backfilled with clean soil, and the immediate area was regraded to previous levels. Previously installed temporary monitoring wells were destroyed during the excavation activities.

Groundwater was encountered in the excavation at approximately 17 ft. Pooling of groundwater sufficient for collection with a bailer did not occur and a groundwater sample was not collected during excavation activities.

## **Site Assessment – Groundwater**

From August 28, 2016 through December 21, 2016, Tasman returned to site to advanced forty-three (43) additional boreholes, and subsequently install forty three monitoring wells to further delineate dissolved phase impacts to groundwater at the Site. Monitoring well locations are illustrated on Figure 2, and boring logs are included in Attachment A. During boring operations, soil samples were collected and field screened for VOCs using a PID and standard headspace sampling techniques. A total of 43 soil samples were submitted for laboratory analyses of BTEX, naphthalene, and TPH-GRO using USEPA Method 8260B, and TPH-DRO using USEPA Method 8015. Soil sample locations and laboratory analytical results are illustrated on Figure 4.

On January 24, 2017, a site-wide groundwater sampling event was conducted. Samples were collected from all forty-four (44) monitoring well locations. Groundwater was encountered at depths of approximately 7-19 ft. below ground surface (bgs). Groundwater samples were submitted for laboratory analyses of BTEX by USEPA Method 8260B. Groundwater sample locations and laboratory analytical results are illustrated on Figure 5, and a groundwater potentiometric surface contour map is included as Figure 6.

## **Results**

Laboratory analytical results for soil samples collected from the 43 boreholes advanced during additional site assessment activities (August 28, 2016 through December 21, 2016) indicate that all soil samples contained analyte concentrations below the applicable COGCC Table 910-1 standards. These data are presented in Table 1 and illustrated on Figure 4.

Laboratory analytical results from the latest groundwater sampling event (January 24, 2017) indicate that groundwater impacts are present above the applicable COGCC Table 910-1 standards in sixteen monitoring well locations at the site. These include BH13, BH15, BH16, BH19, BH21 through BH27, BH30, BH31, BH33, BH36, and BH50. Groundwater analytical data is summarized in Table 2 and illustrated on Figure 5.

## Conclusions

Based on laboratory analytical data, groundwater impacted above applicable COGCC standards remains at the Site. Additional site assessment activities have established point of compliance for the dissolved phase impacts, and remediation strategies will be developed to address these impacts. These efforts may include the installation of an on-Site remediation system.

## Remarks

The discussion and conclusions contained in this report represent the professional opinions of Tasman Geosciences, Inc. These opinions are based on currently available information and are arrived at in accordance with currently accepted geologic and engineering practices.

Please contact me at (720) 431-1190 if you require additional information.

Sincerely,  
Tasman Geosciences, Inc.



Brandon Bruns, PE  
Project Manager

### Attached:

Table 1 – Soil Analytical Data

Table 2 – Groundwater Analytical Data

Table 3 – Groundwater Elevation Data

Figure 1 – Site Location Map

Figure 2 – Monitoring Well & Soil Boring Overview Figure

Figure 3 – Excavation Soil Analytical Results Figure (3/3/16)

Figure 4 – Soil Analytical Results Figure

Figure 5 – Groundwater Analytical Results Figure (01/24/17)

Figure 6 – Groundwater Potentiometric Surface Contour Map (01/24/17)

Attachment A – Boring Logs

Attachment B – Laboratory Analytical Data Reports

## **TABLES**

**TABLE 1**  
**SOIL ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - FEATHER 31-15 PRODUCED WATER TANK RELEASE**

| Soil Sample ID        | Date     | Benzene (mg/kg) | Toluene (mg/kg) | Ethylbenzene (mg/kg) | Total Xylenes (mg/kg) | TPH-GRO (mg/kg) | TPH-DRO (mg/kg) | Naphthalene (mg/kg) |
|-----------------------|----------|-----------------|-----------------|----------------------|-----------------------|-----------------|-----------------|---------------------|
| <b>COGCC Standard</b> |          | <b>0.17</b>     | <b>85</b>       | <b>100</b>           | <b>175</b>            | <b>500</b>      |                 | <b>23</b>           |
| BH01@10-13            | 01/26/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | 70              | <0.010              |
| BH02@6                | 01/26/16 | 0.14            | 0.37            | <0.0050              | <b>430</b>            | <b>9,000</b>    | <b>2,200</b>    | 12                  |
| BH03@17.5-20          | 01/26/16 | <b>0.17</b>     | 0.63            | 0.14                 | 2.2                   | <50             | 85              | 0.063               |
| BH04@6-10             | 01/26/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | 53              | <0.010              |
| BH05@10-12.5          | 01/26/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH06@6-10             | 01/26/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | 68              | <0.010              |
| BH07@10-15            | 01/26/16 | <b>0.56</b>     | 1.2             | 0.12                 | 0.11                  | <50             | <50             | 0.011               |
| BH08@15-17.5          | 01/26/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | 62              | <0.010              |
| BH09@5-10             | 01/26/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| SS01@16               | 03/02/16 | <b>0.29</b>     | 0.21            | 0.082                | 2.4                   | <50             | <50             | 0.049               |
| SS02@16               | 03/02/16 | <b>0.31</b>     | 0.72            | 0.094                | 1.6                   | <50             | <50             | 0.032               |
| SS03@16               | 03/03/16 | 0.13            | 0.47            | 0.13                 | 2.0                   | <50             | <50             | 0.034               |
| SS04@16               | 03/03/16 | <b>0.19</b>     | 0.56            | 0.095                | 1.5                   | <50             | <50             | 0.042               |
| SS05@16               | 03/03/16 | <b>0.65</b>     | 2.4             | 0.31                 | 5.2                   | <b>710</b>      | <b>&lt;50</b>   | 0.11                |
| SS06@16               | 03/03/16 | <b>2.8</b>      | 8.7             | 0.61                 | 10                    | 100             | <50             | 0.20                |
| SS07@16               | 03/03/16 | <b>4.2</b>      | 16              | 3.2                  | 53                    | <b>560</b>      | <b>&lt;50</b>   | 0.80                |
| BH10@8'               | 08/25/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH11@8'               | 08/25/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH12@7'               | 08/25/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH13@8'               | 08/25/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH14@8'               | 08/25/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH15@7'               | 08/25/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH16@11'              | 08/25/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH17@6-7'             | 09/21/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH18@8-9'             | 09/21/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH19@6-7'             | 09/21/16 | <0.0020         | 0.0060          | <0.0050              | 0.013                 | <50             | <50             | <0.010              |
| BH20@7-8'             | 09/21/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH21@4-6'             | 09/21/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH22@4-6'             | 09/21/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH23@6-7'             | 09/22/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH24@4-5'             | 09/22/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH25@4-6'             | 09/22/16 | <0.0020         | <0.0050         | <0.0050              | 0.026                 | <50             | <50             | <0.010              |
| BH26@4-6'             | 09/22/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH27@4-6'             | 09/22/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH28@2-4'             | 09/22/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH29@4-6'             | 09/22/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH30@4-6'             | 10/19/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH31@6-8'             | 10/19/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH32@4-6'             | 10/19/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH33@0-2'             | 10/25/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH34@0-2'             | 10/25/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH35@4-6'             | 10/25/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |

**TABLE 1**  
**SOIL ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - FEATHER 31-15 PRODUCED WATER TANK RELEASE**

| Soil Sample ID        | Date     | Benzene (mg/kg) | Toluene (mg/kg) | Ethylbenzene (mg/kg) | Total Xylenes (mg/kg) | TPH-GRO (mg/kg) | TPH-DRO (mg/kg) | Naphthalene (mg/kg) |
|-----------------------|----------|-----------------|-----------------|----------------------|-----------------------|-----------------|-----------------|---------------------|
| <b>COGCC Standard</b> |          | <b>0.17</b>     | <b>85</b>       | <b>100</b>           | <b>175</b>            | <b>500</b>      |                 | <b>23</b>           |
| BH36@0-2'             | 10/25/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH37@0-2'             | 10/25/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH38@6-8'             | 10/25/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH39@4-6'             | 10/25/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH40@4-6'             | 10/26/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH41@0-2'             | 10/26/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH42@0-2'             | 10/26/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH43@4-6'             | 10/26/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH44@8-10'            | 10/26/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH45@0-4'             | 10/26/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH46@2-4'             | 12/21/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH47@4-6'             | 12/21/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH48@6-8'             | 12/21/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH49@4-6'             | 12/21/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH50@6-8'             | 12/21/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH51@4-6'             | 12/21/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |
| BH52@2-4'             | 12/22/16 | <0.0020         | <0.0050         | <0.0050              | <0.010                | <50             | <50             | <0.010              |

| Soil Sample ID | Date     | EC (mmhos/cm)     | pH         | SAR           |
|----------------|----------|-------------------|------------|---------------|
|                |          | <b>4 or 2x BG</b> | <b>6-9</b> | <b>&lt;12</b> |
| BH02@6         | 01/26/16 | 1.70              | 7.02       | 11.1          |

COGCC = Colorado Oil and Gas Conservation Commission

TPH-GRO = Total petroleum hydrocarbons - gasoline range organics

TPH-DRO = Total petroleum hydrocarbons - diesel range organics

mg/kg = Milligrams per kilogram

< = Analytical result is less than the indicated laboratory reporting limit

EC = Specific conductance

mmhos/cm = Millimhos per centimeter

BG = Background

SAR = Sodium adsorption ratio

Soil standards referenced from COGCC Table 910-1

**Highlighted results are equal to or exceed the COGCC Table 910-1 standard**

**TABLE 2**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - FEATHER 31-15 PRODUCED WATER TANK RELEASE**

| Monitoring Well ID    | Date     | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) |
|-----------------------|----------|----------------|----------------|---------------------|----------------------|
| <b>COGCC Standard</b> |          | <b>5</b>       | <b>560</b>     | <b>700</b>          | <b>1,400</b>         |
| BH03                  | 01/28/16 | 940            | 3,700          | 430                 | 7,100                |
| BH03                  | 09/01/16 | Well Destroyed |                |                     |                      |
| BH08                  | 01/28/16 | <1.0           | 1.1            | <1.0                | 3.2                  |
| BH08                  | 09/01/16 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH08                  | 11/03/16 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH08                  | 01/24/17 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH10                  | 09/01/16 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH10                  | 11/03/16 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH10                  | 01/24/17 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH11                  | 09/01/16 | <1.0           | <1.0           | <1.0                | 18                   |
| BH11                  | 11/03/16 | 57             | 70             | 24                  | 260                  |
| BH11                  | 01/24/17 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH12                  | 09/01/16 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH12                  | 11/03/16 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH12                  | 01/24/17 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH13                  | 09/01/16 | 5,000          | 4,700          | <1.0                | 16,000               |
| BH13                  | 11/03/16 | 4,800          | 2,900          | 690                 | 15,000               |
| BH13                  | 01/24/17 | 3,000          | 610            | 380                 | 13,000               |
| BH14                  | 09/01/16 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH14                  | 11/03/16 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH14                  | 01/24/17 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH15                  | 09/01/16 | 4,300          | 8,000          | 410                 | 7,900                |
| BH15                  | 11/03/16 | 2,300          | 4,700          | 380                 | 6,500                |
| BH15                  | 01/24/17 | 8,400          | 2,800          | 600                 | 10,000               |
| BH16                  | 09/01/16 | 32,000         | 51,000         | 1,100               | 34,000               |
| BH16                  | 11/03/16 | 22,000         | 34,000         | 1,500               | 23,000               |
| BH16                  | 01/24/17 | 21,000         | 31,000         | 680                 | 29,000               |
| BH17                  | 09/23/16 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH17                  | 11/03/16 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH17                  | 01/24/17 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH18                  | 09/23/16 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH18                  | 11/03/16 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH18                  | 01/24/17 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH19                  | 09/23/16 | 1,000          | 500            | 72                  | 1,300                |
| BH19                  | 11/03/16 | 8,000          | 3,700          | 520                 | 9,100                |
| BH19                  | 01/24/17 | 5,400          | 1.2            | <1.0                | 3,100                |
| BH20                  | 09/23/16 | <1.0           | <1.0           | <1.0                | 280                  |
| BH20                  | 11/03/16 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH20                  | 01/24/17 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH21                  | 09/23/16 | 2,400          | 2,800          | 470                 | 1,500                |
| BH21                  | 11/03/16 | 5,000          | 12,000         | 560                 | 9,600                |
| BH21                  | 01/24/17 | 2,900          | 30             | <1.0                | 6,200                |

**TABLE 2**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - FEATHER 31-15 PRODUCED WATER TANK RELEASE**

| Monitoring Well ID    | Date     | Benzene (µg/L)                   | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) |
|-----------------------|----------|----------------------------------|----------------|---------------------|----------------------|
| <b>COGCC Standard</b> |          | <b>5</b>                         | <b>560</b>     | <b>700</b>          | <b>1,400</b>         |
| BH22                  | 09/23/16 | 8,800                            | 24,000         | 1,900               | 28,000               |
| BH22                  | 11/03/16 | 5,500                            | 10,000         | 670                 | 19,000               |
| BH22                  | 01/24/17 | 9,100                            | 13,000         | 2,000               | 51,000               |
| BH23                  | 09/23/16 | 11,000                           | 21,000         | 1,400               | 21,000               |
| BH23                  | 11/03/16 | 6,200                            | 6,800          | 430                 | 7,900                |
| BH23                  | 01/24/17 | 4,900                            | 5,300          | <1.0                | 11,000               |
| BH24                  | 09/23/16 | 13,000                           | 5,200          | 500                 | 4,200                |
| BH24                  | 11/03/16 | 12,000                           | 1,900          | 650                 | 2,400                |
| BH24                  | 01/24/17 | 6,300                            | 47             | <1.0                | 4,000                |
| BH25                  | 09/23/16 | 5,400                            | 22,000         | 1,200               | 19,000               |
| BH25                  | 11/03/16 | 4,500                            | 15,000         | 1,200               | 20,000               |
| BH25                  | 01/24/17 | 2,700                            | 2,400          | <1.0                | 16,000               |
| BH26                  | 09/23/16 | 3,900                            | 8,100          | 890                 | 13,000               |
| BH26                  | 11/03/16 | 3,700                            | 3,000          | 780                 | 13,000               |
| BH26                  | 01/24/17 | 3,300                            | 210            | <1.0                | 8,900                |
| BH27                  | 09/23/16 | 2,100                            | 7,900          | 660                 | 11,000               |
| BH27                  | 11/03/16 | 2,300                            | 7,300          | 790                 | 13,000               |
| BH27                  | 01/24/17 | 110                              | 3              | <1.0                | 190                  |
| BH28                  | 09/23/16 | <1.0                             | <1.0           | <1.0                | <1.0                 |
| BH28                  | 11/03/16 | <1.0                             | <1.0           | <1.0                | <1.0                 |
| BH28                  | 01/24/17 | <1.0                             | <1.0           | <1.0                | <1.0                 |
| BH29                  | 09/23/16 | <1.0                             | <1.0           | <1.0                | <1.0                 |
| BH29                  | 11/03/16 | <1.0                             | <1.0           | <1.0                | <1.0                 |
| BH29                  | 01/24/17 | <1.0                             | <1.0           | <1.0                | <1.0                 |
| BH30                  | 10/25/16 | 4,300                            | 24,000         | 1,100               | 18,000               |
| BH30                  | 11/03/16 | 3,900                            | 18,000         | 1,100               | 19,000               |
| BH30                  | 01/24/17 | 2,200                            | 11,000         | 670                 | 12,000               |
| BH31                  | 10/25/16 | 4,100                            | 2,700          | 170                 | 3,900                |
| BH31                  | 11/03/16 | 3,700                            | 3,700          | 250                 | 4,800                |
| BH31                  | 01/24/17 | 1,300                            | <1.0           | <1.0                | 2,100                |
| BH32                  | 10/25/16 | <1.0                             | 2.8            | <1.0                | 2.7                  |
| BH32                  | 11/03/16 | <1.0                             | <1.0           | <1.0                | <1.0                 |
| BH32                  | 01/24/17 | <1.0                             | <1.0           | <1.0                | <1.0                 |
| BH33                  | 10/25/16 | 11,000                           | 17,000         | 790                 | 12,000               |
| BH33                  | 11/03/16 | 10,000                           | 18,000         | 870                 | 15,000               |
| BH33                  | 01/24/17 | <1.0                             | 17             | 1.3                 | 4,400                |
| BH34                  | 10/25/16 | Not Sampled - Insufficient Water |                |                     |                      |
| BH34                  | 11/03/16 | <1.0                             | <1.0           | <1.0                | <1.0                 |
| BH34                  | 01/24/17 | <1.0                             | <1.0           | <1.0                | <1.0                 |
| BH35                  | 10/25/16 | Not Sampled - Insufficient Water |                |                     |                      |
| BH35                  | 11/03/16 | <1.0                             | <1.0           | <1.0                | <1.0                 |
| BH35                  | 01/24/17 | <1.0                             | <1.0           | <1.0                | <1.0                 |
| BH36                  | 10/25/16 | 6,800                            | 9,800          | 520                 | 8,500                |
| BH36                  | 11/03/16 | 4,300                            | 2,200          | 320                 | 4,700                |
| BH36                  | 01/24/17 | 2,200                            | 24             | <1.0                | 150                  |

**TABLE 2**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - FEATHER 31-15 PRODUCED WATER TANK RELEASE**

| Monitoring Well ID    | Date     | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) |
|-----------------------|----------|----------------|----------------|---------------------|----------------------|
| <b>COGCC Standard</b> |          | <b>5</b>       | <b>560</b>     | <b>700</b>          | <b>1,400</b>         |
| BH37                  | 10/25/16 | 4,700          | 4,800          | 170                 | 4,300                |
| BH37                  | 11/03/16 | 4,900          | 3,200          | 210                 | 4,400                |
| BH37                  | 01/24/17 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH38                  | 10/25/16 | 3.8            | 7.1            | <1.0                | 12                   |
| BH38                  | 11/03/16 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH38                  | 01/24/17 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH39                  | 11/03/16 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH39                  | 01/24/17 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH40                  | 11/03/16 | <1.0           | <1.0           | <1.0                | 2.2                  |
| BH40                  | 01/24/17 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH41                  | 11/03/16 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH41                  | 01/24/17 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH42                  | 11/03/16 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH42                  | 01/24/17 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH43                  | 11/03/16 | <1.0           | 1.2            | <1.0                | 27                   |
| BH43                  | 01/24/17 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH44                  | 11/03/16 | 4,200          | 20             | 2.3                 | 590                  |
| BH44                  | 01/24/17 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH45                  | 11/03/16 | <1.0           | 9.3            | <1.0                | 3.9                  |
| BH45                  | 01/24/17 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH46                  | 01/24/17 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH47                  | 01/24/17 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH48                  | 01/24/17 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH49                  | 01/24/17 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH50                  | 01/24/17 | 1,600          | 3,400          | 280                 | 5,100                |
| BH51                  | 01/24/17 | <1.0           | <1.0           | <1.0                | <1.0                 |
| BH52                  | 01/24/17 | <1.0           | <1.0           | <1.0                | <1.0                 |

COGCC = Colorado Oil and Gas Conservation Commission

µg/L = Micrograms per liter

< = Analytical result is less than the indicated laboratory reporting limit

Groundwater standards referenced from COGCC Table 910-1

**Highlighted results are equal to or exceed the COGCC Table 910-1 standard**

**TABLE 3**  
**GROUNDWATER ELEVATION DATA**  
**NOBLE ENERGY, INC. - FEATHER 31-15 PRODUCED WATER TANK RELEASE**

| Monitoring Well ID | Date     | Top of Casing Elevation (ft. AMSL) | Total Depth (ft. BTOC) | Depth to Water (ft. BTOC) | Depth to LNAPL (ft. BTOC) | LNAPL Thickness (ft.) | Groundwater Elevation* (ft. AMSL) |
|--------------------|----------|------------------------------------|------------------------|---------------------------|---------------------------|-----------------------|-----------------------------------|
| BH03               | 01/28/16 | NS                                 | 22.98                  | 15.17                     | ND                        | ND                    | NS                                |
| BH03               | 09/01/16 | Well Destroyed                     |                        |                           |                           |                       |                                   |
| BH08               | 01/28/16 | NS                                 | 24.95                  | 13.15                     | ND                        | ND                    | NS                                |
| BH08               | 09/01/16 | 4960.47                            | 22.60                  | 6.16                      | ND                        | ND                    | 4954.31                           |
| BH08               | 11/03/16 | 4960.47                            | 22.57                  | 6.79                      | ND                        | ND                    | 4953.68                           |
| BH08               | 01/24/17 | 4960.47                            | 22.63                  | 7.21                      | ND                        | ND                    | 4953.26                           |
| BH10               | 09/01/16 | 4964.48                            | 21.98                  | 10.36                     | ND                        | ND                    | 4954.12                           |
| BH10               | 11/03/16 | 4964.48                            | 21.95                  | 10.98                     | ND                        | ND                    | 4953.50                           |
| BH10               | 01/24/17 | 4964.48                            | 22.03                  | 11.37                     | ND                        | ND                    | 4953.11                           |
| BH11               | 09/01/16 | 4960.77                            | 16.86                  | 6.73                      | ND                        | ND                    | 4954.04                           |
| BH11               | 11/03/16 | 4960.77                            | 18.32                  | 7.29                      | ND                        | ND                    | 4953.48                           |
| BH11               | 01/24/17 | 4960.77                            | 17.93                  | 7.72                      | ND                        | ND                    | 4953.05                           |
| BH12               | 09/01/16 | 4960.63                            | 18.90                  | 7.05                      | ND                        | ND                    | 4953.58                           |
| BH12               | 11/03/16 | 4960.63                            | 18.81                  | 7.71                      | ND                        | ND                    | 4952.92                           |
| BH12               | 01/24/17 | 4960.63                            | 18.70                  | 8.15                      | ND                        | ND                    | 4952.48                           |
| BH13               | 09/01/16 | 4963.84                            | 21.95                  | 10.92                     | ND                        | ND                    | 4952.92                           |
| BH13               | 11/03/16 | 4963.84                            | 21.62                  | 11.54                     | ND                        | ND                    | 4952.30                           |
| BH13               | 01/24/17 | 4963.84                            | 21.17                  | 11.94                     | ND                        | ND                    | 4951.90                           |
| BH14               | 09/01/16 | 4960.84                            | 19.50                  | 8.60                      | ND                        | ND                    | 4952.24                           |
| BH14               | 11/03/16 | 4960.84                            | 19.39                  | 9.22                      | ND                        | ND                    | 4951.62                           |
| BH14               | 01/24/17 | 4960.84                            | 19.10                  | 9.57                      | ND                        | ND                    | 4951.27                           |
| BH15               | 09/01/16 | 4961.83                            | 21.04                  | 10.90                     | ND                        | ND                    | 4950.93                           |
| BH15               | 11/03/16 | 4961.83                            | 22.32                  | 11.39                     | ND                        | ND                    | 4950.44                           |
| BH15               | 01/24/17 | 4961.83                            | 22.32                  | 11.67                     | ND                        | ND                    | 4950.16                           |
| BH16               | 09/01/16 | 4960.67                            | 19.54                  | 8.85                      | ND                        | ND                    | 4951.82                           |
| BH16               | 11/03/16 | 4960.67                            | 19.50                  | 9.44                      | ND                        | ND                    | 4951.23                           |
| BH16               | 01/24/17 | 4960.67                            | 19.55                  | 9.77                      | ND                        | ND                    | 4950.90                           |
| BH17               | 09/23/16 | 4961.27                            | 18.52                  | 8.53                      | ND                        | ND                    | 4952.74                           |
| BH17               | 11/03/16 | 4961.27                            | 18.26                  | 8.97                      | ND                        | ND                    | 4952.30                           |
| BH17               | 01/24/17 | 4961.27                            | 17.72                  | 9.36                      | ND                        | ND                    | 4951.91                           |
| BH18               | 09/23/16 | 4962.91                            | 21.43                  | 11.30                     | ND                        | ND                    | 4951.61                           |
| BH18               | 11/03/16 | 4962.91                            | 22.26                  | 11.72                     | ND                        | ND                    | 4951.19                           |
| BH18               | 01/24/17 | 4962.91                            | 22.33                  | 12.06                     | ND                        | ND                    | 4950.85                           |
| BH19               | 09/23/16 | 4961.23                            | 18.11                  | 9.11                      | ND                        | ND                    | 4952.12                           |
| BH19               | 11/03/16 | 4961.23                            | 18.59                  | 9.53                      | ND                        | ND                    | 4951.70                           |
| BH19               | 01/24/17 | 4961.23                            | 18.58                  | 9.87                      | ND                        | ND                    | 4951.36                           |
| BH20               | 09/23/16 | 4959.06                            | 19.43                  | 8.72                      | ND                        | ND                    | 4950.34                           |
| BH20               | 11/03/16 | 4959.06                            | 19.34                  | 9.05                      | ND                        | ND                    | 4950.01                           |
| BH20               | 01/24/17 | 4959.06                            | 19.14                  | 9.29                      | ND                        | ND                    | 4949.77                           |
| BH21               | 09/23/16 | 4960.89                            | 21.22                  | 14.49                     | ND                        | ND                    | 4946.40                           |
| BH21               | 11/03/16 | 4960.89                            | 21.22                  | 12.18                     | ND                        | ND                    | 4948.71                           |
| BH21               | 01/24/17 | 4960.89                            | 21.20                  | 12.27                     | ND                        | ND                    | 4948.62                           |

**TABLE 3**  
**GROUNDWATER ELEVATION DATA**  
**NOBLE ENERGY, INC. - FEATHER 31-15 PRODUCED WATER TANK RELEASE**

| Monitoring Well ID | Date     | Top of Casing Elevation (ft. AMSL) | Total Depth (ft. BTOC) | Depth to Water (ft. BTOC) | Depth to LNAPL (ft. BTOC) | LNAPL Thickness (ft.) | Groundwater Elevation* (ft. AMSL) |
|--------------------|----------|------------------------------------|------------------------|---------------------------|---------------------------|-----------------------|-----------------------------------|
| BH22               | 09/23/16 | 4961.11                            | 20.94                  | 11.49                     | ND                        | ND                    | 4949.62                           |
| BH22               | 11/03/16 | 4961.11                            | 20.90                  | 11.79                     | ND                        | ND                    | 4949.32                           |
| BH22               | 01/24/17 | 4961.11                            | 20.70                  | 11.94                     | ND                        | ND                    | 4949.17                           |
| BH23               | 09/23/16 | 4960.67                            | 22.71                  | 11.91                     | ND                        | ND                    | 4948.76                           |
| BH23               | 11/03/16 | 4960.67                            | 22.68                  | 12.21                     | ND                        | ND                    | 4948.46                           |
| BH23               | 01/24/17 | 4960.67                            | 22.50                  | 12.29                     | ND                        | ND                    | 4948.38                           |
| BH24               | 09/23/16 | 4960.30                            | 21.75                  | 11.63                     | ND                        | ND                    | 4948.67                           |
| BH24               | 11/03/16 | 4960.30                            | 22.38                  | 11.87                     | ND                        | ND                    | 4948.43                           |
| BH24               | 01/24/17 | 4960.30                            | 22.70                  | 11.95                     | ND                        | ND                    | 4948.35                           |
| BH25               | 09/23/16 | 4960.28                            | 22.91                  | 11.98                     | ND                        | ND                    | 4948.30                           |
| BH25               | 11/03/16 | 4960.28                            | 22.91                  | 12.23                     | ND                        | ND                    | 4948.05                           |
| BH25               | 01/24/17 | 4960.28                            | 22.88                  | 12.36                     | ND                        | ND                    | 4947.92                           |
| BH26               | 09/23/16 | 4959.46                            | 22.85                  | 12.76                     | ND                        | ND                    | 4946.70                           |
| BH26               | 11/03/16 | 4959.46                            | 22.60                  | 12.96                     | ND                        | ND                    | 4946.50                           |
| BH26               | 01/24/17 | 4959.46                            | 22.51                  | 12.89                     | ND                        | ND                    | 4946.57                           |
| BH27               | 09/23/16 | 4958.65                            | 22.47                  | 13.43                     | ND                        | ND                    | 4945.22                           |
| BH27               | 11/03/16 | 4958.65                            | 22.38                  | 13.59                     | ND                        | ND                    | 4945.06                           |
| BH27               | 01/24/17 | 4958.65                            | 22.32                  | 13.53                     | ND                        | ND                    | 4945.12                           |
| BH28               | 09/23/16 | 4957.57                            | 22.68                  | 14.01                     | ND                        | ND                    | 4943.56                           |
| BH28               | 11/03/16 | 4957.57                            | 22.56                  | 14.05                     | ND                        | ND                    | 4943.52                           |
| BH28               | 01/24/17 | 4957.57                            | 22.38                  | 13.91                     | ND                        | ND                    | 4943.66                           |
| BH29               | 09/23/16 | 4958.73                            | 21.53                  | 13.07                     | ND                        | ND                    | 4945.66                           |
| BH29               | 11/03/16 | 4958.73                            | 21.86                  | 13.30                     | ND                        | ND                    | 4945.43                           |
| BH29               | 01/24/17 | 4958.73                            | 21.93                  | 13.26                     | ND                        | ND                    | 4945.47                           |
| BH30               | 11/03/16 | 4957.11                            | 22.22                  | 13.75                     | ND                        | ND                    | 4943.36                           |
| BH30               | 01/24/17 | 4957.11                            | 22.16                  | 13.62                     | ND                        | ND                    | 4943.49                           |
| BH31               | 11/03/16 | 4958.22                            | 20.43                  | 13.14                     | ND                        | ND                    | 4945.08                           |
| BH31               | 01/24/17 | 4958.22                            | 20.35                  | 13.09                     | ND                        | ND                    | 4945.13                           |
| BH32               | 11/03/16 | 4959.15                            | 22.97                  | 13.61                     | ND                        | ND                    | 4945.54                           |
| BH32               | 01/24/17 | 4959.15                            | 22.98                  | 13.61                     | ND                        | ND                    | 4945.54                           |
| BH33               | 11/03/16 | 4956.82                            | 22.78                  | 14.91                     | ND                        | ND                    | 4941.91                           |
| BH33               | 01/24/17 | 4956.82                            | 22.71                  | 14.66                     | ND                        | ND                    | 4942.16                           |
| BH34               | 11/03/16 | 4957.08                            | 21.84                  | 19.37                     | ND                        | ND                    | 4937.71                           |
| BH34               | 01/24/17 | 4957.08                            | 21.82                  | 13.08                     | ND                        | ND                    | 4944.00                           |
| BH35               | 11/03/16 | 4957.41                            | 22.52                  | 17.90                     | ND                        | ND                    | 4939.51                           |
| BH35               | 01/24/17 | 4957.41                            | 22.49                  | 15.03                     | ND                        | ND                    | 4942.38                           |
| BH36               | 11/03/16 | 4955.19                            | 22.02                  | 14.64                     | ND                        | ND                    | 4940.55                           |
| BH36               | 01/24/17 | 4955.19                            | 21.96                  | 14.34                     | ND                        | ND                    | 4940.85                           |
| BH37               | 11/03/16 | 4954.95                            | 22.13                  | 15.97                     | ND                        | ND                    | 4938.98                           |
| BH37               | 01/24/17 | 4954.95                            | 22.14                  | 15.56                     | ND                        | ND                    | 4939.39                           |
| BH38               | 11/03/16 | 4955.15                            | 22.05                  | 15.13                     | ND                        | ND                    | 4940.02                           |
| BH38               | 01/24/17 | 4955.15                            | 22.02                  | 14.80                     | ND                        | ND                    | 4940.35                           |

**TABLE 3**  
**GROUNDWATER ELEVATION DATA**  
**NOBLE ENERGY, INC. - FEATHER 31-15 PRODUCED WATER TANK RELEASE**

| Monitoring Well ID | Date     | Top of Casing Elevation (ft. AMSL) | Total Depth (ft. BTOC) | Depth to Water (ft. BTOC) | Depth to LNAPL (ft. BTOC) | LNAPL Thickness (ft.) | Groundwater Elevation* (ft. AMSL) |
|--------------------|----------|------------------------------------|------------------------|---------------------------|---------------------------|-----------------------|-----------------------------------|
| BH39               | 11/03/16 | 4955.83                            | 22.46                  | 14.25                     | ND                        | ND                    | 4941.58                           |
| BH39               | 01/24/17 | 4955.83                            | 22.42                  | 13.98                     | ND                        | ND                    | 4941.85                           |
| BH40               | 11/03/16 | 4960.60                            | 21.72                  | 11.08                     | ND                        | ND                    | 4949.52                           |
| BH40               | 01/24/17 | 4960.60                            | 21.43                  | 11.24                     | ND                        | ND                    | 4949.36                           |
| BH41               | 11/03/16 | 4959.08                            | 21.13                  | 11.14                     | ND                        | ND                    | 4947.94                           |
| BH41               | 01/24/17 | 4959.08                            | 20.94                  | 11.27                     | ND                        | ND                    | 4947.81                           |
| BH42               | 11/03/16 | 4959.24                            | 22.18                  | 12.44                     | ND                        | ND                    | 4946.80                           |
| BH42               | 01/24/17 | 4959.24                            | 22.07                  | 12.25                     | ND                        | ND                    | 4946.99                           |
| BH43               | 11/03/16 | 4959.74                            | 21.72                  | 11.53                     | ND                        | ND                    | 4948.21                           |
| BH43               | 01/24/17 | 4959.74                            | 21.26                  | 11.64                     | ND                        | ND                    | 4948.10                           |
| BH44               | 11/03/16 | 4955.00                            | 21.68                  | 17.75                     | ND                        | ND                    | 4937.25                           |
| BH44               | 01/24/17 | 4955.00                            | 21.64                  | 17.29                     | ND                        | ND                    | 4937.71                           |
| BH45               | 11/03/16 | 4954.87                            | 22.21                  | 21.08                     | ND                        | ND                    | 4933.79                           |
| BH45               | 01/24/17 | 4954.87                            | 22.19                  | 17.14                     | ND                        | ND                    | 4937.73                           |
| BH46               | 01/24/17 | 4955.31                            | 22.25                  | 15.64                     | ND                        | ND                    | 4939.67                           |
| BH47               | 01/24/17 | 4954.60                            | 22.25                  | 18.91                     | ND                        | ND                    | 4935.69                           |
| BH48               | 01/24/17 | 4954.71                            | 22.30                  | 18.58                     | ND                        | ND                    | 4936.13                           |
| BH49               | 01/24/17 | 4954.51                            | 22.22                  | 18.39                     | ND                        | ND                    | 4936.12                           |
| BH50               | 01/24/17 | 4955.18                            | 22.26                  | 16.87                     | ND                        | ND                    | 4938.31                           |
| BH51               | 01/24/17 | 4955.85                            | 22.10                  | 19.59                     | ND                        | ND                    | 4936.26                           |
| BH52               | 01/24/17 | 4955.46                            | 22.31                  | 19.45                     | ND                        | ND                    | 4936.01                           |

ft. = Feet

AMSL = Above mean sea level

BTOC = Below top of casing

LNAPL = Light non-aqueous phase liquid

ND = No LNAPL detected

NM = Not measured

NS = Not surveyed

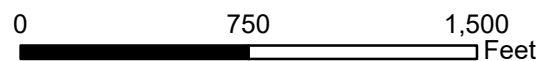
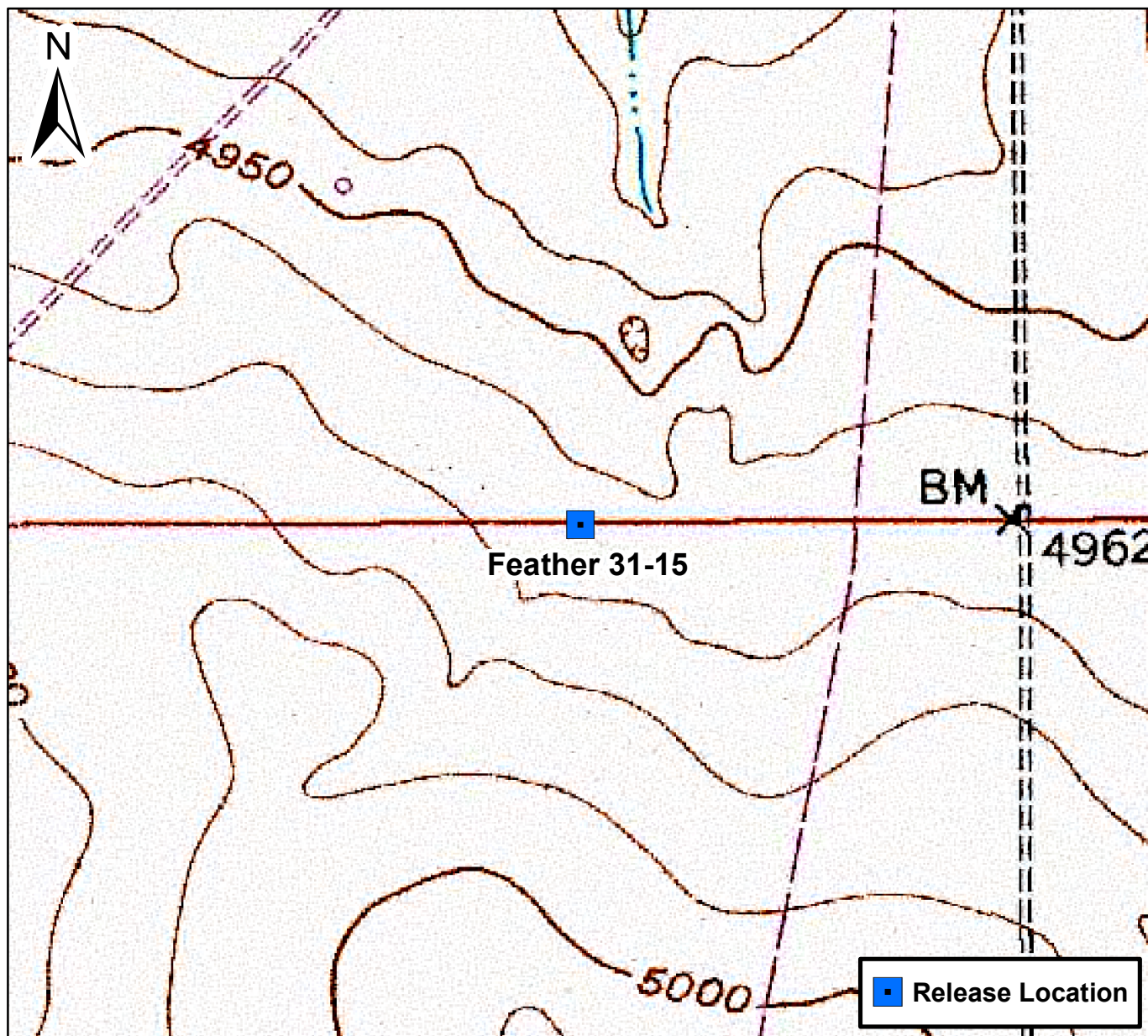
Monitoring wells MW-01 through MW-06 were destroyed during site excavations

\* Groundwater elevation was corrected for product thickness (when present) using the following calculation:

Groundwater elevation = (TOC Elevation - Measured Depth to Water)+(LNAPL Thickness in Well x LNAPL Relative Density)

LNAPL relative density was assumed to be approximately 0.75

## **FIGURES**



## Figure 1

Site Location Map  
Feather 31-15  
NWNE S15 T2N R64W  
Weld County, Colorado





|              |              |
|--------------|--------------|
| DATE:        | January 2017 |
| DESIGNED BY: | B.Bruns      |
| DRAWN BY:    | D. Arnold    |

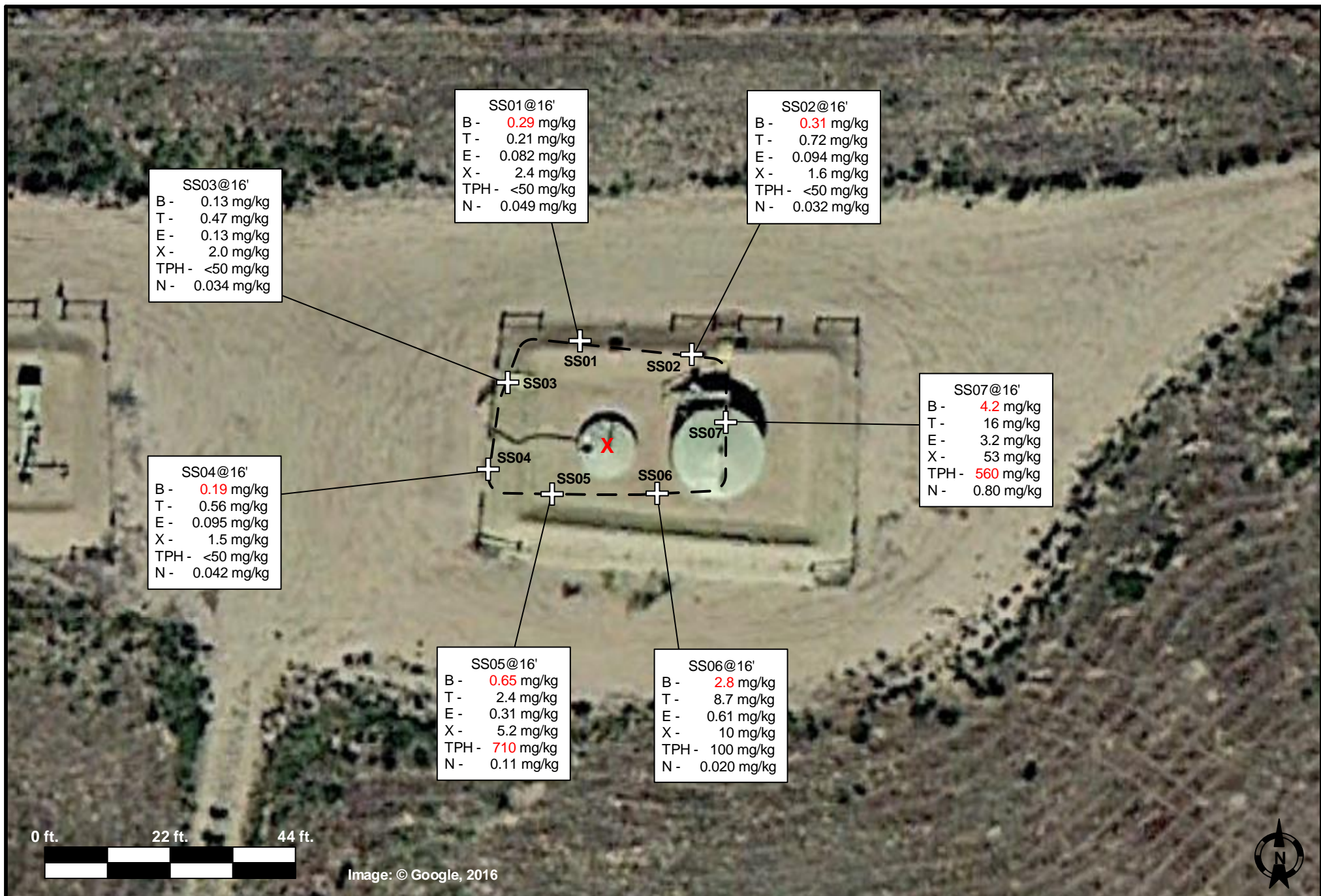


**Tasman Geosciences, LLC**  
6899 Pecos Street - Unit C  
Denver, CO 80221

**Noble Energy - DJ Basin**  
**Feather 31-15**  
NWNE Section 15, Township 2 North, Range 64 West  
Weld County, Colorado

Monitoring Well & Soil Boring  
Overview Figure

**Figure**  
**2**



PROJECT NO:  
 DRAWN BY: ESS  
 DATE: 06/21/16



**Facility**  
 Feather 31-15,  
 Weld County, CO

**LEGEND:**

--- Approximate Excavation Extent

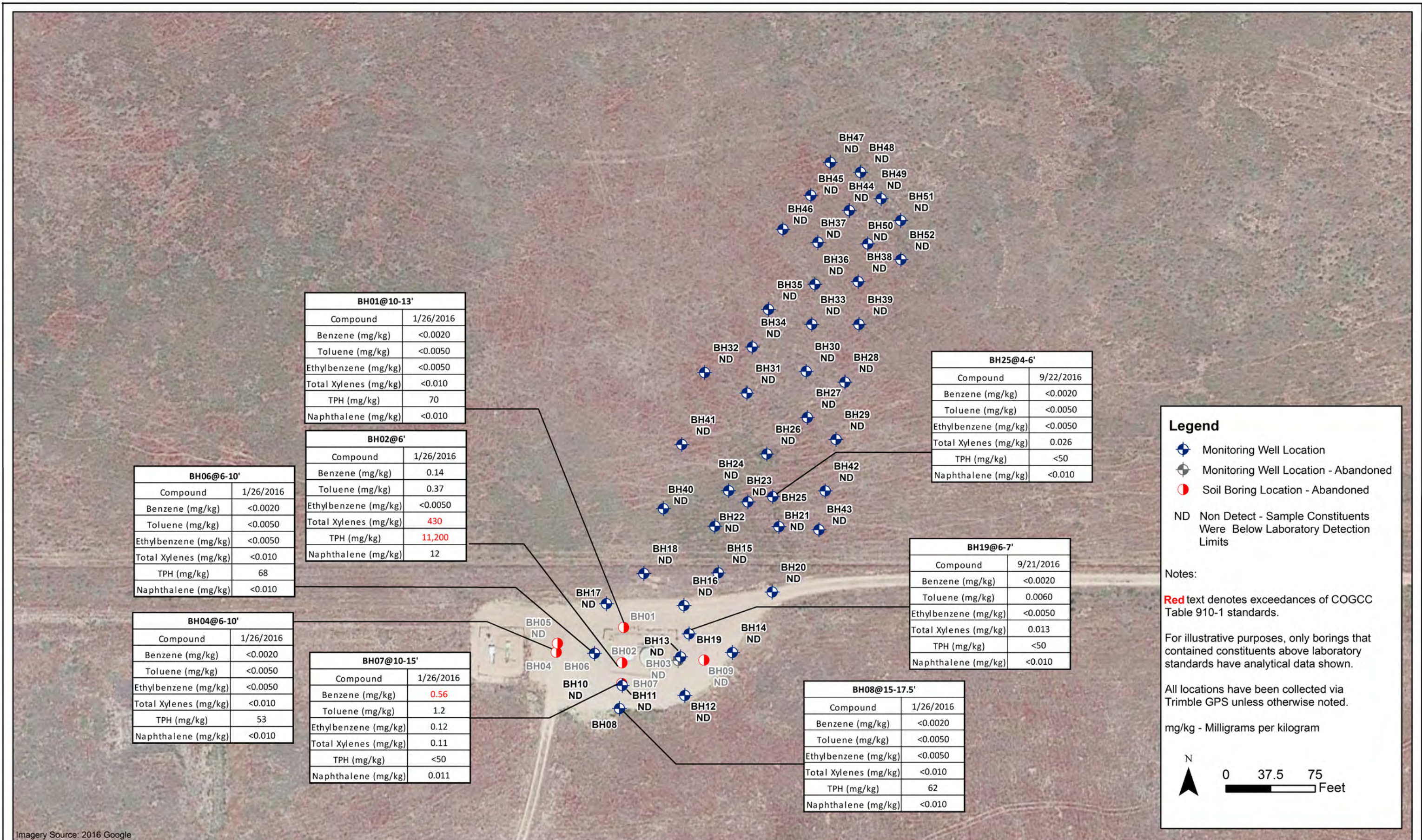
✚ Excavation Soil Sample Location

X Approximate Area of Release

mg/kg Milligrams per Kilogram

B - Benzene  
 T - Toluene  
 E - Ethylbenzene  
 X - Total Xylenes  
 TPH - Total Petroleum Hydrocarbons  
 N - Naphthalene

Figure 3  
 Excavation Soil  
 Analytical Results Figure  
 (3/3/16)



DATE:  
February 2017

DESIGNED BY:  
B.Bruns

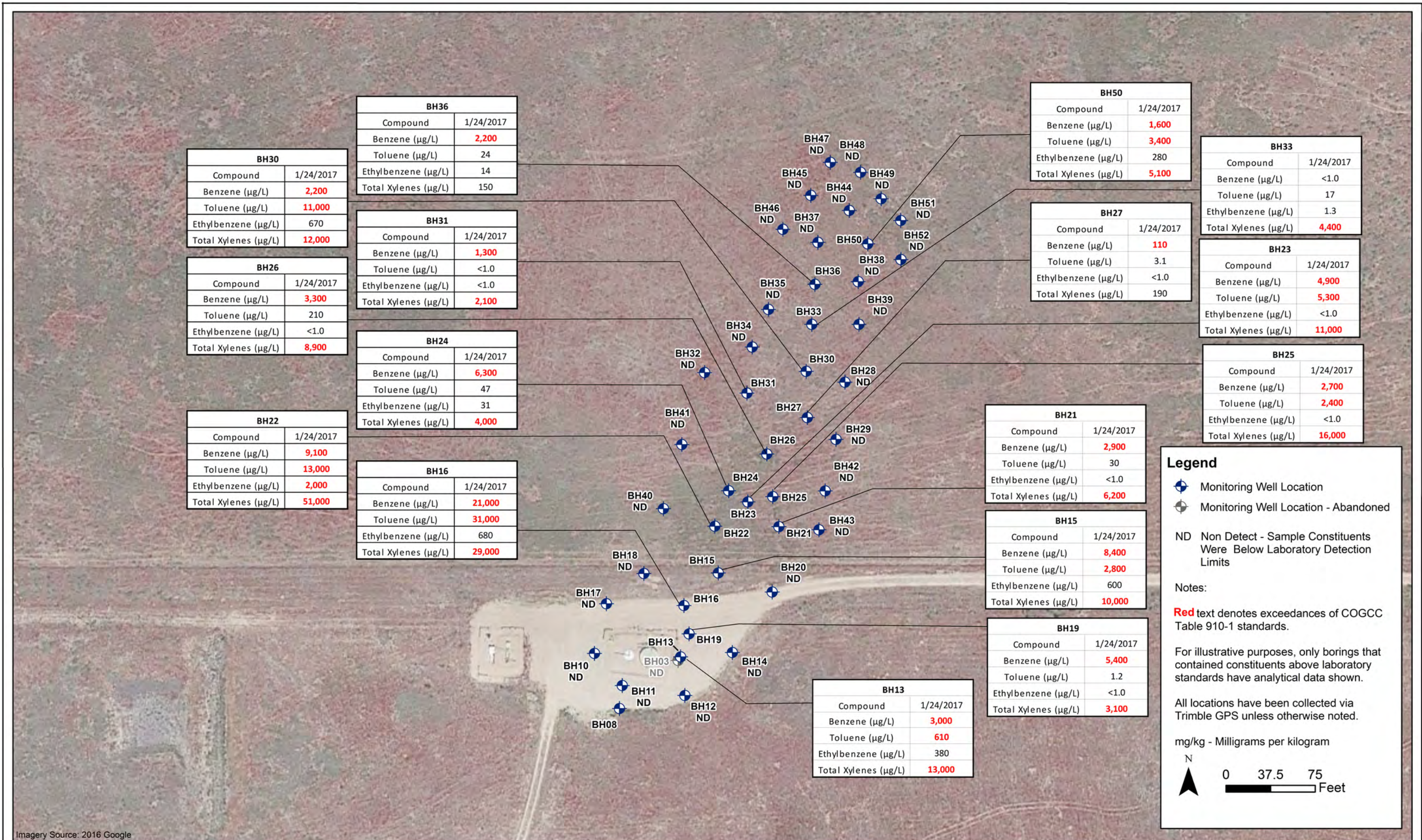
DRAWN BY:  
D. Arnold

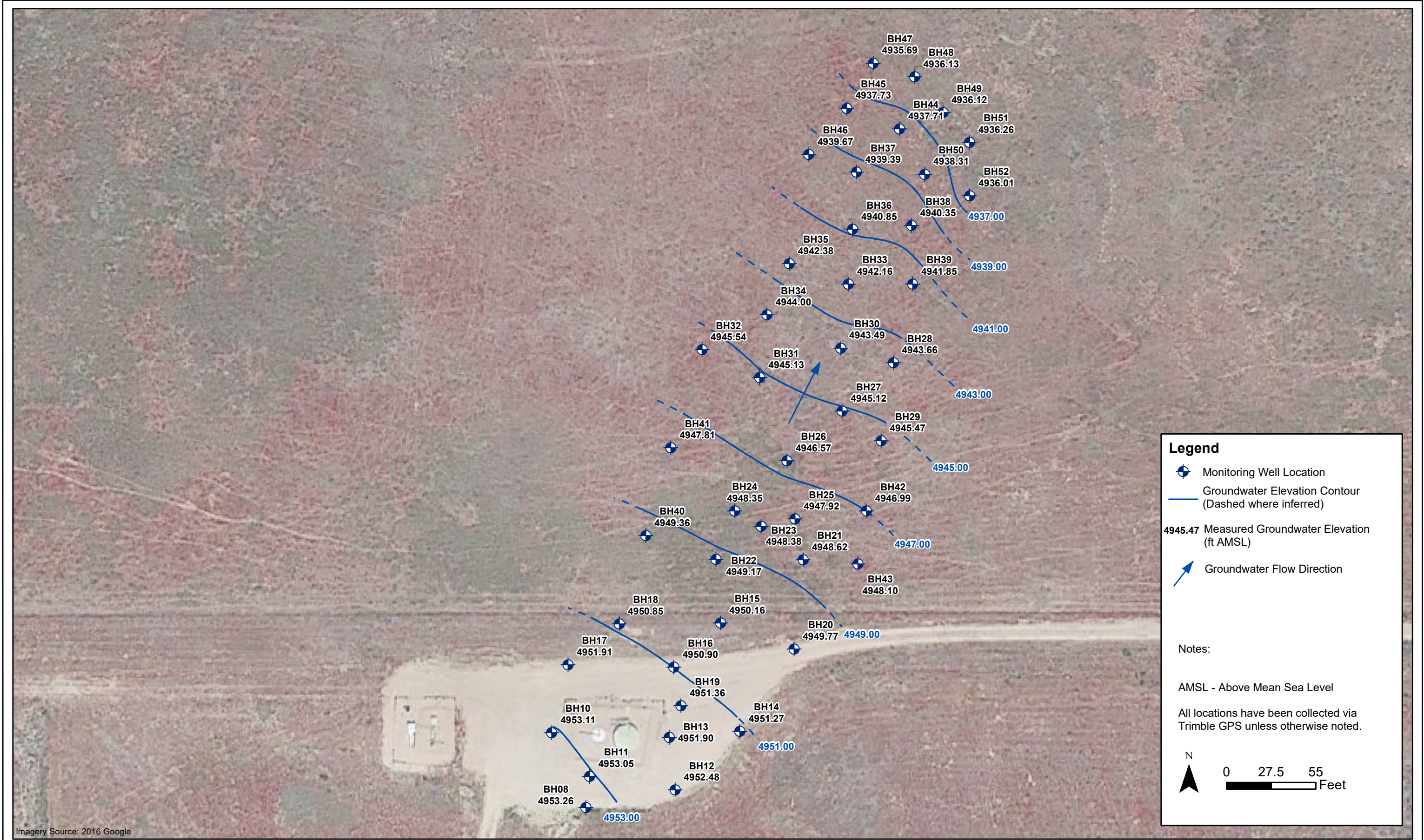
**TASMAN** GEOSCIENCES  
Tasman Geosciences, LLC  
6899 Pecos Street - Unit C  
Denver, CO 80221

**Noble Energy - DJ Basin**  
**Feather 31-15**  
NWNE Section 15, Township 2 North, Range 64 West  
Weld County, Colorado

Soil Analytical Results  
Figure

Figure  
3





|              |               |
|--------------|---------------|
| DATE:        | February 2017 |
| DESIGNED BY: | B.Bruns       |
| DRAWN BY:    | D. Arnold     |



**TASMAN**  
GEOSCIENCES

Tasman Geosciences, LLC  
6899 Pecos Street - Unit C  
Denver, CO 80221

**Noble Energy - DJ Basin  
Feather 31-15**  
NWNE Section 15, Township 2 North, Range 64 West  
Weld County, Colorado

Groundwater Elevation  
Contour Figure  
(01/24/17)

Figure  
5

# **ATTACHMENT A**

## **BORING LOGS**



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy

LOGGED BY: Brad Marquart

PROJECT MANAGER: Brandon Bruns

DRILLING CONTRACTOR: Site Services

DRILLING EQUIPMENT: Geoprobe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 01/26/16 - 01/26/16

TOTAL WELL DEPTH (FT. BGS): 15

DEPTH TO WATER (FT. BGS): Not Detected

Feather 31-15

BORING / WELL ID: BH01

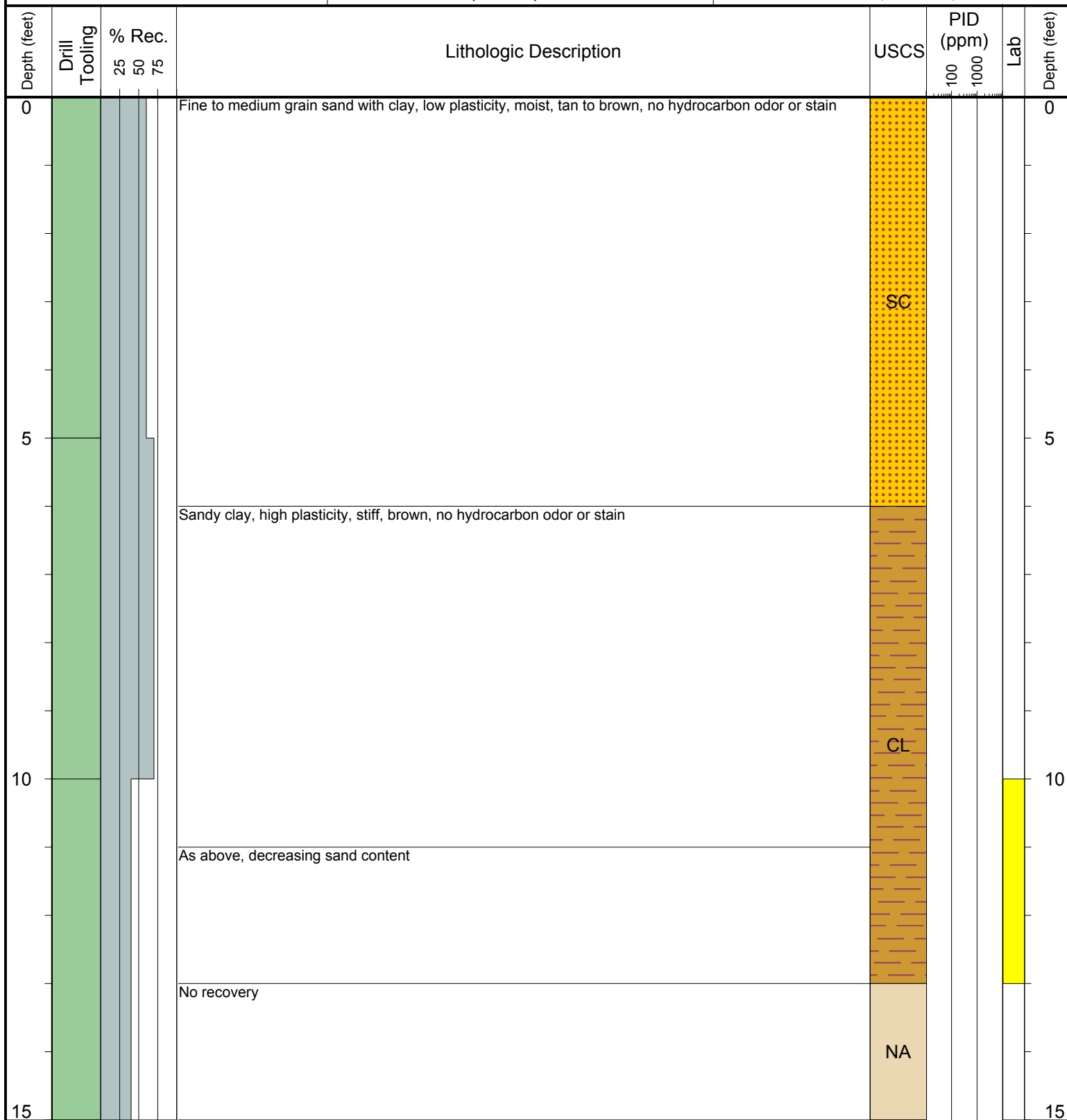
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.145568

LONGITUDE (DECIMAL DEGREES): -104.53433

CASING ELEVATION (FT. AMSL): Not Installed

GROUND ELEVATION (FT. AMSL): Not Measured



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy

LOGGED BY: Brad Marquart

PROJECT MANAGER: Brandon Bruns

DRILLING CONTRACTOR: NA

DRILLING EQUIPMENT: Hydroexcavated

DRILL BIT SIZE (INCHES): NA

DATE STARTED - COMPLETED: 01/26/16 - 01/26/16

TOTAL WELL DEPTH (FT. BGS): 6

DEPTH TO WATER (FT. BGS): Not Detected

Feather 31-15

BORING / WELL ID: BH02

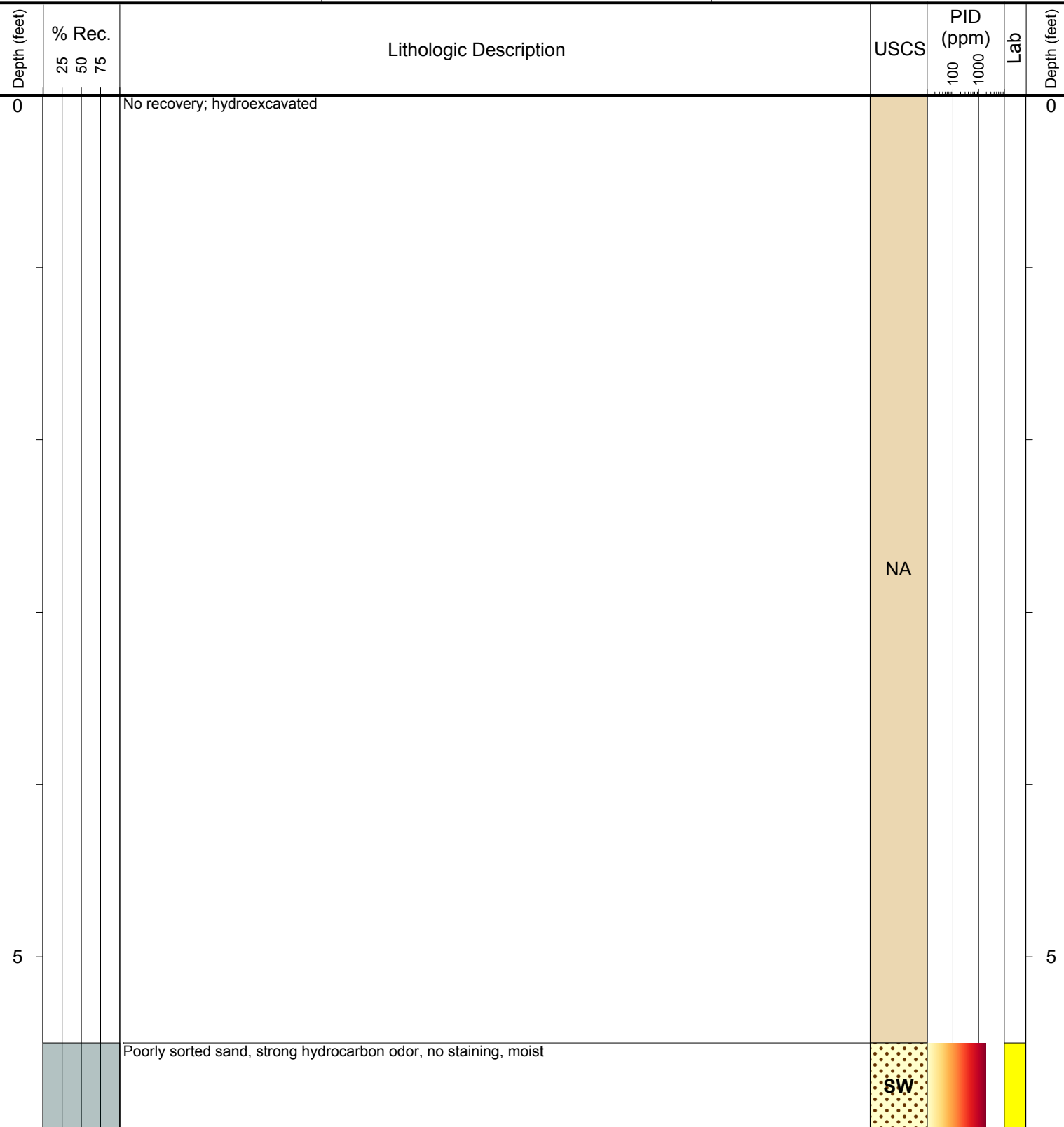
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.145489

LONGITUDE (DECIMAL DEGREES): -104.53434

CASING ELEVATION (FT. AMSL): Not Installed

GROUND ELEVATION (FT. AMSL): Not Measured



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Brad Marquart

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Site Services

DRILLING EQUIPMENT: Geoprobe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 1/26/2016

TOTAL WELL DEPTH (FT. BGS): 25

DEPTH TO WATER (FT. BGS): Not Measured

Feather 31-15

BORING / WELL ID: BH03

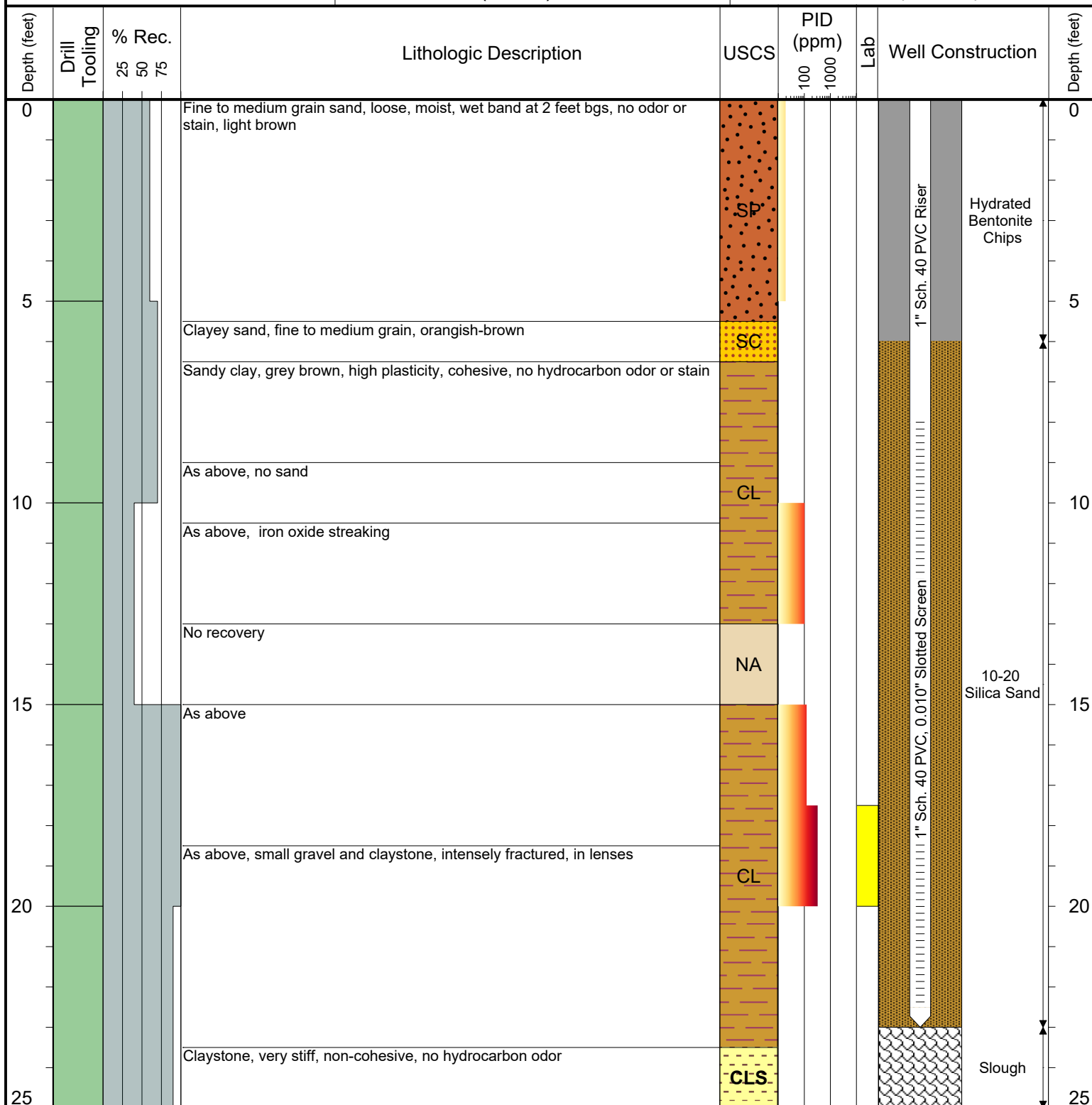
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.145496

LONGITUDE (DECIMAL DEGREES): -104.534168

CASING ELEVATION (FT. AMSL): Not Measured

GROUND ELEVATION (FT. AMSL): Not Measured



**Drilling / Sample Method:**

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

**Laboratory Sample Types:**

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy

LOGGED BY: Brad Marquart

PROJECT MANAGER: Brandon Bruns

DRILLING CONTRACTOR: Site Services

DRILLING EQUIPMENT: Geoprobe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 01/26/16 - 01/26/16

TOTAL WELL DEPTH (FT. BGS): 15

DEPTH TO WATER (FT. BGS): Not Detected

Feather 31-15

BORING / WELL ID: BH04

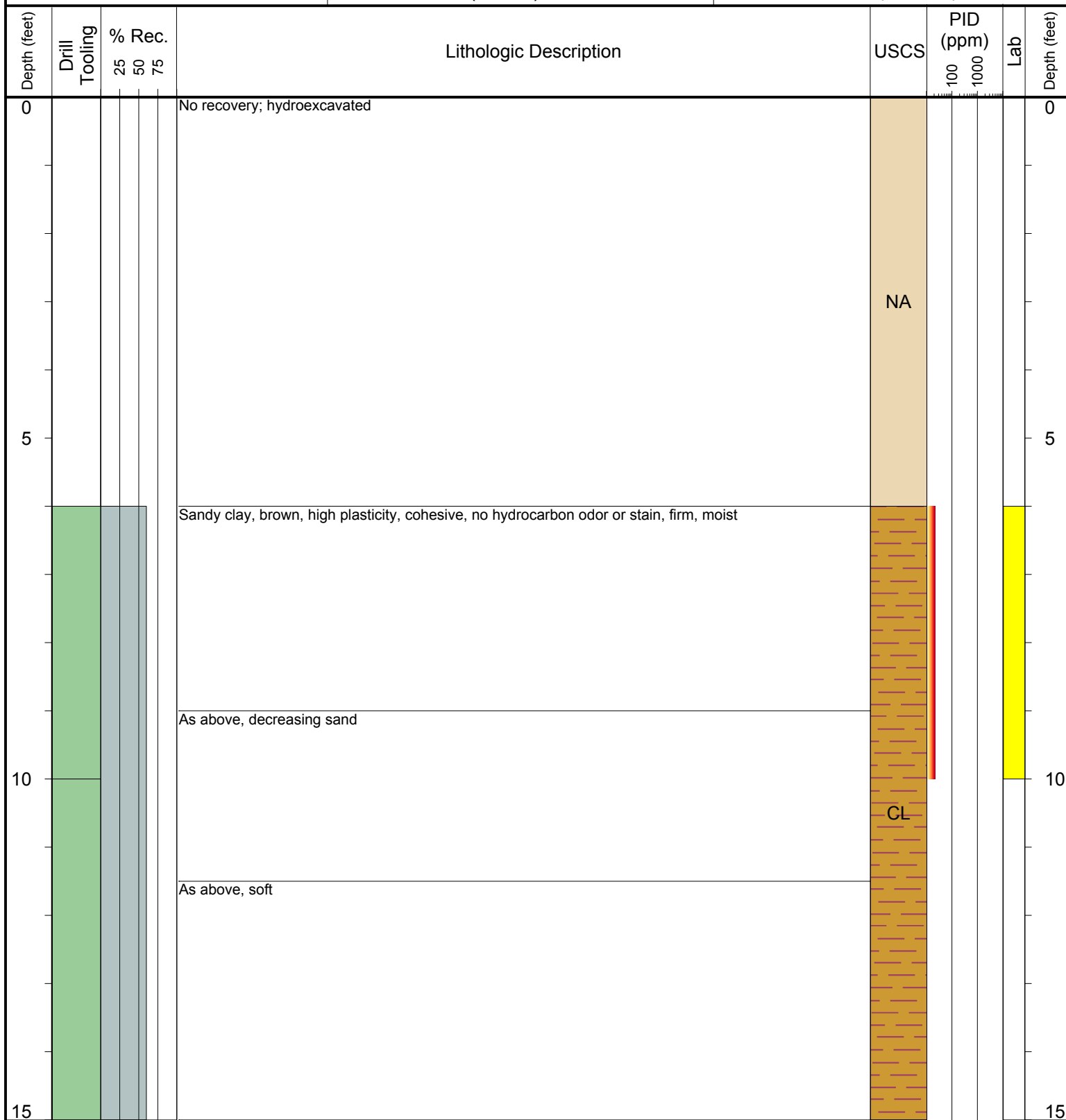
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.145514

LONGITUDE (DECIMAL DEGREES): -104.534538

CASING ELEVATION (FT. AMSL): Not Installed

GROUND ELEVATION (FT. AMSL): Not Measured



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy

LOGGED BY: Brad Marquart

PROJECT MANAGER: Brandon Bruns

DRILLING CONTRACTOR: Site Services

DRILLING EQUIPMENT: Geoprobe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 01/26/16 - 01/26/16

TOTAL WELL DEPTH (FT. BGS): 15

DEPTH TO WATER (FT. BGS): Not Detected

Feather 31-15

BORING / WELL ID: BH05

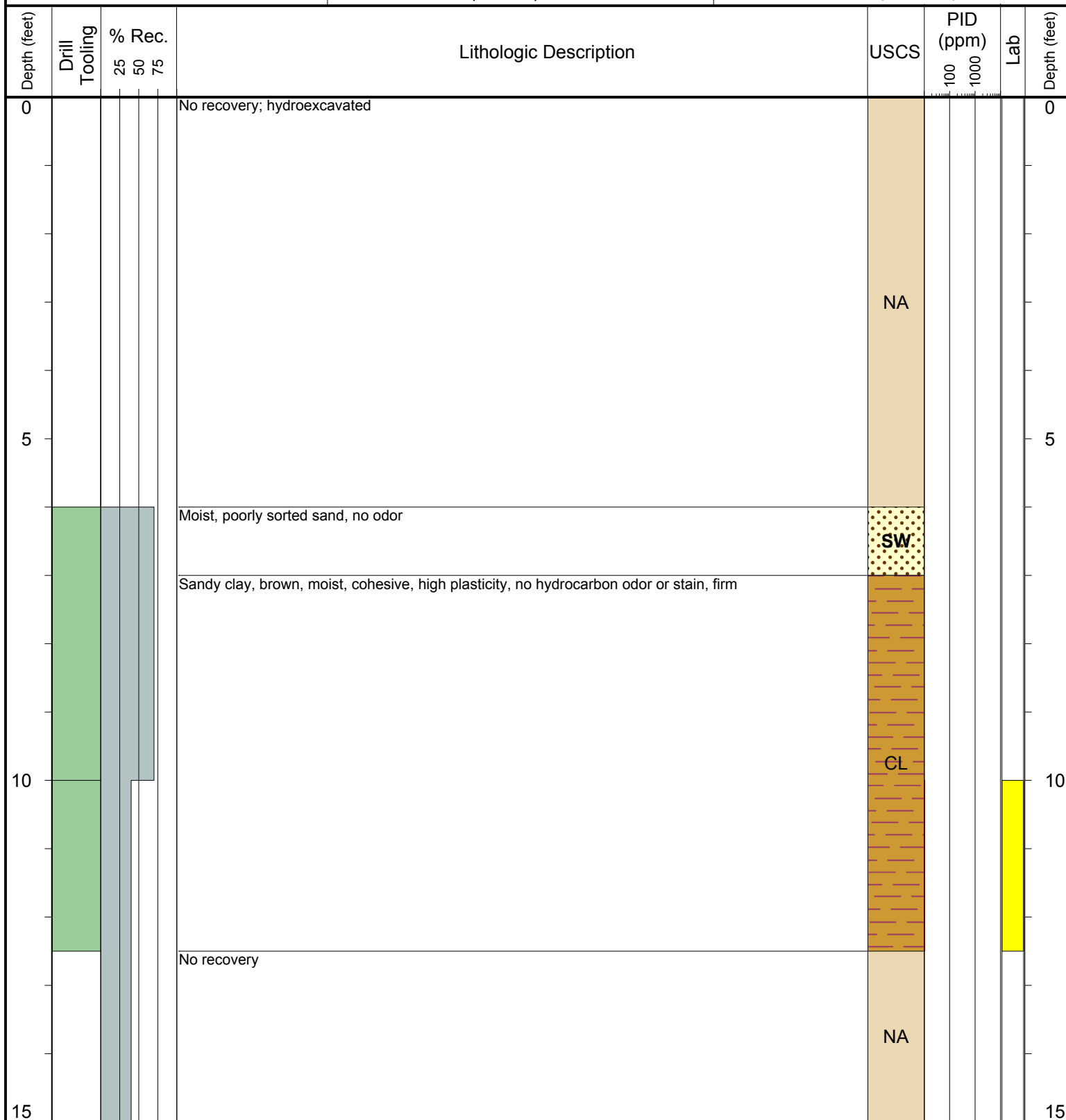
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.145534

LONGITUDE (DECIMAL DEGREES): -104.534534

CASING ELEVATION (FT. AMSL): Not Installed

GROUND ELEVATION (FT. AMSL): Not Measured



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy

LOGGED BY: Brad Marquart

PROJECT MANAGER: Brandon Bruns

DRILLING CONTRACTOR: Site Services

DRILLING EQUIPMENT: Geoprobe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 01/26/16 - 01/26/16

TOTAL WELL DEPTH (FT. BGS): 15

DEPTH TO WATER (FT. BGS): Not Detected

Feather 31-15

BORING / WELL ID: BH06

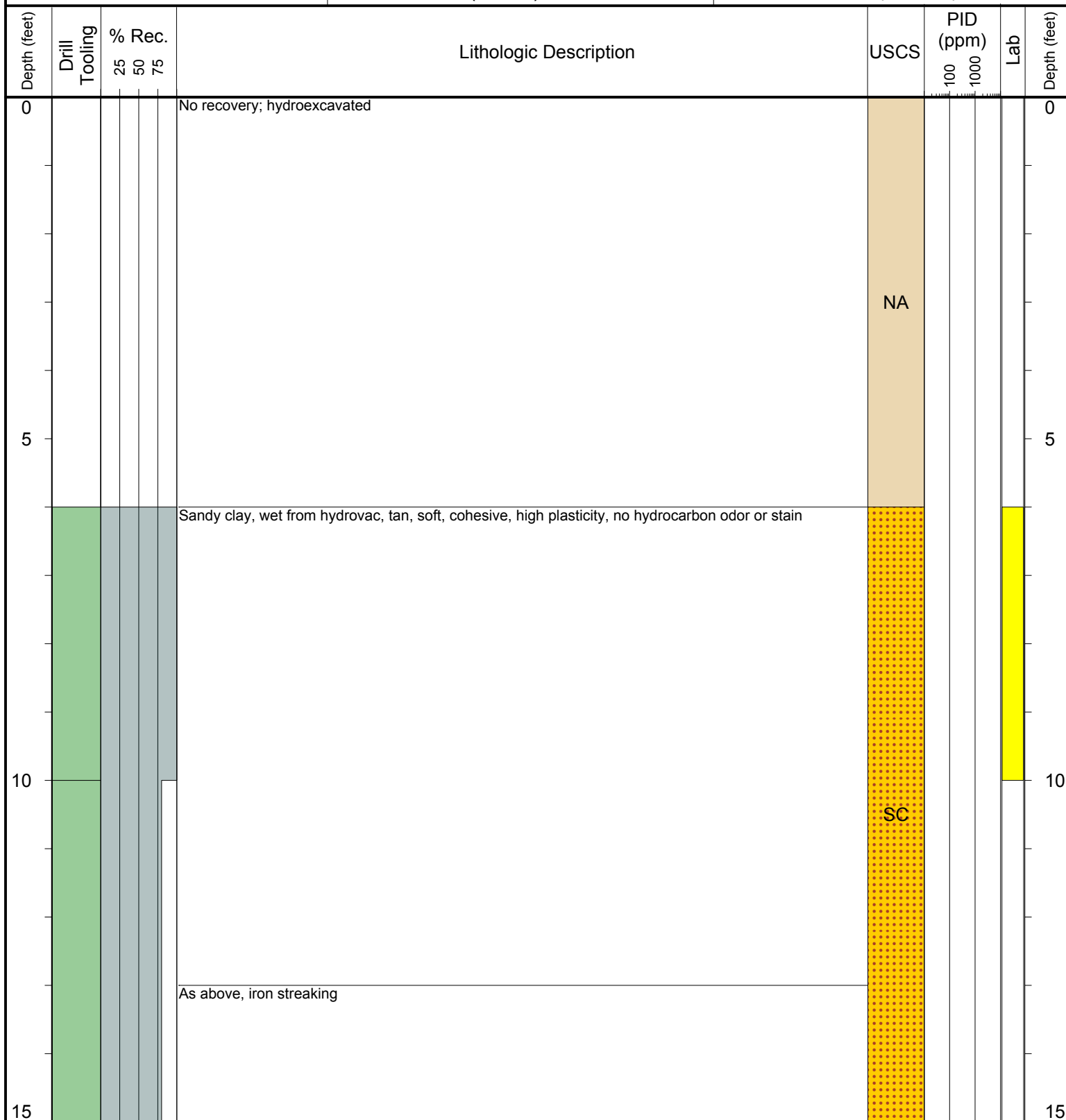
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.145512

LONGITUDE (DECIMAL DEGREES): -104.534425

CASING ELEVATION (FT. AMSL): Not Installed

GROUND ELEVATION (FT. AMSL): Not Measured



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy

LOGGED BY: Brad Marquart

PROJECT MANAGER: Brandon Bruns

DRILLING CONTRACTOR: Site Services

DRILLING EQUIPMENT: Geoprobe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 01/26/16 - 01/26/16

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): Not Detected

Feather 31-15

BORING / WELL ID: BH07

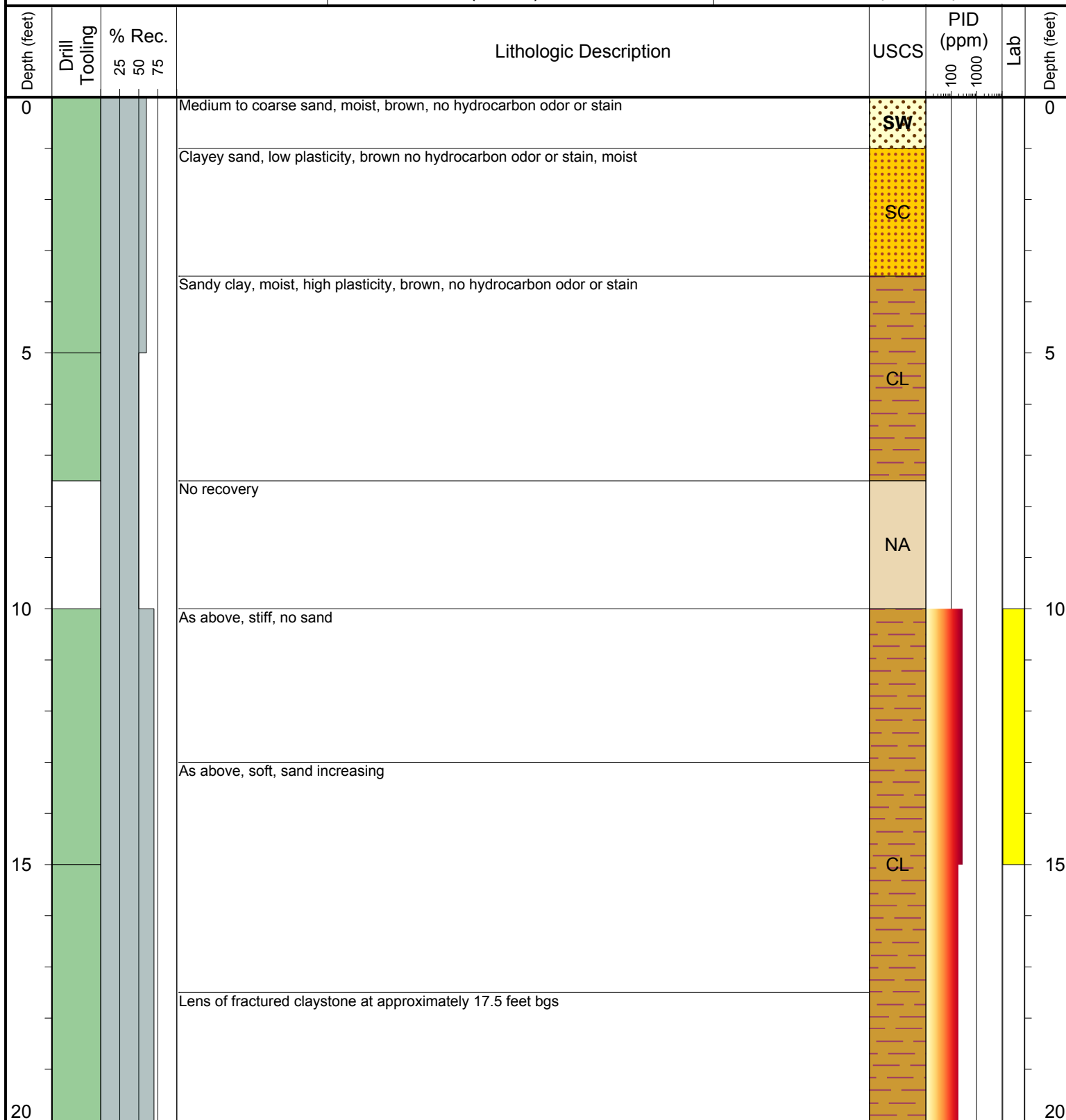
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14544

LONGITUDE (DECIMAL DEGREES): -104.534341

CASING ELEVATION (FT. AMSL): Not Installed

GROUND ELEVATION (FT. AMSL): Not Measured



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy

LOGGED BY: Brad Marquart

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Site Services Drilling

DRILLING EQUIPMENT: Geoprobe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 1/26/16

TOTAL WELL DEPTH (FT. BGS): 25

DEPTH TO WATER (FT. BGS): Not Measured

Feather 31-15

BORING / WELL ID: BH08

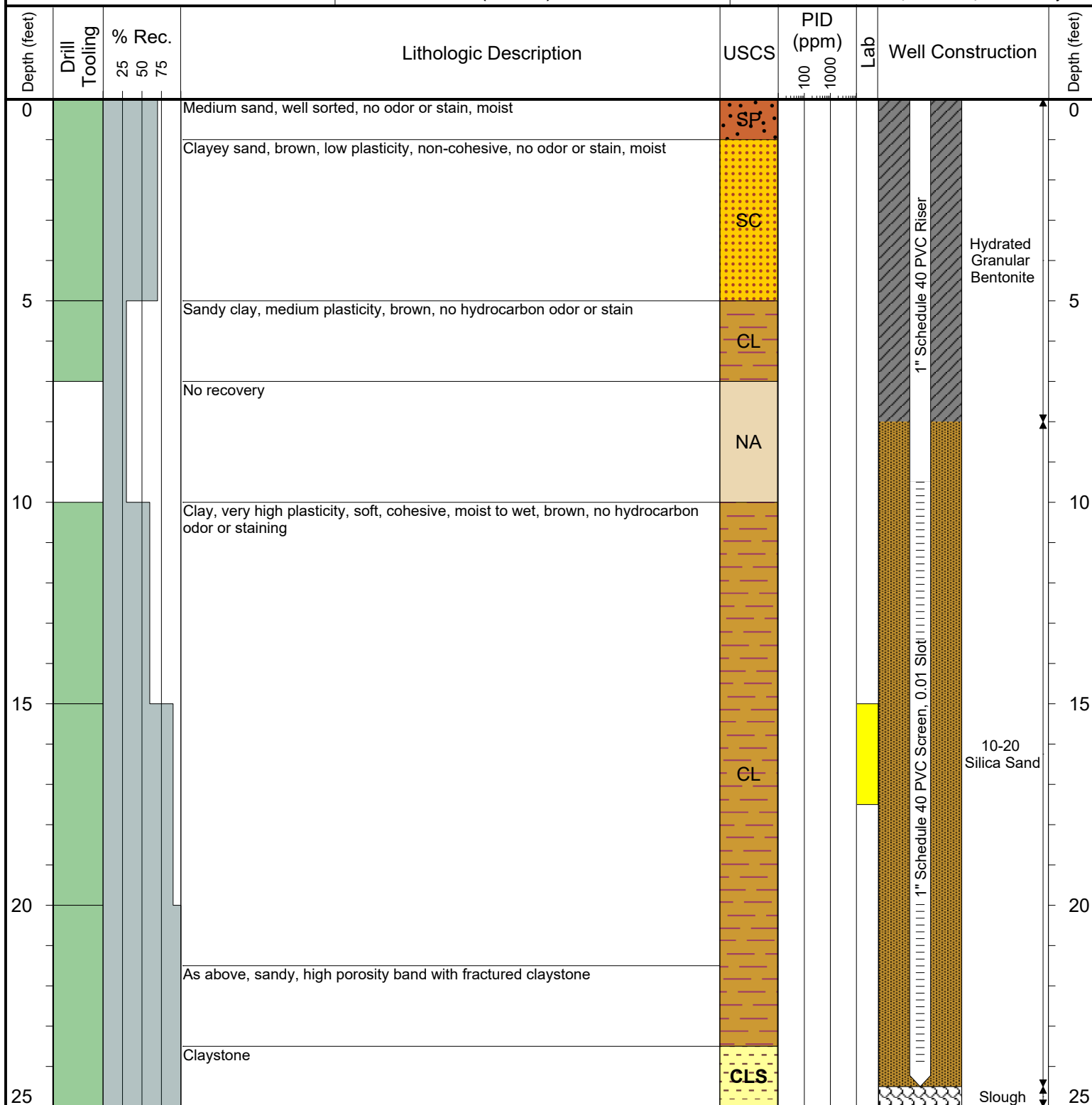
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.145383

LONGITUDE (DECIMAL DEGREES): -104.534348

CASING ELEVATION (FT. AMSL): Not Surveyed

GROUND ELEVATION (FT. AMSL): Not Surveyed



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy

LOGGED BY: Brad Marquart

PROJECT MANAGER: Brandon Bruns

DRILLING CONTRACTOR: Site Services

DRILLING EQUIPMENT: Geoprobe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 01/26/16 - 01/26/16

TOTAL WELL DEPTH (FT. BGS): 25

DEPTH TO WATER (FT. BGS): Not Detected

Feather 31-15

BORING / WELL ID: BH09

LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.145493

LONGITUDE (DECIMAL DEGREES): -104.534097

CASING ELEVATION (FT. AMSL): Not Installed

GROUND ELEVATION (FT. AMSL): Not Measured

| Depth (feet) | Drill Tooling | % Rec.<br>25 50 75 | Lithologic Description  | USCS | PID (ppm) |      | Lab | Depth (feet) |
|--------------|---------------|--------------------|---|------|-----------|------|-----|--------------|
|              |               |                    |   |      | 100       | 1000 |     |              |
| 0            |               |                    | Fine to medium grain sand, poorly sorted, tan to brown, no hydrocarbon odor or stain, moist |      |           |      |     | 0            |
|              |               |                    | As above, wet from 2.5 to 3 feet bgs, then moist again                                      | SW   |           |      |     |              |
| 5            |               |                    | Clayey sand, fine to medium grain, poorly sorted, low plasticity, non-cohesive              | SC   |           |      |     | 5            |
|              |               |                    | Sandy clay  |      |           |      |     |              |
|              |               |                    |   | CL   |           |      |     |              |
| 10           |               |                    | Clay, soft, cohesive, brown, high plasticity, moist, no hydrocarbon odor or stain           |      |           |      |     | 10           |
|              |               |                    | No recovery   |      |           |      |     |              |
|              |               |                    |   | NA   |           |      |     |              |
| 15           |               |                    | As above, stiff   |      |           |      |     | 15           |
|              |               |                    |   | CL   |           |      |     |              |
| 20           |               |                    |   |      |           |      |     | 20           |
|              |               |                    | As above, lens of fractured claystone at approximately 21.5 feet bgs                        |      |           |      |     |              |
|              |               |                    |   |      |           |      |     |              |
| 25           |               |                    | Claystone, very stiff   | CLS  |           |      |     | 25           |

Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Eric Siegel, P.G.

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 8/25/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 7

Feather 31-15

BORING / WELL ID: BH10

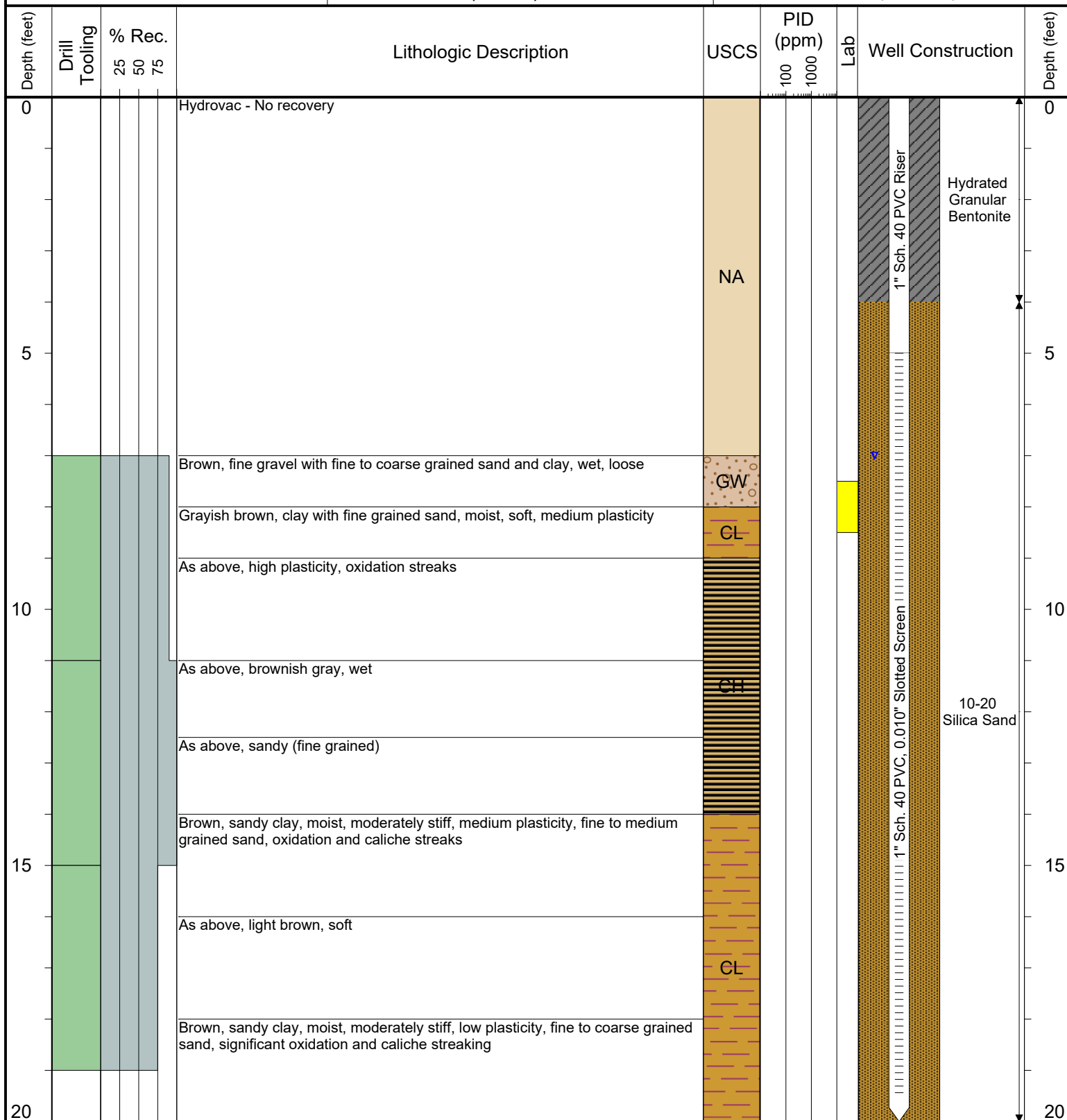
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14551031289

LONGITUDE (DECIMAL DEGREES): -104.53442269

CASING ELEVATION (FT. AMSL): 4964.48

GROUND ELEVATION (FT. AMSL): 4961.4



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Eric Siegel, P.G.

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 8/25/2016

TOTAL WELL DEPTH (FT. BGS): 19

DEPTH TO WATER (FT. BGS): 6.5

Feather 31-15

BORING / WELL ID: BH11

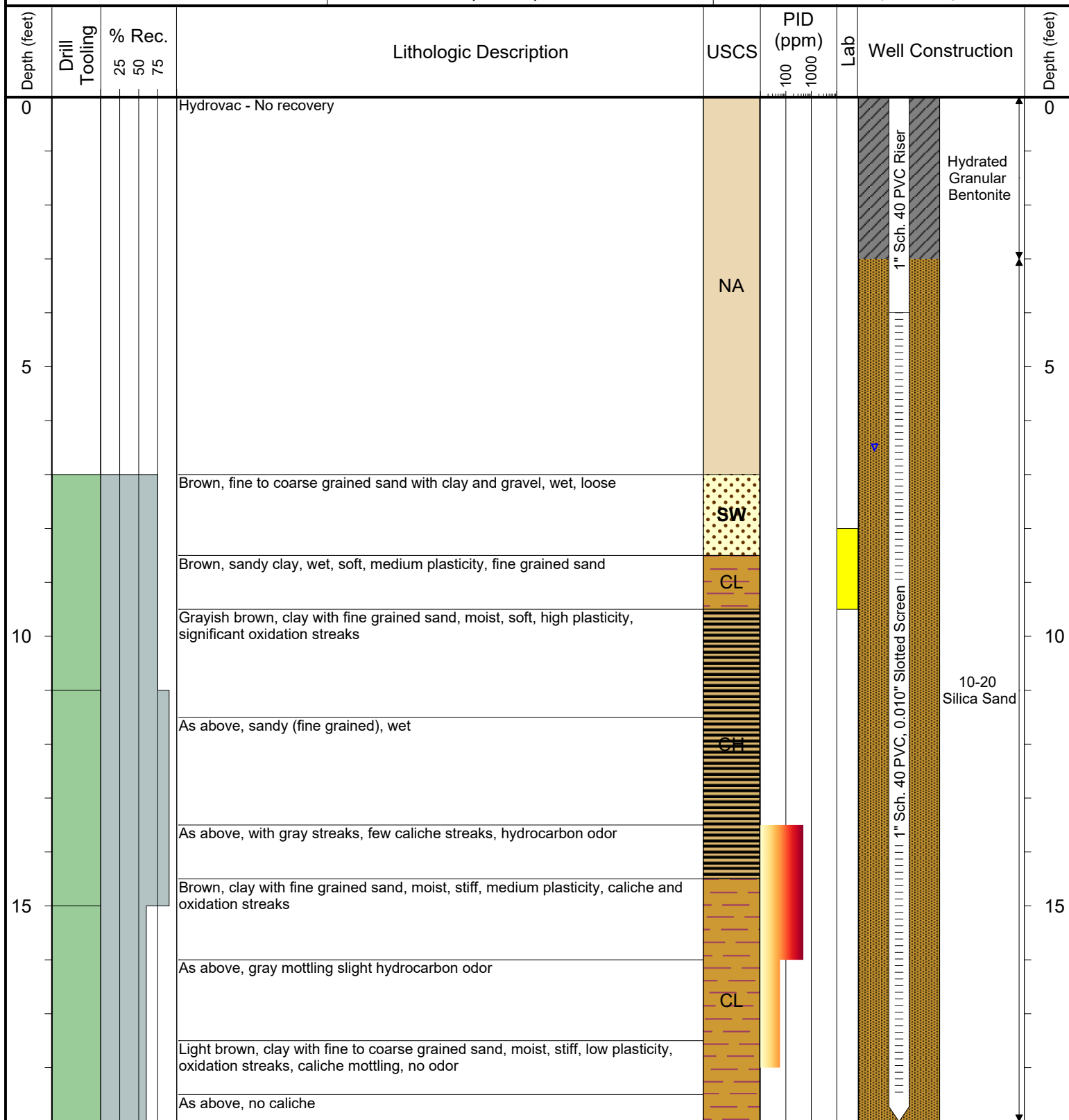
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14543572437

LONGITUDE (DECIMAL DEGREES): -104.53433963

CASING ELEVATION (FT. AMSL): 4960.77

GROUND ELEVATION (FT. AMSL): 4960.86



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Eric Siegel, P.G.

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 8/25/2016

TOTAL WELL DEPTH (FT. BGS): 19

DEPTH TO WATER (FT. BGS): 7

Feather 31-15

BORING / WELL ID: BH12

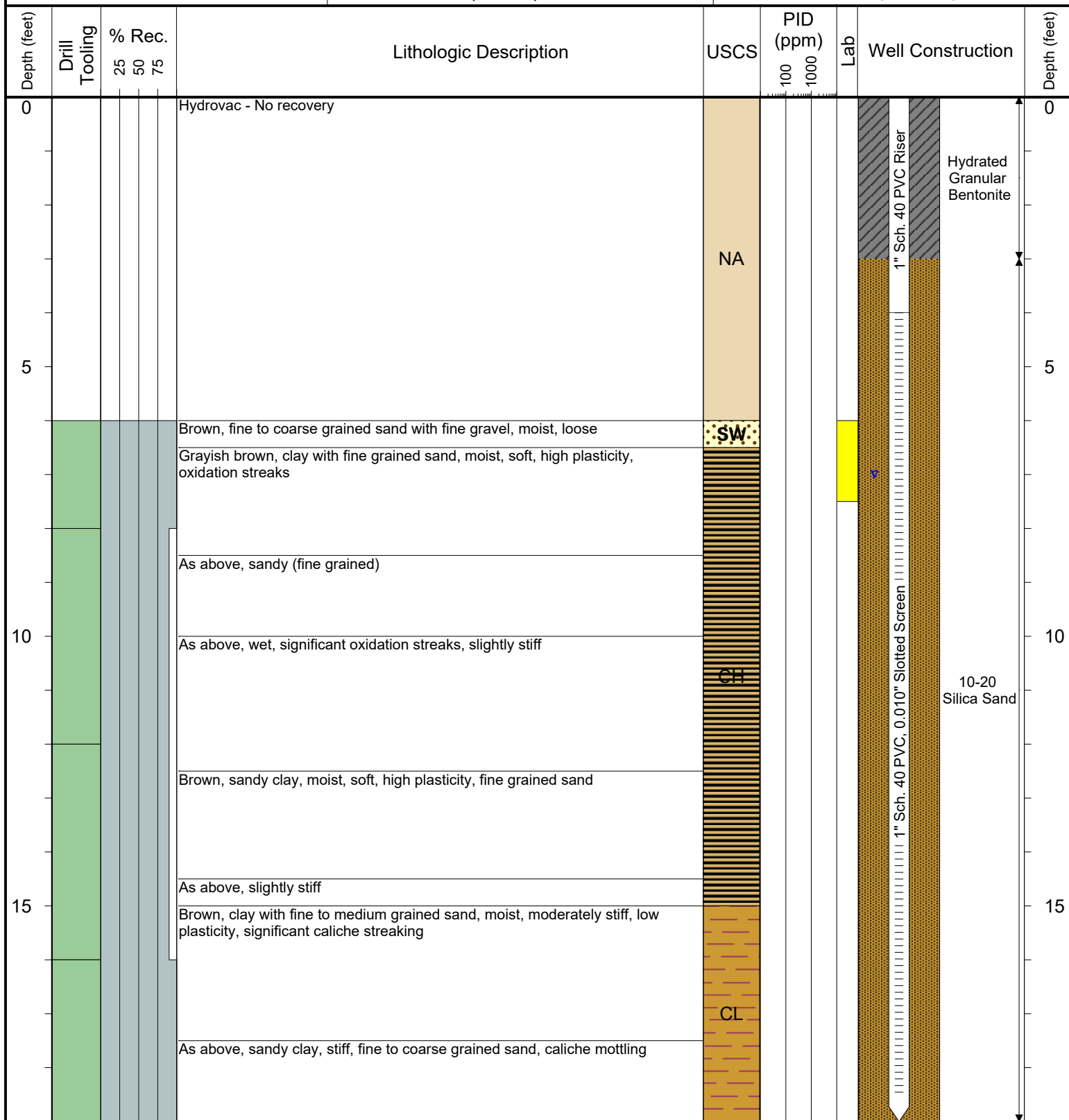
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14541216420

LONGITUDE (DECIMAL DEGREES): -104.53415146

CASING ELEVATION (FT. AMSL): 4960.63

GROUND ELEVATION (FT. AMSL): 4960.77



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Eric Siegel, P.G.

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 8/25/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 7

Feather 31-15

BORING / WELL ID: BH13

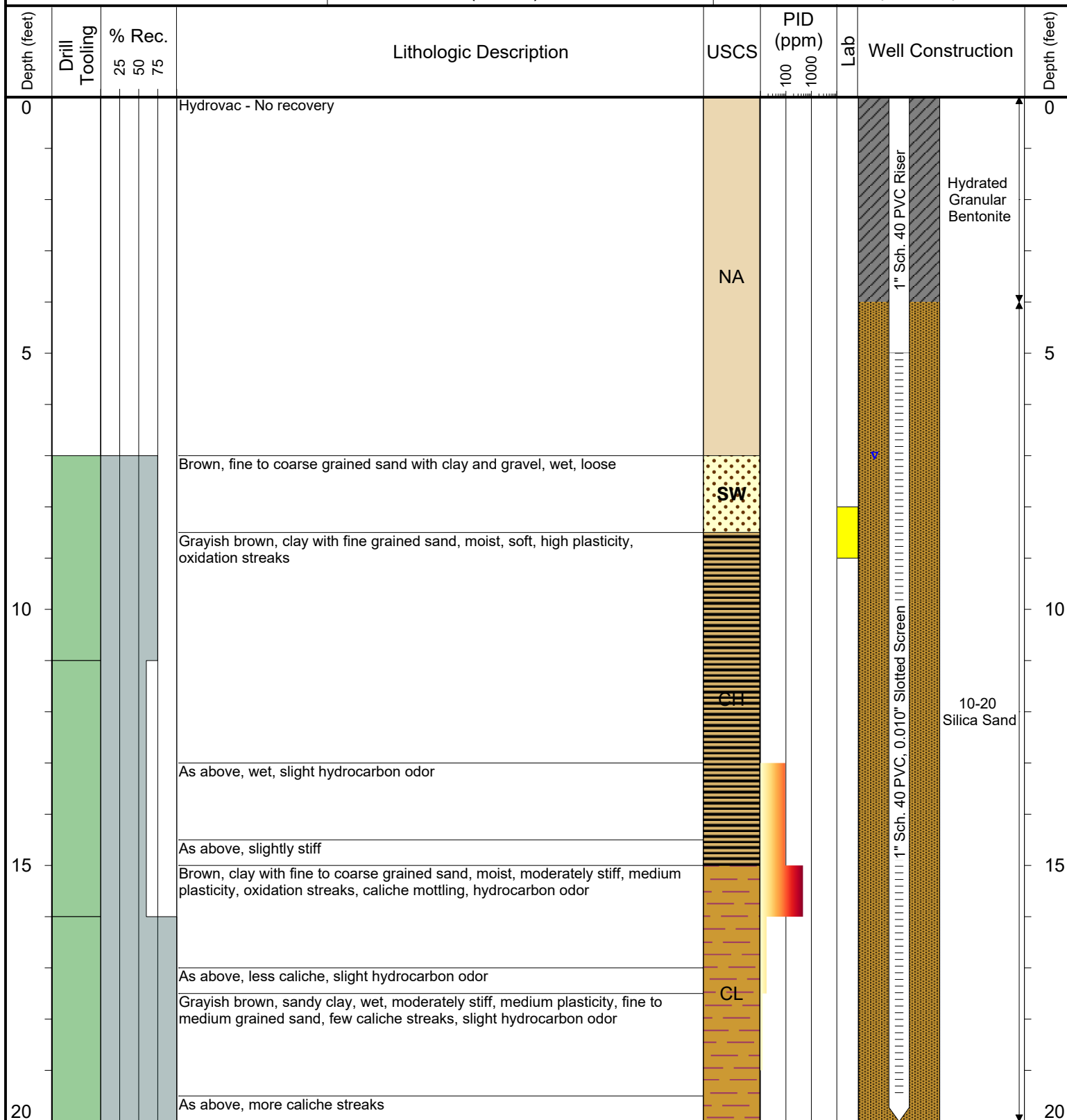
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): Not Measured

LONGITUDE (DECIMAL DEGREES): Not Measured

CASING ELEVATION (FT. AMSL): 4963.84

GROUND ELEVATION (FT. AMSL): 4961.02



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Eric Siegel, P.G.

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 8/25/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 7

Feather 31-15

BORING / WELL ID: BH14

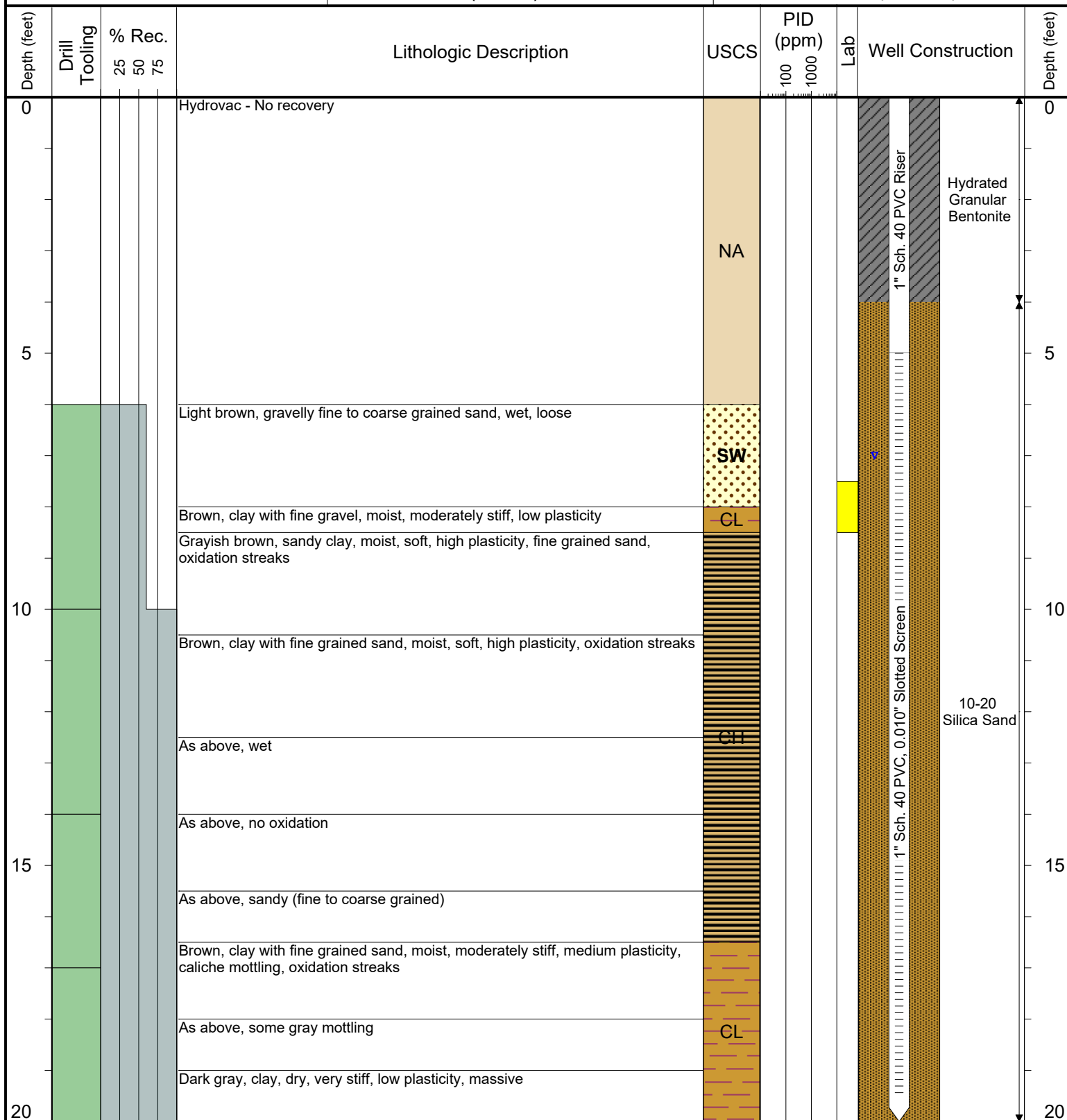
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): Not Measured

LONGITUDE (DECIMAL DEGREES): Not Measured

CASING ELEVATION (FT. AMSL): 4960.84

GROUND ELEVATION (FT. AMSL): 4961.03



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Eric Siegel, P.G.

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 8/25/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 7.5

Feather 31-15

BORING / WELL ID: BH15

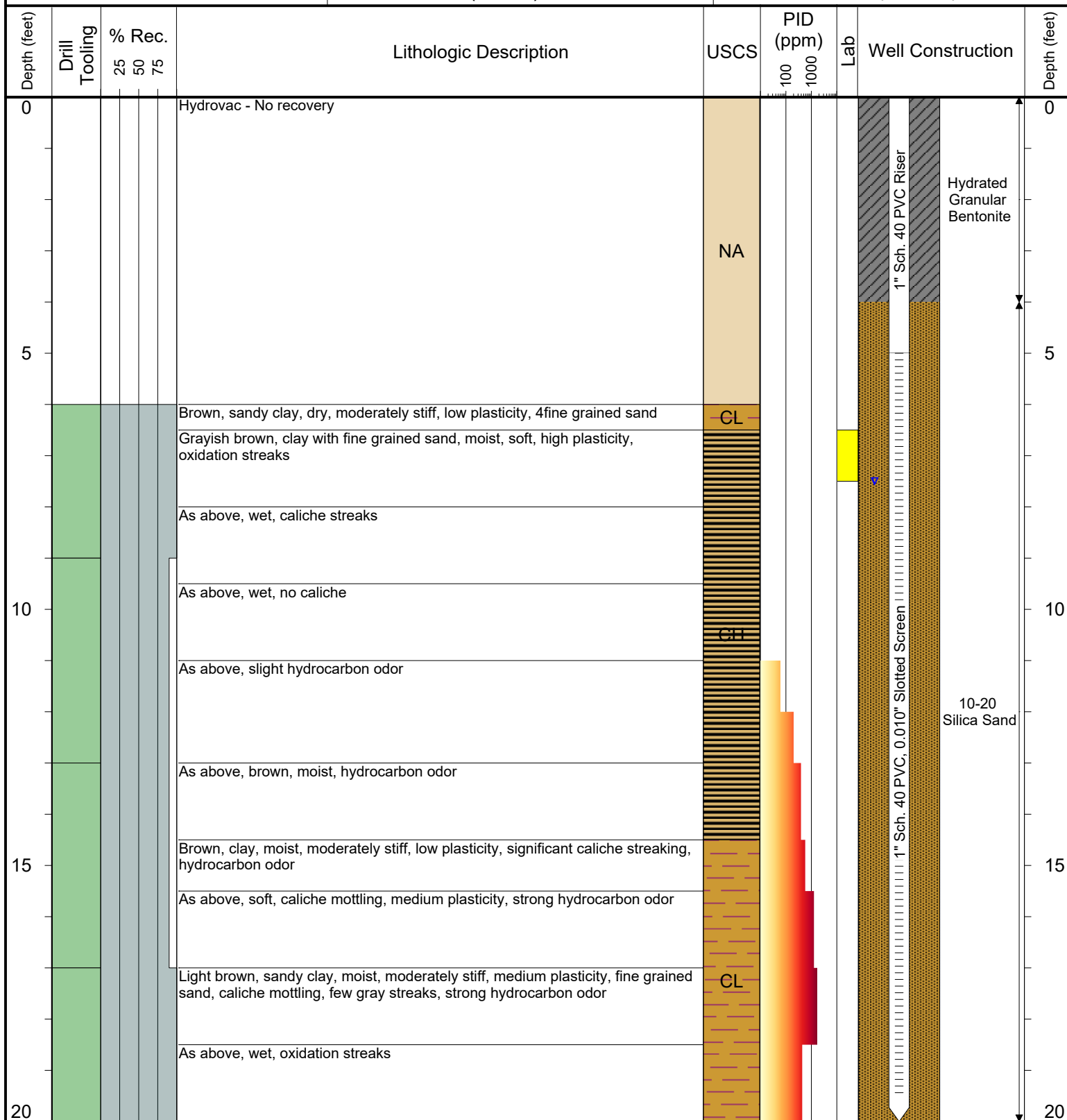
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): Not Measured

LONGITUDE (DECIMAL DEGREES): Not Measured

CASING ELEVATION (FT. AMSL): 4961.83

GROUND ELEVATION (FT. AMSL): 4959.07



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Eric Siegel, P.G.

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 8/25/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 7.5

Feather 31-15

BORING / WELL ID: BH16

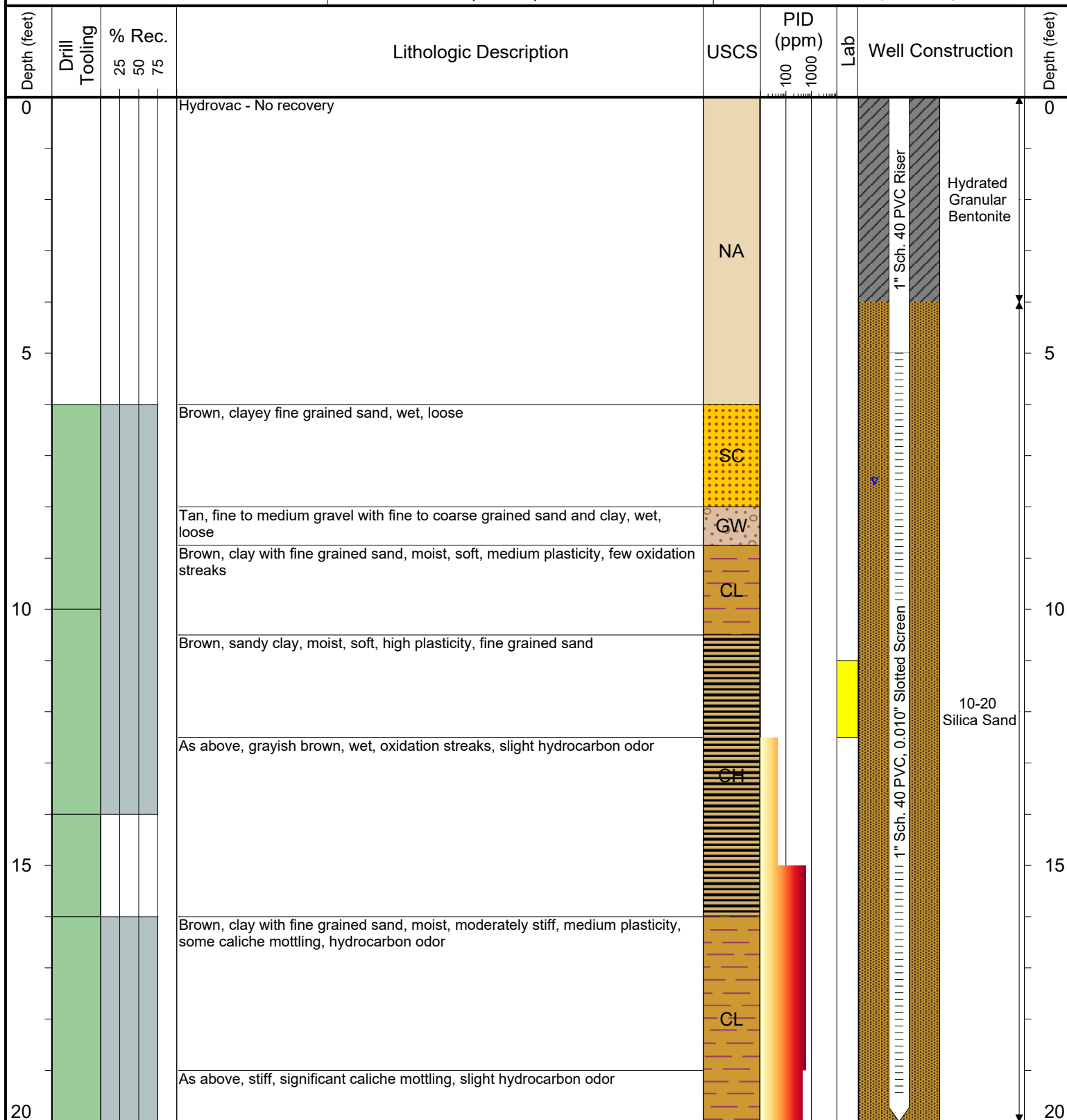
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): Not Measured

LONGITUDE (DECIMAL DEGREES): Not Measured

CASING ELEVATION (FT. AMSL): 4960.67

GROUND ELEVATION (FT. AMSL): 4960.81



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Jacob Whritenour

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 9/21/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 6.5

Feather 31-15

BORING / WELL ID: BH17

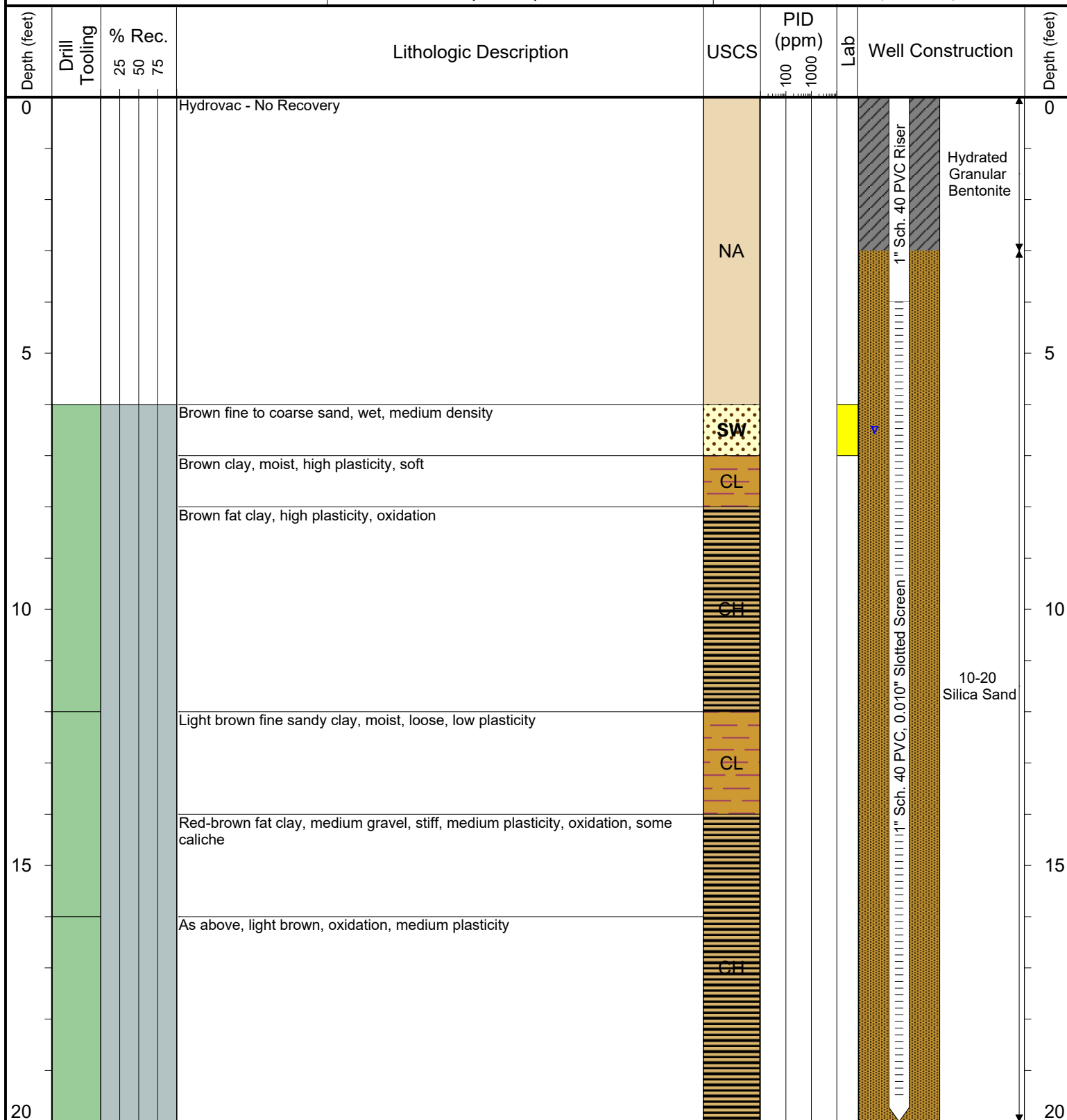
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14562467694

LONGITUDE (DECIMAL DEGREES): -104.53438597

CASING ELEVATION (FT. AMSL): 4961.27

GROUND ELEVATION (FT. AMSL): 4961.37



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 9/21/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 7.5

Feather 31-15

BORING / WELL ID: BH18

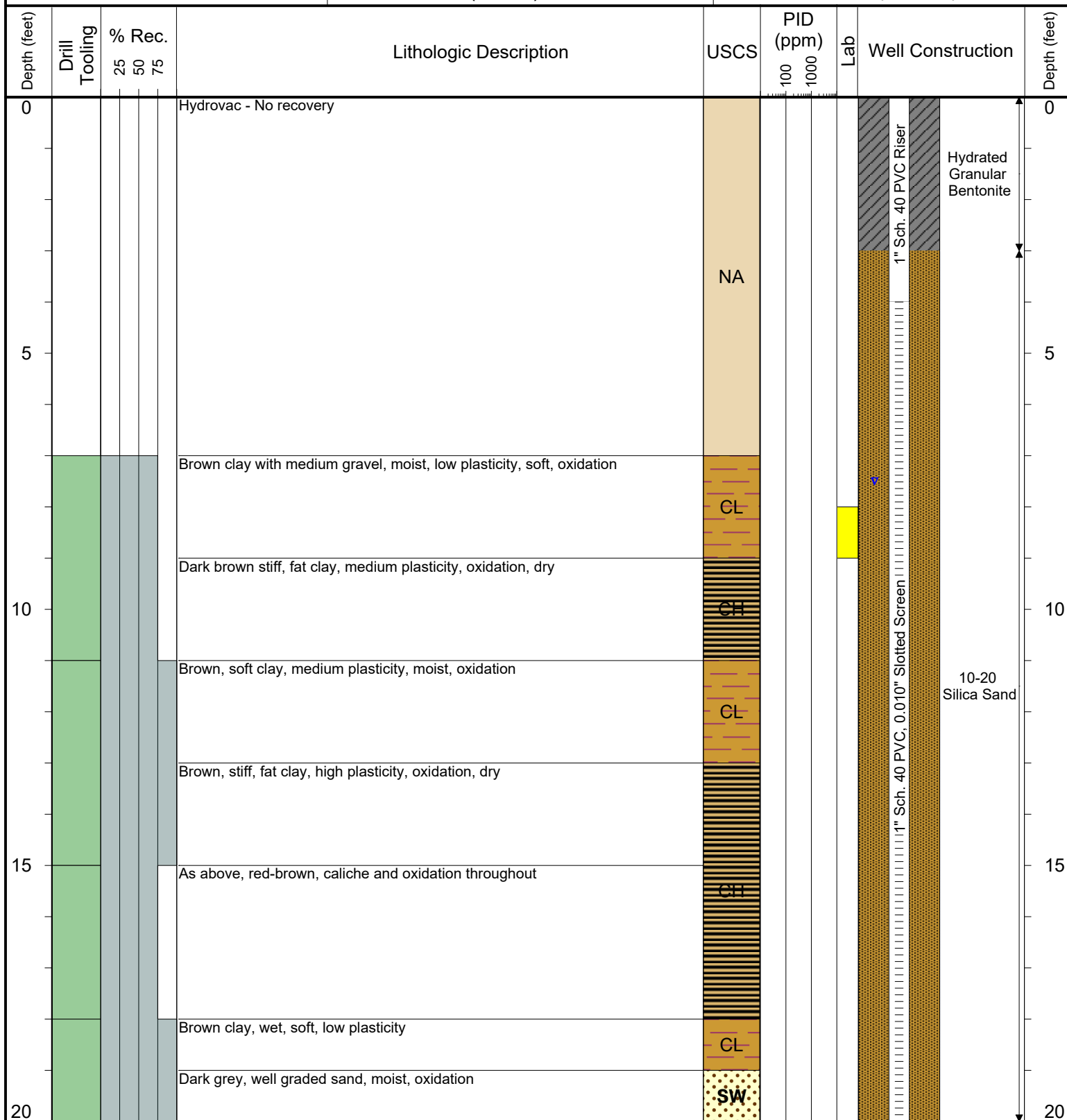
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14569389056

LONGITUDE (DECIMAL DEGREES): -104.53427263

CASING ELEVATION (FT. AMSL): 4962.91

GROUND ELEVATION (FT. AMSL): 4960.41



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 9/21/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 7

Feather 31-15

BORING / WELL ID: BH19

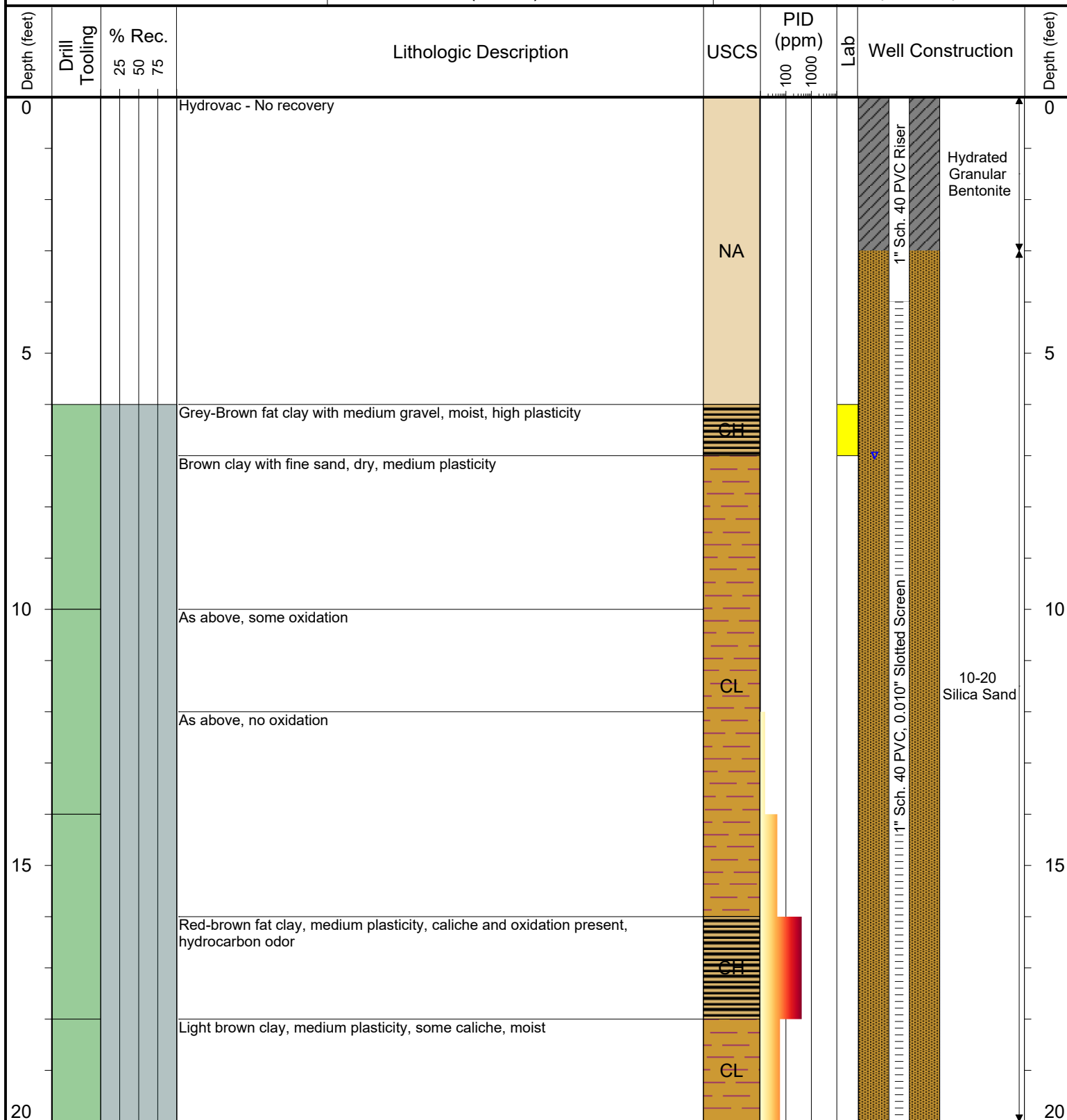
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14555417411

LONGITUDE (DECIMAL DEGREES): -104.53413772

CASING ELEVATION (FT. AMSL): 4961.23

GROUND ELEVATION (FT. AMSL): 4961.56



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



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LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 9/21/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 7

Feather 31-15

BORING / WELL ID: BH20

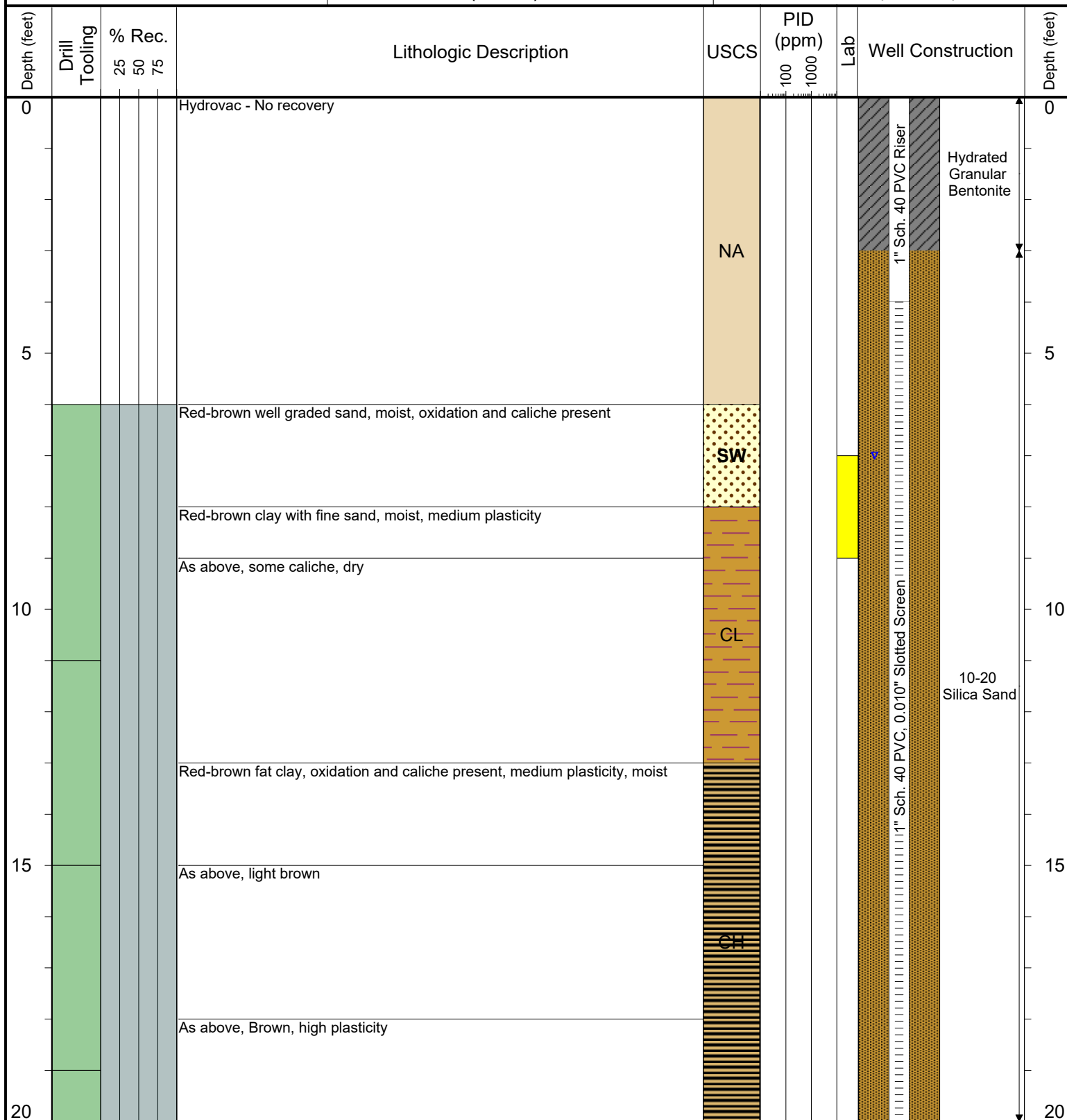
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14564958726

LONGITUDE (DECIMAL DEGREES): -104.53388742

CASING ELEVATION (FT. AMSL): 4959.06

GROUND ELEVATION (FT. AMSL): 4959.32



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

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LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 9/21/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 7

Feather 31-15

BORING / WELL ID: BH21

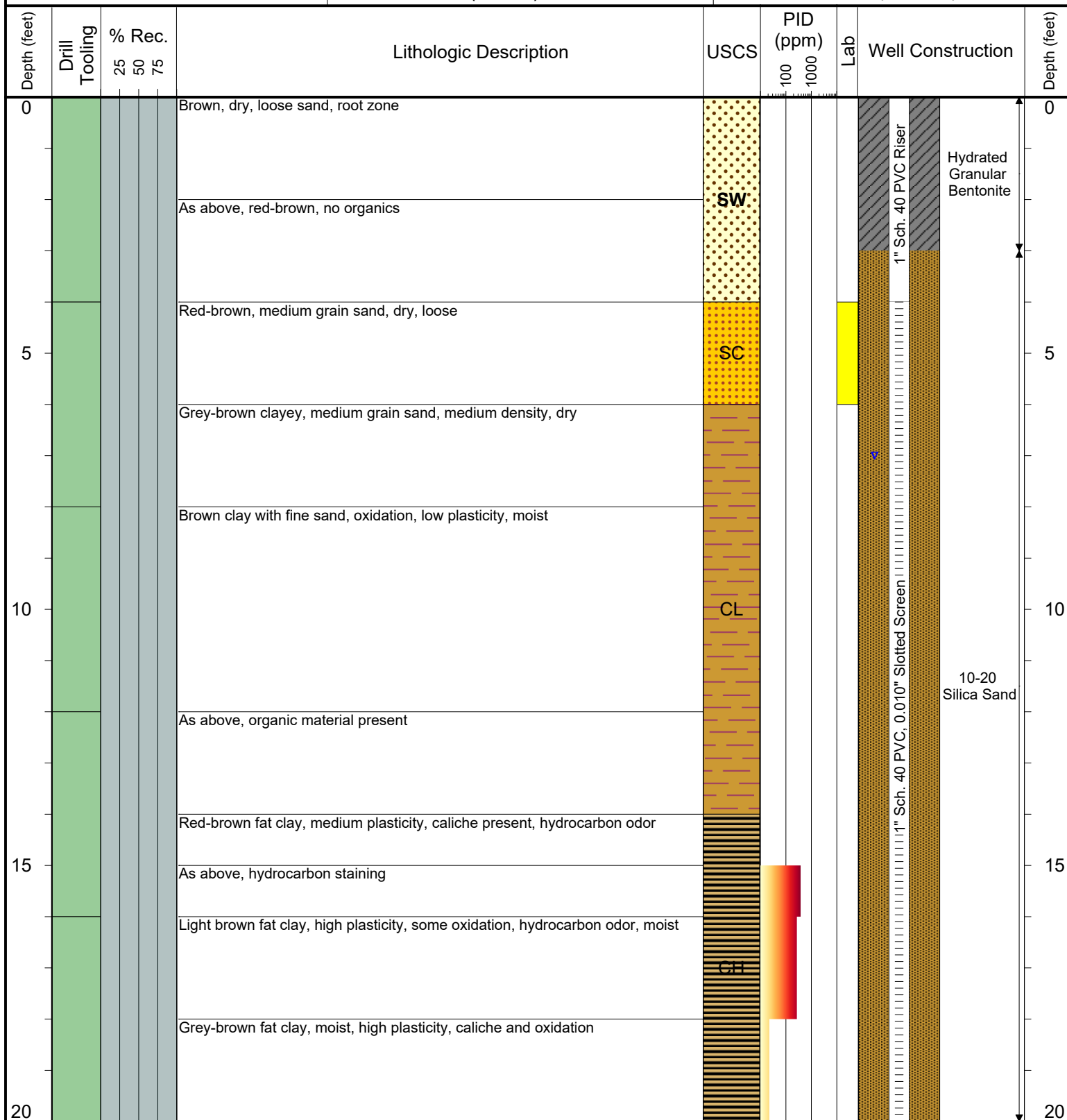
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14580049638

LONGITUDE (DECIMAL DEGREES): -104.53386606

CASING ELEVATION (FT. AMSL): 4960.89

GROUND ELEVATION (FT. AMSL): 4957.8



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

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LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 9/21/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 6

Feather 31-15

BORING / WELL ID: BH22

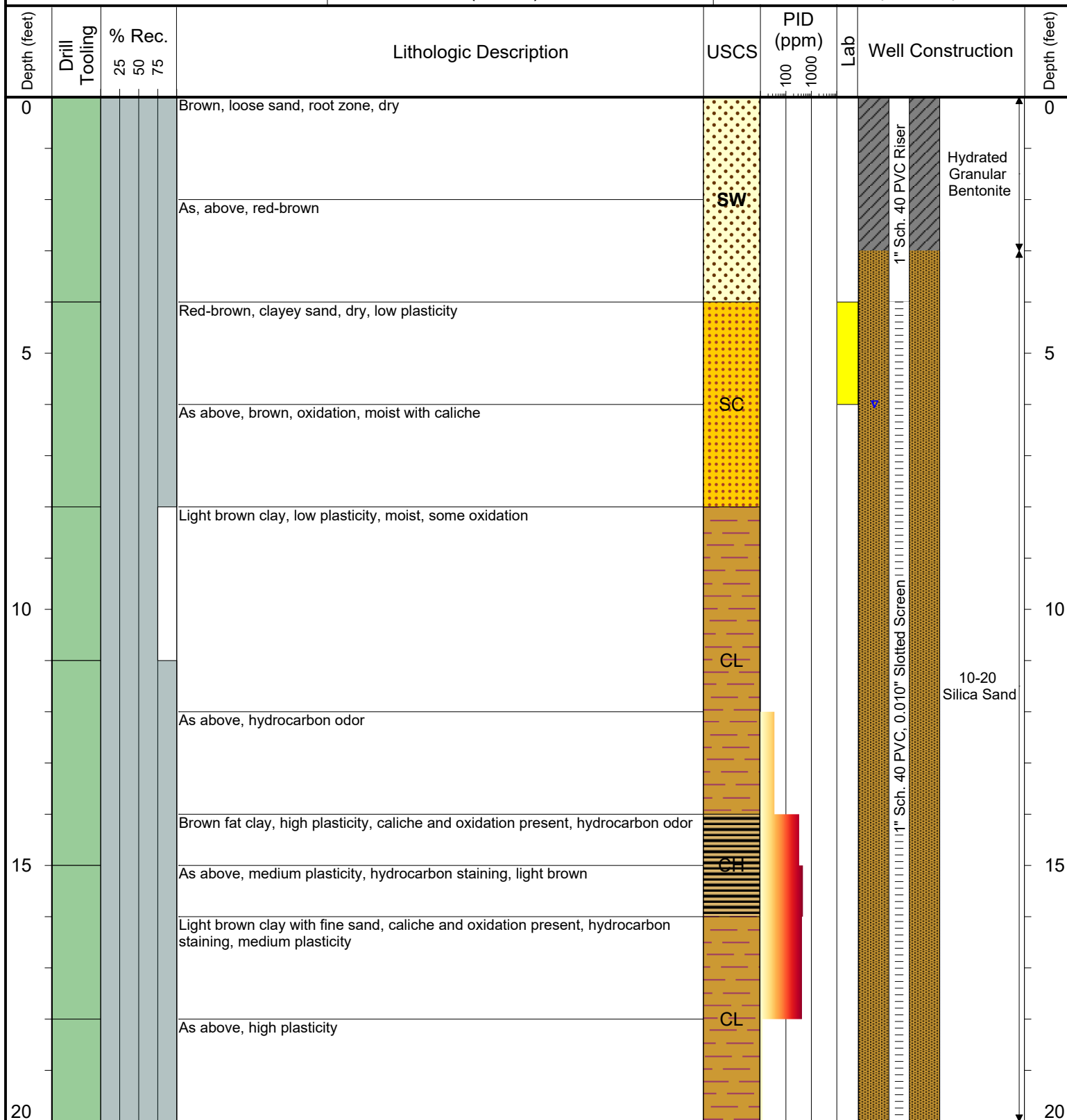
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14580218776

LONGITUDE (DECIMAL DEGREES): -104.53405850

CASING ELEVATION (FT. AMSL): 4961.11

GROUND ELEVATION (FT. AMSL): 4957.91



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



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LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 9/22/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 7

Feather 31-15

BORING / WELL ID: BH23

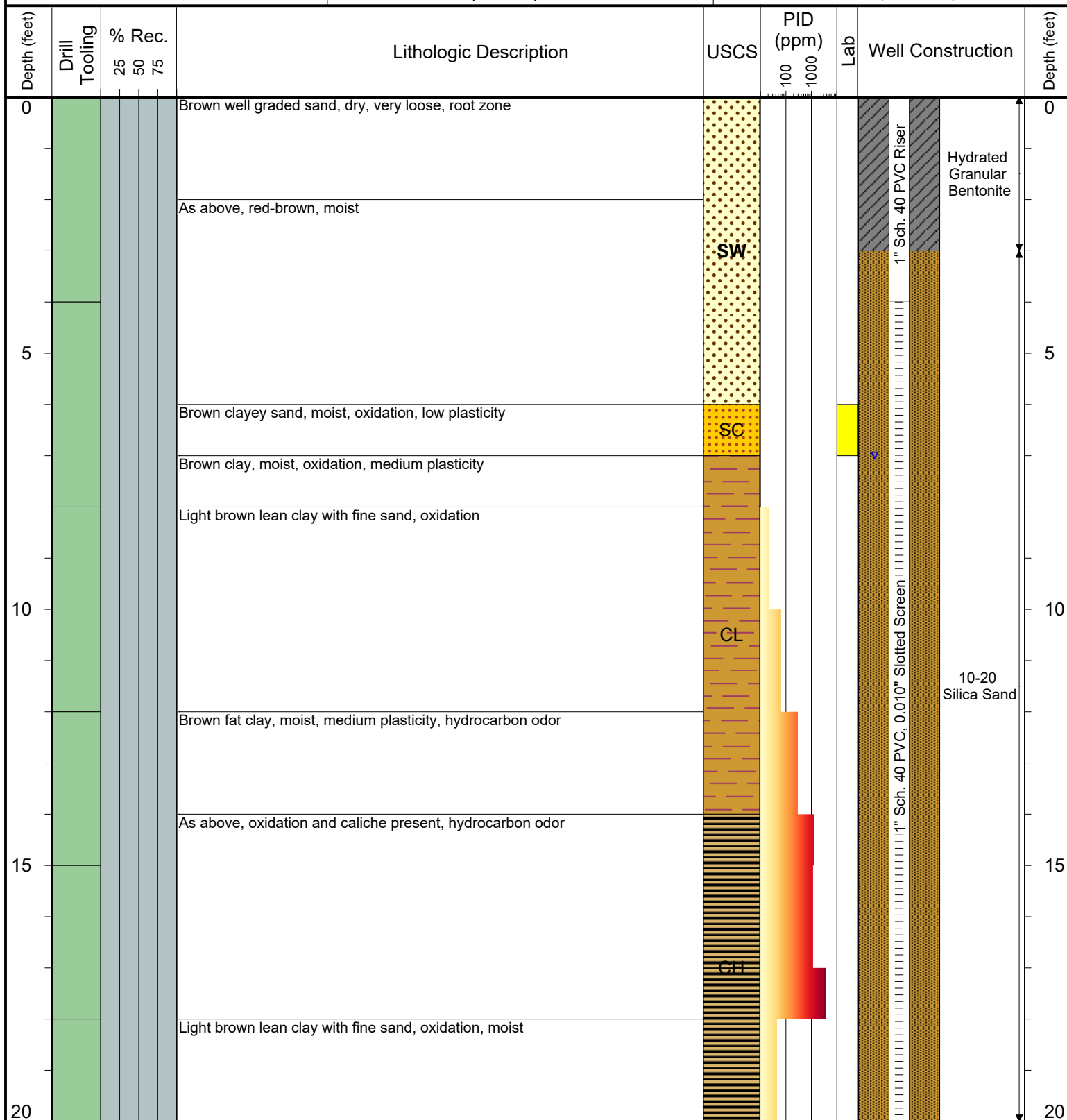
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14585808071

LONGITUDE (DECIMAL DEGREES): -104.53395896

CASING ELEVATION (FT. AMSL): 4960.67

GROUND ELEVATION (FT. AMSL): 4957.6



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

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LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 9/22/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 7

Feather 31-15

BORING / WELL ID: BH24

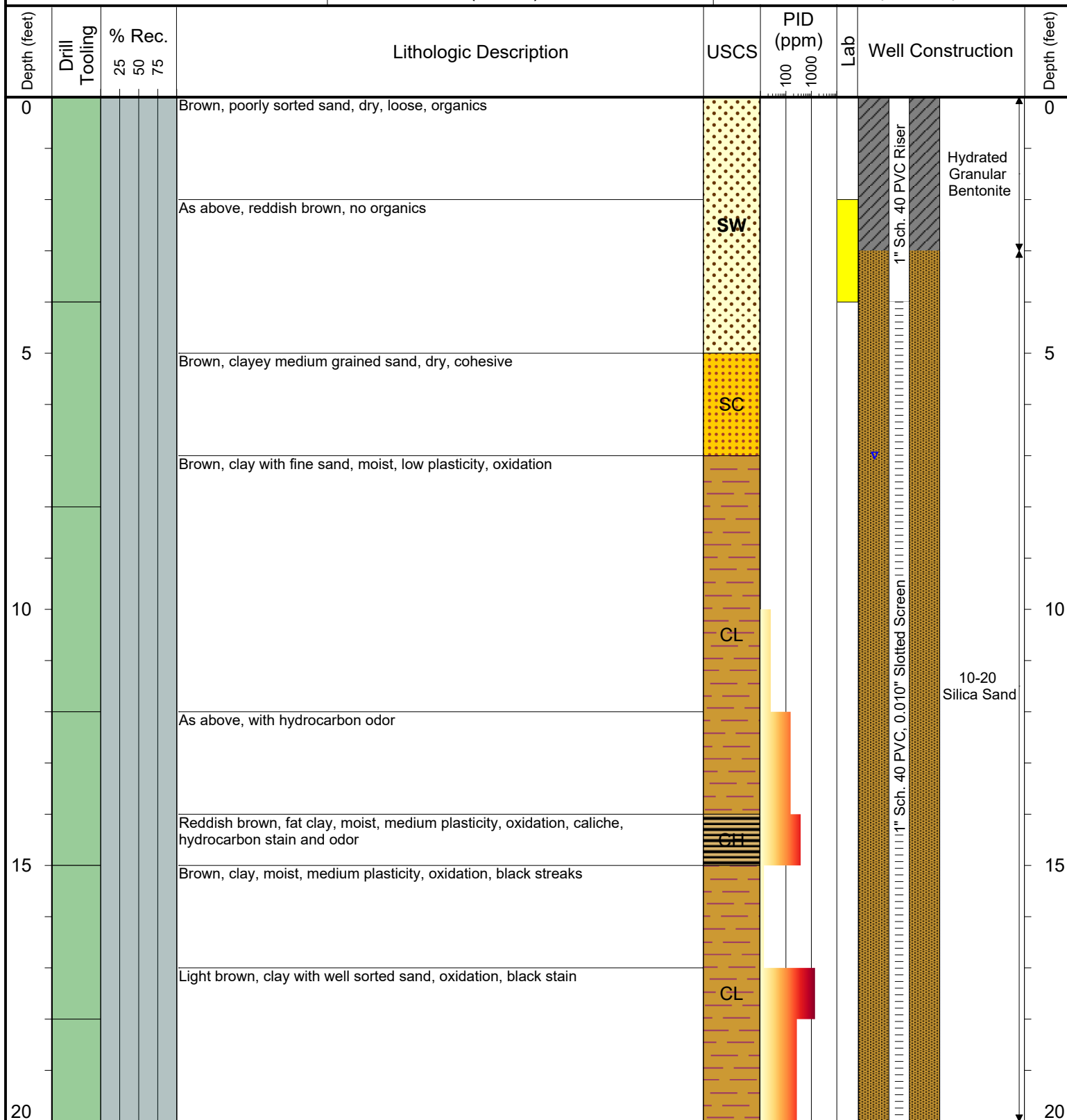
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14588391307

LONGITUDE (DECIMAL DEGREES): -104.53401661

CASING ELEVATION (FT. AMSL): 4960.3

GROUND ELEVATION (FT. AMSL): 4957.43



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

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CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 9/22/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 8

Feather 31-15

BORING / WELL ID: BH25

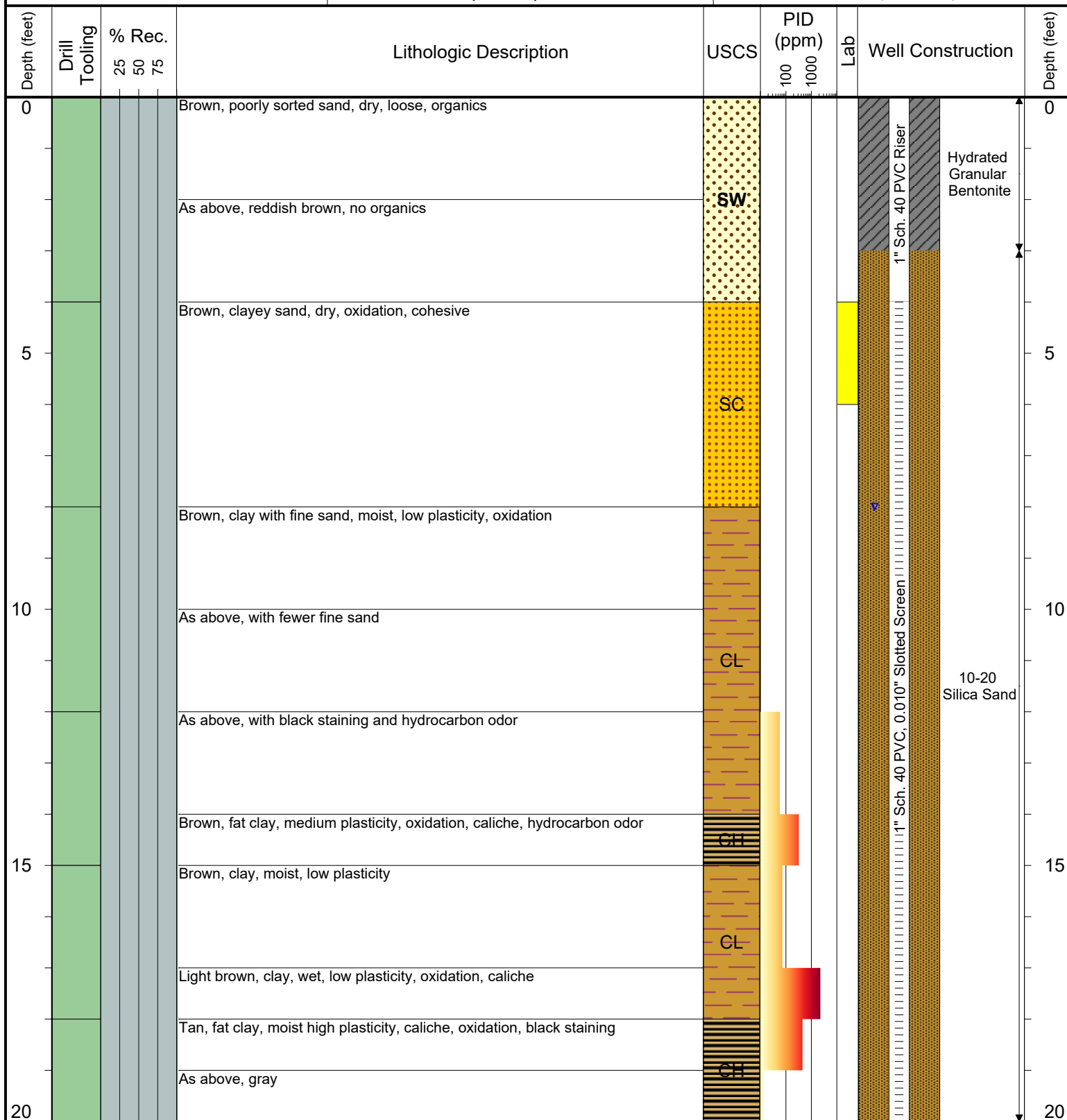
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14586988584

LONGITUDE (DECIMAL DEGREES): -104.53388407

CASING ELEVATION (FT. AMSL): 4960.28

GROUND ELEVATION (FT. AMSL): 4957.16



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 9/22/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 7

Feather 31-15

BORING / WELL ID: BH26

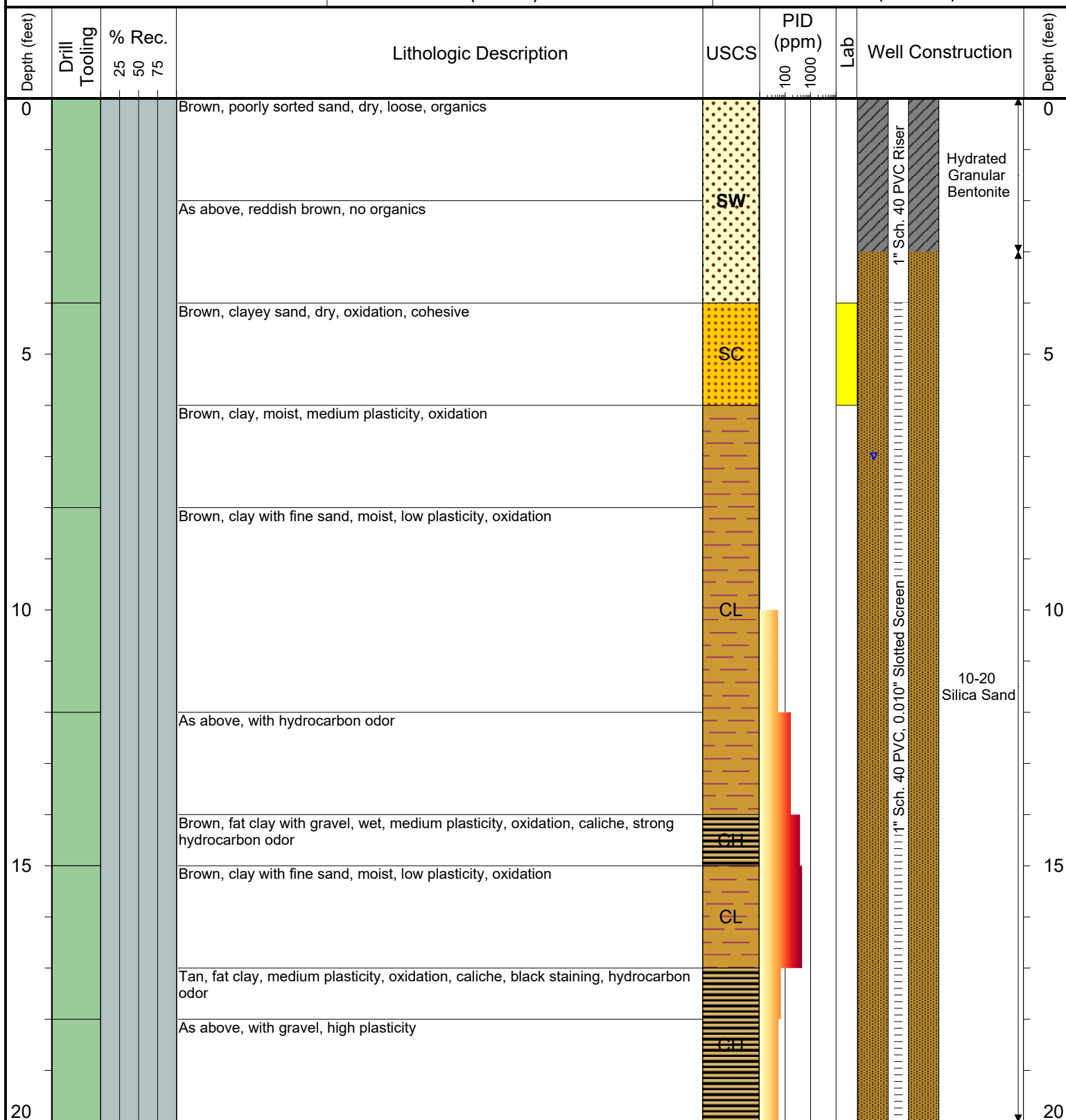
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14596819711

LONGITUDE (DECIMAL DEGREES): -104.53390119

CASING ELEVATION (FT. AMSL): 4959.46

GROUND ELEVATION (FT. AMSL): 4956.31



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 9/22/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 6

Feather 31-15

BORING / WELL ID: BH27

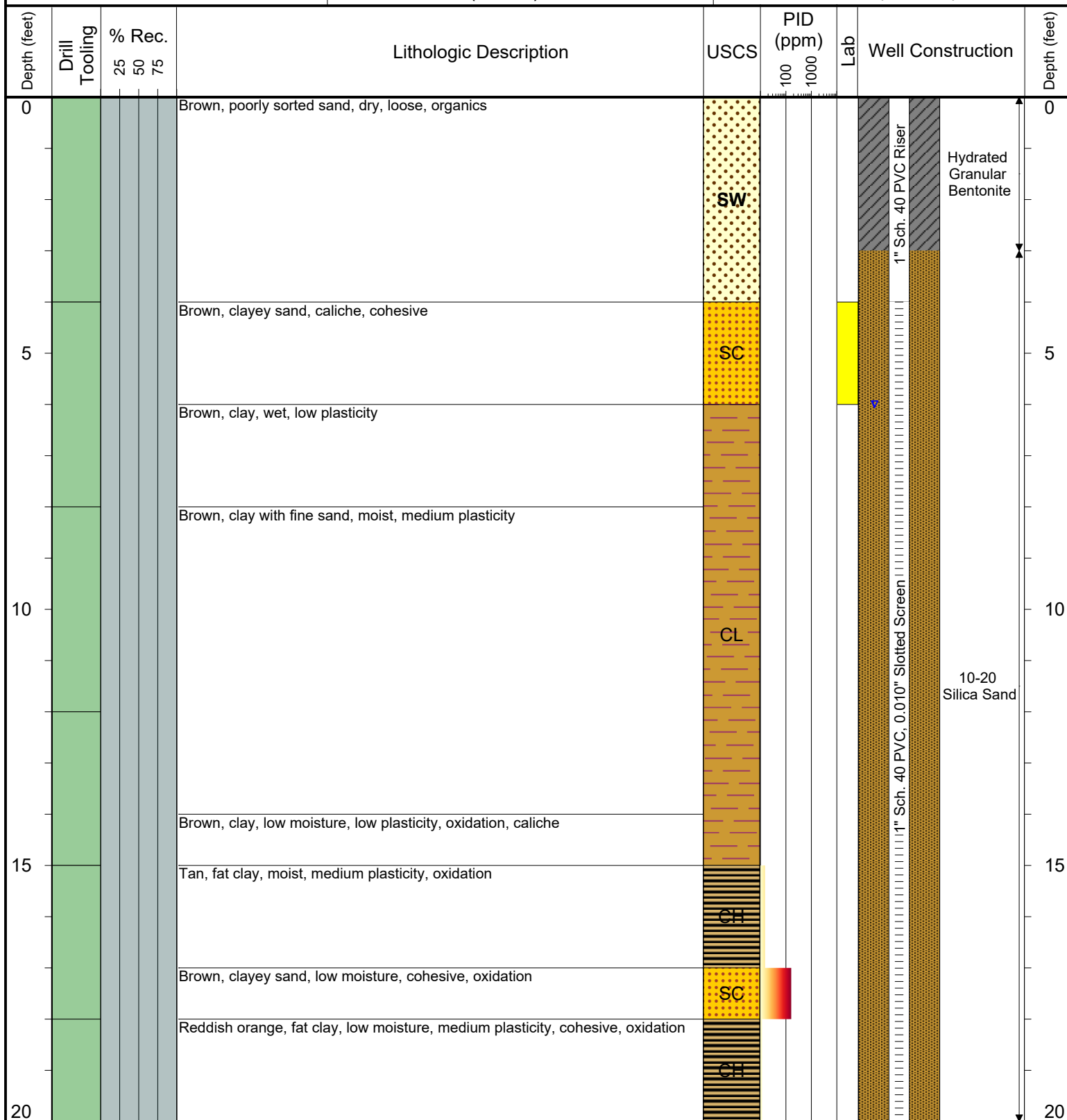
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14605175525

LONGITUDE (DECIMAL DEGREES): -104.53377893

CASING ELEVATION (FT. AMSL): 4958.65

GROUND ELEVATION (FT. AMSL): 4955.61



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 9/22/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 7

Feather 31-15

BORING / WELL ID: BH28

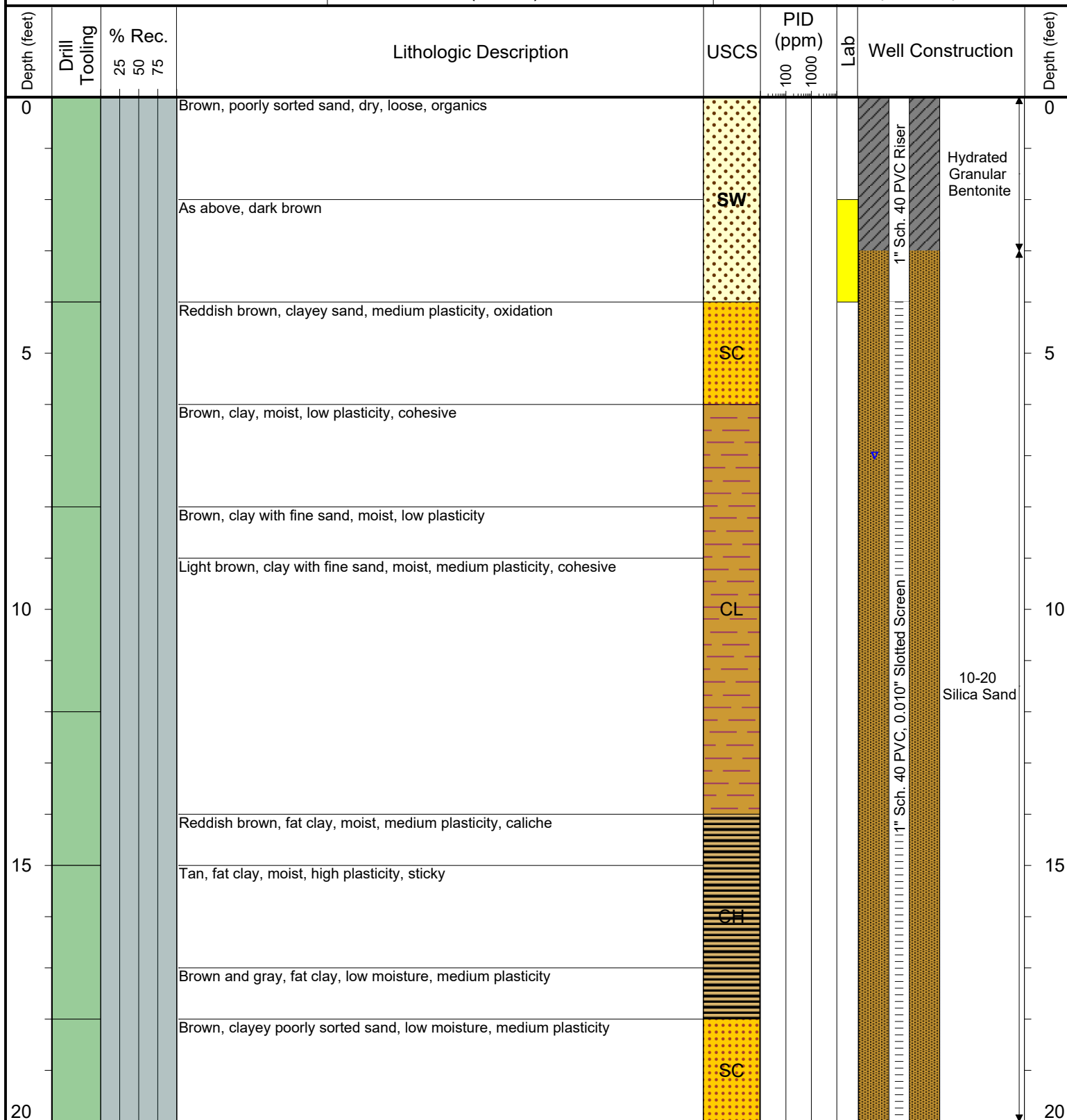
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14613297089

LONGITUDE (DECIMAL DEGREES): -104.53366538

CASING ELEVATION (FT. AMSL): 4957.57

GROUND ELEVATION (FT. AMSL): 4954.42



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 9/22/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 7

Feather 31-15

BORING / WELL ID: BH29

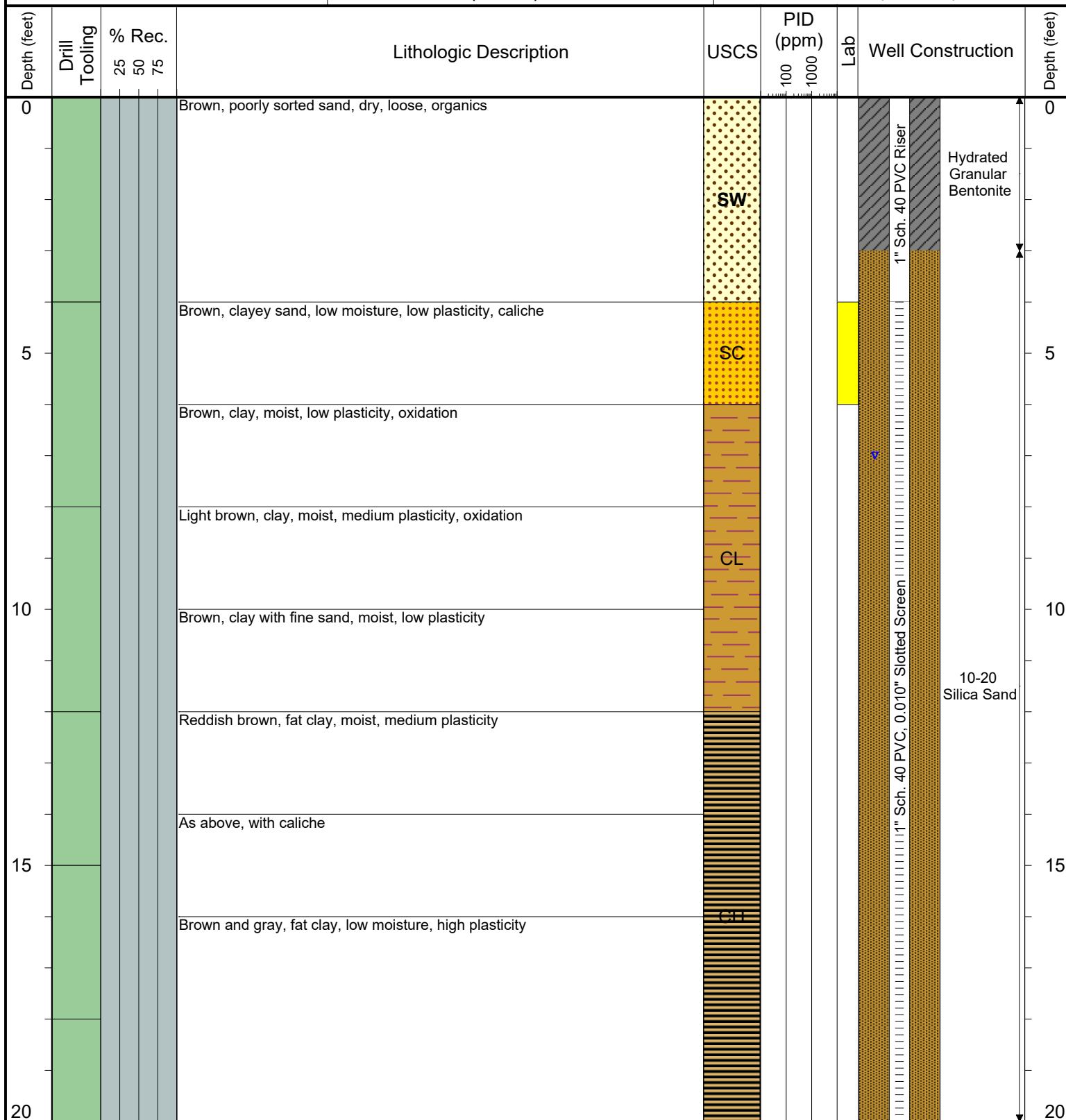
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14600100231

LONGITUDE (DECIMAL DEGREES): -104.53369308

CASING ELEVATION (FT. AMSL): 4958.73

GROUND ELEVATION (FT. AMSL): 4955.65



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Jacob Whritenour

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 10/19/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 14

Feather 31-15

BORING / WELL ID: BH30

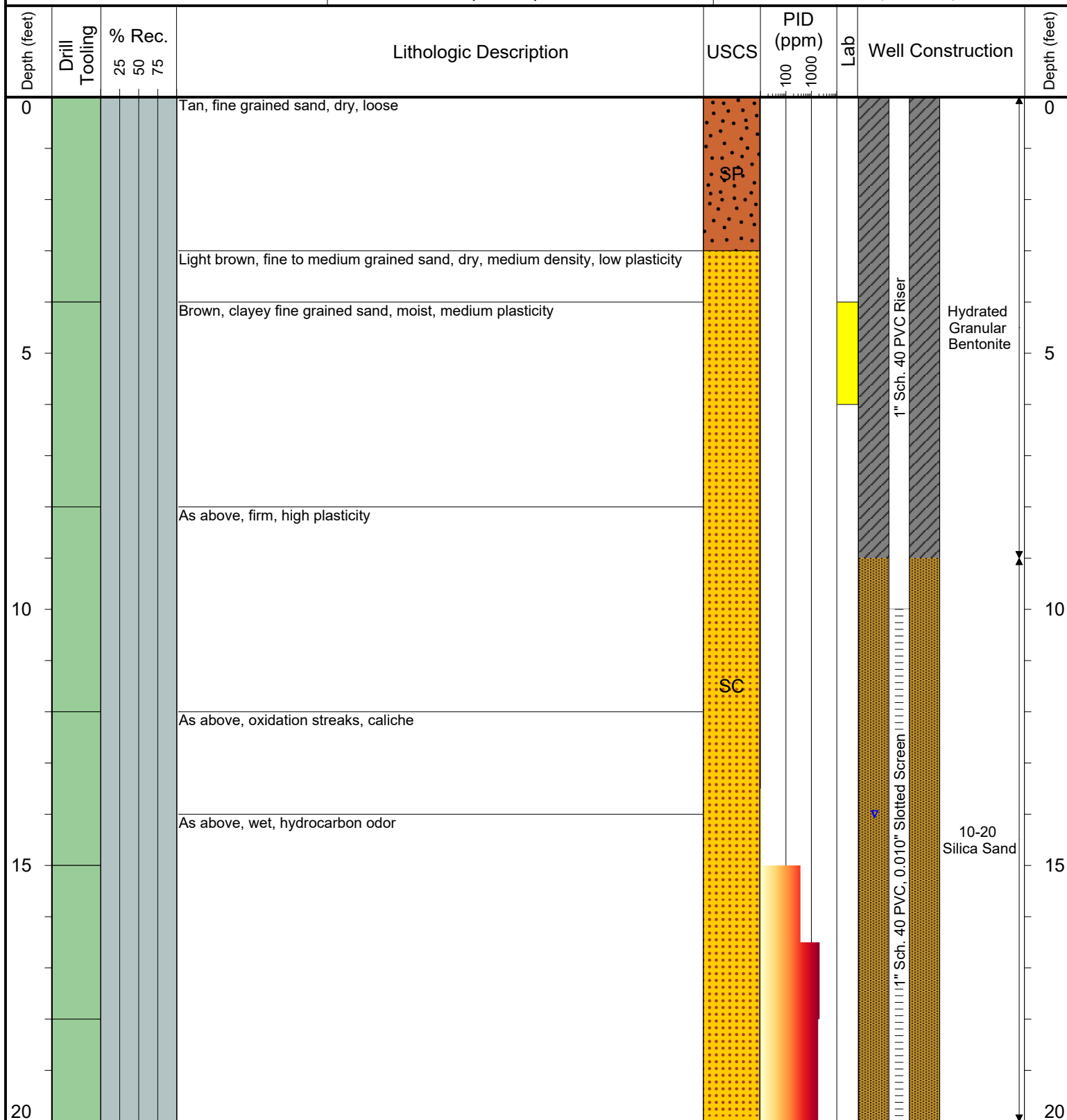
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14615854289

LONGITUDE (DECIMAL DEGREES): -104.53378137

CASING ELEVATION (FT. AMSL): 4957.11

GROUND ELEVATION (FT. AMSL): 4954.87



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Jacob Whritenour

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 10/19/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 14

Feather 31-15

BORING / WELL ID: BH31

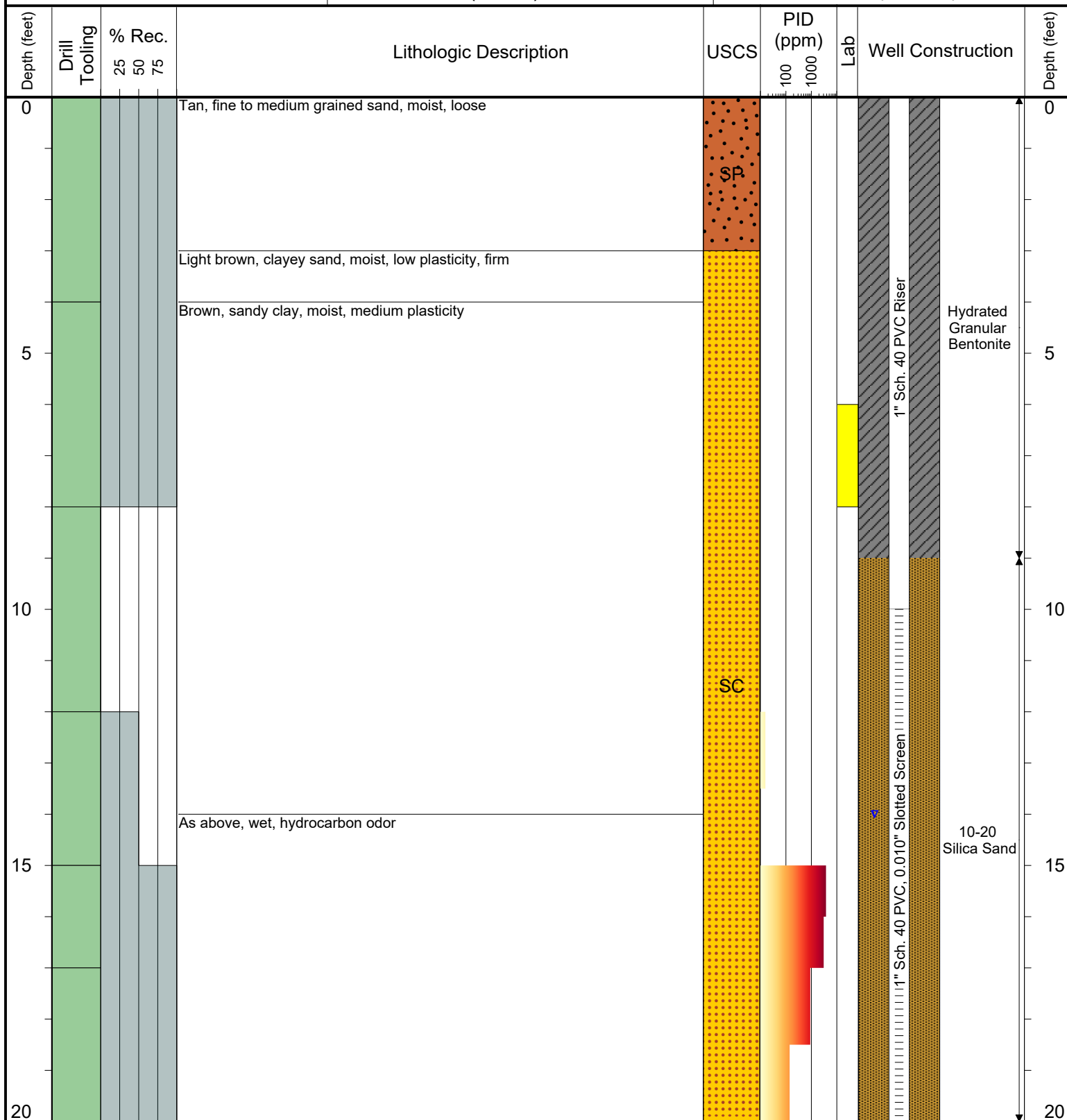
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14610898356

LONGITUDE (DECIMAL DEGREES): -104.53395996

CASING ELEVATION (FT. AMSL): 4958.22

GROUND ELEVATION (FT. AMSL): 4954.43



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Jacob Whritenour

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 10/19/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 14

Feather 31-15

BORING / WELL ID: BH32

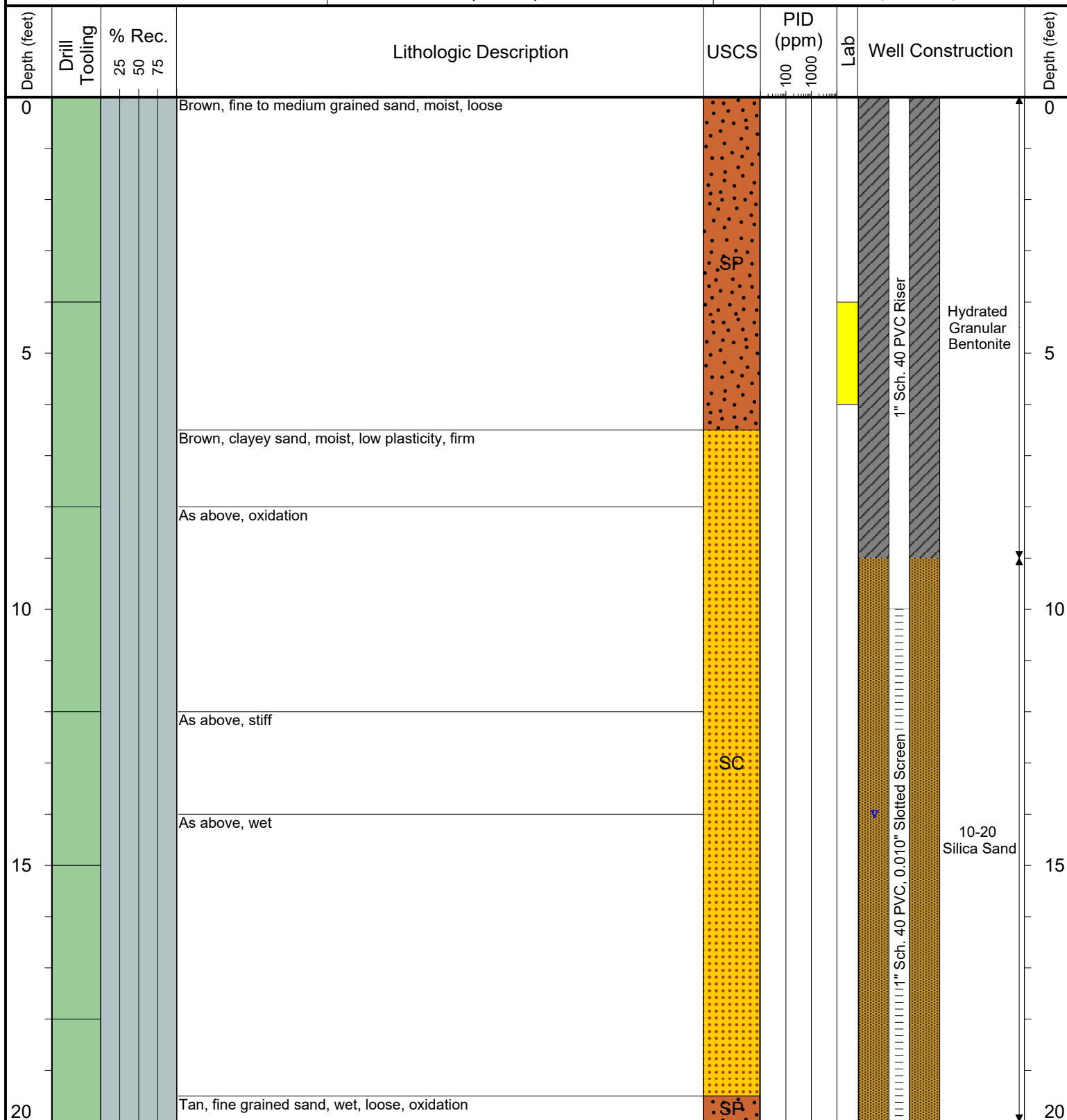
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14615676801

LONGITUDE (DECIMAL DEGREES): -104.53408693

CASING ELEVATION (FT. AMSL): 4959.15

GROUND ELEVATION (FT. AMSL): 4955.72



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
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LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 10/25/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 9

Feather 31-15

BORING / WELL ID: BH33

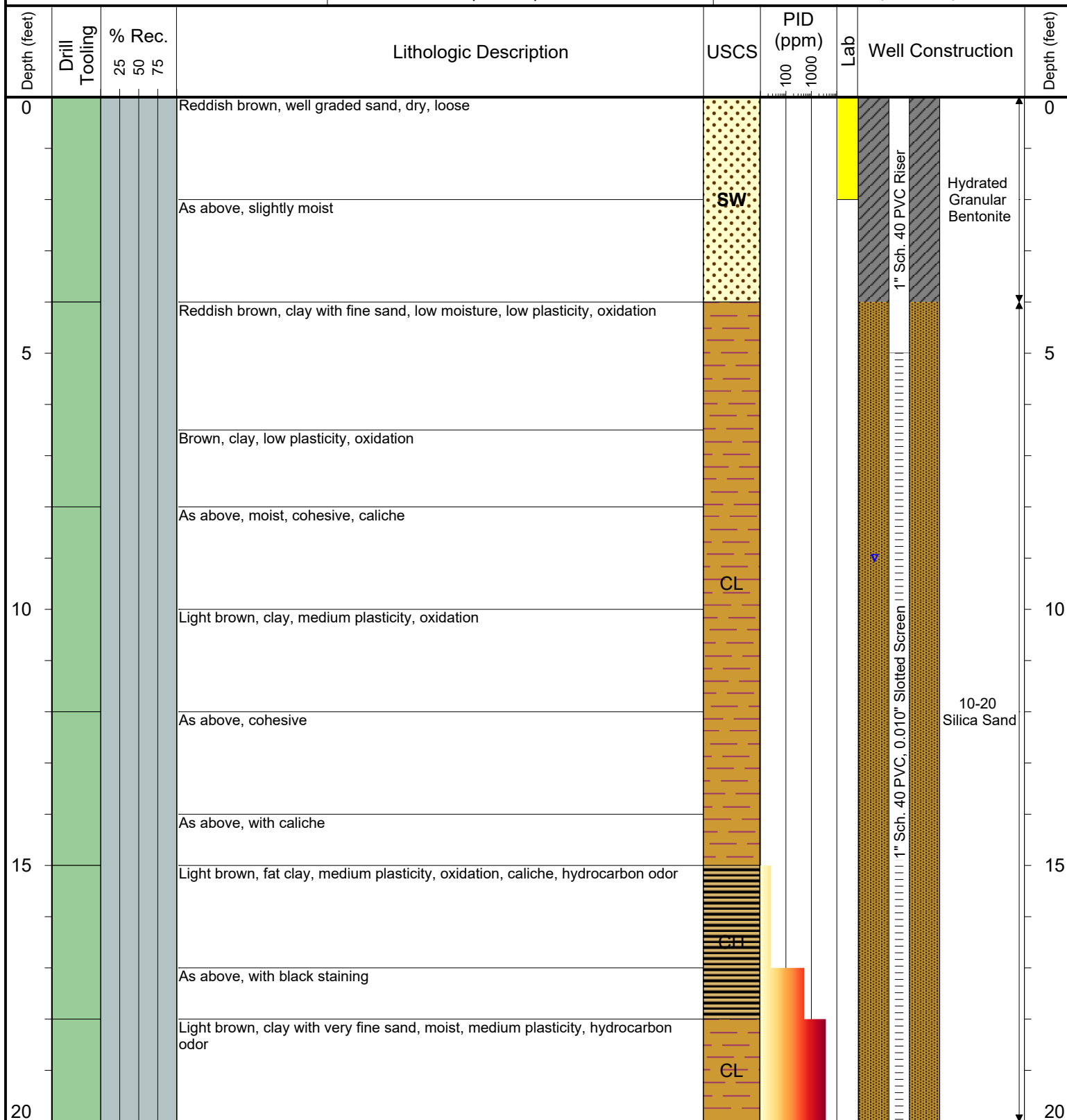
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14626668627

LONGITUDE (DECIMAL DEGREES): -104.53376384

CASING ELEVATION (FT. AMSL): 4956.82

GROUND ELEVATION (FT. AMSL): 4953.82



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



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Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 10/25/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 8

Feather 31-15

BORING / WELL ID: BH34

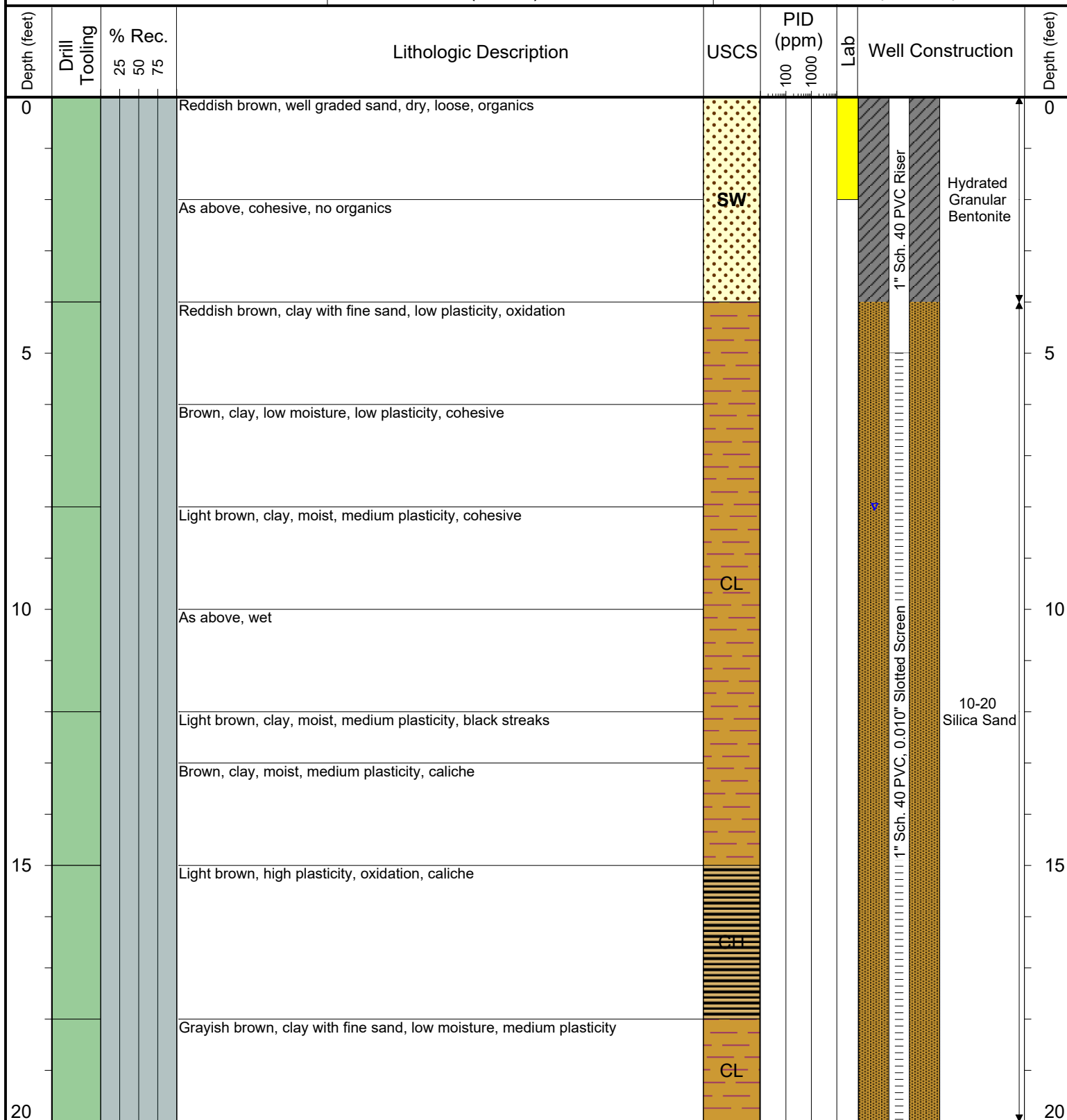
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): Not Measured

LONGITUDE (DECIMAL DEGREES): Not Measured

CASING ELEVATION (FT. AMSL): 4957.08

GROUND ELEVATION (FT. AMSL): 4954.88



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 10/25/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 8

Feather 31-15

BORING / WELL ID: BH35

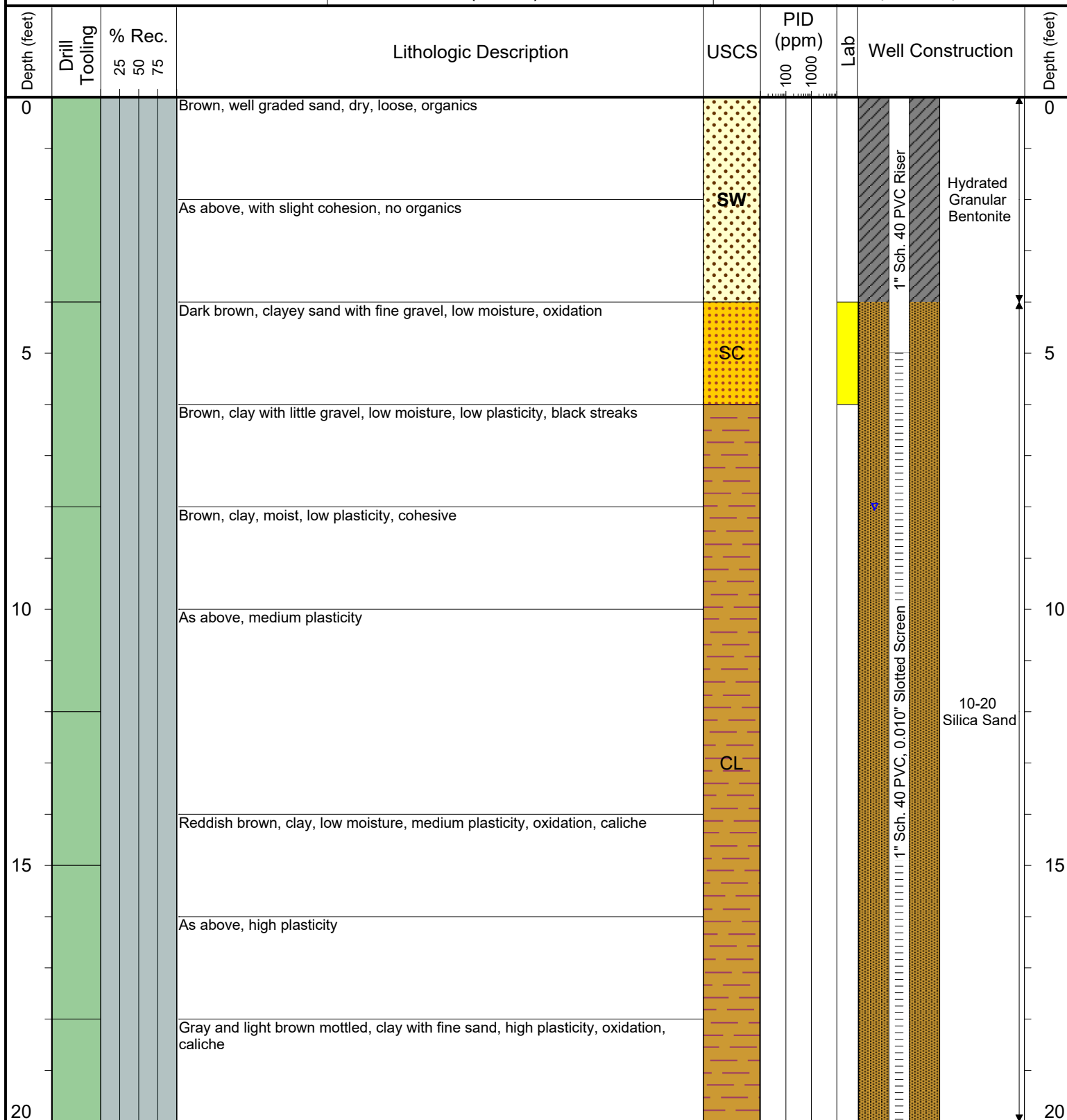
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14630168384

LONGITUDE (DECIMAL DEGREES): -104.53389380

CASING ELEVATION (FT. AMSL): 4957.41

GROUND ELEVATION (FT. AMSL): 4954.07



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 10/25/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 10

Feather 31-15

BORING / WELL ID: BH36

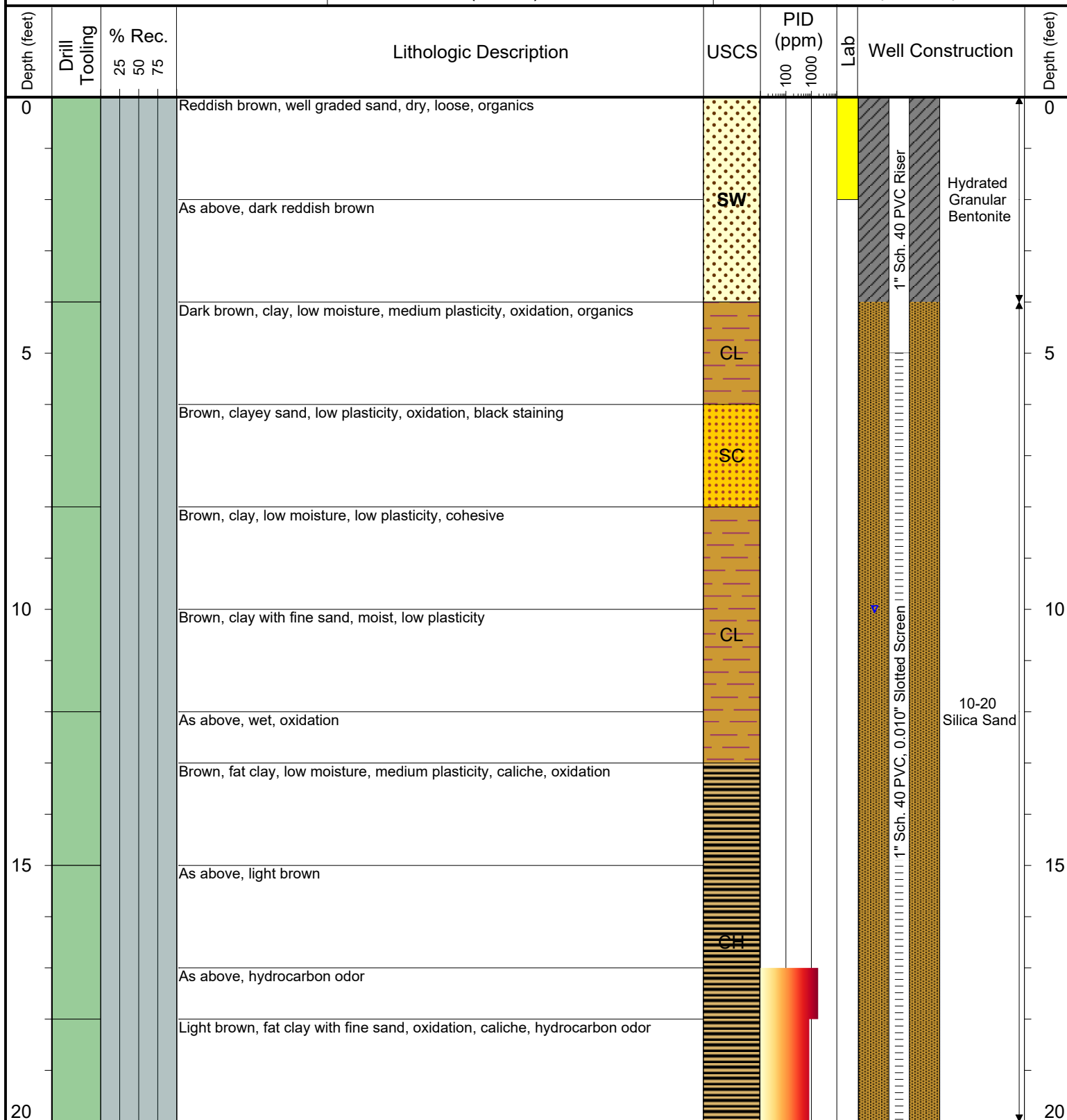
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14635916079

LONGITUDE (DECIMAL DEGREES): -104.53375386

CASING ELEVATION (FT. AMSL): 4955.19

GROUND ELEVATION (FT. AMSL): 4952.8



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 10/25/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 7.5

Feather 31-15

BORING / WELL ID: BH37

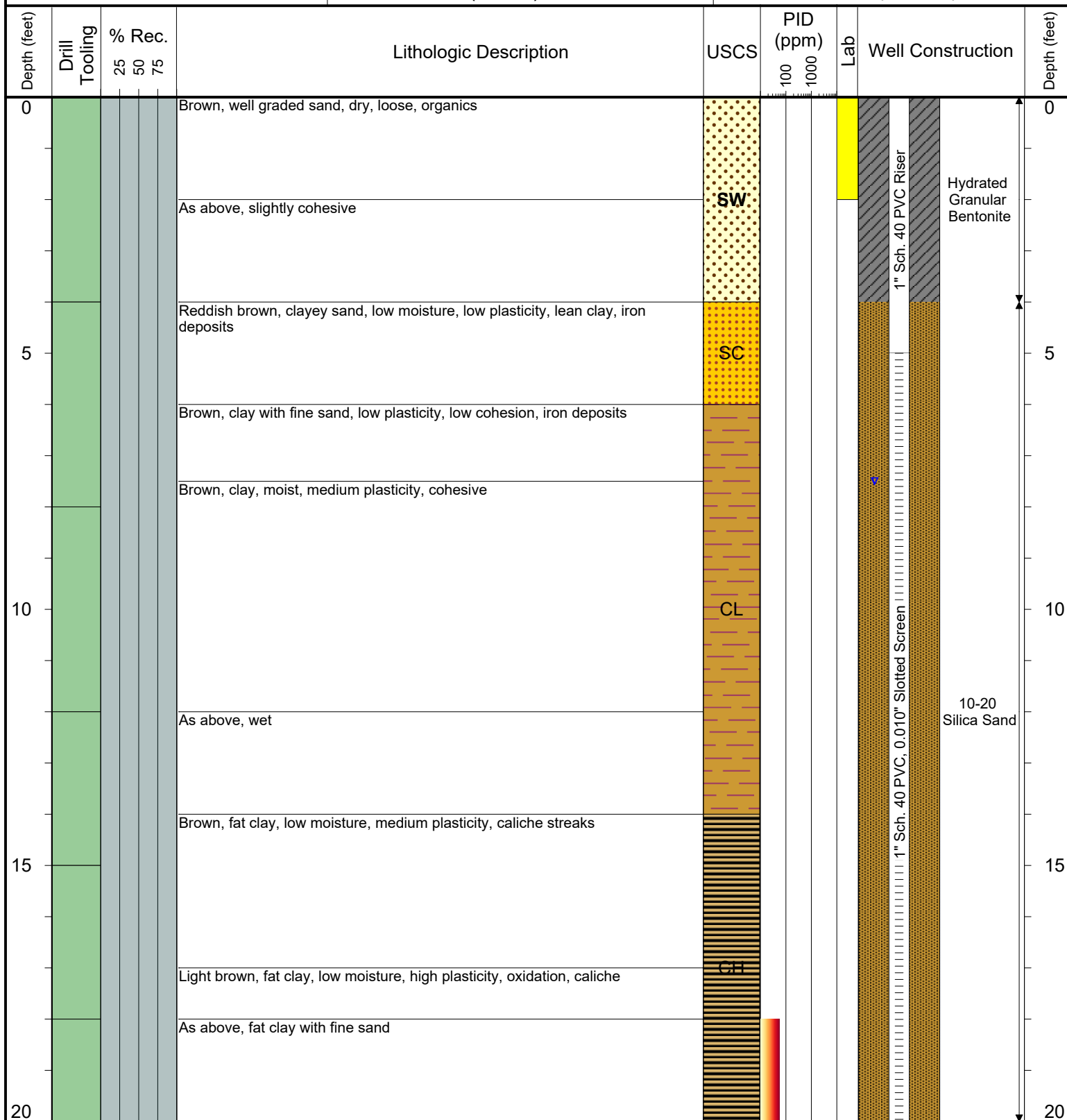
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14645596800

LONGITUDE (DECIMAL DEGREES): -104.53374423

CASING ELEVATION (FT. AMSL): 4954.95

GROUND ELEVATION (FT. AMSL): 4952.42



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 10/25/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 8.5

Feather 31-15

BORING / WELL ID: BH38

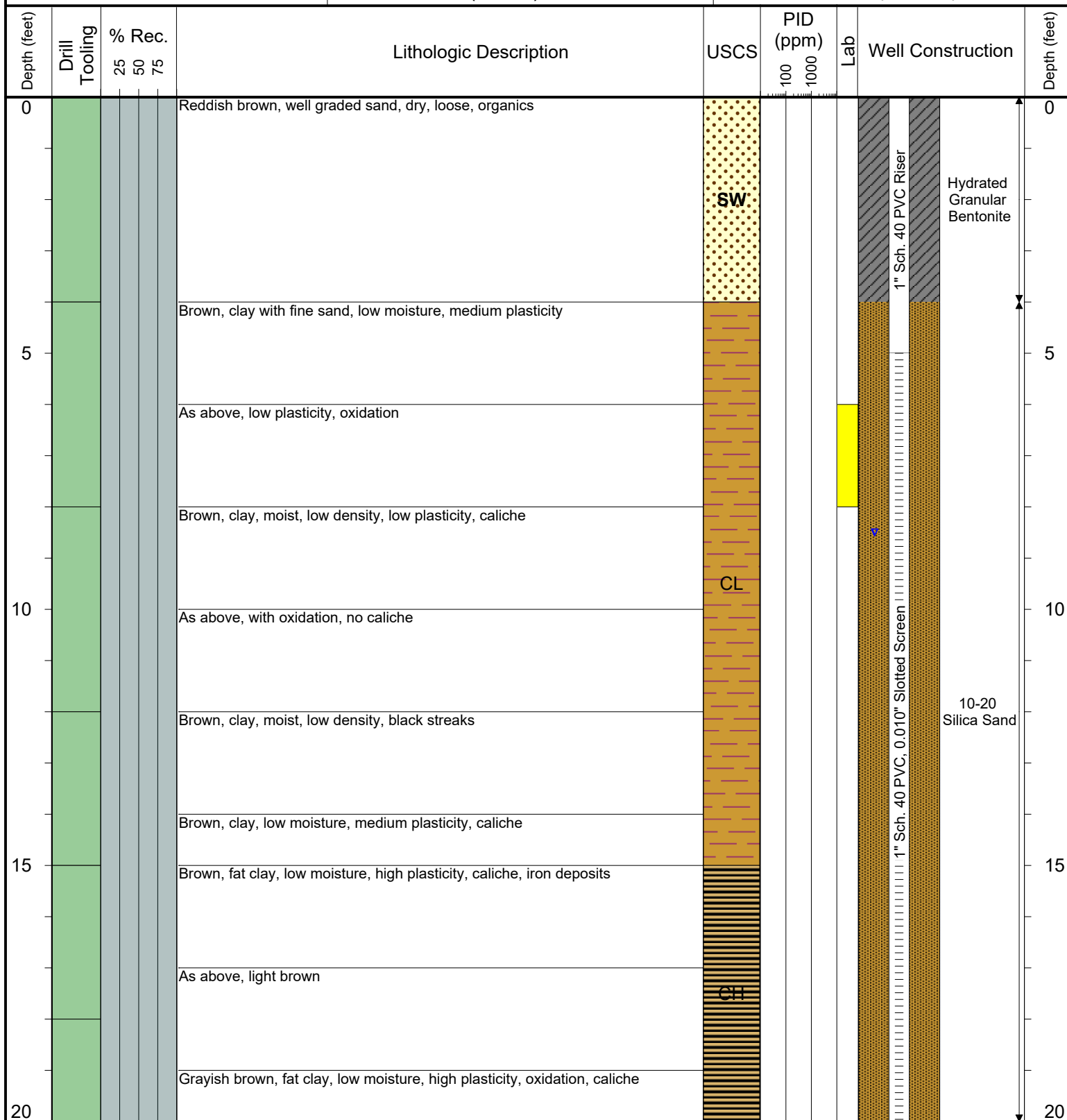
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14636474617

LONGITUDE (DECIMAL DEGREES): -104.53362370

CASING ELEVATION (FT. AMSL): 4955.15

GROUND ELEVATION (FT. AMSL): 4952.74



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 10/25/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 8

Feather 31-15

BORING / WELL ID: BH39

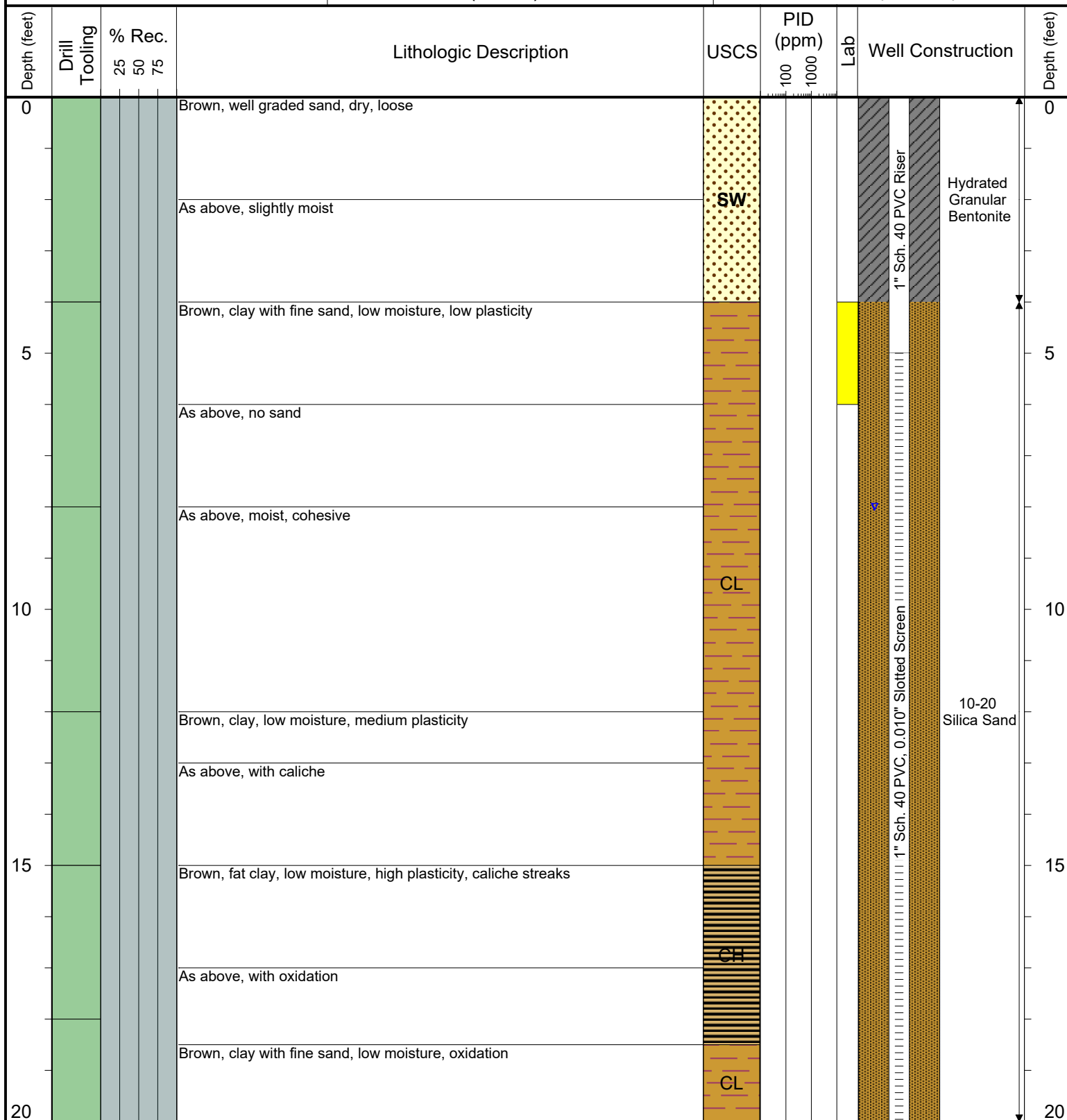
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14626620511

LONGITUDE (DECIMAL DEGREES): -104.53362213

CASING ELEVATION (FT. AMSL): 4955.83

GROUND ELEVATION (FT. AMSL): 4953



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 10/26/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 7

Feather 31-15

BORING / WELL ID: BH40

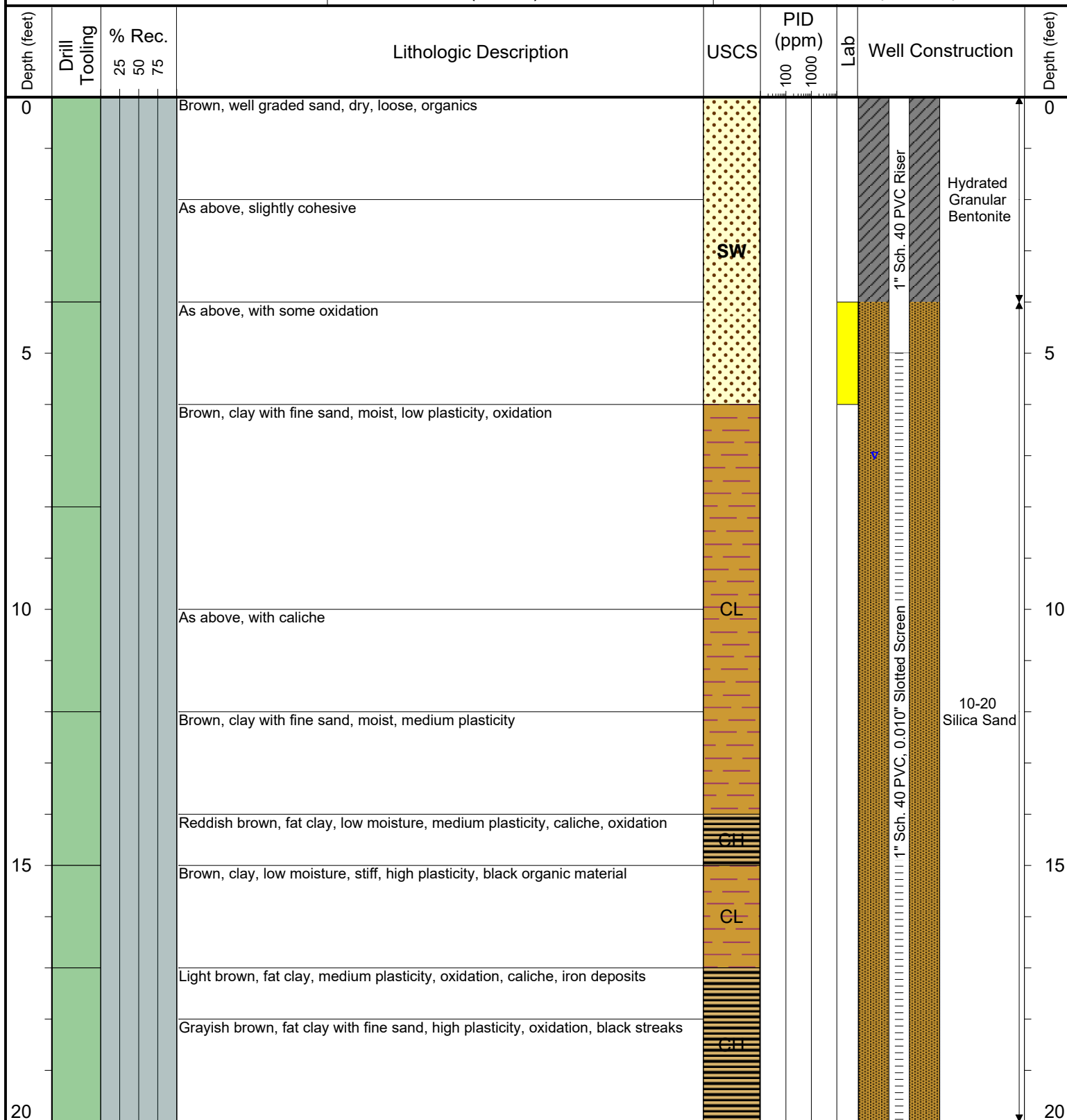
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14584322316

LONGITUDE (DECIMAL DEGREES): -104.53421308

CASING ELEVATION (FT. AMSL): 4960.6

GROUND ELEVATION (FT. AMSL): 4957.96



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 10/26/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 7

Feather 31-15

BORING / WELL ID: BH41

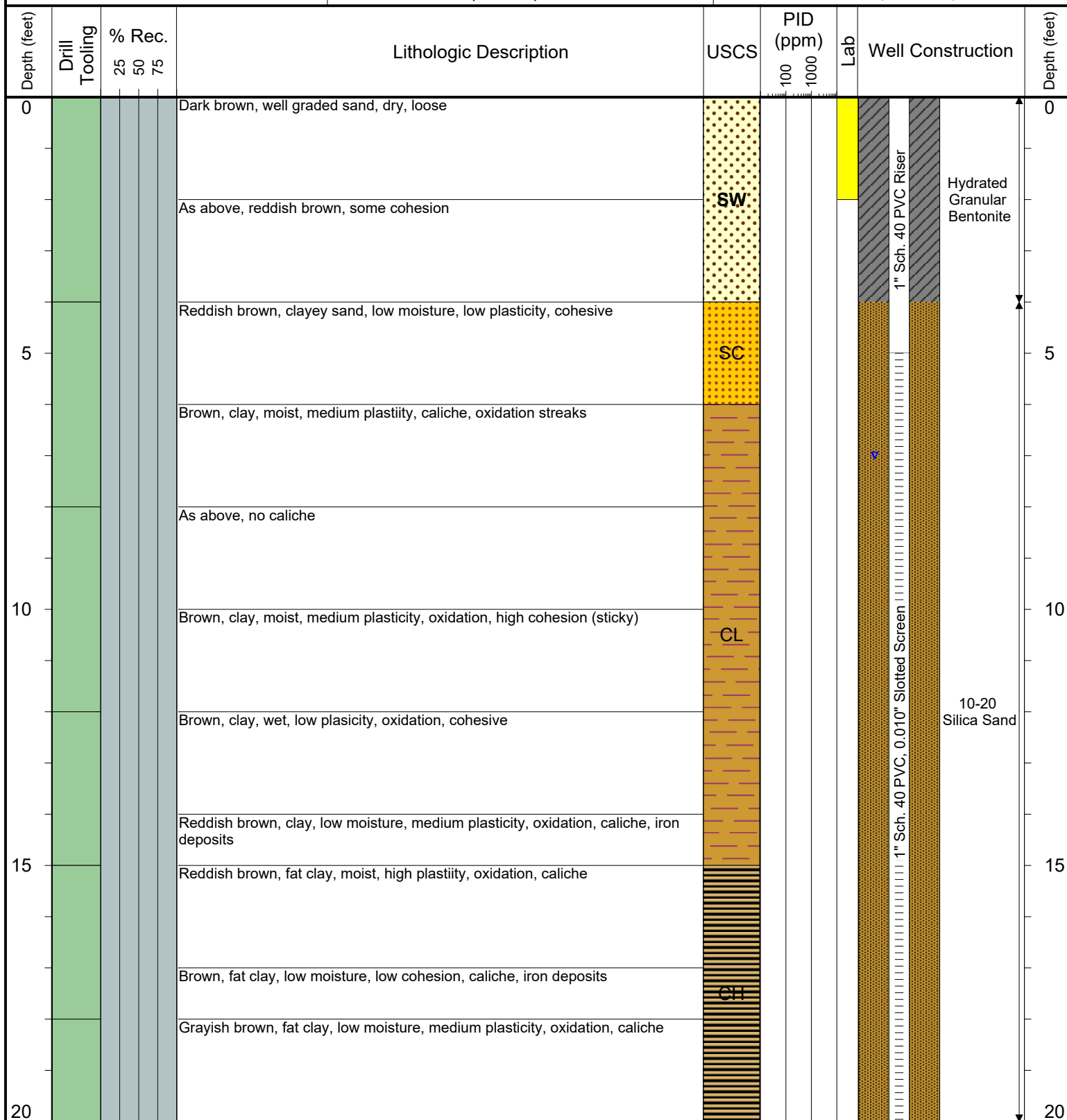
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14599104253

LONGITUDE (DECIMAL DEGREES): -104.53415657

CASING ELEVATION (FT. AMSL): 4959.08

GROUND ELEVATION (FT. AMSL): 4956.93



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 10/26/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 7

Feather 31-15

BORING / WELL ID: BH42

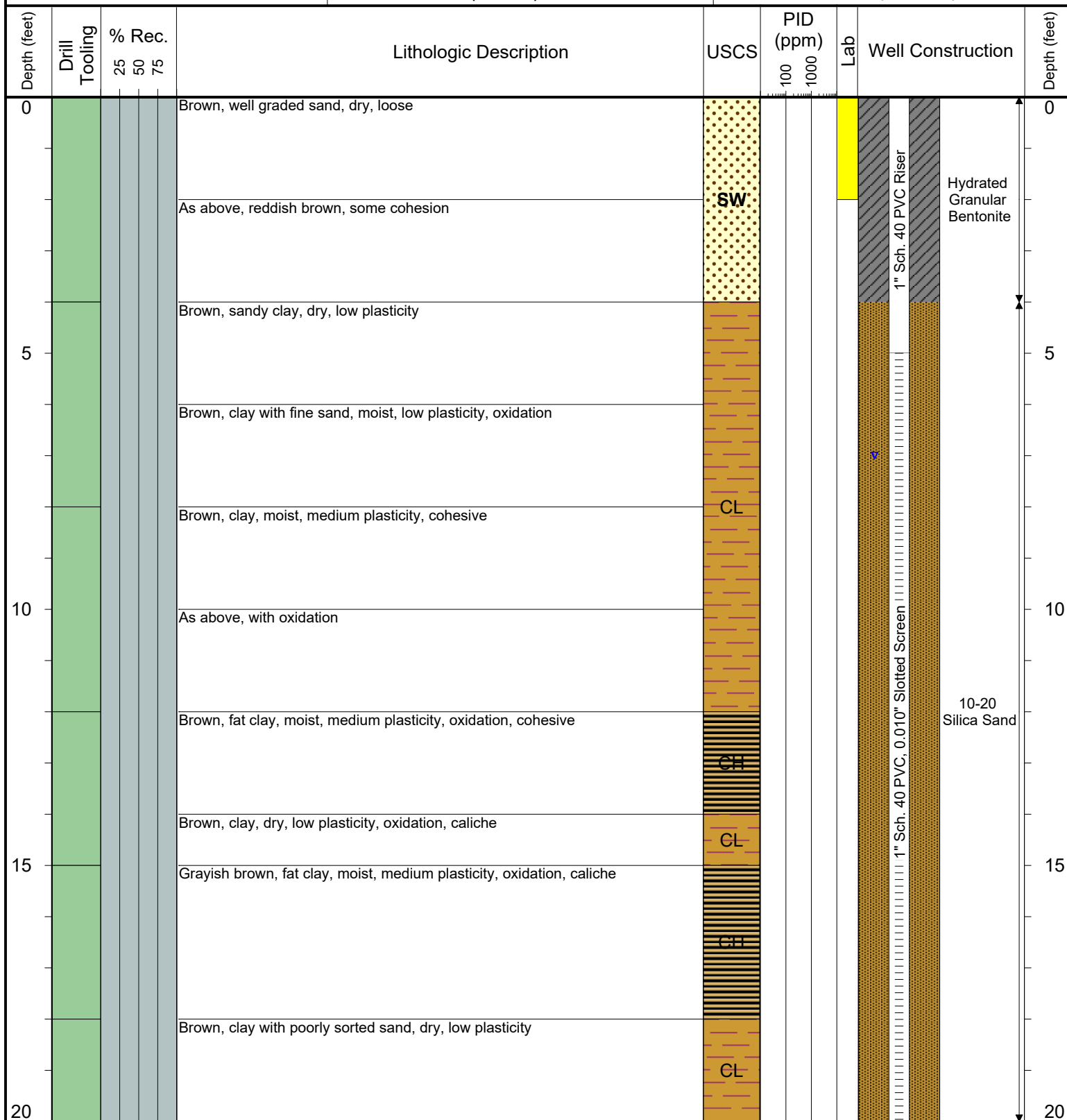
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14588238056

LONGITUDE (DECIMAL DEGREES): -104.53372623

CASING ELEVATION (FT. AMSL): 4959.24

GROUND ELEVATION (FT. AMSL): 4956.64



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 10/26/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 7.5

Feather 31-15

BORING / WELL ID: BH43

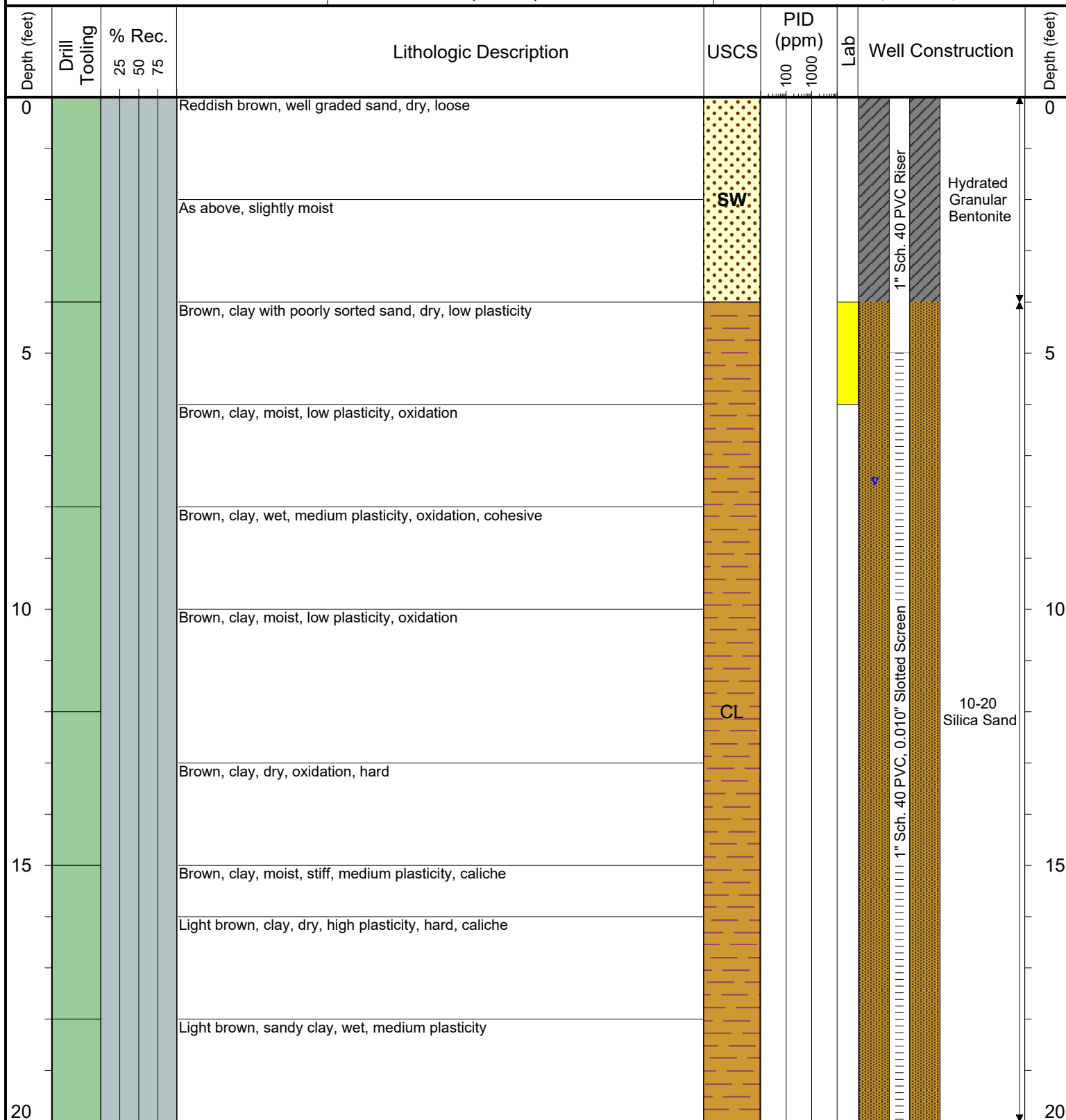
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14579281602

LONGITUDE (DECIMAL DEGREES): -104.53374572

CASING ELEVATION (FT. AMSL): 4959.74

GROUND ELEVATION (FT. AMSL): 4957.51



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 10/26/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 10

Feather 31-15

BORING / WELL ID: BH44

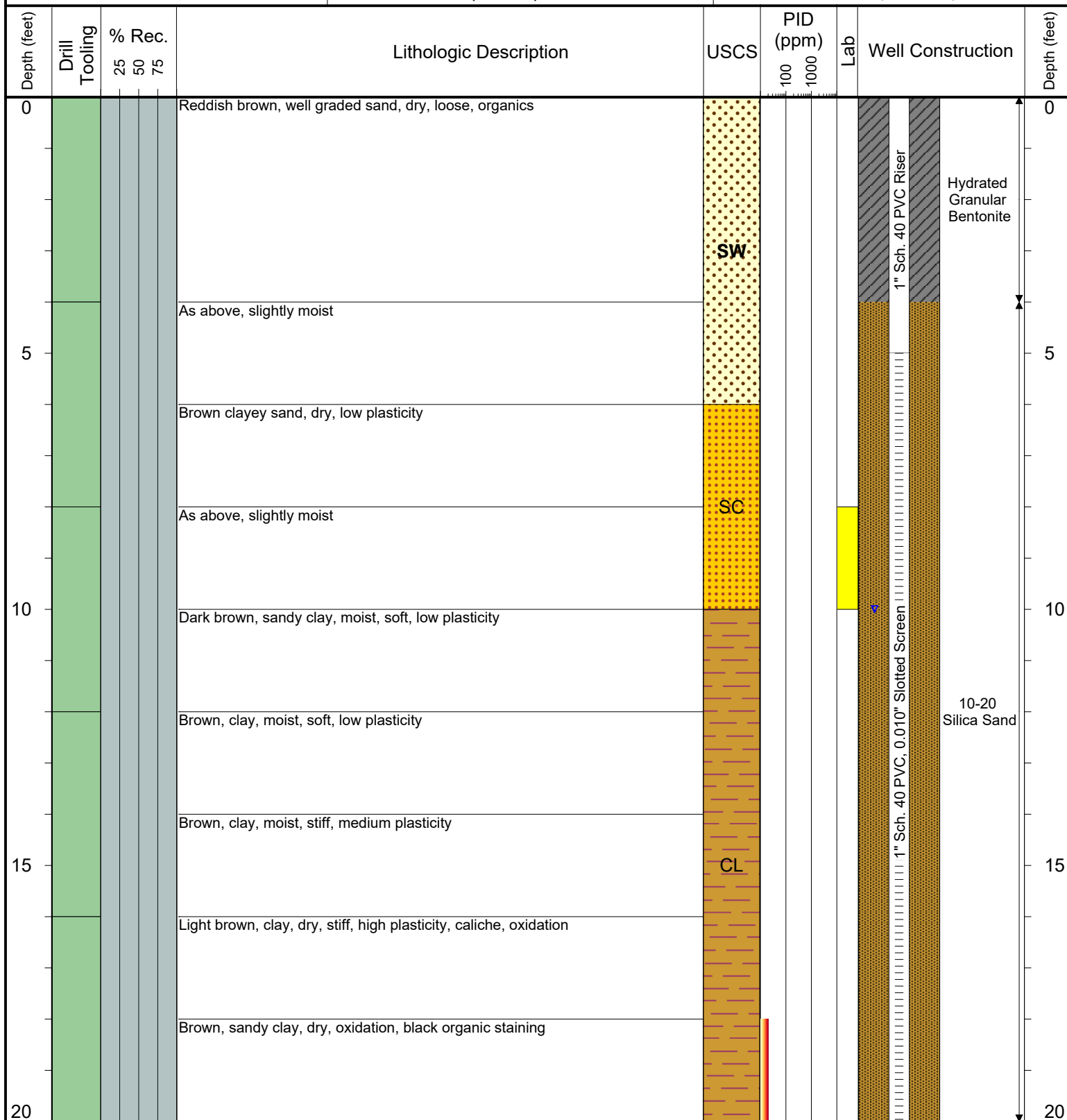
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14652913535

LONGITUDE (DECIMAL DEGREES): -104.53364928

CASING ELEVATION (FT. AMSL): 4955

GROUND ELEVATION (FT. AMSL): 4952.2



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 10/26/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 10

Feather 31-15

BORING / WELL ID: BH45

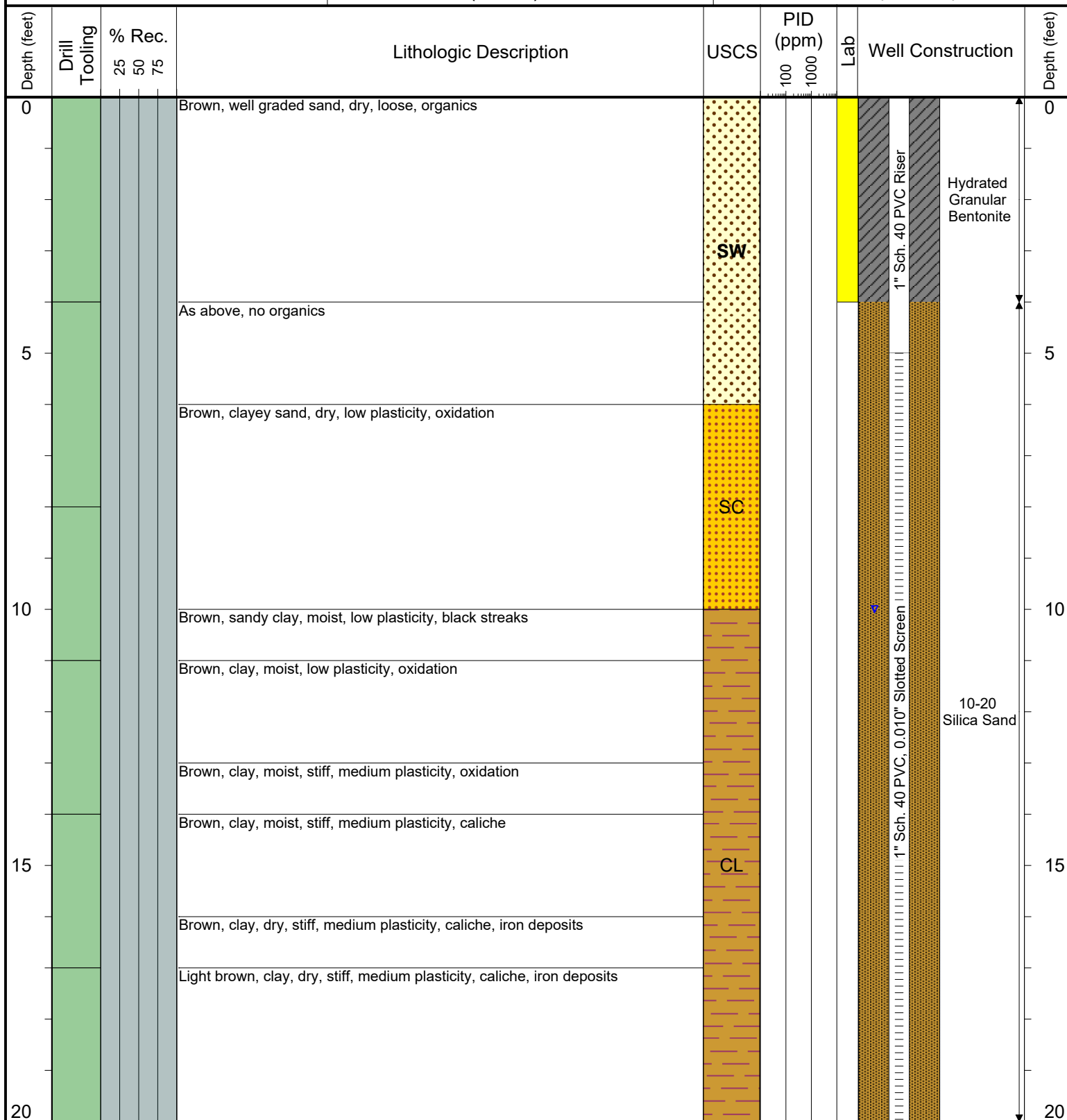
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14656439514

LONGITUDE (DECIMAL DEGREES): -104.53376503

CASING ELEVATION (FT. AMSL): 4954.87

GROUND ELEVATION (FT. AMSL): 4951.94



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 12/21/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 9

Feather 31-15

BORING / WELL ID: BH46

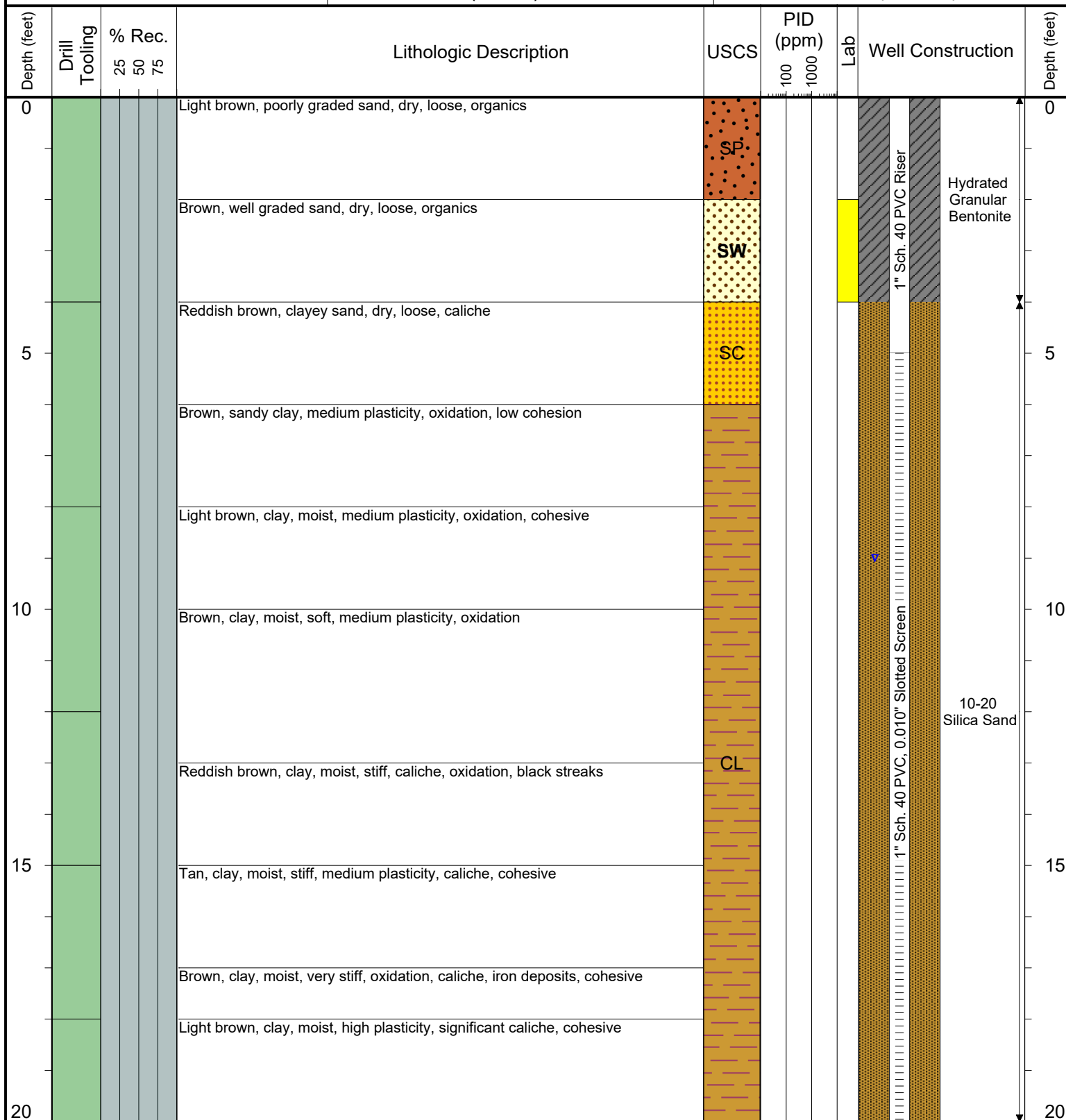
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14648652986

LONGITUDE (DECIMAL DEGREES): -104.53384930

CASING ELEVATION (FT. AMSL): 4955.31

GROUND ELEVATION (FT. AMSL): 4952.69



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 12/21/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 11

Feather 31-15

BORING / WELL ID: BH47

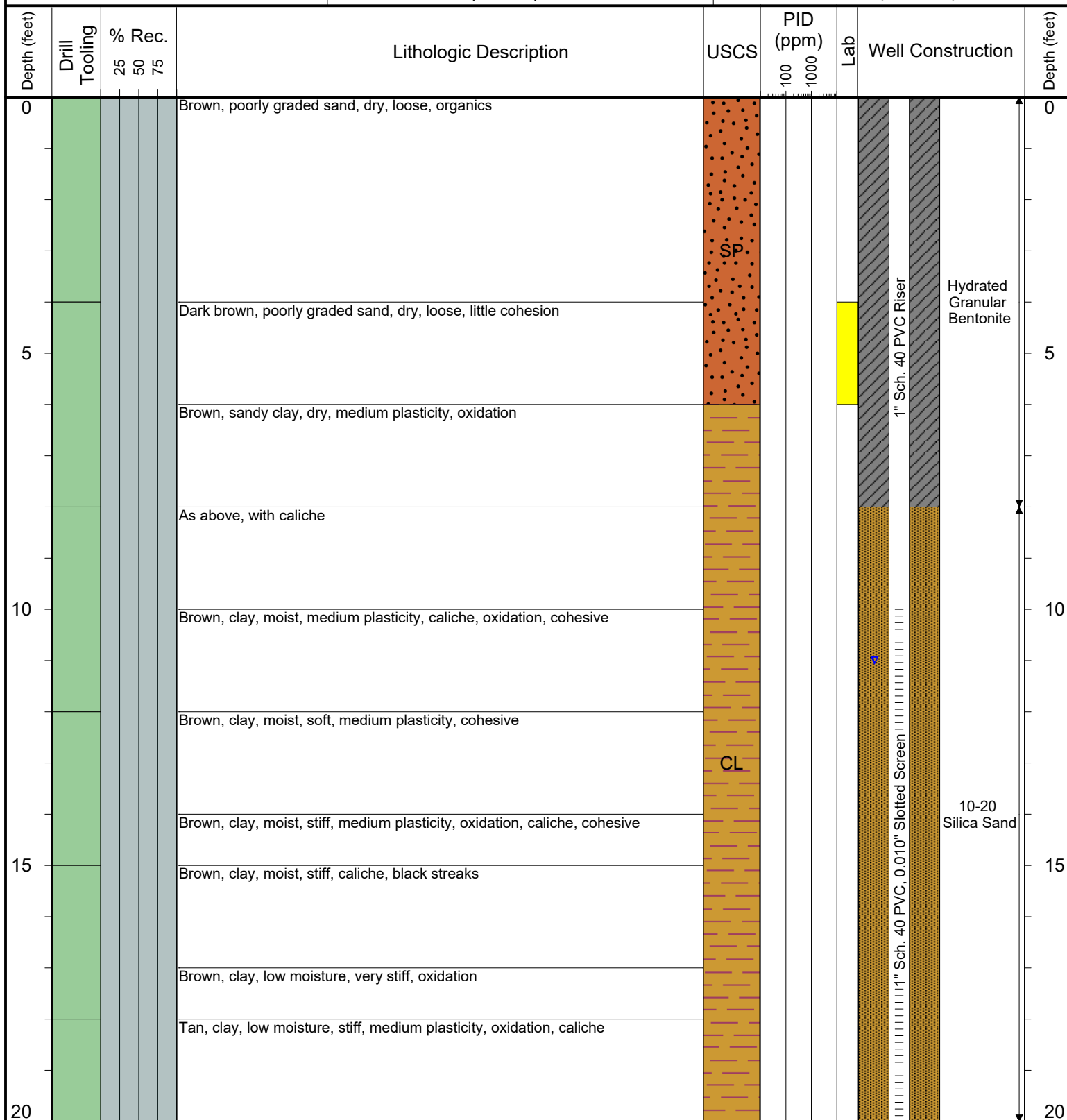
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14664030100

LONGITUDE (DECIMAL DEGREES): -104.53370584

CASING ELEVATION (FT. AMSL): 4954.6

GROUND ELEVATION (FT. AMSL): 4951.86



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

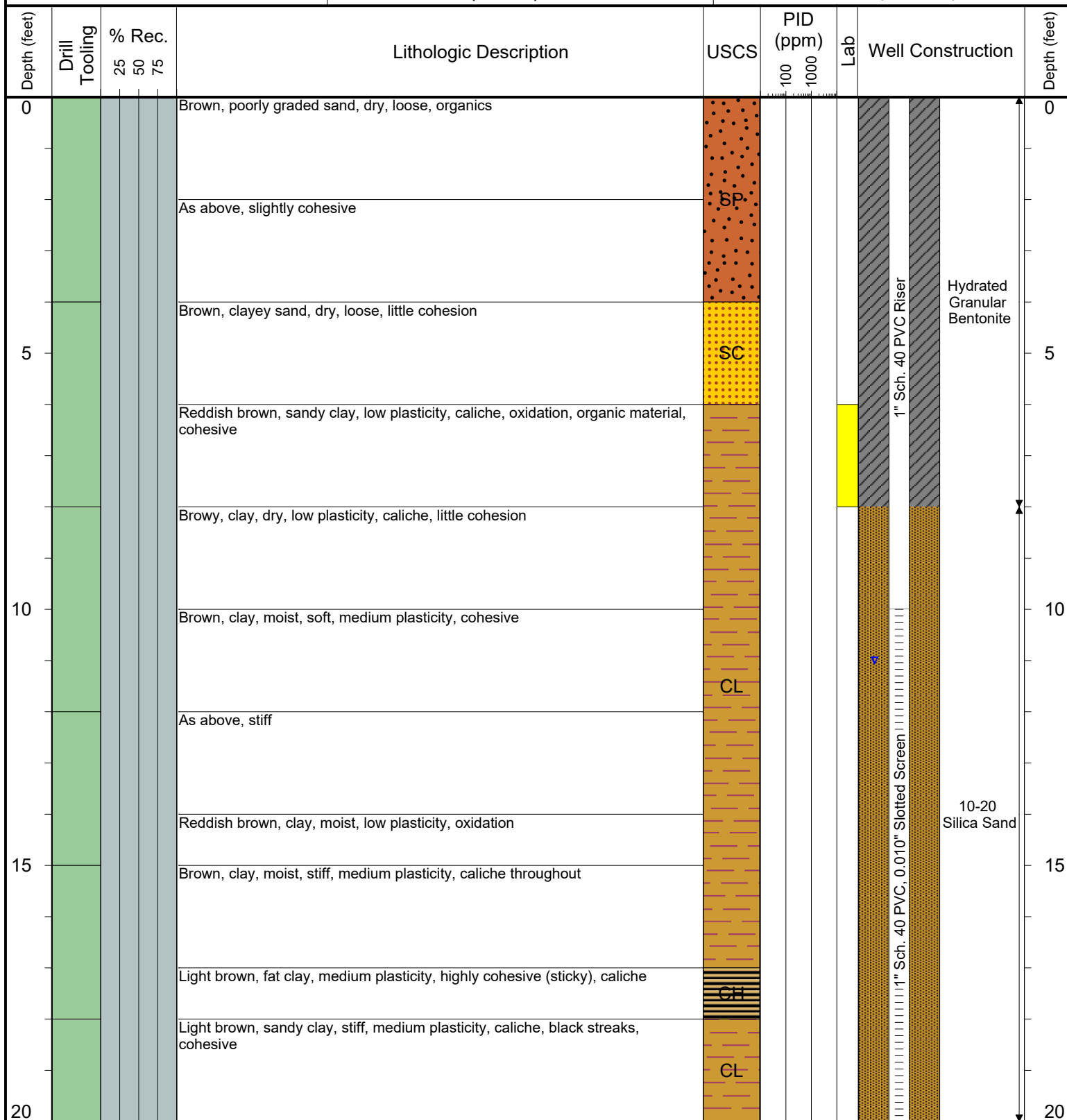
Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



**DEPTH TO WATER (FT. BGS): 11**

**GROUND ELEVATION (FT. AMSL): 4952.09**



 Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 12/21/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 10

Feather 31-15

BORING / WELL ID: BH49

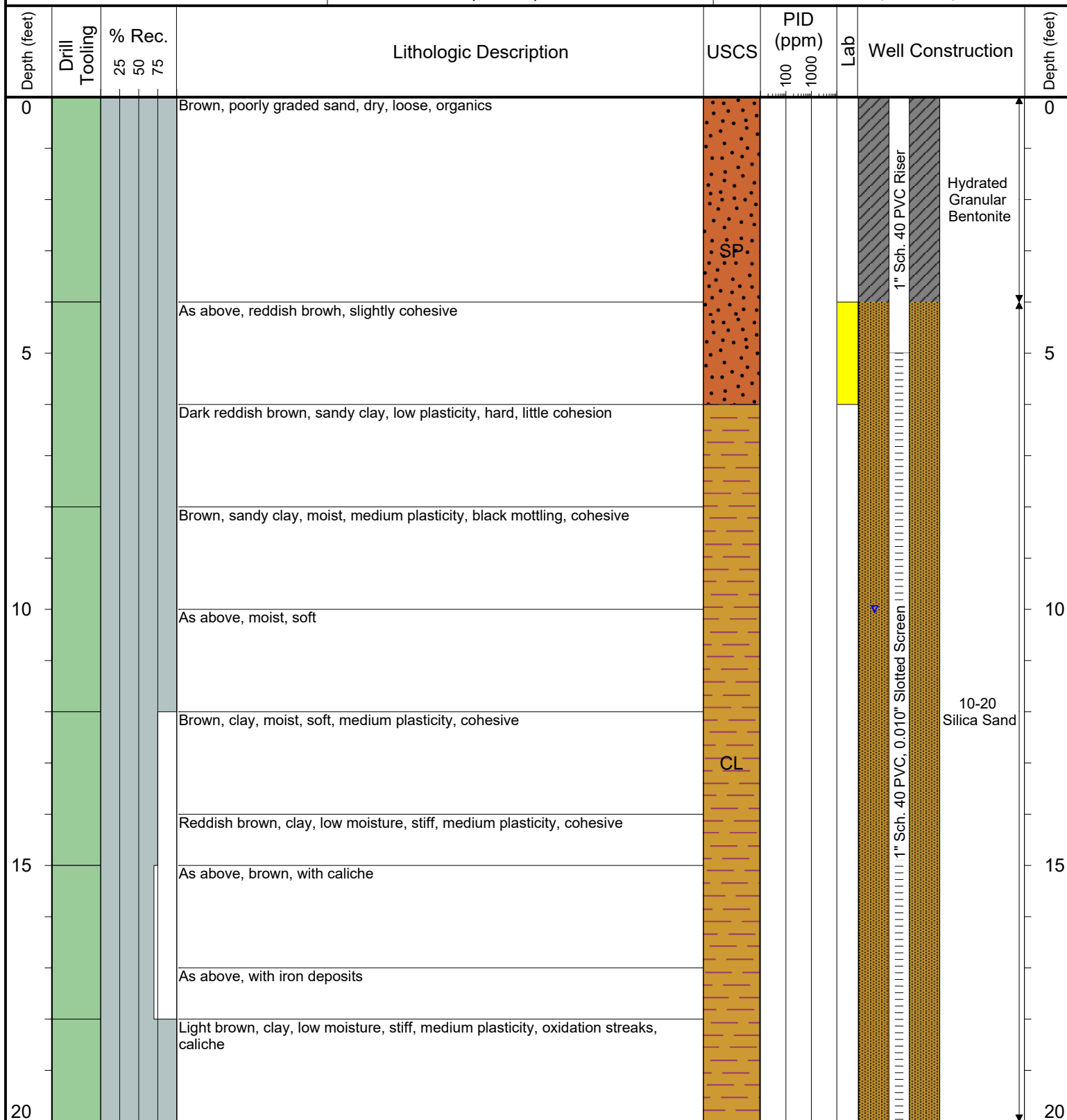
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14655582239

LONGITUDE (DECIMAL DEGREES): -104.53355333

CASING ELEVATION (FT. AMSL): 4954.51

GROUND ELEVATION (FT. AMSL): 4952.17



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 12/21/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 9

Feather 31-15

BORING / WELL ID: BH50

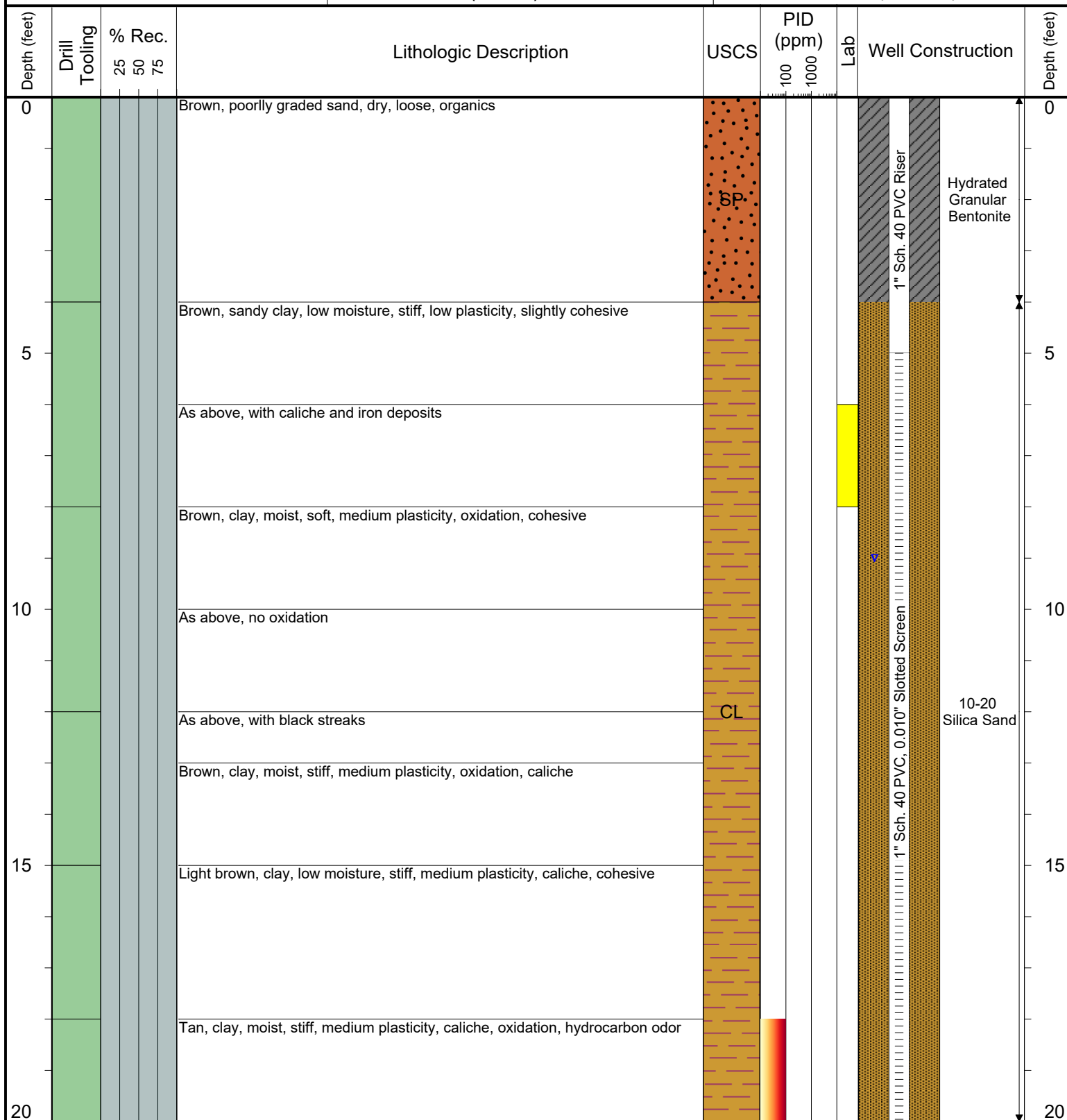
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14645197182

LONGITUDE (DECIMAL DEGREES): -104.53359425

CASING ELEVATION (FT. AMSL): 4955.18

GROUND ELEVATION (FT. AMSL): 4952.27



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 12/21/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 11.5

Feather 31-15

BORING / WELL ID: BH51

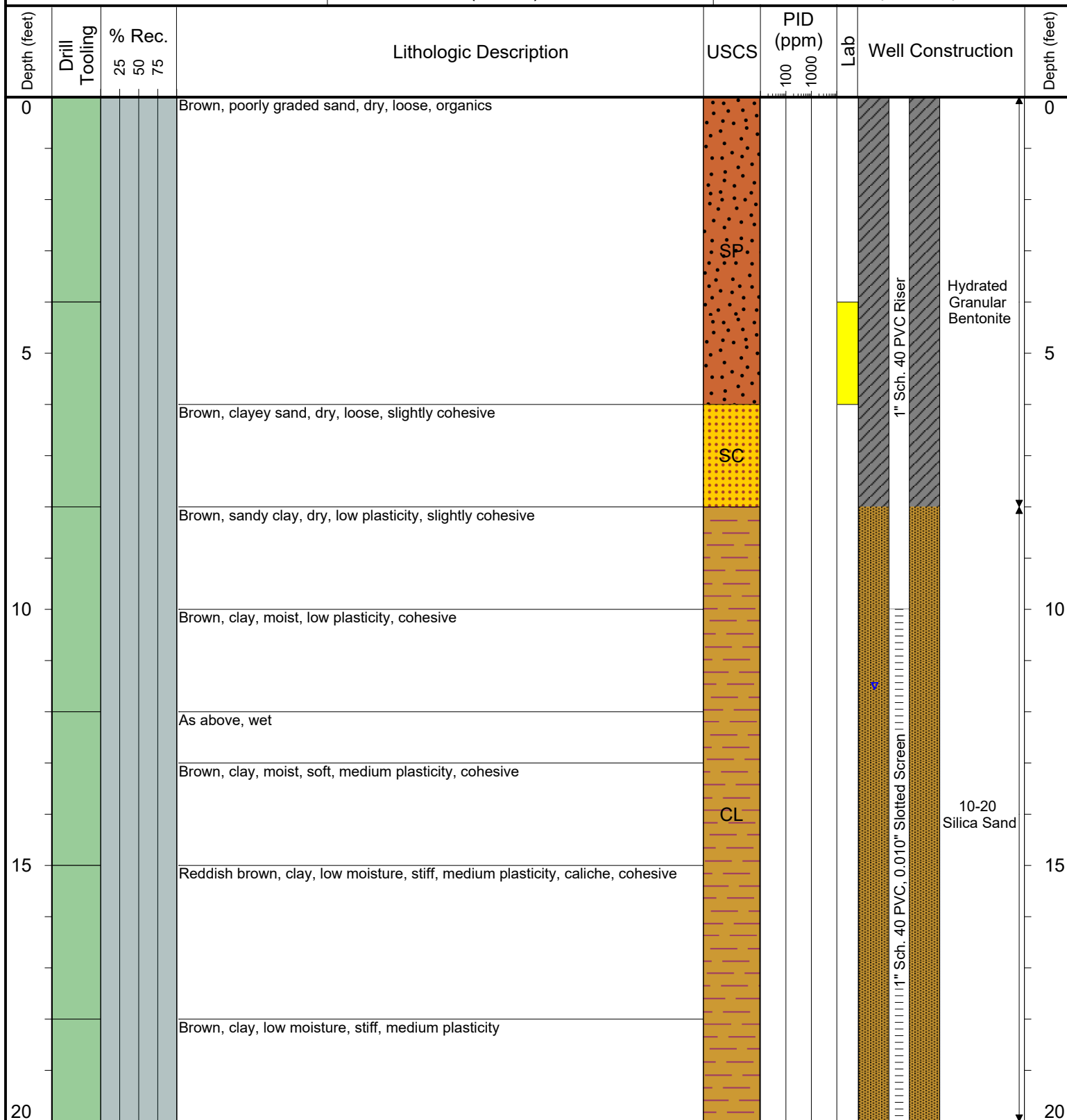
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14650539478

LONGITUDE (DECIMAL DEGREES): -104.53349494

CASING ELEVATION (FT. AMSL): 4955.85

GROUND ELEVATION (FT. AMSL): 4953.02



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab



6899 Pecos Street, Unit C  
Denver, Colorado 80221

CLIENT: Noble Energy, Inc.

LOGGED BY: Graham Besecke

PROJECT MANAGER: Brandon Bruns, P.E.

DRILLING CONTRACTOR: Tasman Geosciences, Inc.

DRILLING EQUIPMENT: AMS Power Probe

DRILL BIT SIZE (INCHES): 2.375

DATE STARTED - COMPLETED: 12/22/2016

TOTAL WELL DEPTH (FT. BGS): 20

DEPTH TO WATER (FT. BGS): 10

Feather 31-15

BORING / WELL ID: BH52

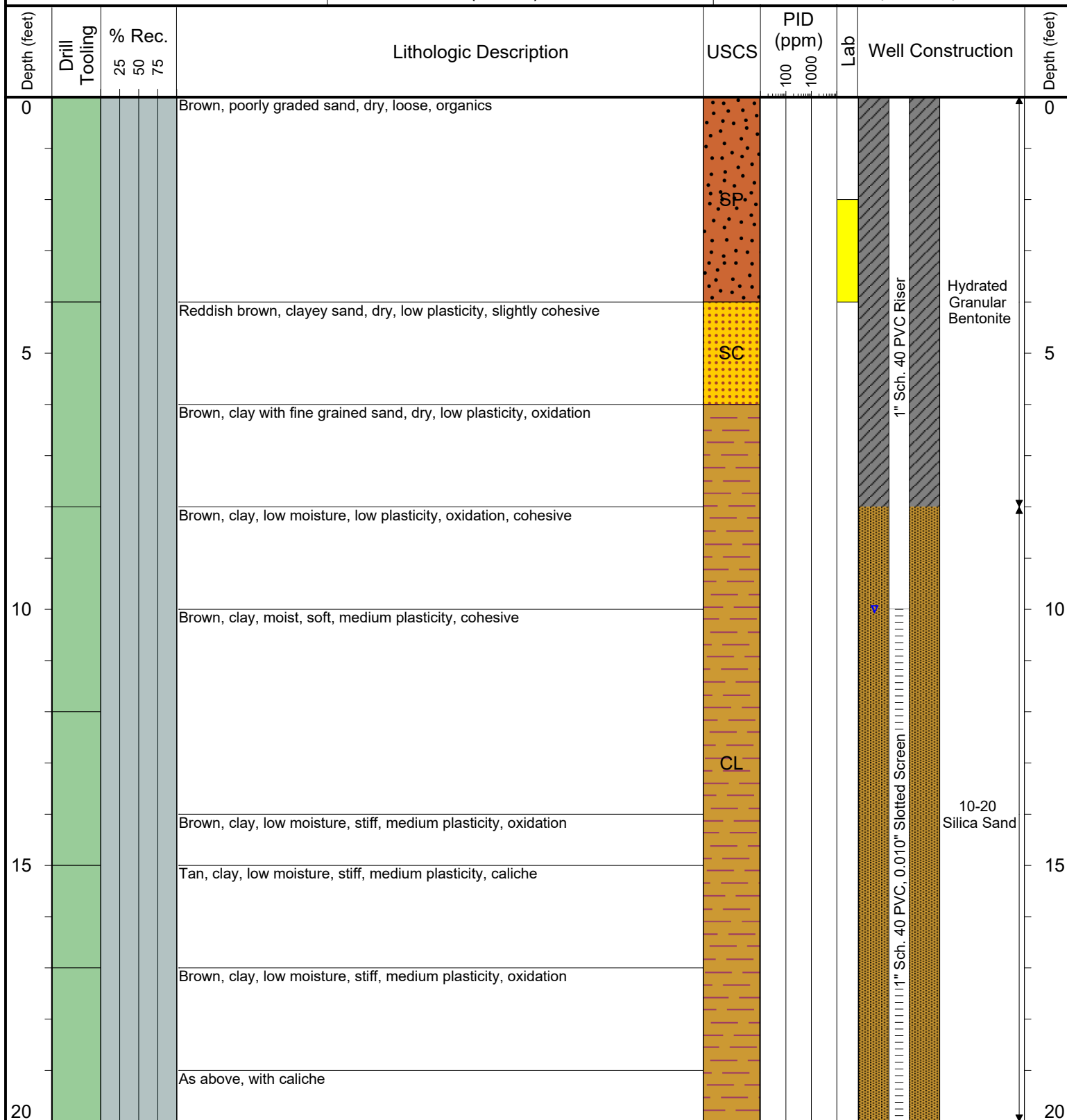
LOCATION: Weld County, Colorado

LATITUDE (DECIMAL DEGREES): 40.14641537064

LONGITUDE (DECIMAL DEGREES): -104.53349486

CASING ELEVATION (FT. AMSL): 4955.46

GROUND ELEVATION (FT. AMSL): 4952.96



Drilling / Sample Method:

Macro-Core

Expendable Well Tip

Perforated Injection Tool

HydroPunch Groundwater Sampler

Laboratory Sample Types:

Geotechnical Lab

Analytical Chemistry Lab

Geotechnical & Analytical Chemistry Lab

# **ATTACHMENT B**

## **LABORATORY ANALYTICAL DATA REPORTS**

# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

February 03, 2016

Brandon Bruns  
Tasman Geosciences  
6899 Pecos Street  
Denver, CO 80221  
RE: Feather 31-15

Enclosed are the results of analyses for samples received by Summit Scientific on 01/28/16 18:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury  
President



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
02/03/16 08:37

### ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|-----------|---------------|--------|----------------|----------------|
| BH03      | 1601242-01    | Water  | 01/28/16 11:30 | 01/28/16 18:00 |
| BH08      | 1601242-02    | Water  | 01/28/16 11:30 | 01/28/16 18:00 |

Summit Scientific

A handwritten signature in black ink, appearing to be 'MSM'.

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
02/03/16 08:37

## Summit Scientific

1601242

741 Corporate Circle Suite I • Golden, Colorado 80401  
303-277-9310 • 303-277-9531 Fax

Client: NoHe

Page 1 of 1

**Address:**

**Project Manager:**

City/State/Zip: \_\_\_\_\_

E-Mail:

Phone: 970 470 4042 Fax:

Project Name: Feather 31-15

Sampler Name: R. Lucia

Project Number:

|                    |                         |                     |                         | Preservative              |                              | Matrix                      |                          | Analyze For: |                                     |                         |                 |  |  |  |  |  |  |                      |
|--------------------|-------------------------|---------------------|-------------------------|---------------------------|------------------------------|-----------------------------|--------------------------|--------------|-------------------------------------|-------------------------|-----------------|--|--|--|--|--|--|----------------------|
| Sample Description | Date Sampled            | Time Sampled        | Number of Containers    | HCl                       | HNO <sub>3</sub>             | None                        | Other (Specify)          | Groundwater  | Soil                                | Air - Canister Serial # | Other (Specify) |  |  |  |  |  |  | Special Instructions |
| BH23               | 1/28/16                 | 1130                | 3                       | X                         |                              |                             |                          |              |                                     |                         | 0260 DTG        |  |  |  |  |  |  |                      |
| BH23               | 1/28/16                 | 1130                | 3                       | X                         |                              |                             |                          | X            |                                     |                         | X               |  |  |  |  |  |  |                      |
|                    |                         |                     |                         |                           |                              |                             |                          |              |                                     |                         |                 |  |  |  |  |  |  |                      |
|                    |                         |                     |                         |                           |                              |                             |                          |              |                                     |                         |                 |  |  |  |  |  |  |                      |
|                    |                         |                     |                         |                           |                              |                             |                          |              |                                     |                         |                 |  |  |  |  |  |  |                      |
|                    |                         |                     |                         |                           |                              |                             |                          |              |                                     |                         |                 |  |  |  |  |  |  |                      |
|                    |                         |                     |                         |                           |                              |                             |                          |              |                                     |                         |                 |  |  |  |  |  |  |                      |
|                    |                         |                     |                         |                           |                              |                             |                          |              |                                     |                         |                 |  |  |  |  |  |  |                      |
|                    |                         |                     |                         |                           |                              |                             |                          |              |                                     |                         |                 |  |  |  |  |  |  |                      |
|                    |                         |                     |                         |                           |                              |                             |                          |              |                                     |                         |                 |  |  |  |  |  |  |                      |
|                    |                         |                     |                         |                           |                              |                             |                          |              |                                     |                         |                 |  |  |  |  |  |  |                      |
|                    |                         |                     |                         |                           |                              |                             |                          |              |                                     |                         |                 |  |  |  |  |  |  |                      |
| Relinquished by:   | Date/Time: 1/29/16      | Received by:        | Date/Time: 1/29/16 1800 | Turn Around Time (Check)  |                              | Notes:                      |                          |              |                                     |                         |                 |  |  |  |  |  |  |                      |
| Relinquished by:   | Date/Time: 1/28/16 1830 | Received by:        | Date/Time:              | Same Day                  | <input type="checkbox"/>     | 24 Hours                    | <input type="checkbox"/> | 72 Hours     | <input checked="" type="checkbox"/> |                         |                 |  |  |  |  |  |  |                      |
| Relinquished by:   | Date/Time:              | Received in Lab by: | Date/Time:              | 48 Hours                  | <input type="checkbox"/>     |                             |                          |              |                                     |                         |                 |  |  |  |  |  |  |                      |
|                    |                         |                     |                         | Sample Integrity:         |                              |                             |                          |              |                                     |                         |                 |  |  |  |  |  |  |                      |
|                    |                         |                     |                         | Temperature Upon Receipt: | 34°C                         |                             |                          |              |                                     |                         |                 |  |  |  |  |  |  |                      |
|                    |                         |                     |                         | Intact:                   | Yes <input type="checkbox"/> | No <input type="checkbox"/> |                          |              |                                     |                         |                 |  |  |  |  |  |  |                      |

[www.s2scientific.com](http://www.s2scientific.com)

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*





Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
02/03/16 08:37

**BH03**  
**1601242-01 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: 01/28/16 11:30

| Analyte                | Result      | Reporting<br>Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|------------------------|-------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| <b>Benzene</b>         | <b>940</b>  | 100                | ug/l  | 100      | 1601280 | 02/01/16 | 02/01/16 | EPA 8260B |       |
| <b>Toluene</b>         | <b>3700</b> | 100                | "     | "        | "       | "        | "        | "         |       |
| <b>Ethylbenzene</b>    | <b>430</b>  | 100                | "     | "        | "       | "        | "        | "         |       |
| <b>Xylenes (total)</b> | <b>7100</b> | 100                | "     | "        | "       | "        | "        | "         |       |

Date Sampled: 01/28/16 11:30

| Analyte                                 | Result | Reporting<br>Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| <i>Surrogate: 1,2-Dichloroethane-d4</i> |        | 99.5 %             | 37-154 |          | "     | "        | "        | "      |       |
| <i>Surrogate: Toluene-d8</i>            |        | 100 %              | 45-149 |          | "     | "        | "        | "      |       |
| <i>Surrogate: 4-Bromofluorobenzene</i>  |        | 96.4 %             | 45-146 |          | "     | "        | "        | "      |       |

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
02/03/16 08:37

**BH08**  
**1601242-02 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: 01/28/16 11:30

| Analyte                | Result     | Reporting<br>Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|------------------------|------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene                | ND         | 1.0                | ug/l  | 1        | 1601280 | 02/01/16 | 02/01/16 | EPA 8260B |       |
| <b>Toluene</b>         | <b>1.1</b> | 1.0                | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene           | ND         | 1.0                | "     | "        | "       | "        | "        | "         |       |
| <b>Xylenes (total)</b> | <b>3.2</b> | 1.0                | "     | "        | "       | "        | "        | "         |       |

Date Sampled: 01/28/16 11:30

| Analyte                          | Result | Reporting<br>Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 93.8 %             | 37-154 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 97.2 %             | 45-149 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 101 %              | 45-146 |          | "     | "        | "        | "      |       |

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
02/03/16 08:37

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

| Analyte | Reporting |       |       | Spike | Source |      | %REC   |     | RPD   |       |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

#### Batch 1601280 - EPA 5030 Water MS

##### Blank (1601280-BLK1)

Prepared & Analyzed: 01/30/16

|                                  |      |     |      |      |  |      |        |  |  |  |
|----------------------------------|------|-----|------|------|--|------|--------|--|--|--|
| Benzene                          | ND   | 1.0 | ug/l |      |  |      |        |  |  |  |
| Toluene                          | ND   | 1.0 | "    |      |  |      |        |  |  |  |
| Ethylbenzene                     | ND   | 1.0 | "    |      |  |      |        |  |  |  |
| Xylenes (total)                  | ND   | 1.0 | "    |      |  |      |        |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 13.6 |     | "    | 13.3 |  | 102  | 37-154 |  |  |  |
| Surrogate: Toluene-d8            | 13.1 |     | "    | 13.3 |  | 98.0 | 45-149 |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 13.0 |     | "    | 13.3 |  | 97.4 | 45-146 |  |  |  |

##### LCS (1601280-BS1)

Prepared & Analyzed: 01/30/16

|                                  |      |     |      |      |  |      |        |  |  |  |
|----------------------------------|------|-----|------|------|--|------|--------|--|--|--|
| Benzene                          | 40.9 | 1.0 | ug/l | 33.3 |  | 123  | 51-132 |  |  |  |
| Toluene                          | 40.5 | 1.0 | "    | 33.3 |  | 122  | 51-138 |  |  |  |
| Ethylbenzene                     | 42.3 | 1.0 | "    | 33.1 |  | 128  | 58-146 |  |  |  |
| m,p-Xylene                       | 79.1 | 2.0 | "    | 66.5 |  | 119  | 57-144 |  |  |  |
| o-Xylene                         | 39.0 | 1.0 | "    | 32.8 |  | 119  | 53-146 |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 13.8 |     | "    | 13.3 |  | 104  | 37-154 |  |  |  |
| Surrogate: Toluene-d8            | 13.3 |     | "    | 13.3 |  | 100  | 45-149 |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 13.2 |     | "    | 13.3 |  | 99.3 | 45-146 |  |  |  |

##### Matrix Spike (1601280-MS1)

Source: 1601233-02

Prepared & Analyzed: 01/30/16

|                                  |      |     |      |      |      |      |        |  |  |  |
|----------------------------------|------|-----|------|------|------|------|--------|--|--|--|
| Benzene                          | 44.1 | 1.0 | ug/l | 33.3 | 3.58 | 122  | 34-141 |  |  |  |
| Toluene                          | 44.2 | 1.0 | "    | 33.3 | 4.16 | 120  | 27-151 |  |  |  |
| Ethylbenzene                     | 43.2 | 1.0 | "    | 33.1 | ND   | 131  | 29-160 |  |  |  |
| m,p-Xylene                       | 80.9 | 2.0 | "    | 66.5 | ND   | 122  | 20-166 |  |  |  |
| o-Xylene                         | 40.2 | 1.0 | "    | 32.8 | ND   | 123  | 33-159 |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 13.9 |     | "    | 13.3 |      | 104  | 37-154 |  |  |  |
| Surrogate: Toluene-d8            | 13.2 |     | "    | 13.3 |      | 99.0 | 45-149 |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 13.5 |     | "    | 13.3 |      | 101  | 45-146 |  |  |  |

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
02/03/16 08:37

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source |      | %REC   |     | RPD   |       |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

**Batch 1601280 - EPA 5030 Water MS**

| Matrix Spike Dup (1601280-MSD1)  | Source: 1601233-02 |     |      | Prepared & Analyzed: 01/30/16 |      |      |        |       |    |  |
|----------------------------------|--------------------|-----|------|-------------------------------|------|------|--------|-------|----|--|
| Benzene                          | 43.8               | 1.0 | ug/l | 33.3                          | 3.58 | 121  | 34-141 | 0.751 | 32 |  |
| Toluene                          | 44.5               | 1.0 | "    | 33.3                          | 4.16 | 121  | 27-151 | 0.631 | 25 |  |
| Ethylbenzene                     | 44.4               | 1.0 | "    | 33.1                          | ND   | 134  | 29-160 | 2.76  | 50 |  |
| m,p-Xylene                       | 83.6               | 2.0 | "    | 66.5                          | ND   | 126  | 20-166 | 3.34  | 36 |  |
| o-Xylene                         | 40.8               | 1.0 | "    | 32.8                          | ND   | 124  | 33-159 | 1.43  | 26 |  |
| Surrogate: 1,2-Dichloroethane-d4 | 13.6               |     | "    | 13.3                          |      | 102  | 37-154 |       |    |  |
| Surrogate: Toluene-d8            | 13.2               |     | "    | 13.3                          |      | 98.7 | 45-149 |       |    |  |
| Surrogate: 4-Bromofluorobenzene  | 13.2               |     | "    | 13.3                          |      | 98.9 | 45-146 |       |    |  |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
02/03/16 08:37

### Notes and Definitions

DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference

---

Summit Scientific

A handwritten signature in black ink, appearing to be 'MSM'.

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

August 31, 2016

Brandon Bruns  
Tasman Geosciences  
6899 Pecos Street  
Denver, CO 80221  
RE: Feather 31-15

Enclosed are the results of analyses for samples received by Summit Scientific on 08/25/16 15:50. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury  
President



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/31/16 13:13

### ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|-----------|---------------|--------|----------------|----------------|
| BH16@11'  | 1608208-01    | Soil   | 08/25/16 09:35 | 08/25/16 15:50 |
| BH10@8'   | 1608208-02    | Soil   | 08/25/16 10:20 | 08/25/16 15:50 |
| BH11@08'  | 1608208-03    | Soil   | 08/25/16 11:00 | 08/25/16 15:50 |
| BH12@7'   | 1608208-04    | Soil   | 08/25/16 11:45 | 08/25/16 15:50 |
| BH13@8'   | 1608208-05    | Soil   | 08/25/16 12:30 | 08/25/16 15:50 |
| BH14@8'   | 1608208-06    | Soil   | 08/25/16 13:20 | 08/25/16 15:50 |
| BH15@7'   | 1608208-07    | Soil   | 08/25/16 14:25 | 08/25/16 15:50 |

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
08/31/16 13:13

# Summit Scientific

S<sub>2</sub>

1608208

741 Corporate Circle, Suite J • Golden, Colorado 80401  
303-277-9310 • 303-374-5933

Client: Noble Energy/Tasman Project Manager: Brandon Bruns / Invoice: Jacob Evans Page 1 of 1  
Address: \_\_\_\_\_ E-Mail: \_\_\_\_\_  
City/State/Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Sampler Name: Eric Siegel Project Name: Feather 31-15  
Project Number: \_\_\_\_\_

| ID | Sample Description | Date Sampled | Time Sampled | # of containers | Preservative |                  |      | Matrix          |             | Analysis Requested |                |                 |            | Special Instructions |
|----|--------------------|--------------|--------------|-----------------|--------------|------------------|------|-----------------|-------------|--------------------|----------------|-----------------|------------|----------------------|
|    |                    |              |              |                 | HCl          | HNO <sub>3</sub> | None | Other (Specify) | Groundwater | Soil               | Air-Canister # | Other (Specify) | 4260 GIESA |                      |
| 1  | BH09E 11'          | 8/25/16      | 4:35         | 1               |              |                  |      |                 |             |                    |                |                 |            |                      |
| 2  | BH10E 5'           |              | 10:20        | 1               |              |                  |      |                 |             |                    |                |                 |            |                      |
| 3  | BH11E 11'          |              | 11:00        | 1               |              |                  |      |                 |             |                    |                |                 |            |                      |
| 4  | BH12E 7'           |              | 11:45        | 1               |              |                  |      |                 |             |                    |                |                 |            |                      |
| 5  | BH13E 8'           |              | 12:30        | 1               |              |                  |      |                 |             |                    |                |                 |            |                      |
| 6  | BH14E 5'           |              | 13:20        | 1               |              |                  |      |                 |             |                    |                |                 |            |                      |
| 7  | BH15E 7'           | ✓            | 14:25        | 1               |              |                  |      |                 |             |                    |                |                 |            |                      |
| 8  |                    |              |              |                 |              |                  |      |                 |             |                    |                |                 |            |                      |
| 9  |                    |              |              |                 |              |                  |      |                 |             |                    |                |                 |            |                      |
| 10 |                    |              |              |                 |              |                  |      |                 |             |                    |                |                 |            |                      |

|                                     |                                 |                                 |                                 |  |                         |
|-------------------------------------|---------------------------------|---------------------------------|---------------------------------|--|-------------------------|
| Relinquished by: <u>E. A. And</u>   | Date/Time: <u>8/25/16 15:50</u> | Received by: <u>[Signature]</u> | Date/Time: <u>8/25/16 15:50</u> | Turn Around Time (Check)   | Notes:<br><u>on ice</u> |
| Relinquished by: <u>[Signature]</u> | Date/Time: <u>8/25/16 1745</u>  | Received by: <u>[Signature]</u> | Date/Time: <u>8/25/16 1745</u>  | Same Day <input type="checkbox"/> 72 hours <input type="checkbox"/>            |                         |
|                                     |                                 |                                 |                                 | 24 hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> |                         |
|                                     |                                 |                                 |                                 | 48 hours <input type="checkbox"/>  |                         |
| Relinquished by: _____              | Date/Time: _____                | Received by: _____              | Date/Time: _____                | Sample Integrity: _____  |                         |
|                                     |                                 |                                 |                                 | Temperature Upon Receipt: <u>-3.2°C</u>  |                         |
|                                     |                                 |                                 |                                 | Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No          |                         |

www.s2scientific.com

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
08/31/16 13:13

#### Sample Receipt Checklist

S2 Work Order: 1608208

Client: Noble Energy/Tasman

Client Project ID: Feather 31-15

Shipped Via: HD

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: \_\_\_\_\_

Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: \_\_\_\_\_ (Describe)

|           |       |  |  |  |  |
|-----------|-------|--|--|--|--|
| Cooler ID |       |  |  |  |  |
| Temp (°C) | - 3.2 |  |  |  |  |

Thermometer ID: 61857155-K

|   | Yes | No | N/A | Comments (if any)               |
|---|-----|----|-----|---------------------------------|
| If samples require cooling, was the temperature just above 0°C to ≤ 6°C <sup>(1)</sup> ?  |     | ✓  |     |                                 |
| NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun. |     |    |     |                                 |
| Were all samples received intact <sup>(1)</sup> ?   | ✓   |    |     |                                 |
| Was adequate sample volume provided <sup>(1)</sup> ?  | ✓   |    |     |                                 |
| If custody seals are present, are they intact <sup>(1)</sup> ?  |     |    | ✓   |                                 |
| Are short holding time analytes or samples with HTs due within 48 hours present?  |     |    | ✓   |                                 |
| Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?   | ✓   |    |     |                                 |
| Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?   | ✓   |    |     |                                 |
| Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?   | ✗   | ✓  |     |                                 |
| Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?   | ✓   |    |     | BH11@11' on COC, on Jar BH11@8' |
| For volatiles in water – is there headspace present? If yes, contact client and note in narrative.  |     |    | ✓   |                                 |
| Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?  |     |    | ✓   |                                 |
| Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect  |     |    | ✓   |                                 |
| If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?  |     |    | ✓   |                                 |
| Record the pH in Comments.  |     |    | ✓   |                                 |
| If dissolved metals are requested, were samples field filtered?   |     |    | ✓   |                                 |
| Additional Comments (if any):   |     |    |     |                                 |
|   |     |    |     |                                 |
| <sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.                                   |     |    |     |                                 |

Nakita  
Custodian Printed Name

[Signature]  
Signature or Initials of Custodian

8/29/16 1600  
Date/Time



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
08/31/16 13:13

**BH16@11'**  
**1608208-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/25/16 09:35**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1608287 | 08/29/16 | 08/30/16 | 8015M  |       |

Date Sampled: **08/25/16 09:35**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 94.1 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/25/16 09:35**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1608286 | 08/29/16 | 08/30/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **08/25/16 09:35**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 117 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 97.3 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 99.5 %          | 21-167 |          | "     | "        | "        | "      |       |

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/31/16 13:13

**BH10@8'**  
**1608208-02 (Soil)**

### Summit Scientific

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 08/25/16 10:20

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1608287 | 08/29/16 | 08/30/16 | 8015M  |       |

Date Sampled: 08/25/16 10:20

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 94.4 %          | 30-150 |          | "     | "        | "        | "      |       |

#### Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 08/25/16 10:20

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1608286 | 08/29/16 | 08/30/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: 08/25/16 10:20

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 110 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 96.4 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 97.6 %          | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
08/31/16 13:13

**BH11@08'**  
**1608208-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/25/16 11:00**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1608287 | 08/29/16 | 08/30/16 | 8015M  |       |

Date Sampled: **08/25/16 11:00**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 96.5 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/25/16 11:00**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1608286 | 08/29/16 | 08/30/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **08/25/16 11:00**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 112 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 98.9 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 96.2 %          | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/31/16 13:13

**BH12@7'**  
**1608208-04 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/25/16 11:45**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1608287 | 08/29/16 | 08/30/16 | 8015M  |       |

Date Sampled: **08/25/16 11:45**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 94.2 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/25/16 11:45**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1608286 | 08/29/16 | 08/30/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **08/25/16 11:45**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 120 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 99.7 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 97.8 %          | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/31/16 13:13

**BH13@8'**  
**1608208-05 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/25/16 12:30**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1608287 | 08/29/16 | 08/30/16 | 8015M  |       |

Date Sampled: **08/25/16 12:30**

| Analyte                        | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|--------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: <i>o</i> -Terphenyl |        | 96.8 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/25/16 12:30**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1608286 | 08/29/16 | 08/30/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **08/25/16 12:30**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 117 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 99.1 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 99.2 %          | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/31/16 13:13

**BH14@8'**  
**1608208-06 (Soil)**

### Summit Scientific

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 08/25/16 13:20

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1608287 | 08/29/16 | 08/30/16 | 8015M  |       |

Date Sampled: 08/25/16 13:20

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 95.6 %          | 30-150 |          | "     | "        | "        | "      |       |

#### Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 08/25/16 13:20

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1608286 | 08/29/16 | 08/30/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: 08/25/16 13:20

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 116 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 96.8 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 95.7 %          | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
08/31/16 13:13

**BH15@7'**  
**1608208-07 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/25/16 14:25**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1608287 | 08/29/16 | 08/30/16 | 8015M  |       |

Date Sampled: **08/25/16 14:25**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 94.4 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/25/16 14:25**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1608286 | 08/29/16 | 08/30/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **08/25/16 14:25**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 124 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 99.5 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 97.2 %          | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
08/31/16 13:13

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source |      | %REC   |     | RPD   |       |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

**Batch 1608287 - EPA 3550A**

**Blank (1608287-BLK1)**

Prepared & Analyzed: 08/29/16

|                        |      |    |       |      |     |        |  |  |  |  |
|------------------------|------|----|-------|------|-----|--------|--|--|--|--|
| C10-C28 (DRO)          | ND   | 50 | mg/kg |      |     |        |  |  |  |  |
| Surrogate: o-Terphenyl | 12.6 |    | "     | 12.5 | 101 | 30-150 |  |  |  |  |

**LCS (1608287-BS1)**

Prepared & Analyzed: 08/29/16

|                        |      |    |       |      |      |        |  |  |  |  |
|------------------------|------|----|-------|------|------|--------|--|--|--|--|
| C10-C28 (DRO)          | 449  | 50 | mg/kg | 499  | 90.0 | 73-134 |  |  |  |  |
| Surrogate: o-Terphenyl | 12.8 |    | "     | 12.5 | 102  | 30-150 |  |  |  |  |

**Matrix Spike (1608287-MS1)**

Source: 1608231-03

Prepared & Analyzed: 08/29/16

|                        |      |    |       |      |      |        |        |  |  |  |
|------------------------|------|----|-------|------|------|--------|--------|--|--|--|
| C10-C28 (DRO)          | 472  | 50 | mg/kg | 484  | 8.94 | 95.5   | 50-148 |  |  |  |
| Surrogate: o-Terphenyl | 12.3 |    | "     | 12.1 | 101  | 30-150 |        |  |  |  |

**Matrix Spike Dup (1608287-MSD1)**

Source: 1608231-03

Prepared & Analyzed: 08/29/16

|                        |      |    |       |      |      |        |        |      |    |  |
|------------------------|------|----|-------|------|------|--------|--------|------|----|--|
| C10-C28 (DRO)          | 425  | 50 | mg/kg | 461  | 8.94 | 90.1   | 50-148 | 10.5 | 20 |  |
| Surrogate: o-Terphenyl | 11.7 |    | "     | 11.6 | 101  | 30-150 |        |      |    |  |

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
08/31/16 13:13

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source |      | %REC   |     | RPD   |       |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

**Batch 1608286 - EPA 5030 Soil MS**

**Blank (1608286-BLK1)**

Prepared: 08/29/16 Analyzed: 08/30/16

|                                  |        |        |       |        |  |      |        |  |  |  |
|----------------------------------|--------|--------|-------|--------|--|------|--------|--|--|--|
| Naphthalene                      | ND     | 0.010  | mg/kg |        |  |      |        |  |  |  |
| Benzene                          | ND     | 0.0020 | "     |        |  |      |        |  |  |  |
| Toluene                          | ND     | 0.0050 | "     |        |  |      |        |  |  |  |
| Ethylbenzene                     | ND     | 0.0050 | "     |        |  |      |        |  |  |  |
| Xylenes (total)                  | ND     | 0.010  | "     |        |  |      |        |  |  |  |
| Gasoline Range Hydrocarbons      | ND     | 50     | "     |        |  |      |        |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0379 |        | "     | 0.0400 |  | 94.6 | 23-173 |  |  |  |
| Surrogate: Toluene-d8            | 0.0383 |        | "     | 0.0400 |  | 95.8 | 20-170 |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0384 |        | "     | 0.0400 |  | 96.0 | 21-167 |  |  |  |

**LCS (1608286-BS1)**

Prepared: 08/29/16 Analyzed: 08/30/16

|                                  |        |        |       |        |  |      |        |  |  |  |
|----------------------------------|--------|--------|-------|--------|--|------|--------|--|--|--|
| Naphthalene                      | ND     | 0.010  | mg/kg |        |  |      | 66-138 |  |  |  |
| Benzene                          | 0.0769 | 0.0020 | "     | 0.100  |  | 76.9 | 58-130 |  |  |  |
| Toluene                          | 0.0843 | 0.0050 | "     | 0.100  |  | 84.3 | 61-134 |  |  |  |
| Ethylbenzene                     | 0.0955 | 0.0050 | "     | 0.0992 |  | 96.3 | 74-139 |  |  |  |
| m,p-Xylene                       | 0.194  | 0.010  | "     | 0.200  |  | 97.0 | 73-137 |  |  |  |
| o-Xylene                         | 0.105  | 0.0050 | "     | 0.0980 |  | 107  | 73-141 |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0409 |        | "     | 0.0400 |  | 102  | 23-173 |  |  |  |
| Surrogate: Toluene-d8            | 0.0371 |        | "     | 0.0400 |  | 92.8 | 20-170 |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0385 |        | "     | 0.0400 |  | 96.2 | 21-167 |  |  |  |

**Matrix Spike (1608286-MS1)**

Source: 1608231-03

Prepared: 08/29/16 Analyzed: 08/30/16

|                                  |        |        |       |        |         |      |        |  |  |  |
|----------------------------------|--------|--------|-------|--------|---------|------|--------|--|--|--|
| Naphthalene                      | ND     | 0.010  | mg/kg |        | ND      |      | 10-158 |  |  |  |
| Benzene                          | 0.0718 | 0.0020 | "     | 0.0899 | 0.0495  | 24.8 | 24-131 |  |  |  |
| Toluene                          | 0.0771 | 0.0050 | "     | 0.0899 | ND      | 85.7 | 30-134 |  |  |  |
| Ethylbenzene                     | 0.0833 | 0.0050 | "     | 0.0892 | ND      | 93.3 | 22-153 |  |  |  |
| m,p-Xylene                       | 0.173  | 0.010  | "     | 0.179  | 0.0146  | 88.5 | 10-159 |  |  |  |
| o-Xylene                         | 0.0944 | 0.0050 | "     | 0.0881 | 0.00349 | 103  | 31-151 |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0429 |        | "     | 0.0360 |         | 119  | 23-173 |  |  |  |
| Surrogate: Toluene-d8            | 0.0345 |        | "     | 0.0360 |         | 95.9 | 20-170 |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0354 |        | "     | 0.0360 |         | 98.6 | 21-167 |  |  |  |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
08/31/16 13:13

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source |      | %REC   |     | RPD   |       |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

**Batch 1608286 - EPA 5030 Soil MS**

| Matrix Spike Dup (1608286-MSD1)  |        |        |       | Source: 1608231-03 |         | Prepared: 08/29/16 |        | Analyzed: 08/30/16 |  |    |
|----------------------------------|--------|--------|-------|--------------------|---------|--------------------|--------|--------------------|--|----|
| Naphthalene                      | ND     | 0.010  | mg/kg |                    | ND      |                    | 10-158 |                    |  | 42 |
| Benzene                          | 0.0758 | 0.0020 | "     | 0.0951             | 0.0495  | 27.7               | 24-131 | 5.39               |  | 34 |
| Toluene                          | 0.0824 | 0.0050 | "     | 0.0951             | ND      | 86.7               | 30-134 | 6.73               |  | 30 |
| Ethylbenzene                     | 0.0903 | 0.0050 | "     | 0.0943             | ND      | 95.8               | 22-153 | 8.16               |  | 24 |
| m,p-Xylene                       | 0.187  | 0.010  | "     | 0.190              | 0.0146  | 90.9               | 10-159 | 7.56               |  | 68 |
| o-Xylene                         | 0.101  | 0.0050 | "     | 0.0932             | 0.00349 | 104                | 31-151 | 6.60               |  | 38 |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0439 |        | "     | 0.0380             |         | 115                | 23-173 |                    |  |    |
| Surrogate: Toluene-d8            | 0.0360 |        | "     | 0.0380             |         | 94.7               | 20-170 |                    |  |    |
| Surrogate: 4-Bromofluorobenzene  | 0.0367 |        | "     | 0.0380             |         | 96.4               | 21-167 |                    |  |    |

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/31/16 13:13

### Notes and Definitions

DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference

---

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

A handwritten signature in black ink, appearing to be 'MSM'.

# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

September 22, 2016

Brandon Bruns  
Tasman Geosciences  
6899 Pecos Street  
Denver, CO 80221  
RE: Feather 31-15

Enclosed are the results of analyses for samples received by Summit Scientific on 09/21/16 17:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury  
President



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/22/16 06:16

### ANALYTICAL REPORT FOR SAMPLES

| Sample ID  | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|------------|---------------|--------|----------------|----------------|
| BH17@6'-7' | 1609128-01    | Soil   | 09/21/16 10:20 | 09/21/16 17:30 |
| BH18@8'-9' | 1609128-02    | Soil   | 09/21/16 10:45 | 09/21/16 17:30 |
| BH19@6'-7' | 1609128-03    | Soil   | 09/21/16 12:00 | 09/21/16 17:30 |
| BH20@7'-8' | 1609128-04    | Soil   | 09/21/16 12:45 | 09/21/16 17:30 |
| BH21@4'-6' | 1609128-05    | Soil   | 09/21/16 14:05 | 09/21/16 17:30 |
| BH22@4'-6' | 1609128-06    | Soil   | 09/21/16 15:00 | 09/21/16 17:30 |

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/22/16 06:16

741 Corporate Circle Suite 1 Golden, Colorado 80401  
303-277-9310 303-374-5933 Fax

1609128

Client: Noble/Tasman

Page 1 of 1

Address:

City/State/Zip: —

Phone: 303-467-1228 Fax:

Sampler Name: Graham Baseck

Project Manager: Brandon Bruns, Invoice: Jacob Evans

E-Mail: BBrins@tasman-geo.com

Project Name: Feather 31-15

Project Number:

[illegible]

[www.szscnline.com](http://www.szscnline.com)

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*





Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
09/22/16 06:16

#### Sample Receipt Checklist

S2 Work Order: 1609128

Client: Noble/Tasman

Client Project ID: Feather 31-15

Shipped Via: P/U

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: \_\_\_\_\_

Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: \_\_\_\_\_  
(Describe)

|           |            |  |  |  |  |
|-----------|------------|--|--|--|--|
| Cooler ID |            |  |  |  |  |
| Temp (°C) | <u>4.9</u> |  |  |  |  |

Thermometer ID: 61857155-K

|   | Yes                                 | No | N/A                                 | Comments (if any) |
|---|-------------------------------------|----|-------------------------------------|-------------------|
| If samples require cooling, was the temperature just above 0°C to ≤ 6°C <sup>(1)</sup> ?  | <input checked="" type="checkbox"/> |    |                                     |                   |
| NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun. |                                     |    |                                     |                   |
| Were all samples received intact <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| Was adequate sample volume provided <sup>(1)</sup> ?  | <input checked="" type="checkbox"/> |    |                                     |                   |
| If custody seals are present, are they intact <sup>(1)</sup> ?  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Are short holding time analytes or samples with HTs due within 48 hours present?  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| For volatiles in water – is there headspace present? If yes, contact client and note in narrative.  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect  |                                     |    | <input checked="" type="checkbox"/> |                   |
| If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Record the pH in Comments.  |                                     |    | <input checked="" type="checkbox"/> |                   |
| If dissolved metals are requested, were samples field filtered?   |                                     |    | <input checked="" type="checkbox"/> |                   |
| Additional Comments (if any):   |                                     |    |                                     |                   |
| <sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.                                   |                                     |    |                                     |                   |

Nakitz  
Custodian Printed Name

[Signature]  
Signature or Initials of Custodian

1/21/16 1730  
Date/Time



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
09/22/16 06:16

**BH17@6'-7'**  
**1609128-01 (Soil)**

### Summit Scientific

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 09/21/16 10:20

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1609165 | 09/21/16 | 09/21/16 | 8015M  |       |

Date Sampled: 09/21/16 10:20

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 92.2 %          | 30-150 |          | "     | "        | "        | "      |       |

#### Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 09/21/16 10:20

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1609164 | 09/21/16 | 09/21/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: 09/21/16 10:20

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 113 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 98.6 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 99.8 %          | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
09/22/16 06:16

**BH18@8'-9'**  
**1609128-02 (Soil)**

### Summit Scientific

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 09/21/16 10:45

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1609165 | 09/21/16 | 09/21/16 | 8015M  |       |

Date Sampled: 09/21/16 10:45

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 91.7 %          | 30-150 |          | "     | "        | "        | "      |       |

#### Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 09/21/16 10:45

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1609164 | 09/21/16 | 09/21/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: 09/21/16 10:45

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 111 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 98.9 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 99.2 %          | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
09/22/16 06:16

**BH19@6'-7'**  
**1609128-03 (Soil)**

### Summit Scientific

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/21/16 12:00**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1609165 | 09/21/16 | 09/21/16 | 8015M  |       |

Date Sampled: **09/21/16 12:00**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 92.4 %          | 30-150 |          | "     | "        | "        | "      |       |

#### Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/21/16 12:00**

| Analyte                     | Result        | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|---------------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND            | 0.010           | mg/kg | 1        | 1609164 | 09/21/16 | 09/21/16 | EPA 8260B |       |
| Benzene                     | ND            | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| <b>Toluene</b>              | <b>0.0060</b> | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND            | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| <b>Xylenes (total)</b>      | <b>0.013</b>  | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND            | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **09/21/16 12:00**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 106 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 98.7 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 100 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
09/22/16 06:16

**BH20@7'-8'**  
**1609128-04 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 09/21/16 12:45

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1609165 | 09/21/16 | 09/21/16 | 8015M  |       |

Date Sampled: 09/21/16 12:45

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 92.1 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: 09/21/16 12:45

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1609164 | 09/21/16 | 09/21/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: 09/21/16 12:45

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 107 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 99.3 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 101 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/22/16 06:16

**BH21@4'-6'**  
**1609128-05 (Soil)**

### Summit Scientific

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 09/21/16 14:05

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1609165 | 09/21/16 | 09/21/16 | 8015M  |       |

Date Sampled: 09/21/16 14:05

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 90.7 %          | 30-150 |          | "     | "        | "        | "      |       |

#### Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 09/21/16 14:05

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1609164 | 09/21/16 | 09/21/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: 09/21/16 14:05

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 110 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 100 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 99.3 %          | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/22/16 06:16

**BH22@4'-6'**  
**1609128-06 (Soil)**

### Summit Scientific

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 09/21/16 15:00

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1609165 | 09/21/16 | 09/21/16 | 8015M  |       |

Date Sampled: 09/21/16 15:00

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 89.6 %          | 30-150 |          | "     | "        | "        | "      |       |

#### Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 09/21/16 15:00

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1609164 | 09/21/16 | 09/21/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: 09/21/16 15:00

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 117 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 101 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 102 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/22/16 06:16

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source |      | %REC   |     | RPD   |       |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

**Batch 1609165 - EPA 3550A**

**Blank (1609165-BLK1)**

Prepared & Analyzed: 09/21/16

|                        |      |    |       |      |     |        |  |  |  |      |
|------------------------|------|----|-------|------|-----|--------|--|--|--|------|
| C10-C28 (DRO)          | ND   | 50 | mg/kg |      |     |        |  |  |  |      |
| Surrogate: o-Terphenyl | 20.1 |    | "     | 12.5 | 161 | 30-150 |  |  |  | S-07 |

**LCS (1609165-BS1)**

Prepared & Analyzed: 09/21/16

|                        |      |    |       |      |      |        |  |  |  |  |
|------------------------|------|----|-------|------|------|--------|--|--|--|--|
| C10-C28 (DRO)          | 464  | 50 | mg/kg | 499  | 93.1 | 73-134 |  |  |  |  |
| Surrogate: o-Terphenyl | 12.2 |    | "     | 12.5 | 97.6 | 30-150 |  |  |  |  |

**Matrix Spike (1609165-MS1)**

Source: 1609128-01

Prepared & Analyzed: 09/21/16

|                        |      |    |       |      |      |        |        |  |  |  |
|------------------------|------|----|-------|------|------|--------|--------|--|--|--|
| C10-C28 (DRO)          | 414  | 50 | mg/kg | 447  | 9.16 | 90.6   | 50-148 |  |  |  |
| Surrogate: o-Terphenyl | 10.6 |    | "     | 11.2 | 94.9 | 30-150 |        |  |  |  |

**Matrix Spike Dup (1609165-MSD1)**

Source: 1609128-01

Prepared & Analyzed: 09/21/16

|                        |      |    |       |      |      |        |        |       |    |  |
|------------------------|------|----|-------|------|------|--------|--------|-------|----|--|
| C10-C28 (DRO)          | 417  | 50 | mg/kg | 447  | 9.16 | 91.2   | 50-148 | 0.658 | 20 |  |
| Surrogate: o-Terphenyl | 10.7 |    | "     | 11.2 | 95.2 | 30-150 |        |       |    |  |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
09/22/16 06:16

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source |      | %REC   |     | RPD   |       |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

**Batch 1609164 - EPA 5030 Soil MS**

**Blank (1609164-BLK1)**

Prepared & Analyzed: 09/21/16

|                                  |        |        |       |        |  |      |        |  |  |  |
|----------------------------------|--------|--------|-------|--------|--|------|--------|--|--|--|
| Naphthalene                      | ND     | 0.010  | mg/kg |        |  |      |        |  |  |  |
| Benzene                          | ND     | 0.0020 | "     |        |  |      |        |  |  |  |
| Toluene                          | ND     | 0.0050 | "     |        |  |      |        |  |  |  |
| Ethylbenzene                     | ND     | 0.0050 | "     |        |  |      |        |  |  |  |
| Xylenes (total)                  | ND     | 0.010  | "     |        |  |      |        |  |  |  |
| Gasoline Range Hydrocarbons      | ND     | 50     | "     |        |  |      |        |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0403 |        | "     | 0.0400 |  | 101  | 23-173 |  |  |  |
| Surrogate: Toluene-d8            | 0.0396 |        | "     | 0.0400 |  | 99.1 | 20-170 |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0387 |        | "     | 0.0400 |  | 96.8 | 21-167 |  |  |  |

**LCS (1609164-BS1)**

Prepared & Analyzed: 09/21/16

|                                  |        |        |       |        |  |      |        |  |  |  |
|----------------------------------|--------|--------|-------|--------|--|------|--------|--|--|--|
| Naphthalene                      | 0.0131 | 0.010  | mg/kg |        |  |      | 66-138 |  |  |  |
| Benzene                          | 0.129  | 0.0020 | "     | 0.100  |  | 129  | 58-130 |  |  |  |
| Toluene                          | 0.127  | 0.0050 | "     | 0.100  |  | 127  | 61-134 |  |  |  |
| Ethylbenzene                     | 0.136  | 0.0050 | "     | 0.0992 |  | 137  | 74-139 |  |  |  |
| m,p-Xylene                       | 0.266  | 0.010  | "     | 0.200  |  | 133  | 73-137 |  |  |  |
| o-Xylene                         | 0.138  | 0.0050 | "     | 0.0980 |  | 141  | 73-141 |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0417 |        | "     | 0.0400 |  | 104  | 23-173 |  |  |  |
| Surrogate: Toluene-d8            | 0.0404 |        | "     | 0.0400 |  | 101  | 20-170 |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0398 |        | "     | 0.0400 |  | 99.4 | 21-167 |  |  |  |

**Matrix Spike (1609164-MS1)**

Source: 1609128-01

Prepared & Analyzed: 09/21/16

|                                  |        |        |       |        |    |      |        |  |  |  |
|----------------------------------|--------|--------|-------|--------|----|------|--------|--|--|--|
| Naphthalene                      | ND     | 0.010  | mg/kg |        | ND |      | 10-158 |  |  |  |
| Benzene                          | 0.113  | 0.0020 | "     | 0.0879 | ND | 129  | 30-131 |  |  |  |
| Toluene                          | 0.114  | 0.0050 | "     | 0.0879 | ND | 130  | 30-134 |  |  |  |
| Ethylbenzene                     | 0.125  | 0.0050 | "     | 0.0872 | ND | 143  | 22-153 |  |  |  |
| m,p-Xylene                       | 0.238  | 0.010  | "     | 0.175  | ND | 136  | 10-159 |  |  |  |
| o-Xylene                         | 0.123  | 0.0050 | "     | 0.0861 | ND | 143  | 31-151 |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0385 |        | "     | 0.0351 |    | 110  | 23-173 |  |  |  |
| Surrogate: Toluene-d8            | 0.0351 |        | "     | 0.0351 |    | 99.8 | 20-170 |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0351 |        | "     | 0.0351 |    | 99.9 | 21-167 |  |  |  |

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/22/16 06:16

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source |      | %REC   |     | RPD   |       |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

**Batch 1609164 - EPA 5030 Soil MS**

| Matrix Spike Dup (1609164-MSD1)  |        | Source: 1609128-01 |       |        | Prepared & Analyzed: 09/21/16 |     |        |       |    |  |
|----------------------------------|--------|--------------------|-------|--------|-------------------------------|-----|--------|-------|----|--|
| Naphthalene                      | ND     | 0.010              | mg/kg |        | ND                            |     | 10-158 |       | 42 |  |
| Benzene                          | 0.111  | 0.0020             | "     | 0.0856 | ND                            | 130 | 30-131 | 1.72  | 34 |  |
| Toluene                          | 0.113  | 0.0050             | "     | 0.0856 | ND                            | 133 | 30-134 | 0.497 | 30 |  |
| Ethylbenzene                     | 0.123  | 0.0050             | "     | 0.0849 | ND                            | 145 | 22-153 | 1.19  | 24 |  |
| m,p-Xylene                       | 0.237  | 0.010              | "     | 0.171  | ND                            | 139 | 10-159 | 0.707 | 68 |  |
| o-Xylene                         | 0.122  | 0.0050             | "     | 0.0839 | ND                            | 146 | 31-151 | 0.887 | 38 |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0381 |                    | "     | 0.0342 |                               | 111 | 23-173 |       |    |  |
| Surrogate: Toluene-d8            | 0.0344 |                    | "     | 0.0342 |                               | 100 | 20-170 |       |    |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0346 |                    | "     | 0.0342 |                               | 101 | 21-167 |       |    |  |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/22/16 06:16

### Notes and Definitions

S-07 The surrogate recovery was outside acceptance limits indicating a potential high bias. The sample did not exhibit concentrations above reporting level for analytes represented by this surrogate. Data quality is not affected.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

September 23, 2016

Brandon Bruns  
Tasman Geosciences  
6899 Pecos Street  
Denver, CO 80221  
RE: Feather 31-15

Enclosed are the results of analyses for samples received by Summit Scientific on 09/22/16 17:25. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury  
President



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/23/16 07:05

### ANALYTICAL REPORT FOR SAMPLES

| Sample ID  | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|------------|---------------|--------|----------------|----------------|
| BH23@6'-7' | 1609138-01    | Soil   | 09/22/16 11:00 | 09/22/16 17:25 |
| BH24@4'-5' | 1609138-02    | Soil   | 09/22/16 11:35 | 09/22/16 17:25 |
| BH25@4'-6' | 1609138-03    | Soil   | 09/22/16 12:10 | 09/22/16 17:25 |
| BH26@4'-6' | 1609138-04    | Soil   | 09/22/16 13:00 | 09/22/16 17:25 |
| BH27@4'-6' | 1609138-05    | Soil   | 09/22/16 14:20 | 09/22/16 17:25 |
| BH28@2'-4' | 1609138-06    | Soil   | 09/22/16 15:05 | 09/22/16 17:25 |
| BH29@4'-6' | 1609138-07    | Soil   | 09/22/16 15:43 | 09/22/16 17:25 |

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
09/23/16 07:05

741 Corporate Circle Suite I Golden, Colorado 80401  
303-277-9310 303-374-5933 Fax

71609138

Client: Noble/Tasman  
Address: \_\_\_\_\_  
City/State/Zip: \_\_\_\_\_  
Phone: 303-487-1228 Fax: \_\_\_\_\_  
Sampler Name: Graham Baselee  
Project Manager: Brandon Bruns, Invoice: Jacob Evans  
E-Mail: B.Brunns@tasman-geo.com  
Project Name: Feather 31-15  
Project Number: \_\_\_\_\_

| Sample Description  | Date Sampled | Time Sampled | Number of Containers | Preservative |                  |      | Matrix          |             |      | Analyze For:            |                 |           |             | Special Instructions |          |
|---|--------------|--------------|----------------------|--------------|------------------|------|-----------------|-------------|------|-------------------------|-----------------|-----------|-------------|----------------------|----------|
|   |              |              |                      | HCl          | HNO <sub>3</sub> | None | Other (Specify) | Groundwater | Soil | Air - Canister Serial # | Other (Specify) | 8260 BTEX | 8260 GBTEXN |                      | 8015 DRO |
| BH23@6'-7'  | 9-22-16      | 1100         | 1                    |              |                  | X    |                 |             |      |                         |                 |           |             |                      |          |
| BH24@4'-5'  | 9-22-16      | 1135         | 1                    |              |                  | X    |                 |             |      |                         |                 |           |             |                      |          |
| BH25@4'-6'  | 9-22-16      | 1210         | 1                    |              |                  | X    |                 |             |      |                         |                 |           |             |                      |          |
| BH26@4'-6'  | 9-22-16      | 1300         | 1                    |              |                  | X    |                 |             |      |                         |                 |           |             |                      |          |
| BH27@4'-6'  | 9-22-16      | 1426         | 1                    |              |                  | X    |                 |             |      |                         |                 |           |             |                      |          |
| BH28@2'-4'  | 9-22-16      | 1505         | 1                    |              |                  | X    |                 |             |      |                         |                 |           |             |                      |          |
| BH29@4'-6'  | 9-22-16      | 1543         | 1                    |              |                  | X    |                 |             |      |                         |                 |           |             |                      |          |
| Relinquished by: _____ Date/Time: 9-22-16 1700 Received by: _____ Date/Time: 9/22/16 1700 Turn Around Time (Check)<br>Same Day <input checked="" type="checkbox"/> 72 Hours <input type="checkbox"/><br>24 Hours <input type="checkbox"/> Standard <input type="checkbox"/><br>48 Hours <input type="checkbox"/><br>Relinquished by: _____ Date/Time: 9/22/16 1725 Received by: _____ Date/Time: _____ Sample Integrity:<br>Temperature Upon Receipt: 4.4°C on ice<br>Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |              |              |                      |              |                  |      |                 |             |      |                         |                 |           |             |                      |          |

www.s2scientific.com

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
09/23/16 07:05

### Sample Receipt Checklist

S2 Work Order: 1609138

Client: Noble/Tasman

Client Project ID: Feather 31-15

Shipped Via: P/U

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: \_\_\_\_\_

Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: \_\_\_\_\_  
(Describe)

|           |            |  |  |  |  |
|-----------|------------|--|--|--|--|
| Cooler ID |            |  |  |  |  |
| Temp (°C) | <u>4.4</u> |  |  |  |  |

Thermometer ID: 61857155-K

|   | Yes                                 | No | N/A                                 | Comments (if any) |
|---|-------------------------------------|----|-------------------------------------|-------------------|
| If samples require cooling, was the temperature just above 0°C to ≤ 6°C <sup>(1)</sup> ?  | <input checked="" type="checkbox"/> |    |                                     |                   |
| NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun. |                                     |    |                                     |                   |
| Were all samples received intact <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| Was adequate sample volume provided <sup>(1)</sup> ?  | <input checked="" type="checkbox"/> |    |                                     |                   |
| If custody seals are present, are they intact <sup>(1)</sup> ?  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Are short holding time analytes or samples with HTs due within 48 hours present?  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| For volatiles in water – is there headspace present? If yes, contact client and note in narrative.  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect  |                                     |    | <input checked="" type="checkbox"/> |                   |
| If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Record the pH in Comments.  |                                     |    | <input checked="" type="checkbox"/> |                   |
| If dissolved metals are requested, were samples field filtered?   |                                     |    | <input checked="" type="checkbox"/> |                   |
| Additional Comments (if any):   |                                     |    |                                     |                   |
|   |                                     |    |                                     |                   |

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.

Nakita  
Custodian Printed Name

[Signature]  
Signature or Initials of Custodian

9/22/16 1725  
Date/Time



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
09/23/16 07:05

**BH23@6'-7'**  
**1609138-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/22/16 11:00**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1609174 | 09/22/16 | 09/22/16 | 8015M  |       |

Date Sampled: **09/22/16 11:00**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 90.0 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **09/22/16 11:00**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1609173 | 09/22/16 | 09/22/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **09/22/16 11:00**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 101 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 100 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 100 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/23/16 07:05

**BH24@4'-5'**  
**1609138-02 (Soil)**

### Summit Scientific

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 09/22/16 11:35

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1609174 | 09/22/16 | 09/23/16 | 8015M  |       |

Date Sampled: 09/22/16 11:35

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 91.3 %          | 30-150 |          | "     | "        | "        | "      |       |

#### Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 09/22/16 11:35

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1609173 | 09/22/16 | 09/22/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: 09/22/16 11:35

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 105 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 101 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 100 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
09/23/16 07:05

**BH25@4'-6'**  
**1609138-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/22/16 12:10**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1609174 | 09/22/16 | 09/23/16 | 8015M  |       |

Date Sampled: **09/22/16 12:10**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 89.2 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **09/22/16 12:10**

| Analyte                     | Result       | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND           | 0.010           | mg/kg | 1        | 1609173 | 09/22/16 | 09/22/16 | EPA 8260B |       |
| Benzene                     | ND           | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND           | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND           | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| <b>Xylenes (total)</b>      | <b>0.026</b> | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND           | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **09/22/16 12:10**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 105 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 101 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 99.2 %          | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/23/16 07:05

**BH26@4'-6'**  
**1609138-04 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/22/16 13:00**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1609174 | 09/22/16 | 09/23/16 | 8015M  |       |

Date Sampled: **09/22/16 13:00**

| Analyte                        | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|--------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: <i>o</i> -Terphenyl |        | 87.3 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **09/22/16 13:00**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1609173 | 09/22/16 | 09/22/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **09/22/16 13:00**

| Analyte                                   | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane- <i>d</i> 4 |        | 109 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene- <i>d</i> 8            |        | 100 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene           |        | 99.9 %          | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
09/23/16 07:05

**BH27@4'-6'**  
**1609138-05 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/22/16 14:20**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1609174 | 09/22/16 | 09/23/16 | 8015M  |       |

Date Sampled: **09/22/16 14:20**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 92.4 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **09/22/16 14:20**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1609173 | 09/22/16 | 09/22/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **09/22/16 14:20**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 110 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 103 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 103 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
09/23/16 07:05

**BH28@2'-4'**  
**1609138-06 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/22/16 15:05**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1609174 | 09/22/16 | 09/23/16 | 8015M  |       |

Date Sampled: **09/22/16 15:05**

| Analyte                        | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|--------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: <i>o</i> -Terphenyl |        | 89.6 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **09/22/16 15:05**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1609173 | 09/22/16 | 09/22/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **09/22/16 15:05**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 103 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 98.6 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 97.3 %          | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
09/23/16 07:05

**BH29@4'-6'**  
**1609138-07 (Soil)**

### Summit Scientific

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 09/22/16 15:43

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1609174 | 09/22/16 | 09/23/16 | 8015M  |       |

Date Sampled: 09/22/16 15:43

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 89.5 %          | 30-150 |          | "     | "        | "        | "      |       |

#### Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 09/22/16 15:43

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1609173 | 09/22/16 | 09/23/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: 09/22/16 15:43

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 106 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 99.2 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 102 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
09/23/16 07:05

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source |      | %REC   |     | RPD   |       |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

**Batch 1609174 - EPA 3550A**

**Blank (1609174-BLK1)**

Prepared & Analyzed: 09/22/16

C10-C28 (DRO) ND 50 mg/kg

Surrogate: o-Terphenyl 11.1 " 12.5 89.0 30-150

**LCS (1609174-BS1)**

Prepared & Analyzed: 09/22/16

C10-C28 (DRO) 515 50 mg/kg 499 103 73-134

Surrogate: o-Terphenyl 11.7 " 12.5 93.5 30-150

**Matrix Spike (1609174-MS1)**

Source: 1609137-01

Prepared & Analyzed: 09/22/16

C10-C28 (DRO) 464 50 mg/kg 499 10.3 91.0 50-148

Surrogate: o-Terphenyl 11.5 " 12.5 91.9 30-150

**Matrix Spike Dup (1609174-MSD1)**

Source: 1609137-01

Prepared & Analyzed: 09/22/16

C10-C28 (DRO) 475 50 mg/kg 499 10.3 93.2 50-148 2.30 20

Surrogate: o-Terphenyl 11.7 " 12.5 93.8 30-150

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
09/23/16 07:05

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source |      | %REC   |     | RPD   |       |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

**Batch 1609173 - EPA 5030 Soil MS**

**Blank (1609173-BLK1)**

Prepared & Analyzed: 09/22/16

|                                  |        |        |       |        |  |      |        |  |  |  |
|----------------------------------|--------|--------|-------|--------|--|------|--------|--|--|--|
| Naphthalene                      | ND     | 0.010  | mg/kg |        |  |      |        |  |  |  |
| Benzene                          | ND     | 0.0020 | "     |        |  |      |        |  |  |  |
| Toluene                          | ND     | 0.0050 | "     |        |  |      |        |  |  |  |
| Ethylbenzene                     | ND     | 0.0050 | "     |        |  |      |        |  |  |  |
| Xylenes (total)                  | ND     | 0.010  | "     |        |  |      |        |  |  |  |
| Gasoline Range Hydrocarbons      | ND     | 50     | "     |        |  |      |        |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0390 |        | "     | 0.0400 |  | 97.5 | 23-173 |  |  |  |
| Surrogate: Toluene-d8            | 0.0398 |        | "     | 0.0400 |  | 99.5 | 20-170 |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0408 |        | "     | 0.0400 |  | 102  | 21-167 |  |  |  |

**LCS (1609173-BS1)**

Prepared & Analyzed: 09/22/16

|                                  |        |        |       |        |  |      |        |  |  |  |
|----------------------------------|--------|--------|-------|--------|--|------|--------|--|--|--|
| Naphthalene                      | ND     | 0.010  | mg/kg |        |  |      | 66-138 |  |  |  |
| Benzene                          | 0.0981 | 0.0020 | "     | 0.100  |  | 98.1 | 58-130 |  |  |  |
| Toluene                          | 0.104  | 0.0050 | "     | 0.100  |  | 104  | 61-134 |  |  |  |
| Ethylbenzene                     | 0.118  | 0.0050 | "     | 0.0992 |  | 119  | 74-139 |  |  |  |
| m,p-Xylene                       | 0.230  | 0.010  | "     | 0.200  |  | 115  | 73-137 |  |  |  |
| o-Xylene                         | 0.126  | 0.0050 | "     | 0.0980 |  | 129  | 73-141 |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0397 |        | "     | 0.0400 |  | 99.2 | 23-173 |  |  |  |
| Surrogate: Toluene-d8            | 0.0381 |        | "     | 0.0400 |  | 95.3 | 20-170 |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0400 |        | "     | 0.0400 |  | 99.9 | 21-167 |  |  |  |

**Matrix Spike (1609173-MS1)**

Source: 1609137-01

Prepared & Analyzed: 09/22/16

|                                  |        |        |       |        |    |      |        |  |  |  |
|----------------------------------|--------|--------|-------|--------|----|------|--------|--|--|--|
| Naphthalene                      | ND     | 0.010  | mg/kg |        | ND |      | 10-158 |  |  |  |
| Benzene                          | 0.0984 | 0.0020 | "     | 0.100  | ND | 98.4 | 30-131 |  |  |  |
| Toluene                          | 0.106  | 0.0050 | "     | 0.100  | ND | 106  | 30-134 |  |  |  |
| Ethylbenzene                     | 0.116  | 0.0050 | "     | 0.0992 | ND | 117  | 22-153 |  |  |  |
| m,p-Xylene                       | 0.228  | 0.010  | "     | 0.200  | ND | 114  | 10-159 |  |  |  |
| o-Xylene                         | 0.126  | 0.0050 | "     | 0.0980 | ND | 129  | 31-151 |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0406 |        | "     | 0.0400 |    | 101  | 23-173 |  |  |  |
| Surrogate: Toluene-d8            | 0.0393 |        | "     | 0.0400 |    | 98.2 | 20-170 |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0404 |        | "     | 0.0400 |    | 101  | 21-167 |  |  |  |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
09/23/16 07:05

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source |      | %REC   |     | RPD   |       |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

**Batch 1609173 - EPA 5030 Soil MS**

| Matrix Spike Dup (1609173-MSD1)  |        | Source: 1609137-01 |       |        | Prepared & Analyzed: 09/22/16 |      |        |       |    |  |
|----------------------------------|--------|--------------------|-------|--------|-------------------------------|------|--------|-------|----|--|
| Naphthalene                      | ND     | 0.010              | mg/kg |        | ND                            |      | 10-158 |       | 42 |  |
| Benzene                          | 0.0988 | 0.0020             | "     | 0.100  | ND                            | 98.8 | 30-131 | 0.456 | 34 |  |
| Toluene                          | 0.104  | 0.0050             | "     | 0.100  | ND                            | 104  | 30-134 | 2.02  | 30 |  |
| Ethylbenzene                     | 0.115  | 0.0050             | "     | 0.0992 | ND                            | 116  | 22-153 | 1.19  | 24 |  |
| m,p-Xylene                       | 0.227  | 0.010              | "     | 0.200  | ND                            | 114  | 10-159 | 0.303 | 68 |  |
| o-Xylene                         | 0.126  | 0.0050             | "     | 0.0980 | ND                            | 128  | 31-151 | 0.381 | 38 |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0421 |                    | "     | 0.0400 |                               | 105  | 23-173 |       |    |  |
| Surrogate: Toluene-d8            | 0.0389 |                    | "     | 0.0400 |                               | 97.4 | 20-170 |       |    |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0390 |                    | "     | 0.0400 |                               | 97.4 | 21-167 |       |    |  |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/23/16 07:05

### Notes and Definitions

DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference

---

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

A handwritten signature in black ink, appearing to be 'MSM'.

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

October 26, 2016

Brandon Bruns  
Tasman Geosciences  
6899 Pecos Street  
Denver, CO 80221  
RE: Feather 31-15

Enclosed are the results of analyses for samples received by Summit Scientific on 10/19/16 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury  
President



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
10/26/16 16:05

### ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|-----------|---------------|--------|----------------|----------------|
| BH30@4-6' | 1610154-01    | Soil   | 10/19/16 12:15 | 10/19/16 17:00 |
| BH31@6-8' | 1610154-02    | Soil   | 10/19/16 13:50 | 10/19/16 17:00 |
| BH32@4-6' | 1610154-03    | Soil   | 10/19/16 14:50 | 10/19/16 17:00 |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
10/26/16 16:05

## Summit Scientific

1610154

741 Corporate Circle Suite I • Golden, Colorado 80401  
303-277-9310 • 303-374-5933 Fax

Client: Noble / Tasman  
Address:  
City/State/Zip:  
Phone: 720-616-8383 Fax:  
Sampler Name: Jacob Whitener ✓

Project Manager: Brendon Bruns  
E-Mail: bruns@peerman-geo.com  
Project Name: Father 31-15  
Project Number: -

[illegible]

[www.s2scientific.com](http://www.s2scientific.com)

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*





Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
10/26/16 16:05

# Sample Receipt Checklist

S2 Work Order: 1610154

Client: Noble/Tasman

Client Project ID: Feather 31-15

Shipped Via: P/U

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: \_\_\_\_\_

Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: \_\_\_\_\_  
(Describe)

|           |            |  |  |  |  |
|-----------|------------|--|--|--|--|
| Cooler ID |            |  |  |  |  |
| Temp (°C) | <u>7.4</u> |  |  |  |  |

Thermometer ID: 61857155-K

|   | Yes                                 | No                                  | N/A                                 | Comments (if any) |
|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------|
| If samples require cooling, was the temperature just above 0°C to ≤ 6°C <sup>(1)</sup> ?  |                                     | <input checked="" type="checkbox"/> |                                     |                   |
| NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun. |                                     |                                     |                                     |                   |
| Were all samples received intact <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |                                     |                                     |                   |
| Was adequate sample volume provided <sup>(1)</sup> ?  | <input checked="" type="checkbox"/> |                                     |                                     |                   |
| If custody seals are present, are they intact <sup>(1)</sup> ?  |                                     |                                     | <input checked="" type="checkbox"/> |                   |
| Are short holding time analytes or samples with HTs due within 48 hours present?  |                                     |                                     | <input checked="" type="checkbox"/> |                   |
| Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |                                     |                                     |                   |
| Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |                                     |                                     |                   |
| Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |                                     |                                     |                   |
| Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |                                     |                                     |                   |
| For volatiles in water – is there headspace present? If yes, contact client and note in narrative.  |                                     |                                     | <input checked="" type="checkbox"/> |                   |
| Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?  |                                     |                                     | <input checked="" type="checkbox"/> |                   |
| Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect  |                                     |                                     | <input checked="" type="checkbox"/> |                   |
| If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?  |                                     |                                     | <input checked="" type="checkbox"/> |                   |
| Record the pH in Comments.  |                                     |                                     | <input checked="" type="checkbox"/> |                   |
| If dissolved metals are requested, were samples field filtered?   |                                     |                                     | <input checked="" type="checkbox"/> |                   |
| Additional Comments (if any):   |                                     |                                     |                                     |                   |

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.

Nakita  
Custodian Printed Name

MB  
Signature or Initials of Custodian

10/19/16 1240  
Date/Time



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
10/26/16 16:05

**BH30@4-6'**  
**1610154-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/19/16 12:15**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1610211 | 10/20/16 | 10/21/16 | 8015M  |       |

Date Sampled: **10/19/16 12:15**

| Analyte                        | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|--------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: <i>o</i> -Terphenyl |        | 94.1 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/19/16 12:15**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1610214 | 10/20/16 | 10/20/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **10/19/16 12:15**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 116 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 98.9 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 104 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
10/26/16 16:05

**BH31@6-8'**  
**1610154-02 (Soil)**

### Summit Scientific

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/19/16 13:50**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1610211 | 10/20/16 | 10/21/16 | 8015M  |       |

Date Sampled: **10/19/16 13:50**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 93.5 %          | 30-150 |          | "     | "        | "        | "      |       |

#### Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/19/16 13:50**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1610214 | 10/20/16 | 10/21/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **10/19/16 13:50**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 109 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 98.6 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 103 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
10/26/16 16:05

**BH32@4-6'**  
**1610154-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/19/16 14:50**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1610211 | 10/20/16 | 10/21/16 | 8015M  |       |

Date Sampled: **10/19/16 14:50**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 93.2 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/19/16 14:50**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1610214 | 10/20/16 | 10/21/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **10/19/16 14:50**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 107 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 96.8 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 104 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
10/26/16 16:05

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source |      | %REC   |     | RPD   |       |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

**Batch 1610211 - EPA 3550A**

**Blank (1610211-BLK1)**

Prepared & Analyzed: 10/20/16

|                        |      |    |       |      |  |      |        |  |  |  |
|------------------------|------|----|-------|------|--|------|--------|--|--|--|
| C10-C28 (DRO)          | ND   | 50 | mg/kg |      |  |      |        |  |  |  |
| Surrogate: o-Terphenyl | 12.0 |    | "     | 12.5 |  | 95.8 | 30-150 |  |  |  |

**LCS (1610211-BS1)**

Prepared & Analyzed: 10/20/16

|                        |      |    |       |      |  |      |        |  |  |  |
|------------------------|------|----|-------|------|--|------|--------|--|--|--|
| C10-C28 (DRO)          | 453  | 50 | mg/kg | 499  |  | 90.9 | 73-134 |  |  |  |
| Surrogate: o-Terphenyl | 12.6 |    | "     | 12.5 |  | 101  | 30-150 |  |  |  |

**Matrix Spike (1610211-MS1)**

Source: 1610150-01

Prepared & Analyzed: 10/20/16

|                        |      |    |       |      |      |      |        |  |  |  |
|------------------------|------|----|-------|------|------|------|--------|--|--|--|
| C10-C28 (DRO)          | 504  | 50 | mg/kg | 497  | 46.8 | 92.0 | 50-148 |  |  |  |
| Surrogate: o-Terphenyl | 12.2 |    | "     | 12.5 |      | 97.7 | 30-150 |  |  |  |

**Matrix Spike Dup (1610211-MSD1)**

Source: 1610150-01

Prepared & Analyzed: 10/20/16

|                        |      |    |       |      |      |      |        |      |    |  |
|------------------------|------|----|-------|------|------|------|--------|------|----|--|
| C10-C28 (DRO)          | 524  | 50 | mg/kg | 498  | 46.8 | 95.8 | 50-148 | 3.89 | 20 |  |
| Surrogate: o-Terphenyl | 12.2 |    | "     | 12.5 |      | 97.9 | 30-150 |      |    |  |

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
10/26/16 16:05

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source |      | %REC   |     | RPD   |       |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

**Batch 1610214 - EPA 5030 Soil MS**

**Blank (1610214-BLK1)**

Prepared & Analyzed: 10/20/16

|   |               |        |          |               |  |             |               |  |  |  |
|---|---------------|--------|----------|---------------|--|-------------|---------------|--|--|--|
| Naphthalene                             | ND            | 0.010  | mg/kg    |               |  |             |               |  |  |  |
| Benzene                                 | ND            | 0.0020 | "        |               |  |             |               |  |  |  |
| Toluene                                 | ND            | 0.0050 | "        |               |  |             |               |  |  |  |
| Ethylbenzene                            | ND            | 0.0050 | "        |               |  |             |               |  |  |  |
| Xylenes (total)                         | ND            | 0.010  | "        |               |  |             |               |  |  |  |
| Gasoline Range Hydrocarbons             | ND            | 50     | "        |               |  |             |               |  |  |  |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | <i>0.0438</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>109</i>  | <i>23-173</i> |  |  |  |
| <i>Surrogate: Toluene-d8</i>            | <i>0.0388</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>97.0</i> | <i>20-170</i> |  |  |  |
| <i>Surrogate: 4-Bromofluorobenzene</i>  | <i>0.0418</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>105</i>  | <i>21-167</i> |  |  |  |

**LCS (1610214-BS1)**

Prepared & Analyzed: 10/20/16

|   |               |        |          |               |  |             |               |  |  |  |
|---|---------------|--------|----------|---------------|--|-------------|---------------|--|--|--|
| Naphthalene                             | ND            | 0.010  | mg/kg    |               |  |             | 66-138        |  |  |  |
| Benzene                                 | 0.0750        | 0.0020 | "        | 0.100         |  | 75.0        | 58-130        |  |  |  |
| Toluene                                 | 0.0802        | 0.0050 | "        | 0.100         |  | 80.2        | 61-134        |  |  |  |
| Ethylbenzene                            | 0.0660        | 0.0050 | "        | 0.0992        |  | 66.6        | 50-139        |  |  |  |
| m,p-Xylene                              | 0.119         | 0.010  | "        | 0.200         |  | 59.5        | 5-137         |  |  |  |
| o-Xylene                                | 0.0619        | 0.0050 | "        | 0.0980        |  | 63.2        | 50-141        |  |  |  |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | <i>0.0363</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>90.7</i> | <i>23-173</i> |  |  |  |
| <i>Surrogate: Toluene-d8</i>            | <i>0.0514</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>129</i>  | <i>20-170</i> |  |  |  |
| <i>Surrogate: 4-Bromofluorobenzene</i>  | <i>0.0431</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>108</i>  | <i>21-167</i> |  |  |  |

**Matrix Spike (1610214-MS1)**

Source: 1610154-01

Prepared & Analyzed: 10/20/16

|   |               |        |          |               |    |            |               |  |  |  |
|---|---------------|--------|----------|---------------|----|------------|---------------|--|--|--|
| Naphthalene                             | ND            | 0.010  | mg/kg    |               | ND |            | 10-158        |  |  |  |
| Benzene                                 | 0.0881        | 0.0020 | "        | 0.0996        | ND | 88.5       | 30-131        |  |  |  |
| Toluene                                 | 0.0915        | 0.0050 | "        | 0.0996        | ND | 91.8       | 30-134        |  |  |  |
| Ethylbenzene                            | 0.0851        | 0.0050 | "        | 0.0988        | ND | 86.1       | 22-153        |  |  |  |
| m,p-Xylene                              | 0.152         | 0.010  | "        | 0.199         | ND | 76.2       | 10-159        |  |  |  |
| o-Xylene                                | 0.0792        | 0.0050 | "        | 0.0976        | ND | 81.2       | 31-151        |  |  |  |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | <i>0.0407</i> |        | <i>"</i> | <i>0.0398</i> |    | <i>102</i> | <i>23-173</i> |  |  |  |
| <i>Surrogate: Toluene-d8</i>            | <i>0.0455</i> |        | <i>"</i> | <i>0.0398</i> |    | <i>114</i> | <i>20-170</i> |  |  |  |
| <i>Surrogate: 4-Bromofluorobenzene</i>  | <i>0.0416</i> |        | <i>"</i> | <i>0.0398</i> |    | <i>104</i> | <i>21-167</i> |  |  |  |

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
10/26/16 16:05

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source |      | %REC   |     | RPD   |       |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

**Batch 1610214 - EPA 5030 Soil MS**

| Matrix Spike Dup (1610214-MSD1)  |        | Source: 1610154-01 |       |        | Prepared & Analyzed: 10/20/16 |      |        |      |    |       |
|----------------------------------|--------|--------------------|-------|--------|-------------------------------|------|--------|------|----|-------|
| Naphthalene                      | ND     | 0.010              | mg/kg |        | ND                            |      | 10-158 |      | 42 |       |
| Benzene                          | 0.0996 | 0.0020             | "     | 0.0990 | ND                            | 101  | 30-131 | 12.2 | 34 |       |
| Toluene                          | 0.107  | 0.0050             | "     | 0.0990 | ND                            | 108  | 30-134 | 15.8 | 30 |       |
| Ethylbenzene                     | 0.108  | 0.0050             | "     | 0.0982 | ND                            | 110  | 22-153 | 24.1 | 24 | QM-07 |
| m,p-Xylene                       | 0.195  | 0.010              | "     | 0.198  | ND                            | 98.6 | 10-159 | 24.9 | 68 |       |
| o-Xylene                         | 0.103  | 0.0050             | "     | 0.0970 | ND                            | 106  | 31-151 | 25.7 | 38 |       |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0405 |                    | "     | 0.0396 |                               | 102  | 23-173 |      |    |       |
| Surrogate: Toluene-d8            | 0.0422 |                    | "     | 0.0396 |                               | 107  | 20-170 |      |    |       |
| Surrogate: 4-Bromofluorobenzene  | 0.0401 |                    | "     | 0.0396 |                               | 101  | 21-167 |      |    |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
10/26/16 16:05

### Notes and Definitions

|       |   |
|-------|---|
| QM-07 | The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery. |
| DET   | Analyte DETECTED  |
| ND    | Analyte NOT DETECTED at or above the reporting limit  |
| NR    | Not Reported  |
| dry   | Sample results reported on a dry weight basis   |
| RPD   | Relative Percent Difference   |

# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

October 29, 2016

Brandon Bruns  
Tasman Geosciences  
6899 Pecos Street  
Denver, CO 80221  
RE: Feather 31-15

Enclosed are the results of analyses for samples received by Summit Scientific on 10/25/16 18:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to be 'Ben Shrewsbury', with a long, sweeping horizontal line extending to the right.

Ben Shrewsbury  
Laboratory Manager



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
10/29/16 17:34

### ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|-----------|---------------|--------|----------------|----------------|
| BH33@0-2' | 1610204-01    | Soil   | 10/25/16 10:30 | 10/25/16 18:00 |
| BH34@0-2' | 1610204-02    | Soil   | 10/25/16 11:00 | 10/25/16 18:00 |
| BH35@4-6' | 1610204-03    | Soil   | 10/25/16 11:40 | 10/25/16 18:00 |
| BH36@0-2' | 1610204-04    | Soil   | 10/25/16 12:25 | 10/25/16 18:00 |
| BH37@0-2' | 1610204-05    | Soil   | 10/25/16 13:15 | 10/25/16 18:00 |
| BH38@6-8' | 1610204-06    | Soil   | 10/25/16 14:14 | 10/25/16 18:00 |
| BH39@4-6' | 1610204-07    | Soil   | 10/25/16 15:07 | 10/25/16 18:00 |
| BH32      | 1610204-08    | Water  | 10/25/16 14:35 | 10/25/16 18:00 |
| BH36      | 1610204-09    | Water  | 10/25/16 14:55 | 10/25/16 18:00 |
| BH33      | 1610204-10    | Water  | 10/25/16 14:50 | 10/25/16 18:00 |
| BH30      | 1610204-11    | Water  | 10/25/16 14:45 | 10/25/16 18:00 |
| BH31      | 1610204-12    | Water  | 10/25/16 14:40 | 10/25/16 18:00 |
| BH37      | 1610204-13    | Water  | 10/25/16 15:05 | 10/25/16 18:00 |
| BH38      | 1610204-14    | Water  | 10/25/16 15:35 | 10/25/16 18:00 |

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
10/29/16 17:34

# Summit Scientific 1610204.1

741 Corporate Circle Suite 1 • Golden, Colorado 80401  
303-277-9310 • 303-374-5933 Fax

Client: Noble / Tasman

Page 1 of 2

Address: -

Project Manager: Brandon Bruns

City/State/Zip: -

E-Mail: BBruns@tasman-geo.com

Phone: 303-487-1225 Fax: -

Project Name: Feather 31-15

Sampler Name: CB + JW

Project Number: -

| Sample Description | Date Sampled | Time Sampled | Number of Containers | Preservative |                  |      | Matrix          |             | Analyze For: |                         |                 | Special Instructions |             |
|--------------------|--------------|--------------|----------------------|--------------|------------------|------|-----------------|-------------|--------------|-------------------------|-----------------|----------------------|-------------|
|                    |              |              |                      | HCl          | HNO <sub>3</sub> | None | Other (Specify) | Groundwater | Soil         | Air - Canister Serial # | Other (Specify) |                      | 8260 GTE XN |
| BH33B 0-2'         | 10-25-16     | 10:30        | 1                    |              |                  | X    |                 |             |              |                         |                 |                      |             |
| BH34B 0-2'         | 10-25-16     | 11:00        | 1                    |              |                  | X    |                 |             |              |                         |                 |                      |             |
| BH35B 4-6'         | 10-25-16     | 11:40        | 1                    |              |                  | X    |                 |             |              |                         |                 |                      |             |
| BH36B 0-2'         | 10-25-16     | 12:25        | 1                    |              |                  | X    |                 |             |              |                         |                 |                      |             |
| BH37B 0-2'         | 10-25-16     | 13:15        | 1                    |              |                  | X    |                 |             |              |                         |                 |                      |             |
| BH38B 6-8'         | 10-25-16     | 14:14        | 1                    |              |                  | X    |                 |             |              |                         |                 |                      |             |
| BH39B 4-6'         | 10-25-16     | 15:07        | 1                    |              |                  | X    |                 |             |              |                         |                 |                      |             |
| BH32               | 10-25-16     | 14:35        | 3                    | X            |                  |      | X               |             |              |                         |                 |                      |             |
| BH36               | 10-25-16     | 14:55        | 3                    | X            |                  |      | X               |             |              |                         |                 |                      |             |
| BH33               | 10-25-16     | 14:50        | 3                    | X            |                  |      | X               |             |              |                         |                 |                      |             |

|                                     |                                 |  |                                 |   |        |
|-------------------------------------|---------------------------------|--|---------------------------------|---|--------|
| Relinquished by: <u>[Signature]</u> | Date/Time: <u>10-25-16 1700</u> | Received by: <u>[Signature]</u>        | Date/Time: <u>10/25/16 1700</u> | Turn Around Time (Check)  | Notes: |
| Relinquished by: <u>[Signature]</u> | Date/Time: <u>10/25/16 1700</u> | Received by: <u>[Signature]</u>        | Date/Time: <u>10/25/16 1700</u> | Same Day <input checked="" type="checkbox"/> 72 Hours <input type="checkbox"/><br>24 Hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/><br>48 Hours <input type="checkbox"/> | on ice |
| Relinquished by: <u>[Signature]</u> | Date/Time: <u>10/25/16 1700</u> | Received in Lab by: <u>[Signature]</u> | Date/Time: <u>10/25/16 1700</u> | Sample Integrity:<br>Temperature Upon Receipt: <u>1.0°C</u><br>Intact: (Yes) <input checked="" type="checkbox"/> No <input type="checkbox"/>  |        |

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Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
10/29/16 17:34

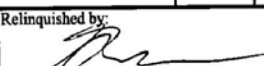
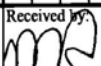
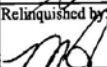
## Summit Scientific 1610204-2

741 Corporate Circle Suite I ♦ Golden, Colorado 80401  
303-277-9310 ♦ 303-374-5933 Fax

Page 2 of 2

Client: Noble / Tasman  
Address: -  
City/State/Zip: -  
Phone: 323-487-1220 Fax: -  
Sampler Name: GB & Jw

Project Manager: Brandon Bruns  
E-Mail: ABrunsb@tasman-rgeo.com  
Project Name: Feather 31-15  
Project Number: \_\_\_\_\_

|   |              |              |                      | Preservative  |                  | Matrix   |                 | Analyze For: |      |   |                 | Special Instructions |
|---|--------------|--------------|----------------------|---|------------------|--|-----------------|--------------|------|---|-----------------|----------------------|
| Sample Description  | Date Sampled | Time Sampled | Number of Containers | HCl   | HNO <sub>3</sub> | None   | Other (Specify) | Groundwater  | Soil | Air - Canister Serial #   | Other (Specify) |                      |
| BH 30   | 10-25-16     | 1415         | 3                    | X   |                  |  |                 | X            |      |   | X 8260 GTEX     |                      |
| BH 31   | 10-25-16     | 1440         | 3                    | X   |                  |  |                 | X            |      |   | X               |                      |
| BH 37   | 10-25-16     | 1505         | 3                    | X   |                  |  |                 | X            |      |   | X               |                      |
| BH 38   | 10-25-16     | 1535         | 3                    | X   |                  |  |                 | X            |      |   | X               |                      |
|   |              |              |                      |   |                  |  |                 |              |      |   |                 |                      |
|   |              |              |                      |   |                  |  |                 |              |      |   |                 |                      |
|   |              |              |                      |   |                  |  |                 |              |      |   |                 |                      |
|   |              |              |                      |   |                  |  |                 |              |      |   |                 |                      |
|   |              |              |                      |   |                  |  |                 |              |      |   |                 |                      |
|   |              |              |                      |   |                  |  |                 |              |      |   |                 |                      |
| Relinquished by:  Date/Time: 10-25-16 1700 |              |              |                      | Received by:  Date/Time: 10/25/16 1700 |                  | Turn Around Time (Check)   |                 |              |      | Notes:  |                 |                      |
| Relinquished by:  10/25/16 1730            |              |              |                      | Received by: _____ Date/Time: _____   |                  | Same Day <input checked="" type="checkbox"/> 72 Hours <input type="checkbox"/><br>24 Hours <input type="checkbox"/> Standard <input type="checkbox"/><br>48 Hours <input type="checkbox"/> |                 |              |      | Sample Integrity: 1.0°C on ice<br>Temperature Upon Receipt: _____<br>Intact: Yes <input type="checkbox"/> No <input type="checkbox"/> |                 |                      |
| Relinquished by: _____ Date/Time: _____   |              |              |                      | Received in Lab by: _____ Date/Time: _____  |                  |  |                 |              |      |   |                 |                      |

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Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
10/29/16 17:34

#### Sample Receipt Checklist

S2 Work Order: 10204

Client: Nobel/Tasman

Client Project ID: Feather 31-15

Shipped Via: PIV

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: \_\_\_\_\_

Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☒ Water ☐ Other: \_\_\_\_\_  
(Describe)

|           |            |  |  |  |  |
|-----------|------------|--|--|--|--|
| Cooler ID |            |  |  |  |  |
| Temp (°C) | <u>1.0</u> |  |  |  |  |

Thermometer ID: 61857155-K

|   | Yes                                 | No                                  | N/A                                 | Comments (if any) |
|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------|
| If samples require cooling, was the temperature just above 0°C to ≤ 6°C <sup>(1)</sup> ?  | <input checked="" type="checkbox"/> |                                     |                                     |                   |
| NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun. |                                     |                                     |                                     |                   |
| Were all samples received intact <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |                                     |                                     |                   |
| Was adequate sample volume provided <sup>(1)</sup> ?  | <input checked="" type="checkbox"/> |                                     |                                     |                   |
| If custody seals are present, are they intact <sup>(1)</sup> ?  |                                     |                                     | <input checked="" type="checkbox"/> |                   |
| Are short holding time analytes or samples with HTs due within 48 hours present?  |                                     |                                     | <input checked="" type="checkbox"/> |                   |
| Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |                                     |                                     |                   |
| Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |                                     |                                     |                   |
| Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |                                     |                                     |                   |
| Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |                                     |                                     |                   |
| For volatiles in water – is there headspace present? If yes, contact client and note in narrative.  |                                     | <input checked="" type="checkbox"/> |                                     |                   |
| Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?  | <input checked="" type="checkbox"/> |                                     |                                     | <u>HCl</u>        |
| Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect  |                                     |                                     |                                     |                   |
| If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?  |                                     |                                     | <input checked="" type="checkbox"/> |                   |
| Record the pH in Comments.  |                                     |                                     |                                     |                   |
| If dissolved metals are requested, were samples field filtered?   |                                     |                                     | <input checked="" type="checkbox"/> |                   |
| Additional Comments (if any):   |                                     |                                     |                                     |                   |

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.

Makita  
Custodian Printed Name

[Signature]  
Signature or Initials of Custodian

10/25/16 1730  
Date/Time



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
10/29/16 17:34

**BH33@0-2'**  
**1610204-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/25/16 10:30**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1610278 | 10/26/16 | 10/26/16 | 8015M  |       |

Date Sampled: **10/25/16 10:30**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 93.4 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/25/16 10:30**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1610277 | 10/26/16 | 10/27/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **10/25/16 10:30**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 114 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 101 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 104 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
10/29/16 17:34

**BH34@0-2'**  
**1610204-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/25/16 11:00**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1610278 | 10/26/16 | 10/26/16 | 8015M  |       |

Date Sampled: **10/25/16 11:00**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 96.3 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/25/16 11:00**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1610277 | 10/26/16 | 10/27/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **10/25/16 11:00**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 114 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 98.9 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 101 %           | 21-167 |          | "     | "        | "        | "      |       |

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
10/29/16 17:34

**BH35@4-6'**  
**1610204-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/25/16 11:40**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1610278 | 10/26/16 | 10/26/16 | 8015M  |       |

Date Sampled: **10/25/16 11:40**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 90.4 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/25/16 11:40**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1610277 | 10/26/16 | 10/27/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **10/25/16 11:40**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 112 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 96.3 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 106 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
10/29/16 17:34

**BH36@0-2'**  
**1610204-04 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/25/16 12:25**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1610278 | 10/26/16 | 10/26/16 | 8015M  |       |

Date Sampled: **10/25/16 12:25**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 95.7 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/25/16 12:25**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1610277 | 10/26/16 | 10/27/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **10/25/16 12:25**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 119 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 102 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 102 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
10/29/16 17:34

**BH37@0-2'**  
**1610204-05 (Soil)**

### Summit Scientific

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/25/16 13:15**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1610278 | 10/26/16 | 10/26/16 | 8015M  |       |

Date Sampled: **10/25/16 13:15**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 90.1 %          | 30-150 |          | "     | "        | "        | "      |       |

#### Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/25/16 13:15**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1610277 | 10/26/16 | 10/27/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **10/25/16 13:15**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 111 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 96.7 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 102 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
10/29/16 17:34

**BH38@6-8'**  
**1610204-06 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/25/16 14:14**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1610278 | 10/26/16 | 10/26/16 | 8015M  |       |

Date Sampled: **10/25/16 14:14**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 89.8 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/25/16 14:14**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1610277 | 10/26/16 | 10/27/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **10/25/16 14:14**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 112 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 99.1 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 103 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
10/29/16 17:34

**BH39@4-6'**  
**1610204-07 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/25/16 15:07**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1610278 | 10/26/16 | 10/26/16 | 8015M  |       |

Date Sampled: **10/25/16 15:07**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 90.8 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/25/16 15:07**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1610277 | 10/26/16 | 10/27/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **10/25/16 15:07**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 114 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 98.3 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 101 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
10/29/16 17:34

**BH32**  
**1610204-08 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/25/16 14:35**

| Analyte                | Result     | Reporting<br>Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|------------------------|------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene                | ND         | 1.0                | ug/l  | 1        | 1610274 | 10/25/16 | 10/25/16 | EPA 8260B |       |
| <b>Toluene</b>         | <b>2.8</b> | 1.0                | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene           | ND         | 1.0                | "     | "        | "       | "        | "        | "         |       |
| <b>Xylenes (total)</b> | <b>2.7</b> | 1.0                | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **10/25/16 14:35**

| Analyte                          | Result | Reporting<br>Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 115 %              | 37-154 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 98.3 %             | 45-149 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 101 %              | 45-146 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
10/29/16 17:34

**BH36**  
**1610204-09 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/25/16 14:55**

| Analyte                | Result      | Reporting<br>Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|------------------------|-------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| <b>Benzene</b>         | <b>6800</b> | 100                | ug/l  | 100      | 1610274 | 10/25/16 | 10/25/16 | EPA 8260B |       |
| <b>Toluene</b>         | <b>9800</b> | 100                | "     | "        | "       | "        | "        | "         |       |
| <b>Ethylbenzene</b>    | <b>520</b>  | 100                | "     | "        | "       | "        | "        | "         |       |
| <b>Xylenes (total)</b> | <b>8500</b> | 100                | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **10/25/16 14:55**

| Analyte                                 | Result | Reporting<br>Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| <i>Surrogate: 1,2-Dichloroethane-d4</i> |        | 112 %              | 37-154 |          | "     | "        | "        | "      |       |
| <i>Surrogate: Toluene-d8</i>            |        | 99.1 %             | 45-149 |          | "     | "        | "        | "      |       |
| <i>Surrogate: 4-Bromofluorobenzene</i>  |        | 102 %              | 45-146 |          | "     | "        | "        | "      |       |

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
10/29/16 17:34

**BH33**  
**1610204-10 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/25/16 14:50**

| Analyte                | Result       | Reporting<br>Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|------------------------|--------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| <b>Benzene</b>         | <b>11000</b> | 100                | ug/l  | 100      | 1610274 | 10/25/16 | 10/25/16 | EPA 8260B |       |
| <b>Toluene</b>         | <b>17000</b> | 100                | "     | "        | "       | "        | "        | "         |       |
| <b>Ethylbenzene</b>    | <b>790</b>   | 100                | "     | "        | "       | "        | "        | "         |       |
| <b>Xylenes (total)</b> | <b>12000</b> | 100                | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **10/25/16 14:50**

| Analyte                                 | Result | Reporting<br>Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| <i>Surrogate: 1,2-Dichloroethane-d4</i> |        | 113 %              | 37-154 |          | "     | "        | "        | "      |       |
| <i>Surrogate: Toluene-d8</i>            |        | 101 %              | 45-149 |          | "     | "        | "        | "      |       |
| <i>Surrogate: 4-Bromofluorobenzene</i>  |        | 101 %              | 45-146 |          | "     | "        | "        | "      |       |

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
10/29/16 17:34

**BH30**  
**1610204-11 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/25/16 14:45**

| Analyte                | Result       | Reporting<br>Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|------------------------|--------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| <b>Benzene</b>         | <b>4300</b>  | 100                | ug/l  | 100      | 1610274 | 10/25/16 | 10/25/16 | EPA 8260B |       |
| <b>Toluene</b>         | <b>24000</b> | 100                | "     | "        | "       | "        | "        | "         |       |
| <b>Ethylbenzene</b>    | <b>1100</b>  | 100                | "     | "        | "       | "        | "        | "         |       |
| <b>Xylenes (total)</b> | <b>18000</b> | 100                | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **10/25/16 14:45**

| Analyte                                 | Result | Reporting<br>Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| <i>Surrogate: 1,2-Dichloroethane-d4</i> |        | 111 %              | 37-154 |          | "     | "        | "        | "      |       |
| <i>Surrogate: Toluene-d8</i>            |        | 99.2 %             | 45-149 |          | "     | "        | "        | "      |       |
| <i>Surrogate: 4-Bromofluorobenzene</i>  |        | 99.7 %             | 45-146 |          | "     | "        | "        | "      |       |

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
10/29/16 17:34

**BH31**  
**1610204-12 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/25/16 14:40**

| Analyte                | Result      | Reporting<br>Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|------------------------|-------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| <b>Benzene</b>         | <b>4100</b> | 100                | ug/l  | 100      | 1610274 | 10/25/16 | 10/25/16 | EPA 8260B |       |
| <b>Toluene</b>         | <b>2700</b> | 100                | "     | "        | "       | "        | "        | "         |       |
| <b>Ethylbenzene</b>    | <b>170</b>  | 1.0                | "     | 1        | "       | "        | 10/25/16 | "         |       |
| <b>Xylenes (total)</b> | <b>3900</b> | 100                | "     | 100      | "       | "        | 10/25/16 | "         |       |

Date Sampled: **10/25/16 14:40**

| Analyte                                 | Result | Reporting<br>Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| <i>Surrogate: 1,2-Dichloroethane-d4</i> |        | 99.3 %             | 37-154 |          | "     | "        | 10/25/16 | "      |       |
| <i>Surrogate: Toluene-d8</i>            |        | 105 %              | 45-149 |          | "     | "        | "        | "      |       |
| <i>Surrogate: 4-Bromofluorobenzene</i>  |        | 95.8 %             | 45-146 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
10/29/16 17:34

**BH37**  
**1610204-13 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/25/16 15:05**

| Analyte                | Result      | Reporting<br>Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|------------------------|-------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| <b>Benzene</b>         | <b>4700</b> | 100                | ug/l  | 100      | 1610274 | 10/25/16 | 10/25/16 | EPA 8260B |       |
| <b>Toluene</b>         | <b>4800</b> | 100                | "     | "        | "       | "        | "        | "         |       |
| <b>Ethylbenzene</b>    | <b>170</b>  | 1.0                | "     | 1        | "       | "        | 10/25/16 | "         |       |
| <b>Xylenes (total)</b> | <b>4300</b> | 100                | "     | 100      | "       | "        | 10/25/16 | "         |       |

Date Sampled: **10/25/16 15:05**

| Analyte                                 | Result | Reporting<br>Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| <i>Surrogate: 1,2-Dichloroethane-d4</i> |        | 95.9 %             | 37-154 |          | "     | "        | 10/25/16 | "      |       |
| <i>Surrogate: Toluene-d8</i>            |        | 100 %              | 45-149 |          | "     | "        | "        | "      |       |
| <i>Surrogate: 4-Bromofluorobenzene</i>  |        | 98.9 %             | 45-146 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
10/29/16 17:34

**BH38**  
**1610204-14 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/25/16 15:35**

| Analyte                | Result     | Reporting<br>Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|------------------------|------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| <b>Benzene</b>         | <b>3.8</b> | 1.0                | ug/l  | 1        | 1610274 | 10/25/16 | 10/25/16 | EPA 8260B |       |
| <b>Toluene</b>         | <b>7.1</b> | 1.0                | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene           | ND         | 1.0                | "     | "        | "       | "        | "        | "         |       |
| <b>Xylenes (total)</b> | <b>12</b>  | 1.0                | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **10/25/16 15:35**

| Analyte                          | Result | Reporting<br>Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 113 %              | 37-154 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 97.0 %             | 45-149 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 104 %              | 45-146 |          | "     | "        | "        | "      |       |

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
10/29/16 17:34

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source |      | %REC   |     | RPD   |       |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

**Batch 1610278 - EPA 3550A**

**Blank (1610278-BLK1)**

Prepared & Analyzed: 10/26/16

|                        |      |    |       |      |  |      |        |  |  |  |
|------------------------|------|----|-------|------|--|------|--------|--|--|--|
| C10-C28 (DRO)          | ND   | 50 | mg/kg |      |  |      |        |  |  |  |
| Surrogate: o-Terphenyl | 11.5 |    | "     | 12.5 |  | 91.9 | 30-150 |  |  |  |

**LCS (1610278-BS1)**

Prepared & Analyzed: 10/26/16

|                        |      |    |       |      |  |      |        |  |  |  |
|------------------------|------|----|-------|------|--|------|--------|--|--|--|
| C10-C28 (DRO)          | 459  | 50 | mg/kg | 499  |  | 92.0 | 73-134 |  |  |  |
| Surrogate: o-Terphenyl | 12.0 |    | "     | 12.5 |  | 95.8 | 30-150 |  |  |  |

**Matrix Spike (1610278-MS1)**

Source: 1610199-01

Prepared & Analyzed: 10/26/16

|                        |      |    |       |      |      |      |        |  |  |  |
|------------------------|------|----|-------|------|------|------|--------|--|--|--|
| C10-C28 (DRO)          | 414  | 50 | mg/kg | 497  | 10.4 | 81.2 | 50-148 |  |  |  |
| Surrogate: o-Terphenyl | 11.6 |    | "     | 12.5 |      | 93.1 | 30-150 |  |  |  |

**Matrix Spike Dup (1610278-MSD1)**

Source: 1610199-01

Prepared & Analyzed: 10/26/16

|                        |      |    |       |      |      |      |        |      |    |  |
|------------------------|------|----|-------|------|------|------|--------|------|----|--|
| C10-C28 (DRO)          | 403  | 50 | mg/kg | 493  | 10.4 | 79.6 | 50-148 | 2.64 | 20 |  |
| Surrogate: o-Terphenyl | 11.6 |    | "     | 12.4 |      | 94.0 | 30-150 |      |    |  |

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
10/29/16 17:34

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source |      | %REC   |     | RPD   |       |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

**Batch 1610274 - EPA 5030 Water MS**

**Blank (1610274-BLK1)**

Prepared: 10/25/16 Analyzed: 10/26/16

|                                  |      |     |      |      |  |      |        |  |  |  |
|----------------------------------|------|-----|------|------|--|------|--------|--|--|--|
| Benzene                          | ND   | 1.0 | ug/l |      |  |      |        |  |  |  |
| Toluene                          | ND   | 1.0 | "    |      |  |      |        |  |  |  |
| Ethylbenzene                     | ND   | 1.0 | "    |      |  |      |        |  |  |  |
| Xylenes (total)                  | ND   | 1.0 | "    |      |  |      |        |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 15.6 |     | "    | 13.3 |  | 117  | 37-154 |  |  |  |
| Surrogate: Toluene-d8            | 12.9 |     | "    | 13.3 |  | 97.1 | 45-149 |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 13.4 |     | "    | 13.3 |  | 101  | 45-146 |  |  |  |

**LCS (1610274-BS1)**

Prepared: 10/25/16 Analyzed: 10/26/16

|                                  |      |     |      |      |  |      |        |  |  |  |
|----------------------------------|------|-----|------|------|--|------|--------|--|--|--|
| Benzene                          | 31.1 | 1.0 | ug/l | 33.3 |  | 93.2 | 51-132 |  |  |  |
| Toluene                          | 33.2 | 1.0 | "    | 33.3 |  | 99.6 | 51-138 |  |  |  |
| Ethylbenzene                     | 28.6 | 1.0 | "    | 33.1 |  | 86.5 | 58-146 |  |  |  |
| m,p-Xylene                       | 51.6 | 2.0 | "    | 66.5 |  | 77.5 | 57-144 |  |  |  |
| o-Xylene                         | 26.9 | 1.0 | "    | 32.7 |  | 82.4 | 53-146 |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 13.7 |     | "    | 13.3 |  | 102  | 37-154 |  |  |  |
| Surrogate: Toluene-d8            | 16.0 |     | "    | 13.3 |  | 120  | 45-149 |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 14.1 |     | "    | 13.3 |  | 106  | 45-146 |  |  |  |

**Matrix Spike (1610274-MS1)**

Source: 1610204-08

Prepared: 10/25/16 Analyzed: 10/26/16

|                                  |      |     |      |      |      |      |        |  |  |  |
|----------------------------------|------|-----|------|------|------|------|--------|--|--|--|
| Benzene                          | 35.3 | 1.0 | ug/l | 33.3 | ND   | 106  | 34-141 |  |  |  |
| Toluene                          | 36.2 | 1.0 | "    | 33.3 | 2.75 | 100  | 27-151 |  |  |  |
| Ethylbenzene                     | 34.6 | 1.0 | "    | 33.1 | ND   | 105  | 29-160 |  |  |  |
| m,p-Xylene                       | 62.6 | 2.0 | "    | 66.5 | 2.70 | 90.1 | 20-166 |  |  |  |
| o-Xylene                         | 32.7 | 1.0 | "    | 32.7 | ND   | 100  | 33-159 |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 15.0 |     | "    | 13.3 |      | 113  | 37-154 |  |  |  |
| Surrogate: Toluene-d8            | 14.4 |     | "    | 13.3 |      | 108  | 45-149 |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 13.8 |     | "    | 13.3 |      | 103  | 45-146 |  |  |  |

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
10/29/16 17:34

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source |      | %REC   |     | RPD   |       |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

**Batch 1610274 - EPA 5030 Water MS**

| Matrix Spike Dup (1610274-MSD1)  |      |     | Source: 1610204-08 |      | Prepared: 10/25/16 Analyzed: 10/26/16 |     |        |      |    |  |
|----------------------------------|------|-----|--------------------|------|---------------------------------------|-----|--------|------|----|--|
| Benzene                          | 38.5 | 1.0 | ug/l               | 33.3 | ND                                    | 116 | 34-141 | 8.76 | 32 |  |
| Toluene                          | 39.6 | 1.0 | "                  | 33.3 | 2.75                                  | 111 | 27-151 | 9.01 | 25 |  |
| Ethylbenzene                     | 40.3 | 1.0 | "                  | 33.1 | ND                                    | 122 | 29-160 | 15.3 | 50 |  |
| m,p-Xylene                       | 73.0 | 2.0 | "                  | 66.5 | 2.70                                  | 106 | 20-166 | 15.3 | 36 |  |
| o-Xylene                         | 38.4 | 1.0 | "                  | 32.7 | ND                                    | 118 | 33-159 | 16.3 | 26 |  |
| Surrogate: 1,2-Dichloroethane-d4 | 15.3 |     | "                  | 13.3 |                                       | 115 | 37-154 |      |    |  |
| Surrogate: Toluene-d8            | 13.7 |     | "                  | 13.3 |                                       | 103 | 45-149 |      |    |  |
| Surrogate: 4-Bromofluorobenzene  | 13.5 |     | "                  | 13.3 |                                       | 101 | 45-146 |      |    |  |

**Batch 1610277 - EPA 5030 Soil MS**

| Blank (1610277-BLK1)             |        |        | Prepared & Analyzed: 10/26/16 |        |  |     |        |  |  |  |
|----------------------------------|--------|--------|-------------------------------|--------|--|-----|--------|--|--|--|
| Naphthalene                      | ND     | 0.010  | mg/kg                         |        |  |     |        |  |  |  |
| Benzene                          | ND     | 0.0020 | "                             |        |  |     |        |  |  |  |
| Toluene                          | ND     | 0.0050 | "                             |        |  |     |        |  |  |  |
| Ethylbenzene                     | ND     | 0.0050 | "                             |        |  |     |        |  |  |  |
| Xylenes (total)                  | ND     | 0.010  | "                             |        |  |     |        |  |  |  |
| Gasoline Range Hydrocarbons      | ND     | 50     | "                             |        |  |     |        |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0439 |        | "                             | 0.0400 |  | 110 | 23-173 |  |  |  |
| Surrogate: Toluene-d8            | 0.0406 |        | "                             | 0.0400 |  | 101 | 20-170 |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0413 |        | "                             | 0.0400 |  | 103 | 21-167 |  |  |  |

| LCS (1610277-BS1)                |        |        | Prepared & Analyzed: 10/26/16 |        |  |      |        |  |  |  |
|----------------------------------|--------|--------|-------------------------------|--------|--|------|--------|--|--|--|
| Naphthalene                      | ND     | 0.010  | mg/kg                         |        |  |      |        |  |  |  |
| Benzene                          | 0.101  | 0.0020 | "                             | 0.100  |  | 101  | 58-130 |  |  |  |
| Toluene                          | 0.111  | 0.0050 | "                             | 0.100  |  | 111  | 61-134 |  |  |  |
| Ethylbenzene                     | 0.110  | 0.0050 | "                             | 0.0992 |  | 111  | 74-139 |  |  |  |
| m,p-Xylene                       | 0.199  | 0.010  | "                             | 0.200  |  | 99.5 | 73-137 |  |  |  |
| o-Xylene                         | 0.104  | 0.0050 | "                             | 0.0980 |  | 106  | 73-141 |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0403 |        | "                             | 0.0400 |  | 101  | 23-173 |  |  |  |
| Surrogate: Toluene-d8            | 0.0432 |        | "                             | 0.0400 |  | 108  | 20-170 |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0401 |        | "                             | 0.0400 |  | 100  | 21-167 |  |  |  |

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
10/29/16 17:34

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source |      | %REC   |     | RPD   |       |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

**Batch 1610277 - EPA 5030 Soil MS**

**Matrix Spike (1610277-MS1)**

**Source: 1610199-01**

Prepared & Analyzed: 10/26/16

|                                  |        |        |       |        |    |     |        |  |  |  |
|----------------------------------|--------|--------|-------|--------|----|-----|--------|--|--|--|
| Naphthalene                      | ND     | 0.010  | mg/kg |        | ND |     | 10-158 |  |  |  |
| Benzene                          | 0.108  | 0.0020 | "     | 0.0994 | ND | 108 | 30-131 |  |  |  |
| Toluene                          | 0.118  | 0.0050 | "     | 0.0994 | ND | 119 | 30-134 |  |  |  |
| Ethylbenzene                     | 0.125  | 0.0050 | "     | 0.0986 | ND | 126 | 22-153 |  |  |  |
| m,p-Xylene                       | 0.225  | 0.010  | "     | 0.198  | ND | 113 | 10-159 |  |  |  |
| o-Xylene                         | 0.118  | 0.0050 | "     | 0.0974 | ND | 121 | 31-151 |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0438 |        | "     | 0.0398 |    | 110 | 23-173 |  |  |  |
| Surrogate: Toluene-d8            | 0.0409 |        | "     | 0.0398 |    | 103 | 20-170 |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0410 |        | "     | 0.0398 |    | 103 | 21-167 |  |  |  |

**Matrix Spike Dup (1610277-MSD1)**

**Source: 1610199-01**

Prepared & Analyzed: 10/26/16

|                                  |        |        |       |        |    |     |        |      |    |  |
|----------------------------------|--------|--------|-------|--------|----|-----|--------|------|----|--|
| Naphthalene                      | ND     | 0.010  | mg/kg |        | ND |     | 10-158 |      | 42 |  |
| Benzene                          | 0.111  | 0.0020 | "     | 0.100  | ND | 111 | 30-131 | 2.76 | 34 |  |
| Toluene                          | 0.121  | 0.0050 | "     | 0.100  | ND | 121 | 30-134 | 2.65 | 30 |  |
| Ethylbenzene                     | 0.131  | 0.0050 | "     | 0.0992 | ND | 132 | 22-153 | 4.97 | 24 |  |
| m,p-Xylene                       | 0.236  | 0.010  | "     | 0.200  | ND | 118 | 10-159 | 4.80 | 68 |  |
| o-Xylene                         | 0.124  | 0.0050 | "     | 0.0980 | ND | 126 | 31-151 | 4.56 | 38 |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0450 |        | "     | 0.0400 |    | 112 | 23-173 |      |    |  |
| Surrogate: Toluene-d8            | 0.0404 |        | "     | 0.0400 |    | 101 | 20-170 |      |    |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0415 |        | "     | 0.0400 |    | 104 | 21-167 |      |    |  |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
10/29/16 17:34

### Notes and Definitions

|     |  |
|-----|--|
| DET | Analyte DETECTED                                     |
| ND  | Analyte NOT DETECTED at or above the reporting limit |
| NR  | Not Reported   |
| dry | Sample results reported on a dry weight basis        |
| RPD | Relative Percent Difference                          |

# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

November 04, 2016

Brandon Bruns  
Tasman Geosciences  
6899 Pecos Street  
Denver, CO 80221  
RE: Feather 31-15

Enclosed are the results of analyses for samples received by Summit Scientific on 10/27/16 10:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ben Shrewsbury', with a long, sweeping horizontal line extending to the right.

Ben Shrewsbury  
Laboratory Manager



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
11/04/16 12:01

### ANALYTICAL REPORT FOR SAMPLES

| Sample ID  | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|------------|---------------|--------|----------------|----------------|
| BH40@4-6'  | 1610231-01    | Soil   | 10/26/16 12:00 | 10/27/16 10:30 |
| BH41@0-2'  | 1610231-02    | Soil   | 10/26/16 12:30 | 10/27/16 10:30 |
| BH42@0-2'  | 1610231-03    | Soil   | 10/26/16 13:25 | 10/27/16 10:30 |
| BH43@4-6'  | 1610231-04    | Soil   | 10/26/16 14:10 | 10/27/16 10:30 |
| BH44@8-10' | 1610231-05    | Soil   | 10/26/16 15:18 | 10/27/16 10:30 |
| BH45@0-4'  | 1610231-06    | Soil   | 10/26/16 15:50 | 10/27/16 10:30 |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
11/04/16 12:01

## Summit Scientific

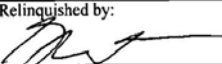

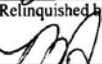
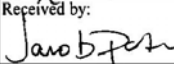
741 Corporate Circle Suite I ♦ Golden, Colorado 80401  
303-277-9310 ♦ 303-374-5933 Fax

1610231

Page 1 of 1

Client: Noble/Tasman  
Address: —  
City/State/Zip: —  
Phone: 303-487-1228 Fax: —  
Sampler Name: GR

Project Manager: Brandon Bruns  
E-Mail: Bbruns@tasman-geo.com  
Project Name: Feather 31-15  
Project Number: -

| Sample Description   | Date Sampled              | Time Sampled   | Number of Containers | Preservative              |                  |  | Matrix          |             |      | Analyze For:            |                 |            |              | Special Instructions |  |  |  |  |  |
|--|---------------------------|--|----------------------|---------------------------|------------------|--|-----------------|-------------|------|-------------------------|-----------------|------------|--------------|----------------------|--|--|--|--|--|
|  |                           |  |                      | HCl                       | HNO <sub>3</sub> | None   | Other (Specify) | Groundwater | Soil | Air - Canister Serial # | Other (Specify) | 8260 GTEXN | 8915 TTH-DRO |                      |  |  |  |  |  |
| BH40 @ 4-6"  | 10-26-16                  | 1200   | 1                    |                           |                  | X  |                 | X           |      |                         |                 | X          | X            |                      |  |  |  |  |  |
| BH41 @ 0-2"  | 10-26-16                  | 1230   | 1                    |                           |                  | X  |                 | X           |      |                         |                 | X          | X            |                      |  |  |  |  |  |
| BH42 @ 0-2"  | 10-26-16                  | 1325   | 1                    |                           |                  | X  |                 | X           |      |                         |                 | X          | X            |                      |  |  |  |  |  |
| BH43 @ 4-6"  | 10-26-16                  | 1410   | 1                    |                           |                  | X  |                 | X           |      |                         |                 | X          | X            |                      |  |  |  |  |  |
| BH44 @ 8-10"   | 10-26-16                  | 1518   | 1                    |                           |                  | X  |                 | X           |      |                         |                 | X          | X            |                      |  |  |  |  |  |
| BH45 @ 0-4"  | 10-26-16                  | 1550   | 1                    |                           |                  | X  |                 | X           |      |                         |                 | X          | X            |                      |  |  |  |  |  |
|  |                           |  |                      |                           |                  |  |                 |             |      |                         |                 |            |              |                      |  |  |  |  |  |
|  |                           |  |                      |                           |                  |  |                 |             |      |                         |                 |            |              |                      |  |  |  |  |  |
|  |                           |  |                      |                           |                  |  |                 |             |      |                         |                 |            |              |                      |  |  |  |  |  |
|  |                           |  |                      |                           |                  |  |                 |             |      |                         |                 |            |              |                      |  |  |  |  |  |
|  |                           |  |                      |                           |                  |  |                 |             |      |                         |                 |            |              |                      |  |  |  |  |  |
|  |                           |  |                      |                           |                  |  |                 |             |      |                         |                 |            |              |                      |  |  |  |  |  |
|  |                           |  |                      |                           |                  |  |                 |             |      |                         |                 |            |              |                      |  |  |  |  |  |
|  |                           |  |                      |                           |                  |  |                 |             |      |                         |                 |            |              |                      |  |  |  |  |  |
| Relinquished by:  | Date/Time: 10-27-16       | Received by:  |                      | Date/Time: 10/27/16 10:30 |                  | Turn Around Time (Check)   |                 |             |      | Notes:                  |                 |            |              |                      |  |  |  |  |  |
|  |                           |  |                      |                           |                  | Same Day <input type="checkbox"/> 72 Hours <input type="checkbox"/>            |                 |             |      |                         |                 |            |              |                      |  |  |  |  |  |
|  |                           |  |                      |                           |                  | 24 Hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> |                 |             |      |                         |                 |            |              |                      |  |  |  |  |  |
|  |                           |  |                      |                           |                  | 48 Hours <input type="checkbox"/>  |                 |             |      |                         |                 |            |              |                      |  |  |  |  |  |
| Relinquished by:  | Date/Time: 10/27/16 11:20 | Received by:  |                      | Date/Time: 10/27/16 1120  |                  | Sample Integrity: 4.6°C on ice   |                 |             |      |                         |                 |            |              |                      |  |  |  |  |  |
| Relinquished by:   | Date/Time:                | Received in Lab by:  |                      | Date/Time:                |                  | Temperature Upon Receipt:  |                 |             |      |                         |                 |            |              |                      |  |  |  |  |  |
|  |                           |  |                      |                           |                  | Intact: Yes <input type="checkbox"/> No <input type="checkbox"/>               |                 |             |      |                         |                 |            |              |                      |  |  |  |  |  |

[www.s2scientific.com](http://www.s2scientific.com)

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
11/04/16 12:01

#### Sample Receipt Checklist

S2 Work Order: 11e10231

Client: Noble/Tasman Client Project ID: Feather 31-15

Shipped Via: PIU Airbill #: \_\_\_\_\_  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: \_\_\_\_\_  
(Describe)

|           |            |  |  |  |  |
|-----------|------------|--|--|--|--|
| Cooler ID |            |  |  |  |  |
| Temp (°C) | <u>4.6</u> |  |  |  |  |

Thermometer ID: 61857155-K

|   | Yes                                 | No | N/A                                 | Comments (if any) |
|---|-------------------------------------|----|-------------------------------------|-------------------|
| If samples require cooling, was the temperature just above 0°C to ≤ 6°C <sup>(1)</sup> ?  | <input checked="" type="checkbox"/> |    |                                     |                   |
| NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun. |                                     |    |                                     |                   |
| Were all samples received intact <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| Was adequate sample volume provided <sup>(1)</sup> ?  | <input checked="" type="checkbox"/> |    |                                     |                   |
| If custody seals are present, are they intact <sup>(1)</sup> ?  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Are short holding time analytes or samples with HTs due within 48 hours present?  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| For volatiles in water – is there headspace present? If yes, contact client and note in narrative.  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect  |                                     |    | <input checked="" type="checkbox"/> |                   |
| If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Record the pH in Comments.  |                                     |    | <input checked="" type="checkbox"/> |                   |
| If dissolved metals are requested, were samples field filtered?   |                                     |    | <input checked="" type="checkbox"/> |                   |
| Additional Comments (if any):   |                                     |    |                                     |                   |
|   |                                     |    |                                     |                   |

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.

Nakita  
Custodian Printed Name

[Signature]  
Signature or Initials of Custodian

10/27/16 11:20  
Date/Time



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
11/04/16 12:01

**BH40@4-6'**  
**1610231-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/26/16 12:00**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1610317 | 10/28/16 | 10/28/16 | 8015M  |       |

Date Sampled: **10/26/16 12:00**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 89.8 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/26/16 12:00**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1610315 | 10/28/16 | 10/28/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **10/26/16 12:00**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 117 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 103 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 95.9 %          | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
11/04/16 12:01

**BH41@0-2'**  
**1610231-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/26/16 12:30**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1610317 | 10/28/16 | 10/28/16 | 8015M  |       |

Date Sampled: **10/26/16 12:30**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 90.2 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/26/16 12:30**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1610315 | 10/28/16 | 10/28/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **10/26/16 12:30**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 112 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 101 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 91.6 %          | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
11/04/16 12:01

**BH42@0-2'**  
**1610231-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/26/16 13:25**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1610317 | 10/28/16 | 10/28/16 | 8015M  |       |

Date Sampled: **10/26/16 13:25**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 91.0 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/26/16 13:25**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1610315 | 10/28/16 | 10/29/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **10/26/16 13:25**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 110 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 102 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 94.0 %          | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
11/04/16 12:01

**BH43@4-6'**  
**1610231-04 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/26/16 14:10**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1610317 | 10/28/16 | 10/28/16 | 8015M  |       |

Date Sampled: **10/26/16 14:10**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 92.6 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/26/16 14:10**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1610315 | 10/28/16 | 10/29/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **10/26/16 14:10**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 112 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 102 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 101 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
11/04/16 12:01

**BH44@8-10'**  
**1610231-05 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/26/16 15:18**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1610317 | 10/28/16 | 10/28/16 | 8015M  |       |

Date Sampled: **10/26/16 15:18**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 90.5 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/26/16 15:18**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1610315 | 10/28/16 | 10/29/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **10/26/16 15:18**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 118 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 101 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 98.7 %          | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
11/04/16 12:01

**BH45@0-4'**  
**1610231-06 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/26/16 15:50**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1610317 | 10/28/16 | 10/28/16 | 8015M  |       |

Date Sampled: **10/26/16 15:50**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 90.6 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/26/16 15:50**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1610315 | 10/28/16 | 10/29/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **10/26/16 15:50**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 117 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 103 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 92.5 %          | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
11/04/16 12:01

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source |      | %REC   |     | RPD   |       |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

**Batch 1610317 - EPA 3550A**

**Blank (1610317-BLK1)**

Prepared & Analyzed: 10/28/16

C10-C28 (DRO) ND 50 mg/kg

Surrogate: o-Terphenyl 11.4 " 12.5 91.3 30-150

**LCS (1610317-BS1)**

Prepared & Analyzed: 10/28/16

C10-C28 (DRO) 495 50 mg/kg 499 99.2 73-134

Surrogate: o-Terphenyl 11.9 " 12.5 95.1 30-150

**Matrix Spike (1610317-MS1)**

Source: 1610231-01

Prepared & Analyzed: 10/28/16

C10-C28 (DRO) 477 50 mg/kg 497 8.52 94.3 50-148

Surrogate: o-Terphenyl 12.5 " 12.5 100 30-150

**Matrix Spike Dup (1610317-MSD1)**

Source: 1610231-01

Prepared & Analyzed: 10/28/16

C10-C28 (DRO) 486 50 mg/kg 496 8.52 96.3 50-148 1.89 20

Surrogate: o-Terphenyl 12.6 " 12.4 101 30-150

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
11/04/16 12:01

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source |      | %REC   |     | RPD   |       |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

**Batch 1610315 - EPA 5030 Soil MS**

**Blank (1610315-BLK1)**

Prepared & Analyzed: 10/28/16

|   |               |        |          |               |  |             |               |  |  |  |
|---|---------------|--------|----------|---------------|--|-------------|---------------|--|--|--|
| Naphthalene                             | ND            | 0.010  | mg/kg    |               |  |             |               |  |  |  |
| Benzene                                 | ND            | 0.0020 | "        |               |  |             |               |  |  |  |
| Toluene                                 | ND            | 0.0050 | "        |               |  |             |               |  |  |  |
| Ethylbenzene                            | ND            | 0.0050 | "        |               |  |             |               |  |  |  |
| Xylenes (total)                         | ND            | 0.010  | "        |               |  |             |               |  |  |  |
| Gasoline Range Hydrocarbons             | ND            | 50     | "        |               |  |             |               |  |  |  |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | <i>0.0465</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>116</i>  | <i>23-173</i> |  |  |  |
| <i>Surrogate: Toluene-d8</i>            | <i>0.0416</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>104</i>  | <i>20-170</i> |  |  |  |
| <i>Surrogate: 4-Bromofluorobenzene</i>  | <i>0.0390</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>97.6</i> | <i>21-167</i> |  |  |  |

**LCS (1610315-BS1)**

Prepared & Analyzed: 10/28/16

|   |               |        |          |               |  |             |               |  |  |  |
|---|---------------|--------|----------|---------------|--|-------------|---------------|--|--|--|
| Naphthalene                             | ND            | 0.010  | mg/kg    |               |  |             | 66-138        |  |  |  |
| Benzene                                 | 0.0748        | 0.0020 | "        | 0.100         |  | 74.8        | 58-130        |  |  |  |
| Toluene                                 | 0.0812        | 0.0050 | "        | 0.100         |  | 81.2        | 61-134        |  |  |  |
| Ethylbenzene                            | 0.104         | 0.0050 | "        | 0.0992        |  | 105         | 74-139        |  |  |  |
| m,p-Xylene                              | 0.195         | 0.010  | "        | 0.200         |  | 97.9        | 73-137        |  |  |  |
| o-Xylene                                | 0.0983        | 0.0050 | "        | 0.0980        |  | 100         | 73-141        |  |  |  |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | <i>0.0457</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>114</i>  | <i>23-173</i> |  |  |  |
| <i>Surrogate: Toluene-d8</i>            | <i>0.0396</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>99.0</i> | <i>20-170</i> |  |  |  |
| <i>Surrogate: 4-Bromofluorobenzene</i>  | <i>0.0387</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>96.8</i> | <i>21-167</i> |  |  |  |

**Matrix Spike (1610315-MS1)**

Source: 1610231-01

Prepared & Analyzed: 10/28/16

|   |               |        |          |               |    |             |               |  |  |  |
|---|---------------|--------|----------|---------------|----|-------------|---------------|--|--|--|
| Naphthalene                             | ND            | 0.010  | mg/kg    |               | ND |             | 10-158        |  |  |  |
| Benzene                                 | 0.0755        | 0.0020 | "        | 0.100         | ND | 75.5        | 30-131        |  |  |  |
| Toluene                                 | 0.0828        | 0.0050 | "        | 0.100         | ND | 82.8        | 30-134        |  |  |  |
| Ethylbenzene                            | 0.105         | 0.0050 | "        | 0.0992        | ND | 105         | 22-153        |  |  |  |
| m,p-Xylene                              | 0.198         | 0.010  | "        | 0.200         | ND | 99.0        | 10-159        |  |  |  |
| o-Xylene                                | 0.0992        | 0.0050 | "        | 0.0980        | ND | 101         | 31-151        |  |  |  |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | <i>0.0466</i> |        | <i>"</i> | <i>0.0400</i> |    | <i>117</i>  | <i>23-173</i> |  |  |  |
| <i>Surrogate: Toluene-d8</i>            | <i>0.0396</i> |        | <i>"</i> | <i>0.0400</i> |    | <i>99.1</i> | <i>20-170</i> |  |  |  |
| <i>Surrogate: 4-Bromofluorobenzene</i>  | <i>0.0388</i> |        | <i>"</i> | <i>0.0400</i> |    | <i>97.0</i> | <i>21-167</i> |  |  |  |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
11/04/16 12:01

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source |      | %REC   |     | RPD   |       |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

**Batch 1610315 - EPA 5030 Soil MS**

| Matrix Spike Dup (1610315-MSD1)  |        | Source: 1610231-01 |       |        | Prepared & Analyzed: 10/28/16 |      |        |       |    |  |
|----------------------------------|--------|--------------------|-------|--------|-------------------------------|------|--------|-------|----|--|
| Naphthalene                      | ND     | 0.010              | mg/kg |        | ND                            |      | 10-158 |       | 42 |  |
| Benzene                          | 0.0891 | 0.0020             | "     | 0.0992 | ND                            | 89.8 | 30-131 | 16.4  | 34 |  |
| Toluene                          | 0.0834 | 0.0050             | "     | 0.0992 | ND                            | 84.0 | 30-134 | 0.642 | 30 |  |
| Ethylbenzene                     | 0.105  | 0.0050             | "     | 0.0984 | ND                            | 107  | 22-153 | 0.345 | 24 |  |
| m,p-Xylene                       | 0.197  | 0.010              | "     | 0.198  | ND                            | 99.7 | 10-159 | 0.101 | 68 |  |
| o-Xylene                         | 0.0997 | 0.0050             | "     | 0.0972 | ND                            | 103  | 31-151 | 0.465 | 38 |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0479 |                    | "     | 0.0397 |                               | 121  | 23-173 |       |    |  |
| Surrogate: Toluene-d8            | 0.0401 |                    | "     | 0.0397 |                               | 101  | 20-170 |       |    |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0379 |                    | "     | 0.0397 |                               | 95.5 | 21-167 |       |    |  |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
11/04/16 12:01

### Notes and Definitions

|     |  |
|-----|--|
| DET | Analyte DETECTED                                     |
| ND  | Analyte NOT DETECTED at or above the reporting limit |
| NR  | Not Reported   |
| dry | Sample results reported on a dry weight basis        |
| RPD | Relative Percent Difference                          |

# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

December 29, 2016

Brandon Bruns  
Tasman Geosciences  
6899 Pecos Street  
Denver, CO 80221  
RE: Feather 31-15

Enclosed are the results of analyses for samples received by Summit Scientific on 12/22/16 09:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury  
President



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
12/29/16 10:04

### ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|-----------|---------------|--------|----------------|----------------|
| BH46@2-4' | 1612180-01    | Soil   | 12/21/16 09:52 | 12/22/16 09:30 |
| BH47@4-6' | 1612180-02    | Soil   | 12/21/16 11:10 | 12/22/16 09:30 |
| BH48@6-8' | 1612180-03    | Soil   | 12/21/16 11:58 | 12/22/16 09:30 |
| BH49@4-6' | 1612180-04    | Soil   | 12/21/16 13:12 | 12/22/16 09:30 |
| BH50@6-8' | 1612180-05    | Soil   | 12/21/16 13:45 | 12/22/16 09:30 |
| BH51@4-6' | 1612180-06    | Soil   | 12/21/16 14:45 | 12/22/16 09:30 |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
12/29/16 10:04

## Summit Scientific

1612180

741 Corporate Circle Suite 1 • Golden, Colorado 80401  
303-277-9310 • 303-374-5933 Fax

Page 1 of 1

Client: Noble/Tasman  
Address:                       
City/State/Zip:                       
Phone:                      Fax:                       
Sampler Name: GB

Project Manager: Brandon Bruns, Invoice: Jacob Evans  
E-Mail: Bbruns@tasman-geo.com  
Project Name: Feat 31-15  
Project Number: —

|                              |                           |                          |                           | Preservative  |                  |      |                 |             |      | Matrix                  |                 | Analyze For:   |              |                |             |  |  |  |  |                      |
|------------------------------|---------------------------|--------------------------|---------------------------|---|------------------|------|-----------------|-------------|------|-------------------------|-----------------|--|--------------|----------------|-------------|--|--|--|--|----------------------|
| Sample Description           | Date Sampled              | Time Sampled             | Number of Containers      | HCl   | HNO <sub>3</sub> | None | Other (Specify) | Groundwater | Soil | Air - Canister Serial # | Other (Specify) | 8260 BTEX  | 8260B GBTEXN | 8015 DRO       | pH, EC, SAR |  |  |  |  | Special Instructions |
| BH 46 @ 2-4"                 | 12/31/16                  | 0952                     | 1                         |   | X                |      |                 |             | X    |                         |                 |  | X            | X              |             |  |  |  |  |                      |
| BH 47 @ 4-6"                 | 12/31/16                  | 1110                     | 1                         |   | X                |      |                 |             | X    |                         |                 |  | X            | X              |             |  |  |  |  |                      |
| BH 48 @ G-8"                 | 12/31/16                  | 1158                     | 1                         |   | X                |      |                 |             | X    |                         |                 |  | X            | X              |             |  |  |  |  |                      |
| BH 49 @ 4-6"                 | 12/31/16                  | 1312                     | 1                         |   | X                |      |                 |             | X    |                         |                 |  | X            | X              |             |  |  |  |  |                      |
| BH 50 @ G-8"                 | 12/31/16                  | 1345                     | 1                         |   | X                |      |                 |             | X    |                         |                 |  | X            | X              |             |  |  |  |  |                      |
| BH 51 @ 4-6"                 | 12/31/16                  | 1445                     | 1                         |   | X                |      |                 |             | X    |                         |                 |  | X            | X              |             |  |  |  |  |                      |
|                              |                           |                          |                           |   |                  |      |                 |             |      |                         |                 |  |              |                |             |  |  |  |  |                      |
|                              |                           |                          |                           |   |                  |      |                 |             |      |                         |                 |  |              |                |             |  |  |  |  |                      |
|                              |                           |                          |                           |   |                  |      |                 |             |      |                         |                 |  |              |                |             |  |  |  |  |                      |
|                              |                           |                          |                           |   |                  |      |                 |             |      |                         |                 |  |              |                |             |  |  |  |  |                      |
|                              |                           |                          |                           |   |                  |      |                 |             |      |                         |                 |  |              |                |             |  |  |  |  |                      |
|                              |                           |                          |                           |   |                  |      |                 |             |      |                         |                 |  |              |                |             |  |  |  |  |                      |
| Relinquished by: [Signature] | Date/Time: 12/31/16 9:30  | Received by: [Signature] | Date/Time: 12/31/16 9:30  | Turn Around Time (Check)<br>Same Day <input type="checkbox"/><br>24 Hours <input type="checkbox"/><br>48 Hours <input type="checkbox"/> |                  |      |                 |             |      |                         |                 | 72 Hours<br>Standard <input checked="" type="checkbox"/> |              | Notes:<br><br> |             |  |  |  |  |                      |
| Relinquished by: [Signature] | Date/Time: 12/22/16 10:36 | Received by: [Signature] | Date/Time: 12/22/16 10:10 | Sample Integrity:<br>Temperature Upon Receipt: 1.8°C<br>Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>     |                  |      |                 |             |      |                         |                 | on ice   |              |                |             |  |  |  |  |                      |
| Relinquished by:             | Date/Time:                | Received in Lab by:      | Date/Time:                |   |                  |      |                 |             |      |                         |                 |  |              |                |             |  |  |  |  |                      |

[www.s2scientific.com](http://www.s2scientific.com)

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*





Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
12/29/16 10:04

#### Sample Receipt Checklist

S2 Work Order: 1612180  
Client: Noble/Tasman Client Project ID: Feather 31-15  
Shipped Via: P/U Airbill #: \_\_\_\_\_  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)  
Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: \_\_\_\_\_  
(Describe)

|           |            |  |  |  |  |
|-----------|------------|--|--|--|--|
| Cooler ID |            |  |  |  |  |
| Temp (°C) | <u>1.8</u> |  |  |  |  |

Thermometer ID: 61857155-K

|   | Yes                                 | No | N/A                                 | Comments (if any) |
|---|-------------------------------------|----|-------------------------------------|-------------------|
| If samples require cooling, was the temperature just above 0°C to ≤ 6°C <sup>(1)</sup> ?  | <input checked="" type="checkbox"/> |    |                                     |                   |
| NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun. |                                     |    |                                     |                   |
| Were all samples received intact <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| Was adequate sample volume provided <sup>(1)</sup> ?  | <input checked="" type="checkbox"/> |    |                                     |                   |
| If custody seals are present, are they intact <sup>(1)</sup> ?  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Are short holding time analytes or samples with HTs due within 48 hours present?  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| For volatiles in water – is there headspace present? If yes, contact client and note in narrative.  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect  |                                     |    | <input checked="" type="checkbox"/> |                   |
| If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Record the pH in Comments.  |                                     |    | <input checked="" type="checkbox"/> |                   |
| If dissolved metals are requested, were samples field filtered?   |                                     |    | <input checked="" type="checkbox"/> |                   |
| Additional Comments (if any):   |                                     |    |                                     |                   |
| <sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.                                   |                                     |    |                                     |                   |

Nakita  
Custodian Printed Name

[Signature]  
Signature or Initials of Custodian

12/22/16 10:30  
Date/Time

[Signature]



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
12/29/16 10:04

**BH46@2-4'**  
**1612180-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **12/21/16 09:52**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1612254 | 12/23/16 | 12/25/16 | 8015M  |       |

Date Sampled: **12/21/16 09:52**

| Analyte                        | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|--------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: <i>o</i> -Terphenyl |        | 95.9 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **12/21/16 09:52**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1612273 | 12/27/16 | 12/27/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **12/21/16 09:52**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 89.9 %          | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 105 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 106 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
12/29/16 10:04

**BH47@4-6'**  
**1612180-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **12/21/16 11:10**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1612254 | 12/23/16 | 12/25/16 | 8015M  |       |

Date Sampled: **12/21/16 11:10**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 97.7 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **12/21/16 11:10**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1612273 | 12/27/16 | 12/27/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **12/21/16 11:10**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 94.0 %          | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 105 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 104 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
12/29/16 10:04

**BH48@6-8'**  
**1612180-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **12/21/16 11:58**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1612254 | 12/23/16 | 12/25/16 | 8015M  |       |

Date Sampled: **12/21/16 11:58**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 97.7 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **12/21/16 11:58**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1612273 | 12/27/16 | 12/27/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **12/21/16 11:58**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 93.3 %          | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 102 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 106 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
12/29/16 10:04

**BH49@4-6'**  
**1612180-04 (Soil)**

### Summit Scientific

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/21/16 13:12**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1612254 | 12/23/16 | 12/25/16 | 8015M  |       |

Date Sampled: **12/21/16 13:12**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 96.2 %          | 30-150 |          | "     | "        | "        | "      |       |

#### Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/21/16 13:12**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1612273 | 12/27/16 | 12/27/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **12/21/16 13:12**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 91.5 %          | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 102 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 108 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
12/29/16 10:04

**BH50@6-8'**  
**1612180-05 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **12/21/16 13:45**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1612254 | 12/23/16 | 12/25/16 | 8015M  |       |

Date Sampled: **12/21/16 13:45**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 96.8 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **12/21/16 13:45**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1612273 | 12/27/16 | 12/27/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **12/21/16 13:45**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 93.4 %          | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 103 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 108 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
12/29/16 10:04

**BH51@4-6'**  
**1612180-06 (Soil)**

### Summit Scientific

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/21/16 14:45**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1612254 | 12/23/16 | 12/25/16 | 8015M  |       |

Date Sampled: **12/21/16 14:45**

| Analyte                | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: o-Terphenyl |        | 96.4 %          | 30-150 |          | "     | "        | "        | "      |       |

#### Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/21/16 14:45**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1612273 | 12/27/16 | 12/27/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **12/21/16 14:45**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 92.6 %          | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 101 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 103 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
12/29/16 10:04

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source |      | %REC   |     | RPD   |       |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

**Batch 1612254 - EPA 3550A**

**Blank (1612254-BLK1)**

Prepared: 12/23/16 Analyzed: 12/25/16

C10-C28 (DRO) ND 50 mg/kg

Surrogate: o-Terphenyl 11.9 " 12.5 95.5 30-150

**LCS (1612254-BS1)**

Prepared: 12/23/16 Analyzed: 12/25/16

C10-C28 (DRO) 466 50 mg/kg 499 93.4 73-134

Surrogate: o-Terphenyl 12.4 " 12.5 99.4 30-150

**Matrix Spike (1612254-MS1)**

Source: 1612176-01

Prepared: 12/23/16 Analyzed: 12/25/16

C10-C28 (DRO) 444 50 mg/kg 499 11.2 86.8 50-148

Surrogate: o-Terphenyl 12.4 " 12.5 99.2 30-150

**Matrix Spike Dup (1612254-MSD1)**

Source: 1612176-01

Prepared: 12/23/16 Analyzed: 12/25/16

C10-C28 (DRO) 453 50 mg/kg 498 11.2 88.8 50-148 2.04 20

Surrogate: o-Terphenyl 12.8 " 12.5 102 30-150

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
12/29/16 10:04

### Notes and Definitions

|     |  |
|-----|--|
| DET | Analyte DETECTED                                     |
| ND  | Analyte NOT DETECTED at or above the reporting limit |
| NR  | Not Reported   |
| dry | Sample results reported on a dry weight basis        |
| RPD | Relative Percent Difference                          |

# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

December 29, 2016

Brandon Bruns  
Tasman Geosciences  
6899 Pecos Street  
Denver, CO 80221  
RE: Feather 31-15

Enclosed are the results of analyses for samples received by Summit Scientific on 12/22/16 16:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury  
President



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
12/29/16 10:08

### ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|-----------|---------------|--------|----------------|----------------|
| BH52@2-4' | 1612184-01    | Soil   | 12/22/16 10:22 | 12/22/16 16:30 |

Summit Scientific

A handwritten signature in black ink, appearing to be 'MSM'.

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
12/29/16 10:08

Summit Scientific

1612184

741 Corporate Circle Suite 1 • Golden, Colorado 80401  
303-277-9310 • 303-374-5933 Fax

Page 1 of 1

Client: Noble/Tasman

Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Sampler Name: GB

Project Manager: Brandon Bruns, Invoice: Jacob Evans

E-Mail: Bbruns@tasman-geo.com

Project Name: Fea 4th, 31-15

Project Number: —

[illegible]

[www.s2scientific.com](http://www.s2scientific.com)

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*





Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
12/29/16 10:08

# Sample Receipt Checklist

S2 Work Order: 1612184

Client: Noble/Tarman

Client Project ID: Feather 31-15

Shipped Via: P/V

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: \_\_\_\_\_

Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: \_\_\_\_\_  
(Describe)

|           |            |  |  |  |  |
|-----------|------------|--|--|--|--|
| Cooler ID |            |  |  |  |  |
| Temp (°C) | <u>4.4</u> |  |  |  |  |

Thermometer ID: 61857155-K

|   | Yes                                 | No | N/A                                 | Comments (if any) |
|---|-------------------------------------|----|-------------------------------------|-------------------|
| If samples require cooling, was the temperature just above 0°C to ≤ 6°C <sup>(1)</sup> ?  | <input checked="" type="checkbox"/> |    |                                     |                   |
| NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun. |                                     |    |                                     |                   |
| Were all samples received intact <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| Was adequate sample volume provided <sup>(1)</sup> ?  | <input checked="" type="checkbox"/> |    |                                     |                   |
| If custody seals are present, are they intact <sup>(1)</sup> ?  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Are short holding time analytes or samples with HTs due within 48 hours present?  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> |    |                                     |                   |
| For volatiles in water – is there headspace present? If yes, contact client and note in narrative.  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect  |                                     |    | <input checked="" type="checkbox"/> |                   |
| If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?  |                                     |    | <input checked="" type="checkbox"/> |                   |
| Record the pH in Comments.  |                                     |    | <input checked="" type="checkbox"/> |                   |
| If dissolved metals are requested, were samples field filtered?   |                                     |    | <input checked="" type="checkbox"/> |                   |
| Additional Comments (if any):   |                                     |    |                                     |                   |
|   |                                     |    |                                     |                   |

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.

Nakita  
Custodian Printed Name

[Signature]  
Signature or Initials of Custodian

12/22/16 1700  
Date/Time

[Signature]



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
12/29/16 10:08

**BH52@2-4'**  
**1612184-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **12/22/16 10:22**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1612254 | 12/23/16 | 12/25/16 | 8015M  |       |

Date Sampled: **12/22/16 10:22**

| Analyte                        | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|--------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: <i>o</i> -Terphenyl |        | 96.1 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **12/22/16 10:22**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1612273 | 12/27/16 | 12/27/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 50              | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **12/22/16 10:22**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 94.3 %          | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 102 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 104 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
12/29/16 10:08

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source |      | %REC   |     | RPD   |       |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

**Batch 1612254 - EPA 3550A**

**Blank (1612254-BLK1)**

Prepared: 12/23/16 Analyzed: 12/25/16

C10-C28 (DRO) ND 50 mg/kg

Surrogate: o-Terphenyl 11.9 " 12.5 95.5 30-150

**LCS (1612254-BS1)**

Prepared: 12/23/16 Analyzed: 12/25/16

C10-C28 (DRO) 466 50 mg/kg 499 93.4 73-134

Surrogate: o-Terphenyl 12.4 " 12.5 99.4 30-150

**Matrix Spike (1612254-MS1)**

Source: 1612176-01

Prepared: 12/23/16 Analyzed: 12/25/16

C10-C28 (DRO) 444 50 mg/kg 499 11.2 86.8 50-148

Surrogate: o-Terphenyl 12.4 " 12.5 99.2 30-150

**Matrix Spike Dup (1612254-MSD1)**

Source: 1612176-01

Prepared: 12/23/16 Analyzed: 12/25/16

C10-C28 (DRO) 453 50 mg/kg 498 11.2 88.8 50-148 2.04 20

Surrogate: o-Terphenyl 12.8 " 12.5 102 30-150

Summit Scientific

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Tasman Geosciences  
6899 Pecos Street  
Denver CO, 80221

Project: Feather 31-15

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
12/29/16 10:08

### Notes and Definitions

|     |  |
|-----|--|
| DET | Analyte DETECTED                                     |
| ND  | Analyte NOT DETECTED at or above the reporting limit |
| NR  | Not Reported   |
| dry | Sample results reported on a dry weight basis        |
| RPD | Relative Percent Difference                          |