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

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	IAUTOFWCO00224
District RP	3RP-379
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party **BPX Energy** (formerly BP America Production Co.)	OGRID **778**
Contact Name **Erin Dunman**	Contact Telephone **(832) 609-7048**
Contact email **Erin.Dunman@bpx.com**	Incident # *(assigned by OCD)* IAUTOFWCO00224
Contact mailing address **1199 Main Ave., Suite 101, Durango, CO 81301**	

Location of Release Source

Latitude **36.695158** Longitude **-108.102819**
(NAD 83 in decimal degrees to 5 decimal places)

Site Name **GALLEGOS CANYON UNIT COM H 180**	Site Type **Natural Gas Well**
Date Release Discovered **June 25, 2019**	API# *(if applicable)* **30-045-07814**

Unit Letter	Section	Township	Range	County
J	**28**	**29N**	**12W**	**San Juan**

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (*Name:* **San Juan County**)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) **Unknown**	Volume Recovered (bbls) **None**
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☒ Condensate	Volume Released (bbls) **Unknown**	Volume Recovered (bbls) **None**
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release **Not related to below below-grade tank (BGT), appears historical in origin.**

Smith, Cory, EMNRD

From: Smith, Cory, EMNRD
Sent: Wednesday, December 11, 2019 8:24 AM
To: 'Erin Dunman'
Cc: Steven Moskal; Nelson Velez; Blagg, Jefferey
Subject: RE: GCU Com H 180 report

Good Morning All,

As discussed yesterday with Erin, since there is ground water impacts the OCD has revoked the NFA status for 3RP-379, that was granted by Mr. Bayliss in February 2017. As detailed in the remediation plan OCD agrees with BP's assessment that the BGT is most likely not the source of the impacts and the likely source is historic contamination associated with the historic RP case.

OCD approves BP remediation plan with the following conditions of approval:

- OCD approves BP for NFA for soils that were cleared via confirmation samples in the remediation plan so long as those soils do not pose a threat to ground water.
- OCD approves BP plan to pump and treat ground water in the impacted areas.
- OCD denies BP request to inject any type of chemical treatment with out providing further information to the OCD for review.
- BP will analyze ground water BTEX, ph, TDS, Cation/Anions via EPA methods 8260, 300
- OCD will consider closure for 3RP-379 when there are 8 consecutive quarters of clean ground water samples following all remediations activities.

If you have any additional questions please give me a call.

Cory Smith
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 115
cory.smith@state.nm.us

From: Erin Dunman <erin.dunman@bpx.com>
Sent: Wednesday, October 16, 2019 3:29 PM
To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Cc: Steven Moskal <Steven.Moskal@BPX.COM>; Nelson Velez <blagg_njv@yahoo.com>; Blagg, Jefferey <jeffcblagg@aol.com>
Subject: [EXT] GCU Com H 180 report

Cory
Attached is the report for GCU Com H 180, it is also being submitted through the NMOCD portal. Let me know if you have any questions.

Erin

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☒ No	If YES, for what reason(s) does the responsible party consider this a major release?

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?

Not required.

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

☒ The source of the release has been stopped.
☒ The impacted area has been secured to protect human health and the environment.
☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Erin Dunman Title: Field Environmental Coordinator

Signature: DocuSigned by: Erin Dunman FE49953C960A4BA... Date: October 15, 2019

email: Erin.Dunman@bpx.com Telephone: (832) 609-7048

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	4 (ft bgs)
Did this release impact groundwater or surface water?	☒ Yes ☐ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
☒ Field data
☒ Data table of soil contaminant concentration data
☒ Depth to water determination
☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
☒ Boring or excavation logs
☒ Photographs including date and GIS information
☒ Topographic/Aerial maps
☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Erin Dunman Title: Field Environmental Coordinator

Signature: DocuSigned by: Erin Dunman FE49953C960A4BA... Date: October 15, 2019

email: Erin.Dunman@bpx.com Telephone: (832) 609-7048

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

☒ Detailed description of proposed remediation technique
☒ Scaled sitemap with GPS coordinates showing delineation points
☒ Estimated volume of material to be remediated
☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
☒ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.

☐ Extents of contamination must be fully delineated.

☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Erin Dunman Title: Field Environmental Coordinator

Signature: DocuSigned by: Erin Dunman FE49953C960A4BA... Date: October 15, 2019

email: Erin.Dunman@bpx.com Telephone: (832) 609-7048

OCD Only

Received by: OCD Date: 10/16/19

☐ Approved ☒ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: Date: 12/11/19

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: *Each of the following items must be included in the closure report.*

☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☒ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: _____ Title: _____

Signature: _____ Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

From: Smith, Cory, EMNRD
Sent: Wednesday, August 28, 2019 3:38 PM
To: Erin Dunman
Cc: Steven Moskal; Nelson Velez
Subject: [EXT] RE: GCU Com H 180 - incident # IAUTOSWC00224

Erin,

OCD approves BP request for an extension to submit the final closure report by October 7, 2019.
Please include this approval in your final report.

Cory Smith - Environmental Specialist | Oil Conservation Division - Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410

From: Erin Dunman
Sent: Wednesday, August 28, 2019 1:53 PM
To: Smith, Cory, EMNRD
Cc: Steven Moskal; Nelson Velez
Subject: [EXT] RE: GCU Com H 180 - incident # IAUTOSWC00224

The week of October 7th

Erin Dunman

Environmental Coordinator - BP America Production Co. | *bpx energy - WBU*
1199 Main Ave. | Suite 101| Durango | CO | 81301

From: Smith, Cory, EMNRD
Sent: Wednesday, August 28, 2019 7:06 AM
To: Erin Dunman
Cc: Steven Moskal; Nelson Velez
Subject: RE: GCU Com H 180 - incident # IAUTOSWC00224

Erin,

Pending results what is the estimated date for BP to submit the closure plan?

Cory Smith - Environmental Specialist | Oil Conservation Division - Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410

From: Erin Dunman
Sent: Tuesday, August 27, 2019 4:35 PM
To: Smith, Cory, EMNRD
Cc: Steven Moskal; Nelson Velez
Subject: [EXT] GCU Com H 180 - incident # IAUTOSWC00224

Cory

As we discussed earlier, the monitoring well company has been backlogged and the earliest they can get to the above mentioned location is September 20. Which means the earliest we can get samples is September 24th. Do you approve of this timeline?

Thank you

Erin Dunman

Environmental Coordinator - BP America Production Co. | *bpx energy - WBU*
1199 Main Ave. | Suite 101| Durango | CO | 81301

REMEDIATION

PLAN

To:	Cory Smith (NMOCD)
From:	Erin Dunman (BP)
Date:	10/15/2019
Re:	GCU Com H 180 – Groundwater Remediation Plan API #3004507814, Unit Letter J, Section 28, T29N, R12W, NMPM GPS Coordinate: 36.694777ºN,-108.103074ºW

The GCU Com H 180 site is a recent plugged and abandoned natural gas production pad within the San Juan Basin Gas Field in San Juan County, New Mexico. The site is located on San Juan County property located south of the Sunray Casino in the Lee Acres area and approximately between 200-450 feet (**ft.**) north of the San Juan River.

A site separator pit was closed out beginning in April 1992 by removing impacted soils by excavation. Documentation for this work and subsequent groundwater monitoring data for the site have previously been submitted to New Mexico Oil Conservation Division (**NMOCD**). NMOCD had reviewed previous reporting and granted permanent closure with correspondence letter dated, February 24, 2017 (attached).

The most current activities were initiated during confirmation sampling of a 95 barrel below-grade tank closure on June 21, 2019. Discolored soils were observed, sampled, and later identified as impacted and exceeding NMOCD's closure standards per 19.15.17 NMAC. A chronological summary is included which explains all activities that followed this discovery (delineation, soil remediation, etc.).

Following the installation of four (4) groundwater monitor wells on September 19, 2019, groundwater measured on September 21, 2019 was recorded between four (4) to five and a half (5 ½) ft. below grade (**b.g.**). Subsurface soils consist of loose to firm silty sands that overlie a medium to course grained sand residing within the groundwater vadose zone. Deeper seated sand and gravel was encountered below the saturated sand interval between seven (7) to eight and half (8 ½) ft. b.g.

GROUNDWATER REMEDIATION PLAN

BP proposes to a two phase process to mitigate impacted groundwater. In phase one, pump and dispose from the existing MW #102 (source area). In phase, two the possible introduction of an oxidation compound positioned within the up gradient area of the identified source. The oxidation material will be augmented via temporary well installations (steel drive points or typical PVC material).

BP proposes to initiate removal of impacted groundwater from MW #102 via a battery operated portable, dedicated submersible pump at a rate of 2-3 gallons per minute and dispose within an above-grade tank positioned in close proximity. Volume quantity will be closely monitored and recorded. Subsequent ground water samples will be collected and analyzed per US EPA Method 8260B during the progression of the water removal. BP estimates this to take 6-8 weeks. The groundwater removed will be transported using typical oil field water truck hauler and disposed at an NMOCD approved facility. NMOCD will be notified at least 48 hours prior to the start of the pumping activity.

Upon establishing the future data, the second phase of introducing the oxidation compounds via injection into temporary wells may be implemented (total # of wells and spacing to be determined). BP will submit details of the temporary well installations and placement, as well as the required documentation of the oxidation agent prior to implementation. NMOCD will also be notified within 48 hours prior to any temporary well installations.

Following review of the monitoring and laboratory test results, a determination will be made for any continuation or modification to the remediation plan. BP will provide NMOCD of any proposed changes and request approval prior to execution in 90 days or less.

Groundwater monitoring will continue for eight (8) consecutive quarters below the allowable concentration per 20.6.2.3103 NMAC of the NMOCD directive constituents.

REPORTING

NMOCD will be provided, at a minimum, a monthly summary of the water volume removed as well as laboratory test results during the first phase of the remediation activity.

Thereafter, performance of the second phase remediation will be reported biannually, if applied.

Groundwater monitoring will be reported on an annual basis.

A final report will be provided within 60 days of the final closure sampling event.

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

Ken McQueen
Cabinet Secretary

Matthias Sayer
Deputy Cabinet Secretary

David R. Catanach, Division Director
Oil Conservation Division

24 February 2017

Steven Moskal
BP America Production Company
Field Environmental Coordinator
200 Energy Court
Farmington, NM 87401

typo inclusion error

NELSON VELEZ
BLAGG ENGR.
10/15/2019

Re:	RP3 #	Site Name	RP3 #	Site Name	RP3 #	Site Name
	16	GCU 145	43	Riddle Com 9	377	Cooper GC 1 E
	379	GCU Com H 180E	44	Riddle F LS 3 A	177	GCU 145E
	19	GCU Com I 181	55	Valencia GC B 1 M	387	GCU 194
	24	Gooch 1E	52	Total Vista GC 1 E	406	Mudge LS 9A
	31	Jennapah	35	Jones A LS 3	423	Hutton GC 1E

Mr. Moskal:

I have reviewed the files on the releases referenced above. The available information indicates BP has met the requirements of 19.15.29 NMAC and no further corrective action is required. You are notified these referenced remediations are closed.

This finding by the OCD does not relieve BP of responsibility if future information shows a threat to ground water, surface water, human health, or the environment. Further, it does not relieve BP of responsibility for compliance with any federal, state, or local law.

Please properly plug remaining monitoring wells per requirements of the New Mexico Office of the State Engineer. Forward copies of plugging reports to me. Thanks.

Respectfully,

P.E., Hydrologist, District III

cc: Jim Griswold, Charlie Perrin, Brandon Powell, Cory Smith, Vanessa Fields

BPX ENERGY INC.

(Formerly BP America Production Company)

GCU COM H 180 – GROUNDWATER QUALITY DATA

API #: 30-045-07814 **Environmental Order #: 3RP 379-0**

Legal Description: (Unit Letter J, Sec. 28 -T29N -R12W, NMPM)

CHRONOLOGICAL EVENT SUMMATION

1. **June 21, 2019** During confirmation sampling to close a below-grade tank (**bgt**), discolored soil was observed around the entire perimeter of the bgt. There was no evidence of a loss of integrity from the bgt. The origin of the release was not identified and may have possibly been from more than one source. Groundwater was observed at the bgt location at approximately 4–5 feet below grade.

2. **June 26, 2019** Blagg Engineering, Inc. (**BEI**) was contacted to provide technical support and conduct initial delineation to determine the extent of impacts.

3. **July 2, 2019** BEI was contacted to provide technical support and conduct sampling from the excavation sidewalls. Sampling commenced on July 2nd and was finalized on July 25th. Approximately 1,000 to 1,200 cubic yards of soils were excavated and transported to BP's Crouch Mesa Facility. All documentation for the investigation and remediation of impacted soils are included in this document.

4. **September 19, 2019** BEI was contacted to provide technical support for the installation of four (4) groundwater monitor wells. Aerial map showing well placement, boring logs, and well completion data are attached.

5. **September 21, 2019** BEI conducted development/purging of all four (4) groundwater monitor wells to eliminate sediment accumulation during the installation process.

6. **September 23, 2019** BEI conducted environmental sampling of all four (4) groundwater monitor wells (Field Sampling Data Sheet attached).

7. **October 14, 2019** BEI & BPX received final lab report for the groundwater samples collected on 09/23/2019. A field-lab data summary and laboratory report are attached.


BPX - GCU Com H 180
(J) Section 28, T29N, R12W
API #: 3004507814
Imagery date: 3/15/2015
WH GPS Coord.: 36.694777,-108.103074
MW #4 GPS Coord.: 36.694845,-108.102989
95 barrel BGT
36.695158,-108.102819
MW#4
WH
100 ft. radius from
95 bbl BGT center
N
Google Earth
100 ft

BELOW-GRADE

TANK CLOSURE

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

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

Form C-144
July 21, 2008

For temporary pits, closed-loop systems, and below-grade tanks, submit to the appropriate NMOCD District Office.
For permanent pits and exceptions submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.

Pit, Closed-Loop System, Below-Grade Tank, or Proposed Alternative Method Permit or Closure Plan Application

Type of action:
- ☐ Permit of a pit, closed-loop system, below-grade tank, or proposed alternative method
- ☒ Closure of a pit, closed-loop system, below-grade tank, or proposed alternative method
- ☐ Modification to an existing permit
- ☐ Closure plan only submitted for an existing permitted or non-permitted pit, closed-loop system, below-grade tank, or proposed alternative method

Instructions: Please submit one application (Form C-144) per individual pit, closed-loop system, below-grade tank or alternative request

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

1.
Operator: BPX ENERGY INC. (formerly BP America Production Co.) OGRID #: 778
Address: 1199 Main Ave., Suite 101, Durango, CO 81301
Facility or well name: GALLEGOS CANYON UNIT COM H 180
API Number: 3004507814 OCD Permit Number:
U/L or Qtr/Qtr J Section 28.0 Township 29.0N Range 12W County: San Juan County
Center of Proposed Design: Latitude 36.695158 Longitude -108.102819 NAD: ☐ 1927 ☒ 1983
Surface Owner: ☐ Federal ☐ State ☒ Private ☐ Tribal Trust or Indian Allotment

2.
☐ **Pit:** Subsection F or G of 19.15.17.11 NMAC
Temporary: ☐ Drilling ☐ Workover
☐ Permanent ☐ Emergency ☐ Cavitation ☐ P&A
☐ Lined ☐ Unlined Liner type: Thickness _____mil ☐ LLDPE ☐ HDPE ☐ PVC ☐ Other _____
☐ String-Reinforced
Liner Seams: ☐ Welded ☐ Factory ☐ Other _____ Volume: _____bbl Dimensions: L_____ x W_____ x D_____

3.
☐ **Closed-loop System:** Subsection H of 19.15.17.11 NMAC
Type of Operation: ☐ P&A ☐ Drilling a new well ☐ Workover or Drilling (Applies to activities which require prior approval of a permit or notice of intent)
☐ Drying Pad ☐ Above Ground Steel Tanks ☐ Haul-off Bins ☐ Other _____
☐ Lined ☐ Unlined Liner type: Thickness _____mil ☐ LLDPE ☐ HDPE ☐ PVC ☐ Other _____
Liner Seams: ☐ Welded ☐ Factory ☐ Other _____

4.
☒ **Below-grade tank:** Subsection I of 19.15.17.11 NMAC **Tank ID:** A
Volume: 95.0 bbl Type of fluid: Produced Water
Tank Construction material: Steel
☒ Secondary containment with leak detection ☐ Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off
☐ Visible sidewalls and liner ☐ Visible sidewalls only ☐ Other DOUBLE WALLED DOUBLE BOTTOMED SIDEWALLS NOT VISIBLE
Liner type: Thickness _____mil ☐ HDPE ☐ PVC ☐ Other _____

5.
☐ **Alternative Method:**
Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

6.

Fencing: Subsection D of 19.15.17.11 NMAC *(Applies to permanent pits, temporary pits, and below-grade tanks)*

☐ Chain link, six feet in height, two strands of barbed wire at top *(Required if located within 1000 feet of a permanent residence, school, hospital, institution or church)*

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

☐ Alternate. Please specify_____

7.

Netting: Subsection E of 19.15.17.11 NMAC *(Applies to permanent pits and permanent open top tanks)*

☐ Screen ☐ Netting ☐ Other_____

☐ Monthly inspections (If netting or screening is not physically feasible)

8.

Signs: Subsection C of 19.15.17.11 NMAC

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

☐ Signed in compliance with 19.15.16.8 NMAC

9.

Administrative Approvals and Exceptions:

Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance.

Please check a box if one or more of the following is requested, if not leave blank:

☐ Administrative approval(s): Requests must be submitted to the appropriate division district or the Santa Fe Environmental Bureau office for consideration of approval.

☐ Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

10.

Siting Criteria (regarding permitting): 19.15.17.10 NMAC

Instructions: The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. **Siting criteria does not apply to drying pads or above-grade tanks associated with a closed-loop system.**

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

11.
Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

☐ Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
☐ Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9 NMAC
☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
☐ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____ or Permit Number: _____

12.
Closed-loop Systems Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

☐ Geologic and Hydrogeologic Data (only for on-site closure) - based upon the requirements of Paragraph (3) of Subsection B of 19.15.17.9
☐ Siting Criteria Compliance Demonstrations (only for on-site closure) - based upon the appropriate requirements of 19.15.17.10 NMAC
☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
☐ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____

☐ Previously Approved Operating and Maintenance Plan API Number: _____ (*Applies only to closed-loop system that use above ground steel tanks or haul-off bins and propose to implement waste removal for closure)*

13.
Permanent Pits Permit Application Checklist: Subsection B of 19.15.17.9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

☐ Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC
☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
☐ Climatological Factors Assessment
☐ Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Quality Control/Quality Assurance Construction and Installation Plan
☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
☐ Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Nuisance or Hazardous Odors, including H_2S, Prevention Plan
☐ Emergency Response Plan
☐ Oil Field Waste Stream Characterization
☐ Monitoring and Inspection Plan
☐ Erosion Control Plan
☐ Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

14.
Proposed Closure: 19.15.17.13 NMAC
Instructions: Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.

Type: ☐ Drilling ☐ Workover ☐ Emergency ☐ Cavitation ☐ P&A ☐ Permanent Pit ☐ Below-grade Tank ☐ Closed-loop System ☐ Alternative

Proposed Closure Method: ☐ Waste Excavation and Removal
☐ Waste Removal (Closed-loop systems only)
☐ On-site Closure Method (Only for temporary pits and closed-loop systems)
☐ In-place Burial ☐ On-site Trench Burial
☐ Alternative Closure Method (Exceptions must be submitted to the Santa Fe Environmental Bureau for consideration)

15.
Waste Excavation and Removal Closure Plan Checklist: (19.15.17.13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***

☐ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
☐ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)
☐ Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC
☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

16.

Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only: (19.15.17.13.D NMAC)

Instructions: Please indentify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if more than two facilities are required.

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Will any of the proposed closed-loop system operations and associated activities occur on or in areas that *will not* be used for future service and operations?

☐ Yes (If yes, please provide the information below) ☐ No

Required for impacted areas which will not be used for future service and operations:

☐ Soil Backfill and Cover Design Specifications - - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC

☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

17.

Siting Criteria (regarding on-site closure methods only): 19.15.17.10 NMAC

Instructions: Each siting criteria requires a demonstration of compliance in the closure plan. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17.10 NMAC for guidance.

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

18.

On-Site Closure Plan Checklist: (19.15.17.13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***

☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC

☐ Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC

☐ Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of 19.15.17.11 NMAC

☐ Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19.15.17.11 NMAC

☐ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC

☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC

☐ Waste Material Sampling Plan - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC

☐ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)

☐ Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC

☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

19.
Operator Application Certification:

I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

Name (Print): _____ Title: _____

Signature: _____ Date: _____

e-mail address: _____ Telephone: _____

20.
OCD Approval: ☐ Permit Application (including closure plan) ☐ Closure Plan (only) ☐ OCD Conditions (see attachment)

OCD Representative Signature: _____ **Approval Date:** _____

Title: _____ **OCD Permit Number:** _____

21.
Closure Report (required within 60 days of closure completion): Subsection K of 19.15.17.13 NMAC

Instructions: Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.

☒ **Closure Completion Date:** 06\25\2019

22.
Closure Method:

☒ Waste Excavation and Removal ☐ On-Site Closure Method ☐ Alternative Closure Method ☐ Waste Removal (Closed-loop systems only)

☐ If different from approved plan, please explain.

23.
Closure Report Regarding Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:

Instructions: Please indentify the facility or facilities for where the liquids, drilling fluids and drill cuttings were disposed. Use attachment if more than two facilities were utilized.

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Were the closed-loop system operations and associated activities performed on or in areas that *will not* be used for future service and operations?

☐ Yes (If yes, please demonstrate compliance to the items below) ☐ No

Required for impacted areas which will not be used for future service and operations:

☐ Site Reclamation (Photo Documentation)
☐ Soil Backfilling and Cover Installation
☐ Re-vegetation Application Rates and Seeding Technique

24.
Closure Report Attachment Checklist: ***Instructions: Each of the following items must be attached to the closure report. Please indicate, by a check mark in the box, that the documents are attached.***

☐ Proof of Closure Notice (surface owner and division)
☐ Proof of Deed Notice (required for on-site closure)
☐ Plot Plan (for on-site closures and temporary pits)
☒ Confirmation Sampling Analytical Results (if applicable)
☐ Waste Material Sampling Analytical Results (required for on-site closure)
☒ Disposal Facility Name and Permit Number
☒ Soil Backfilling and Cover Installation
☐ Re-vegetation Application Rates and Seeding Technique
☒ Site Reclamation (Photo Documentation)

On-site Closure Location: Latitude 36.695158 Longitude -108.102819 NAD: ☐ 1927 ☒ 1983

25.
Operator Closure Certification:

I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan.

Name (Print): Erin Dunman Title: Field Environmental Coordinator

Signature: DocuSigned by: Erin Dunman FE49953C960A4BA... Date: October 15, 2019

e-mail address: Erin.Dunman@bpx.com Telephone: 832-609-7048

22.

Operator Closure Certification:

I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan.

Name (Print): _____ Title: _____

Signature:_____ Date: _____

e-mail address:_____ Telephone: _____

BPX ENERGY

(formally BP America Production Company)
SAN JUAN BASIN, NORTHWEST NEW MEXICO

BELOW-GRADE TANK CLOSURE PLAN

Gallegos Canyon Unit Com H # 180 – Tank ID: A
API #: 3004507814
Unit Letter J, Section 28, T29N, R12W

This plan will address the standard protocols and procedures for closure of below-grade tanks (BGTs) on BPX Energy (BPX) well sites. As stipulated in Paragraph A of 19.15.17.13 NMAC, BPX shall close a BGT within the time periods provided in 19.15.17.13 NMAC, or by an earlier date that the New Mexico Oil Conservation Division (NMOCD) requires because of imminent danger to fresh water, public health, safety or the environment. If deviations from this plan are necessary, any specific changes will be included on form C-144 and approved by the NMOCD. BPX shall close an existing BGT that does not meet the requirements of Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC or is not included in Paragraph (5) of Subsection I of 19.15.17.11 NMAC within five years after June 16, 2008, if not retrofit with a BGT that complies with the BPX's NMOCD approved BGT design attached to the BPX Design and Construction Plan. BPX shall close an existing BGT that does not meet the requirements of Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC, if not previously retrofitted to comply with the BPX's NMOCD approve BGT Design attached to the BPX Design and Construction Plan, prior to any sale or change in operator pursuant to 19.15.9.9 NMAC. BPX shall close the permitted BGT within 60 days of cessation of the BGTs operation or as required by the transitional provisions of Subsection B, D, or E of 19.15.17.17 NMAC.

General Closure Plan

1. BPX shall notify the surface owner by certified mail that it plans to close a BGT. Evidence of mailing of the notice to the address of the surface owner shown in the county tax records demonstrates compliance with this requirement.
   Notice is attached.

2. BPX shall notify the division District III office verbally or by other means at least 72 hours, but not more than one (1) week, prior to any closure operation. The notice shall include the operator's name, and the location to be closed by unit letter, section, township and range. If the BGT closure is associated with a particular well, then the notice shall also include the well's name, number and API number.
   Notice was provided and documented in the attached email.

3. BPX shall remove liquids and sludge from the BGT prior to implementing a closure method and dispose of the liquids and sludge in a NMOCD's division-approved facility. The facilities to be used are:
   a. BPX Crouch Mesa Landfarm, Permit NM-02-003 (Solids)
   b. JFJ Landfarm, Permit NM-01-010(B) (Solids and Sludge)
   c. Basin Disposal, Permit NM-01-0005 (Liquids)
   d. Envirotech Inc Soil Remediation Facility, Permit NM-01-0011 (Solids and Sludge)
   e. BPX Operated E.E. Elliott SWD #1, API 30-045-27799 (Liquids)
   f. BPX Operated 13 GCU SWD #1, API 30-045-28601 (Liquids)
   g. BPX Operated GCU 259 SWD, API 30-045-20006 (Liquids)
   h. BPX Operated GCU 306 SWD, API 30-045-24286 (Liquids)
   i. BPX Operated GCU 307 SWD, API 30-045-24248 (Liquids)
   j. BPX Operated GCU 328 SWD, API 30-045-24735 (Liquids)
   k. BPX Operated Pritchard SWD #1, API 30-045-28351 (Liquids)

   All liquids and/or sludge within the BGT were removed and sent to one of the above NMOCD approved facilities for disposal.

4. BPX shall remove the BGT and dispose of it in a NMOCD approved facility or recycle, reuse, or reclaim it in a manner that the NMOCD approves. If a liner is present and must be disposed of it will be cleaned by scraping any soils or other attached materials on the liner to a de minimus amount and disposed at a permitted solid waste facility, pursuant to Subparagraph (m) of Paragraph (1) of Subsection C of 19.15.35.8 NMAC. Documentation as to the final disposition of the removed BGT will be provided in the final closure report.
The BGT was transported for recycling.

5. BPX shall remove any on-site equipment associated with a BGT unless the equipment is required for well production.
All equipment associated with the BGT has been removed.

6. BPX shall test the soils beneath the BGT to determine whether a release has occurred. BPX shall collect at a minimum: a five (5) point composite sample and individual grab samples from any area that is wet, discolored or showing other evidence of a release and analyze for BTEX, TPH and chlorides. The testing methods for those constituents are as follows;

Constituents	Testing Method	Release Verification (mg/Kg)	Composite Sample Results (mg/Kg)	Composite Sample Results (mg/Kg)
Benzene	US EPA Method SW-846 8021B or 8260B	0.2	<0.019	0.10
Total BTEX	US EPA Method SW-846 8021B or 8260B	50	<0.076	4.44
TPH	US EPA Method SW-846 418.1	100	23	926
Chlorides	US EPA Method 300.0 or 4500B	250 or background	<60	<60

Notes: mg/Kg = milligram per kilogram, BTEX = benzene, toluene, ethylbenzene, and total xylenes, TPH = total petroleum hydrocarbons. Other EPA methods that the division approves may be applied to all constituents listed. Chloride closure standards will be determined by which ever concentration level is greatest.

Soil adjacent to the BGT was sampled for TPH, BTEX, and chloride. All test parameters were below the stated limits. Discolored soils were observed at northern quadrant of BGT and a grab sample was collected and analyzed for TPH, BTEX, and chloride. A field and laboratory reports are attached.

7. BPX shall notify the division District III office of its results on form C-141.
C-141 is attached.

8. If it is determined that a release has occurred, then BPX will comply with 19.15.30 NMAC and 19.15.29 NMAC, as appropriate.
Sampling results reveal evidence of a release has occurred.

9. If the sampling demonstrates that a release has not occurred or that any release does not exceed the concentrations specified above, then BPX shall backfill the excavation, with compacted, non-waste containing, earthen material; construct a division-prescribed soil cover, re-contour and re-vegetate the location. The location will be reclaimed if it is not with in the active process area.
Sampling results reveal evidence of a release has occurred. 19.15.29 NMAC was later implemented.

10. BPX shall reclaim the BGT location and all areas associated with the BGT including associated access roads to a safe and stable condition that blends with the surrounding undisturbed area. BPX shall substantially restore the impacted surface area to the condition that existed prior to oil and gas operations by placement of the soil cover as provided in Subsection H of 19.15.17.13 NMAC, re-contour the location and associated areas to a contour that approximates the original contour and blends with the surrounding topography and re-vegetate according to Subsection I of 19.15.17.13 NMAC.
The BGT area has been backfilled with clean, earthen material and is within the current well pad. Reclamation will be completed within the allowable timeframe and will meet the specified requirements of 19.15.17.13 NMAC.

11. The soil cover for closures where the BGT has been removed or remediated to the NMOCD's satisfaction shall consist of the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater. The soil cover will be constructed to the site's existing grade and all practicable efforts will be made to prevent ponding of water and erosion of the cover material.
The BGT area has been backfilled with clean, earthen material and is within the current well pad. Reclamation will be completed within the allowable timeframe and will meet the specified requirements of 19.15.17.13 NMAC.

12. BPX shall seed the disturbed area the first growing season after closure of the BGT. Seeding will be accomplished by drilling on the contour whenever practical or by other division-approved methods. Vegetative cover will be, at a minimum, 70% of the native perennial vegetative cover (un-impacted by overgrazing, fire or other intrusion damaging to native vegetation), consisting of at least three native plant species, including at least one grass, but not including noxious weeds, and maintenance of that cover through two successive growing seasons. During the two growing seasons that prove viability, there shall be no artificial irrigation of the vegetation.
The BGT area has been backfilled with clean, earthen material and is within the current well pad. Reclamation will be completed within the allowable timeframe and will meet the specified requirements of 19.15.17.13 NMAC.

13. BPX shall seed, plant and re-seed pursuant to Paragraph (3) of Subsection I of 19.15.17.13 NMAC, until the location successfully achieves the required vegetative cover.
The BGT area has been backfilled with clean, earthen material and is within the current well pad. Reclamation will be completed within the allowable timeframe and will meet the specified requirements of 19.15.17.13 NMAC.

14. Pursuant to Paragraph (5) of Subsection I of 19.15.17.13 NMAC, BPX shall notify the NMOCD when it has seeded or planted and when it successfully achieves re-vegetation.
BPX will notify NMOCD when re-vegetation is successfully completed.

15. Within 60 days of closure completion, BPX shall submit a closure report on NMOCD's form C-144, and will include the following;
    a. proof of closure notification (surface owner and NMOCD)
    b. sampling analytical reports; information required by 19.15.17 NMAC;
    c. disposal facility name and permit number
    d. details on back-filling, capping, covering, and where applicable re-vegetation application rates and seeding techniques and
    e. site reclamation, photo documentation.

    Closure report on C-144 form is included & contains a photo of the current reclamation requirements completed.

16. BPX shall certify that all information in the report and attachments is accurate, truthful, and compliant with all applicable closure requirements and conditions specified in the approved closure plan.
Certification section of C-144 has been completed.

BP Closure Notiufication - Gallegos Canyon Unit Com H 180

From: Patti Campbell <Patti.Campbell@bpx.com>
To: Smith, Cory, EMNRD
Cc: Sabre Beebe (BPX), Erin Dunman, Steven Moskal, l1thomas@blm.gov, Nelson Velez, Jefferey Blagg

Jun 19, 2019 at 8:15 AM

SENT VIA E-MAIL TO: CORY.SMITH@STATE.NM.US

June 19, 2019

New Mexico Oil Conservation Division
1000 Rio Brazos Road
Aztec, New Mexico 87410

RE: Notice of Proposed Below-Grade Tank (BGT) Closure

Gallegos Canyon Unit Com H 180
API 30-045-07814
(J) Section 28 – T29N – R12W
San Juan County, New Mexico

Dear Mr. Cory Smith,

In regards to the captioned subject and requirements of the NMOCD pit rule, this letter is notification that BP is planning to close a 95 bbl BGT that will no longer be operational at this well site. We anticipate this work to start on or around June 21, 2019.

Should you have any questions, please feel free to contact BP.

Sincerely,

Patti Campbell
Regulatory Analyst

BP America Production Company
BPX Energy Inc.
(970) 712-5997
patti.campbell@bpx.com

bp

BP America Production Company
1199 Main Ave., Suite 101
Durango, CO 81303

June 18, 2019

San Juan County Board of Commissioners
100 S. Oliver Drive
Aztec, NM 87410

VIA HAND DELIVERY

Re: Notification of plans to close/remove a below grade tank
Well Name: GALLEGOS CANYON UNIT Com H 180
API# - 3004507814

Dear County Commissioners,

As part of the NM "Pit Rule": 19.15.17.13 Closure Requirements, Paragraph J. BP America Production Company (BP) is required to notify the surface owner of BP's plans to close/remove a below grade tank. BP wishes to inform you of our plans to close/remove the below grade tank on its well pad located on your surface. BP plans to commence this work on or about June 21, 2019. Barring any unforeseen issues, the work should be completed within 10 working days.

This site has been plugged and abandoned and BP is decommissioning the well site.

If witnessing of the tank removal is required, please contact Steve Moskal on (505)-330-9179 or Erin Dunman on (281) 810-2578 for a specific time.

Sincerely,

Patti Campbell

Patti Campbell
BPX – San Juan
Regulatory Analyst

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

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party **BPX Energy** **(formerly BP America Production Co.)**	OGRID **778**
Contact Name **Erin Dunman**	Contact Telephone **(832) 609-7048**
Contact email **Erin.Dunman@bpx.com**	Incident # *(assigned by OCD)*
Contact mailing address **1199 Main Ave., Suite 101, Durango, CO 81301**	

Location of Release Source

Latitude **36.695158** Longitude **-108.102819**
(NAD 83 in decimal degrees to 5 decimal places)

Site Name **GALLEGOS CANYON UNIT COM H 180**	Site Type **Natural Gas Well**
Date Release Discovered **June 25, 2019**	API# *(if applicable)* **30-045-07814**

Unit Letter	Section	Township	Range	County
J	**28**	**29N**	**12W**	**San Juan**

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (*Name:* **San Juan County**)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) **Unknown**	Volume Recovered (bbls) **None**
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☒ Condensate	Volume Released (bbls) **Unknown**	Volume Recovered (bbls) **None**
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release **Not related to below below-grade tank (BGT), appears historical in origin.**

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☒ No	If YES, for what reason(s) does the responsible party consider this a major release?

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?

Not required.

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

☒ The source of the release has been stopped.
☒ The impacted area has been secured to protect human health and the environment.
☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Erin Dunman Title: Field Environmental Coordinator

Signature: DocuSigned by: Erin Dunman FE49953C960A4BA... Date: October 15, 2019

email: Erin.Dunman@bpx.com Telephone: (832) 609-7048

OCD Only

Received by: _____ Date: _____

CLIENT: BPX

BLAGG ENGINEERING, INC.
P.O. BOX 87, BLOOMFIELD, NM 87413
(505) 632-1199

API #: 3004507814

TANK ID (if applicble): A

FIELD REPORT:

(circle one): BGT CONFIRMATION / RELEASE INVESTIGATION / OTHER:

PAGE #: 1 of 1

SITE INFORMATION:

SITE NAME: GCU COM H # 180

QUAD/UNIT: J SEC: 28 TWP: 29N RNG: 12W PM: NM CNTY: SJ ST: NM

1/4 -1/4/FOOTAGE: 975'N / 2,510'E NW/SE LEASE TYPE: FEDERAL / STATE / FEE / INDIAN

LEASE #: SF077967 PROD. FORMATION: DK CONTRACTOR: KELLEY O.F.S. BPX - S. BEEBE

DATE STARTED: 06/21/19

DATE FINISHED:

ENVIRONMENTAL SPECIALIST(S): NJV

REFERENCE POINT:

WELL HEAD (W.H.) GPS COORD.: 36.694777 X 108.103074 GL ELEV.: 5,338'

1) 95 BGT (DW/DB) GPS COORD.: 36.695158 X 108.102819 DISTANCE/BEARING FROM W.H.: 158', N28E

2) GPS COORD.: DISTANCE/BEARING FROM W.H.:

3) GPS COORD.: DISTANCE/BEARING FROM W.H.:

4) GPS COORD.: DISTANCE/BEARING FROM W.H.:

SAMPLING DATA:

CHAIN OF CUSTODY RECORD(S) # OR LAB USED: HALL

	SAMPLE ID:	SAMPLE DATE:	SAMPLE TIME:	LAB ANALYSIS:	OVM READING (ppm)
1)	4PC - SW @ 2' (95)	06/21/19	1313	8015B/8021B/300.0 (Cl)	10.4
2)	NSW GRAB @ 2.5' (95)	06/21/19	1317	8015B/8021B/300.0 (Cl)	3,553
3)					
4)					
5)					

SOIL DESCRIPTION:

SOIL TYPE: SAND / SILTY SAND / SILT / SILTY CLAY / CLAY / GRAVEL / OTHER

SOIL COLOR: MOSTLY DARK YELLOWISH BROWN

COHESION (ALL OTHERS): NON COHESIVE / SLIGHTLY COHESIVE / COHESIVE / HIGHLY COHESIVE

CONSISTENCY (NON COHESIVE SOILS): LOOSE / FIRM / DENSE / VERY DENSE

MOISTURE: DRY / SLIGHTLY MOIST / MOIST / WET / SATURATED / SUPER SATURATED

SAMPLE TYPE: GRAB / COMPOSITE - # OF PTS. 4

DISCOLORATION/STAINING OBSERVED: YES / NO EXPLANATION - GRAY TO BLACK AT GRAB SAMPLE ON NORTH SIDEWALL

PLASTICITY (CLAYS): NON PLASTIC / SLIGHTLY PLASTIC / COHESIVE / MEDIUM PLASTIC / HIGHLY PLASTIC

DENSITY (COHESIVE CLAYS & SILTS): SOFT / FIRM / STIFF / VERY STIFF / HARD

HC ODOR DETECTED: YES / NO EXPLANATION - GRAB SAMPLE & AT GROUNDWATER INTERFACE.

ANY AREAS DISPLAYING WETNESS: YES / NO EXPLANATION - AT BGT BASE (GROUNDWATER)

SITE OBSERVATIONS:

LOST INTEGRITY OF EQUIPMENT: YES / NO EXPLANATION -

APPARENT EVIDENCE OF A RELEASE OBSERVED AND/OR OCCURRED : YES / NO EXPLANATION: APPEARS HISTORICAL

EQUIPMENT SET OVER RECLAIMED AREA: YES / NO EXPLANATION -

OTHER: NMOCD REP. NOT PRESENT TO WITNESS CONFIRMATION SAMPLING. GAS WELL IS PLUGGED & ABANDONED (P&A). GROUNDWATER EXPOSED APPROXIMATELY 4 - 4.5 FT. BELOW GRADE, BLACKISH TINT IN APPEARANCE. CRANE USED TO REMOVE BGT.

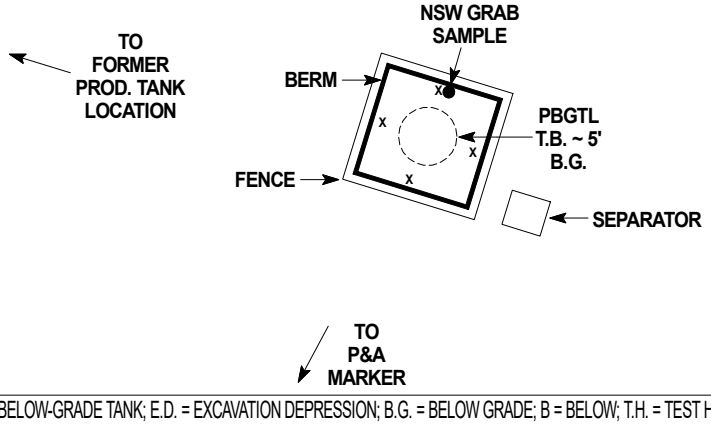
EXCAVATION DIMENSION ESTIMATION: ____ ft. X ____ ft. X ____ ft. EXCAVATION ESTIMATION (Cubic Yards) :

DEPTH TO GROUNDWATER: ~4 - 4.5' NEAREST WATER SOURCE: >1,000' NEAREST SURFACE WATER: 300' < x < 1,000' NMOCD TPH CLOSURE STD: 100 ppm

SITE SKETCH

BGT Located : off / on site

PLOT PLAN circle: attached



OVM CALIB. READ. = 100.4 ppm RF =1.00

OVM CALIB. GAS = 100.0 ppm

TIME: 1:45 am/pm DATE: 06/20/19

MISCELL. NOTES

PO #: 4301073568

AFE #: X7-0078M-E:REST

SIO #: 190040007672

GL #: 745277

Permit date(s): 01/23/10

OCD Appr. date(s): 01/24/17

Tank ID	OVM = Organic Vapor Meter ppm = parts per million
A	BGT Sidewalls Visible: Y / (N)
	BGT Sidewalls Visible: Y / N
	BGT Sidewalls Visible: Y / N

Magnetic declination: 10° E

NOTES: BGT = BELOW-GRADE TANK; E.D. = EXCAVATION DEPRESSION; B.G. = BELOW GRADE; B = BELOW; T.H. = TEST HOLE; ~ = APPROX.; W.H. = WELL HEAD; T.B. = TANK BOTTOM; PBGTL = PREVIOUS BELOW-GRADE TANK LOCATION; SPD = SAMPLE POINT DESIGNATION; R.W. = RETAINING WALL; NA - NOT APPLICABLE OR NOT AVAILABLE; SW - SINGLE WALL; DW - DOUBLE WALL; SB - SINGLE BOTTOM; DB - DOUBLE BOTTOM.

NOTES: GOOGLE EARTH IMAGERY DATE: 3/15/2015. ONSITE: 06/21/19

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: 4PC-SW@2' (95)
Project: GCU Com H 180
Collection Date: 6/21/2019 1:13:00 PM
Lab ID: 1906C13-001
Matrix: MEOH (SOIL)
Received Date: 6/22/2019 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	ND	60		mg/Kg	20	6/23/2019 4:48:37 PM	45747
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	23	9.6		mg/Kg	1	6/24/2019 12:18:28 PM	45756
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/24/2019 12:18:28 PM	45756
Surr: DNOP	105	70-130		%Rec	1	6/24/2019 12:18:28 PM	45756
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	3.8		mg/Kg	1	6/24/2019 12:16:27 PM	45738
Surr: BFB	102	73.8-119		%Rec	1	6/24/2019 12:16:27 PM	45738
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.019		mg/Kg	1	6/24/2019 12:16:27 PM	45738
Toluene	ND	0.038		mg/Kg	1	6/24/2019 12:16:27 PM	45738
Ethylbenzene	ND	0.038		mg/Kg	1	6/24/2019 12:16:27 PM	45738
Xylenes, Total	ND	0.076		mg/Kg	1	6/24/2019 12:16:27 PM	45738
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	6/24/2019 12:16:27 PM	45738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: NSW GRAB@2.5'(95)
Project: GCU Com H 180
Collection Date: 6/21/2019 1:17:00 PM
Lab ID: 1906C13-002
Matrix: MEOH (SOIL)
Received Date: 6/22/2019 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	ND	60		mg/Kg	20	6/23/2019 5:01:01 PM	45747
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	660	9.3		mg/Kg	1	6/24/2019 12:40:32 PM	45756
Motor Oil Range Organics (MRO)	190	46		mg/Kg	1	6/24/2019 12:40:32 PM	45756
Surr: DNOP	120	70-130		%Rec	1	6/24/2019 12:40:32 PM	45756
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	76	3.6		mg/Kg	1	6/24/2019 12:39:15 PM	45738
Surr: BFB	670	73.8-119	S	%Rec	1	6/24/2019 12:39:15 PM	45738
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.10	0.018		mg/Kg	1	6/24/2019 12:39:15 PM	45738
Toluene	ND	0.036		mg/Kg	1	6/24/2019 12:39:15 PM	45738
Ethylbenzene	0.64	0.036		mg/Kg	1	6/24/2019 12:39:15 PM	45738
Xylenes, Total	3.7	0.072		mg/Kg	1	6/24/2019 12:39:15 PM	45738
Surr: 4-Bromofluorobenzene	137	80-120	S	%Rec	1	6/24/2019 12:39:15 PM	45738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Chain-of-Custody Record

Client: BLAGG ENGR. / BPX ENERGY

Mailing Address: P.O. BOX 87
BLOOMFIELD, NM 87413

Phone #: (505) 632-1199

email or Fax#:

QA/QC Package:
☑ Standard ☐ Level 4 (Full Validation)

Accreditation:
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☑ Rush SAME DAY

Project Name:
GCU Com H # 180

Project #:

Project Manager:
SABRE BEEBE

Sampler: **NELSON VELEZ**

On Ice: ☑ Yes ☐ No

Sample Temperature: 3.7

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1906C13
6/21/19	1313	SOIL	4PC-SW@2' (95)	4oz-1	Cool	-001
6/21/19	1317	SOIL	NSW GRAB @ 2.5' (95)	4oz-1	Cool	-002

BTEX + ~~MTBE + TMB's~~ (8021B)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Chloride (soil - 300.0 / water - 300.1)		Grab sample	4 pt. composite sample	Air Bubbles (Y or N)
✓		✓									✓			✓	
✓		✓									✓		✓		

Date	Time	Relinquished by:	Received by:	Date	Time
6/21/19	1550			6/21/19	1550
6/21/19	1806			6/22/19	0800

Remarks: BILL DIRECTLY TO BPX USING THE CONTACT(S) BELOW. PO DELIVERED VIA EMAIL OR IS PENDING.

CONTACT: SABRE BEEBE / STEVE MOSKAL

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1906C13**

25-Jun-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID	**MB-45747**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**45747**	RunNo:	**60849**					
Prep Date:	**6/23/2019**	Analysis Date:	**6/23/2019**	SeqNo:	**2059938**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-45747**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**45747**	RunNo:	**60849**					
Prep Date:	**6/23/2019**	Analysis Date:	**6/23/2019**	SeqNo:	**2059939**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1906C13**

25-Jun-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID **MB-45756**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **45756**	RunNo: **60854**
Prep Date: **6/24/2019**	Analysis Date: **6/24/2019**	SeqNo: **2060436** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.3		10.00		92.8	70	130			

Sample ID **LCS-45756**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **45756**	RunNo: **60854**
Prep Date: **6/24/2019**	Analysis Date: **6/24/2019**	SeqNo: **2060559** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	96.7	63.9	124			
Surr: DNOP	4.5		5.000		89.1	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1906C13**

25-Jun-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID	**MB-45738**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**45738**	RunNo:	**60864**					
Prep Date:	**6/21/2019**	Analysis Date:	**6/24/2019**	SeqNo:	**2060870**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	980		1000		98.5	73.8	119			

Sample ID	**LCS-45738**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**45738**	RunNo:	**60864**					
Prep Date:	**6/21/2019**	Analysis Date:	**6/24/2019**	SeqNo:	**2060871**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	96.5	80.1	123			
Surr: BFB	1200		1000		116	73.8	119			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1906C13**

25-Jun-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID	**MB-45738**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**45738**	RunNo:	**60864**					
Prep Date:	**6/21/2019**	Analysis Date:	**6/24/2019**	SeqNo:	**2060887**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.99		1.000		98.7	80	120			

Sample ID	**LCS-45738**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**45738**	RunNo:	**60864**					
Prep Date:	**6/21/2019**	Analysis Date:	**6/24/2019**	SeqNo:	**2060888**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	101	80	120			
Toluene	1.0	0.050	1.000	0	102	80	120			
Ethylbenzene	1.0	0.050	1.000	0	102	80	120			
Xylenes, Total	3.0	0.10	3.000	0	99.7	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		107	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: BLAGG | Work Order Number: 1906C13 | RcptNo: 1

Received By: Andy Freeman 6/22/2019 8:00:00 AM

Completed By: Yazmine Garduno 6/22/2019 9:09:12 AM

Reviewed By: YG 6/22/19 LB 6/22/19

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	FedEx		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by YG 6/22/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.7	Good	Yes			

DELINEATION

INFORMATION

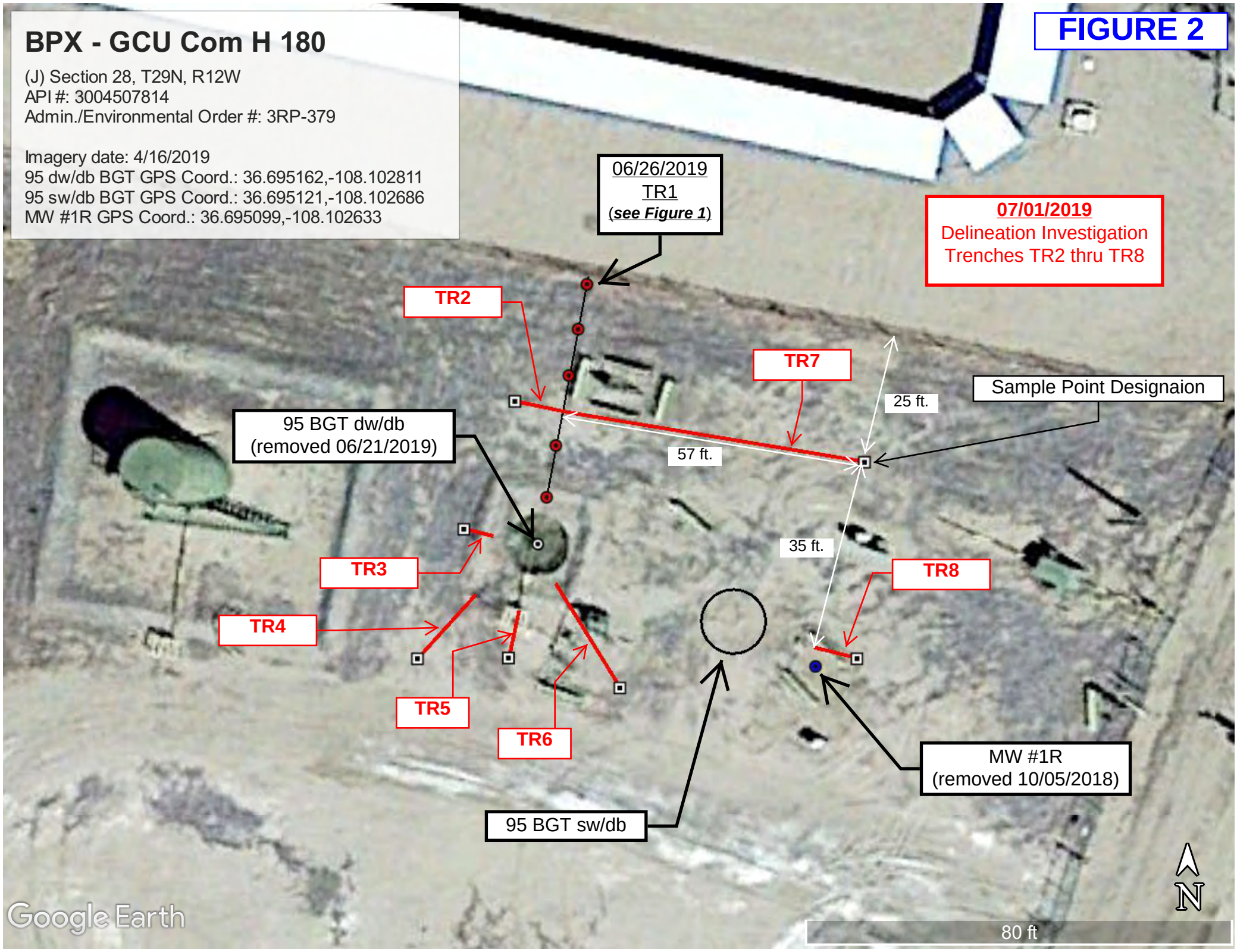

BPX - GCU Com H 180
(J) Section 28, T29N, R12W
API #: 3004507814
Imagery date: 4/16/2019
BGT GPS Coord.: 36.695162,-108.102811
FIGURE 1
TR1 @ 4.5' OVM = 55.8 ppm
TR1 @ 4' OVM = 208.4 ppm
TR1 @ 3.5' OVM = 1,725 ppm
TR1 @ 2.5' OVM = 3,219 ppm
32 ft.
23 ft.
10 ft.
06/26/2019
Trench1 (TR1)
Overall length
from NSW to
fence line = 42 ft.
NSW GRAB @ 2.5'
OVM = 3,553 ppm
TPH = 926 mg/Kg
Overhead
powerline
approx. 12 ft.
from fence
N
50 ft
Google Earth

BPX - GCU Com H 180

(J) Section 28, T29N, R12W
API #: 3004507814
Admin./Environmental Order #: 3RP-379

Imagery date: 4/16/2019
95 dw/db BGT GPS Coord.: 36.695162,-108.102811
95 sw/db BGT GPS Coord.: 36.695121,-108.102686
MW #1R GPS Coord.: 36.695099,-108.102633

FIGURE 2



BPX ENERGY INC.

(Formerly BP America Production Company)

Well site: Gallegos Canyon Unit (GCU) Com H # 180

Unit J, Sec. 28, T29N, R12W **API #: 30-045-07814**

NMOCD Adminstrative / Environmental Order #: 3RP - 379 - 0

*Impacted Soils Discovered at 95 bbl Below-grade Tank (**BGT**)*

SAMPLE ID	SAMPLE DATE	SAMPLE TIME	GRAB / COMPOSITE	FIELD OVM READING (ppm)	TPH - gasoline range (mg/Kg)	TPH - diesel range (mg/Kg)	TPH - diesel range (mg/Kg)	TPH - cumulative (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl - benzene (mg/Kg)	Total Xylenes (mg/Kg)	BTEX - cumulative (mg/Kg)	Chloride (mg/Kg)
BGT Comfirmation Sampling														
4PC - SWV @ 2' (95)	06/21/19	1313	Composite	**10.4**	ND	23	ND	**23**	**ND**	ND	ND	ND	**ND**	**ND**
NSW GRAB @ 2.5' (95)	06/21/19	1317	Grab	**3,553**	**76**	**660**	**190**	**926**	**0.10**	**ND**	**0.64**	**3.7**	**4.4**	**ND**
Preliminary/Limited Delineation Investigation *(field screening only)*														
TR1 @ 2.5'	06/26/19	1338	Grab	**3,219**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TR1 @ 3.5'	06/26/19	1344	Grab	**1,725**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TR1 @ 4'	06/26/19	1353	Grab	**208.4**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TR1 @ 4.5'	06/26/19	1400	Grab	**55.8**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Delineation Investigation *(continued - field screening only)*														
TR2 @ 4'	06/27/19	0923	Grab	**9.8**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TR3 @ 4.5'	06/27/19	0943	Grab	**38.1**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TR4 @ 4'	06/27/19	0954	Grab	**12.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TR5 @ 4'	06/27/19	1050	Grab	**21.4**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TR6 @ 4'	06/27/19	1050	Grab	**24.6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TR7 @ 4'	06/27/19	1050	Grab	**156**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TR8 @ 4'	06/27/19	1125	Grab	**238**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NMOCD RELEASE CLOSURE STANDARDS -				-	-	-	-	**100**	**10**	-	-	-	**50**	**600**

Notes:

NMOCD - New Mexico Oil Conservation Division.
OVM - Organic vapor meter or photo-ionization detector (PID).
TPH - Total petroleum hydrocarbons by US EPA Method 8015B.
BTEX - Benzene, toluene, ethylbenzene, total xylenes by US EPA Method 8021B.
ppm - Parts per million.
mg/Kg - Milligram per kilogram (mg/Kg).
NA - Not available or applicable.

Groundwater depth estimated at 4.5 ft. below grade.

06/21/19	06/26/19	06/27/19
OVM calibration reading = 100.4 ppm	OVM calibration reading = 100.0 ppm	OVM calibration reading = 100.2 ppm
@ time - 1345 ; Response Factor - 1.00	@ time - 1415 ; Response Factor - 1.00	@ time - 0845 ; Response Factor - 1.00
Calibration gas : 100 ppm Isobutylene	Calibration gas : 100 ppm Isobutylene	Calibration gas : 100 ppm Isobutylene

SITE

REMEDIATION

BPX - GCU Com H 180

(J) Section 28, T29N, R12W
API #: 3004507814
Admin./Environmental Order #: 3RP-379

Imagery date: 4/16/2019
95 dw/db BGT GPS Coord.: 36.695162,-108.102811
95 sw/db BGT GPS Coord.: 36.695121,-108.102686
MW #1R GPS Coord.: 36.695099,-108.102633

FIGURE 3

07/02/2019
Excavation Perimeter
Approx. (~) 4,950 sq. ft.
Average Depth ~ 6 ft.
Groundwater ~ 4.5 ft.

06/26/2019
TR1
(***see Figure 1***)

Grab2 @ 3'
Sample time: 1350
OVM = 509 ppm
TPH = 2,520 mg/Kg

Grab @ 3'
(field screened only)
Date: 07/01/2019
OVM = 4,746 ppm

West (W.) Sidewall 7 pt. Composite
Sample time: 1338
OVM = 8.3 ppm
TPH = 69 mg/Kg

95 BGT dw/db
(removed 06/21/2019)

North (N.) Sidewall
5 pt. Composite
Sample time: 1343
OVM = 1,758 ppm
TPH = 47 mg/Kg

East (E.) Sidewall 7 pt. Composite
Sample time: 1327
OVM = 149 ppm
TPH = 374 mg/Kg

MW #1R
(removed 10/05/2018)

Southwest (SW) Sidewall 5 pt. Composite
Sample time: 1334
OVM = 13.8 ppm
TPH = 79 mg/Kg

95 BGT sw/db

Southeast (SE) Sidewall 5 pt. Composite
Sample time: 1331
OVM = 8.8 ppm
TPH = 13 mg/Kg

N

Google Earth

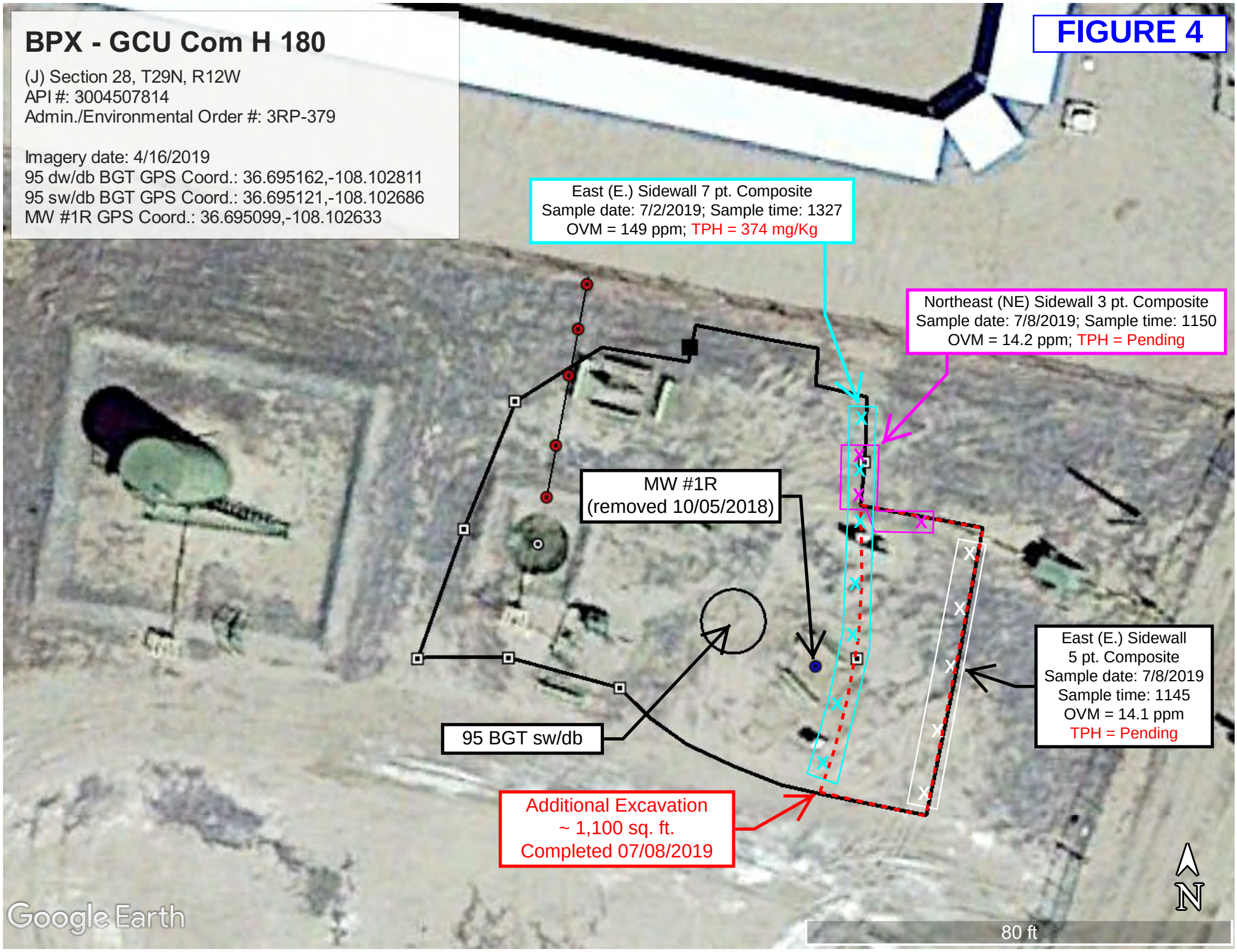
80 ft

BPX - GCU Com H 180

(J) Section 28, T29N, R12W
API #: 3004507814
Admin./Environmental Order #: 3RP-379

Imagery date: 4/16/2019
95 dw/db BGT GPS Coord.: 36.695162,-108.102811
95 sw/db BGT GPS Coord.: 36.695121,-108.102686
MW #1R GPS Coord.: 36.695099,-108.102633

FIGURE 4

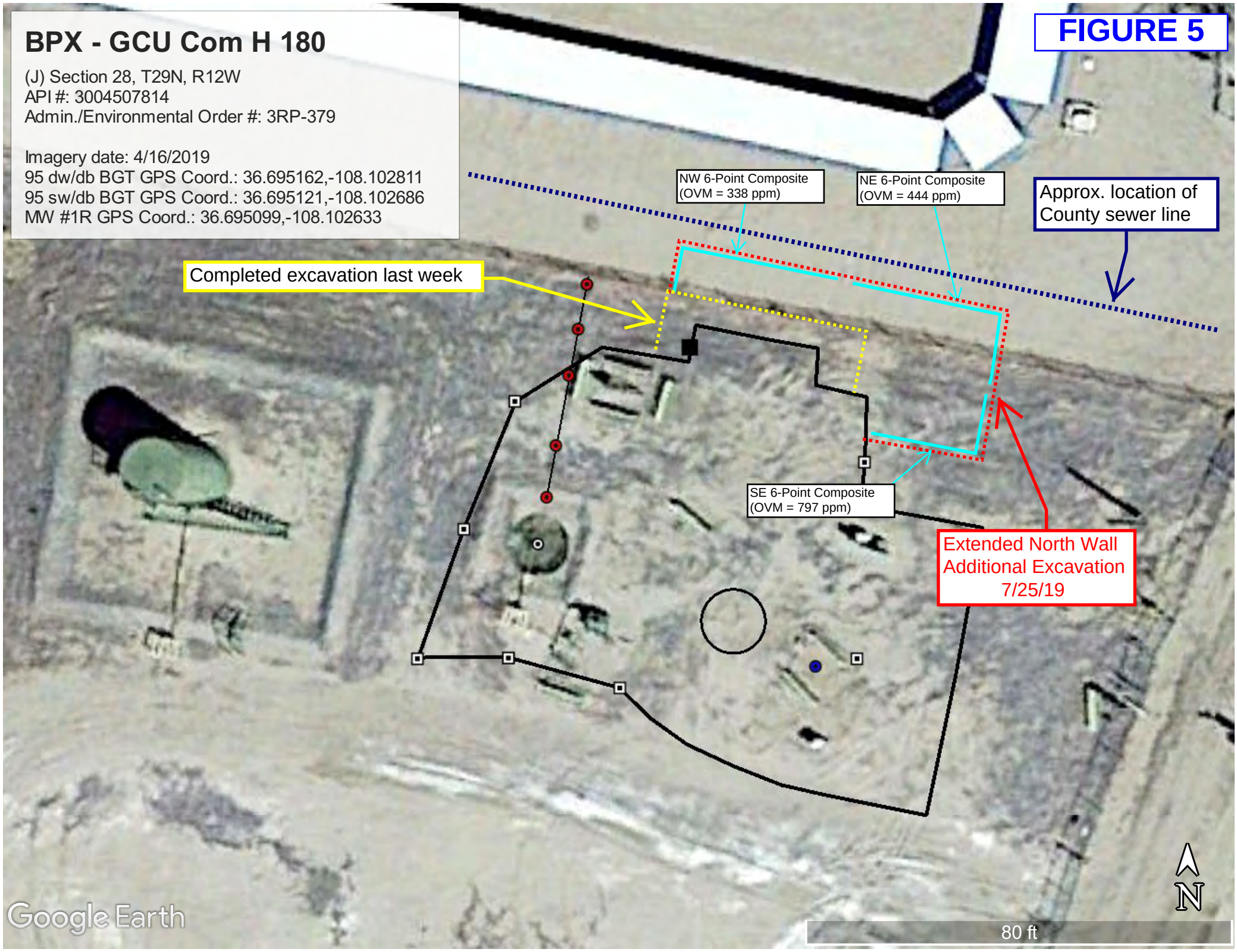


BPX - GCU Com H 180

(J) Section 28, T29N, R12W
API #: 3004507814
Admin./Environmental Order #: 3RP-379

Imagery date: 4/16/2019
95 dw/db BGT GPS Coord.: 36.695162,-108.102811
95 sw/db BGT GPS Coord.: 36.695121,-108.102686
MW #1R GPS Coord.: 36.695099,-108.102633

FIGURE 5



BPX ENERGY INC.

(Formerly BP America Production Company)

Well site: Gallegos Canyon Unit (GCU) Com H # 180

Unit J, Sec. 28, T29N, R12W **API #: 30-045-07814**

NMOCD Adminstrative / Environmental Order #: 3RP - 379 - 0

*Impacted Soils Discovered at 95 bbl Below-grade Tank (**BGT**)*

SAMPLE ID	SAMPLE DATE	SAMPLE TIME	GRAB / COMPOSITE	FIELD OVM READING (ppm)	TPH - gasoline range (mg/Kg)	TPH - diesel range (mg/Kg)	TPH - diesel range (mg/Kg)	TPH - cumulative (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl - benzene (mg/Kg)	Total Xylenes (mg/Kg)	BTEX - cumulative (mg/Kg)	Chloride (mg/Kg)
Excavation Closure Sampling														
East (E.) Sidewall 7 pt. (0' - 4')	07/02/19	1327	Composite	**149**	**14**	**240**	**120**	**374**	**ND**	**ND**	**ND**	**0.11**	**0.11**	**82**
East (E.) Sidewall 5 pt. (0' - 4')	07/08/19	1145	Composite	**14.1**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**62**
Northeast (NE) Sidewall 3 pt. (0' - 4')	07/08/19	1150	Composite	**14.2**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Southeast (SE.) Sidewall 5 pt. (0' - 4')	07/02/19	1331	Composite	**8.8**	**ND**	**13**	**ND**	**13**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Southwest (SW.) Sidewall 5 pt. (0' - 4')	07/02/19	1334	Composite	**13.8**	**ND**	**23**	**56**	**79**	**ND**	**ND**	**ND**	**ND**	**ND**	**68**
West (W.) Sidewall 7 pt. (0' - 4')	07/02/19	1338	Composite	**8.3**	**ND**	**20**	**49**	**69**	**ND**	**ND**	**ND**	**ND**	**ND**	**66**
North (N.) Sidewall 5 pt. (0' - 4')	07/02/19	1343	Composite	**1,758**	**25**	**22**	**ND**	**47**	**ND**	**ND**	**ND**	**0.43**	**0.43**	**ND**
Grab @ 3' *(removed)*	07/01/19	0955	Grab	**4,746**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Grab2 @ 3' (removed)	07/02/19	1350	Grab	**509**	**2,400**	**120**	**ND**	**2,520**	**ND**	**0.77**	**9.3**	**36**	**46.07**	**75**
Extended North Wall NW Corner	07/25/19	1115	Composite	**338**	**27**	**11**	**ND**	**38**	**ND**	**ND**	**ND**	**0.38**	**0.38**	**ND**
Extended North Wall NE Corner	07/25/19	1121	Composite	**444**	**ND**	**37**	**ND**	**37**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Extended North Wall SE Corner	07/25/19	1128	Composite	**797**	**ND**	**58**	**ND**	**58**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
NMOCD RELEASE CLOSURE STANDARDS -				-	-	-	-	**100**	**10**	-	-	-	**50**	**600**

Notes:

NMOCD - New Mexico Oil Conservation Division.
OVM - Organic vapor meter or photo-ionization detector (PID).
TPH - Total petroleum hydrocarbons by US EPA Method 8015B.
BTEX - Benzene, toluene, ethylbenzene, total xylenes by US EPA Method 8021B.
ppm - Parts per million.
mg/Kg - Milligram per kilogram (mg/Kg).
NA - Not available or applicable.

Groundwater depth estimated at 4.5 ft. below grade.

07/02/19

OVM calibration reading = 100.0 ppm
@ time - 1045 ; Response Factor - 1.00
bump test reading = 102.8 ppm
Calibration gas : 100 ppm Isobutylene

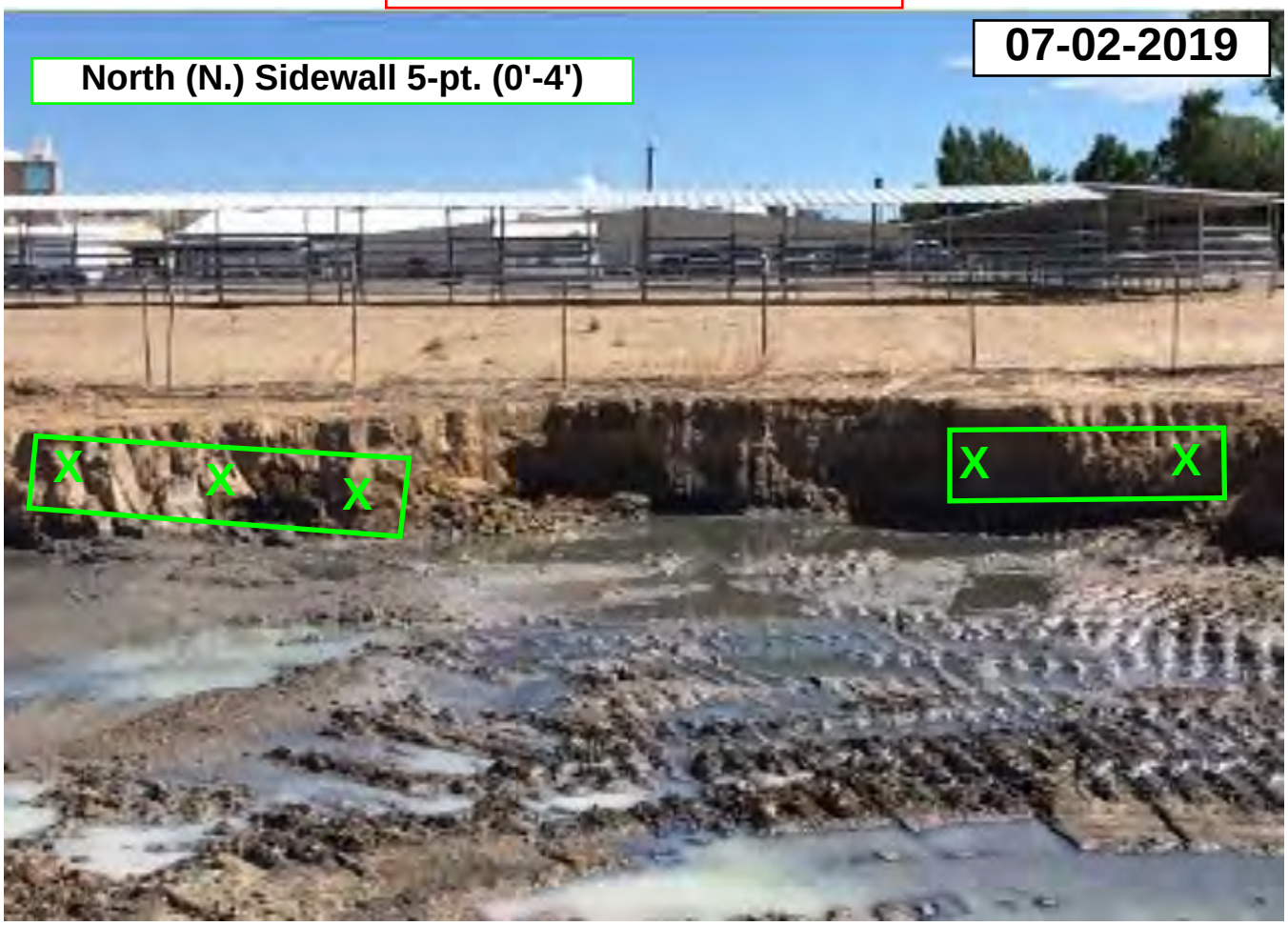
07/08/19

OVM calibration reading = 100.0 ppm
@ time - 1040 ; Response Factor - 1.00
bump test reading = 102.8 ppm
Calibration gas : 100 ppm Isobutylene

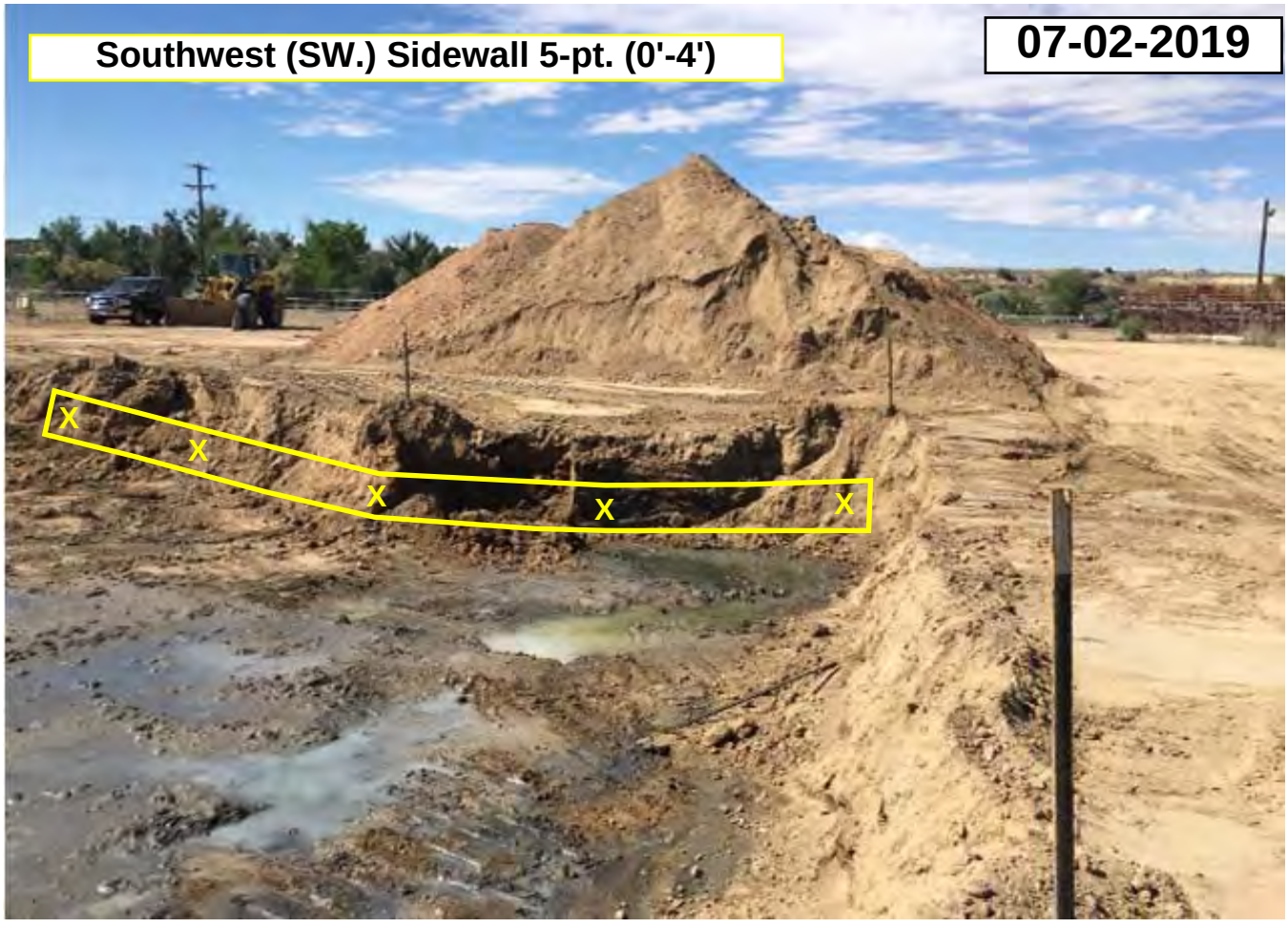
07/25/19

OVM calibration reading = 100.0 ppm
@ time - 1040 ; Response Factor - 1.00
Calibration gas : 100 ppm Isobutylene

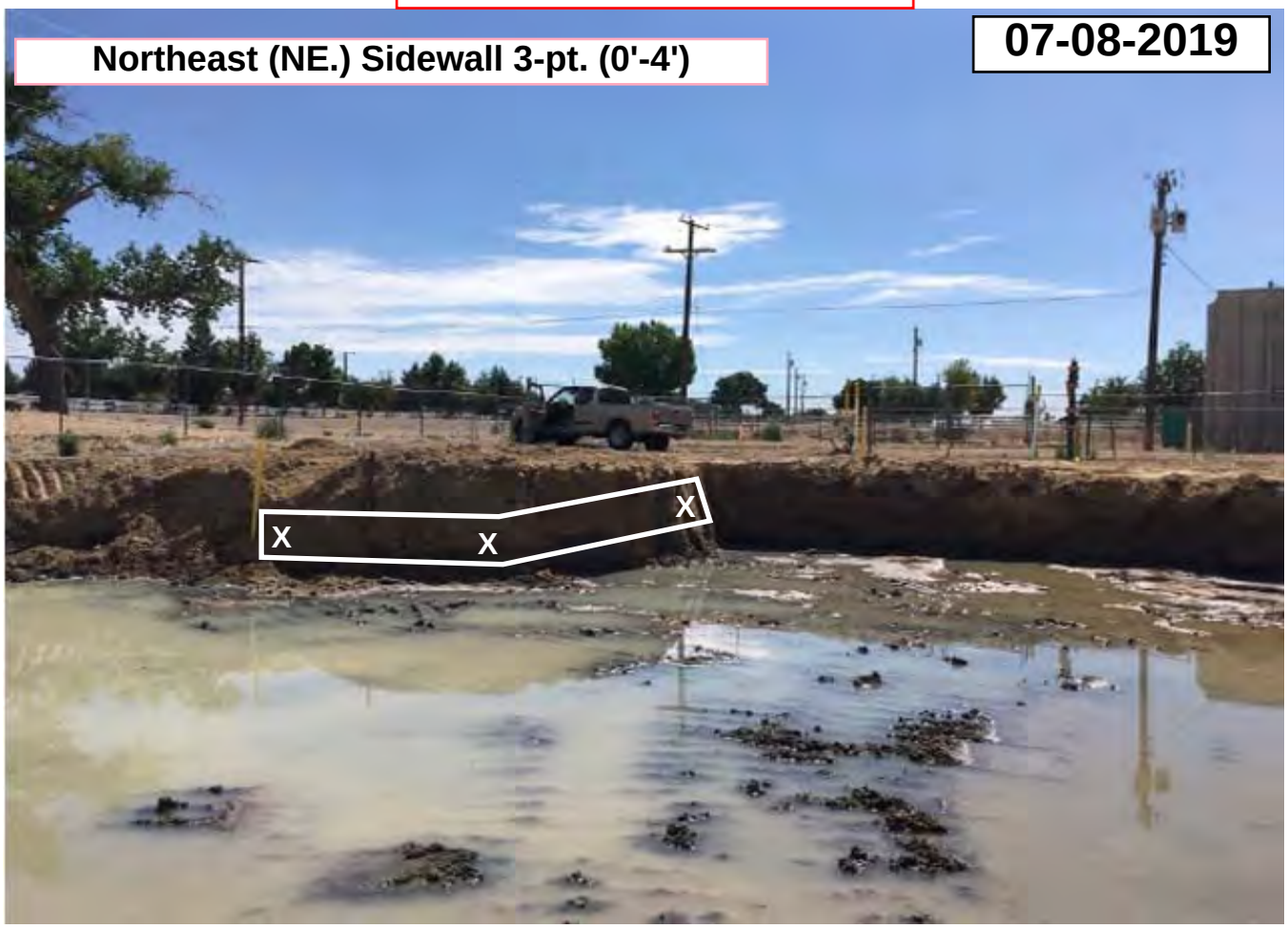
BPX - GCU COM H 180

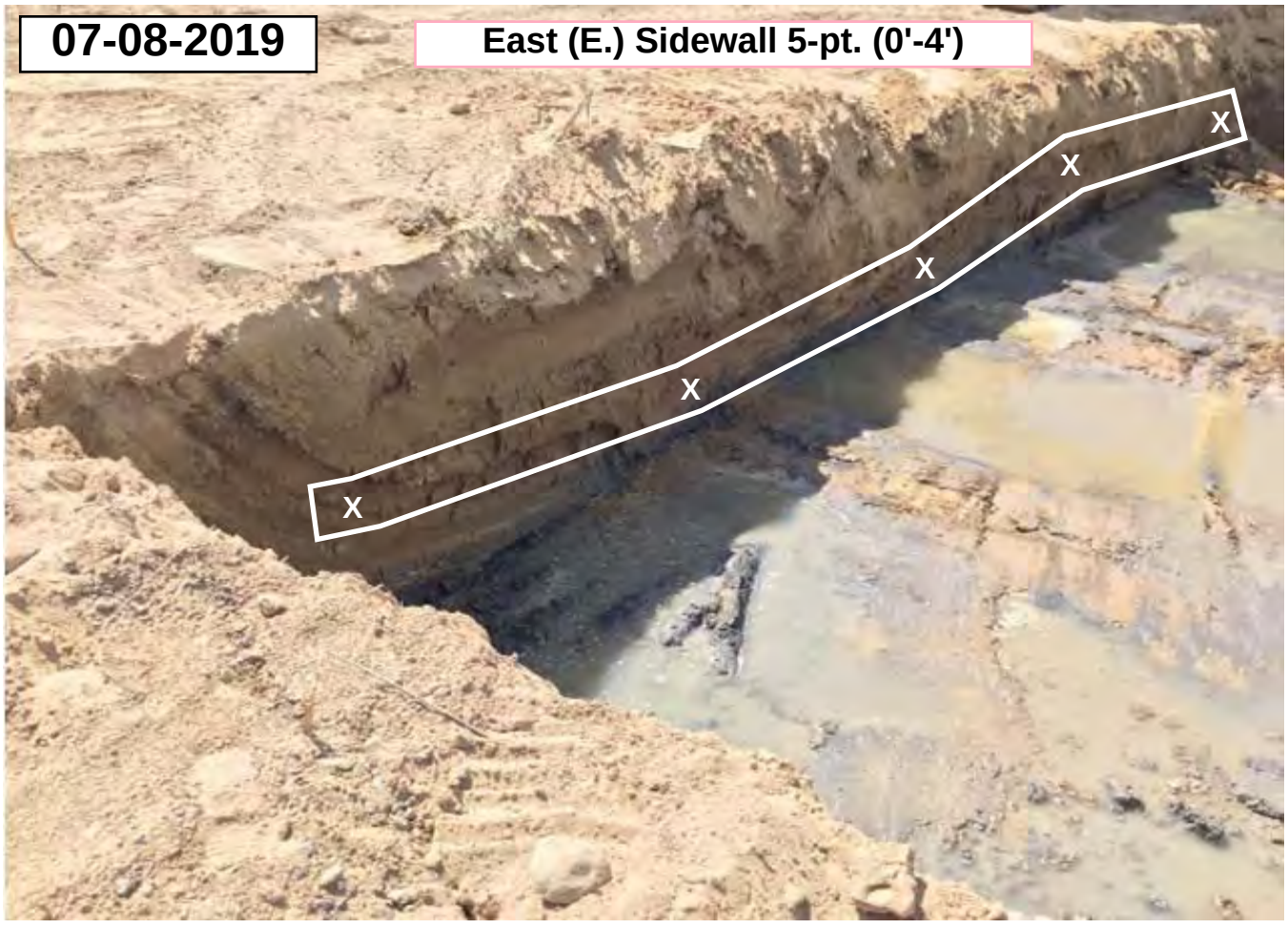


BPX - GCU COM H 180



BPX - GCU COM H 180





Extended North Wall (7/25/2019)
6-Point Composite Sample Points (NW Section)
(Cave-in material removed prior to sampling)


Extended North Wall (7/25/2019)
6-Point Composite Sample Points (NE Section)


Extended North Wall (7/25/2019)
6-Point Composite Sample Points (SE Section)
X
X
X
X
X
X

SITE

REMEDIATION

LAB REPORTS

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: E. Sidewall 7pt (0-4')
Project: GCU Com H 180
Collection Date: 7/2/2019 1:27:00 PM
Lab ID: 1907145-001
Matrix: MEOH (SOIL)
Received Date: 7/3/2019 8:12:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	82	60		mg/Kg	20	7/3/2019 10:56:23 AM	45997
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**BRM**
Diesel Range Organics (DRO)	240	9.7		mg/Kg	1	7/3/2019 9:57:56 AM	45990
Motor Oil Range Organics (MRO)	120	48		mg/Kg	1	7/3/2019 9:57:56 AM	45990
Surr: DNOP	96.4	70-130		%Rec	1	7/3/2019 9:57:56 AM	45990
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	14	3.7		mg/Kg	1	7/3/2019 9:38:43 AM	G61136
Surr: BFB	204	73.8-119	S	%Rec	1	7/3/2019 9:38:43 AM	G61136
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.019		mg/Kg	1	7/3/2019 9:38:43 AM	B61136
Toluene	ND	0.037		mg/Kg	1	7/3/2019 9:38:43 AM	B61136
Ethylbenzene	ND	0.037		mg/Kg	1	7/3/2019 9:38:43 AM	B61136
Xylenes, Total	0.11	0.074		mg/Kg	1	7/3/2019 9:38:43 AM	B61136
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	7/3/2019 9:38:43 AM	B61136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SE Sidewall 5pt (0-4')
Project: GCU Com H 180
Collection Date: 7/2/2019 1:31:00 PM
Lab ID: 1907145-002
Matrix: MEOH (SOIL)
Received Date: 7/3/2019 8:12:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	7/3/2019 11:08:48 AM	45997
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	13	9.5		mg/Kg	1	7/3/2019 10:19:55 AM	45990
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/3/2019 10:19:55 AM	45990
Surr: DNOP	96.4	70-130		%Rec	1	7/3/2019 10:19:55 AM	45990
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	3.6		mg/Kg	1	7/3/2019 10:02:09 AM	G61136
Surr: BFB	96.9	73.8-119		%Rec	1	7/3/2019 10:02:09 AM	G61136
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.018		mg/Kg	1	7/3/2019 10:02:09 AM	B61136
Toluene	ND	0.036		mg/Kg	1	7/3/2019 10:02:09 AM	B61136
Ethylbenzene	ND	0.036		mg/Kg	1	7/3/2019 10:02:09 AM	B61136
Xylenes, Total	ND	0.072		mg/Kg	1	7/3/2019 10:02:09 AM	B61136
Surr: 4-Bromofluorobenzene	97.8	80-120		%Rec	1	7/3/2019 10:02:09 AM	B61136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SW Sidewall 5pt (0-4')
Project: GCU Com H 180
Collection Date: 7/2/2019 1:34:00 PM
Lab ID: 1907145-003
Matrix: MEOH (SOIL)
Received Date: 7/3/2019 8:12:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	68	60		mg/Kg	20	7/3/2019 11:21:13 AM	45997
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	23	9.9		mg/Kg	1	7/3/2019 10:42:05 AM	45990
Motor Oil Range Organics (MRO)	56	50		mg/Kg	1	7/3/2019 10:42:05 AM	45990
Surr: DNOP	104	70-130		%Rec	1	7/3/2019 10:42:05 AM	45990
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.5		mg/Kg	1	7/3/2019 10:25:38 AM	G61136
Surr: BFB	88.9	73.8-119		%Rec	1	7/3/2019 10:25:38 AM	G61136
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.022		mg/Kg	1	7/3/2019 10:25:38 AM	B61136
Toluene	ND	0.045		mg/Kg	1	7/3/2019 10:25:38 AM	B61136
Ethylbenzene	ND	0.045		mg/Kg	1	7/3/2019 10:25:38 AM	B61136
Xylenes, Total	ND	0.089		mg/Kg	1	7/3/2019 10:25:38 AM	B61136
Surr: 4-Bromofluorobenzene	93.6	80-120		%Rec	1	7/3/2019 10:25:38 AM	B61136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: W. Sidewall 7pt (0-4')
Project: GCU Com H 180
Collection Date: 7/2/2019 1:38:00 PM
Lab ID: 1907145-004
Matrix: MEOH (SOIL)
Received Date: 7/3/2019 8:12:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	66	60		mg/Kg	20	7/3/2019 11:33:38 AM	45997
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	20	9.2		mg/Kg	1	7/3/2019 11:04:11 AM	45990
Motor Oil Range Organics (MRO)	49	46		mg/Kg	1	7/3/2019 11:04:11 AM	45990
Surr: DNOP	110	70-130		%Rec	1	7/3/2019 11:04:11 AM	45990
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.1		mg/Kg	1	7/3/2019 10:49:13 AM	G61136
Surr: BFB	89.0	73.8-119		%Rec	1	7/3/2019 10:49:13 AM	G61136
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.020		mg/Kg	1	7/3/2019 10:49:13 AM	B61136
Toluene	ND	0.041		mg/Kg	1	7/3/2019 10:49:13 AM	B61136
Ethylbenzene	ND	0.041		mg/Kg	1	7/3/2019 10:49:13 AM	B61136
Xylenes, Total	ND	0.081		mg/Kg	1	7/3/2019 10:49:13 AM	B61136
Surr: 4-Bromofluorobenzene	94.0	80-120		%Rec	1	7/3/2019 10:49:13 AM	B61136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: N. Sidewall 5pt (0-4')
Project: GCU Com H 180
Collection Date: 7/2/2019 1:43:00 PM
Lab ID: 1907145-005
Matrix: MEOH (SOIL)
Received Date: 7/3/2019 8:12:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	7/3/2019 11:46:03 AM	45997
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	22	9.7		mg/Kg	1	7/3/2019 11:26:23 AM	45990
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/3/2019 11:26:23 AM	45990
Surr: DNOP	97.6	70-130		%Rec	1	7/3/2019 11:26:23 AM	45990
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	25	3.5		mg/Kg	1	7/3/2019 11:12:38 AM	G61136
Surr: BFB	250	73.8-119	S	%Rec	1	7/3/2019 11:12:38 AM	G61136
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.018		mg/Kg	1	7/3/2019 11:12:38 AM	B61136
Toluene	ND	0.035		mg/Kg	1	7/3/2019 11:12:38 AM	B61136
Ethylbenzene	ND	0.035		mg/Kg	1	7/3/2019 11:12:38 AM	B61136
Xylenes, Total	0.43	0.070		mg/Kg	1	7/3/2019 11:12:38 AM	B61136
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	7/3/2019 11:12:38 AM	B61136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: Grab 2 @ 3'
Project: GCU Com H 180
Collection Date: 7/2/2019 1:50:00 PM
Lab ID: 1907145-006
Matrix: MEOH (SOIL)
Received Date: 7/3/2019 8:12:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	75	60		mg/Kg	20	7/3/2019 11:58:27 AM	45997
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	120	9.1		mg/Kg	1	7/3/2019 11:48:25 AM	45990
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	7/3/2019 11:48:25 AM	45990
Surr: DNOP	101	70-130		%Rec	1	7/3/2019 11:48:25 AM	45990
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	2300	350		mg/Kg	100	7/3/2019 3:55:01 PM	G61136
Surr: BFB	206	73.8-119	S	%Rec	100	7/3/2019 3:55:01 PM	G61136
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.087		mg/Kg	5	7/3/2019 11:36:05 AM	B61136
Toluene	0.77	0.17		mg/Kg	5	7/3/2019 11:36:05 AM	B61136
Ethylbenzene	9.3	0.17		mg/Kg	5	7/3/2019 11:36:05 AM	B61136
Xylenes, Total	36	0.35		mg/Kg	5	7/3/2019 11:36:05 AM	B61136
Surr: 4-Bromofluorobenzene	330	80-120	S	%Rec	5	7/3/2019 11:36:05 AM	B61136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: E Sidewll 5 pt (0'-4')
Project: GCU Com H 180
Collection Date: 7/8/2019 11:45:00 AM
Lab ID: 1907351-001 **Matrix:** SOIL
Received Date: 7/9/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	62	60		mg/Kg	20	7/9/2019 12:22:08 PM	46066
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**BRM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/9/2019 10:54:59 AM	46063
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/9/2019 10:54:59 AM	46063
Surr: DNOP	91.0	70-130		%Rec	1	7/9/2019 10:54:59 AM	46063
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	3.1		mg/Kg	1	7/9/2019 1:25:27 PM	46057
Surr: BFB	101	73.8-119		%Rec	1	7/9/2019 1:25:27 PM	46057
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.016		mg/Kg	1	7/9/2019 1:25:27 PM	46057
Toluene	ND	0.031		mg/Kg	1	7/9/2019 1:25:27 PM	46057
Ethylbenzene	ND	0.031		mg/Kg	1	7/9/2019 1:25:27 PM	46057
Xylenes, Total	ND	0.062		mg/Kg	1	7/9/2019 1:25:27 PM	46057
Surr: 4-Bromofluorobenzene	90.2	80-120		%Rec	1	7/9/2019 1:25:27 PM	46057

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: NE Sidewall 3 pt
Project: GCU Com H 180
Collection Date: 7/8/2019 11:50:00 AM
Lab ID: 1907351-002 **Matrix:** SOIL
Received Date: 7/9/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	ND	60		mg/Kg	20	7/9/2019 12:34:33 PM	46066
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**BRM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	7/9/2019 11:17:18 AM	46063
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/9/2019 11:17:18 AM	46063
Surr: DNOP	91.1	70-130		%Rec	1	7/9/2019 11:17:18 AM	46063
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	3.7		mg/Kg	1	7/9/2019 1:48:06 PM	46057
Surr: BFB	102	73.8-119		%Rec	1	7/9/2019 1:48:06 PM	46057
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.018		mg/Kg	1	7/9/2019 1:48:06 PM	46057
Toluene	ND	0.037		mg/Kg	1	7/9/2019 1:48:06 PM	46057
Ethylbenzene	ND	0.037		mg/Kg	1	7/9/2019 1:48:06 PM	46057
Xylenes, Total	ND	0.074		mg/Kg	1	7/9/2019 1:48:06 PM	46057
Surr: 4-Bromofluorobenzene	87.5	80-120		%Rec	1	7/9/2019 1:48:06 PM	46057

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: Extended North Wall NW Corner
Project: GCU COM H 180
Collection Date: 7/25/2019 11:15:00 AM
Lab ID: 1907D46-001 **Matrix:** SOIL
Received Date: 7/26/2019 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	ND	60		mg/Kg	20	7/26/2019 10:41:19 AM	46414
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	11	9.0		mg/Kg	1	7/26/2019 10:33:51 AM	46413
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	7/26/2019 10:33:51 AM	46413
Surr: DNOP	94.9	70-130		%Rec	1	7/26/2019 10:33:51 AM	46413
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	27	18		mg/Kg	5	7/26/2019 10:19:59 AM	G61677
Surr: BFB	161	73.8-119	S	%Rec	5	7/26/2019 10:19:59 AM	G61677
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.091		mg/Kg	5	7/26/2019 10:19:59 AM	B61677
Toluene	ND	0.18		mg/Kg	5	7/26/2019 10:19:59 AM	B61677
Ethylbenzene	ND	0.18		mg/Kg	5	7/26/2019 10:19:59 AM	B61677
Xylenes, Total	0.38	0.36		mg/Kg	5	7/26/2019 10:19:59 AM	B61677
Surr: 4-Bromofluorobenzene	97.3	80-120		%Rec	5	7/26/2019 10:19:59 AM	B61677

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: Extended North Wall NE Corner
Project: GCU COM H 180
Collection Date: 7/25/2019 11:21:00 AM
Lab ID: 1907D46-002 **Matrix:** SOIL
Received Date: 7/26/2019 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	ND	60		mg/Kg	20	7/26/2019 10:53:44 AM	46414
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	37	9.8		mg/Kg	1	7/26/2019 10:46:37 AM	46413
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/26/2019 10:46:37 AM	46413
Surr: DNOP	106	70-130		%Rec	1	7/26/2019 10:46:37 AM	46413
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	19		mg/Kg	5	7/26/2019 10:43:28 AM	G61677
Surr: BFB	93.4	73.8-119		%Rec	5	7/26/2019 10:43:28 AM	G61677
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.093		mg/Kg	5	7/26/2019 10:43:28 AM	B61677
Toluene	ND	0.19		mg/Kg	5	7/26/2019 10:43:28 AM	B61677
Ethylbenzene	ND	0.19		mg/Kg	5	7/26/2019 10:43:28 AM	B61677
Xylenes, Total	ND	0.37		mg/Kg	5	7/26/2019 10:43:28 AM	B61677
Surr: 4-Bromofluorobenzene	92.6	80-120		%Rec	5	7/26/2019 10:43:28 AM	B61677

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: Extended North Wall SE Corner
Project: GCU COM H 180
Collection Date: 7/25/2019 11:28:00 AM
Lab ID: 1907D46-003 **Matrix:** SOIL
Received Date: 7/26/2019 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	ND	60		mg/Kg	20	7/26/2019 11:06:09 AM	46414
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	58	9.3		mg/Kg	1	7/26/2019 10:55:54 AM	46413
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/26/2019 10:55:54 AM	46413
Surr: DNOP	99.3	70-130		%Rec	1	7/26/2019 10:55:54 AM	46413
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	19		mg/Kg	5	7/26/2019 11:06:55 AM	G61677
Surr: BFB	102	73.8-119		%Rec	5	7/26/2019 11:06:55 AM	G61677
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.096		mg/Kg	5	7/26/2019 11:06:55 AM	B61677
Toluene	ND	0.19		mg/Kg	5	7/26/2019 11:06:55 AM	B61677
Ethylbenzene	ND	0.19		mg/Kg	5	7/26/2019 11:06:55 AM	B61677
Xylenes, Total	ND	0.38		mg/Kg	5	7/26/2019 11:06:55 AM	B61677
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	5	7/26/2019 11:06:55 AM	B61677

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Chain-of-Custody Record

Client: **BLAGG ENGR. / BPX ENERGY**

Mailing Address: **P.O. BOX 87**

BLOOMFIELD, NM 87413

Phone #: **(505) 632-1199**

email or Fax#:

QA/QC Package:
☑ Standard ☐ Level 4 (Full Validation)

Accreditation:
☐ NELAP ☐ Other_____
☐ EDD (Type) _____

Turn-Around Time:
☐ Standard ☑ Rush SAME DAY

Project Name:
GCU Com H # 180

Project #:

Project Manager:
SABRE BEEBE

Sampler: **NELSON VELEZ**

On Ice: ☒ Yes ☐ No

Sample Temperature: 4.3° +0.5 CF = 4.7°

3.4° +0.5 CF = 3.9°
7.3° +0.5 CF = 7.8°

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX ~~+ MTBE + TMB's~~ (8021B)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Chloride (soil - 300.0 / water - 300.1)		Grab sample	# pt. composite sample	Air Bubbles (Y or N)
7/2/19	1327	SOIL	E. SIDEWALL 7 pt. (0'-4')	4oz-1	COOL	-001	✓		✓									✓			7	
7/2/19	1331	SOIL	SE SIDEWALL 5 pt. (0'-4')	4oz-1	COOL	-002	✓		✓									✓			5	
7/2/19	1334	SOIL	SW SIDEWALL 5 pt. (0'-4')	4oz-1	COOL	-003	✓		✓									✓			5	
7/2/19	1338	SOIL	W. SIDEWALL 7 pt. (0'-4')	4oz-1	COOL	-004	✓		✓									✓			7	
7/2/19	1343	SOIL	N. SIDEWALL 5 pt. (0'-4')	4oz-1	COOL	-005	✓		✓									✓			5	
7/2/19	1350	SOIL	GRAB @ 3'	4oz-1	COOL	-006	✓		✓									✓		✓		

Date	Time	Relinquished by:	Received by:	Date	Time
7/2/19	1607		Christa Waeta	7/2/19	1607
7/2/19	1814	Christa Waeta		7/3/19	0812

Remarks: **BILL DIRECTLY TO BPX USING THE CONTACT(S) BELOW. PO DELIVERED VIA EMAIL OR IS PENDING.**

CONTACT: **SABRE BEEBE / ERIN DUNMAN**

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Chain-of-Custody Record

Client: **BLAGG ENGR. / BPX ENERGY**

Mailing Address: **P.O. BOX 87**
BLOOMFIELD, NM 87413

Phone #: **(505) 632-1199**

email or Fax#:

QA/QC Package:
☑ Standard ☐ Level 4 (Full Validation)

Accreditation:
☐ NELAP ☐ Other_____
☐ EDD (Type) _____

Turn-Around Time:
☐ Standard ☑ Rush SAME DAY

Project Name:
GCU Com H # 180

Project #:

Project Manager:
SABRE BEEBE

Sampler: **NELSON VELEZ**

On Ice: ☑ Yes ☐ No NV

Sample Temperature: 2.7-0.5LF=2.2

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and # (07/09/19 K)	Preservative Type	HEAL No. 1907351	BTEX ~~+ MTBE + TMB's~~ (8021B)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Chloride (soil - 300.0 / water - 300.1)		Grab sample	# pt. composite sample	Air Bubbles (Y or N)
7/8/19	1145	SOIL	E. SIDEWALL 5 pt. (0'-4')	4oz.-1 Mesilla	COOL	001	✓		✓									✓			5	
7/8/19	1150	SOIL	NE SIDEWALL 3 pt.	4oz-1	COOL	002	✓		✓									✓			3	

Date	Time	Relinquished by:	Received by:	Date	Time
7/8/19	1517			7/8/19	1517
7/8/19	1741			07/09/19	0810

Remarks: **BILL DIRECTLY TO BPX USING THE CONTACT(S) BELOW. PO DELIVERED VIA EMAIL OR IS PENDING.**
CONTACT: **SABRE BEEBE / ERIN DUNMAN**

Chain-of-Custody Record

Client: BPX ENERGY
BLAGG ENGINEERING, INC.
Mailing Address:

Phone #:
email or Fax#:
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time: SAME DAY
☐ Standard ☒ Rush 7/26/2019
Project Name: GCU COM H # 180
Project #:
Project Manager: SABRE BEEBE
Sampler: JEFF BLAGG
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.5 + 0.1CF = 1.6

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1907D46	BTEX + ~~MTBE~~ + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	CHLORIDE				Air Bubbles (Y or N)
				07/26/19																		
7/25/2019	1115	Soil	Extended North Wall NW Corner	4oz x1	Cool	001	X		X									X				
"	1121	"	Extended North Wall NE Corner	"	"	002	X		X									X				
"	1128	"	Extended North Wall SE Corner	"	"	003	X		X									X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
7/25/2019	1740	Jeff Blagg	Christa Waele	7/25/19	1740
7/25/19	1820	Christa Waele			
			Received by:	Date	Time
				07/26/19	0800

Remarks: Bill BPX
CONTACT: SABRE BEEBE
P.O.: 4301090111

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907145**

08-Jul-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: **MB-45997**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **45997**	RunNo: **61134**
Prep Date: **7/3/2019**	Analysis Date: **7/3/2019**	SeqNo: **2072914** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-45997**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **45997**	RunNo: **61134**
Prep Date: **7/3/2019**	Analysis Date: **7/3/2019**	SeqNo: **2072915** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907145**

08-Jul-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: **LCS-45990**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **45990**	RunNo: **61129**
Prep Date: **7/3/2019**	Analysis Date: **7/3/2019**	SeqNo: **2071524** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	10	50.00	0	105	63.9	124			
Surr: DNOP	4.5		5.000		91.0	70	130			

Sample ID: **MB-45990**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **45990**	RunNo: **61129**
Prep Date: **7/3/2019**	Analysis Date: **7/3/2019**	SeqNo: **2071525** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.5		10.00		95.3	70	130			

Sample ID: **MB-45975**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **45975**	RunNo: **61135**
Prep Date: **7/2/2019**	Analysis Date: **7/3/2019**	SeqNo: **2072210** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.5		10.00		84.8	70	130			

Sample ID: **LCS-45975**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **45975**	RunNo: **61135**
Prep Date: **7/2/2019**	Analysis Date: **7/3/2019**	SeqNo: **2072212** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.2		5.000		84.7	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907145**

08-Jul-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: **RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **G61136**	RunNo: **61136**
Prep Date:	Analysis Date: **7/3/2019**	SeqNo: **2072044** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	860		1000		86.0	73.8	119			

Sample ID: **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **G61136**	RunNo: **61136**
Prep Date:	Analysis Date: **7/3/2019**	SeqNo: **2072045** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	85.8	80.1	123			
Surr: BFB	1000		1000		102	73.8	119			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907145**

08-Jul-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: **RB**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **B61136**	RunNo: **61136**
Prep Date:	Analysis Date: **7/3/2019**	SeqNo: **2072069** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.92		1.000		91.8	80	120			

Sample ID: **100NG BTEX LCS**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **B61136**	RunNo: **61136**
Prep Date:	Analysis Date: **7/3/2019**	SeqNo: **2072070** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.025	1.000	0	92.0	80	120			
Toluene	0.97	0.050	1.000	0	96.9	80	120			
Ethylbenzene	0.98	0.050	1.000	0	97.7	80	120			
Xylenes, Total	2.9	0.10	3.000	0	96.9	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		99.6	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **BLAGG** Work Order Number: **1907145** RcptNo: **1**

Received By: **Yazmine Garduno** **7/3/2019 8:12:00 AM**

Completed By: **Leah Baca** **7/3/2019 8:40:16 AM**

Reviewed By: DAD 7/3/19

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by:

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.7	Good	Yes			
2	3.9	Good	Yes			
3	7.8	Good	Yes			

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907351**

11-Jul-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: **MB-46066**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **46066**	RunNo: **61239**
Prep Date: **7/9/2019**	Analysis Date: **7/9/2019**	SeqNo: **2076918** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-46066**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **46066**	RunNo: **61239**
Prep Date: **7/9/2019**	Analysis Date: **7/9/2019**	SeqNo: **2076919** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907351**

11-Jul-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: **LCS-46063** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **46063** RunNo: **61236**

Prep Date: **7/9/2019** Analysis Date: **7/9/2019** SeqNo: **2075888** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	55	10	50.00	0	110	63.9	124			
Surr: DNOP	4.7		5.000		94.0	70	130			

Sample ID: **MB-46063** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **46063** RunNo: **61236**

Prep Date: **7/9/2019** Analysis Date: **7/9/2019** SeqNo: **2075889** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.4		10.00		94.0	70	130			

Sample ID: **LCS-46044** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **46044** RunNo: **61237**

Prep Date: **7/8/2019** Analysis Date: **7/9/2019** SeqNo: **2076913** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.5		5.000		90.6	70	130			

Sample ID: **MB-46044** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **46044** RunNo: **61237**

Prep Date: **7/8/2019** Analysis Date: **7/9/2019** SeqNo: **2076914** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.9		10.00		89.0	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907351**

11-Jul-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: **MB-46057**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **46057**	RunNo: **61243**
Prep Date: **7/8/2019**	Analysis Date: **7/9/2019**	SeqNo: **2076306** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1100		1000		105	73.8	119			

Sample ID: **LCS-46057**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **46057**	RunNo: **61243**
Prep Date: **7/8/2019**	Analysis Date: **7/9/2019**	SeqNo: **2076307** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	92.3	80.1	123			
Surr: BFB	1100		1000		112	73.8	119			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907351**

11-Jul-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: **MB-46057**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **46057**	RunNo: **61243**
Prep Date: **7/8/2019**	Analysis Date: **7/9/2019**	SeqNo: **2076314** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.95		1.000		95.5	80	120			

Sample ID: **LCS-46057**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **46057**	RunNo: **61243**
Prep Date: **7/8/2019**	Analysis Date: **7/9/2019**	SeqNo: **2076315** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.025	1.000	0	92.0	80	120			
Toluene	0.91	0.050	1.000	0	91.1	80	120			
Ethylbenzene	0.90	0.050	1.000	0	90.3	80	120			
Xylenes, Total	2.7	0.10	3.000	0	88.9	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		100	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: BLAGG Work Order Number: 1907351 RcptNo: 1

Received By: Anne Thorne 7/9/2019 8:10:00 AM Anne Thorne

Completed By: Anne Thorne 7/9/2019 8:59:34 AM Anne Thorne

Reviewed By: IO 7/9/19

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? 07/09/19
Checked by: _____

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.2	Good	Yes			

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907D46**

30-Jul-19

Client: Blagg Engineering

Project: GCU COM H 180

Sample ID: **MB-46414**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **46414**	RunNo: **61674**
Prep Date: **7/26/2019**	Analysis Date: **7/26/2019**	SeqNo: **2091616** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-46414**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **46414**	RunNo: **61674**
Prep Date: **7/26/2019**	Analysis Date: **7/26/2019**	SeqNo: **2091617** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907D46**

30-Jul-19

Client: Blagg Engineering
Project: GCU COM H 180

Sample ID: **LCS-46413** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **46413** RunNo: **61668**
Prep Date: **7/26/2019** Analysis Date: **7/26/2019** SeqNo: **2090616** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	57	10	50.00	0	114	63.9	124			
Surr: DNOP	5.3		5.000		107	70	130			

Sample ID: **MB-46413** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **46413** RunNo: **61668**
Prep Date: **7/26/2019** Analysis Date: **7/26/2019** SeqNo: **2090617** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		103	70	130			

Sample ID: **LCS-46394** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **46394** RunNo: **61668**
Prep Date: **7/25/2019** Analysis Date: **7/26/2019** SeqNo: **2091169** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.4		5.000		88.6	70	130			

Sample ID: **MB-46394** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **46394** RunNo: **61668**
Prep Date: **7/25/2019** Analysis Date: **7/26/2019** SeqNo: **2091171** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.1		10.00		90.7	70	130			

Sample ID: **LCS-46401** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **46401** RunNo: **61669**
Prep Date: **7/25/2019** Analysis Date: **7/26/2019** SeqNo: **2091395** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.3		5.000		85.9	70	130			

Sample ID: **MB-46401** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **46401** RunNo: **61669**
Prep Date: **7/25/2019** Analysis Date: **7/26/2019** SeqNo: **2091396** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	10		10.00		103	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907D46**

30-Jul-19

Client: Blagg Engineering

Project: GCU COM H 180

Sample ID: **RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **G61677**	RunNo: **61677**
Prep Date:	Analysis Date: **7/26/2019**	SeqNo: **2091146** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	940		1000		93.9	73.8	119			

Sample ID: **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **G61677**	RunNo: **61677**
Prep Date:	Analysis Date: **7/26/2019**	SeqNo: **2091147** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	93.8	80.1	123			
Surr: BFB	1200		1000		116	73.8	119			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907D46**

30-Jul-19

Client: Blagg Engineering

Project: GCU COM H 180

Sample ID: **RB**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **B61677**	RunNo: **61677**
Prep Date:	Analysis Date: **7/26/2019**	SeqNo: **2091155** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.94		1.000		93.6	80	120			

Sample ID: **100NG BTEX LCS**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **B61677**	RunNo: **61677**
Prep Date:	Analysis Date: **7/26/2019**	SeqNo: **2091156** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.025	1.000	0	94.1	80	120			
Toluene	1.0	0.050	1.000	0	100	80	120			
Ethylbenzene	1.0	0.050	1.000	0	102	80	120			
Xylenes, Total	3.0	0.10	3.000	0	102	80	120			
Surr: 4-Bromofluorobenzene	0.95		1.000		94.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: BLAGG Work Order Number: 1907D46 RcptNo: 1

Received By: **Anne Thorne** 7/26/2019 8:00:00 AM Anne Thorne

Completed By: **Anne Thorne** 7/26/2019 8:28:35 AM Anne Thorne

Reviewed By: DAD 7/26/19

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? _____
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: _____

07/26/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified:		Date	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.6	Good	Yes			

GROUNDWATER

DATA

BPX ENERGY INC.

GROUNDWATER FIELD DATA & LAB BTEX / GENERAL CHEMISTRY RESULTS

GCU Com H # 180 **API #: 3004507814**
UNIT J, SEC. 28, T29N, R12W

DRAFT DATE: October 15, 2019
Submitted by Blagg Engineering, Inc.

SAMPLE DATE	WELL NAME / NUMBER	DEPTH to WATER (feet)	WELL TOTAL LENGTH (feet)	Field pH	CONDUCT. (µmhos)	TEMP. (celcius)	Naphthalene (mg/L)	BTEX US EPA METHOD 8021B or 8260B BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL BENZENE (µg/L)	TOTAL XYLENES (µg/L)
09/23/19	MW #101	7.71	11.65	7.45	1,700	19.7	ND	ND	ND	ND	ND
09/23/19	MW #102	6.84	12.58	7.16	2,400	20.3	26	140	5,000	480	3,400
09/23/19	MW #103	7.31	12.58	7.19	2,500	20.3	ND	ND	ND	43	110
09/23/19	MW #104	7.46	12.20	7.23	2,300	19.9	ND	4.7	1.4	18	92
NMWQCC GROUNDWATER STANDARDS							30	5	1,000	700	620

SAMPLE DATE	WELL NAME /NUMBER	Lab pH	Fluoride (mg/L)	Chloride (mg/L)	Nitrate-N (mg/L)	Sulfate (mg/L)	TDS (mg/L)	Lead (mg/L)	Iron (mg/L)	Manganese (mg/L)
09/23/19	MW #101	7.54	ND	100	ND	2,300	4,100	ND	0.027	3.8
09/23/19	MW #102	7.39	ND	130	ND	3,000	5,200	ND	0.14	5.0
09/23/19	MW #103	7.82	ND	130	ND	2,100	4,180	ND	0.10	2.6
09/23/19	MW #104	7.66	ND	130	ND	2,500	4,980	ND	0.029	3.8
NMWQCC GROUNDWATER STANDARDS			1.6	250.0	10.0	600.0	1,000.0	0.015	1.0	0.2

NOTES :

1) **ND Indicates not detected at the laboratory reporting limit**
2) **NMWQCC Indicates New Mexico Water Quality Control Commission (levels not to exceed allowable threshold noted or background levels - MW #1 serves as background data when applicable**
3) **Depth to Water measured from top of well casing**
4) **TDS - Total Dissolved Solids**
5) **mg/L - Milligrams per liter**
6) **µmhos - Micro ohms**
7) **NMWQCC pH allowable range between 6-9**
8) **µg/L - Micrograms per liter**

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER
AZTEC

John R. D'Antonio, Jr., P.E.
State Engineer

100 Gossett Drive, Suite A
Aztec, New Mexico 87410

August 20, 2019

BPX Energy
c/o Blagg Engineering
PO Box87
Bloomfield, NM 87413

RE: Permit Approval for Monitoring Wells, SJ-4361 POD1-POD4; BPX Energy; GCU Com H #180 Gas Well Site; 17 Road 5500, Farmington, New Mexico

Dear Mr. Blagg:

On August 14, 2019 the New Mexico Office of the State Engineer received an application for a permit for the drilling and use of four proposed new monitoring wells at the above referenced location. Enclosed is a copy of the above numbered permit that has been approved subject to the conditions set forth on the approval page and in the attached Conditions of Approval. A receipt for the fees paid is also attached.

Please be aware that there are deadlines to submit well records for the newly installed monitoring wells. These deadlines can be found in the attached Conditions of Approval. A standardized plugging method has also been included in the Conditions of Approval for the future abandonment of the wells covered by this permit. This eliminates the need to submit a separate Well Plugging Plan of Operations for approval by the NMOSE prior to plugging, unless an alternate plugging method is proposed, required by a separate oversight agency, necessary due to incompatibility with actual conditions, or artesian conditions are encountered. The well and plugging records should be sent to the NMOSE District V, 100 Gossett Drive, Suite A, Aztec, NM, 87410.

If you have any questions regarding this permitting action, please feel free to contact me at (505) 334-4751.

Sincerely,

Miles Juett
Assistant Watermaster
Water Rights Division – District V

Enclosures

cc: Aztec Reading (w/o enclosures)
SJ-4361 File
WATERS
Cory Smith, NMOCD District 3, via e-mail
Brandon Powell, NMOCD District 3,via e-mail

OFFICE OF THE STATE ENGINEER/INTERSTATE STREAM COMMISSION – AZTEC OFFICE

OFFICIAL RECEIPT NUMBER: 5 - 6438 DATE: 8-14-19 FILE NO.: TBD

TOTAL: 20000 RECEIVED: Twenty DOLLARS ☐ CASH: ☒ CHECK NO.: 13306

PAYOR: Blagg Engineering ADDRESS: PO Box 87

CITY: Bloomfield STATE: NM ZIP: 87413 RECEIVED BY: MJ

INSTRUCTIONS: Indicate the number of actions to the left of the appropriate type of filing. Complete the receipt information. **Original** to payor; **pink** copy to Program Support/ASD; **yellow** copy remains in district office; and **goldenrod** copy to accompany application being filed. If a mistake is made, void the original and all copies and submit to Program Support/ASD as part of the daily deposit.

A. Ground Water Filing Fees

___	1. Change of Ownership of Water Right	$ 2.00
___	2. Application to Appropriate or Supplement Domestic 72-12-1 Well	$ 125.00
___	3. Application to Repair or Deepen 72-12-1 Well	$ 75.00
___	4. Application for Replacement 72-12-1 Well	$ 75.00
___	5. Application to Change Purpose of Use 72-12-1 Well	$ 75.00
___	6. Application for Stock Well/Temp. Use	$ 5.00
___	7. Application to Appropriate Irrigation, Municipal, or Commercial Use	$ 25.00
___	8. Declaration of Water Right	$ 1.00
___	9. Application for Supplemental Non 72-12-1 Well	$ 25.00
___	10. Application to Change Place or Purpose of Use Non 72-12-1 Well	$ 25.00
___	11. Application to Change Point of Diversion and Place and/or Purpose of Use from Surface Water to Ground Water	$ 50.00
___	12. Application to Change Point of Diversion and Place and/or Purpose of Use from Ground Water to Ground Water	$ 50.00
___	13. Application to Change Point of Diversion of Non 72-12-1 Well	$ 25.00
___	14. Application to Repair or Deepen Non 72-12-1 Well	$ 5.00
4	15. Application for Test, Expl. Observ. Well	$ 5.00
___	16. Application for Extension of Time	$ 25.00
___	17. Proof of Application to Beneficial Use	$ 25.00
___	18. Notice of Intent to Appropriate	$ 25.00

B. Surface Water Filing Fees

___	1. Change of Ownership of a Water Right	$ 5.00
___	2. Declaration of Water Right	$ 10.00
___	3. Amended Declaration	$ 25.00
___	4. Application to Change Point of Diversion and Place and/or Purpose of Use from Surface Water to Surface Water	$ 200.00
___	5. Application to Change Point of Diversion and Place and/or Purpose of Use from Ground Water to Surface Water	$ 200.00
___	6. Application to Change Point of Diversion	$ 100.00
___	7. Application to Change Place and/or Purpose of Use	$ 100.00
___	8. Application to Appropriate	$ 25.00
___	9. Notice of Intent to Appropriate	$ 25.00
___	10. Application for Extension of Time	$ 50.00
___	11. Supplemental Well to a Surface Right	$ 100.00
___	12. Return Flow Credit	$ 100.00
___	13. Proof of Completion of Works	$ 25.00
___	14. Proof of Application of Water to Beneficial Use	$ 25.00
___	15. Water Development Plan	$ 100.00
___	16. Declaration of Livestock Water Impoundment	$ 10.00
___	17. Application for Livestock Water Impoundment	$ 10.00

All fees are non-refundable.

C. Well Driller Fees

___	1. Application for Well Driller's License	$ 50.00
___	2. Application for Renewal of Well Driller's License	$ 50.00

D. Reproduction of Documents

___ @ 25¢/copy $____

___ Map(s) $____

E. Certification $____

F. *Credit Card Convenience Fee $____

G. Other____ $____

Comments: 4 MW's @ GCU Com #418D for BPX Energy

File No. SJ-4361 POD1-4

NEW MEXICO OFFICE OF THE STATE ENGINEER

WR-07 APPLICATION FOR PERMIT TO DRILL

A WELL WITH NO WATER RIGHT

(check applicable box):

For fees, see State Engineer website: http://www.ose.state.nm.us/

Purpose:	☐	Pollution Control And/Or Recovery	☐	Ground Source Heat Pump
☐ Exploratory Well (Pump test)	☐	Construction Site/Public Works Dewatering	☐	Other(Describe):
☒ Monitoring Well	☐	Mine Dewatering		

A separate permit will be required to apply water to beneficial use regardless if use is consumptive or nonconsumptive.

☒ Temporary Request - Requested Start Date: August 22, 2019 Requested End Date: Unknown

Plugging Plan of Operations Submitted? ☐ Yes ☒ No

1. APPLICANT(S)

Name: BPX Energy	Name:
Contact or Agent: check here if Agent ☒ Jeffrey Blagg	Contact or Agent: check here if Agent ☐
Mailing Address: P.O. Box 87	Mailing Address:
City: Bloomfield	City:
State: New Mexico Zip Code: 87413	State: Zip Code:
Phone: 505-320-1183 ☐ Home ☒ Cell Phone (Work):	Phone: 281-810-2578 ☐ Home ☐ Cell Phone (Work):
E-mail (optional): jeffcblagg@aol.com	E-mail (optional): bpx contact: erin.dunman@bpx.com

STATE ENGINEER OFFICE AZTEC, NEW MEXICO 2019 AUG 14 PM 1:28

FOR OSE INTERNAL USE Application for Permit, Form WR-07, Rev 11/17/16

File No.: SJ-4361 POD1-4	Trn. No.:	Receipt No.: 5-6438
Trans Description (optional):		
Sub-Basin:	PCW/LOG Due Date: 8-20-2020	

2. **WELL(S)** Describe the well(s) applicable to this application.

Location Required: Coordinate location must be reported in NM State Plane (NAD 83), UTM (NAD 83), or Latitude/Longitude (Lat/Long - WGS84).
District II (Roswell) and District VII (Cimarron) customers, provide a PLSS location in addition to above.

☐ NM State Plane (NAD83) (Feet)
☐ NM West Zone
☐ NM East Zone
☐ NM Central Zone

☐ UTM (NAD83) (Meters)
☐ Zone 12N
☐ Zone 13N

■ Lat/Long (WGS84) (to the nearest 1/10th of second)

Well Number (if known):	X or Easting or Longitude:	Y or Northing or Latitude:	Provide if known: -Public Land Survey System (PLSS) (*Quarters or Halves , Section, Township, Range*) OR - Hydrographic Survey Map & Tract; OR - Lot, Block & Subdivision; OR - Land Grant Name
MW-101	108° 06' 8.9"	36° 41' 42.8"	SE/4 Sec 28 - T29N - R12W (NMPM)
MW-102	108° 06' 9.8"	36° 41' 42.7"	SE/4 Sec 28 - T29N - R12W (NMPM)
MW-103	108° 06' 9.4"	36° 41' 42.4"	SE/4 Sec 28 - T29N - R12W (NMPM)
MW-104	108° 06' 10.5"	36° 41' 42.3"	SE/4 Sec 28 - T29N - R12W (NMPM)

NOTE: If more well locations need to be described, complete form WR-08 (Attachment 1 – POD Descriptions)
Additional well descriptions are attached: ☐ Yes ■ No **If yes, how many**_____

Other description relating well to common landmarks, streets, or other:
Located on natural gas wellsite, McGee Fairgrounds (southern end), Highway 64, San Juan County, NM

Well is on land owned by: San Juan County

Well Information: NOTE: If more than one (1) well needs to be described, provide attachment. **Attached?** ☐ Yes ■ No
If yes, how many_____

Approximate depth of well (feet): 10	Outside diameter of well casing (inches): 2
Driller Name: HRL Compliance Solutions	Driller License Number: 1789

3. ADDITIONAL STATEMENTS OR EXPLANATIONS

Monitor wells are for investigation residual groundwater quality following remediation of hydrocarbon impacts at the BPX operated well: GCU Com H #180. The duration is presently unknown, but could be for several years.

All monitor wells planned to have the same completion details: Slotted PVC piping from 10' - 3', Solid Riser from 3' below grade to 2' above grade, locked well protector to secure well. Graded sand pack from TD to 2' below grade, cement/bentonite mix from 2' below grade to ground surface. Cement/concrete cap at surface (approximately 4-inches thick) to secure well protector.

Groundwater at the site is known to range between 3' - 6' below ground surface.

2019 AUG 14 PM 1:28

STATE ENGINEER OFFICE
AZTEC, NEW MEXICO

FOR OSE INTERNAL USE — Application for Permit, Form WR-07

File No.: SJ-4361 POD1-4	Tm No.:

4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application:

Exploratory:	**Pollution Control and/or Recovery:**	**Construction De-Watering:**	**Mine De-Watering:**
☐ Include a description of any proposed pump test, if applicable.	☐ Include a plan for pollution control/recovery, that includes the following: ☐ A description of the need for the pollution control or recovery operation. ☐ The estimated maximum period of time for completion of the operation. ☐ The annual diversion amount. ☐ The annual consumptive use amount. ☐ The maximum amount of water to be diverted and injected for the duration of the operation. ☐ The method and place of discharge.	☐ Include a description of the proposed dewatering operation, ☐ The estimated duration of the operation, ☐ The maximum amount of water to be diverted, ☐ A description of the need for the dewatering operation, and, ☐ A description of how the diverted water will be disposed of.	☐ Include a plan for pollution control/recovery, that includes the following: ☐ A description of the need for mine dewatering. ☐ The estimated maximum period of time for completion of the operation. ☐ The source(s) of the water to be diverted. ☐ The geohydrologic characteristics of the aquifer(s). ☐ The maximum amount of water to be diverted per annum. ☐ The maximum amount of water to be diverted for the duration of the operation. ☐ The quality of the water.
Monitoring: ■ Include the reason for the monitoring well, and, ■ The duration of the planned monitoring.	☐ The method of measurement of water produced and discharged. ☐ The source of water to be injected. ☐ The method of measurement of water injected. ☐ The characteristics of the aquifer. ☐ The method of determining the resulting annual consumptive use of water and depletion from any related stream system. ☐ Proof of any permit required from the New Mexico Environment Department. ☐ An access agreement if the applicant is not the owner of the land on which the pollution plume control or recovery well is to be located.	**Ground Source Heat Pump:** ☐ Include a description of the geothermal heat exchange project, ☐ The number of boreholes for the completed project and required depths. ☐ The time frame for constructing the geothermal heat exchange project, and, ☐ The duration of the project. ☐ Preliminary surveys, design data, and additional information shall be included to provide all essential facts relating to the request.	☐ The method of measurement of water diverted. ☐ The recharge of water to the aquifer. ☐ Description of the estimated area of hydrologic effect of the project. ☐ The method and place of discharge. ☐ An estimation of the effects on surface water rights and underground water rights from the mine dewatering project. ☐ A description of the methods employed to estimate effects on surface water rights and underground water rights. ☐ Information on existing wells, rivers, springs, and wetlands within the area of hydrologic effect.

ACKNOWLEDGEMENT

I, We (name of applicant(s)), Jeffrey C. Blagg, P.E.
Print Name(s)

affirm that the foregoing statements are true to the best of (my, our) knowledge and belief.

Jeffrey C. Blagg
Applicant Signature

Applicant Signature

STATE ENGINEER OFFICE
AZTEC, NEW MEXICO
2019 AUG 14 PM 1:27

ACTION OF THE STATE ENGINEER

This application is:

☒ approved ☐ partially approved ☐ denied

provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval.

Witness my hand and seal this 20 day of August 20 19, for the State Engineer,

John R. D'Antonio, Jr., P.E., State Engineer

By: Miles Juett
Signature Print

Title: Assistant Watermaster
Print

FOR OSE INTERNAL USE Application for Permit, Form WR-07

File No.: SJ-4361 POD1-4	Trn No.:

NMOSE Permit to Drill a Well(s) With No Water Right - Conditions of Approval
SJ-4361 POD1–POD4

The New Mexico Office of the State Engineer (NMOSE) has determined that existing water rights will not be impaired by this activity. This application is approved without publication provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare of the state. This application approval (i.e., permit) is further subject to the following conditions of approval.

1. This permit is approved as follows:

Permittee(s):	BPX Energy (via Blagg Engineering, as Agent) PO Box 87 Bloomfield, NM 87413
Permit Number:	SJ-4361
Application File Date:	August 14, 2019
Priority:	N/A
Source:	Groundwater
Point(s) of Diversion:	Four points of diversion (PODs), SJ-4361 POD1-POD4, are proposed. The PODs include four proposed monitoring wells associated with the GCU Com H #180 site investigation (Table 1). The wells are located on land owned by San Juan County. The site is located at 17 Road 5500, Farmington, NM 87401. The PODs will be located within the SW/4 NW/4 SE/4 of Section 28, T29N, R12W, NMPM, at the following approximate point locations (Long./Lat., WGS84).

Table 1: Proposed New Monitoring Wells

POD Number and Owner's Well Name	Casing: Diameter (inches) and Depth (feet)		Longitude (decimal degrees)	Latitude (decimal degrees)
MW-101 (SJ-4361 POD1)	2	10	108° 6' 8.9" W	36° 41' 42.8" N
MW-102 (SJ-4361 POD2)	2	10	108° 6' 9.8" W	36° 41' 42.7" N
MW-103 (SJ-4361 POD3)	2	10	108° 6' 9.4" W	36° 41' 42.4" N
MW-104 (SJ-4361 POD4)	2	10	108° 6' 10.5" W	36° 41' 42.3" N

Purpose of Use:	Groundwater sampling
Place of Use:	N/A
Amount of Water:	N/A

2. No water shall be appropriated and beneficially used from any wells or borings approved under this permit.

3. No water shall be diverted from the well(s) except for initial well development and periodic sampling purposes. Upon completion of monitoring activities the well(s) shall be plugged in accordance with Subsection C of 19.27.4.30 NMAC, unless a permit to use water is acquired from the NMOSE.

4. The well(s) may continue to be used indefinitely for groundwater sampling or monitoring required for the current site investigation and any associated remediation, so long as they remain in good repair. **A new permit shall be obtained from the NMOSE prior to replacing a well(s) or for any change in use as approved herein.**

5. Water well drilling and well drilling activities, including well plugging, are regulated under NMOSE Regulations 19.27.4 NMAC. These regulations apply, and provide both general and specific direction regarding the drilling of wells in New Mexico. Note that the construction of any well that allows groundwater to flow uncontrolled to the land surface or to move appreciably between geologic units is prohibited.

6. In accordance with Subsection A of 19.27.4.29 NMAC, on-site supervision of well drilling/plugging is required by the holder of a New Mexico Well Driller License or a NMOSE-registered Drill Rig Supervisor. The New Mexico licensed Well Driller shall ensure that well drilling activities are completed in accordance with 19.27.4.29, 19.27.4.30 and 19.27.4.31 NMAC. However, pursuant to 72-12-12 NMSA 1978 and 19.27.4.8 NMAC, a driller's license is not required for the construction of a driven well with an outside casing diameter of 2⅜ inches or less and that does not require the use of a drill rig (e.g., auger) for installation. This exemption is not applicable to well plugging.

7. The permittee has not stated whether artesian conditions are likely to be encountered at the proposed well/borehole location(s). However, if artesian conditions are encountered during drilling, all rules and regulations pertaining to the drilling and casing and plugging of artesian wells shall be followed.

8. A Well Record documenting the as-built well construction and materials used shall be filed for each of the new wells in accordance with Subsection N of 19.27.4.29 NMAC. **Well Records shall be filed with the State Engineer (NMOSE District V, 100 Gossett Drive, Suite A, Aztec, NM, 87410) within 30 days after completion of the well(s).** Well installation(s) shall be complete and the well record(s) filed no later than one year from the date of approval of this permit.

9. If the required Well Record documentation is not received within one year of the date of permit approval, this permit will automatically expire.

10. When the permittee receives approval or direction to permanently abandon the well(s)/borehole(s) covered by this permit, plugging shall be performed by a New Mexico licensed well driller. The well(s)/borehole(s) shall be plugged pursuant to Subsection C of 19.27.4.30 NMAC using the following method, unless an alternate plugging method has been proposed by or on behalf of the well owner and approved by the NMOSE. If a well/borehole has encountered artesian conditions, a Well Plugging Plan of Operations shall be submitted and

NMOSE approval obtained *prior* to the initiation of *any* well plugging activities concerning artesian wells. Additionally, if the following standardized plugging sealant is not appropriate for use due to incompatibility with the water quality or any soil and water contaminates encountered, a Well Plugging Plan of Operations shall be submitted and NMOSE approval obtained *prior* to the initiation of *any* well plugging activities.

a. Obstructions in a well/borehole shall be identified and removed if possible. If an obstruction cannot be removed, the method used to grout below and around the obstruction shall be described in detail in the plugging record.

b. Prior to plugging, calculate the theoretical volume of sealant needed for abandonment of the well/borehole based on the actual measured pluggable depth of the well/borehole and the volume factor for the casing/borehole diameter. Compare the actual volume of sealant placed in the well/borehole with the theoretical volume to verify the actual volume of sealant is equal to or exceeds the theoretical volume.

c. Portland Type I/II cement shall be used for the plugging sealant. The water mixed with the cement to create the plugging sealant shall be potable water or of similar quality. Portland cement has a fundamental water demand of 5.2 gallons of water per 94-lb sack of cement. Up to a maximum of 6.0 gallons per 94-lb sack is acceptable to allow for greater pumpability.

   Pure bentonite powder ("90 barrel yield") is allowed as a cement additive by NMOSE and American Water Works Association (AWWA) guidelines. If a bentonite additive is used, the following rates and mixing guidelines shall be followed. For a rate or a mixing procedure other than that provided below, the NMOSE District V office must be contacted for pre-approval. Neither granular bentonite nor extended-yield bentonite shall be mixed with cement for the purpose of this plugging activity. When supplementing a cement slurry with bentonite powder, water demand for the mix increases at a rate of approximately 0.65 gallon of water for each 1% increment of bentonite bdwc (by dry weight cement) above the stated base water demand of 5.2 gallons water per 94-lb sack of cement for neat cement. Bentonite powder must be hydrated separately with its required increment of water before being mixed into the wet neat cement. If water is otherwise added to the combination of dry ingredients or the dry bentonite is blended into wet cement, the alkalinity of the cement will restrict the yield of the bentonite powder, resulting in excess free water in the slurry and excessive cement shrinkage upon curing.

d. Placement of the sealant within the well/borehole shall be by pumping through a tremie pipe extended to near the bottom of the well/borehole and kept below the top of the slurry column (i.e., immersed in the slurry) as the well/borehole is plugged from bottom upwards in a manner that displaces the standing water column.

e. Prior to, or upon completion of plugging, the well casing may be cut-off below grade as necessary to allow for approved construction onsite, provided a minimum six-inch thickness of reinforced abandonment plugging sealant or concrete completely covers the top of the cut-off casing. Any remaining void to the surface may be filled with native soil, concrete, or asphalt as needed to match the surrounding surface material and blended with the surface topography to prevent ponding.

f. **Within 30 days after completion of well/borehole plugging, a complete Plugging Record shall be filed with the State Engineer** in accordance with Paragraph (3) of Subsection C of 19.27.4.30 NMAC for each well/boring plugged. The Well Plugging

Record(s) shall be filed with the State Engineer at the NMOSE District V Office, 100 Gossett Drive, Suite A, Aztec, NM 87410. The required well plugging record form is available at http://www.ose.state.nm.us/STST/wdForms.php.

11. In accordance with Subsection C of 19.27.4.30 NMAC, a well/borehole that does not encounter groundwater may be immediately plugged by filling with drill cuttings or clean native fill to within 10 feet of land surface and by plugging the remaining 10 feet to the land surface with a sealant approved by the Office of the State Engineer. A Plugging Record shall be filed with the State Engineer as described above.

12. Should another regulatory agency sharing jurisdiction of the project authorize, or by regulation require, more stringent requirements than stated herein, the more stringent procedure should be followed. These, among others, may include provisions regarding pre-authorization to proceed, type of methods and materials used, inspection, or prohibition of free discharge of any fluid or other material to or from the well that is related to the drilling and/or monitoring process.

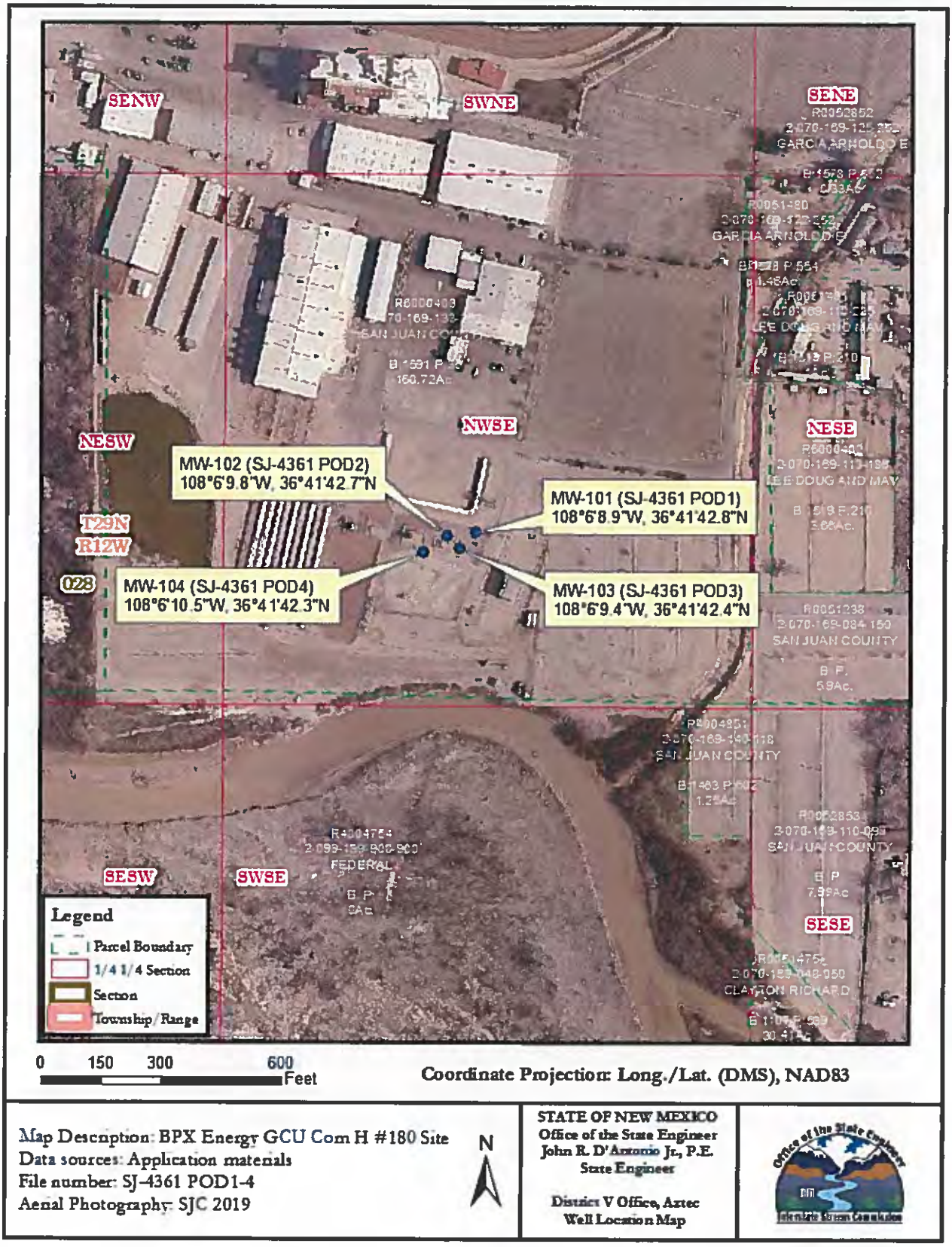
13. Pursuant to 72-12-3 NMSA 1978, the applicant may or may not have provided written documentation with the application, which the applicant claims as confirmation that access has been granted for the aforementioned well(s) to be located on property owned by someone other than the well owner/applicant. NMOSE approval of this permit in no way infers the right of access to land not owned by the well owner/applicant.

14. The State Engineer retains jurisdiction of this permit.

The application for drilling well(s) SJ-4361 POD1-POD4 without a water right, submitted on August 14, 2019, is hereby approved with the aforesaid conditions applied, when signed by an authorized designee of the State Engineer:

Witness my hand and seal this 20th day of August, A.D. 2019.
John R. D'Antonio Jr., P.E., State Engineer

By: _____
Miles Juett, Assistant Watermaster
District V Office, Water Rights Division

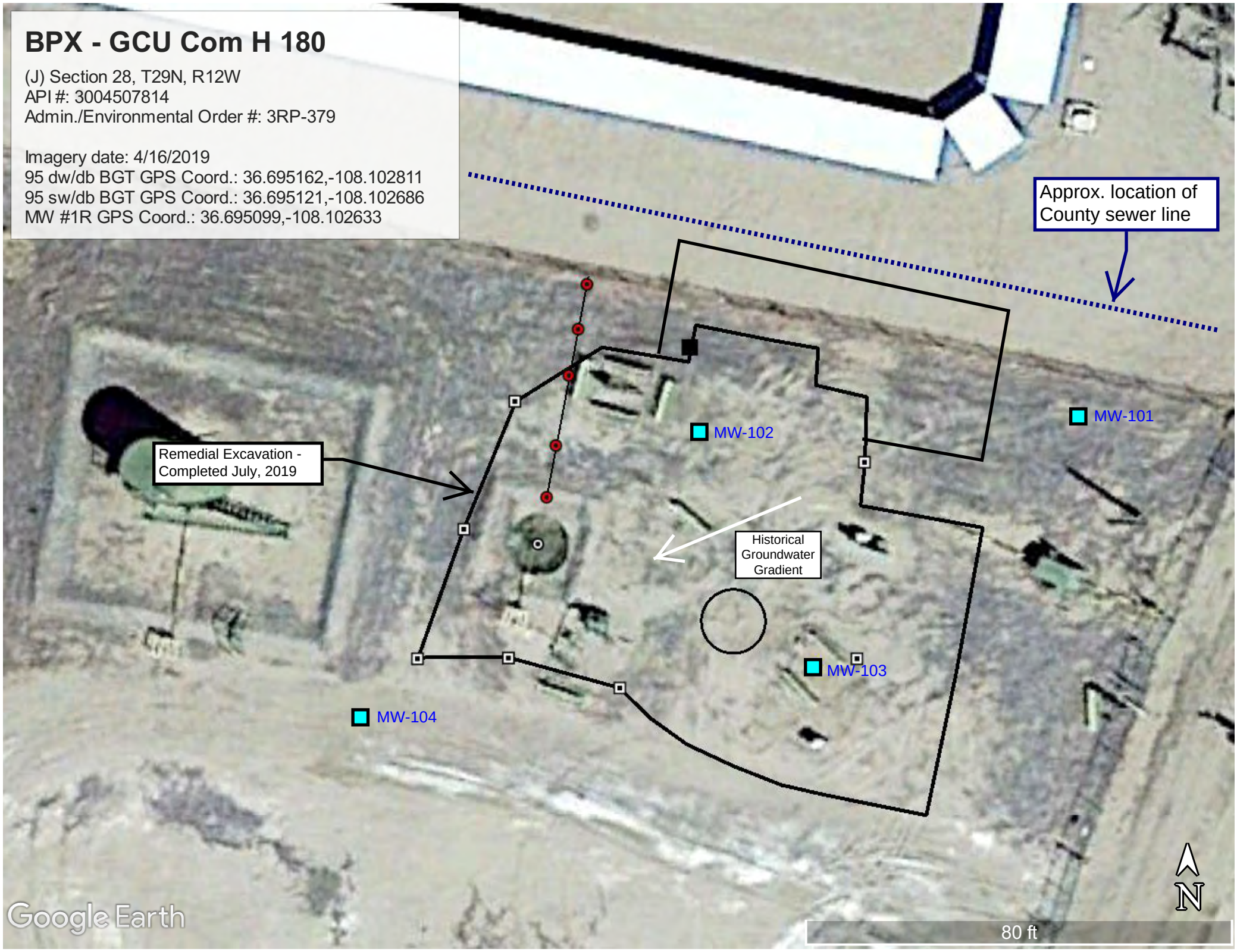


Map Description: BPX Energy GCU Com H #180 Site
Data sources: Application materials
File number: SJ-4361 POD1-4
Aerial Photography: SJC 2019

N

STATE OF NEW MEXICO
Office of the State Engineer
John R. D'Antonio Jr., P.E.
State Engineer

District V Office, Aztec
Well Location Map


BPX - GCU Com H 180
(J) Section 28, T29N, R12W
API #: 3004507814
Admin./Environmental Order #: 3RP-379
Imagery date: 4/16/2019
95 dw/db BGT GPS Coord.: 36.695162,-108.102811
95 sw/db BGT GPS Coord.: 36.695121,-108.102686
MW #1R GPS Coord.: 36.695099,-108.102633
Approx. location of County sewer line
Remedial Excavation - Completed July, 2019
MW-102
MW-101
Historical Groundwater Gradient
MW-103
MW-104
N
Google Earth
80 ft

SJ-4361 POD1
36.695222°N,-108.102472°W
36°41' 42.8" N, 108°6' 8.9" W

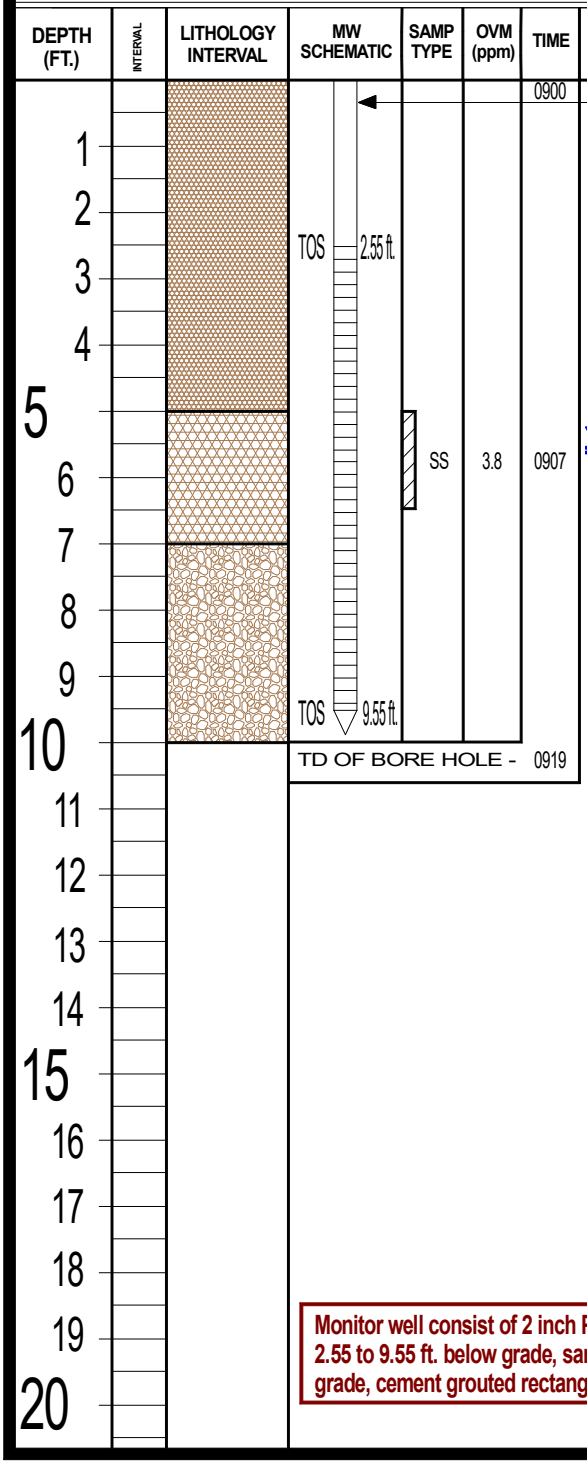
BLAGG ENGINEERING, INC.
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

MW # 101

BORE / TEST HOLE REPORT

CLIENT:	BPX ENERGY INC. - (formerly BP America Production Company)
LOCATION NAME:	GCU Com H # 180 API #: 3004507814 UNIT J, SEC. 28, T29N, R12W
CONTRACTOR:	BLAGG ENGINEERING, INC. / HRL
EQUIPMENT USED:	MOBILE DRILL RIG (TRACK CME 55 LC) - HOLLOW STEM AUGER
BORING LOCATION:	APPROX. 224 FEET, N51E FROM PLUGGED & ABANDONED MARKER.

BORING #.....	BH - 1
MW #.....	101
PAGE #.....	1
DATE STARTED	09/19/19
DATE FINISHED	09/19/19
OPERATOR.....	KP
LOGGED BY.....	JCB



FIELD CLASSIFICATION AND REMARKS

TOP OF CASING APPROX. 2.10 FT. ABOVE GRADE.

DARK YELLOWISH BROWN SILTLY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (0.0 - 5.0 FT. BELOW GRADE [B.G.]).

GROUNDWATER ~ 5.55 ft. BELOW GRADE ; MEASURED 9/21/19.
RECOVERED 12 INCHES

DARK YELLOWISH BROWN SAND, NON COHESIVE, SATURATED, LOOSE, NO APPARENT HYDROCARBON ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (5.0 - 7.0 FT. B.G.).

SAME AS ABOVE EXCEPT SAND AND GRAVEL (7.0 - 10.0 FT. B.G.).

NOTES:
- SILTY SAND.
- SAND.
- SAND AND GRAVEL.

TOS - Top of screen of monitor well.
TD - Total depth/bottom extent of monitor well.
SS - Split spoon sampler used.
OVM - Organic Vapor meter.

Monitor well consist of 2 inch PVC piping - casing from 2.10 ft. above grade to 2.55 ft. below grade, 0.010 slotted screen between 2.55 to 9.55 ft. below grade, sand packed annular to 2.0 ft. below grade, bentonite grout between surface grade to 2.0 ft. below grade, cement grouted rectangular steel well protector enclosing above grade casing and secured with padlock.

DRAWING: GCU Com H 180-MW1. SKF | DATE: 10/02/19 | DWN BY: NJV

SJ-4361 POD2

36.695194°N,-108.102722°W
36°41' 42.7" N, 108°6' 9.8" W

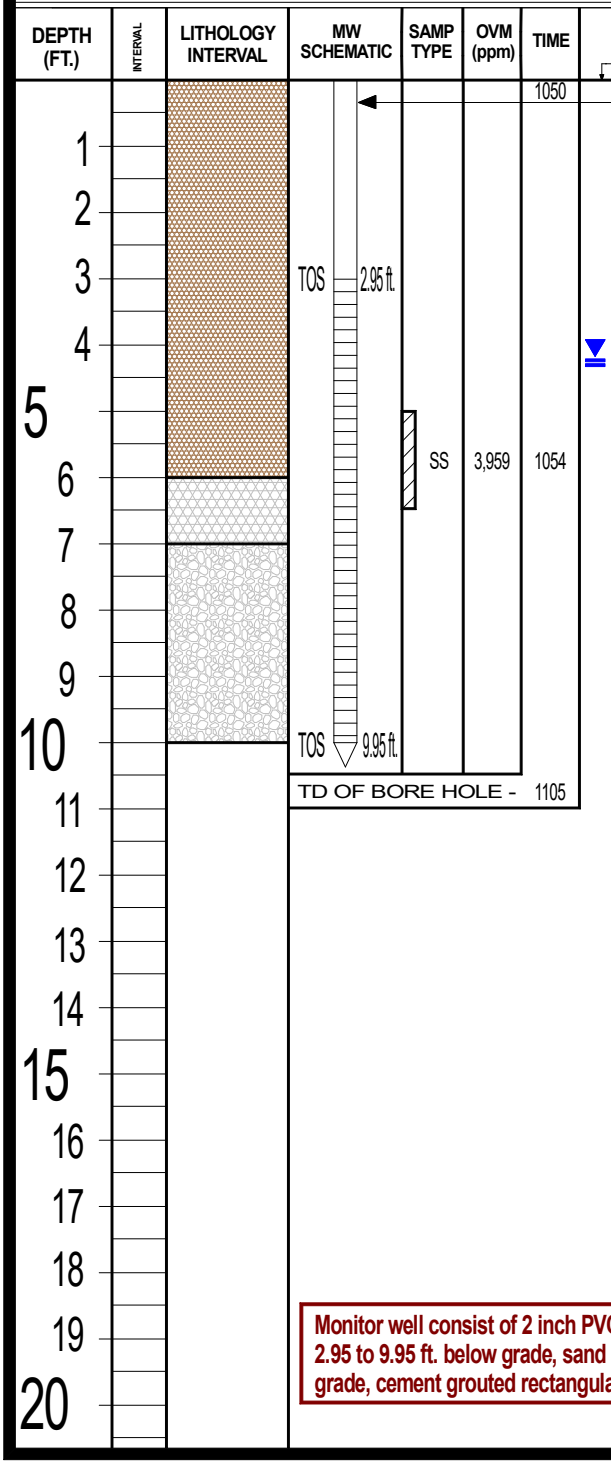
BLAGG ENGINEERING, INC.
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

MW # 102

BORE / TEST HOLE REPORT

CLIENT:	BPX ENERGY INC. - (formerly BP America Production Company)
LOCATION NAME:	GCU Com H # 180 API #: 3004507814 UNIT J, SEC. 28, T29N, R12W
CONTRACTOR:	BLAGG ENGINEERING, INC. / HRL
EQUIPMENT USED:	MOBILE DRILL RIG (TRACK CME 55 LC) - HOLLOW STEM AUGER
BORING LOCATION:	APPROX. 182 FEET, N34E FROM PLUGGED & ABANDONED MARKER.

BORING #.....	BH - 3
MW #.....	102
PAGE #.....	2
DATE STARTED	09/19/19
DATE FINISHED	09/19/19
OPERATOR.....	KP
LOGGED BY.....	JCB



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

1050 **TOP OF CASING APPROX. 2.63 FT. ABOVE GRADE.**

DARK YELLOWISH BROWN SILTLY SAND (BACKFILL SOILS), NON COHESIVE, DRY, LOOSE TO SLIGHTLY FIRM, NO APPARENT HYDRO - CARBON ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (0.0 - 6.0 FT. BELOW GRADE [B.G.]).

GROUNDWATER ~ 4.17 ft. BELOW GRADE ; MEASURED 9/21/19.

RECOVERED 6 INCHES

DARK GRAY SAND, NON COHESIVE, SATURATED, LOOSE, STRONG APPARENT HYDROCARBON ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (6.0 - 7.0 FT. B.G.).

SAME AS ABOVE EXCEPT SAND AND GRAVEL (7.0 - 10.0 FT. B.G.).

NOTES:

- SILTY SAND.
- SAND.
- SAND AND GRAVEL.

TOS - Top of screen of monitor well.
TD - Total depth/bottom extent of monitor well.
SS - Split spoon sampler used.
OVM - Organic Vapor meter.

Monitor well consist of 2 inch PVC piping - casing from 2.63 ft. above grade to 2.95 ft. below grade, 0.010 slotted screen between 2.95 to 9.95 ft. below grade, sand packed annular to 2.0 ft. below grade, bentonite grout between surface grade to 2.0 ft. below grade, cement grouted rectangular steel well protector enclosing above grade casing and secured with padlock.

DRAWING: GCU Com H 180-MW2. SKF | DATE: 10/02/19 | DWN BY: NJV

SJ-4361 POD3

36.695111°N,-108.102611°W

36°41' 42.4" N, 108°6' 9.4" W

BLAGG ENGINEERING, INC.

P.O. BOX 87

BLOOMFIELD, NM 87413

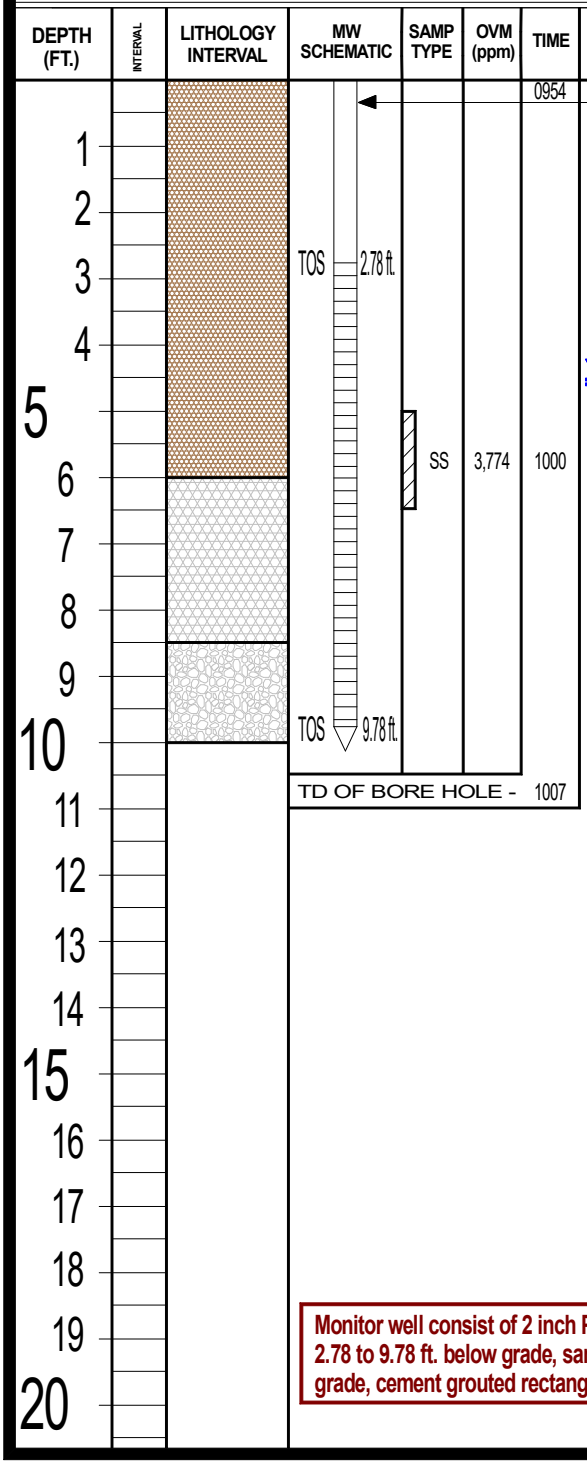
(505) 632-1199

MW # 103

BORE / TEST HOLE REPORT

CLIENT:	BPX ENERGY INC. - (formerly BP America Production Company)
LOCATION NAME:	GCU Com H # 180 API #: 3004507814 UNIT J, SEC. 28, T29N, R12W
CONTRACTOR:	BLAGG ENGINEERING, INC. / HRL
EQUIPMENT USED:	MOBILE DRILL RIG (TRACK CME 55 LC) - HOLLOW STEM AUGER
BORING LOCATION:	APPROX. 172.3 FEET, N48E FROM PLUGGED & ABANDONED MARKER.

BORING #.....	BH - 2
MW #.....	103
PAGE #.....	3
DATE STARTED	09/19/19
DATE FINISHED	09/19/19
OPERATOR.....	KP
LOGGED BY.....	JCB



FIELD CLASSIFICATION AND REMARKS

TOP OF CASING APPROX. 2.80 FT. ABOVE GRADE.

DARK YELLOWISH BROWN SILTLY SAND (BACKFILL SOILS), NON COHESIVE, DRY, LOOSE TO SLIGHTLY FIRM, NO APPARENT HYDRO - CARBON ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (0.0 - 6.0 FT. BELOW GRADE [B.G.]).

GROUNDWATER ~ 4.46 ft. BELOW GRADE ; MEASURED 9/21/19.

RECOVERED 14 INCHES

DARK GRAY SAND, NON COHESIVE, SATURATED, LOOSE, STRONG APPARENT HYDROCARBON ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (6.0 - 8.5 FT. B.G.).

SAME AS ABOVE EXCEPT SAND AND GRAVEL (8.5 - 10.0 FT. B.G.).

NOTES:

- SILTY SAND.
- SAND.
- SAND AND GRAVEL.

TOS - Top of screen of monitor well.
TD - Total depth/bottom extent of monitor well.
SS - Split spoon sampler used.
OVM - Organic Vapor meter.

Monitor well consist of 2 inch PVC piping - casing from 2.80 ft. above grade to 2.78 ft. below grade, 0.010 slotted screen between 2.78 to 9.78 ft. below grade, sand packed annular to 2.0 ft. below grade, bentonite grout between surface grade to 2.0 ft. below grade, cement grouted rectangular steel well protector enclosing above grade casing and secured with padlock.

DRAWING: GCU Com H 180-MW3. SKF | DATE: 10/02/19 | DWN BY: NJV

SJ-4361 POD4
36.695083°N,-108.102917°W
36°41' 42.3" N, 108°6' 10.5" W

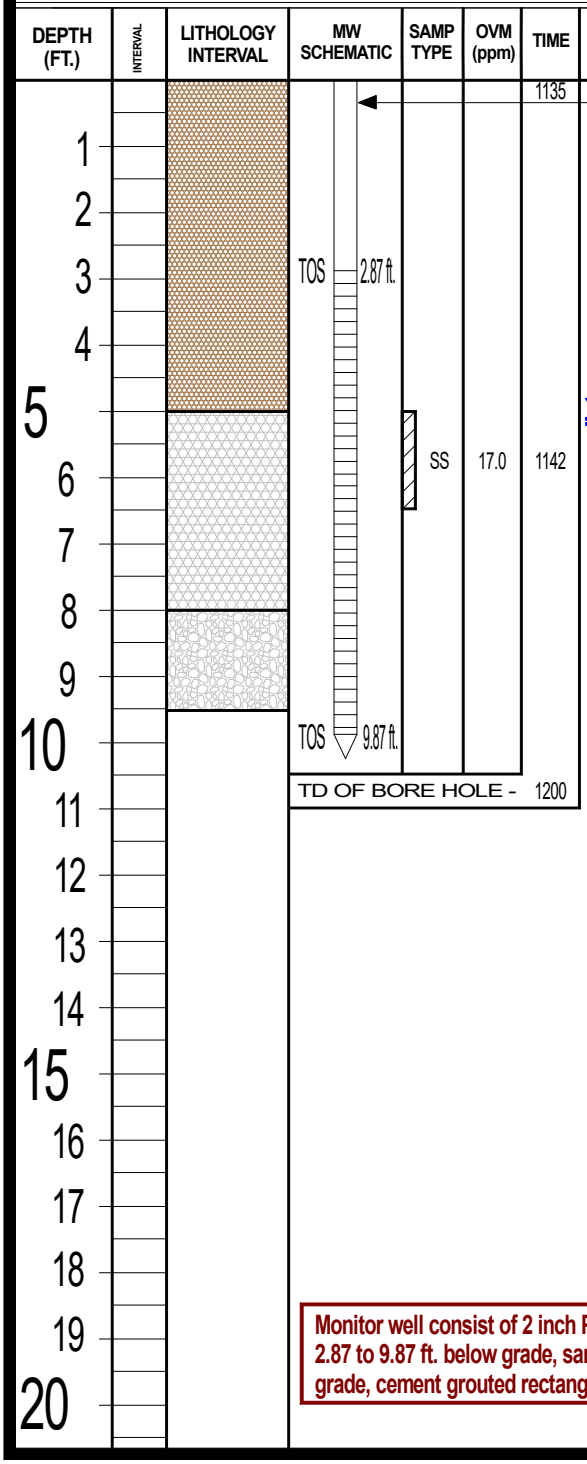
BLAGG ENGINEERING, INC.
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

MW # 104

BORE / TEST HOLE REPORT

CLIENT:	BPX ENERGY INC. - (formerly BP America Production Company)
LOCATION NAME:	GCU Com H # 180 API #: 3004507814 UNIT J, SEC. 28, T29N, R12W
CONTRACTOR:	BLAGG ENGINEERING, INC. / HRL
EQUIPMENT USED:	MOBILE DRILL RIG (TRACK CME 55 LC) - HOLLOW STEM AUGER
BORING LOCATION:	APPROX. 107.5 FEET, N9.5E FROM PLUGGED & ABANDONED MARKER.

BORING #.....	BH - 4
MW #.....	104
PAGE #.....	4
DATE STARTED	09/19/19
DATE FINISHED	09/19/19
OPERATOR.....	KP
LOGGED BY.....	JCB



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

1135 **TOP OF CASING APPROX. 2.33 FT. ABOVE GRADE.**

DARK YELLOWISH BROWN SILTLY SAND, NON COHESIVE, MOIST, FIRM, NO APPARENT HYDROCARBON ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (0.0 - 5.0 FT. BELOW GRADE [B.G.]).

GROUNDWATER ~ 5.07 ft. BELOW GRADE ; MEASURED 9/21/19.

RECOVERED 10 INCHES

DARK GRAY SAND, NON COHESIVE, SATURATED, LOOSE, APPARENT SWAMP ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (5.0 - 8.0 FT. B.G.).

SAME AS ABOVE EXCEPT SAND AND GRAVEL (8.0 - 10.0 FT. B.G.).

NOTES:
- SILTY SAND.
- SAND.
- SAND AND GRAVEL.

TOS - Top of screen of monitor well.
TD - Total depth/bottom extent of monitor well.
SS - Split spoon sampler used.
OVM - Organic Vapor meter.

Monitor well consist of 2 inch PVC piping - casing from 2.33 ft. above grade to 2.87 ft. below grade, 0.010 slotted screen between 2.87 to 9.87 ft. below grade, sand packed annular to 2.0 ft. below grade, bentonite grout between surface grade to 2.0 ft. below grade, cement grouted rectangular steel well protector enclosing above grade casing and secured with padlock.

DRAWING: GCU Com H 180-MW4. SKF | DATE: 10/02/19 | DWN BY: NJV

BLAGG ENGINEERING, INC.

MONITOR / TEST WELL DEVELOPMENT DATA

CLIENT : **BPX ENERGY INC.**

CHAIN-OF-CUSTODY # : N / A

GCU Com H # 180 API #: 3004507814
UNIT J, SEC. 28, T29N, R12W

LABORATORY (S) USED : N / A

Date : September 21, 2019

Filename : GCU Com H 180 mw log 2019-09-21.xls

DEVELOPER : N J V

PROJECT MANAGER : E. DUNMAN

Sample ID	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
MW #101	-	-	7.65	11.65	-	-	-	-	10.00
MW #102	-	-	6.80	12.58	-	-	-	-	16.00
MW #103	-	-	7.26	12.58	-	-	-	-	15.00
MW #104	-	-	7.40	12.20	-	-	-	-	12.00
					INSTRUMENT CALIBRATIONS =	-	-		
					DATE & TIME =	-	-		

NOTES : Volume of water purged from well prior to sampling: V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).
(i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)

Ideally a minimum of three (3) wellbore volumes: 2.00 " well diameter = 0.49 gal. / ft. of water.

Comments or note well diameter if not standard 2 ",

Monitor wells installed: 09/20/2019. Purged well using 2 inch submersible electric pump with clear vinyl tubing.

MW #101 - poor to fair recovery, dark murky brown in appearance, no hydrocarbon odor detected within purged water, sediment cleared.

MW #102 - excellent recovery, dark gray in appearance, slight hydrocarbon odor detected within purged water, sediment cleared.

MW #103 - excellent recovery, dark gray in appearance, slight hydrocarbon odor detected within purged water, sediment cleared.

MW #104 - excellent recovery, murky brown in appearance, no hydrocarbon odor detected within purged water, sediment cleared.

All purged water disposed in transported 55 gallon plastic drum & to be removed at a later time.

NMOCD - Admin./Environ. Order #: 3RP-379.

Top of casing: MW #101 ~ 2.10 ft., MW #102 ~ 2.63 ft., MW #103 ~ 2.80 ft., MW #104 ~ 2.33 ft. below grade.

on-site	**10:45 AM**	temp	**60 F**
off-site	**1:37 PM**	temp	**76 F**
sky cond.		**Sunny**	
wind speed	**0 - 10**	direct.	**E - SSW**

BLAGG ENGINEERING, INC.

MONITOR / TEST WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BPX ENERGY INC.**

CHAIN-OF-CUSTODY # : N / A

GCU Com H # 180 API #: 3004507814
UNIT B, SEC. 30, T29N, R12W

LABORATORY (S) USED : HALL ENVIRONMENTAL

Date : September 23, 2019

Filename : GCU Com H 180 mw log 2019-09-23.xls

DEVELOPER / SAMPLER :

PROJECT MANAGER : E. DUNMAN

Sample ID	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
MW #101	-	-	7.71	11.65	1130	7.45	1,700	19.7	2.00
MW #102	-	-	6.84	12.58	1210	7.16	2,400	20.3	3.00
MW #103	-	-	7.31	12.58	1200	7.19	2,500	20.3	2.75
MW #104	-	-	7.46	12.20	1150	7.23	2,300	19.9	2.50

INSTRUMENT CALIBRATIONS =	4.01/7.00/10.00	2,800
DATE & TIME =	09/23/19	0700

NOTES : Volume of water purged from well prior to sampling: V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).
(i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)

Ideally a minimum of three (3) wellbore volumes: 2.00 " well diameter = 0.49 gal. / ft. of water.

Comments or note well diameter if not standard 2 ",

Monitor wells installed: 09/20/2019. Used new disposable bailers for each monitor well purged & sampled. Collected samples from each well after purging a minimum of 3 well bore volumes. Lab to analyze for fluoride, chloride, nitrate, sulfate, pH, total dissolved soild, lead, iron, & manganese from all 4 wells. All purged water transported to BPX's GCU #199E well site, located (K) 34-29-12, & transferred to shallow low-profile above ground tank.

NMOCD - Admin./Environ. Order #: 3RP-379.

MW #101 - 224 ft., N51E; MW #102 - 182 ft., N34E; MW #103 - 172.3 ft., N48E; MW #104 - 107.5 ft., N19.5E; all from P&A marker.

Top of casing: MW #101 ~ 2.10 ft., MW #102 ~ 2.63 ft., MW #103 ~ 2.80 ft., MW #104 ~ 2.33 ft. below grade.

on-site	**9:55 AM**	temp	**58 F**
off-site	**12:55 PM**	temp	**65 F**
sky cond.		**Cloudy**	
wind speed	**0 - 15**	direct.	**E - SW**

GROUNDWATER

LAB REPORTS

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: MW#101
Project: GCU Com H 180
Collection Date: 9/23/2019 11:30:00 AM
Lab ID: 1909D10-001
Matrix: AQUEOUS
Received Date: 9/24/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **DBK**	
Lead	ND	0.00050		mg/L	1	9/27/2019 4:26:21 PM	B63300
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Fluoride	ND	0.50		mg/L	5	9/30/2019 6:56:10 PM	R63323
Chloride	100	10		mg/L	20	9/27/2019 12:15:36 AM	A63250
Nitrogen, Nitrate (As N)	ND	0.50	H	mg/L	5	9/27/2019 12:03:15 AM	A63250
Sulfate	2300	50		mg/L	100	9/30/2019 7:08:31 PM	R63323
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **JMT**	
Total Dissolved Solids	4100	20.0	*	mg/L	1	9/27/2019 3:08:00 PM	47742
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	7.54		H	pH units	1	10/1/2019 10:27:35 AM	R63331
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **bcv**	
Iron	0.027	0.020		mg/L	1	10/4/2019 1:53:12 PM	C63441
Manganese	3.8	0.010	*	mg/L	5	10/9/2019 5:34:06 PM	A63565
EPA METHOD 8260B: VOLATILES						Analyst: **JMR**	
Benzene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
Toluene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
Ethylbenzene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
Naphthalene	ND	2.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
1-Methylnaphthalene	ND	4.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
2-Methylnaphthalene	ND	4.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
Acetone	ND	10		µg/L	1	9/26/2019 9:10:49 PM	R63246
Bromobenzene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
Bromodichloromethane	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
Bromoform	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
Bromomethane	ND	3.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
2-Butanone	ND	10		µg/L	1	9/26/2019 9:10:49 PM	R63246
Carbon disulfide	ND	10		µg/L	1	9/26/2019 9:10:49 PM	R63246
Carbon Tetrachloride	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
Chlorobenzene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
Chloroethane	ND	2.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
Chloroform	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
Chloromethane	ND	3.0		µg/L	1	9/26/2019 9:10:49 PM	R63246

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: MW#101
Project: GCU Com H 180
Collection Date: 9/23/2019 11:30:00 AM
Lab ID: 1909D10-001
Matrix: AQUEOUS
Received Date: 9/24/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **JMR**	
2-Chlorotoluene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
4-Chlorotoluene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
cis-1,2-DCE	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
Dibromochloromethane	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
Dibromomethane	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
1,2-Dichlorobenzene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
1,3-Dichlorobenzene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
1,4-Dichlorobenzene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
Dichlorodifluoromethane	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
1,1-Dichloroethane	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
1,1-Dichloroethene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
1,2-Dichloropropane	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
1,3-Dichloropropane	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
2,2-Dichloropropane	ND	2.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
1,1-Dichloropropene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
Hexachlorobutadiene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
2-Hexanone	ND	10		µg/L	1	9/26/2019 9:10:49 PM	R63246
Isopropylbenzene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
4-Isopropyltoluene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
4-Methyl-2-pentanone	ND	10		µg/L	1	9/26/2019 9:10:49 PM	R63246
Methylene Chloride	ND	3.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
n-Butylbenzene	ND	3.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
n-Propylbenzene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
sec-Butylbenzene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
Styrene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
tert-Butylbenzene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
trans-1,2-DCE	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
Trichloroethene (TCE)	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
Trichlorofluoromethane	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: MW#101
Project: GCU Com H 180
Collection Date: 9/23/2019 11:30:00 AM
Lab ID: 1909D10-001
Matrix: AQUEOUS
Received Date: 9/24/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **JMR**	
1,2,3-Trichloropropane	ND	2.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
Vinyl chloride	ND	1.0		µg/L	1	9/26/2019 9:10:49 PM	R63246
Xylenes, Total	ND	1.5		µg/L	1	9/26/2019 9:10:49 PM	R63246
Surr: 1,2-Dichloroethane-d4	97.4	70-130		%Rec	1	9/26/2019 9:10:49 PM	R63246
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	9/26/2019 9:10:49 PM	R63246
Surr: Dibromofluoromethane	97.5	70-130		%Rec	1	9/26/2019 9:10:49 PM	R63246
Surr: Toluene-d8	100	70-130		%Rec	1	9/26/2019 9:10:49 PM	R63246

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: MW#102
Project: GCU Com H 180
Collection Date: 9/23/2019 12:10:00 PM
Lab ID: 1909D10-002
Matrix: AQUEOUS
Received Date: 9/24/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **DBK**	
Lead	ND	0.00050		mg/L	1	9/27/2019 4:40:31 PM	B63300
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Fluoride	ND	0.50		mg/L	5	9/30/2019 7:20:52 PM	R63323
Chloride	130	10		mg/L	20	9/27/2019 12:40:18 AM	A63250
Nitrogen, Nitrate (As N)	ND	0.50	H	mg/L	5	9/27/2019 12:27:57 AM	A63250
Sulfate	3000	50		mg/L	100	9/30/2019 7:33:12 PM	R63323
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **JMT**	
Total Dissolved Solids	5200	100	*D	mg/L	1	9/27/2019 3:08:00 PM	47742
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	7.39		H	pH units	1	10/1/2019 10:31:48 AM	R63331
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **bcv**	
Iron	0.14	0.020		mg/L	1	10/4/2019 2:01:49 PM	C63441
Manganese	5.0	0.020	*	mg/L	10	10/9/2019 5:36:14 PM	A63565
EPA METHOD 8260B: VOLATILES						Analyst: **JMR**	
Benzene	140	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
Toluene	5000	100		µg/L	100	9/27/2019 1:03:31 PM	R63292
Ethylbenzene	480	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
1,2,4-Trimethylbenzene	390	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
1,3,5-Trimethylbenzene	140	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
1,2-Dichloroethane (EDC)	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
1,2-Dibromoethane (EDB)	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
Naphthalene	26	10		µg/L	5	9/26/2019 9:39:29 PM	R63246
1-Methylnaphthalene	41	20		µg/L	5	9/26/2019 9:39:29 PM	R63246
2-Methylnaphthalene	29	20		µg/L	5	9/26/2019 9:39:29 PM	R63246
Acetone	ND	50		µg/L	5	9/26/2019 9:39:29 PM	R63246
Bromobenzene	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
Bromodichloromethane	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
Bromoform	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
Bromomethane	ND	15		µg/L	5	9/26/2019 9:39:29 PM	R63246
2-Butanone	ND	50		µg/L	5	9/26/2019 9:39:29 PM	R63246
Carbon disulfide	ND	50		µg/L	5	9/26/2019 9:39:29 PM	R63246
Carbon Tetrachloride	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
Chlorobenzene	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
Chloroethane	ND	10		µg/L	5	9/26/2019 9:39:29 PM	R63246
Chloroform	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
Chloromethane	ND	15		µg/L	5	9/26/2019 9:39:29 PM	R63246

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: MW#102
Project: GCU Com H 180
Collection Date: 9/23/2019 12:10:00 PM
Lab ID: 1909D10-002
Matrix: AQUEOUS
Received Date: 9/24/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **JMR**	
2-Chlorotoluene	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
4-Chlorotoluene	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
cis-1,2-DCE	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
cis-1,3-Dichloropropene	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
1,2-Dibromo-3-chloropropane	ND	10		µg/L	5	9/26/2019 9:39:29 PM	R63246
Dibromochloromethane	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
Dibromomethane	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
1,2-Dichlorobenzene	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
1,3-Dichlorobenzene	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
1,4-Dichlorobenzene	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
Dichlorodifluoromethane	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
1,1-Dichloroethane	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
1,1-Dichloroethene	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
1,2-Dichloropropane	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
1,3-Dichloropropane	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
2,2-Dichloropropane	ND	10		µg/L	5	9/26/2019 9:39:29 PM	R63246
1,1-Dichloropropene	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
Hexachlorobutadiene	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
2-Hexanone	ND	50		µg/L	5	9/26/2019 9:39:29 PM	R63246
Isopropylbenzene	80	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
4-Isopropyltoluene	18	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
4-Methyl-2-pentanone	ND	50		µg/L	5	9/26/2019 9:39:29 PM	R63246
Methylene Chloride	ND	15		µg/L	5	9/26/2019 9:39:29 PM	R63246
n-Butylbenzene	ND	15		µg/L	5	9/26/2019 9:39:29 PM	R63246
n-Propylbenzene	80	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
sec-Butylbenzene	13	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
Styrene	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
tert-Butylbenzene	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
1,1,2,2-Tetrachloroethane	ND	10		µg/L	5	9/26/2019 9:39:29 PM	R63246
Tetrachloroethene (PCE)	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
trans-1,2-DCE	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
trans-1,3-Dichloropropene	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
1,2,3-Trichlorobenzene	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
1,2,4-Trichlorobenzene	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
1,1,1-Trichloroethane	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
1,1,2-Trichloroethane	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
Trichloroethene (TCE)	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
Trichlorofluoromethane	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: MW#102
Project: GCU Com H 180
Collection Date: 9/23/2019 12:10:00 PM
Lab ID: 1909D10-002
Matrix: AQUEOUS
Received Date: 9/24/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **JMR**	
1,2,3-Trichloropropane	ND	10		µg/L	5	9/26/2019 9:39:29 PM	R63246
Vinyl chloride	ND	5.0		µg/L	5	9/26/2019 9:39:29 PM	R63246
Xylenes, Total	3400	150		µg/L	100	9/27/2019 1:03:31 PM	R63292
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	5	9/26/2019 9:39:29 PM	R63246
Surr: 4-Bromofluorobenzene	94.2	70-130		%Rec	5	9/26/2019 9:39:29 PM	R63246
Surr: Dibromofluoromethane	90.8	70-130		%Rec	5	9/26/2019 9:39:29 PM	R63246
Surr: Toluene-d8	107	70-130		%Rec	5	9/26/2019 9:39:29 PM	R63246

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: MW#103
Project: GCU Com H 180
Collection Date: 9/23/2019 12:00:00 PM
Lab ID: 1909D10-003
Matrix: AQUEOUS
Received Date: 9/24/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **DBK**	
Lead	ND	0.0025		mg/L	5	9/27/2019 4:49:28 PM	B63300
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Fluoride	ND	0.50		mg/L	5	9/30/2019 7:45:33 PM	R63323
Chloride	130	10		mg/L	20	9/27/2019 1:29:40 AM	A63250
Nitrogen, Nitrate (As N)	ND	0.50	H	mg/L	5	9/27/2019 1:17:19 AM	A63250
Sulfate	2100	50		mg/L	100	9/30/2019 7:57:53 PM	R63323
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **JMT**	
Total Dissolved Solids	4180	40.0	*D	mg/L	1	9/27/2019 3:08:00 PM	47742
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	7.82		H	pH units	1	10/1/2019 10:35:48 AM	R63331
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **bcv**	
Iron	0.10	0.020		mg/L	1	10/4/2019 2:04:03 PM	C63441
Manganese	2.6	0.010	*	mg/L	5	10/9/2019 5:38:20 PM	A63565
EPA METHOD 8260B: VOLATILES						Analyst: **JMR**	
Benzene	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
Toluene	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
Ethylbenzene	43	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
1,2,4-Trimethylbenzene	80	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
1,3,5-Trimethylbenzene	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
1,2-Dichloroethane (EDC)	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
1,2-Dibromoethane (EDB)	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
Naphthalene	ND	10		µg/L	5	9/27/2019 1:32:14 PM	R63292
1-Methylnaphthalene	28	20		µg/L	5	9/27/2019 1:32:14 PM	R63292
2-Methylnaphthalene	ND	20		µg/L	5	9/27/2019 1:32:14 PM	R63292
Acetone	ND	50		µg/L	5	9/27/2019 1:32:14 PM	R63292
Bromobenzene	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
Bromodichloromethane	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
Bromoform	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
Bromomethane	ND	15		µg/L	5	9/27/2019 1:32:14 PM	R63292
2-Butanone	ND	50		µg/L	5	9/27/2019 1:32:14 PM	R63292
Carbon disulfide	ND	50		µg/L	5	9/27/2019 1:32:14 PM	R63292
Carbon Tetrachloride	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
Chlorobenzene	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
Chloroethane	ND	10		µg/L	5	9/27/2019 1:32:14 PM	R63292
Chloroform	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
Chloromethane	ND	15		µg/L	5	9/27/2019 1:32:14 PM	R63292

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: MW#103
Project: GCU Com H 180
Collection Date: 9/23/2019 12:00:00 PM
Lab ID: 1909D10-003
Matrix: AQUEOUS
Received Date: 9/24/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **JMR**	
2-Chlorotoluene	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
4-Chlorotoluene	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
cis-1,2-DCE	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
cis-1,3-Dichloropropene	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
1,2-Dibromo-3-chloropropane	ND	10		µg/L	5	9/27/2019 1:32:14 PM	R63292
Dibromochloromethane	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
Dibromomethane	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
1,2-Dichlorobenzene	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
1,3-Dichlorobenzene	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
1,4-Dichlorobenzene	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
Dichlorodifluoromethane	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
1,1-Dichloroethane	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
1,1-Dichloroethene	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
1,2-Dichloropropane	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
1,3-Dichloropropane	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
2,2-Dichloropropane	ND	10		µg/L	5	9/27/2019 1:32:14 PM	R63292
1,1-Dichloropropene	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
Hexachlorobutadiene	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
2-Hexanone	ND	50		µg/L	5	9/27/2019 1:32:14 PM	R63292
Isopropylbenzene	35	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
4-Isopropyltoluene	7.7	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
4-Methyl-2-pentanone	ND	50		µg/L	5	9/27/2019 1:32:14 PM	R63292
Methylene Chloride	ND	15		µg/L	5	9/27/2019 1:32:14 PM	R63292
n-Butylbenzene	ND	15		µg/L	5	9/27/2019 1:32:14 PM	R63292
n-Propylbenzene	29	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
sec-Butylbenzene	8.0	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
Styrene	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
tert-Butylbenzene	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
1,1,2,2-Tetrachloroethane	ND	10		µg/L	5	9/27/2019 1:32:14 PM	R63292
Tetrachloroethene (PCE)	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
trans-1,2-DCE	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
trans-1,3-Dichloropropene	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
1,2,3-Trichlorobenzene	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
1,2,4-Trichlorobenzene	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
1,1,1-Trichloroethane	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
1,1,2-Trichloroethane	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
Trichloroethene (TCE)	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
Trichlorofluoromethane	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: MW#103
Project: GCU Com H 180
Collection Date: 9/23/2019 12:00:00 PM
Lab ID: 1909D10-003 **Matrix:** AQUEOUS **Received Date:** 9/24/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **JMR**	
1,2,3-Trichloropropane	ND	10		µg/L	5	9/27/2019 1:32:14 PM	R63292
Vinyl chloride	ND	5.0		µg/L	5	9/27/2019 1:32:14 PM	R63292
Xylenes, Total	110	7.5		µg/L	5	9/27/2019 1:32:14 PM	R63292
Surr: 1,2-Dichloroethane-d4	107	70-130		%Rec	5	9/27/2019 1:32:14 PM	R63292
Surr: 4-Bromofluorobenzene	86.8	70-130		%Rec	5	9/27/2019 1:32:14 PM	R63292
Surr: Dibromofluoromethane	118	70-130		%Rec	5	9/27/2019 1:32:14 PM	R63292
Surr: Toluene-d8	98.9	70-130		%Rec	5	9/27/2019 1:32:14 PM	R63292

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: MW#104
Project: GCU Com H 180
Collection Date: 9/23/2019 11:50:00 AM
Lab ID: 1909D10-004
Matrix: AQUEOUS
Received Date: 9/24/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **DBK**	
Lead	ND	0.0025		mg/L	5	9/27/2019 4:53:11 PM	B63300
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Fluoride	ND	0.50		mg/L	5	9/30/2019 8:10:14 PM	R63323
Chloride	130	10		mg/L	20	9/27/2019 1:54:21 AM	A63250
Nitrogen, Nitrate (As N)	ND	0.50	H	mg/L	5	9/27/2019 1:42:01 AM	A63250
Sulfate	2500	50		mg/L	100	9/30/2019 8:22:34 PM	R63323
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **JMT**	
Total Dissolved Solids	4980	100	*D	mg/L	1	9/27/2019 3:08:00 PM	47742
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	7.66		H	pH units	1	10/1/2019 10:40:01 AM	R63331
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **bcv**	
Iron	0.029	0.020		mg/L	1	10/4/2019 2:06:17 PM	C63441
Manganese	3.8	0.010	*	mg/L	5	10/9/2019 5:40:14 PM	A63565
EPA METHOD 8260B: VOLATILES						Analyst: **JMR**	
Benzene	4.7	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
Toluene	1.4	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
Ethylbenzene	18	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
1,2,4-Trimethylbenzene	4.7	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
Naphthalene	ND	2.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
1-Methylnaphthalene	14	4.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
2-Methylnaphthalene	ND	4.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
Acetone	ND	10		µg/L	1	9/27/2019 2:00:53 PM	R63292
Bromobenzene	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
Bromodichloromethane	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
Bromoform	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
Bromomethane	ND	3.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
2-Butanone	ND	10		µg/L	1	9/27/2019 2:00:53 PM	R63292
Carbon disulfide	ND	10		µg/L	1	9/27/2019 2:00:53 PM	R63292
Carbon Tetrachloride	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
Chlorobenzene	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
Chloroethane	ND	2.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
Chloroform	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
Chloromethane	ND	3.0		µg/L	1	9/27/2019 2:00:53 PM	R63292

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: MW#104
Project: GCU Com H 180
Collection Date: 9/23/2019 11:50:00 AM
Lab ID: 1909D10-004
Matrix: AQUEOUS
Received Date: 9/24/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **JMR**	
2-Chlorotoluene	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
4-Chlorotoluene	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
cis-1,2-DCE	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
Dibromochloromethane	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
Dibromomethane	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
1,2-Dichlorobenzene	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
1,3-Dichlorobenzene	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
1,4-Dichlorobenzene	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
Dichlorodifluoromethane	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
1,1-Dichloroethane	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
1,1-Dichloroethene	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
1,2-Dichloropropane	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
1,3-Dichloropropane	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
2,2-Dichloropropane	ND	2.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
1,1-Dichloropropene	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
Hexachlorobutadiene	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
2-Hexanone	ND	10		µg/L	1	9/27/2019 2:00:53 PM	R63292
Isopropylbenzene	16	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
4-Isopropyltoluene	4.5	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
4-Methyl-2-pentanone	ND	10		µg/L	1	9/27/2019 2:00:53 PM	R63292
Methylene Chloride	ND	3.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
n-Butylbenzene	ND	3.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
n-Propylbenzene	5.3	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
sec-Butylbenzene	2.5	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
Styrene	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
tert-Butylbenzene	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
trans-1,2-DCE	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
Trichloroethene (TCE)	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
Trichlorofluoromethane	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: MW#104
Project: GCU Com H 180
Collection Date: 9/23/2019 11:50:00 AM
Lab ID: 1909D10-004
Matrix: AQUEOUS
Received Date: 9/24/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **JMR**	
1,2,3-Trichloropropane	ND	2.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
Vinyl chloride	ND	1.0		µg/L	1	9/27/2019 2:00:53 PM	R63292
Xylenes, Total	92	1.5		µg/L	1	9/27/2019 2:00:53 PM	R63292
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	1	9/27/2019 2:00:53 PM	R63292
Surr: 4-Bromofluorobenzene	95.8	70-130		%Rec	1	9/27/2019 2:00:53 PM	R63292
Surr: Dibromofluoromethane	105	70-130		%Rec	1	9/27/2019 2:00:53 PM	R63292
Surr: Toluene-d8	103	70-130		%Rec	1	9/27/2019 2:00:53 PM	R63292

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Chain-of-Custody Record

Client: BLAGG ENGR. / BP AMERICA

Mailing Address: P.O. BOX 87
BLOOMFIELD, NM 87413

Phone #: (505) 632-1199

email or Fax#:

QA/QC Package:
☑ Standard ☐ Level 4 (Full Validation)

Accreditation:
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush

Project Name:
GCU Com H # 180

Project #:

Project Manager:
Erin Dunman

Sampler:

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.1-0.2(CF)=0.9°C
3.8-0.2(CF)=3.6°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1909D10	BTEX + MTBE + TMB's (8021B)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions (F, Cl, NO_3, SO_4)	pH	Total Dissolved Solids	8260B (VOA)	Dissolved Iron	Dissolved Lead	Dissolved Manganese		Air Bubbles (Y or N)
9/23/19	1130	WATER	MW # 101	40 ml VOA - 2	HCl & Cool	-001											√					
9/23/19	1130	WATER	MW # 101	500 ml - 1	Cool	1								√	√	√		√	√	√		
9/23/19	1210	WATER	MW # 102	40 ml VOA - 2	HCl & Cool	-002											√					
9/23/19	1210	WATER	MW # 102	500 ml - 1	Cool	1								√	√	√		√	√	√		
9/23/19	1200	WATER	MW # 103	40 ml VOA - 2	HCl & Cool	-003											√					
9/23/19	1200	WATER	MW # 103	500 ml - 1	Cool	1								√	√	√		√	√	√		
9/23/19	1150	WATER	MW # 104	40 ml VOA - 2	HCl & Cool	-004											√					
9/23/19	1150	WATER	MW # 104	500 ml - 1	Cool	1								√	√	√		√	√	√		

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Date	Time
9/23/19	1508		Christen Wall	9/23/19	1508
9/23/19	1811		Courier	9/24/19	0810

Remarks:
BILL DIRECTLY TO BPX:
Contact: Sabre Beebe PO to be provided
Added note: Please filter for Iron, Lead, & Manganese analyses & add HNO_3 preservative.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1909D10**

14-Oct-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **C63441**	RunNo: **63441**
Prep Date:	Analysis Date: **10/4/2019**	SeqNo: **2166718** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **C63441**	RunNo: **63441**
Prep Date:	Analysis Date: **10/4/2019**	SeqNo: **2166740** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.45	0.020	0.5000	0	90.1	85	115			

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A63565**	RunNo: **63565**
Prep Date:	Analysis Date: **10/9/2019**	SeqNo: **2171701** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	ND	0.0020								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A63565**	RunNo: **63565**
Prep Date:	Analysis Date: **10/9/2019**	SeqNo: **2171703** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.48	0.0020	0.5000	0	95.9	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1909D10**

14-Oct-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **B63300**	RunNo: **63300**
Prep Date:	Analysis Date: **9/27/2019**	SeqNo: **2160291** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.00050								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **B63300**	RunNo: **63300**
Prep Date:	Analysis Date: **9/27/2019**	SeqNo: **2160293** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.012	0.00050	0.01250	0	98.5	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1909D10**

14-Oct-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A63250**	RunNo: **63250**
Prep Date:	Analysis Date: **9/26/2019**	SeqNo: **2158507** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A63250**	RunNo: **63250**
Prep Date:	Analysis Date: **9/26/2019**	SeqNo: **2158508** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.8	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	96.7	90	110			

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R63323**	RunNo: **63323**
Prep Date:	Analysis Date: **9/30/2019**	SeqNo: **2161464** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R63323**	RunNo: **63323**
Prep Date:	Analysis Date: **9/30/2019**	SeqNo: **2161465** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.53	0.10	0.5000	0	106	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1909D10**

14-Oct-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R63246**	RunNo: **63246**
Prep Date:	Analysis Date: **9/26/2019**	SeqNo: **2158361** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	105	70	130			
Toluene	21	1.0	20.00	0	104	70	130			
Chlorobenzene	21	1.0	20.00	0	105	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	93.7	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	95.3	70	130			
Surr: 1,2-Dichloroethane-d4	9.0		10.00		90.2	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.2	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.0	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID: **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R63246**	RunNo: **63246**
Prep Date:	Analysis Date: **9/26/2019**	SeqNo: **2158387** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1909D10**
14-Oct-19

Client: Blagg Engineering
Project: GCU Com H 180

Sample ID: **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R63246**	RunNo: **63246**
Prep Date:	Analysis Date: **9/26/2019**	SeqNo: **2158387** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1909D10**

14-Oct-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R63246**	RunNo: **63246**
Prep Date:	Analysis Date: **9/26/2019**	SeqNo: **2158387** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.9	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R63292**	RunNo: **63292**
Prep Date:	Analysis Date: **9/27/2019**	SeqNo: **2159814** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	98.2	70	130			
Toluene	21	1.0	20.00	0	104	70	130			
Chlorobenzene	20	1.0	20.00	0	102	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	93.8	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	91.8	70	130			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.5	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		95.7	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	11		10.00		106	70	130			

Sample ID: **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R63292**	RunNo: **63292**
Prep Date:	Analysis Date: **9/27/2019**	SeqNo: **2159850** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1909D10**
14-Oct-19

Client: Blagg Engineering
Project: GCU Com H 180

Sample ID: **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**	
Client ID: **PBW**	Batch ID: **R63292**	RunNo: **63292**	
Prep Date:	Analysis Date: **9/27/2019**	SeqNo: **2159850**	Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1909D10**

14-Oct-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R63292**	RunNo: **63292**
Prep Date:	Analysis Date: **9/27/2019**	SeqNo: **2159850** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.4		10.00		93.8	70	130			
Surr: 4-Bromofluorobenzene	9.4		10.00		93.7	70	130			
Surr: Dibromofluoromethane	10		10.00		99.7	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1909D10**

14-Oct-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: **MB-47742**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **47742**	RunNo: **63266**
Prep Date: **9/26/2019**	Analysis Date: **9/27/2019**	SeqNo: **2159026** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-47742**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **47742**	RunNo: **63266**
Prep Date: **9/26/2019**	Analysis Date: **9/27/2019**	SeqNo: **2159027** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **BLAGG** Work Order Number: **1909D10** RcptNo: 1

Received By: **Erin Melendrez** **9/24/2019 8:10:00 AM**

Completed By: **Yazmine Garduno** **9/24/2019 9:38:14 AM**

Reviewed By: unpreserved VVZ 9/25/19 LB 9/25/19

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☑	No ☐	NA ☐ HNO3
9. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 4 (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? Yes
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: YG 9/25/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

From 500ml bottle provided poured off into a 125ml dissolved bottle, filtered and added ~0.4ml of HNO3 for metals analyis.

17. **Cooler Information** YG 9/25/19

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.9	Good				
2	3.6	Good				

SITING

CRITERIA

SITING AND HYDRO-GEOLOGICAL REPORT FOR GALLEGOS CANYON UNIT COM H 180

SITING CRITERIA 19.15.17.10 NMAC

Depth to water at the site is approximately 4 feet (**ft.**) below ground surface (**bgs**). This is based on a boring advanced in 1997 with the installation of a groundwater monitor well (attached) addressing a previously identified release (3RP-379). Other sources include Stone and others (1983). There are no water wells permitted by the New Mexico State Engineer's Office (**OSE**) and USGS topographic maps within 1,000 ft. from the below-grade tank (**BGT**) (Figure 1). A topographic map (Figure 2) demonstrates that the BGT is not within 100 feet of any continuously flowing watercourse, significant watercourse, lake bed, sinkhole, wetland, or playa lake as measured from the ordinary high water mark. Figure 3 demonstrates that the BGT is within 500 feet of a wetland. Figure 4 demonstrates that the BGT is not within the mapped FEMA 100-year floodplain.

LOCAL GEOLOGY AND HYDROLOGY

This particular site is located north of the San Juan River within the Magee Park fairgrounds area. Topography is dominated by the main channel of the river, its floodplain and terrace deposits. Moving away from the San Juan River, eroded surfaces of the Nacimiento Formation form slopes that are capped by the resistant sandstones of the San Jose Formation.

REGIONAL GEOLOGY AND HYDROLOGY

The San Juan Basin is situated in the Navajo section of the Colorado Plateau and is characterized by broad open valleys, mesas, buttes and hogbacks. Away from major valleys and canyons topographic relief is generally low. Native vegetation is sparse and shrubby. Drainage is mainly by the San Juan River, the only permanent stream in the Navajo Section of the Colorado Plateau. The San Juan River is a tributary of the Colorado River. Major tributaries include the Animas, Chaco and La Plata Rivers. Flow of the San Juan River across the basin is regulated by the Navajo Dam, located about 30 miles northeast of Farmington, New Mexico. The climate is arid to semiarid with an average annual precipitation of 8 to 10 inches. Soils within the basin consist of weathered parent rock derived from predominantly physical means mostly from eolian depositional system with fluvial having a lesser impact. Cretaceous and Tertiary sandstones, as well as Quaternary Alluvial deposits, serve as the primary aquifers in the San Juan Basin (Stone et al., 1983). The predominant geologic formation this close to the San Juan River is Quaternary alluvium.

Alluvial valley fill consists of gravel, sand, silt and clay (Stone et al., 1983). In the valleys of the San Juan River and its tributaries, the alluvium does not exceed 100 feet in thickness. Terrace deposits consist of boulder gravel resting on benches cut into the Tertiary bedrock of the area. Numerous shallow wells produce water from valley fill for stock and domestic uses along the river and transmissivities are generally high. Much of the water in the valley fill of the San Juan River comes from drainage of irrigated lands, as well as from underlying and adjacent bedrock units.

REFERENCES

Circular 154—Guidebook to coal geology of northwest New Mexico By E. C. Beaumont, J. W. Shomaker, W. J. Stone, and others, 1976

Stone, et al., 1983, Hydrogeology and Water Resources of the San Juan Basin, New Mexico, Socorro, New Mexico Bureau of Mines and Mineral Resources Hydrologic Report 6, 70 p

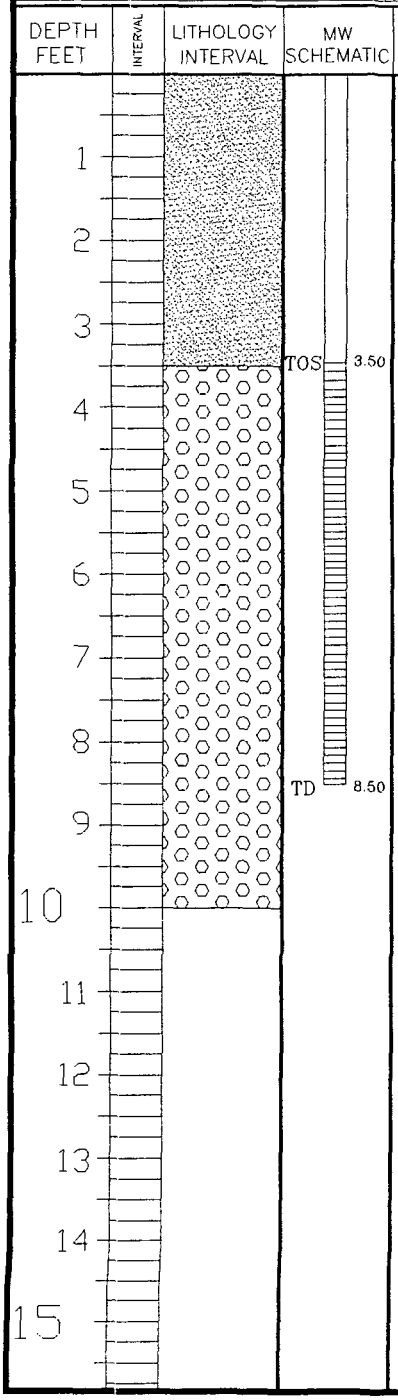
BLAGG ENGINEERING, Inc.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME:	GCU COM H # 180
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	N49E, 35 FEET FROM WELL HEAD.

BORING #.....	BH - 1
MW #.....	4
PAGE #.....	1
DATE STARTED	6/17/97
DATE FINISHED	6/17/97
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 1.50 FT. ABOVE GROUND SURFACE.

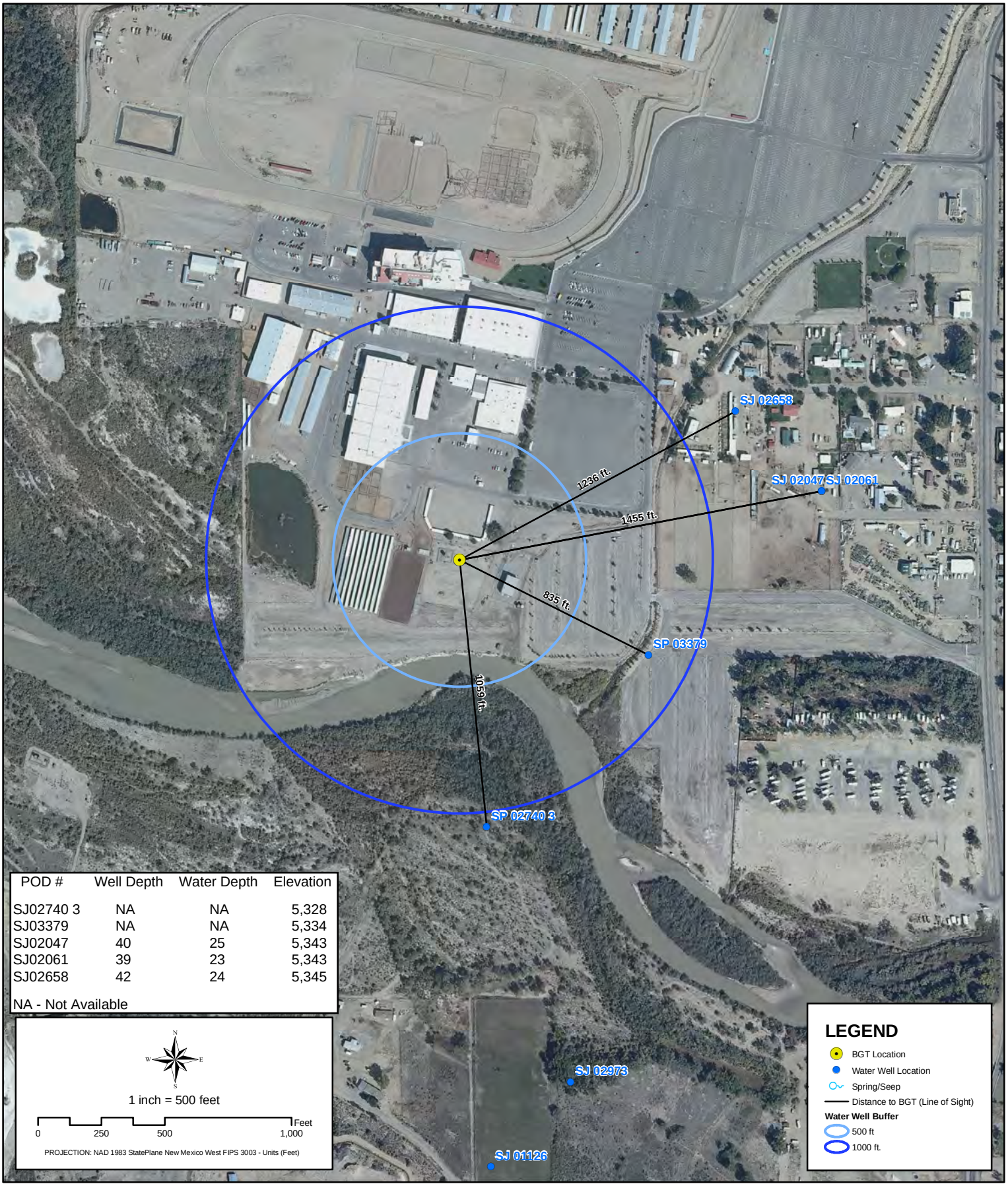
DARK YELLOWISH BROWN SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM TO LOOSE, NO APPARENT HYDROCARBON ODOR DETECTED PHYSICALLY (0.0 - 3.5 FT. INTERVAL).

▼ GW DEPTH ON 6/23/97 = 3.82 FT. (APPROX.) FROM GROUND SURFACE.

DARK YELLOWISH BROWN SAND AND GRAVEL, NON COHESIVE, SATURATED, FIRM TO LOOSE, NO APPARENT HYDROCARBON ODOR DETECTED PHYSICALLY (3.5 - 10.0 FT. INTERVAL).

NOTES:
- SAND.
- SAND AND GRAVEL.
- TOS - TOP OF SCREEN FROM GROUND SURFACE.
- TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
- GW - GROUND WATER.

DRAWING: BH-1	DATE: 6/25/97	DWN BY: NJV



POD #	Well Depth	Water Depth	Elevation
SJ02740 3	NA	NA	5,328
SJ03379	NA	NA	5,334
SJ02047	40	25	5,343
SJ02061	39	23	5,343
SJ02658	42	24	5,345

NA - Not Available

Creation Date: 2/1/2011
Created by: PRW
File Path: F:\Requests\3004507814A\3004507814A.mxd
Reviewed by: AGH

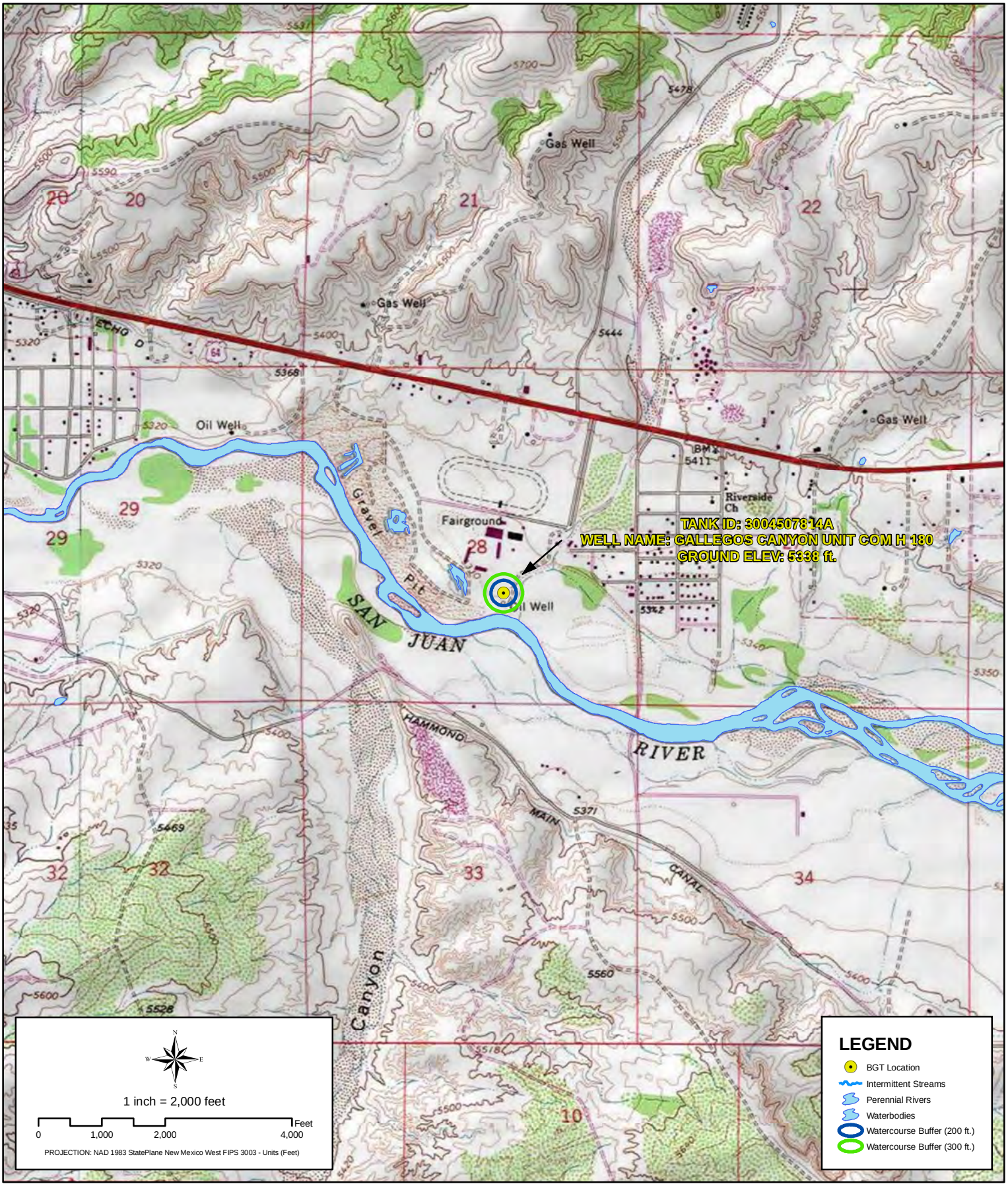
PROXIMITY TO WATER WELLS

WELL NAME: GALLEGOS CANYON UNIT COM H 180

API NUMBER: 3004507814 TANK ID: 3004507814A

SECTION 28, TOWNSHIP 29.0N, RANGE 12W, P.M. NM23

FIGURE 1



Creation Date: 2/1/2011
Created by: PRW
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Reviewed by: AGH

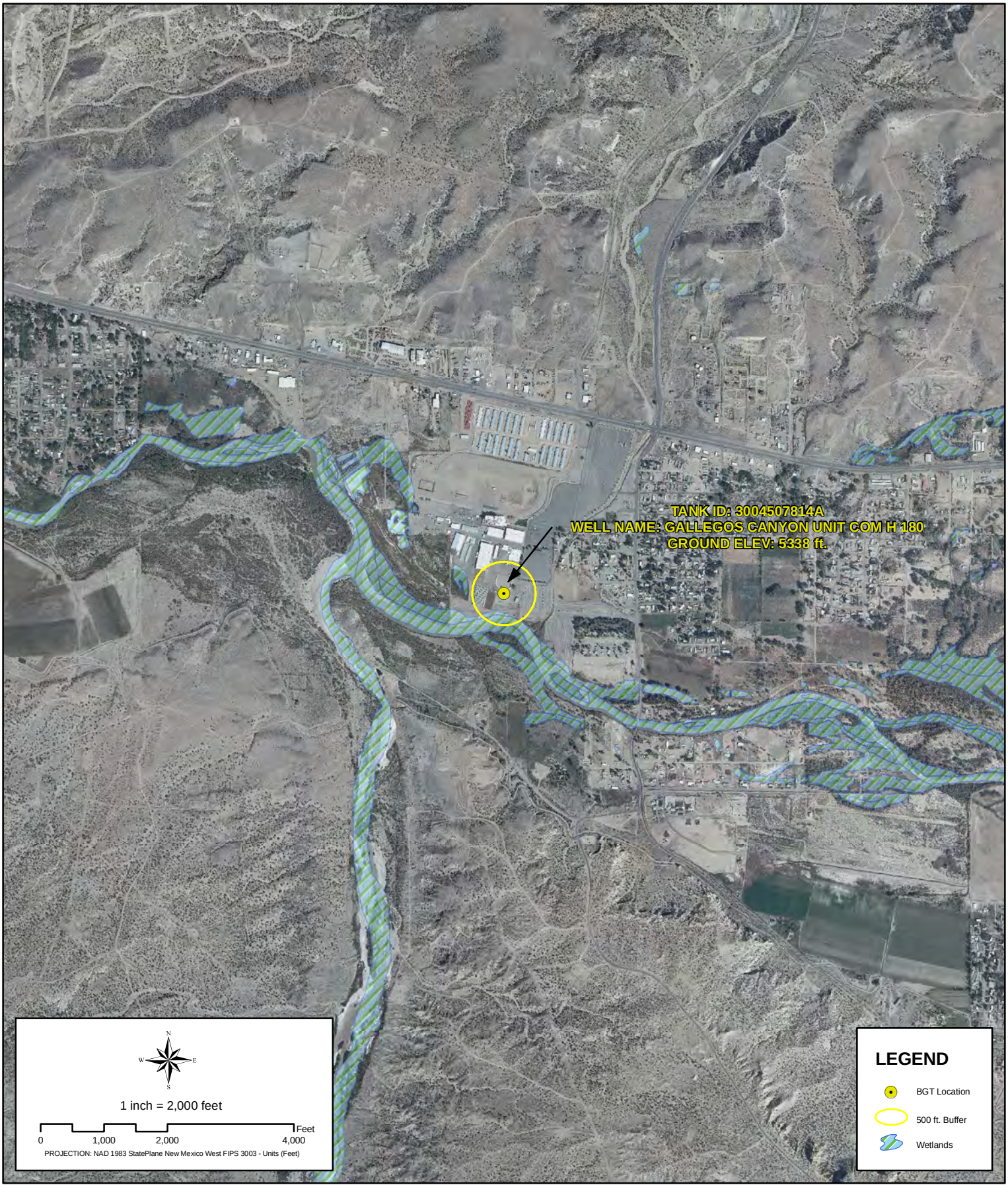
PROXIMITY TO WATERCOURSES

WELL NAME: GALLEGOS CANYON UNIT COM H 180

API NUMBER: 3004507814 TANK ID: 3004507814A

SECTION 28, TOWNSHIP 29.0N, RANGE 12W, P.M. NM23

FIGURE 2



Creation Date: 2/1/2011
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File Path:F:\Requests\3004507814A\3004507814A.mxd
Reviewed by: AGH

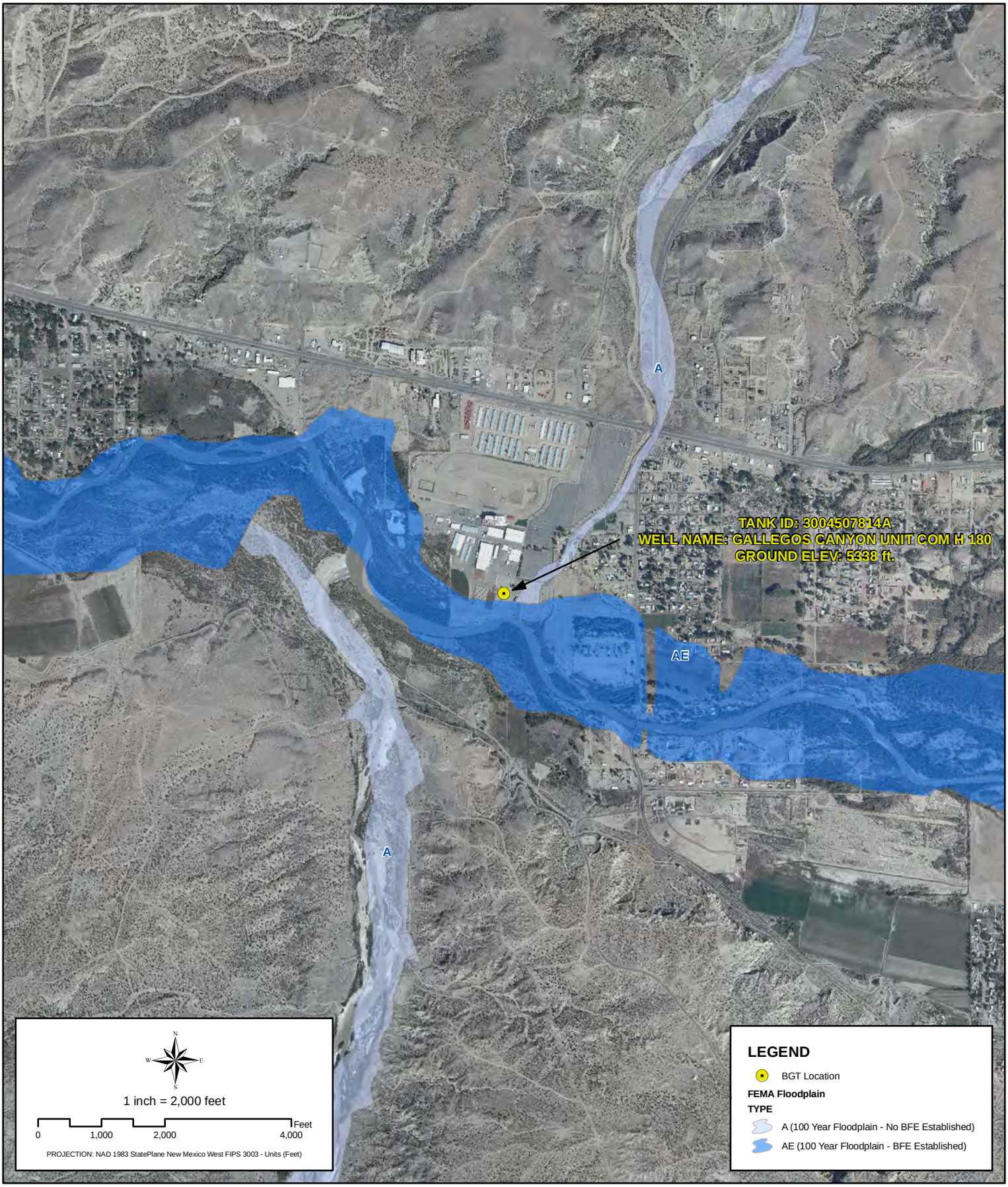
PROXIMITY TO WETLANDS

WELL NAME: GALLEGOS CANYON UNIT COM H 180

API NUMBER: 3004507814 TANK ID: 3004507814A

SECTION 28, TOWNSHIP 29.0N, RANGE 12W, P.M. NM23

FIGURE 3



Creation Date: 2/1/2011
Created by: PRW
File Path: F:\Requests\3004507814A\3004507814A.mxd
Reviewed by: AGH

PROXIMITY TO FLOODPLAIN

WELL NAME: GALLEGOS CANYON UNIT COM H 180

API NUMBER: 3004507814 TANK ID: 3004507814A

SECTION 28, TOWNSHIP 29.0N, RANGE 12W, P.M. NM23

FIGURE 4

SOUTHERN SAN JUAN BASIN (SSJB) Figure Citation List March 2010

Figure 1: Proximity to Water Wells

Layers: Water Wells: iWaters Database: **NMOSE/ISC (Dec. 2009)** New Mexico Office of the State Engineer (OSE) /ISC iWaters database. (Data updated: 12/2009. Data received: 03/09/2010). Data available from: http://www.ose.state.nm.us/waters_db_index.html.

Cathodic Wells: Tierra Corrosion Control, Inc. (Aug. 2008)

Tierra Corrosion Control, Inc. 1700 Schofield Ln. Farmington, NM 87401. Driller's Data Log. (Data collected: All data are associated with cathodic protection wells installed at BP facilities between 2008-2009. Data received: 05/06/2010).

Aerial Imagery: **Conoco (Summer 2009)**

ConocoPhillips Company. (Flown: Summer 2009). 12 in. High Resolution Orthoimagery. Projected coordinate system name: NAD_1983_StatePlane_New_Mexico_West_FIPS_3003_Feet.

Provided as tiled .tiff images and indexed using polygon index layer.

Figure 2: Proximity to Watercourses

Layers:

Perennial Streams: **NHD, USGS (2010)**

National Hydrography Dataset (NHD). U.S. Geological Survey. (Data last updated: 02/19/ 2010. Data received: 03/09/2010). High-resolution: 1:24,000. Digital Representation of USGS 24k Topographic map series with field updates as required. Data available from: http://nhd.usgs.gov/.

Intermittent Streams: NHD, USGS (2010)

National Hydrography Dataset (NHD). U.S. Geological Survey. (Data last updated: 02/19/ 2010. Data received: 03/09/2010). High-resolution: 1:24,000. Digital Representation of USGS 24k Topographic map series with field updates as required. Data available from: http://nhd.usgs.gov/.

Water Bodies: NHD, USGS (2010)

National Hydrography Dataset (NHD). U.S. Geological Survey. (Data last updated: 02/19/ 2010. Data received: 03/09/2010). High-resolution: 1:24,000. Digital representation of USGS 24k Topographic map series with field updates as required. Data available from: http://nhd.usgs.gov/.

USGS Topographic Maps: USGS (2007)

USGS 24k Topographic map series. 1:24000. Maps are seamless, scanned images of USGS paper topographic maps. Data available from: http://store.usgs.gov.

Figure 3: Proximity to Wetlands

Layers: Aerial Imagery: Conoco (Summer 2009)

ConocoPhillips Company. (Flown: Summer 2009). 12 in. High Resolution Orthoimagery. Projected coordinate system name: NAD_1983_StatePlane_New_Mexico_West_FIPS_3003_Feet.

Provided as tiled .tiff images and indexed using polygon index layer.

Wetlands: NWI (2010) National Wetlands Inventory (NWI). U.S Fish and Wildlife Service. (Data last updated: 09/25/2009. Data received: 03/21/2010). Data available from: http://www.fws.gov/wetlands/.

Figure 4: Proximity to Floodplain

Layers: Aerial Imagery: Conoco (Summer 2009)

ConocoPhillips Company. (Flown: Summer 2009). 12 in. High Resolution Orthoimagery. Projected coordinate system name: NAD_1983_StatePlane_New_Mexico_West_FIPS_3003_Feet.

Provided as tiled .tiff images and indexed using polygon index layer.

FEMA Floodplain: FEMA (varying years) Data digitized and rectified by Wright Water Engineers, Inc. (Data digitized: August 2008). Digitized from hard copy Flood Insurance Rate Maps (FIRMs) (varying years) of San Juan County.