

BPX ENERGY INC.

Continue to Monitor/Follow
Approved Plan

(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, NMPPM)



CHRONOLOGICAL EVENT SUMMATION

1. **Oct. 16, 2019** BPX submits Remediation Plan addressing groundwater impacts.
2. **Nov. 27, 2019** Quarterly sampling notification submitted to the New Mexico Oil Conservation Division (NMOCD).
3. **Dec. 4, 2019** Fourth quarter groundwater sampling from MW #102, MW #103, & MW #104.
4. **Dec. 11, 2019** NMOCD grants BPX approval of its Remediation Plan with conditions.
5. **Dec. 12, 2019** Received laboratory final report of 12/04/2019 sampling event. BPX submits initial remediation monthly report data to NMOCD.
6. **Dec. 13, 2019** Subsequent sampling of MW #104 to validate 12/04/2019 findings.
7. **Dec. 17, 2019** Received laboratory final report of 12/13/2019 sampling event. 12/04/2019 results confirmed.
8. **Dec. 16-22, 2019** Purging of MW #104. Approximately 9,300 gallons removed and disposed within on-site 95 barrel above-grade tank.
9. **Dec. 23, 2019** Subsequent sampling of MW #104 to assess purging effectiveness.
10. **Dec. 30, 2019** Received laboratory final report of 12/23/2019 MW #104 sampling event.

Additional Notes:

Groundwater gradient approximately 0.20-0.26 feet per 100 lateral feet and in WSW-SW direction.

Remedial effort to currently concentrate on MW #104.

RE: GCU Com H 180 report

From: Smith, Cory, EMNRD (cory.smith@state.nm.us)
To: erin.dunman@bpx.com
Cc: steven.moskal@bpx.com; blagg_njv@yahoo.com; jeffcblagg@aol.com
Date: Wednesday, December 11, 2019, 08:24 AM MST

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

Erin Dunman

Environmental Coordinator

BP America Production Co.

bpx energy - WBU

1199 Main Ave. | Suite 101 | Durango | CO | 81301

Cell: 832-609-7048

Office: 281-810-2578

Erin.Dunman@bpx.com

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GCU Com H 180

From: Erin Dunman (erin.dunman@bpx.com)

To: cory.smith@state.nm.us

Cc: blagg_njv@yahoo.com; jeffcblagg@aol.com; steven.moskal@bpx.com

Date: Wednesday, November 27, 2019, 09:23 AM MST

Cory

Sampling is scheduled for Wednesday, 12/4 at 11 am at GCU Com H 180 for MW #102, #103 and #104. The samples will be analyzed for BTEX. Additionally MW #102 for manganese, sulfate and TDS.

Have a happy thanksgiving
Erin

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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 1
12/31/2019

95 bbl dw/db
above-grade tank
current location

95 bbl dw/db BGT
removed June 2019

14 ft.

MW #102

MW #101

40 ft.

MW #103

MW #1R
removed October 2018

58 ft.

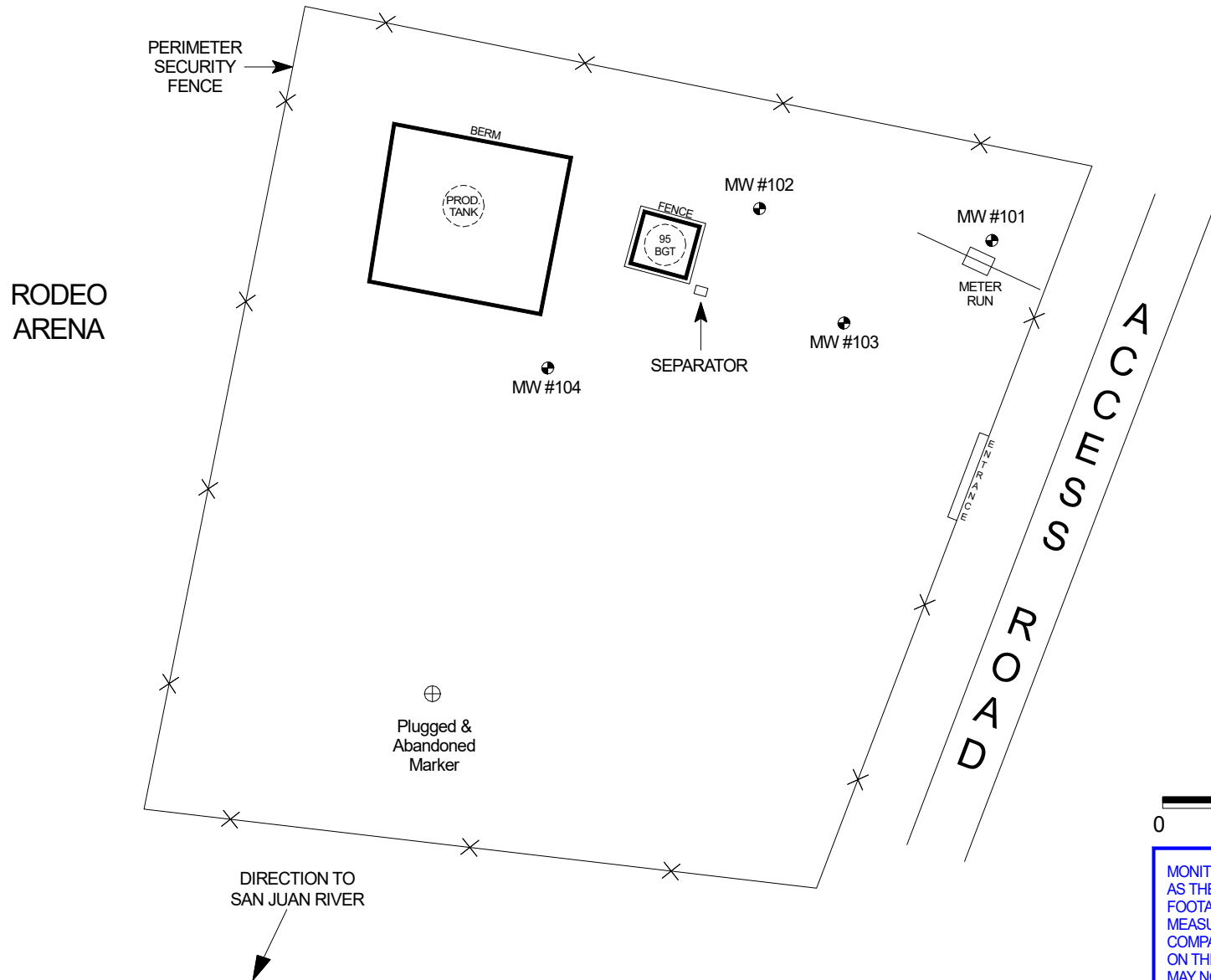
MW #104

95 bbl sw/db BGT
removed between 2002-2004



70 ft

FIGURE 2



0 50 100 FT.

MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE & BEARING FROM THE WELL HEAD (TAPE MEASURE, LASER RANGE FINDER, & BRUNTON COMPASS). ALL OTHER STRUCTURES DISPLAYED ON THIS MAP ARE SOLELY FOR REFERENCE AND MAY NOT BE TO SCALE.

BPX ENERGY INC.

GCU COM H # 180

NW/4 SE/4 SEC. 28, T29N, R12W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

PROJECT: REMEDIATION

DRAWN BY: NJV

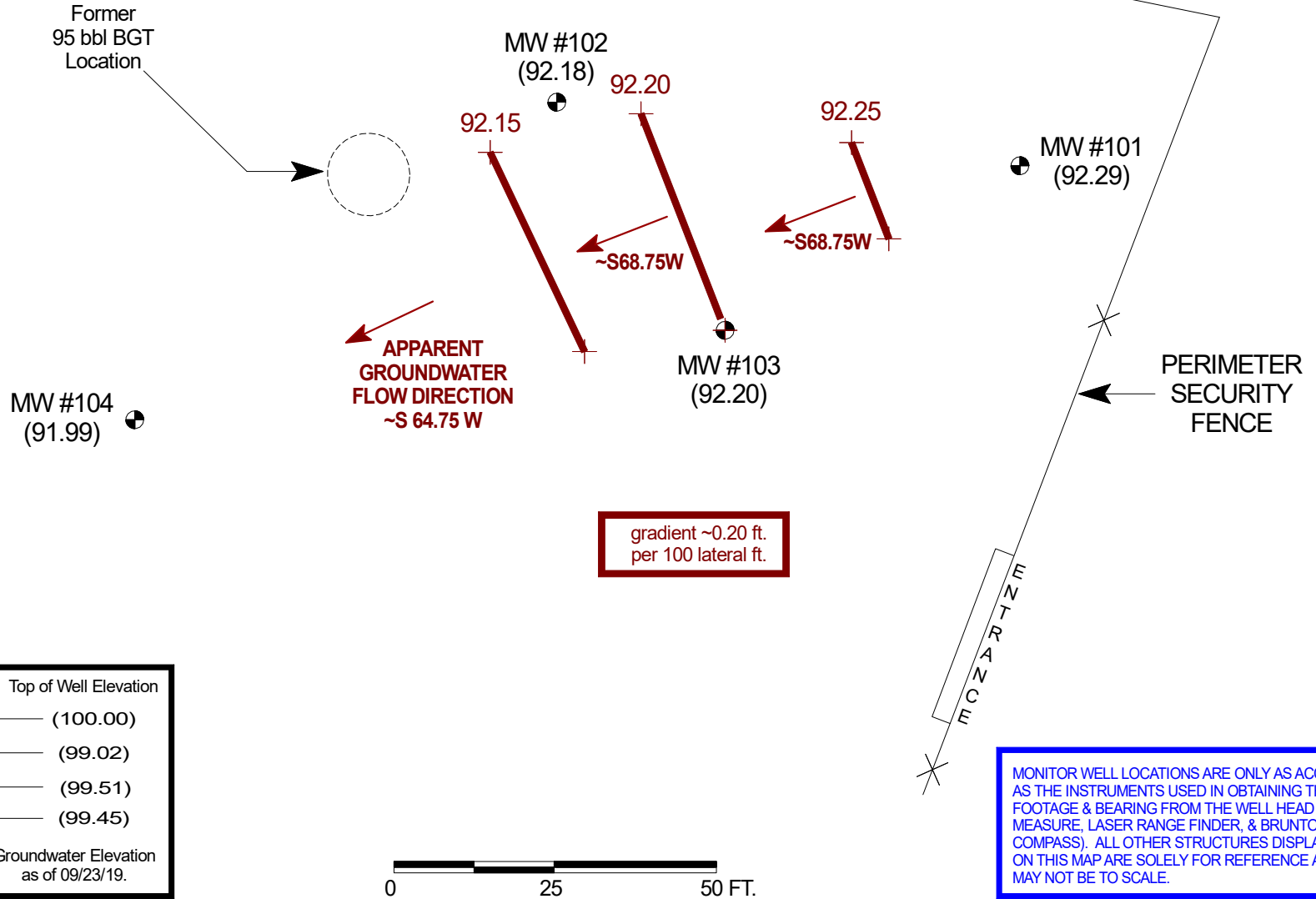
FILENAME: GCU COM H 180 SM (2019-09).SKF

REVISED: 12-13-2019

**SITE
MAP**

SEPT. 2019

FIGURE 3
(3rd 1/4, 2019)



BPX ENERGY INC.

GCU COM H # 180

NW/4 SE/4 SEC. 28, T29N, R12W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

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PROJECT: REMEDIATION

DRAWN BY: NJV

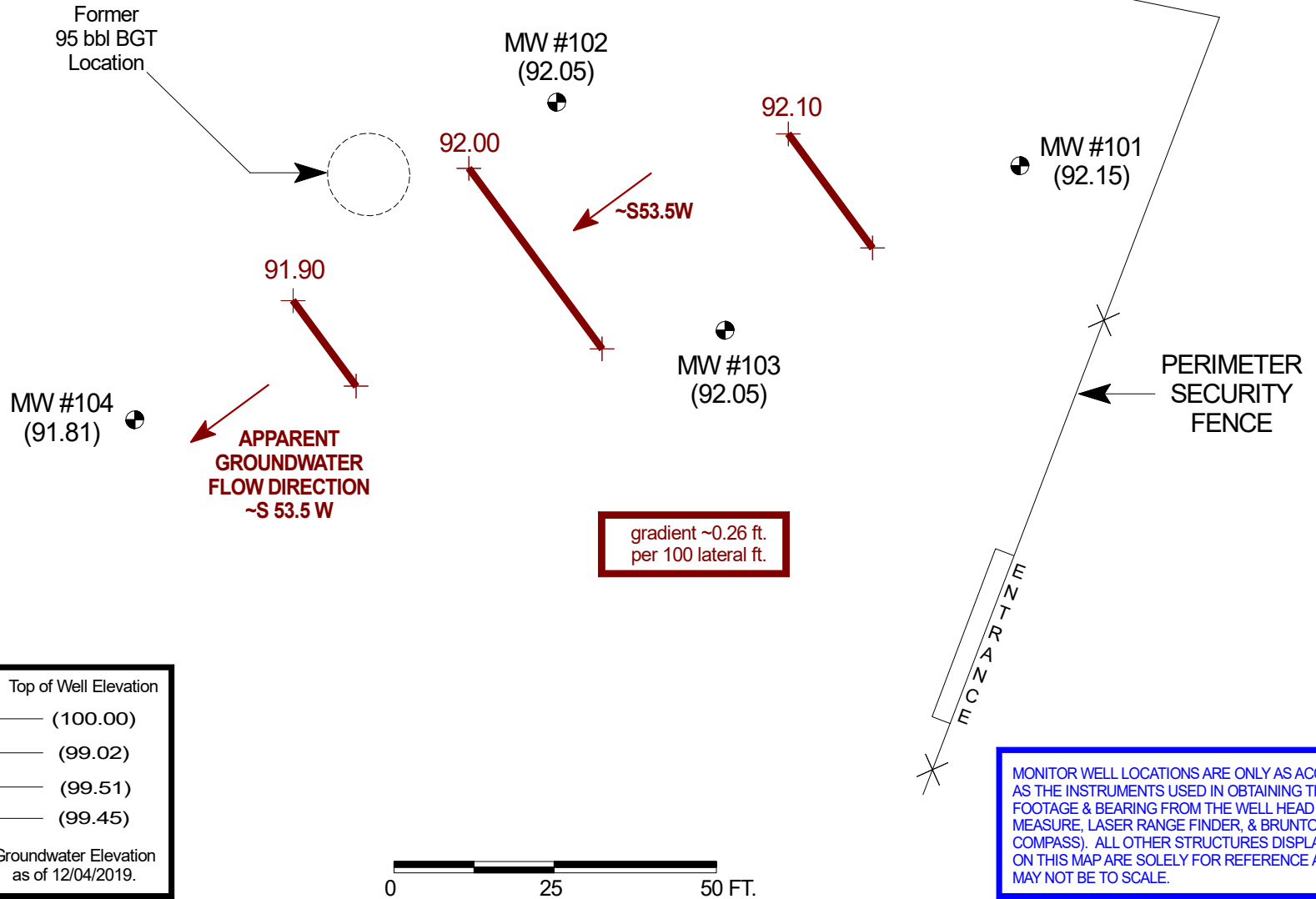
FILENAME: GCU COM H 180 GW FIG 3 (2019-09).SKF

DRAFTED: 12-14-2019

**GROUNDWATER
CONTOUR
MAP**

SEPT. 2019

FIGURE 4
(4th 1/4, 2019)



BPX ENERGY INC.

GCU COM H # 180

NW/4 SE/4 SEC. 28, T29N, R12W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

PROJECT: REMEDIATION

DRAWN BY: NJV

FILENAME: GCU COM H 180 GW FIG 4 (2019-12).SKF

DRAFTED: 12-14-2019

**GROUNDWATER
CONTOUR
MAP**

DEC. 2019

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: December 30, 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
11/07/19	"	7.23	"	7.27	1,900	18.5	ND	3.7	300	41	320
12/04/19	"	6.97	"	7.06	2,600	14.6	ND	ND	280	36	260
09/23/19	MW #103	7.31	12.58	7.19	2,500	20.3	ND	ND	ND	43	110
12/04/19	"	7.46	"	7.12	2,700	14.4	ND	ND	ND	36	82
09/23/19	MW #104	7.46	12.20	7.23	2,300	19.9	ND	4.7	1.4	18	92
12/04/19	"	7.64	"	6.99	2,700	13.2	ND	130	ND	23	65
12/13/19	"	7.54	"	7.30	3,000	12.4	ND	110	ND	35	110

NMWQCC GROUNDWATER STANDARDS

30	5	1,000	700	620
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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
12/04/19	"	-	-	-	-	2,900	5,220	-	-	5.7
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
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- 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
 - 9) (-) - Not analyzed

FIELD DATA

SHEETS

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 J, SEC. 28, T29N, R12W

LABORATORY (S) USED :

HALL ENVIRONMENTAL

Date : November 7, 2019

DEVELOPER / SAMPLER :

N J V

Filename : GCU Com H 180 mw log 2019-11-07.xls

PROJECT MANAGER :

E. DUNMAN

Sample ID	WELL ELEV. (feet)	WATER ELEV. (feet)	DEPTH TO WATER (feet)	WELL TOTAL LENGTH (feet)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
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MW #101	-	-	8.10	11.65	-	-	-	-	-
MW #102	-	-	7.23	12.58	1010	7.27	1,900	18.5	2.75
MW #103	-	-	7.72	12.58	-	-	-	-	-
MW #104	-	-	7.91	12.20	-	-	-	-	-

INSTRUMENT CALIBRATIONS =

DATE & TIME =

4.01/7.00/10.00	2,800
11/07/19	0630

NOTES : Volume of water purged from well prior to sampling: $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3 \text{ (wellbores)}$.
(i.e. 2" MW $r = (1/12) \text{ ft.}$ $h = 1 \text{ ft.}$) (i.e. 4" MW $r = (2/12) \text{ ft.}$ $h = 1 \text{ ft.}$)

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 to purged & sampled. Collected BTEX sample per US EPA Method 8260B from MW #102 only. Pale/murky gray appearance. Wisp/slight sheen on purged water surface & slight hydrocarbon odor detected physically. Purged water disposed into on-site 95 bbl above-grade tank.

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	9:30 AM	temp	46 F
off-site	10:52 AM	temp	54 F
sky cond.	Sunny		
wind speed	0 - 5	direct.	E

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 J, SEC. 28, T29N, R12W

LABORATORY (S) USED :

HALL ENVIRONMENTAL

Date : December 4, 2019

DEVELOPER / SAMPLER : N J V

Filename : GCU Com H 180 mw log 2019-12-04.xls

PROJECT MANAGER : E. DUNMAN

Sample ID	WELL ELEV. (feet)	WATER ELEV. (feet)	DEPTH TO WATER (feet)	WELL TOTAL LENGTH (feet)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
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MW #101	100.00	92.15	7.85	11.65	-	-	-	-	-
MW #102	99.02	92.05	6.97	12.58	1210	7.06	2,600	14.6	2.75
MW #103	99.51	92.05	7.46	12.58	1150	7.12	2,700	14.4	2.50
MW #104	99.45	91.81	7.64	12.20	1130	6.99	2,700	13.2	2.25

INSTRUMENT CALIBRATIONS =

DATE & TIME =

4.01/7.00/10.00	2,800
12/04/19	0800

NOTES : Volume of water purged from well prior to sampling: $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3 \text{ (wellbores)}$.
(i.e. 2" MW $r = (1/12) \text{ ft.}$ $h = 1 \text{ ft.}$) (i.e. 4" MW $r = (2/12) \text{ ft.}$ $h = 1 \text{ ft.}$)

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; surveyed top of casing elevations 11/13/2019. Used new disposable bailers for each monitor well purged & sampled. Collected samples from three (3) wells after purging a minimum of 3 well bore volumes. Lab to analyze for BTEX per US EPA Method 8260B from three (3) wells. Sulfate, total dissolved solids, & manganese from MW #102 only. All purged water disposed within 95 above-grade tank, to be evacuated by water hauler at a later time.

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	10:50 AM	temp	43 F
off-site	12:30 PM	temp	46 F
sky cond.	Mostly cloudy		
wind speed	0 - 5	direct.	E

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 J, SEC. 28, T29N, R12W

LABORATORY (S) USED :

HALL ENVIRONMENTAL

Date : December 13, 2019

DEVELOPER / SAMPLER : N J V

Filename : GCU Com H 180 mw log 2019-12-13.xls

PROJECT MANAGER : E. DUNMAN

Sample ID	WELL ELEV. (feet)	WATER ELEV. (feet)	DEPTH TO WATER (feet)	WELL TOTAL LENGTH (feet)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
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MW #101	100.00	-	-	11.65	-	-	-	-	-
MW #102	99.02	-	-	12.58	-	-	-	-	-
MW #103	99.51	-	-	12.58	-	-	-	-	-
MW #104	99.45	-	7.54	12.20	1335	7.30	3,000	12.4	2.25

INSTRUMENT CALIBRATIONS =

DATE & TIME =

4.01/7.00/10.00	2,800
12/13/19	1230

NOTES : Volume of water purged from well prior to sampling: $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3 \text{ (wellbores)}$.
(i.e. 2" MW $r = (1/12) \text{ ft.}$ $h = 1 \text{ ft.}$) (i.e. 4" MW $r = (2/12) \text{ ft.}$ $h = 1 \text{ ft.}$)

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; surveyed top of casing elevations 11/13/2019. Used new disposable bailer to purge & sample

MW #104 only. Collected BTEX sample per US EPA Method 8260B after purging a minimum of 3 well bore volume. All purged water disposed within 95 above-grade tank, to be evacuated by water hauler at a later time.

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	1:05 PM	temp	47 F
off-site	2:00 PM	temp	47 F
sky cond.	Cloudy		
wind speed	5 - 15	direct.	W

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 J, SEC. 28, T29N, R12W

LABORATORY (S) USED :

HALL ENVIRONMENTAL

Date : December 23, 2019

DEVELOPER / SAMPLER : N J V

Filename : GCU Com H 180 mw log 2019-12-23.xls

PROJECT MANAGER : E. DUNMAN

Sample ID	WELL ELEV. (feet)	WATER ELEV. (feet)	DEPTH TO WATER (feet)	WELL TOTAL LENGTH (feet)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
-----------	-------------------	--------------------	-----------------------	--------------------------	---------------	----	-----------------	-----------------	----------------------

MW #101	100.00	-	-	11.65	-	-	-	-	-
MW #102	99.02	-	-	12.58	-	-	-	-	-
MW #103	99.51	-	-	12.58	-	-	-	-	-
MW #104	99.45	-	7.64	12.20	0925	7.22	2,400	11.6	2.25

INSTRUMENT CALIBRATIONS =

DATE & TIME =

4.01/7.00/10.00	2,800
12/13/19	1230

NOTES : Volume of water purged from well prior to sampling: $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3 \text{ (wellbores)}$.
(i.e. 2" MW $r = (1/12) \text{ ft.}$ $h = 1 \text{ ft.}$) (i.e. 4" MW $r = (2/12) \text{ ft.}$ $h = 1 \text{ ft.}$)

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; surveyed top of casing elevations 11/13/2019. Used new disposable bailer to purge & sample

MW #104 only. Collected BTEX sample per US EPA Method 8260B after purging a minimum of 3 well bore volume. All purged water disposed within 95 above-grade tank, to be evacuated by water hauler at a later time.

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	8:45 AM	temp	30 F
off-site	9:45 AM	temp	33 F
sky cond.	Mostly cloudy		
wind speed	0 - 10	direct.	E -ESE

PURGING

DATA SHEETS

BPX ENERGY INC.

(Formerly BP America Production Company)

GCU COM H 180 – Groundwater Purging Data

API #: 30-045-07814

Environmental Order #: 3RP 379-0

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

Tank radius = 5.75 ft. (diameter = 11.5 ft.)

Tank height = 4.7083 ft. or 56.5 inches

Volume (V) = $(\pi)r^2h$

V = 489.0494 ft.³

7.48 gallons per ft.³

V = 3,658.09 gallons

V = 64.74 gallons per inch (in tank)

Monitor Well: MW #102

(SDO) – Shut down operation

DATE	TIME	DTW – TOC (ft.)	PURGE RATE (Gal./Hr.)	QUANTITY (Gal.)	NOTES / REMARKS / COMMENTS
10/25/2019	1020	7.10	40	-	Initially used auto battery jump start power pack; purge rate (PR) – 90"/gal.
"	1219	-	180	-	Switched to newly purchased auto battery; PR – 20"/gal.
"	1239	8.08	-	-	DTW - steady state
"	1622	8.08	144	809	PR – 25"/gal.; H ₂ O in tank – 12.5" (measured 44" from top); SDO
10/28/2019	1045	7.15	180	-	Continue using newly purchased auto battery; PR – 20"/gal.; H ₂ O in tank from top – 44"
"	1100	8.05	-	-	DTW - steady state
"	1615	8.08	144	842 (total 1,651)	PR – 25"/gal.; H ₂ O in tank – 13" (measured 31" from top); SDO
10/29/2019	0915	7.11	180	-	PR – 20"/gal.; H ₂ O in tank from top – 31"
"	0930	8.06	-	-	DTW - steady state
"	1513	8.08	171	971 (total 2,622)	PR – 21"/gal.; H ₂ O in tank – 15" (measured 16" from top); SDO
10/30/2019	0910	7.16	200	-	Tank drained earlier this morning; PR – 18"/gal.; H ₂ O in tank from top – 0"
"	0925	8.16	-	-	DTW - steady state
"	1610	8.13	150	1,100 (total 3,722)	PR – 24"/gal.; H ₂ O in tank – 17" (measured 39.5" from top); SDO
10/31/2019	0936	7.20	189	-	PR – 19"/gal.; H ₂ O in tank from top – 39.5"
"	0950	8.10	-	-	DTW - steady state
"	1646	8.00	138	1,133 (total 4,855)	PR – 26"/gal.; H ₂ O in tank – 17.5" (measured 22" from top); SDO

Notes: DTW – Depth to water; TOC – Top of Casing;
ft. – feet; Gal. – gallons; Hr. – hour; " – seconds

Monitor Well: MW #102

(SDO) – Shut down operation

[illegible]

**Notes: DTW – Depth to water; TOC – Top of Casing;
ft. – feet; Gal. – gallons; Hr. – hour; " - seconds**

BPX ENERGY INC.

(Formerly BP America Production Company)

GCU COM H 180 – Groundwater Purging Data

API #: 30-045-07814

Environmental Order #: 3RP 379-0

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

Tank radius = 5.75 ft. (diameter = 11.5 ft.)

Tank height = 4.7083 ft. or 56.5 inches

Volume (V) = $(\pi)r^2h$

V = 489.0494 ft.³

7.48 gallons per ft.³

V = 3,658.09 gallons

V = 64.74 gallons per inch (in tank)

Monitor Well: MW #104

(SDO) – Shut down operation

DATE	TIME	DTW – TOC (ft.)	PURGE RATE (Gal./Hr.)	QUANTITY (Gal.)	NOTES / REMARKS / COMMENTS
11/06/2019	1139	7.89	138	-	Initiated purging MW #104; PR – 26"/gal.; H ₂ O in tank from top – 38.5"
"	1148	8.44	-	-	Total length of well – 12.20 ft.
"	1158	8.46	-	-	
"	1208	8.48	-	-	
"	1218	8.48	-	-	
"	1228	-	138	-	PR – 26"/gal.
"	1240	8.48	-	-	DTW - steady state
"	1642	8.49	120	615	PR – 30"/gal.; H ₂ O in tank – 9.5" (measured 29" from top); SDO
11/07/2019	1022	7.91	138	-	PR – 26"/gal.; H ₂ O in tank from top – 29"
"	1045	8.47	-	-	
"	1710	8.41	112.5	777 (1,392)	PR – 32"/gal.; H ₂ O in tank – 12" (measured 17" from top); SDO
11/13/2019	1430	-	144	-	PR – 25"/gal.; H ₂ O in tank from top – 54.5"; set up 2 new 110AH deep cycle batteries with parallel connection to operate overnight.
11/14/2019	0937	-	108	1,489 (2,881)	PR – 33"/gal.; H ₂ O in tank – 23" (measured 31.5" from top)
"	"	-	138	-	Switched to single battery; PR – 26"/gal.
"	1635	7.95	138	453 (3,334)	Electrical connection severed approx. 1 PM; PR – 26"/gal.; H ₂ O in tank – 7" (measured 16" from top) ; requested 95 bbl tank be drained; SDO

Monitor Well: MW #104

(SDO) – Shut down operation

DATE	TIME	DTW – TOC (ft.)	PURGE RATE (Gal./Hr.)	QUANTITY (Gal.)	NOTES / REMARKS / COMMENTS
12/16/2019	1335	7.57	-	(3,334)	H ₂ O in tank – 0" (measured 56.5" from top)
12/17/2019	0830	-	141.4 (avg.)	2,686 (6,020)	H ₂ O in tank – 41.5" (measured 15" from top)
12/17/2019	1130	-	-	2,881 (6,215)	H ₂ O in tank – 44.5" (measured 12" from top); SDO
12/18/2019	0930	7.57	-	(6,215)	H ₂ O in tank – 4.5" (measured 52" from top)
12/19/2019	0900	7.60	-	3,140 (9,355)	H ₂ O in tank – 48.5" (measured 3.5" from top); SDO
12/21/2019	0910	7.57	-	(9,355)	H ₂ O in tank – 2.5" (measured 54" from top)
12/22/2019	0922	7.65	-	3,270 (12,625)	H ₂ O in tank – 50.5" (measured 3.5" from top); SDO

GROUNDWATER

LABORATORY

REPORTS

MW #102

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1911332

Date Reported: 11/11/2019

CLIENT: Blagg Engineering

Client Sample ID: MW #102

Project: GCU Com H 180

Collection Date: 11/7/2019 10:10:00 AM

Lab ID: 1911332-001

Matrix: AQUEOUS

Received Date: 11/8/2019 8:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	3.7	2.5	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Toluene	300	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Ethylbenzene	41	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Methyl tert-butyl ether (MTBE)	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
1,2,4-Trimethylbenzene	55	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
1,3,5-Trimethylbenzene	18	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
1,2-Dichloroethane (EDC)	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
1,2-Dibromoethane (EDB)	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Naphthalene	ND	10	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
1-Methylnaphthalene	ND	20	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
2-Methylnaphthalene	ND	20	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Acetone	ND	50	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Bromobenzene	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Bromodichloromethane	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Bromoform	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Bromomethane	ND	15	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
2-Butanone	ND	50	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Carbon disulfide	ND	50	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Carbon Tetrachloride	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Chlorobenzene	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Chloroethane	ND	10	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Chloroform	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Chloromethane	ND	15	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
2-Chlorotoluene	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
4-Chlorotoluene	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
cis-1,2-DCE	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
cis-1,3-Dichloropropene	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
1,2-Dibromo-3-chloropropane	ND	10	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Dibromochloromethane	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Dibromomethane	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
1,2-Dichlorobenzene	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
1,3-Dichlorobenzene	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
1,4-Dichlorobenzene	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Dichlorodifluoromethane	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
1,1-Dichloroethane	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
1,1-Dichloroethene	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
1,2-Dichloropropane	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
1,3-Dichloropropane	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
2,2-Dichloropropane	ND	10	D	µg/L	5	11/8/2019 11:22:15 AM	W64339

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1911332

Date Reported: 11/11/2019

CLIENT: Blagg Engineering

Client Sample ID: MW #102

Project: GCU Com H 180

Collection Date: 11/7/2019 10:10:00 AM

Lab ID: 1911332-001

Matrix: AQUEOUS

Received Date: 11/8/2019 8:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
1,1-Dichloropropene	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Hexachlorobutadiene	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
2-Hexanone	ND	50	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Isopropylbenzene	8.8	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
4-Isopropyltoluene	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
4-Methyl-2-pentanone	ND	50	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Methylene Chloride	ND	15	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
n-Butylbenzene	ND	15	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
n-Propylbenzene	11	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
sec-Butylbenzene	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Styrene	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
tert-Butylbenzene	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
1,1,1,2-Tetrachloroethane	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
1,1,2,2-Tetrachloroethane	ND	10	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Tetrachloroethene (PCE)	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
trans-1,2-DCE	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
trans-1,3-Dichloropropene	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
1,2,3-Trichlorobenzene	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
1,2,4-Trichlorobenzene	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
1,1,1-Trichloroethane	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
1,1,2-Trichloroethane	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Trichloroethene (TCE)	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Trichlorofluoromethane	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
1,2,3-Trichloropropane	ND	10	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Vinyl chloride	ND	5.0	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Xylenes, Total	320	7.5	D	µg/L	5	11/8/2019 11:22:15 AM	W64339
Surr: 1,2-Dichloroethane-d4	80.4	70-130	D	%Rec	5	11/8/2019 11:22:15 AM	W64339
Surr: 4-Bromofluorobenzene	90.2	70-130	D	%Rec	5	11/8/2019 11:22:15 AM	W64339
Surr: Dibromofluoromethane	93.4	70-130	D	%Rec	5	11/8/2019 11:22:15 AM	W64339
Surr: Toluene-d8	106	70-130	D	%Rec	5	11/8/2019 11:22:15 AM	W64339

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1912191

Date Reported: 12/12/2019

CLIENT: Blagg Engineering

Client Sample ID: MW #102

Project: GCU Com H 180

Collection Date: 12/4/2019 12:10:00 PM

Lab ID: 1912191-001

Matrix: AQUEOUS

Received Date: 12/5/2019 8:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: CJS
Sulfate	2900	50		mg/L	100	12/10/2019 3:31:28 AM	A65048
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: JMT
Total Dissolved Solids	5220	100	*D	mg/L	1	12/9/2019 2:50:00 PM	49196
EPA METHOD 6010B: DISSOLVED METALS							Analyst: pmf
Manganese	5.7	0.020		mg/L	10	12/10/2019 2:45:09 PM	A65071
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
Toluene	280	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
Ethylbenzene	36	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
1,2,4-Trimethylbenzene	37	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
1,3,5-Trimethylbenzene	15	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
1,2-Dichloroethane (EDC)	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
1,2-Dibromoethane (EDB)	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
Naphthalene	ND	10		µg/L	5	12/10/2019 12:29:24 AM	R65050
1-Methylnaphthalene	ND	20		µg/L	5	12/10/2019 12:29:24 AM	R65050
2-Methylnaphthalene	ND	20		µg/L	5	12/10/2019 12:29:24 AM	R65050
Acetone	ND	50		µg/L	5	12/10/2019 12:29:24 AM	R65050
Bromobenzene	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
Bromodichloromethane	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
Bromoform	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
Bromomethane	ND	15		µg/L	5	12/10/2019 12:29:24 AM	R65050
2-Butanone	ND	50		µg/L	5	12/10/2019 12:29:24 AM	R65050
Carbon disulfide	ND	50		µg/L	5	12/10/2019 12:29:24 AM	R65050
Carbon Tetrachloride	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
Chlorobenzene	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
Chloroethane	ND	10		µg/L	5	12/10/2019 12:29:24 AM	R65050
Chloroform	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
Chloromethane	ND	15		µg/L	5	12/10/2019 12:29:24 AM	R65050
2-Chlorotoluene	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
4-Chlorotoluene	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
cis-1,2-DCE	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
cis-1,3-Dichloropropene	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
1,2-Dibromo-3-chloropropane	ND	10		µg/L	5	12/10/2019 12:29:24 AM	R65050
Dibromochloromethane	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
Dibromomethane	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
1,2-Dichlorobenzene	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
1,3-Dichlorobenzene	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1912191

Date Reported: 12/12/2019

CLIENT: Blagg Engineering

Client Sample ID: MW #102

Project: GCU Com H 180

Collection Date: 12/4/2019 12:10:00 PM

Lab ID: 1912191-001

Matrix: AQUEOUS

Received Date: 12/5/2019 8:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,4-Dichlorobenzene	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
Dichlorodifluoromethane	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
1,1-Dichloroethane	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
1,1-Dichloroethene	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
1,2-Dichloropropane	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
1,3-Dichloropropane	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
2,2-Dichloropropane	ND	10		µg/L	5	12/10/2019 12:29:24 AM	R65050
1,1-Dichloropropene	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
Hexachlorobutadiene	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
2-Hexanone	ND	50		µg/L	5	12/10/2019 12:29:24 AM	R65050
Isopropylbenzene	7.0	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
4-Isopropyltoluene	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
4-Methyl-2-pentanone	ND	50		µg/L	5	12/10/2019 12:29:24 AM	R65050
Methylene Chloride	ND	15		µg/L	5	12/10/2019 12:29:24 AM	R65050
n-Butylbenzene	ND	15		µg/L	5	12/10/2019 12:29:24 AM	R65050
n-Propylbenzene	7.2	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
sec-Butylbenzene	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
Styrene	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
tert-Butylbenzene	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
1,1,2,2-Tetrachloroethane	ND	10		µg/L	5	12/10/2019 12:29:24 AM	R65050
Tetrachloroethene (PCE)	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
trans-1,2-DCE	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
trans-1,3-Dichloropropene	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
1,2,3-Trichlorobenzene	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
1,2,4-Trichlorobenzene	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
1,1,1-Trichloroethane	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
1,1,2-Trichloroethane	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
Trichloroethene (TCE)	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
Trichlorofluoromethane	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
1,2,3-Trichloropropane	ND	10		µg/L	5	12/10/2019 12:29:24 AM	R65050
Vinyl chloride	ND	5.0		µg/L	5	12/10/2019 12:29:24 AM	R65050
Xylenes, Total	260	7.5		µg/L	5	12/10/2019 12:29:24 AM	R65050
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	5	12/10/2019 12:29:24 AM	R65050
Surr: 4-Bromofluorobenzene	90.6	70-130		%Rec	5	12/10/2019 12:29:24 AM	R65050
Surr: Dibromofluoromethane	105	70-130		%Rec	5	12/10/2019 12:29:24 AM	R65050
Surr: Toluene-d8	97.9	70-130		%Rec	5	12/10/2019 12:29:24 AM	R65050

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

MW #103

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1912191

Date Reported: 12/12/2019

CLIENT: Blagg Engineering

Client Sample ID: MW #103

Project: GCU Com H 180

Collection Date: 12/4/2019 11:50:00 AM

Lab ID: 1912191-002

Matrix: AQUEOUS

Received Date: 12/5/2019 8:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
Toluene	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
Ethylbenzene	36	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
1,2,4-Trimethylbenzene	45	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
1,3,5-Trimethylbenzene	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
1,2-Dichloroethane (EDC)	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
1,2-Dibromoethane (EDB)	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
Naphthalene	ND	10		µg/L	5	12/10/2019 1:54:25 AM	R65050
1-Methylnaphthalene	ND	20		µg/L	5	12/10/2019 1:54:25 AM	R65050
2-Methylnaphthalene	ND	20		µg/L	5	12/10/2019 1:54:25 AM	R65050
Acetone	ND	50		µg/L	5	12/10/2019 1:54:25 AM	R65050
Bromobenzene	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
Bromodichloromethane	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
Bromoform	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
Bromomethane	ND	15		µg/L	5	12/10/2019 1:54:25 AM	R65050
2-Butanone	ND	50		µg/L	5	12/10/2019 1:54:25 AM	R65050
Carbon disulfide	ND	50		µg/L	5	12/10/2019 1:54:25 AM	R65050
Carbon Tetrachloride	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
Chlorobenzene	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
Chloroethane	ND	10		µg/L	5	12/10/2019 1:54:25 AM	R65050
Chloroform	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
Chloromethane	ND	15		µg/L	5	12/10/2019 1:54:25 AM	R65050
2-Chlorotoluene	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
4-Chlorotoluene	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
cis-1,2-DCE	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
cis-1,3-Dichloropropene	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
1,2-Dibromo-3-chloropropane	ND	10		µg/L	5	12/10/2019 1:54:25 AM	R65050
Dibromochloromethane	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
Dibromomethane	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
1,2-Dichlorobenzene	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
1,3-Dichlorobenzene	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
1,4-Dichlorobenzene	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
Dichlorodifluoromethane	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
1,1-Dichloroethane	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
1,1-Dichloroethene	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
1,2-Dichloropropane	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
1,3-Dichloropropane	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
2,2-Dichloropropane	ND	10		µg/L	5	12/10/2019 1:54:25 AM	R65050

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1912191**

Date Reported: **12/12/2019**

CLIENT: Blagg Engineering

Client Sample ID: MW #103

Project: GCU Com H 180

Collection Date: 12/4/2019 11:50:00 AM

Lab ID: 1912191-002

Matrix: AQUEOUS

Received Date: 12/5/2019 8:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,1-Dichloropropene	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
Hexachlorobutadiene	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
2-Hexanone	ND	50		µg/L	5	12/10/2019 1:54:25 AM	R65050
Isopropylbenzene	19	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
4-Isopropyltoluene	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
4-Methyl-2-pentanone	ND	50		µg/L	5	12/10/2019 1:54:25 AM	R65050
Methylene Chloride	ND	15		µg/L	5	12/10/2019 1:54:25 AM	R65050
n-Butylbenzene	ND	15		µg/L	5	12/10/2019 1:54:25 AM	R65050
n-Propylbenzene	15	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
sec-Butylbenzene	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
Styrene	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
tert-Butylbenzene	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
1,1,2,2-Tetrachloroethane	ND	10		µg/L	5	12/10/2019 1:54:25 AM	R65050
Tetrachloroethene (PCE)	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
trans-1,2-DCE	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
trans-1,3-Dichloropropene	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
1,2,3-Trichlorobenzene	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
1,2,4-Trichlorobenzene	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
1,1,1-Trichloroethane	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
1,1,2-Trichloroethane	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
Trichloroethene (TCE)	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
Trichlorofluoromethane	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
1,2,3-Trichloropropane	ND	10		µg/L	5	12/10/2019 1:54:25 AM	R65050
Vinyl chloride	ND	5.0		µg/L	5	12/10/2019 1:54:25 AM	R65050
Xylenes, Total	82	7.5		µg/L	5	12/10/2019 1:54:25 AM	R65050
Surr: 1,2-Dichloroethane-d4	99.2	70-130		%Rec	5	12/10/2019 1:54:25 AM	R65050
Surr: 4-Bromofluorobenzene	89.3	70-130		%Rec	5	12/10/2019 1:54:25 AM	R65050
Surr: Dibromofluoromethane	104	70-130		%Rec	5	12/10/2019 1:54:25 AM	R65050
Surr: Toluene-d8	98.4	70-130		%Rec	5	12/10/2019 1:54:25 AM	R65050

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

MW #104

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1912191

Date Reported: 12/12/2019

CLIENT: Blagg Engineering

Client Sample ID: MW #104

Project: GCU Com H 180

Collection Date: 12/4/2019 11:30:00 AM

Lab ID: 1912191-003

Matrix: AQUEOUS

Received Date: 12/5/2019 8:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	130	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
Toluene	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
Ethylbenzene	23	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
1,2,4-Trimethylbenzene	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
1,3,5-Trimethylbenzene	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
1,2-Dichloroethane (EDC)	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
1,2-Dibromoethane (EDB)	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
Naphthalene	ND	10		µg/L	5	12/10/2019 2:22:46 AM	R65050
1-Methylnaphthalene	ND	20		µg/L	5	12/10/2019 2:22:46 AM	R65050
2-Methylnaphthalene	ND	20		µg/L	5	12/10/2019 2:22:46 AM	R65050
Acetone	ND	50		µg/L	5	12/10/2019 2:22:46 AM	R65050
Bromobenzene	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
Bromodichloromethane	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
Bromoform	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
Bromomethane	ND	15		µg/L	5	12/10/2019 2:22:46 AM	R65050
2-Butanone	ND	50		µg/L	5	12/10/2019 2:22:46 AM	R65050
Carbon disulfide	ND	50		µg/L	5	12/10/2019 2:22:46 AM	R65050
Carbon Tetrachloride	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
Chlorobenzene	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
Chloroethane	ND	10		µg/L	5	12/10/2019 2:22:46 AM	R65050
Chloroform	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
Chloromethane	ND	15		µg/L	5	12/10/2019 2:22:46 AM	R65050
2-Chlorotoluene	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
4-Chlorotoluene	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
cis-1,2-DCE	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
cis-1,3-Dichloropropene	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
1,2-Dibromo-3-chloropropane	ND	10		µg/L	5	12/10/2019 2:22:46 AM	R65050
Dibromochloromethane	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
Dibromomethane	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
1,2-Dichlorobenzene	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
1,3-Dichlorobenzene	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
1,4-Dichlorobenzene	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
Dichlorodifluoromethane	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
1,1-Dichloroethane	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
1,1-Dichloroethene	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
1,2-Dichloropropane	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
1,3-Dichloropropane	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
2,2-Dichloropropane	ND	10		µg/L	5	12/10/2019 2:22:46 AM	R65050

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1912191**Date Reported: **12/12/2019****CLIENT:** Blagg Engineering**Client Sample ID:** MW #104**Project:** GCU Com H 180**Collection Date:** 12/4/2019 11:30:00 AM**Lab ID:** 1912191-003**Matrix:** AQUEOUS**Received Date:** 12/5/2019 8:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,1-Dichloropropene	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
Hexachlorobutadiene	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
2-Hexanone	ND	50		µg/L	5	12/10/2019 2:22:46 AM	R65050
Isopropylbenzene	14	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
4-Isopropyltoluene	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
4-Methyl-2-pentanone	ND	50		µg/L	5	12/10/2019 2:22:46 AM	R65050
Methylene Chloride	ND	15		µg/L	5	12/10/2019 2:22:46 AM	R65050
n-Butylbenzene	ND	15		µg/L	5	12/10/2019 2:22:46 AM	R65050
n-Propylbenzene	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
sec-Butylbenzene	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
Styrene	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
tert-Butylbenzene	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
1,1,2,2-Tetrachloroethane	ND	10		µg/L	5	12/10/2019 2:22:46 AM	R65050
Tetrachloroethene (PCE)	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
trans-1,2-DCE	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
trans-1,3-Dichloropropene	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
1,2,3-Trichlorobenzene	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
1,2,4-Trichlorobenzene	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
1,1,1-Trichloroethane	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
1,1,2-Trichloroethane	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
Trichloroethene (TCE)	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
Trichlorofluoromethane	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
1,2,3-Trichloropropane	ND	10		µg/L	5	12/10/2019 2:22:46 AM	R65050
Vinyl chloride	ND	5.0		µg/L	5	12/10/2019 2:22:46 AM	R65050
Xylenes, Total	65	7.5		µg/L	5	12/10/2019 2:22:46 AM	R65050
Surr: 1,2-Dichloroethane-d4	94.4	70-130		%Rec	5	12/10/2019 2:22:46 AM	R65050
Surr: 4-Bromofluorobenzene	96.1	70-130		%Rec	5	12/10/2019 2:22:46 AM	R65050
Surr: Dibromofluoromethane	103	70-130		%Rec	5	12/10/2019 2:22:46 AM	R65050
Surr: Toluene-d8	100	70-130		%Rec	5	12/10/2019 2:22:46 AM	R65050

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1912769

Date Reported: 12/17/2019

CLIENT: Blagg Engineering

Client Sample ID: MW #104

Project: GCU Com H 180

Collection Date: 12/13/2019 1:35:00 PM

Lab ID: 1912769-001

Matrix: AQUEOUS

Received Date: 12/14/2019 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	130	10		µg/L	10	12/16/2019 1:24:21 PM	W65204
Toluene	2.2	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
Ethylbenzene	23	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
1,3,5-Trimethylbenzene	1.3	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
Naphthalene	ND	2.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
1-Methylnaphthalene	11	4.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
2-Methylnaphthalene	ND	4.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
Acetone	ND	10		µg/L	1	12/16/2019 11:55:53 AM	W65204
Bromobenzene	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
Bromodichloromethane	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
Bromoform	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
Bromomethane	ND	3.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
2-Butanone	ND	10		µg/L	1	12/16/2019 11:55:53 AM	W65204
Carbon disulfide	ND	10		µg/L	1	12/16/2019 11:55:53 AM	W65204
Carbon Tetrachloride	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
Chlorobenzene	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
Chloroethane	ND	2.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
Chloroform	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
Chloromethane	ND	3.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
2-Chlorotoluene	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
4-Chlorotoluene	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
cis-1,2-DCE	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
Dibromochloromethane	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
Dibromomethane	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
1,1-Dichloroethane	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
1,1-Dichloroethene	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
1,2-Dichloropropane	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
1,3-Dichloropropane	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
2,2-Dichloropropane	ND	2.0		µg/L	1	12/16/2019 11:55:53 AM	W65204

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1912769

Date Reported: 12/17/2019

CLIENT: Blagg Engineering

Client Sample ID: MW #104

Project: GCU Com H 180

Collection Date: 12/13/2019 1:35:00 PM

Lab ID: 1912769-001

Matrix: AQUEOUS

Received Date: 12/14/2019 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
1,1-Dichloropropene	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
Hexachlorobutadiene	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
2-Hexanone	ND	10		µg/L	1	12/16/2019 11:55:53 AM	W65204
Isopropylbenzene	14	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
4-Isopropyltoluene	4.3	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
4-Methyl-2-pentanone	ND	10		µg/L	1	12/16/2019 11:55:53 AM	W65204
Methylene Chloride	ND	3.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
n-Butylbenzene	ND	3.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
n-Propylbenzene	4.8	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
sec-Butylbenzene	2.1	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
Styrene	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
tert-Butylbenzene	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
trans-1,2-DCE	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
Trichlorofluoromethane	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
Vinyl chloride	ND	1.0		µg/L	1	12/16/2019 11:55:53 AM	W65204
Xylenes, Total	63	1.5		µg/L	1	12/16/2019 11:55:53 AM	W65204
Surr: 1,2-Dichloroethane-d4	99.9	70-130		%Rec	1	12/16/2019 11:55:53 AM	W65204
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	12/16/2019 11:55:53 AM	W65204
Surr: Dibromofluoromethane	102	70-130		%Rec	1	12/16/2019 11:55:53 AM	W65204
Surr: Toluene-d8	101	70-130		%Rec	1	12/16/2019 11:55:53 AM	W65204

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 Quantitative 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.

Analytical Report

Lab Order 1912C36

Date Reported: 12/30/2019

CLIENT: Blagg Engineering

Client Sample ID: MW #104

Project: GCU Com H 180

Collection Date: 12/23/2019 9:25:00 AM

Lab ID: 1912C36-001

Matrix: AQUEOUS

Received Date: 12/24/2019 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	110	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
Toluene	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
Ethylbenzene	35	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
Methyl tert-butyl ether (MTBE)	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
1,2,4-Trimethylbenzene	7.0	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
1,3,5-Trimethylbenzene	4.1	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
1,2-Dichloroethane (EDC)	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
1,2-Dibromoethane (EDB)	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
Naphthalene	ND	4.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
1-Methylnaphthalene	11	8.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
2-Methylnaphthalene	ND	8.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
Acetone	ND	20		µg/L	2	12/27/2019 2:27:46 AM	R65432
Bromobenzene	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
Bromodichloromethane	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
Bromoform	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
Bromomethane	ND	6.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
2-Butanone	ND	20		µg/L	2	12/27/2019 2:27:46 AM	R65432
Carbon disulfide	ND	20		µg/L	2	12/27/2019 2:27:46 AM	R65432
Carbon Tetrachloride	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
Chlorobenzene	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
Chloroethane	ND	4.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
Chloroform	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
Chloromethane	ND	6.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
2-Chlorotoluene	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
4-Chlorotoluene	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
cis-1,2-DCE	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
cis-1,3-Dichloropropene	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
1,2-Dibromo-3-chloropropane	ND	4.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
Dibromochloromethane	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
Dibromomethane	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
1,2-Dichlorobenzene	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
1,3-Dichlorobenzene	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
1,4-Dichlorobenzene	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
Dichlorodifluoromethane	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
1,1-Dichloroethane	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
1,1-Dichloroethene	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
1,2-Dichloropropane	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
1,3-Dichloropropane	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
2,2-Dichloropropane	ND	4.0		µg/L	2	12/27/2019 2:27:46 AM	R65432

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1912C36

Date Reported: 12/30/2019

CLIENT: Blagg Engineering

Client Sample ID: MW #104

Project: GCU Com H 180

Collection Date: 12/23/2019 9:25:00 AM

Lab ID: 1912C36-001

Matrix: AQUEOUS

Received Date: 12/24/2019 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,1-Dichloropropene	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
Hexachlorobutadiene	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
2-Hexanone	ND	20		µg/L	2	12/27/2019 2:27:46 AM	R65432
Isopropylbenzene	11	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
4-Isopropyltoluene	3.0	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
4-Methyl-2-pentanone	ND	20		µg/L	2	12/27/2019 2:27:46 AM	R65432
Methylene Chloride	ND	6.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
n-Butylbenzene	ND	6.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
n-Propylbenzene	6.5	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
sec-Butylbenzene	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
Styrene	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
tert-Butylbenzene	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
1,1,1,2-Tetrachloroethane	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
1,1,2,2-Tetrachloroethane	ND	4.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
Tetrachloroethene (PCE)	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
trans-1,2-DCE	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
trans-1,3-Dichloropropene	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
1,2,3-Trichlorobenzene	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
1,2,4-Trichlorobenzene	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
1,1,1-Trichloroethane	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
1,1,2-Trichloroethane	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
Trichloroethene (TCE)	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
Trichlorofluoromethane	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
1,2,3-Trichloropropane	ND	4.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
Vinyl chloride	ND	2.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
Xylenes, Total	110	3.0		µg/L	2	12/27/2019 2:27:46 AM	R65432
Surr: 1,2-Dichloroethane-d4	98.8	70-130		%Rec	2	12/27/2019 2:27:46 AM	R65432
Surr: 4-Bromofluorobenzene	93.2	70-130		%Rec	2	12/27/2019 2:27:46 AM	R65432
Surr: Dibromofluoromethane	99.7	70-130		%Rec	2	12/27/2019 2:27:46 AM	R65432
Surr: Toluene-d8	98.3	70-130		%Rec	2	12/27/2019 2:27:46 AM	R65432

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

TRIP BLANK

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1912769

Date Reported: 12/17/2019

CLIENT: Blagg Engineering

Client Sample ID: Trip Blank

Project: GCU Com H 180

Collection Date:

Lab ID: 1912769-002

Matrix: AQUEOUS

Received Date: 12/14/2019 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
Toluene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
Ethylbenzene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
Naphthalene	ND	2.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
1-Methylnaphthalene	ND	4.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
2-Methylnaphthalene	ND	4.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
Acetone	ND	10		µg/L	1	12/16/2019 12:54:54 PM	W65204
Bromobenzene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
Bromodichloromethane	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
Bromoform	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
Bromomethane	ND	3.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
2-Butanone	ND	10		µg/L	1	12/16/2019 12:54:54 PM	W65204
Carbon disulfide	ND	10		µg/L	1	12/16/2019 12:54:54 PM	W65204
Carbon Tetrachloride	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
Chlorobenzene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
Chloroethane	ND	2.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
Chloroform	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
Chloromethane	ND	3.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
2-Chlorotoluene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
4-Chlorotoluene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
cis-1,2-DCE	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
Dibromochloromethane	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
Dibromomethane	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
1,1-Dichloroethane	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
1,1-Dichloroethene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
1,2-Dichloropropane	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
1,3-Dichloropropane	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
2,2-Dichloropropane	ND	2.0		µg/L	1	12/16/2019 12:54:54 PM	W65204

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1912769

Date Reported: 12/17/2019

CLIENT: Blagg Engineering

Client Sample ID: Trip Blank

Project: GCU Com H 180

Collection Date:

Lab ID: 1912769-002

Matrix: AQUEOUS

Received Date: 12/14/2019 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
1,1-Dichloropropene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
Hexachlorobutadiene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
2-Hexanone	ND	10		µg/L	1	12/16/2019 12:54:54 PM	W65204
Isopropylbenzene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
4-Isopropyltoluene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
4-Methyl-2-pentanone	ND	10		µg/L	1	12/16/2019 12:54:54 PM	W65204
Methylene Chloride	ND	3.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
n-Butylbenzene	ND	3.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
n-Propylbenzene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
sec-Butylbenzene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
Styrene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
tert-Butylbenzene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
trans-1,2-DCE	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
Trichlorofluoromethane	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
Vinyl chloride	ND	1.0		µg/L	1	12/16/2019 12:54:54 PM	W65204
Xylenes, Total	ND	1.5		µg/L	1	12/16/2019 12:54:54 PM	W65204
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	12/16/2019 12:54:54 PM	W65204
Surr: 4-Bromofluorobenzene	96.8	70-130		%Rec	1	12/16/2019 12:54:54 PM	W65204
Surr: Dibromofluoromethane	108	70-130		%Rec	1	12/16/2019 12:54:54 PM	W65204
Surr: Toluene-d8	101	70-130		%Rec	1	12/16/2019 12:54:54 PM	W65204

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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

LABORATORY
CHAIN-OF-CUSTODY
RECORDS

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

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: Nelson Velez

On Ice: ☒ Yes ☐ No

Sample Temperature: 5.4-0.4(0.7)=5.1°C

[illegible]

Date: 12/4/19	Time: 1557	Relinquished by: 
-------------------------	----------------------	---

Received by:	Date	Time
Christine Wilson	12/4/19	1557

Date:	Time:	Relinquished by:
12/4/18	1814	Christa Laeth

Received by: courier Date 12/5/19 Time 0805

Figure 1 consists of a 3x3 grid of scatter plots. The central plot shows a positive correlation between the number of children and the number of children who are not in school. The surrounding plots show different data distributions, some with a negative correlation and others with a positive correlation.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

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

Sulfate - (SO₄)

Total Dissolved Solids

8260B (VOA)

Dissolved Iron

Dissolved Lead

Dissolved Manganese

Air Bubbles (V or N)

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.

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.

LABORATORY

QA/QC

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1911332

11-Nov-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: W64339		RunNo: 64339							
Prep Date:	Analysis Date: 11/8/2019		SeqNo: 2202908		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	90.9	70	130			
Toluene	18	1.0	20.00	0	89.5	70	130			
Chlorobenzene	18	1.0	20.00	0	90.2	70	130			
1,1-Dichloroethene	16	1.0	20.00	0	78.4	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	82.7	70	130			
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.8	70	130			
Surr: 4-Bromofluorobenzene	8.2		10.00		82.4	70	130			
Surr: Dibromofluoromethane	9.4		10.00		93.6	70	130			
Surr: Toluene-d8	9.4		10.00		94.3	70	130			

Sample ID: rb2	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: W64339		RunNo: 64339							
Prep Date:	Analysis Date: 11/9/2019		SeqNo: 2203018		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 Quantitative 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#: 1911332

11-Nov-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: rb2	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: W64339			RunNo: 64339						
Prep Date:	Analysis Date: 11/9/2019			SeqNo: 2203018	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 Quantitative 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#: 1911332

11-Nov-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: rb2	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: W64339		RunNo: 64339							
Prep Date:	Analysis Date: 11/9/2019		SeqNo: 2203018		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	9.8		10.00		98.0	70	130			
Surr: 4-Bromofluorobenzene	8.4		10.00		83.9	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	11		10.00		106	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 Quantitative 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

Sample Log-In Check List

Client Name: **BLAGG**

Work Order Number: **1911332**

RcptNo: 1

Received By: **Desiree Dominguez** 11/8/2019 8:20:00 AM

Completed By: **Erin Melendrez** 11/8/2019 8:30:44 AM

Reviewed By: *DM 11/8/19*

DM
EM

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 $>0^{\circ}\text{C}$ 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? Yes ☒ No ☐
(Note discrepancies on chain of custody)
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? Yes ☒ No ☐
(If no, notify customer for authorization.)

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted? _____

Checked by: *ENM 11/8/19*

ENM 11/8/19

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	4.7	Good	Yes			

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1912191

12-Dec-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: A65048		RunNo: 65048							
Prep Date:	Analysis Date: 12/10/2019		SeqNo: 2231597		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID: LCS	SampType: lcs		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: A65048		RunNo: 65048							
Prep Date:	Analysis Date: 12/10/2019		SeqNo: 2231598		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.4	0.50	10.00	0	94.3	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 Quantitative 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#: 1912191

12-Dec-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: R65050			RunNo: 65050						
Prep Date:	Analysis Date: 12/9/2019			SeqNo: 2231702		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	98.4	70	130			
Toluene	19	1.0	20.00	0	93.7	70	130			
Chlorobenzene	19	1.0	20.00	0	92.7	70	130			
1,1-Dichloroethene	18	1.0	20.00	0	89.4	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	90.1	70	130			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		95.2	70	130			
Surr: 4-Bromofluorobenzene	9.3		10.00		92.9	70	130			
Surr: Dibromofluoromethane	11		10.00		110	70	130			
Surr: Toluene-d8	9.7		10.00		97.3	70	130			

Sample ID: rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R65050			RunNo: 65050						
Prep Date:	Analysis Date: 12/10/2019			SeqNo: 2231716		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 Quantitative 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#: 1912191

12-Dec-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R65050			RunNo: 65050						
Prep Date:	Analysis Date: 12/10/2019			SeqNo: 2231716	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 Quantitative 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#: 1912191

12-Dec-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: rb	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R65050		RunNo: 65050							
Prep Date:	Analysis Date: 12/10/2019		SeqNo: 2231716		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	9.4		10.00		94.3	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		95.5	70	130			
Surr: Dibromofluoromethane	11		10.00		105	70	130			
Surr: Toluene-d8	9.9		10.00		98.6	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 Quantitative 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#: 1912191

12-Dec-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: MB	SampType: MBLK	TestCode: EPA Method 6010B: Dissolved Metals								
Client ID: PBW	Batch ID: A65071	RunNo: 65071								
Prep Date:	Analysis Date: 12/10/2019	SeqNo: 2232536		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 6010B: Dissolved Metals								
Client ID: LCSW	Batch ID: A65071	RunNo: 65071								
Prep Date:	Analysis Date: 12/10/2019	SeqNo: 2232538		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	96.4	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 Quantitative 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#: 1912191

12-Dec-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: MB-49196	SampType: MBLK	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: PBW	Batch ID: 49196	RunNo: 65040								
Prep Date: 12/6/2019	Analysis Date: 12/9/2019	SeqNo: 2231272	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-49196	SampType: LCS	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: LCSW	Batch ID: 49196	RunNo: 65040								
Prep Date: 12/6/2019	Analysis Date: 12/9/2019	SeqNo: 2231273	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	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 Quantitative 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

Sample Log-In Check List

Client Name: **BLAGG**

Work Order Number: 1912191

RcptNo: 1

Received By: **Erin Melendrez** 12/5/2019 8:05:00 AM

Completed By: **Desiree Dominguez** 12/5/2019 9:16:35 AM

Reviewed By: *LR* 11/25/19

Chain of Custody

1. Is Chain of Custody sufficiently 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. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☒ No ☐ HNO3 ☐
10. Were any sample containers received broken? Yes ☐ No ☒
11. Does paperwork match bottle labels? Yes ☒ No ☐
(Note discrepancies on chain of custody)
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? Yes ☒ No ☐
(If no, notify customer for authorization.)

of preserved
bottles checked
for pH:

1
(<2 or >12 unless noted)

Adjusted? yes

Checked by: JR 12/5/19

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:

For sample 001C poured off from provided unpreserved bottle into 125mL. Metals bottle; filtered and added ~ 0.4mL. HNO3 for pH <2 - JR 12/5/19

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.0	Good	Not Present			

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1912769

17-Dec-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: W65204			RunNo: 65204						
Prep Date:	Analysis Date: 12/16/2019			SeqNo: 2238612	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								
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								

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 Quantitative 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#: 1912769

17-Dec-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: W65204			RunNo: 65204						
Prep Date:	Analysis Date: 12/16/2019			SeqNo: 2238612		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.6		10.00		96.1	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		96.6	70	130			
Surr: Dibromofluoromethane	9.9		10.00		99.4	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID: 100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: W65204			RunNo: 65204						
Prep Date:	Analysis Date: 12/16/2019			SeqNo: 2238613		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	89.1	70	130			
Toluene	18	1.0	20.00	0	92.1	70	130			
Chlorobenzene	18	1.0	20.00	0	89.3	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 Quantitative 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#: 1912769

17-Dec-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: W65204		RunNo: 65204							
Prep Date:	Analysis Date: 12/16/2019		SeqNo: 2238613		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	19	1.0	20.00	0	96.5	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	86.3	70	130			
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.3	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	9.2		10.00		91.8	70	130			
Surr: Toluene-d8	10		10.00		104	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 Quantitative 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

Sample Log-In Check List

Client Name: **BLAGG**

Work Order Number: 1912769

RcptNo: 1

Received By: **Anne Thorne**

12/14/2019 10:15:00 AM

Anne Thorne

Completed By: **Anne Thorne**

12/16/2019 7:57:12 AM

Anne Thorne

Reviewed By: **DAD 12/16/19**

Chain of Custody

1. Is Chain of Custody sufficiently 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. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☒ No ☐ NA ☐

10. Were any sample containers received broken? Yes ☐ No ☒

11. Does paperwork match bottle labels? Yes ☒ No ☐

(Note discrepancies on chain of custody)

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? Yes ☒ No ☐

(If no, notify customer for authorization.)

of preserved
bottles checked
for pH:

(≤2 or >12 unless noted)

Adjusted? _____

Checked by: *A 12/16/19*

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	1.5	Good	Yes			

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1912C36

30-Dec-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: R65432			RunNo: 65432					
Prep Date:		Analysis Date: 12/26/2019			SeqNo: 2247659		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	91.9	70	130			
Toluene	17	1.0	20.00	0	87.1	70	130			
Chlorobenzene	19	1.0	20.00	0	93.2	70	130			
1,1-Dichloroethene	18	1.0	20.00	0	91.0	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	83.3	70	130			
Surr: 1,2-Dichloroethane-d4	9.3		10.00		93.2	70	130			
Surr: 4-Bromofluorobenzene	9.3		10.00		93.0	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.7		10.00		97.2	70	130			

Sample ID: rb	SampType: MBLK	TestCode: EPA Method 8260B: VOLATILES								
Client ID: PBW	Batch ID: R65432	RunNo: 65432								
Prep Date:	Analysis Date: 12/26/2019	SeqNo: 2247681			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 Quantitative 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#: 1912C36

30-Dec-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R65432			RunNo: 65432						
Prep Date:	Analysis Date: 12/26/2019			SeqNo: 2247681	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 Quantitative 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#: 1912C36

30-Dec-19

Client: Blagg Engineering

Project: GCU Com H 180

Sample ID: rb	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R65432		RunNo: 65432							
Prep Date:	Analysis Date: 12/26/2019		SeqNo: 2247681		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	9.8		10.00		98.3	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		95.7	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	10		10.00		102	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 Quantitative 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

Sample Log-In Check List

Client Name: **BLAGG**

Work Order Number: **1912C36**

RcptNo: 1

Received By: **Desiree Dominguez** 12/24/2019 8:30:00 AM

Completed By: **Erin Melendrez** 12/24/2019 8:56:36 AM

Reviewed By: **DAD 12/24/19**


Chain of Custody

1. Is Chain of Custody sufficiently complete? Yes ☒ No ☐ Not Present ☐
2. How was the sample delivered? Client

Log In

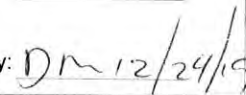
3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☒ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
8. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
9. Received at least 1 vial with headspace $<1/4"$ for AQ VOA? Yes ☒ No ☐ NA ☐
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?

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 $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.9	Good	Yes			