

KNAUS 28-8
FLOWLINE RELEASE
API #: 05-123-17596
Spill / Release Point ID #: 445476
Remediation Project #: 9767

SECOND QUARTER 2018
Analytical Tables, Figures,
and Laboratory Report

06/15/2018



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PREPARED ON BEHALF OF

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TABLE 1
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC. - KNAUS 28-8 FLOWLINE RELEASE

| Monitoring Well ID | Date | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) |
|-----------------------|----------|---|----------------|---------------------|----------------------|
| COGCC Standard | | 5 | 560 | 700 | 1,400 |
| BH01 | 04/15/16 | <1.0 | <1.0 | <1.0 | <1.0 |
| BH01 | 06/21/16 | <1.0 | <1.0 | <1.0 | <1.0 |
| BH01 | 09/02/16 | 380 | 1.4 | <1.0 | 340 |
| BH01 | 12/20/16 | 32 | <1.0 | <1.0 | 1.3 |
| BH01 | 06/23/17 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH01 | 09/22/17 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH01 | 12/07/17 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH01 | 03/21/18 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH01 | 06/15/18 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH02 | 04/15/16 | 5,300 | 3,900 | 130 | 1,200 |
| BH02 | 06/21/16 | 7,300 | 1,500 | 97 | 2,300 |
| BH02 ¹ | 09/12/16 | 9,700 | 3,800 | <1.0 | 3,400 |
| BH02 | 12/20/16 | 7,700 | 14 | <1.0 | 1,000 |
| BH02 | 02/07/17 | Monitoring Well Destroyed Due to Excavation | | | |
| BH02R | 06/23/17 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH02R | 09/22/17 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH02R | 12/07/17 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH02R | 03/21/18 | 130 | <1.0 | <1.0 | 9.6 |
| BH02R | 06/15/18 | 130 | <1.0 | 6.1 | 6.1 |
| BH03 | 04/15/16 | Not Sampled - LNAPL Present | | | |
| BH03 | 06/21/16 | Not Sampled - LNAPL Present | | | |
| BH03 | 09/02/16 | Not Sampled - LNAPL Present | | | |
| BH03 | 12/20/16 | Not Sampled - LNAPL Present | | | |
| BH03 | 06/23/17 | Not Sampled - LNAPL Present | | | |
| BH03 ¹ | 09/22/17 | 500 | 46 | 33 | 2,300 |
| BH03 | 12/07/17 | Not Sampled - LNAPL Present | | | |
| BH03 | 03/21/18 | 45 | <1.0 | 1.9 | 810 |
| BH03 | 06/15/18 | Not Sampled - LNAPL Present | | | |
| BH04 | 04/15/16 | 1,700 | 2,600 | 130 | 1,200 |
| BH04 | 06/21/16 | Not Sampled - LNAPL Present | | | |
| BH04 ¹ | 09/02/16 | 14,000 | 12,000 | 240 | 5,600 |
| BH04 | 12/20/16 | Not Sampled - LNAPL Present | | | |
| BH04 | 02/07/17 | Monitoring Well Destroyed Due to Excavation | | | |
| BH04R | 06/23/17 | <1.0 | <1.0 | <1.0 | 12 |
| BH04R | 09/22/17 | 1400 | <1.0 | <1.0 | 13 |
| BH04R | 12/07/17 | 190 | <1.0 | 9.2 | 4.0 |
| BH04R | 03/21/18 | 2,000 | <1.0 | 8.7 | 3.1 |
| BH04R | 06/15/18 | 970 | <1.0 | 39 | 4.0 |
| BH05 | 04/15/16 | Not Sampled - LNAPL Present | | | |
| BH05 | 06/21/16 | Not Sampled - LNAPL Present | | | |
| BH05 | 09/02/16 | Not Sampled - LNAPL Present | | | |
| BH05 | 12/20/16 | Not Sampled - LNAPL Present | | | |

TABLE 1
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC. - KNAUS 28-8 FLOWLINE RELEASE

| Monitoring Well ID | Date | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) |
|-----------------------|----------|---|----------------|---------------------|----------------------|
| COGCC Standard | | 5 | 560 | 700 | 1,400 |
| BH05 | 02/07/17 | Monitoring Well Destroyed Due to Excavation | | | |
| BH05R | 06/23/17 | 2,800 | 860 | <1.0 | 1,000 |
| BH05R ¹ | 09/22/17 | 9,800 | 3,300 | 140 | 12,000 |
| BH05R | 12/07/17 | Not Sampled - LNAPL Present | | | |
| BH05R | 03/21/18 | 1,700 | 1.4 | 45 | 900 |
| BH05R | 06/15/18 | Not Sampled - LNAPL Present | | | |
| BH06 | 04/15/16 | <1.0 | 8.0 | <1.0 | <1.0 |
| BH06 | 06/21/16 | <1.0 | <1.0 | <1.0 | <1.0 |
| BH06 | 09/02/16 | <1.0 | 1.4 | <1.0 | <1.0 |
| BH06 | 12/20/16 | 3.1 | <1.0 | <1.0 | 6.7 |
| BH06 | 02/07/17 | Monitoring Well Destroyed Due to Excavation | | | |
| BH06R | 06/23/17 | 1.9 | <1.0 | <1.0 | <2.0 |
| BH06R | 09/22/17 | <1.0 | <1.0 | <1.0 | 6.5 |
| BH06R | 12/07/17 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH06R | 03/21/18 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH06R | 06/15/18 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH07 | 04/15/16 | <1.0 | <1.0 | <1.0 | <1.0 |
| BH07 | 06/21/16 | <1.0 | <1.0 | <1.0 | <1.0 |
| BH07 | 09/02/16 | 1,600 | 6.6 | <1.0 | 200 |
| BH07 | 12/20/16 | 9,000 | 24 | <1.0 | 630 |
| BH07 | 06/23/17 | 9,100 | 1.5 | <1.0 | 260 |
| BH07 | 09/22/17 | 240 | <1.0 | <1.0 | <2.0 |
| BH07 | 12/07/17 | 3,900 | <1.0 | 11 | <2.0 |
| BH07 | 03/21/18 | 690 | <1.0 | 19 | 3.9 |
| BH07 | 06/15/18 | Not Sampled - Insufficient Water Volume | | | |
| BH08 | 06/21/16 | <1.0 | <1.0 | <1.0 | <1.0 |
| BH08 | 09/02/16 | <1.0 | 1.4 | <1.0 | <1.0 |
| BH08 | 12/20/16 | <1.0 | <1.0 | <1.0 | <1.0 |
| BH08 | 06/23/17 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH08 | 09/22/17 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH08 | 12/07/17 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH08 | 03/21/18 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH08 | 06/15/18 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH09 | 06/23/17 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH09 | 09/22/17 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH09 | 12/07/17 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH09 | 03/21/18 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH09 | 06/15/18 | 1.8 | <1.0 | <1.0 | <2.0 |
| BH10 | 06/23/17 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH10 | 09/22/17 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH10 | 12/07/17 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH10 | 03/21/18 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH10 | 06/15/18 | <1.0 | <1.0 | <1.0 | <2.0 |

TABLE 1
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC. - KNAUS 28-8 FLOWLINE RELEASE

| Monitoring Well ID | Date | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) |
|-----------------------|----------|----------------|----------------|---------------------|----------------------|
| COGCC Standard | | 5 | 560 | 700 | 1,400 |
| BH11 | 06/11/18 | 340 | <1.0 | 5.8 | <2.0 |
| BH12 | 06/11/18 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH13 | 06/11/18 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH14 | 06/11/18 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH15 | 06/11/18 | 1.2 | <1.0 | 3.9 | <2.0 |
| BH16 | 06/11/18 | 1.0 | <1.0 | 9.2 | 27 |
| BH17 | 06/11/18 | <1.0 | <1.0 | <1.0 | <2.0 |
| BH18 | 06/11/18 | <1.0 | <1.0 | <1.0 | <2.0 |

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

¹ Sheen present on groundwater sample.

TABLE 2
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC. - KNAUS 28-8 FLOWLINE 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) |
|--------------------|----------|--|------------------------|---------------------------|---------------------------|-----------------------|-----------------------------------|
| BH01 | 04/15/16 | 4660.12 | 16.81 | 14.29 | ND | ND | 4645.83 |
| BH01 | 06/21/16 | 4660.12 | 16.24 | 13.63 | ND | ND | 4646.49 |
| BH01 | 07/08/16 | 4658.07 ¹ | NM | 10.71 | ND | ND | 4647.36 |
| BH01 | 09/02/16 | 4658.07 | 14.18 | 9.24 | ND | ND | 4648.83 |
| BH01 | 12/20/16 | 4660.19 ⁴ | 16.30 | 14.03 | ND | ND | 4646.16 |
| BH01 | 06/23/17 | 4660.13 | 16.33 | 14.35 | ND | ND | 4645.78 |
| BH01 | 09/22/17 | 4660.13 | 16.31 | 11.82 | ND | ND | 4648.31 |
| BH01 | 12/07/17 | 4660.13 | 16.59 | 13.60 | ND | ND | 4646.53 |
| BH01 | 03/21/18 | 4660.13 | 16.56 | 14.80 | ND | ND | 4645.33 |
| BH01 | 06/15/18 | 4716.22 | 16.89 | 15.26 | ND | ND | 4700.96 |
| BH02 | 04/15/16 | 4660.56 | 17.71 | 17.13 | ND | ND | 4643.43 |
| BH02 | 06/21/16 | 4660.56 | 17.71 | 13.99 | ND | ND | 4646.57 |
| BH02 | 07/08/16 | 4660.56 | NM | 13.04 | ND | ND | 4647.52 |
| BH02 | 09/02/16 | Well Casing Damaged - Elevation Control Lost | | | | | |
| BH02 ³ | 09/12/16 | NS | 14.69 | 8.98 | ND | ND | NS |
| BH02 | 12/20/16 | NS | 17.58 | 14.20 | ND | ND | NS |
| BH02 | 02/07/17 | Well Destroyed During Excavation | | | | | |
| BH02R | 06/23/17 | 4661.34 | 22.39 | 15.45 | ND | ND | 4645.89 |
| BH02R | 09/22/17 | 4661.34 | 22.40 | 12.96 | ND | ND | 4648.38 |
| BH02R | 12/07/17 | 4661.34 | 22.40 | 14.74 | ND | ND | 4646.60 |
| BH02R | 03/21/18 | 4661.34 | 22.39 | 15.95 | ND | ND | 4645.39 |
| BH02R | 06/15/18 | 4717.42 | 22.45 | 16.40 | ND | ND | 4701.02 |
| BH03 | 04/15/16 | 4660.75 | 17.41 | 14.66 | Trace | <0.01 | 4646.09 |
| BH03 | 06/21/16 | 4660.75 | 17.41 | 16.42 | 13.54 | 2.88 | 4646.49 |
| BH03 | 07/08/16 | 4660.75 | NM | 13.32 | 13.24 | 0.08 | 4647.49 |
| BH03 | 09/02/16 | 4660.75 | 16.99 | 11.95 | 11.76 | 0.19 | 4648.94 |
| BH03 | 12/20/16 | 4660.75 | 16.93 | 14.77 | 14.43 | 0.34 | 4646.24 |
| BH03 | 06/23/17 | 4660.83 | NM | 15.07 | 14.84 | 0.23 | 4645.93 |
| BH03 | 09/22/17 | 4660.83 | 17.12 | 12.39 | 12.36 | 0.03 | 4648.46 |
| BH03 | 12/07/17 | 4660.83 | NM | 14.21 | 14.15 | 0.06 | 4646.67 |
| BH03 | 03/21/18 | 4660.83 | 17.36 | 15.37 | ND | ND | 4645.46 |
| BH03 | 06/15/18 | 4716.91 | 17.50 | 15.91 | 15.86 | 0.05 | 4701.04 |
| BH04 | 04/15/16 | 4659.97 | 17.24 | 14.47 | ND | ND | 4645.50 |
| BH04 | 06/21/16 | 4659.97 | 17.24 | 14.76 | 13.12 | 1.64 | 4646.44 |
| BH04 | 07/08/16 | 4659.97 | NM | 12.75 | 12.60 | 0.15 | 4647.33 |
| BH04 | 09/02/16 | 4659.97 | 17.26 | 11.12 | ND | ND | 4648.85 |
| BH04 | 12/20/16 | 4659.97 | 17.24 | 14.00 | 13.77 | 0.23 | 4646.14 |
| BH04 | 02/07/17 | Well Destroyed During Excavation | | | | | |
| BH04R | 06/23/17 | 4661.01 | 21.83 | 15.21 | ND | ND | 4645.80 |
| BH04R | 09/22/17 | 4661.01 | 21.81 | 12.78 | ND | ND | 4648.23 |
| BH04R | 12/07/17 | 4661.01 | 21.89 | 14.49 | ND | ND | 4646.52 |
| BH04R | 03/21/18 | 4661.01 | 21.88 | 15.71 | ND | ND | 4645.30 |

TABLE 2
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC. - KNAUS 28-8 FLOWLINE 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) |
|--------------------|----------|------------------------------------|------------------------|---------------------------|---------------------------|-----------------------|-----------------------------------|
| BH04R | 06/15/18 | 4717.09 | 21.94 | 16.17 | ND | ND | 4700.92 |
| BH05 | 04/15/16 | 4661.14 | 17.11 | 15.06 | Trace | <0.01 | 4646.08 |
| BH05 | 06/21/16 | 4661.14 | 16.81 | 14.60 | 14.56 | 0.04 | 4646.57 |
| BH05 | 07/08/16 | 4661.14 | NM | 13.74 | 13.72 | 0.02 | 4647.42 |
| BH05 | 09/02/16 | 4661.14 | 16.88 | 12.29 | 12.28 | 0.01 | 4648.86 |
| BH05 | 12/20/16 | 4661.14 | 17.22 | 15.29 | 14.83 | 0.46 | 4646.20 |
| BH05 | 02/07/17 | Well Destroyed During Excavation | | | | | |
| BH05R | 06/23/17 | 4660.88 | 21.49 | 15.05 | ND | ND | 4645.83 |
| BH05R | 09/22/17 | 4660.88 | 21.49 | 12.52 | ND | ND | 4648.36 |
| BH05R | 12/07/17 | 4660.88 | 21.49 | 14.29 | 14.28 | 0.01 | 4646.60 |
| BH05R | 03/21/18 | 4660.88 | 21.50 | 15.46 | ND | ND | 4645.42 |
| BH05R | 06/15/18 | 4716.96 | 21.51 | 15.94 | NM | NM | NM ⁶ |
| BH06 | 04/15/16 | 4660.85 | 16.65 | 14.77 | ND | ND | 4646.08 |
| BH06 | 06/21/16 | 4660.85 | 16.62 | 14.24 | ND | ND | 4646.61 |
| BH06 | 07/08/16 | 4660.85 | NM | 13.39 | ND | ND | 4647.46 |
| BH06 | 09/02/16 | 4660.85 | 16.78 | 11.92 | ND | ND | 4648.93 |
| BH06 | 12/20/16 | 4660.85 | 16.81 | 14.61 | ND | ND | 4646.24 |
| BH06 | 02/07/17 | Well Destroyed During Excavation | | | | | |
| BH06R | 06/23/17 | 4660.56 | 19.43 | 14.62 | ND | ND | 4645.94 |
| BH06R | 09/22/17 | 4660.56 | 19.40 | 12.16 | ND | ND | 4648.40 |
| BH06R | 12/07/17 | 4660.56 | 19.58 | 13.91 | ND | ND | 4646.65 |
| BH06R | 03/21/18 | 4660.56 | 19.60 | 15.12 | ND | ND | 4645.44 |
| BH06R | 06/15/18 | 4716.64 | 19.68 | 15.59 | ND | ND | 4701.05 |
| BH07 | 04/15/16 | 4660.84 | 17.20 | 14.90 | ND | ND | 4645.94 |
| BH07 | 06/21/16 | 4660.84 | 16.91 | 14.38 | ND | ND | 4646.46 |
| BH07 | 07/08/16 | 4660.84 | NM | 13.56 | ND | ND | 4647.28 |
| BH07 | 09/02/16 | 4660.84 | 16.90 | 12.13 | ND | ND | 4648.71 |
| BH07 | 12/20/16 | 4660.84 | 16.88 | 14.77 | ND | ND | 4646.07 |
| BH07 | 06/23/17 | 4660.82 | 16.95 | 15.05 | ND | ND | 4645.77 |
| BH07 | 09/22/17 | 4660.82 | 16.93 | 12.61 | ND | ND | 4648.21 |
| BH07 | 12/07/17 | 4660.82 | 16.59 | 14.33 | ND | ND | 4646.49 |
| BH07 | 03/21/18 | 4660.82 | 16.88 | 15.56 | ND | ND | 4645.26 |
| BH07 | 06/15/18 | 4716.90 | 16.40 | 16.02 | ND | ND | 4700.88 |
| BH08 | 06/21/16 | 4661.26 | 22.25 | 14.62 | ND | ND | 4646.64 |
| BH08 | 07/08/16 | 4661.26 | NM | 13.71 | ND | ND | 4647.55 |
| BH08 | 09/02/16 | 4658.51 ² | 19.50 | 9.28 | ND | ND | 4649.23 |
| BH08 | 12/20/16 | 4661.45 ⁵ | 22.44 | 14.98 | ND | ND | 4646.47 |
| BH08 | 06/23/17 | 4661.26 | 22.43 | 15.32 | ND | ND | 4645.94 |
| BH08 | 09/22/17 | 4661.26 | 22.42 | 12.76 | ND | ND | 4648.50 |
| BH08 | 12/07/17 | 4661.26 | 22.54 | 14.54 | ND | ND | 4646.72 |
| BH08 | 03/21/18 | 4661.26 | 22.48 | 15.75 | ND | ND | 4645.51 |
| BH08 | 06/15/18 | 4717.34 | 22.56 | 16.22 | ND | ND | 4701.12 |

TABLE 2
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC. - KNAUS 28-8 FLOWLINE 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) |
|--------------------|----------|------------------------------------|------------------------|---------------------------|---------------------------|-----------------------|-----------------------------------|
| BH09 | 06/23/17 | 4660.51 | 21.60 | 14.76 | ND | ND | 4645.75 |
| BH09 | 09/22/17 | 4660.51 | 21.61 | 12.32 | ND | ND | 4648.19 |
| BH09 | 12/07/17 | 4660.51 | 21.59 | 14.05 | ND | ND | 4646.46 |
| BH09 | 03/21/18 | 4660.51 | 21.60 | 15.26 | ND | ND | 4645.25 |
| BH09 | 06/15/18 | 4716.59 | 21.70 | 15.72 | ND | ND | 4700.87 |
| BH10 | 06/23/17 | 4660.28 | 19.65 | 14.43 | ND | ND | 4645.85 |
| BH10 | 09/22/17 | 4660.28 | 19.62 | 11.99 | ND | ND | 4648.29 |
| BH10 | 12/07/17 | 4660.28 | 19.75 | 13.75 | ND | ND | 4646.53 |
| BH10 | 03/21/18 | 4660.28 | 19.71 | 14.96 | ND | ND | 4645.32 |
| BH10 | 06/15/18 | 4716.35 | 19.91 | 15.43 | ND | ND | 4700.92 |
| BH11 | 06/11/18 | 4716.91 | 20.82 | 15.87 | ND | ND | 4701.04 |
| BH11 | 06/15/18 | 4716.91 | 21.30 | 15.93 | ND | ND | 4700.98 |
| BH12 | 06/11/18 | 4716.66 | 18.95 | 15.66 | ND | ND | 4701.00 |
| BH12 | 06/15/18 | 4716.66 | 19.01 | 15.73 | ND | ND | 4700.93 |
| BH13 | 06/11/18 | 4716.99 | 18.71 | 15.90 | ND | ND | 4701.09 |
| BH13 | 06/15/18 | 4716.99 | 18.92 | 15.97 | ND | ND | 4701.02 |
| BH14 | 06/11/18 | 4716.41 | 18.66 | 15.49 | ND | ND | 4700.92 |
| BH14 | 06/15/18 | 4716.41 | 18.68 | 15.55 | ND | ND | 4700.86 |
| BH15 | 06/11/18 | 4716.33 | 18.46 | 15.38 | ND | ND | 4700.95 |
| BH15 | 06/15/18 | 4716.33 | 18.50 | 15.44 | ND | ND | 4700.89 |
| BH16 | 06/11/18 | 4717.24 | 18.93 | 16.12 | ND | ND | 4701.12 |
| BH16 | 06/15/18 | 4717.24 | 19.00 | 16.15 | ND | ND | 4701.09 |
| BH17 | 06/11/18 | 4716.75 | 21.84 | 15.45 | ND | ND | 4701.30 |
| BH17 | 06/15/18 | 4716.75 | 21.75 | 15.62 | ND | ND | 4701.13 |
| BH18 | 06/11/18 | 4716.80 | 21.85 | 15.76 | ND | ND | 4701.04 |
| BH18 | 06/15/18 | 4716.80 | 22.23 | 15.80 | ND | ND | 4701.00 |

Notes:

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

* 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 estimated to be approximately 0.75

¹ Approximately 2.05 ft of casing broken off of BH01 prior to gauging on 7/8/16. Top of casing elevation is estimated, not surveyed.

² Approximately 2.75 ft of casing broken off of BH08 prior to gauging on 9/2/16. Top of casing elevation is estimated, not surveyed.

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NOBLE ENERGY, INC. - KNAUS 28-8 FLOWLINE 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) |
|-------------------------------|-------------|---|---------------------------------------|--|--|--------------------------------------|--|
|-------------------------------|-------------|---|---------------------------------------|--|--|--------------------------------------|--|

³ Damaged casing cut off just below ground surface, repaired with new stick up casing after sampling.

⁴ BH01 damaged, well repaired with approximately 2.12 ft of casing. Top of casing elevation is estimated, not surveyed.

⁵ BH08 damaged, well repaired with approximately 2.94 ft of casing. Top of casing elevation is estimated, not surveyed.

⁶ IP malfunction while gauging LNAPL, groundwater elevation lost

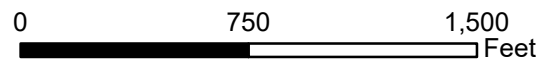
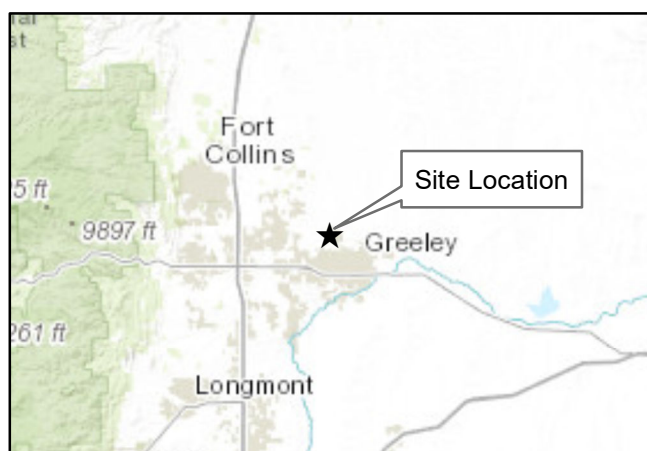
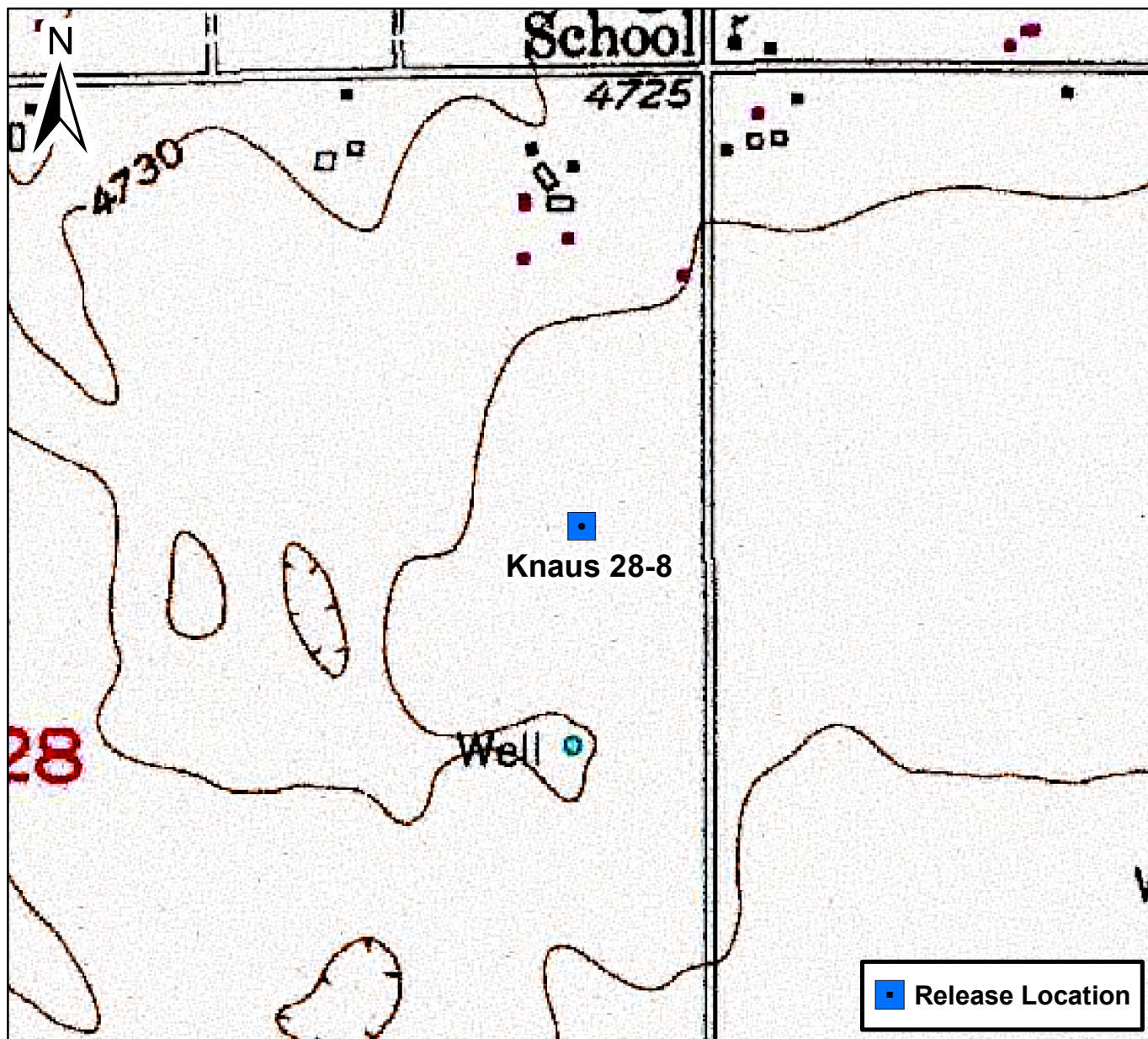
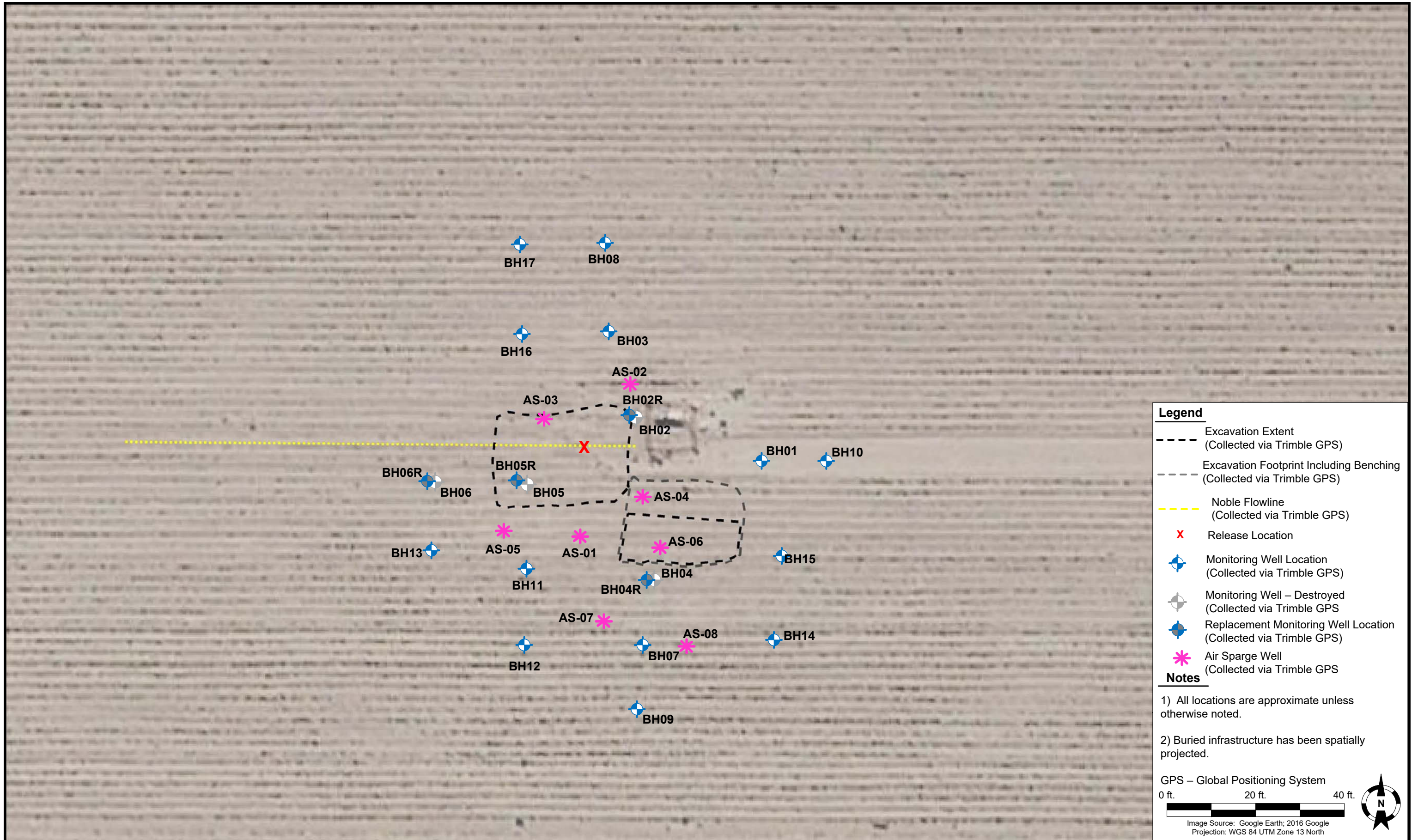


Figure 1

Site Location Map
Knaus 28-8 Flowline Release
SENE S28 T6N R66W Weld
County, Colorado





Legend

- Excavation Extent (Collected via Trimble GPS)
- Excavation Footprint Including Benching (Collected via Trimble GPS)
- - - Noble Flowline (Collected via Trimble GPS)
- X Release Location
- Monitoring Well Location (Collected via Trimble GPS)
- Monitoring Well – Destroyed (Collected via Trimble GPS)
- Replacement Monitoring Well Location (Collected via Trimble GPS)
- * Air Sparge Well (Collected via Trimble GPS)

Notes


1) All locations are approximate unless otherwise noted.

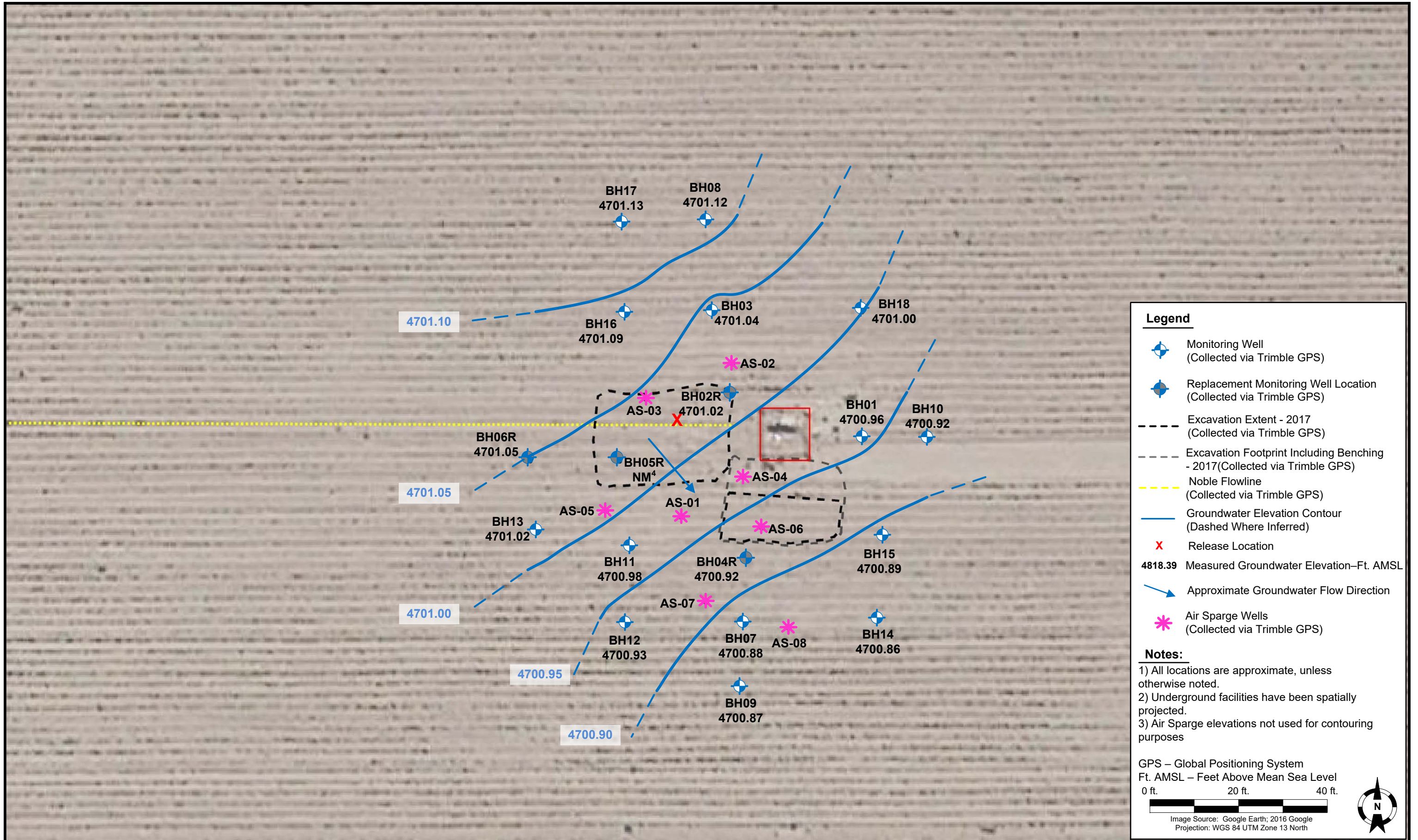
2) Buried infrastructure has been spatially projected.

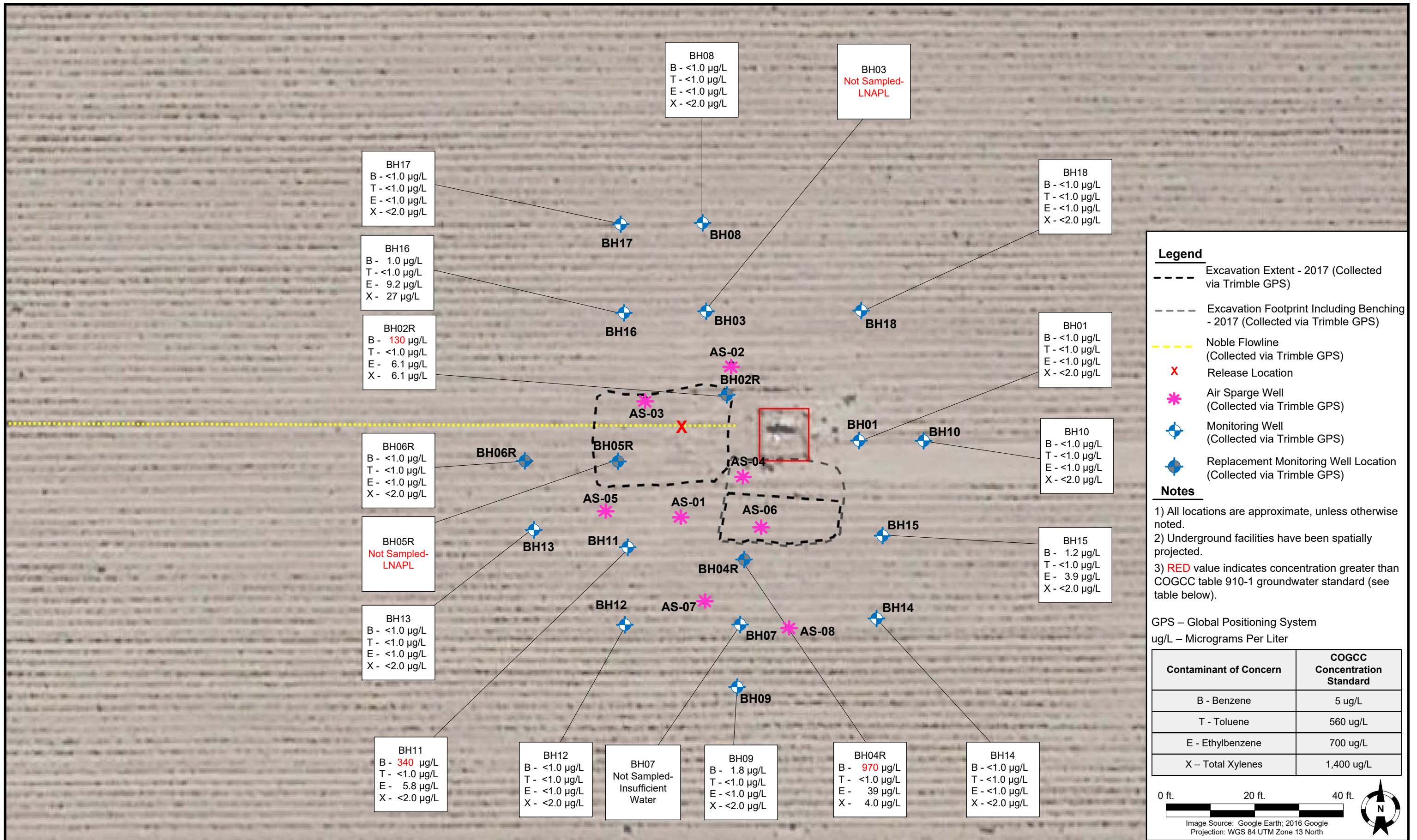
GPS – Global Positioning System

0 ft. 20 ft. 40 ft.

Image Source: Google Earth; 2016 Google
Projection: WGS 84 UTM Zone 13 North

| | | | | |
|-----------------|---|--|-------------------|-------------|
| DATE: 7/3/2018 |  <div>Tasman Geosciences, Inc. 6899 Pecos Street – Unit C Denver, CO 80221</div> | Noble Energy, Inc. – DJ Basin Knaus 28-8 Flowline Release SENW, Section 28, Township 6 North, Range 66 West Weld County, Colorado | Site Overview Map | FIGURE 2 |
| DESIGNED BY: JW | | | | |
| DRAWN BY: MG | | | | |





Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

June 18, 2018

Brandon Bruns
Tasman Geosciences
6899 Pecos St, Unit C
Denver, CO 80221
RE: Noble - Knaus 28-8

Enclosed are the results of analyses for samples received by Summit Scientific on 06/11/18 18:35. 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 For Ben Shrewsbury
Laboratory Manager



Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Knaus 28-8

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/18/18 14:46

ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|-------------|---------------|--------|----------------|----------------|
| BH11 | 1806122-01 | Water | 06/11/18 13:00 | 06/11/18 18:35 |
| BH12 | 1806122-02 | Water | 06/11/18 13:08 | 06/11/18 18:35 |
| BH13 | 1806122-03 | Water | 06/11/18 13:12 | 06/11/18 18:35 |
| BH14 | 1806122-04 | Water | 06/11/18 13:16 | 06/11/18 18:35 |
| BH15 | 1806122-05 | Water | 06/11/18 13:25 | 06/11/18 18:35 |
| BH16 | 1806122-06 | Water | 06/11/18 13:30 | 06/11/18 18:35 |
| BH17 | 1806122-07 | Water | 06/11/18 13:20 | 06/11/18 18:35 |
| BH18 | 1806122-08 | Water | 06/11/18 13:25 | 06/11/18 18:35 |
| BH17@8-11' | 1806122-09 | Soil | 06/11/18 10:50 | 06/11/18 18:35 |
| BH18@10-11' | 1806122-10 | Soil | 06/11/18 11:25 | 06/11/18 18:35 |

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.

Summit Scientific

1806122


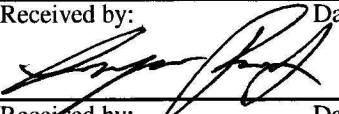
741 Corporate Circle Suite I ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-374-5933 Fax

Page 1 of 1

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

Project Manager: Brandon Bruns, Invoice: Jacob Evans
E-Mail: Bbruns@tasman-geo.com
Project Name: Knap 28-8
Project Number: -

| Sample Description | Date Sampled | Time Sampled | Number of Containers | Preservative | | | | Matrix | | | | Analyze For: | | | | | | | | Special Instructions | |
|--------------------|--------------|--------------|----------------------|--------------|------------------|------|-----------------|-------------|------|-------------------------|-----------------|--------------|--------------|----------|-------------|--|--|--|--|----------------------|--|
| | | | | HCl | HNO ₃ | None | Other (Specify) | Groundwater | Soil | Air - Canister Serial # | Other (Specify) | 8260 BTEX | 8260B GBTEXN | 8015 DRO | pH, EC, SAR | | | | | | |
| BH 11 | 6/11/18 | 1300 | 2 | X | | | | X | | | | | X | | | | | | | | |
| BH 12 | | 1308 | 3 | X | | | | X | | | | | X | | | | | | | | |
| BH 13 | | 1312 | 3 | X | | | | X | | | | | X | | | | | | | | |
| BH 14 | | 1316 | 3 | X | | | | X | | | | | X | | | | | | | | |
| BH 15 | | 1325 | 3 | X | | | | X | | | | | X | | | | | | | | |
| BH 16 | | 1330 | 3 | X | | | | X | | | | | X | | | | | | | | |
| BH 17 | | 1320 | 3 | X | | | | X | | | | | X | | | | | | | | |
| BH 18 | | 1325 | 3 | X | | | | X | | | | | X | | | | | | | | |
| BH 17 @ 8-11 | | 1050 | 1 | | | X | | X | | | | | X | X | | | | | | | |
| BH 18 @ 10-11 | | 1125 | 1 | | | X | | X | | | | | X | X | | | | | | | |

| | | | | | |
|--|-------------------------|---|-------------------------|--|----------------------|
| Relinquished by:  | Date/Time: 6/11/18 1835 | Received by:  | Date/Time: 6/11/18 1835 | Turn Around Time (Check) Same Day <input type="checkbox"/> 72 Hours <input checked="" type="checkbox"/> 24 Hours <input type="checkbox"/> Standard <input type="checkbox"/> 48 Hours <input type="checkbox"/> | Notes: on ice |
| Relinquished by: | Date/Time: | Received by: | Date/Time: | Sample Integrity: Temperature Upon Receipt: 6.7 Intact: Yes <input type="checkbox"/> No <input type="checkbox"/> | |
| Relinquished by: | Date/Time: | Received in Lab by: | Date/Time: | | |

Sample Receipt Checklist

S2 Work Order 1806122

Client: Tasman Client Project ID: Lucas 28-8

Shipped Via: Pickup Airbill #: _____
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

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

| | |
|-----------|------------|
| Temp (°C) | <u>6.7</u> |
|-----------|------------|

Thermometer ID: 61857155-K

| | Yes | No | N/A | Comments (if any) |
|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------|
| If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Were all samples received intact ⁽¹⁾ ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Was adequate sample volume provided ⁽¹⁾ ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| If custody seals are present, are they intact ⁽¹⁾ ? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Are samples with holding times due within 48 hours sample due within 48 hours present? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| For volatiles in water – is there headspace present? If yes, contact client and note in narrative. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | HCl |
| If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments. | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| If dissolved metals are requested, were samples field filtered? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Additional Comments (if any): | | | | |
| | | | | |
| | | | | |
| ⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative. | | | | |

LP
Custodian Printed Name or Initials

[Signature]
Signature of Custodian

6/18/18 1845
Date/Time



Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Knaus 28-8

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/18/18 14:46

BH11
1806122-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/11/18 13:00**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---------------------|------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | 340 | 10 | ug/l | 10 | 1806179 | 06/12/18 | 06/14/18 | EPA 8260B | |
| Toluene | ND | 1.0 | " | 1 | " | " | " | " | |
| Ethylbenzene | 5.8 | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **06/11/18 13:00**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 100 % | 23-173 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 101 % | 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 St, Unit C
Denver CO, 80221

Project: Noble - Knaus 28-8

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/18/18 14:46

BH12
1806122-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/11/18 13:08**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------|--------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | ND | 1.0 | ug/l | 1 | 1806179 | 06/12/18 | 06/14/18 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **06/11/18 13:08**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 106 % | 23-173 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 99.5 % | 20-170 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 100 % | 21-167 | | " | " | " | " | |

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Knaus 28-8

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/18/18 14:46

BH13
1806122-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/11/18 13:12**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------|--------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | ND | 1.0 | ug/l | 1 | 1806179 | 06/12/18 | 06/14/18 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **06/11/18 13:12**

| 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 | | 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 St, Unit C
Denver CO, 80221

Project: Noble - Knaus 28-8

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/18/18 14:46

BH14
1806122-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/11/18 13:16**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------|--------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | ND | 1.0 | ug/l | 1 | 1806179 | 06/12/18 | 06/14/18 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **06/11/18 13:16**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 109 % | 23-173 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 99.4 % | 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 St, Unit C
Denver CO, 80221

Project: Noble - Knaus 28-8

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
06/18/18 14:46

BH15
1806122-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/11/18 13:25**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---------------------|------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | 1.2 | 1.0 | ug/l | 1 | 1806179 | 06/12/18 | 06/14/18 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | 3.9 | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **06/11/18 13:25**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 109 % | 23-173 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 100 % | 20-170 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 109 % | 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 St, Unit C
Denver CO, 80221

Project: Noble - Knaus 28-8

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
06/18/18 14:46

BH16
1806122-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/11/18 13:30**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | 1.0 | 1.0 | ug/l | 1 | 1806179 | 06/12/18 | 06/14/18 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | 9.2 | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | 27 | 2.0 | " | " | " | " | " | " | |

Date Sampled: **06/11/18 13:30**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 109 % | 23-173 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 101 % | 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 St, Unit C
Denver CO, 80221

Project: Noble - Knaus 28-8

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/18/18 14:46

BH17
1806122-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/11/18 13:20**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------|--------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | ND | 1.0 | ug/l | 1 | 1806179 | 06/12/18 | 06/14/18 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **06/11/18 13:20**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 107 % | 23-173 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 101 % | 20-170 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 105 % | 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 St, Unit C
Denver CO, 80221

Project: Noble - Knaus 28-8

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/18/18 14:46

BH18
1806122-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/11/18 13:25**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------|--------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | ND | 1.0 | ug/l | 1 | 1806179 | 06/12/18 | 06/14/18 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **06/11/18 13:25**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 111 % | 23-173 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 101 % | 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 St, Unit C
Denver CO, 80221

Project: Noble - Knaus 28-8

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/18/18 14:46

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 1806165 - EPA 5030 Soil MS

Blank (1806165-BLK1)

Prepared & Analyzed: 06/12/18

| | | | | | | | | | | |
|----------------------------------|--------|--------|-------|--------|------|--------|--|--|--|--|
| Benzene | ND | 0.0020 | mg/kg | | | | | | | |
| Toluene | ND | 0.0050 | " | | | | | | | |
| Ethylbenzene | ND | 0.0050 | " | | | | | | | |
| Xylenes (total) | ND | 0.010 | " | | | | | | | |
| Naphthalene | ND | 0.010 | " | | | | | | | |
| Gasoline Range Hydrocarbons | ND | 50 | " | | | | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0367 | | " | 0.0396 | 92.6 | 23-173 | | | | |
| Surrogate: Toluene-d8 | 0.0424 | | " | 0.0400 | 106 | 20-170 | | | | |
| Surrogate: 4-Bromofluorobenzene | 0.0454 | | " | 0.0400 | 114 | 21-167 | | | | |

Batch 1806179 - EPA 5030 Water MS

Blank (1806179-BLK1)

Prepared & Analyzed: 06/12/18

| | | | | | | | | | | |
|----------------------------------|------|-----|------|------|------|--------|--|--|--|--|
| Benzene | ND | 1.0 | ug/l | | | | | | | |
| Toluene | ND | 1.0 | " | | | | | | | |
| Ethylbenzene | ND | 1.0 | " | | | | | | | |
| Xylenes (total) | ND | 2.0 | " | | | | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 13.6 | | " | 13.2 | 103 | 23-173 | | | | |
| Surrogate: Toluene-d8 | 13.5 | | " | 13.3 | 101 | 20-170 | | | | |
| Surrogate: 4-Bromofluorobenzene | 13.0 | | " | 13.3 | 97.7 | 21-167 | | | | |

LCS (1806179-BS1)

Prepared & Analyzed: 06/12/18

| | | | | | | | | | | |
|----------------------------------|------|-----|------|------|------|--------|--|--|--|--|
| Benzene | 30.0 | 1.0 | ug/l | 33.3 | 90.0 | 70-130 | | | | |
| Toluene | 31.8 | 1.0 | " | 33.3 | 95.5 | 70-130 | | | | |
| Ethylbenzene | 34.3 | 1.0 | " | 33.3 | 103 | 70-130 | | | | |
| m,p-Xylene | 63.0 | 2.0 | " | 66.7 | 94.5 | 70-130 | | | | |
| o-Xylene | 30.9 | 1.0 | " | 33.3 | 92.7 | 70-130 | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 13.8 | | " | 13.2 | 104 | 23-173 | | | | |
| Surrogate: Toluene-d8 | 13.6 | | " | 13.3 | 102 | 20-170 | | | | |
| Surrogate: 4-Bromofluorobenzene | 12.5 | | " | 13.3 | 93.8 | 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 St, Unit C
Denver CO, 80221

Project: Noble - Knaus 28-8

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/18/18 14:46

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 1806179 - EPA 5030 Water MS

| Matrix Spike (1806179-MS1) | | Source: 1806129-01 | | | Prepared & Analyzed: 06/12/18 | | | | | |
|----------------------------------|------|--------------------|------|------|-------------------------------|------|--------|--|--|--|
| Benzene | 30.5 | 1.0 | ug/l | 33.3 | ND | 91.5 | 70-130 | | | |
| Toluene | 32.5 | 1.0 | " | 33.3 | ND | 97.4 | 70-130 | | | |
| Ethylbenzene | 35.0 | 1.0 | " | 33.3 | ND | 105 | 70-130 | | | |
| m,p-Xylene | 64.5 | 2.0 | " | 66.7 | ND | 96.8 | 70-130 | | | |
| o-Xylene | 31.6 | 1.0 | " | 33.3 | ND | 94.9 | 70-130 | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 14.2 | | " | 13.2 | | 108 | 23-173 | | | |
| Surrogate: Toluene-d8 | 13.2 | | " | 13.3 | | 99.0 | 20-170 | | | |
| Surrogate: 4-Bromofluorobenzene | 12.7 | | " | 13.3 | | 95.2 | 21-167 | | | |

| Matrix Spike Dup (1806179-MSD1) | | Source: 1806129-01 | | | Prepared & Analyzed: 06/12/18 | | | | | |
|----------------------------------|------|--------------------|------|------|-------------------------------|------|--------|------|----|--|
| Benzene | 32.6 | 1.0 | ug/l | 33.3 | ND | 98.0 | 70-130 | 6.84 | 30 | |
| Toluene | 34.6 | 1.0 | " | 33.3 | ND | 104 | 70-130 | 6.41 | 30 | |
| Ethylbenzene | 38.0 | 1.0 | " | 33.3 | ND | 114 | 70-130 | 8.11 | 30 | |
| m,p-Xylene | 69.2 | 2.0 | " | 66.7 | ND | 104 | 70-130 | 6.94 | 30 | |
| o-Xylene | 34.2 | 1.0 | " | 33.3 | ND | 103 | 70-130 | 7.81 | 30 | |
| Surrogate: 1,2-Dichloroethane-d4 | 14.7 | | " | 13.2 | | 111 | 23-173 | | | |
| Surrogate: Toluene-d8 | 13.4 | | " | 13.3 | | 101 | 20-170 | | | |
| Surrogate: 4-Bromofluorobenzene | 12.6 | | " | 13.3 | | 94.4 | 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 St, Unit C
Denver CO, 80221

Project: Noble - Knaus 28-8

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/18/18 14:46

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 1806164 - EPA 3550A

Blank (1806164-BLK1)

Prepared: 06/12/18 Analyzed: 06/13/18

C10-C28 (DRO) ND 50 mg/kg

LCS (1806164-BS1)

Prepared: 06/12/18 Analyzed: 06/13/18

C10-C28 (DRO) 534 50 mg/kg 500 107 70-130

Matrix Spike (1806164-MS1)

Source: 1806025-02

Prepared: 06/12/18 Analyzed: 06/13/18

C10-C28 (DRO) 548 50 mg/kg 500 35.2 103 70-130

Matrix Spike Dup (1806164-MSD1)

Source: 1806025-02

Prepared: 06/12/18 Analyzed: 06/13/18

C10-C28 (DRO) 531 50 mg/kg 500 35.2 99.1 70-130 3.26 20

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.

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

June 21, 2018

Brandon Bruns
Tasman Geosciences
6899 Pecos St, Unit C
Denver, CO 80221
RE: Noble - Knaus 28-8

Enclosed are the results of analyses for samples received by Summit Scientific on 06/15/18 18:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to be 'P. Shrewsbury', written in a cursive style.

Paul Shrewsbury For Ben Shrewsbury
Laboratory Manager



Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Knaus 28-8

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/21/18 07:47

ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|-----------|---------------|--------|----------------|----------------|
| BH01 | 1806213-01 | Water | 06/15/18 10:35 | 06/15/18 18:20 |
| BH02R | 1806213-02 | Water | 06/15/18 11:30 | 06/15/18 18:20 |
| BH04R | 1806213-03 | Water | 06/15/18 11:20 | 06/15/18 18:20 |
| BH06R | 1806213-04 | Water | 06/15/18 11:05 | 06/15/18 18:20 |
| BH08 | 1806213-05 | Water | 06/15/18 10:55 | 06/15/18 18:20 |
| BH09 | 1806213-06 | Water | 06/15/18 11:15 | 06/15/18 18:20 |
| BH10 | 1806213-07 | Water | 06/15/18 10:45 | 06/15/18 18:20 |

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.

Summit Scientific

303-277-9310 ♦ 303-374-5933 Fax

Page 1 of 1

Project Manager: Brandon Bruns; Invoice: Jacob Evans
E-Mail: bbruns@tasman-gas.com
Project Name: Knaus 23-2 J
Project Number: NSA

| | | | | Preservative | | | | Matrix | | | Analyze For: | | | | | | | | | | Special Instructions |
|--|--------------|--------------|----------------------|-------------------------|------------------|---------------------------------|-----------------|-------------------------|------|---|-----------------|------|--|--|--|--|--|--|--|--------|----------------------|
| Sample Description | Date Sampled | Time Sampled | Number of Containers | HCl | HNO ₃ | None | Other (Specify) | Groundwater | Soil | Air - Canister Serial # | Other (Specify) | BTEX | | | | | | | | | |
| BH01 | 6/15/18 | 1035 | 3 | | | X | | X | | | | X | | | | | | | | | |
| BH02R | | 1130 | | | | | | | | | | | | | | | | | | | |
| BH04K | | 1120 | | | | | | | | | | | | | | | | | | | |
| BH06K | | 1105 | | | | | | | | | | | | | | | | | | | |
| BH08 | | 1055 | | | | | | | | | | | | | | | | | | | |
| BH09 | | 1115 | | | | | | | | | | | | | | | | | | | |
| BH10 | | 1045 | | | | | | | | | | | | | | | | | | | |
| Relinquished by: <i>W. [Signature]</i> | | | | Date/Time: 6/15/18 1820 | | Received by: <i>[Signature]</i> | | Date/Time: 6.15.18 1820 | | Turn Around Time (Check) | | | | | | | | | | Notes: | |
| Relinquished by: | | | | Date/Time: | | Received by: | | Date/Time: | | Same Day <input type="checkbox"/> 72 Hours 24 Hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 Hours <input type="checkbox"/> | | | | | | | | | | | |
| Relinquished by: | | | | Date/Time: | | Received in Lab by: | | Date/Time: | | Sample Integrity: Temperature Upon Receipt: 4.5 Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | | | | | | |

Sample Receipt Checklist

S2 Work Order: 1806213

Client: Tismar/Noble

Client Project ID: Ames 28-8V

Shipped Via: Pickup

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

Airbill #: _____

Matrix (check all that apply): Air Soil/Solid Water Other: _____
(Describe)

| | |
|-----------|------------|
| Temp (°C) | <u>4.5</u> |
|-----------|------------|

Thermometer ID: 61857155-K

| | Yes | No | N/A | Comments (if any) |
|--|-------------------------------------|-------------------------------------|-------------------------------------|-------------------|
| If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun. | | | | |
| Were all samples received intact ⁽¹⁾ ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Was adequate sample volume provided ⁽¹⁾ ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| If custody seals are present, are they intact ⁽¹⁾ ? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Are samples with holding times due within 48 hours sample due within 48 hours present? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| For volatiles in water – is there headspace present? If yes, contact client and note in narrative. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 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 ⁽¹⁾ ? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Record the pH in Comments. | | | | |
| If dissolved metals are requested, were samples field filtered? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Additional Comments (if any): | | | | |

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

Custodian Printed Name or Initials

Signature or Initials of Custodian

Date/Time

6.15.18 1800



Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Knaus 28-8

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/21/18 07:47

BH01
1806213-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/15/18 10:35**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------|--------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | ND | 1.0 | ug/l | 1 | 1806250 | 06/15/18 | 06/19/18 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **06/15/18 10:35**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 113 % | 23-173 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 101 % | 20-170 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 99.0 % | 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 St, Unit C
Denver CO, 80221

Project: Noble - Knaus 28-8

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/21/18 07:47

BH02R
1806213-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/15/18 11:30**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | 130 | 1.0 | ug/l | 1 | 1806250 | 06/15/18 | 06/19/18 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | 6.1 | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | 6.1 | 2.0 | " | " | " | " | " | " | |

Date Sampled: **06/15/18 11:30**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 116 % | 23-173 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 105 % | 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 St, Unit C
Denver CO, 80221

Project: Noble - Knaus 28-8

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/21/18 07:47

BH04R
1806213-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/15/18 11:20**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | 970 | 10 | ug/l | 10 | 1806250 | 06/15/18 | 06/19/18 | EPA 8260B | |
| Toluene | ND | 1.0 | " | 1 | " | " | " | " | |
| Ethylbenzene | 39 | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | 4.0 | 2.0 | " | " | " | " | " | " | |

Date Sampled: **06/15/18 11:20**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 120 % | 23-173 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 106 % | 20-170 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 102 % | 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 St, Unit C
Denver CO, 80221

Project: Noble - Knaus 28-8

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/21/18 07:47

BH06R
1806213-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/15/18 11:05**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------|--------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | ND | 1.0 | ug/l | 1 | 1806250 | 06/15/18 | 06/19/18 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **06/15/18 11:05**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 113 % | 23-173 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 100 % | 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 St, Unit C
Denver CO, 80221

Project: Noble - Knaus 28-8

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/21/18 07:47

BH08
1806213-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/15/18 10:55**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------|--------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | ND | 1.0 | ug/l | 1 | 1806250 | 06/15/18 | 06/19/18 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **06/15/18 10:55**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 113 % | 23-173 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 98.9 % | 20-170 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 99.7 % | 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 St, Unit C
Denver CO, 80221

Project: Noble - Knaus 28-8

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/21/18 07:47

BH09
1806213-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/15/18 11:15**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------|------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | 1.8 | 1.0 | ug/l | 1 | 1806250 | 06/15/18 | 06/19/18 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **06/15/18 11:15**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 113 % | 23-173 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 101 % | 20-170 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 99.0 % | 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 St, Unit C
Denver CO, 80221

Project: Noble - Knaus 28-8

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/21/18 07:47

BH10
1806213-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/15/18 10:45**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------|--------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | ND | 1.0 | ug/l | 1 | 1806250 | 06/15/18 | 06/19/18 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **06/15/18 10:45**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 119 % | 23-173 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 101 % | 20-170 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 98.9 % | 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 St, Unit C
Denver CO, 80221

Project: Noble - Knaus 28-8

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/21/18 07:47

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 1806250 - EPA 5030 Water MS

Blank (1806250-BLK1)

Prepared: 06/15/18 Analyzed: 06/16/18

| | | | | | | | | | | |
|----------------------------------|------|-----|------|------|--|-----|--------|--|--|--|
| Benzene | ND | 1.0 | ug/l | | | | | | | |
| Toluene | ND | 1.0 | " | | | | | | | |
| Ethylbenzene | ND | 1.0 | " | | | | | | | |
| Xylenes (total) | ND | 2.0 | " | | | | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 14.1 | | " | 13.2 | | 107 | 23-173 | | | |
| Surrogate: Toluene-d8 | 13.5 | | " | 13.3 | | 101 | 20-170 | | | |
| Surrogate: 4-Bromofluorobenzene | 13.5 | | " | 13.3 | | 101 | 21-167 | | | |

LCS (1806250-BS1)

Prepared: 06/15/18 Analyzed: 06/16/18

| | | | | | | | | | | |
|----------------------------------|------|-----|------|------|--|------|--------|--|--|--|
| Benzene | 26.7 | 1.0 | ug/l | 33.3 | | 80.2 | 70-130 | | | |
| Toluene | 28.8 | 1.0 | " | 33.3 | | 86.5 | 70-130 | | | |
| Ethylbenzene | 33.0 | 1.0 | " | 33.3 | | 99.2 | 70-130 | | | |
| m,p-Xylene | 62.4 | 2.0 | " | 66.7 | | 93.6 | 70-130 | | | |
| o-Xylene | 31.6 | 1.0 | " | 33.3 | | 94.8 | 70-130 | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 13.8 | | " | 13.2 | | 105 | 23-173 | | | |
| Surrogate: Toluene-d8 | 13.2 | | " | 13.3 | | 98.6 | 20-170 | | | |
| Surrogate: 4-Bromofluorobenzene | 13.6 | | " | 13.3 | | 102 | 21-167 | | | |

Matrix Spike (1806250-MS1)

Source: 1806200-09

Prepared: 06/15/18 Analyzed: 06/16/18

| | | | | | | | | | | |
|----------------------------------|------|-----|------|------|------|------|--------|--|--|--|
| Benzene | 27.9 | 1.0 | ug/l | 33.3 | ND | 83.7 | 70-130 | | | |
| Toluene | 30.2 | 1.0 | " | 33.3 | 1.04 | 87.4 | 70-130 | | | |
| Ethylbenzene | 33.1 | 1.0 | " | 33.3 | ND | 99.3 | 70-130 | | | |
| m,p-Xylene | 62.2 | 2.0 | " | 66.7 | ND | 93.3 | 70-130 | | | |
| o-Xylene | 31.8 | 1.0 | " | 33.3 | ND | 95.5 | 70-130 | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 14.6 | | " | 13.2 | | 110 | 23-173 | | | |
| Surrogate: Toluene-d8 | 13.3 | | " | 13.3 | | 99.8 | 20-170 | | | |
| Surrogate: 4-Bromofluorobenzene | 13.5 | | " | 13.3 | | 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 St, Unit C
Denver CO, 80221

Project: Noble - Knaus 28-8

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
06/21/18 07:47

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 1806250 - EPA 5030 Water MS

| Matrix Spike Dup (1806250-MSD1) | Source: 1806200-09 | | | Prepared: 06/15/18 Analyzed: 06/16/18 | | | | | | |
|----------------------------------|--------------------|-----|------|---------------------------------------|------|------|--------|-------|----|--|
| Benzene | 27.7 | 1.0 | ug/l | 33.3 | ND | 83.0 | 70-130 | 0.864 | 30 | |
| Toluene | 29.4 | 1.0 | " | 33.3 | 1.04 | 85.1 | 70-130 | 2.59 | 30 | |
| Ethylbenzene | 32.5 | 1.0 | " | 33.3 | ND | 97.6 | 70-130 | 1.74 | 30 | |
| m,p-Xylene | 60.2 | 2.0 | " | 66.7 | ND | 90.3 | 70-130 | 3.27 | 30 | |
| o-Xylene | 30.1 | 1.0 | " | 33.3 | ND | 90.3 | 70-130 | 5.63 | 30 | |
| Surrogate: 1,2-Dichloroethane-d4 | 16.6 | | " | 13.2 | | 126 | 23-173 | | | |
| Surrogate: Toluene-d8 | 13.3 | | " | 13.3 | | 99.8 | 20-170 | | | |
| Surrogate: 4-Bromofluorobenzene | 13.9 | | " | 13.3 | | 104 | 21-167 | | | |

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: Noble - Knaus 28-8

Project Number: [none]
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Reported:
06/21/18 07:47

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 |