

REVIEWED

By Mike Buchanan at 12:01 pm, Jan 16, 2024

SIMCOE LLC

(formerly BPX Energy Inc.)

Review of the Monitor
Well Testing Report for
2020 at Mudge LS 006:

Content Satisfactory

1. Continue monitoring
groundwater wells, until
eight (8) consecutive
quarterly samples result
in below standard of the
WQCC 20.6.2 of
NMAC.

2. Any wells that are
requesting to have P&A
must submit a P&A
work plan to the
NMOCD with approval
from the OSE or
director of NMOCD.

3. A closure report
must be submitted as a
request for termination
per 19.15.30.19
paragraphs (A) and (B)
which must be
approved and reviewed
by the director of OCD.

4. Please submit
documentation for
future annual reports by
April 1 of each calendar
year.

MONITOR WELL TESTING REPORT

MUDGE LS 006
(M) SECTION 11, T31N, R11W, NMPM
SAN JUAN COUNTY, NEW MEXICO

PREPARED FOR:
NEW MEXICO OIL CONSERVATION DIVISION

JANUARY 2021

PREPARED BY:
SIMCOE LLC
1100 Main Ave., Suite 101
Durango, Colorado 81301

SIMCOE LLC
Mudge LS # 6
Unit Letter M, Sec. 11, T31N, R11W
Incident #: nCS1423254576 API #: 3004510843

Monitor/Test Well Sampling Dates: 06/18/15, 08/31/15, 12/08/15, 03/16/16, 06/27/16, 08/31/16, 12/28/16, 03/15/17, 09/20/17, 12/20/17, 03/28/18, 06/28/18, 09/25/18, 12/19/18, 03/29/19, 06/28/19, 09/19/19, 12/20/19, 03/31/20, 06/08/20, 09/17/20, 12/19/20.

Impact Discovery Background:

08/14/2014	C-141 initial report of soil impact discovery submitted to the New Mexico Oil Conservation Division (NMOCD).
08/20/2014	NMOCD approves [NMOCD well file filename (FN): 30045108430000_34_wf.pdf].
12/09/2015	C-141 subsequent report stating 6,000 cubic yards of soils had been excavated and transported off-site and installation of 3 monitor/test wells completed. Documentation of both provided in detail with supporting lab analyses. [NMOCD incident file FN: pgvg1600639104_01_06_2016_03_22_38.pdf] [NMOCD incident file <u>test wells</u> FN: pgvg1600639104_01_06_2016_03_27_18.pdf] [NMOCD incident file; <u>soil removal</u> FN: pgvg1600639104_01_06_2016_03_27_18.pdf]
05/17/2016	Remediation and Investigation Workplan submitted to NMOCD. [NMOCD incident file FN: pgvg1600639104_4_ao.pdf].
11/14/2016	C-141 subsequent report documenting workplan action completed.
01/27/2017	NMOCD approves [NMOCD incident file FN: pgvg1600639104_5_ao.pdf].
03/21/2017	C-141 subsequent report recommending further soil remediation utilizing soil shredding technique.
03/27/2017	NMOCD approves with stated conditions [NMOCD incident file FN: pgvg1600639104_6_ao.pdf].
09/12/2017	C-141 subsequent report documenting final soil remediation activity.
11/14/2017	NMOCD approves with stated conditions [NMOCD incident file FN: pgvg1600639104_7_ao.pdf].
01/19/2018	C-141 subsequent report documenting time extension request due to inclement weather and surface conditions.
11/14/2017	NMOCD approves 30-day extension from 02/16/2018 deadline. [NMOCD incident file FN: pgvg1600639104_8_ao.pdf].
02/12/2018	Monitor/test well MW #8 installed in zone area directed by NMOCD for delineation.
02/14/2018	Monitor/test well MW #9 installed in zone areas directed by NMOCD for delineation.

Groundwater Monitor Well Sampling Procedures:

Monitor well MW #1 located on the well pad has been purged using a battery-operated 1½ inch submersible pump and utilizing new vinyl tubing. MW #9 was purged using new disposable two (2) inch bailers during each sampling event. The groundwater samples were collected following US EPA: SW-846 protocol, placed into laboratory supplied containers with appropriate preservative, and stored in an ice chest for express delivery to an analytical laboratory for testing under strict chain-of-custody procedures. Analytical testing for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by US EPA Method 8021B or 8260B was conducted as well as regulated general chemistry parameters.

Fluids generated during monitor well purging were managed by discarding into the separator above-grade tank (AGT) located on the well site. The AGT contents are eventually disposed through approved NMOCD operational procedures for removal of produced fluids.

Water Quality and Gradient Information:

Quarterly sampling of monitor/test wells were conducted from June 2015 to December 2020. A historical summary of laboratory analytical results, field/laboratory reports, and boring logs of monitor/test wells MW #8 and MW #9, are included on the following pages of this report.

Groundwater contour maps could not be generated due to the linear pattern of those monitor/test wells containing water.

Summary and/or Recommendations:

SIMCOE has achieved eight (8) consecutive quarterly sampling events below the New Mexico Water Quality Control Commission's (**NMWQCC**) groundwater standard for BTEX within its furthest down gradient monitor/test well MW #9. Only MW #1 and MW #2 contain any measurable quantity of water within the existing monitor/test wells. MW #2 casing was found damaged in June 2018 at a depth of approximately 21 ft. below its casing top. Although depth to water can be measured, sampling with either a portable submersible pump or hand bailer cannot be achieved in order to collect a viable localized representative water samples. MW #1 has consistently exceeded NMWQCC allowable concentrations for benzene, toluene, and total xylenes.

Continued site monitoring per the previous NMOCD directive is recommended for MW #1. Specialized technical support is required to repair the down hole casing damage to MW #2. No further action and abandonment are suggested for MW #9.

SIMCOE - MUDGE LS 006

(M) Section 11, T31N, R11W
API #: 3004510843
Imagery date: 4/6/2019

GPS Coordinates:

WH - 36.908831,-107.965635
MW 1 - 36.908774,-107.965604
MW 2 - 36.908705,-107.965551
MW 8 - 36.908444,-107.965494
MW 9 - 36.908127,-107.965160



SIMCOE LLC**GROUNDWATER FIELD DATA & LAB BTEX / GENERAL CHEMISTRY RESULTS****MUDGE B # 12R****UNIT A, SEC. 17, T31N, R11W****REVISED DATE: December 31, 2020****Submitted by Cottonwood Consulting LLC**

SAMPLE DATE	WELL NAME / NUMBER	DEPTH to WATER (feet)	WELL TOTAL LENGTH (feet)	TDS (mg/L)	CONDUCT. (µmhos)	pH	FREE PHASE PRODUCT (feet)	BTEX US EPA METHOD 8021B or 8260B			
								BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL BENZENE (µg/L)	TOTAL XYLENES (µg/L)
12/28/16	MW #1	43.49	49.90	6,120	4,400	6.86		ND	ND	ND	ND
03/15/17		42.85			4,000	7.15		ND	ND	ND	ND
06/30/17		42.25			4,600	6.93		ND	ND	ND	ND
09/20/17		42.60			3,700	6.81		ND	ND	ND	ND
12/20/17		41.90			2,700	6.87		ND	ND	ND	ND
03/26/18		41.84			4,400	7.10		ND	ND	ND	ND
06/28/18		41.84			3,500	6.80		ND	ND	ND	ND
09/26/18		41.93			2,700	6.96		ND	ND	ND	ND
12/19/18		42.07			3,200	7.48		ND	ND	ND	ND
12/28/16	MW #2	42.59	46.40	7,940	4,200	6.70		320	250	500	5,800
03/15/17		41.95			5,200	6.78		320	13	360	3,700
06/30/17		41.42			5,800	6.78		350	9.3	700	4,600
09/20/17		41.69			4,100	6.73		140	ND	350	400
12/20/17		40.98			4,200	6.74		160	11	190	1,300
03/26/18		40.88			5,000	6.91		140	11	220	780
06/28/18		40.83			4,200	6.91		110	ND	270	620
09/26/18		40.89			3,800	7.00		140	ND	320	620
12/19/18		40.98			3,900	6.71		96	3.6	98	280
03/29/19		40.94			3,100	6.93		46	ND	28	130
06/28/19		40.49			2,200	7.21		26	ND	7.4	13
09/18/19		40.50		7,680	2,100	6.90		3.7	ND	5.6	15
12/19/19		40.56			3,100	7.11		7.7	ND	4.4	5.3
03/31/20		40.86			3,500	7.38		1.8	ND	1.2	2.3
06/08/20		40.85			2,600	7.24		6.6	1.8	ND	2.3
09/17/20		41.17			1,600	7.09		ND	ND	ND	ND
12/28/16	MW #3	42.15	44.00	8,100	4,400	6.72		15	ND	ND	970
03/15/17		41.83			4,300	7.08		9.0	ND	140	730
06/30/17		41.43			4,200	6.71		5.6	ND	120	ND
09/20/17		41.24			3,300	6.76		7.6	ND	87	15
12/20/17		41.16			3,200	6.82		9.7	ND	39	7.4
03/26/18		41.16			3,900	6.99		7.7	ND	7.3	3.2
06/28/18		41.18			3,400	6.89		9.1	ND	1.8	4.7
09/26/18		41.20			2,900	7.03		13	ND	ND	ND
12/19/18		41.37			3,700	7.14		15	ND	ND	ND
03/29/19		41.39			2,700	7.22		7.5	ND	ND	ND
06/28/19		40.99			2,000	7.30		9.4	ND	ND	5.2
09/18/19		40.78			1,800	6.89		13	ND	ND	ND
12/19/19		40.82			3,400	7.76		5.2	ND	ND	ND
03/31/20		41.06			3,100	7.59		5.0	2.1	1.2	7.4
06/08/20		41.20			2,400	7.41		3.1	1.7	ND	3.9
09/17/20		41.45			1,600	7.35		1.5	ND	ND	ND
12/16/20		41.59			3,900	7.54		1.7	ND	ND	ND

NMWQCC GROUNDWATER STANDARDS

10

750

750

620

SIMCOE LLC**GROUNDWATER FIELD DATA & LAB BTEX / GENERAL CHEMISTRY RESULTS****MUDGE B # 12R****UNIT A, SEC. 17, T31N, R11W****REVISED DATE: December 31, 2020****Submitted by Cottonwood Consulting LLC**

SAMPLE DATE	WELL NAME /NUMBER	Fluoride (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	TDS (mg/L)	Iron (mg/L)	Manganese (mg/L)	Naphthalene (mg/L)
12/28/16	MW #1	ND	93	4,400	ND	6,120	-	-	ND
12/28/16	MW #2	ND	240	3,400	ND	7,940	-	-	21
09/18/19	"	-	-	-	-	7,680	0.36	1.8	ND
12/28/16	MW #3	ND	150	3,800	ND	8,100	-	-	ND

NMWQCC GROUNDWATER STANDARDS

1.60	250	600	10	1,000	1.0	0.2	30
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NOTES :

- 1) RESULTS IN BOLD RED TYPE INDICATE EXCEEDING NMWQCC STANDARDS &/OR BACKGROUND .
- 2) RESULTS IN BOLD BLUE TYPE INDICATE BELOW NMWQCC STANDARDS AFTER PREVIOUS EXCEEDED.
- 3) ND INDICATES NOT DETECTED AT THE REPORTING LIMITS (less than regulatory standards of at least a magnitude of 10) .
- 4) 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)
- 5) SOIL VAPOR EXTRACTION SYSTEM (SVE) OFFICIAL START UP DATE - MAY 24, 2019.
- 6) Depth to Water measured from top of well casing
- 7) TDS - Total Dissolved Solids
- 8) mg/L - Milligrams per liter
- 9) μ mhos - Micro ohms
- 10) NMWQCC pH allowable range between 6-9
- 11) μ g/L - Micrograms per liter
- 12) (-) - Not analyzed

BLAGG ENGINEERING, INC.

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

MW # 8**BORE / TEST HOLE REPORT**

CLIENT: **BP AMERICA PRODUCTION CO.**
LOCATION NAME: **MUDGE LS # 6 API: 3004510843 UNIT M, SEC. 11, T31N, R11W**
CONTRACTOR: **BLAGG ENGINEERING, INC. / GEOMAT**
EQUIPMENT USED: **MOBILE DRILL RIG (CME 55) - HOLLOW STEM AUGER**
BORING LOCATION: **147 FEET, S16E FROM WELL HEAD.**

BORING #..... **BH - 4**
MW #..... **8**
PAGE #..... **4**
DATE STARTED **02/12/18**
DATE FINISHED **02/12/18**
OPERATOR..... **KP**
LOGGED BY..... **JCB**

DEPTH (FT.)	INTERVAL	LITHOLOGY INTERVAL	MW SCHEMATIC	SAMPLE INTERVAL	SAMPLE TIME / OVM (ppm)	RECOVERY PER BLOW COUNT	FIELD CLASSIFICATION AND REMARKS
							GROUND SURFACE
							TOP OF CASING APPROX. 2.00 FT. ABOVE GRADE.
2							
4							
6							
8							
10				10.00	0918 (9.4)	15" / 5	
12				12.00			
14				15.00	0923 (136)	16" / 50	
16				17.00			
18							
20				20.00	0933 (23.1)	18" / 35	
22				22.00			
24							
26							
28							
30							
32							
34							
36							
38							
40							

NOTES:

-  - SILTY SAND.
-  - SANDSTONE.

TOS - Top of screen of monitor well.
TD - Total depth/bottom extent of monitor well.
OVM - Organic Vapor Meter.
ppm - Parts per million.
Samples analyzed by OVM collected via split spoon sampler.

Monitor well consist of 2 inch PVC piping - casing from 2.00 ft. above grade to 5.00 ft. below grade, 0.010 slotted screen between 5.00 to 20.00 ft. below grade, sand packed annular from 4.0 to 20.0 ft. below grade, bentonite grout between 4.0 to grade. Secured casing top with enclosed steel protector and padlock.

DRAWING: **MUDGE LS 6 MW-8 2018-02-12. SKF**DATE: **01/07/21**DWN BY: **NJV**

BLAGG ENGINEERING, INC.

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

MW # 9**BORE / TEST HOLE REPORT**

CLIENT: **BP AMERICA PRODUCTION CO.**
LOCATION NAME: **MUDGE LS # 6 API: 3004510843 UNIT M, SEC. 11, T31N, R11W**
CONTRACTOR: **BLAGG ENGINEERING, INC. / GEOMAT**
EQUIPMENT USED: **MOBILE DRILL RIG (CME 55) - HOLLOW STEM AUGER**
BORING LOCATION: **292 FEET, S28.5E FROM WELL HEAD.**

BORING #..... **BH - 5**
MW #..... **9**
PAGE #..... **5**
DATE STARTED **02/14/18**
DATE FINISHED **02/14/18**
OPERATOR..... **KP**
LOGGED BY..... **JCB**

DEPTH (FT.)	INTERVAL	LITHOLOGY INTERVAL	MW SCHEMATIC	SAMPLE INTERVAL	SAMPLE TIME / OVM (ppm)	RECOVERY PER BLOW COUNT	FIELD CLASSIFICATION AND REMARKS
							GROUND SURFACE
							TOP OF CASING APPROX. 2.00 FT. ABOVE GRADE.
2							
4							
6							DARK YELLOWISH ORANGE SILTY SAND (BACKFILL MATERIAL), SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (0.0 - 12.0 FT. BELOW GRADE).
8							GROUNDWATER ~ 8.09 ft. BELOW GRADE ; MEASURED 12/19/18.
10			TOS				
12							
14							
16				15.00 17.00	1452 (0.0)	NA	BLUE SHALESTONE, DRY, SOFT, NO STAINING OR APPARENT HYDROCARBON ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (12.0 - 18.0 FT. BELOW GRADE).
18							
20			TD	20.00 22.00	1500 (0.0)	NA	SAME AS ABOVE EXCEPT BROWN (18.00 - 20.0 FT. BELOW GRADE).
22							
24							
26							
28							
30							
32							
34							
36							
38							
40							

NOTES:

 - SILTY SAND.

 - SHALESTONE.

TOS - Top of screen of monitor well.

TD - Total depth/bottom extent of monitor well.

OVM - Organic Vapor Meter.

ppm - Parts per million.

NA - Not Available.

Samples analyzed by OVM collected via split spoon sampler.

Monitor well consist of 2 inch PVC piping - casing from 2.00 ft. above grade to 10.00 ft. below grade, 0.010 slotted screen between 10.00 to 20.00 ft. below grade, sand packed annular from 9.0 to 20.0 ft. below grade, bentonite grout between 9.0 to grade. Secured casing top with locking cap and padlock.

DRAWING: **MUDGE LS 6 MW-9 2018-02-14. SKF**DATE: **01/07/21**DWN BY: **NJV**

FIELD LOG

SHEETS

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BP AMERICA PROD. CO.**

CHAIN-OF-CUSTODY # :

N / A

MUDGE LS # 6 UNIT M, SEC. 11, T31N, R11W

LABORATORY (S) USED :

HALL ENVIRONMENTAL

Date : **June 18, 2015**DEVELOPER / SAMPLER : **N J V / J C B**Filename : **Mudge LS 6 mw log 2015-06-18.xls**PROJECT MANAGER : **J C B**

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
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1	101.00	78.12	22.88	27.20	0900	7.0	4,200	16.3	2.50
2	100.50	76.95	23.55	32.40	0932	6.8	4,300	15.3	5.00
3	101.57	79.70	21.87	32.00	1006	7.2	4,200	16.2	5.00

DATE & TIME -

4.01/7.00/10.00	2,060
06/18/15	0700

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".

Excellent recovery in all monitor wells. Collected samples from all monitor wells for BTEX per US EPA Method 8021B, regulated anions, total dissolved solids, dissolved iron, total recoverable iron and manganese. Purged well using 2 inch submersible electrical pump, new / clear vinyl tubing, and with brass adjustable flow valve attachment added near sampling end of tubing.

Top of casing MW # 1 ~ 2.20 ft., MW # 2 ~ 2.40 ft., MW # 3 ~ 2.00 ft. above grade.

on-site	8:00 AM	temp	63 F
off-site	10:45 AM	temp	80 F
sky cond.	Sunny		
wind speed	0 - 10	direct.	ESE - E

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BP AMERICA PROD. CO.**CHAIN-OF-CUSTODY # : N / A

MUDGE LS # 6 UNIT M, SEC. 11, T31N, R11W

LABORATORY (S) USED : HALL ENVIRONMENTALDate : **August 31, 2015**DEVELOPER / SAMPLER : N J VFilename : **Mudge LS 6 mw log 2015-08-31.xls**PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
1	101.00	78.32	22.68	27.20	0855	6.76	3,400	16.5	2.25
2	100.50	77.17	23.33	32.40	0950	6.76	3,900	15.9	4.50
3	101.57	80.57	21.00	32.00	0755	6.73	3,100	16.2	5.25

DATE & TIME -

4.01/7.00/10.00	2,800
08/19/15	0600

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".

Excellent recovery in all monitor wells. Collected samples for BTEX only. Purged well using 2 inch submersible electrical pump, new / clear vinyl tubing, and with brass adjustable flow valve attachment added near sampling end of tubing .

Top of casing MW # 1 ~ 2.20 ft. , MW # 2 ~ 2.40 ft. , MW # 3 ~ 2.00 ft. above grade .

on-site	7:00 AM	temp	58 F
off-site	10:00 AM	temp	73 F
sky cond.	Mostly cloudy		
wind speed	0 - 10	direct.	NE - WSW

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BP AMERICA PROD. CO.**CHAIN-OF-CUSTODY # : N / A

MUDGE LS # 6 UNIT M, SEC. 11, T31N, R11W

LABORATORY (S) USED : HALL ENVIRONMENTALDate : **December 8, 2015**DEVELOPER / SAMPLER : N J VFilename : **Mudge LS 6 mw log 2015-12-08.xls**PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
1	101.00	78.61	22.39	27.20	1300	6.79	3,100	15.5	2.25
2	100.50	77.79	22.71	32.40	1205	6.81	3,700	14.6	3.50
3	101.57	80.10	21.47	32.00	1400	6.82	3,000	14.6	5.00

DATE & TIME -

4.01/7.00/10.00	2,800
12/07/15	0600

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".

Excellent recovery in all monitor wells. Collected samples for BTEX only. Purged well using 2 inch submersible electrical pump, new / clear vinyl tubing, and with brass adjustable flow valve attachment added near sampling end of tubing.

Top of casing MW # 1 ~ 2.20 ft. , MW # 2 ~ 2.40 ft. , MW # 3 ~ 2.00 ft. above grade .

on-site	11:10 AM	temp	36 F
off-site	2:10 PM	temp	48 F
sky cond.	Mostly sunny		
wind speed	0 - 10	direct.	W - WSW

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BP AMERICA PROD. CO.**CHAIN-OF-CUSTODY # : N / A

MUDGE LS # 6
UNIT M, SEC. 11, T31N, R11W

LABORATORY (S) USED : HALL ENVIRONMENTALDate : **March 10, 2016**DEVELOPER / SAMPLER : N J VFilename : **Mudge LS 6 mw log 2016-03-10.xls**PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
1	101.00	79.27	21.73	27.20	1015	6.91	3,100	15.4	2.75
2	100.50	78.48	22.02	32.40	1115	6.68	3,400	15.3	5.00
3	101.57	81.24	20.33	32.00	1215	6.84	26	14.9	5.75

DATE & TIME -

4.01/7.00/10.00	2,800
03/10/16	0600

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".

Excellent recovery in all monitor wells. Collected samples for BTEX only. Purged well using 2 inch submersible electrical pump, new / clear vinyl tubing, and with brass adjustable flow valve attachment added near sampling end of tubing.

Top of casing MW # 1 ~ 2.20 ft. , MW # 2 ~ 2.40 ft. , MW # 3 ~ 2.00 ft. above grade .

on-site	9:25 AM	temp	43 F
off-site	12:30 PM	temp	57 F
sky cond.	Sunny		
wind speed	0 - 5	direct.	E - WSW

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BP AMERICA PROD. CO.**CHAIN-OF-CUSTODY # : N / A

MUDGE LS # 6 UNIT M, SEC. 11, T31N, R11W

LABORATORY (S) USED : HALL ENVIRONMENTALDate : **June 27, 2016**DEVELOPER / SAMPLER : N J VFilename : **Mudge LS 6 mw log 2016-06-27.xls**PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
1	101.00	79.71	21.29	27.20	0845	7.08	2,600	16.1	2.50
2	100.50	78.89	21.61	32.40	0745	7.13	2,600	15.8	4.50
3	101.57	81.68	19.89	32.00	0945	7.05	2,100	16.4	4.75

DATE & TIME -

4.01/7.00/10.00	2,800
06/20/16	0530

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".

Excellent recovery in all monitor wells. Collected samples for BTEX only. Purged well using 2 inch submersible electrical pump, new / clear vinyl tubing, and with brass adjustable flow valve attachment added near sampling end of tubing.

Top of casing MW # 1 ~ 2.20 ft. , MW # 2 ~ 2.40 ft. , MW # 3 ~ 2.00 ft. above grade .

on-site	7:00 AM	temp	65 F
off-site	10:00 AM	temp	78 F
sky cond.	Sunny		
wind speed	0 - 5	direct.	ENE - E

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BP AMERICA PROD. CO.**CHAIN-OF-CUSTODY # : N / A

MUDGE LS # 6
UNIT M, SEC. 11, T31N, R11W

LABORATORY (S) USED : HALL ENVIRONMENTALDate : **August 31, 2016**DEVELOPER / SAMPLER : N J VFilename : **Mudge LS 6 mw log 2016-08-31.xls**PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
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1	-	-	21.43	25.50	1220	6.86	2,800	17.9	2.00
2	100.50	79.39	21.11	32.40	1130	6.75	3,200	17.8	5.50
3	Well grouted & replaced by others in near vicinity								

DATE & TIME -	4.01/7.00/10.00	2,800
	08/18/16	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".

Excellent recovery in both monitor wells. Collected samples for BTEX only. Purged well using 2 inch submersible electrical pump, new / clear vinyl tubing, and with brass adjustable flow valve attachment added near sampling end of tubing.

Top of casing MW # 1 ~ 2.20 ft. , MW # 2 ~ 2.40 ft. , MW # 3 ~ 2.00 ft. above grade.

on-site	10:15 AM	temp	71 F
off-site	12:50 PM	temp	79 F
sky cond.	Sunny		
wind speed	0 - 5	direct.	ESE

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BP AMERICA PROD. CO.**CHAIN-OF-CUSTODY # : N / A

MUDGE LS # 6
UNIT M, SEC. 11, T31N, R11W

LABORATORY (S) USED : HALL ENVIRONMENTALDate : **December 28, 2016**DEVELOPER / SAMPLER : N J VFilename : **Mudge LS 6 mw log 2016-12-28.xls**PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
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1	-	-	21.17	25.50	1100	6.84	2,800	14.6	2.00
2	100.50	78.70	21.80	32.40	1000	6.88	3,100	14.4	5.00
3	Well grouted & replaced by others in near vicinity								

DATE & TIME -	4.01/7.00/10.00	2,800
	12/06/16	0600

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".

Excellent recovery in both monitor wells. Collected samples for BTEX only. Purged well using 2 inch submersible electrical pump, new / clear vinyl tubing, and with brass adjustable flow valve attachment added near sampling end of tubing.

Top of casing MW # 1 ~ 2.20 ft. , MW # 2 ~ 2.40 ft. , MW # 3 ~ 2.00 ft. above grade.

on-site	9:15 AM	temp	28 F
off-site	11:15 AM	temp	36 F
sky cond.	Sunny		
wind speed	0 - 5	direct.	ESE

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BP AMERICA PROD. CO.**

CHAIN-OF-CUSTODY # :

N / A

MUDGE LS # 6
UNIT M, SEC. 11, T31N, R11W

LABORATORY (S) USED :

HALL ENVIRONMENTAL

Date : **March 15, 2017**DEVELOPER / SAMPLER : **N J V**Filename : **Mudge LS 6 mw log 2017-03-15.xls**PROJECT MANAGER : **N J V**

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
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1	-	-	18.75	25.50	1230	6.90	3,200	16.1	3.25
2	100.50		19.73	32.40	1330	6.95	3,000	15.6	6.25
3	Well grouted & replaced by others in near vicinity								

DATE & TIME -	4.01/7.00/10.00	2,800
	03/14/17	0700

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".

Excellent recovery in both monitor wells. Collected samples for BTEX only. Purged well using 2 inch submersible electrical pump, new / clear vinyl tubing, and with brass adjustable flow valve attachment added near sampling end of tubing.

Top of casing MW # 1 ~ 2.20 ft. , MW # 2 ~ 2.40 ft. , MW # 3 ~ 2.00 ft. above grade .

on-site	11:35 AM	temp	60 F
off-site	1:45 PM	temp	71 F
sky cond.	Sunny		
wind speed	5 - 10	direct.	ESE - E

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BP AMERICA PROD. CO.**CHAIN-OF-CUSTODY # : N / A

MUDGE LS # 6
UNIT M, SEC. 11, T31N, R11W

LABORATORY (S) USED : HALL ENVIRONMENTALDate : **September 20, 2017**DEVELOPER / SAMPLER : N J VFilename : **Mudge LS 6 mw log 2017-09-20.xls**PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
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1	-	-	17.72	26.30	1400	6.91	2,700	17.6	4.25
2	100.50	-	18.05	32.36	1300	6.85	2,800	20.9	3.75
3	Well grouted & replaced by others in near vicinity								

DATE & TIME -	4.01/7.00/10.00	2,800
	09/06/17	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".

Excellent recovery in both monitor wells. Collected samples for BTEX only. Purged well using 2 inch submersible electrical pump, new / clear vinyl tubing, and with brass adjustable flow valve attachment added near sampling end of tubing.

Top of casing MW # 1 ~ 2.20 ft. , MW # 2 ~ 2.40 ft. , MW # 3 ~ 2.00 ft. above grade .

on-site	12:15 PM	temp	75 F
off-site	2:15 PM	temp	80 F
sky cond.	Sunny		
wind speed	0 - 5	direct.	WSW

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BP AMERICA PROD. CO.**CHAIN-OF-CUSTODY # : N / A

MUDGE LS # 6
UNIT M, SEC. 11, T31N, R11W

LABORATORY (S) USED : HALL ENVIRONMENTALDate : **December 20, 2017**DEVELOPER / SAMPLER : N J VFilename : **Mudge LS 6 mw log 2017-12-20.xls**PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
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1	-	-	17.99	26.30	1345	-	-	-	4.00
2	100.50	-	19.07	32.36	1245	-	-	-	6.50
3	Well grouted & replaced by others in near vicinity								

DATE & TIME -	4.01/7.00/10.00	2,800
	12/20/17	0600

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".

Excellent recovery in both monitor wells. Collected samples for BTEX only. Purged well using 2 inch submersible electrical pump, new / clear vinyl tubing, and with brass adjustable flow valve attachment added near sampling end of tubing .

Top of casing MW # 1 ~ 2.20 ft. , MW # 2 ~ 2.40 ft. , MW # 3 ~ 2.00 ft. above grade .

on-site	12:00 PM	temp	44 F
off-site	2:00 PM	temp	50 F
sky cond.	Cloudy		
wind speed	0-10	direct.	E

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BP AMERICA PROD. CO.**

CHAIN-OF-CUSTODY # :

N / A

MUDGE LS # 6 UNIT M, SEC. 11, T31N, R11W

LABORATORY (S) USED :

HALL ENVIRONMENTAL

Date : **March 28, 2018**DEVELOPER / SAMPLER : **N J V**Filename : **Mudge LS 6 mw log 2018-03-28.xls**PROJECT MANAGER : **S. MOSKAL**

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
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1	-	-	19.01	26.30	0900	7.26	2,800	13.8	3.75
2	100.50	-	19.93	32.36	1005	7.06	3,800	14.1	6.25
9	-	-	19.13	21.65	1100	7.46	4,400	13.1	1.00

DATE & TIME -

4.01/7.00/10.00	2,800
03/26/18	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".

MW #9 drilled & installation completed on February 14, 2018. Developed MW #9 on 03/26/2018, light brownish tint

appearance with no physical evidence of hydrocarbon observed from purged water. Fair to poor recovery in MW #9.

Excellent recovery in monitor wells MW #1 & MW #2. Purged & sampled wells using new / disposable 2" bailers.

Collected samples for BTEX per US EPA Method 8260 from all 3 wells & API Water analysis from MW #9.

Top of casing MW #1 ~ 2.20 ft., MW #2 ~ 2.40 ft., MW #9 ~ 2.00 ft. above grade.

on-site	8:15 AM	temp	31 F
off-site	11:05 AM	temp	40 F
sky cond.	Mostly cloudy		
wind speed	0 - 5	direct.	NE-N

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BP AMERICA PROD. CO.**

CHAIN-OF-CUSTODY # :

N / A

MUDGE LS # 6 UNIT M, SEC. 11, T31N, R11W

LABORATORY (S) USED :

HALL ENVIRONMENTAL

Date : **June 28, 2018**DEVELOPER / SAMPLER : **N J V**Filename : **Mudge LS 6 mw log 2018-06-28.xls**PROJECT MANAGER : **S. MOSKAL**

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
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1	-	-	19.53	26.30	1120	7.03	2,300	18.5	3.25
2	100.50	-	20.36	32.36	screened interval crimped/damaged approx. 20.80 ft. from top of casing.				
9	-	-	9.38	21.65	1630	6.65	3,200	20.0	3.50

DATE & TIME -

4.01/7.00/10.00	2,800
03/26/18	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".

Purged & sampled MW #9 using new / disposable 2" bailer & 1.5" submersible pump with new / clear vinyl tubing with brass adjustable flow valve connected to sampling end. Good / fair recovery in MW # 1 & MW # 9. MW # 9 light brownish tint in appearance with no physical evidence of hydrocarbon observed from purged water. Collected samples for BTEX per US EPA Method 8260 from MW # 1 & MW # 9 only.

Initiated sampling in the morning, departed site for BGT confirmation sampling, then returned to complete sampling of MW # 9.

Top of casing MW # 1 ~ 2.20 ft. , MW # 2 ~ 2.40 ft. , MW # 9 ~ 2.00 ft. above grade .

on-site	10:00 AM	temp	85 F
off-site	11:30 AM	temp	91 F
sky cond.	Mostly cloudy		
wind speed	0 - 5	direct.	SSW

on-site	4:10 PM	temp	94 F
off-site	4:45 PM	temp	94 F
sky cond.	Cloudy		
wind speed	5 - 15	direct.	SSW - WSW

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BP AMERICA PROD. CO.**

CHAIN-OF-CUSTODY # :

N / A

MUDGE LS #6 UNIT M, SEC. 11, T31N, R11W
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LABORATORY (S) USED :

HALL ENVIRONMENTAL

Date : **September 25, 2018**DEVELOPER / SAMPLER : **N J V**Filename : **Mudge LS 6 mw log 2018-09-25.xls**PROJECT MANAGER : **S. MOSKAL**

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
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1	-	-	19.98	26.30	1300	7.10	2,400	17.1	3.25
2	100.50	-	20.74	32.36	screened interval crimped/damaged approx. 20.80 ft. from top of casing.				
9	-	-	9.75	21.65	1205	7.25	3,400	18.7	5.75

DATE & TIME -

4.01/7.00/10.00	2,800
09/24/18	0600

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".

Purged & sampled MW #9 using new / disposable 2" bailer & 1.5" submersible pump with new / clear vinyl tubing with brass adjustable flow valve connected to sampling end. Good / fair recovery in MW # 1 & MW # 9. MW # 9 light brownish tint in appearance with no physical evidence of hydrocarbon observed from purged water. Collected samples for BTEX per US EPA Method 8260 from MW # 1 & MW # 9 only.

Initiated sampling in the morning, departed site for BGT confirmation sampling, then returned to complete sampling of MW # 9.

Top of casing MW # 1 ~ 2.20 ft. , MW # 2 ~ 2.40 ft. , MW # 9 ~ 2.00 ft. above grade .

on-site	11:15 AM	temp	71 F
off-site	12:15 PM	temp	76 F
sky cond.	Partly sunny		
wind speed	0 - 10	direct.	WSW

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : BP AMERICA PROD. CO.

CHAIN-OF-CUSTODY # :

N / A

MUDGE LS # 6 UNIT M, SEC. 11, T31N, R11W

LABORATORY (S) USED :

HALL ENVIRONMENTALDate : December 19, 2018DEVELOPER / SAMPLER : N J VFilename : Mudge LS 6 mw log 2018-12-19.xlsPROJECT MANAGER : S. MOSKAL

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
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1	-	-	20.34	26.30	1400	7.12	2,600	14.0	3.00
2	100.50	-	21.09	32.36	screened interval crimped/damaged approx. 20.80 ft. from top of casing.				
9	-	-	10.09	21.65	1310	7.31	4,000	13.0	5.75

DATE & TIME -

4.01/7.00/10.00	2,800
12/13/18	0600

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".

Purged & sampled MW #9 using new / disposable 2" bailer & 1.5" submersible pump with new / clear vinyl tubing with brass adjustable flow valve connected to sampling end. Good / fair recovery in MW # 1 & MW # 9. MW # 9 light brownish tint in appearance with no physical evidence of hydrocarbon observed from purged water. Collected samples for BTEX per US EPA Method 8260 from MW # 1 & MW # 9 only.

Initiated sampling in the morning, departed site for BGT confirmation sampling, then returned to complete sampling of MW # 9.

Top of casing MW # 1 ~ 2.20 ft. , MW # 2 ~ 2.40 ft. , MW # 9 ~ 2.00 ft. above grade .

on-site	12:00 PM	temp	44 F
off-site	2:15 PM	temp	39 F
sky cond.	Mostly sunny		
wind speed	0 - 10	direct.	NNW - W

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BP AMERICA PROD. CO.**

CHAIN-OF-CUSTODY # :

N / A

MUDGE LS # 6
UNIT M, SEC. 11, T31N, R11W

LABORATORY (S) USED :

HALL ENVIRONMENTAL

Date : **March 29, 2019**DEVELOPER / SAMPLER : **N J V**Filename : **Mudge LS 6 mw log 2019-03-29.xls**PROJECT MANAGER : **S. MOSKAL**

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
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1	-	-	19.78	26.30	1245	7.12	2,400	13.9	3.25
2	100.50	-	20.58	32.36	screened interval crimped/damaged approx. 20.80 ft. from top of casing.				
9	-	-	8.78	21.65	1335	7.33	3,600	12.6	6.25

DATE & TIME -

4.01/7.00/10.00	2,800
03/29/19	0700

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".

Purged & sampled MW #9 using new / disposable 2" bailer & 1.5" submersible pump with new / clear vinyl tubing with brass adjustable flow valve connected to sampling end. Good / fair recovery in MW # 1 & MW # 9. MW # 9 light brownish tint in appearance with no physical evidence of hydrocarbon observed from purged water. Collected samples for BTEX per US EPA Method 8260 from MW # 1 & MW # 9 only.

Top of casing MW # 1 ~ 2.20 ft. , MW # 2 ~ 2.40 ft. , MW # 9 ~ 2.00 ft. above grade .

on-site	11:55 AM	temp	54 F
off-site	1:50 PM	temp	48 F
sky cond.	Partly cloudy		
wind speed	10 - 25	direct.	NW

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BPX ENERGY INC.**

CHAIN-OF-CUSTODY # :

N / A

MUDGE LS # 6 UNIT M, SEC. 11, T31N, R11W

LABORATORY (S) USED :

HALL ENVIRONMENTAL

Date : **June 28, 2019**DEVELOPER / SAMPLER : **N J V**Filename : **Mudge LS 6 mw log 2019-06-28.xls**PROJECT MANAGER : **S. MOSKAL**

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
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1	-	-	17.57	26.30	1135	7.25	1,800	15.9	4.25
2	100.50	-	-	32.36	screened interval crimped/damaged approx. 20.80 ft. from top of casing.				
9	-	-	9.83	21.65	1035	7.13	2,500	16.2	5.75

DATE & TIME -

4.01/7.00/10.00	2,800
06/20/19	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".

Purged & sampled MW #9 using new / disposable 2" bailer & MW #1 with 1.5" submersible pump with new / clear vinyl tubing with brass adjustable flow valve connected to sampling end. Excellent recovery in MW # 1 & MW # 9. MW # 9 light brownish tint in appearance with no physical evidence of hydrocarbon observed from purged water. Collected samples for BTEX per US EPA Method 8260 from MW # 1 & MW # 9 only.

Top of casing MW # 1 ~ 2.20 ft. , MW # 2 ~ 2.40 ft. , MW # 9 ~ 2.00 ft. above grade .

on-site	9:50 AM	temp	78 F
off-site	11:45 AM	temp	86 F
sky cond.	Sunny		
wind speed	0 - 10	direct.	ESE / ENE

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BPX ENERGY INC.**

CHAIN-OF-CUSTODY # :

N / A

MUDGE LS # 6 UNIT M, SEC. 11, T31N, R11W

LABORATORY (S) USED :

HALL ENVIRONMENTAL

Date : **September 19, 2019**DEVELOPER / SAMPLER : **N J V**Filename : **Mudge LS 6 mw log 2019-09-19.xls**PROJECT MANAGER : **S. MOSKAL**

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
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1	-	-	17.22	26.30	1230	6.99	1,800	17.6	4.50
2	100.50	-	18.32	32.36	screened interval crimped/damaged approx. 20.80 ft. from top of casing.				
9	-	-	9.07	21.65	1315	6.96	2,500	18.9	6.25

DATE & TIME -

4.01/7.00/10.00	2,800
09/17/19	0600

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".

Purged & sampled MW #9 using new / disposable 2" bailer & MW #1 with 1.5" submersible pump with new / clear vinyl tubing with brass adjustable flow valve connected to sampling end. Excellent recovery in MW # 1 & MW # 9. MW # 9 light brownish tint in appearance with no physical evidence of hydrocarbon observed from purged water. Collected samples for BTEX per US EPA Method 8260 from MW # 1 & MW # 9 only.

Top of casing MW # 1 ~ 2.20 ft. , MW # 2 ~ 2.40 ft. , MW # 9 ~ 2.00 ft. above grade .

on-site	11:43 AM	temp	78 F
off-site	1:18 PM	temp	83 F
sky cond.	Partly Cloudy		
wind speed	5 - 15	direct.	ESE-SSW

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BPX ENERGY INC.**

CHAIN-OF-CUSTODY # :

N / A

MUDGE LS # 6 UNIT M, SEC. 11, T31N, R11W

LABORATORY (S) USED :

HALL ENVIRONMENTAL

Date : **December 20, 2019**DEVELOPER / SAMPLER : **N J V**Filename : **Mudge LS 6 mw log 2019-12-20.xls**PROJECT MANAGER : **S. MOSKAL**

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
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1	-	-	18.32	26.30	1300	7.11	2,200	14.6	4.00
2	100.50	-	19.30	32.36	screened interval crimped/damaged approx. 20.80 ft. from top of casing.				
9	-	-	9.73	21.65	1400	7.32	3,400	13.2	6.00

DATE & TIME -

4.01/7.00/10.00	2,800
12/10/19	0700

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".

Purged & sampled MW #9 using new / disposable 2" bailer & MW #1 with 1.5" submersible pump with new / clear vinyl tubing with brass adjustable flow valve connected to sampling end. Excellent recovery in MW # 1 & MW # 9. MW # 9 light brownish tint in appearance with no physical evidence of hydrocarbon observed from purged water. Collected samples for BTEX per US EPA Method 8260 from MW # 1 & MW # 9 only.

Top of casing MW # 1 ~ 2.20 ft. , MW # 2 ~ 2.40 ft. , MW # 9 ~ 2.00 ft. above grade .

on-site	12:23 PM	temp	34 F
off-site	2:25 PM	temp	37 F
sky cond.	Mostly sunny		
wind speed	0 - 5	direct.	W - WNW

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BPX ENERGY INC.**

CHAIN-OF-CUSTODY # :

N / A

MUDGE LS # 6
UNIT M, SEC. 11, T31N, R11W

LABORATORY (S) USED :

HALL ENVIRONMENTAL

Date : **March 31, 2020**DEVELOPER / SAMPLER : **N J V**Filename : **Mudge LS 6 mw log 2020-03-31.xls**PROJECT MANAGER : **S. MOSKAL**

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
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1	-	-	19.20	26.30	1205	6.97	2,300	16.3	3.50
2	100.50	-	20.19	32.36	screened interval crimped/damaged approx. 20.80 ft. from top of casing.				
9	-	-	-	21.65	-	-	-	-	-

DATE & TIME -

4.01/7.00/10.00	2,800
03/23/20	0930

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".

Purged & sampled MW #1 with 1.5" submersible pump with new / clear vinyl tubing with brass adjustable flow valve connected to sampling end. Excellent recovery in MW # 1. MW # 9 light brownish tint in appearance with no physical evidence of hydrocarbon observed from purged water. Collected sample for BTEX per US EPA Method 8260B from MW # 1 only.

Top of casing MW # 1 ~ 2.20 ft. , MW # 2 ~ 2.40 ft. , MW # 9 ~ 2.00 ft. above grade .

on-site	11:31 AM	temp	55 F
off-site	12:24 PM	temp	59 F
sky cond.	Sunny		
wind speed	0 - 10	direct.	E - W

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BPX ENERGY INC.**

CHAIN-OF-CUSTODY # :

N / A

MUDGE LS # 6 UNIT M, SEC. 11, T31N, R11W

LABORATORY (S) USED :

HALL ENVIRONMENTAL

Date : **June 15, 2020**DEVELOPER / SAMPLER : **N J V**Filename : **Mudge LS 6 mw log 2020-06-15.xls**PROJECT MANAGER : **S. MOSKAL**

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
--------	-----------------	------------------	---------------------	------------------	---------------	----	-----------------	-----------------	----------------------

1	-	-	19.52	26.30	1015	7.03	2,100	15.5	3.50
2	100.50	-	-	32.36	screened interval crimped/damaged approx. 20.80 ft. from top of casing.				
9	-	-	-	21.65	-	-	-	-	-

DATE & TIME -

4.01/7.00/10.00	2,800
06/01/20	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".

Purged & sampled MW #1 with 1.5" submersible pump with new / clear vinyl tubing with brass adjustable flow valve connected to sampling end. Excellent recovery in MW # 1. MW # 9 light brownish tint in appearance with no physical evidence of hydrocarbon observed from purged water. Collected sample for BTEX per US EPA Method 8260B from MW # 1 only.

Top of casing MW # 1 ~ 2.20 ft. , MW # 2 ~ 2.40 ft. , MW # 9 ~ 2.00 ft. above grade .

on-site	9:30 AM	temp	68 F
off-site	10:30 AM	temp	70 F
sky cond.	Sunny		
wind speed	5 - 15	direct.	SW - SSW

COTTONWOOD CONSULTING LLC

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **BPX ENERGY INC.**

CHAIN-OF-CUSTODY # :

N / A

MUDGE LS # 6 UNIT M, SEC. 11, T31N, R11W

LABORATORY (S) USED :

HALL ENVIRONMENTAL

Date : **September 17, 2020**DEVELOPER / SAMPLER : **N J V**Filename : **Mudge LS 6 mw log 2020-09-17.xls**PROJECT MANAGER : **S. MOSKAL**

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
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1	-	-	20.00	26.30	1235	7.00	1,900	18.8	3.00
2	100.50	79.72	20.78	32.36	screened interval crimped/damaged approx. 20.80 ft. from top of casing.				
9	-	-	-	21.65	-	-	-	-	-

DATE & TIME -

4.01/7.00/10.00	2,800
09/05/20	0700

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".

Purged & sampled MW #1 with 1.5" submersible pump with new / clear vinyl tubing with brass adjustable flow valve connected to sampling end. Excellent recovery in MW # 1. MW # 9 light brownish tint in appearance with no physical evidence of hydrocarbon observed from purged water. Collected sample for BTEX per US EPA Method 8260B from MW # 1 only.

Top of casing MW # 1 ~ 2.20 ft. , MW # 2 ~ 2.40 ft. , MW # 9 ~ 2.00 ft. above grade .

on-site	12:00 PM	temp	79 F
off-site	12:50 PM	temp	80 F
sky cond.	Sunny		
wind speed	Calm	direct.	NA

COTTONWOOD CONSULTING LLC

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : **SIMCOE LLC**CHAIN-OF-CUSTODY # : N / A

MUDGE LS # 6
UNIT M, SEC. 11, T31N, R11W

LABORATORY (S) USED : HALL ENVIRONMENTAL
 Date : **December 19, 2020**
 Filename : **Mudge LS 6 mw log 2020-12-19.xls**

 DEVELOPER / SAMPLER : N J V
 PROJECT MANAGER : S. MOSKAL

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
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1	-	-	20.60	26.30	1115	7.25	2,800	13.8	3.00
2	100.50	-	21.34	32.36	screened interval crimped/damaged approx. 20.80 ft. from top of casing.				
9	-	-	-	21.65	-	-	-	-	-

DATE & TIME -

4.01/7.00/10.00	2,800
12/15/20	0700

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".

Purged & sampled MW #1 with 1.5" submersible pump with new / clear vinyl tubing with brass adjustable flow valve connected to sampling end. Excellent recovery in MW # 1. Collected sample for BTEX per US EPA Method 8260B from MW # 1 only.

Top of casing MW # 1 ~ 2.20 ft. , MW # 2 ~ 2.40 ft. , MW # 9 ~ 2.00 ft. above grade .

on-site	10:20 AM	temp	27 F
off-site	11:25 AM	temp	32 F
sky cond.	Sunny		
wind speed	0 - 5	direct.	E - W

LABORATORY REPORTS

Analytical Report

Lab Order 1506917

Date Reported: 7/1/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #1

Project: Mudge LS #6

Collection Date: 6/18/2015 9:00:00 AM

Lab ID: 1506917-001

Matrix: AQUEOUS

Received Date: 6/19/2015 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	0.29	0.10		mg/L	1	6/26/2015 7:18:12 AM	R27123
Chloride	24	10		mg/L	20	6/19/2015 9:21:37 PM	R26991
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	6/19/2015 9:09:12 PM	R26991
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	6/19/2015 9:09:12 PM	R26991
Sulfate	2000	50		mg/L	100	6/26/2015 7:30:36 AM	R27123
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	3700	200	*	mg/L	1	6/24/2015 1:27:00 PM	19880
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Iron	1.1	0.10		mg/L	5	6/29/2015 10:05:59 AM	R27144
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Iron	6.6	0.50		mg/L	10	6/26/2015 1:27:50 PM	19871
Manganese	4.5	0.020		mg/L	10	6/26/2015 1:27:50 PM	19871
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	1700	50		µg/L	50	6/25/2015 8:36:41 PM	R27099
Toluene	2100	50		µg/L	50	6/25/2015 8:36:41 PM	R27099
Ethylbenzene	540	50		µg/L	50	6/25/2015 8:36:41 PM	R27099
Xylenes, Total	4200	100		µg/L	50	6/25/2015 8:36:41 PM	R27099
Surr: 4-Bromofluorobenzene	104	80-120		%REC	50	6/25/2015 8:36:41 PM	R27099

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	Page 1 of 10
	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	
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

Analytical Report

Lab Order 1506917

Date Reported: 7/1/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #2

Project: Mudge LS #6

Collection Date: 6/18/2015 9:32:00 AM

Lab ID: 1506917-002

Matrix: AQUEOUS

Received Date: 6/19/2015 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	0.40	0.10		mg/L	1	6/26/2015 8:07:51 AM	R27123
Chloride	24	10		mg/L	20	6/19/2015 9:46:26 PM	R26991
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	6/19/2015 9:34:01 PM	R26991
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	6/19/2015 9:34:01 PM	R26991
Sulfate	1800	50		mg/L	100	6/26/2015 8:20:15 AM	R27123
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	3870	100	*	mg/L	1	6/24/2015 1:27:00 PM	19880
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Iron	1.8	0.10		mg/L	5	6/29/2015 10:10:02 AM	R27144
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Iron	13	5.0		mg/L	100	6/26/2015 1:29:27 PM	19871
Manganese	4.9	0.020		mg/L	10	6/26/2015 1:31:12 PM	19871
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	2000	50		µg/L	50	6/25/2015 9:05:23 PM	R27099
Toluene	ND	50		µg/L	50	6/25/2015 9:05:23 PM	R27099
Ethylbenzene	77	50		µg/L	50	6/25/2015 9:05:23 PM	R27099
Xylenes, Total	150	100		µg/L	50	6/25/2015 9:05:23 PM	R27099
Surr: 4-Bromofluorobenzene	90.5	80-120		%REC	50	6/25/2015 9:05:23 PM	R27099

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
	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
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

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Analytical Report

Lab Order 1506917

Date Reported: 7/1/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #3

Project: Mudge LS #6

Collection Date: 6/18/2015 10:06:00 AM

Lab ID: 1506917-003

Matrix: AQUEOUS

Received Date: 6/19/2015 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	0.44	0.10		mg/L	1	6/26/2015 8:32:40 AM	R27123
Chloride	33	10		mg/L	20	6/19/2015 10:36:05 PM	R26991
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	6/19/2015 10:23:40 PM	R26991
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	6/19/2015 10:23:40 PM	R26991
Sulfate	2100	50		mg/L	100	6/26/2015 8:45:05 AM	R27123
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	3440	200	*	mg/L	1	6/24/2015 1:27:00 PM	19880
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Iron	0.32	0.020		mg/L	1	6/24/2015 1:39:19 PM	R27058
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Iron	36	5.0		mg/L	100	6/26/2015 1:32:50 PM	19871
Manganese	1.7	0.010		mg/L	5	6/26/2015 1:34:35 PM	19871
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	2000	50		µg/L	50	6/26/2015 11:15:13 AM	R27129
Toluene	4900	50		µg/L	50	6/26/2015 11:15:13 AM	R27129
Ethylbenzene	680	50		µg/L	50	6/26/2015 11:15:13 AM	R27129
Xylenes, Total	5500	100		µg/L	50	6/26/2015 11:15:13 AM	R27129
Surr: 4-Bromofluorobenzene	100	80-120		%REC	50	6/26/2015 11:15:13 AM	R27129

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
	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
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

Page 3 of 10

Analytical Report

Lab Order 1506917

Date Reported: 7/1/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: LP AGT Produced Water

Project: Mudge LS #6

Collection Date: 6/18/2015 9:50:00 AM

Lab ID: 1506917-004

Matrix: AQUEOUS

Received Date: 6/19/2015 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	ND	0.50		mg/L	5	6/26/2015 11:01:35 AM	R27162
Chloride	ND	2.5		mg/L	5	6/19/2015 11:13:17 PM	R26991
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	6/19/2015 11:13:17 PM	R26991
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	6/19/2015 11:13:17 PM	R26991
Sulfate	8.6	2.5		mg/L	5	6/26/2015 11:01:35 AM	R27162
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	190	100		mg/L	1	6/24/2015 1:27:00 PM	19880

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	Page 4 of 10
	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	
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

Analytical Report

Lab Order 1509078

Date Reported: 9/4/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW # 1

Project: Mudge LS # 6

Collection Date: 8/31/2015 8:55:00 AM

Lab ID: 1509078-001

Matrix: AQUEOUS

Received Date: 9/2/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: DJF	
Benzene	1300	50		µg/L	50	9/2/2015 9:30:21 PM	A28626
Toluene	1000	50		µg/L	50	9/2/2015 9:30:21 PM	A28626
Ethylbenzene	420	50		µg/L	50	9/2/2015 9:30:21 PM	A28626
Xylenes, Total	2300	75		µg/L	50	9/2/2015 9:30:21 PM	A28626
Surr: 1,2-Dichloroethane-d4	101	70-130		%REC	50	9/2/2015 9:30:21 PM	A28626
Surr: 4-Bromofluorobenzene	102	70-130		%REC	50	9/2/2015 9:30:21 PM	A28626
Surr: Dibromofluoromethane	107	70-130		%REC	50	9/2/2015 9:30:21 PM	A28626
Surr: Toluene-d8	99.9	70-130		%REC	50	9/2/2015 9:30:21 PM	A28626

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	Page 1 of 4
	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	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix			

Analytical Report

Lab Order 1509078

Date Reported: 9/4/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW # 2

Project: Mudge LS # 6

Collection Date: 8/31/2015 9:50:00 AM

Lab ID: 1509078-002

Matrix: AQUEOUS

Received Date: 9/2/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: DJF
Benzene	1500	50		µg/L	50	9/2/2015 11:47:34 PM	A28626
Toluene	66	50		µg/L	50	9/2/2015 11:47:34 PM	A28626
Ethylbenzene	52	50		µg/L	50	9/2/2015 11:47:34 PM	A28626
Xylenes, Total	130	75		µg/L	50	9/2/2015 11:47:34 PM	A28626
Surr: 1,2-Dichloroethane-d4	99.6	70-130		%REC	50	9/2/2015 11:47:34 PM	A28626
Surr: 4-Bromofluorobenzene	106	70-130		%REC	50	9/2/2015 11:47:34 PM	A28626
Surr: Dibromofluoromethane	111	70-130		%REC	50	9/2/2015 11:47:34 PM	A28626
Surr: Toluene-d8	98.4	70-130		%REC	50	9/2/2015 11:47:34 PM	A28626

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	Page 2 of 4
	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	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix			

Analytical Report

Lab Order 1509078

Date Reported: 9/4/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW # 3

Project: Mudge LS # 6

Collection Date: 8/31/2015 7:55:00 AM

Lab ID: 1509078-003

Matrix: AQUEOUS

Received Date: 9/2/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: DJF
Benzene	2300	100		µg/L	100	9/3/2015 12:14:54 AM	A28626
Toluene	2300	100		µg/L	100	9/3/2015 12:14:54 AM	A28626
Ethylbenzene	360	100		µg/L	100	9/3/2015 12:14:54 AM	A28626
Xylenes, Total	2600	150		µg/L	100	9/3/2015 12:14:54 AM	A28626
Surr: 1,2-Dichloroethane-d4	95.9	70-130		%REC	100	9/3/2015 12:14:54 AM	A28626
Surr: 4-Bromofluorobenzene	106	70-130		%REC	100	9/3/2015 12:14:54 AM	A28626
Surr: Dibromofluoromethane	106	70-130		%REC	100	9/3/2015 12:14:54 AM	A28626
Surr: Toluene-d8	95.2	70-130		%REC	100	9/3/2015 12:14:54 AM	A28626

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix		

Page 3 of 4

Analytical Report

Lab Order: 1512617

Date Reported: 12/15/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Mudge LS #6

Lab Order: 1512617

Lab ID: 1512617-001

Collection Date: 12/8/2015 1:00:00 PM

Client Sample ID: MW #1

Matrix: AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	730	50		µg/L	50	12/14/2015 7:09:51 PM	B30824
Toluene	280	50		µg/L	50	12/14/2015 7:09:51 PM	B30824
Ethylbenzene	330	50		µg/L	50	12/14/2015 7:09:51 PM	B30824
Xylenes, Total	1400	100		µg/L	50	12/14/2015 7:09:51 PM	B30824
Surr: 4-Bromofluorobenzene	133	65-127	S	%REC	50	12/14/2015 7:09:51 PM	B30824

Lab ID: 1512617-002

Collection Date: 12/8/2015 12:05:00 PM

Client Sample ID: MW #2

Matrix: AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	1000	20		µg/L	20	12/14/2015 8:23:28 PM	B30824
Toluene	ND	20		µg/L	20	12/14/2015 8:23:28 PM	B30824
Ethylbenzene	ND	20		µg/L	20	12/14/2015 8:23:28 PM	B30824
Xylenes, Total	ND	40		µg/L	20	12/14/2015 8:23:28 PM	B30824
Surr: 4-Bromofluorobenzene	129	65-127	S	%REC	20	12/14/2015 8:23:28 PM	B30824

Lab ID: 1512617-003

Collection Date: 12/8/2015 2:00:00 PM

Client Sample ID: MW #3

Matrix: AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	2400	100		µg/L	100	12/14/2015 8:47:59 PM	B30824
Toluene	2900	100		µg/L	100	12/14/2015 8:47:59 PM	B30824
Ethylbenzene	280	100		µg/L	100	12/14/2015 8:47:59 PM	B30824
Xylenes, Total	2000	200		µg/L	100	12/14/2015 8:47:59 PM	B30824
Surr: 4-Bromofluorobenzene	126	65-127		%REC	100	12/14/2015 8:47:59 PM	B30824

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix		

Page 1 of 2

Analytical Report

Lab Order 1603608

Date Reported: 3/16/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW # 1

Project: Mudge LS #6

Collection Date: 3/10/2016 11:15:00 AM

Lab ID: 1603608-001

Matrix: AQUEOUS

Received Date: 3/11/2016 7:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	630	50		µg/L	50	3/14/2016 8:40:02 PM	R32778
Toluene	170	50		µg/L	50	3/14/2016 8:40:02 PM	R32778
Ethylbenzene	220	50		µg/L	50	3/14/2016 8:40:02 PM	R32778
Xylenes, Total	1000	100		µg/L	50	3/14/2016 8:40:02 PM	R32778
Surr: 4-Bromofluorobenzene	89.1	65-127		%Rec	50	3/14/2016 8:40:02 PM	R32778

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 1 of 4

Analytical Report

Lab Order 1603608

Date Reported: 3/16/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW # 2

Project: Mudge LS #6

Collection Date: 3/10/2016 10:15:00 AM

Lab ID: 1603608-002

Matrix: AQUEOUS

Received Date: 3/11/2016 7:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	760	20		µg/L	20	3/14/2016 9:04:34 PM	R32778
Toluene	ND	20		µg/L	20	3/14/2016 9:04:34 PM	R32778
Ethylbenzene	ND	20		µg/L	20	3/14/2016 9:04:34 PM	R32778
Xylenes, Total	ND	40		µg/L	20	3/14/2016 9:04:34 PM	R32778
Surr: 4-Bromofluorobenzene	108	65-127		%Rec	20	3/14/2016 9:04:34 PM	R32778

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 2 of 4

Analytical Report

Lab Order 1603608

Date Reported: 3/16/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW # 3

Project: Mudge LS #6

Collection Date: 3/10/2016 12:15:00 PM

Lab ID: 1603608-003

Matrix: AQUEOUS

Received Date: 3/11/2016 7:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	4600	100		µg/L	100	3/14/2016 9:29:05 PM	R32778
Toluene	6100	100		µg/L	100	3/14/2016 9:29:05 PM	R32778
Ethylbenzene	420	100		µg/L	100	3/14/2016 9:29:05 PM	R32778
Xylenes, Total	5900	200		µg/L	100	3/14/2016 9:29:05 PM	R32778
Surr: 4-Bromofluorobenzene	118	65-127		%Rec	100	3/14/2016 9:29:05 PM	R32778

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 3 of 4

Analytical Report

Lab Order: 1606G13

Date Reported: 7/7/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Mudge LS 6

Lab Order: 1606G13

Lab ID: 1606G13-001

Collection Date: 6/27/2016 8:45:00 AM

Client Sample ID: MW #1

Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	1700	100		µg/L	100	7/2/2016 9:23:30 AM	D35388
Toluene	1300	100		µg/L	100	7/2/2016 9:23:30 AM	D35388
Ethylbenzene	590	20		µg/L	20	7/1/2016 8:07:30 PM	D35388
Xylenes, Total	4300	40		µg/L	20	7/1/2016 8:07:30 PM	D35388
Surr: 4-Bromofluorobenzene	117	87.9-146		%Rec	20	7/1/2016 8:07:30 PM	D35388

Lab ID: 1606G13-002

Collection Date: 6/27/2016 7:45:00 AM

Client Sample ID: MW #2

Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	420	20		µg/L	20	7/1/2016 8:31:46 PM	D35388
Toluene	ND	2.0		µg/L	2	7/1/2016 8:55:59 PM	D35388
Ethylbenzene	3.9	2.0		µg/L	2	7/1/2016 8:55:59 PM	D35388
Xylenes, Total	6.6	4.0		µg/L	2	7/1/2016 8:55:59 PM	D35388
Surr: 4-Bromofluorobenzene	132	87.9-146		%Rec	2	7/1/2016 8:55:59 PM	D35388

Lab ID: 1606G13-003

Collection Date: 6/27/2016 9:45:00 AM

Client Sample ID: MW #3

Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	4400	100		µg/L	100	7/1/2016 9:44:21 PM	D35388
Toluene	10000	500		µg/L	500	7/2/2016 9:47:01 AM	D35388
Ethylbenzene	650	100		µg/L	100	7/1/2016 9:44:21 PM	D35388
Xylenes, Total	9400	200		µg/L	100	7/1/2016 9:44:21 PM	D35388
Surr: 4-Bromofluorobenzene	102	87.9-146		%Rec	100	7/1/2016 9:44:21 PM	D35388

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 1 of 2

Analytical Report

Lab Order 1609142

Date Reported: 9/9/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW # 1

Project: Mudge LS # 6

Collection Date: 8/31/2016 12:20:00 PM

Lab ID: 1609142-001

Matrix: AQUEOUS

Received Date: 9/2/2016 7:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	730	100		µg/L	100	9/6/2016 3:58:21 PM	B37021
Toluene	190	10		µg/L	10	9/6/2016 4:22:38 PM	B37021
Ethylbenzene	260	10		µg/L	10	9/6/2016 4:22:38 PM	B37021
Xylenes, Total	1000	20		µg/L	10	9/6/2016 4:22:38 PM	B37021
Surr: 4-Bromofluorobenzene	124	87.9-146		%Rec	10	9/6/2016 4:22:38 PM	B37021

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 1 of 3

Analytical Report

Lab Order 1609142

Date Reported: 9/9/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW # 2

Project: Mudge LS # 6

Collection Date: 8/31/2016 11:30:00 AM

Lab ID: 1609142-002

Matrix: AQUEOUS

Received Date: 9/2/2016 7:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	320	20		µg/L	20	9/6/2016 5:59:38 PM	B37021
Toluene	ND	2.0		µg/L	2	9/6/2016 6:23:49 PM	B37021
Ethylbenzene	3.4	2.0		µg/L	2	9/6/2016 6:23:49 PM	B37021
Xylenes, Total	4.2	4.0		µg/L	2	9/6/2016 6:23:49 PM	B37021
Surr: 4-Bromofluorobenzene	144	87.9-146		%Rec	2	9/6/2016 6:23:49 PM	B37021

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	Page 2 of 3
	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	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

Analytical Report

Lab Order 1612D92

Date Reported: 1/3/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #1

Project: MUDGE LS #6

Collection Date: 12/28/2016 11:00:00 AM

Lab ID: 1612D92-001

Matrix: AQUEOUS

Received Date: 12/29/2016 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	480	10		µg/L	10	12/30/2016 4:48:58 PM	WB3975
Toluene	260	10		µg/L	10	12/30/2016 4:48:58 PM	WB3975
Ethylbenzene	250	10		µg/L	10	12/30/2016 4:48:58 PM	WB3975
Xylenes, Total	1200	20		µg/L	10	12/30/2016 4:48:58 PM	WB3975
Surr: 4-Bromofluorobenzene	110	80-120		%Rec	10	12/30/2016 4:48:58 PM	WB3975

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 1 of 3

Analytical Report

Lab Order 1612D92

Date Reported: 1/3/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #2

Project: MUDGE LS #6

Collection Date: 12/28/2016 10:00:00 AM

Lab ID: 1612D92-002

Matrix: AQUEOUS

Received Date: 12/29/2016 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	230	5.0		µg/L	5	12/30/2016 6:23:09 PM	WB3975
Toluene	ND	5.0		µg/L	5	12/30/2016 6:23:09 PM	WB3975
Ethylbenzene	8.8	5.0		µg/L	5	12/30/2016 6:23:09 PM	WB3975
Xylenes, Total	34	10		µg/L	5	12/30/2016 6:23:09 PM	WB3975
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	5	12/30/2016 6:23:09 PM	WB3975

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	Page 2 of 3
	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	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

Analytical Report

Lab Order 1703857

Date Reported: 3/17/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #1

Project: MUDGE LS 6

Collection Date: 3/15/2017 12:30:00 PM

Lab ID: 1703857-001

Matrix: AQUEOUS

Received Date: 3/16/2017 7:09:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	620	10		µg/L	10	3/16/2017 6:08:47 PM	R41422
Toluene	380	10		µg/L	10	3/16/2017 6:08:47 PM	R41422
Ethylbenzene	250	10		µg/L	10	3/16/2017 6:08:47 PM	R41422
Xylenes, Total	1200	20		µg/L	10	3/16/2017 6:08:47 PM	R41422
Surr: 4-Bromofluorobenzene	127	80-120	S	%Rec	10	3/16/2017 6:08:47 PM	R41422

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Page 1 of 3

Analytical Report

Lab Order 1703857

Date Reported: 3/17/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #2

Project: MUDGE LS 6

Collection Date: 3/15/2017 1:30:00 PM

Lab ID: 1703857-002

Matrix: AQUEOUS

Received Date: 3/16/2017 7:09:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	220	5.0		µg/L	5	3/16/2017 7:27:02 PM	R41422
Toluene	ND	5.0		µg/L	5	3/16/2017 7:27:02 PM	R41422
Ethylbenzene	9.6	5.0		µg/L	5	3/16/2017 7:27:02 PM	R41422
Xylenes, Total	45	10		µg/L	5	3/16/2017 7:27:02 PM	R41422
Surr: 4-Bromofluorobenzene	130	80-120	S	%Rec	5	3/16/2017 7:27:02 PM	R41422

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Analytical Report

Lab Order 1709B72

Date Reported: 9/27/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #1

Project: MUDGE LS 6

Collection Date: 9/20/2017 2:00:00 PM

Lab ID: 1709B72-001

Matrix: AQUEOUS

Received Date: 9/21/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	2000	50		µg/L	50	9/22/2017 1:10:30 PM	B45793
Toluene	1300	20		µg/L	20	9/21/2017 2:54:47 PM	B45793
Ethylbenzene	370	20		µg/L	20	9/21/2017 2:54:47 PM	B45793
Xylenes, Total	2100	40		µg/L	20	9/21/2017 2:54:47 PM	B45793
Surr: 4-Bromofluorobenzene	131	72.5-140		%Rec	20	9/21/2017 2:54:47 PM	B45793

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	Page 1 of 3
	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 Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

Analytical Report

Lab Order 1709B72

Date Reported: 9/27/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #2

Project: MUDGE LS 6

Collection Date: 9/20/2017 1:00:00 PM

Lab ID: 1709B72-002

Matrix: AQUEOUS

Received Date: 9/21/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	93	1.0		µg/L	1	9/22/2017 1:33:57 PM	B45793
Toluene	ND	1.0		µg/L	1	9/22/2017 1:33:57 PM	B45793
Ethylbenzene	ND	1.0		µg/L	1	9/22/2017 1:33:57 PM	B45793
Xylenes, Total	ND	2.0		µg/L	1	9/22/2017 1:33:57 PM	B45793
Surr: 4-Bromofluorobenzene	135	72.5-140		%Rec	1	9/22/2017 1:33:57 PM	B45793

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Analytical Report

Lab Order: 1712D64

Date Reported: 1/2/2018

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: MUDGE LS 6

Lab Order: 1712D64

Lab ID: 1712D64-001

Collection Date: 12/21/2017 1:45:00 PM

Client Sample ID: MW#1

Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	2800	50		µg/L	50	12/28/2017 5:00:47 PM
Toluene	2400	50		µg/L	50	12/28/2017 5:00:47 PM
Ethylbenzene	600	20		µg/L	20	12/28/2017 5:23:41 PM
Xylenes, Total	3600	30		µg/L	20	12/28/2017 5:23:41 PM
Surr: 4-Bromofluorobenzene	90.6	70-130		%Rec	20	12/28/2017 5:23:41 PM
Surr: Toluene-d8	100	70-130		%Rec	20	12/28/2017 5:23:41 PM

Lab ID: 1712D64-002

Collection Date: 12/21/2017 12:45:00 PM

Client Sample ID: MW#2

Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	40	1.0		µg/L	1	12/28/2017 6:09:39 PM
Toluene	ND	1.0		µg/L	1	12/28/2017 6:09:39 PM
Ethylbenzene	ND	1.0		µg/L	1	12/28/2017 6:09:39 PM
Xylenes, Total	ND	1.5		µg/L	1	12/28/2017 6:09:39 PM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	12/28/2017 6:09:39 PM
Surr: Toluene-d8	99.5	70-130		%Rec	1	12/28/2017 6:09:39 PM

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 Detection Limit

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Analytical Report

Lab Order 1803F29

Date Reported: 4/12/2018

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #1

Project: Mudge LS 6

Collection Date: 3/28/2018 9:00:00 AM

Lab ID: 1803F29-001

Matrix: AQUEOUS

Received Date: 3/29/2018 7:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	1800	100		µg/L	100	4/4/2018 2:05:47 PM	A50328
Toluene	1300	100		µg/L	100	4/4/2018 2:05:47 PM	A50328
Ethylbenzene	410	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
1,2,4-Trimethylbenzene	350	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
1,3,5-Trimethylbenzene	60	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
1,2-Dichloroethane (EDC)	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
1,2-Dibromoethane (EDB)	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
Naphthalene	30	20		µg/L	10	4/4/2018 2:35:28 PM	A50328
1-Methylnaphthalene	ND	40		µg/L	10	4/4/2018 2:35:28 PM	A50328
2-Methylnaphthalene	ND	40		µg/L	10	4/4/2018 2:35:28 PM	A50328
Acetone	ND	100		µg/L	10	4/4/2018 2:35:28 PM	A50328
Bromobenzene	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
Bromodichloromethane	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
Bromoform	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
Bromomethane	ND	30		µg/L	10	4/4/2018 2:35:28 PM	A50328
2-Butanone	ND	100		µg/L	10	4/4/2018 2:35:28 PM	A50328
Carbon disulfide	ND	100		µg/L	10	4/4/2018 2:35:28 PM	A50328
Carbon Tetrachloride	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
Chlorobenzene	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
Chloroethane	ND	20		µg/L	10	4/4/2018 2:35:28 PM	A50328
Chloroform	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
Chloromethane	ND	30		µg/L	10	4/4/2018 2:35:28 PM	A50328
2-Chlorotoluene	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
4-Chlorotoluene	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
cis-1,2-DCE	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
cis-1,3-Dichloropropene	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
1,2-Dibromo-3-chloropropane	ND	20		µg/L	10	4/4/2018 2:35:28 PM	A50328
Dibromochloromethane	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
Dibromomethane	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
1,2-Dichlorobenzene	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
1,3-Dichlorobenzene	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
1,4-Dichlorobenzene	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
Dichlorodifluoromethane	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
1,1-Dichloroethane	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
1,1-Dichloroethene	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
1,2-Dichloropropane	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
1,3-Dichloropropane	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
2,2-Dichloropropane	ND	20		µg/L	10	4/4/2018 2:35:28 PM	A50328

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Analytical Report

Lab Order 1803F29

Date Reported: 4/12/2018

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #1

Project: Mudge LS 6

Collection Date: 3/28/2018 9:00:00 AM

Lab ID: 1803F29-001

Matrix: AQUEOUS

Received Date: 3/29/2018 7:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES				Analyst: DJF			
1,1-Dichloropropene	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
Hexachlorobutadiene	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
2-Hexanone	ND	100		µg/L	10	4/4/2018 2:35:28 PM	A50328
Isopropylbenzene	62	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
4-Isopropyltoluene	11	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
4-Methyl-2-pentanone	ND	100		µg/L	10	4/4/2018 2:35:28 PM	A50328
Methylene Chloride	ND	30		µg/L	10	4/4/2018 2:35:28 PM	A50328
n-Butylbenzene	ND	30		µg/L	10	4/4/2018 2:35:28 PM	A50328
n-Propylbenzene	45	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
sec-Butylbenzene	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
Styrene	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
tert-Butylbenzene	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
1,1,2,2-Tetrachloroethane	ND	20		µg/L	10	4/4/2018 2:35:28 PM	A50328
Tetrachloroethene (PCE)	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
trans-1,2-DCE	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
trans-1,3-Dichloropropene	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
1,2,3-Trichlorobenzene	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
1,2,4-Trichlorobenzene	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
1,1,1-Trichloroethane	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
1,1,2-Trichloroethane	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
Trichloroethene (TCE)	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
Trichlorofluoromethane	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
1,2,3-Trichloropropane	ND	20		µg/L	10	4/4/2018 2:35:28 PM	A50328
Vinyl chloride	ND	10		µg/L	10	4/4/2018 2:35:28 PM	A50328
Xylenes, Total	2200	15		µg/L	10	4/4/2018 2:35:28 PM	A50328
Surr: 1,2-Dichloroethane-d4	107	70-130		%Rec	10	4/4/2018 2:35:28 PM	A50328
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	10	4/4/2018 2:35:28 PM	A50328
Surr: Dibromofluoromethane	104	70-130		%Rec	10	4/4/2018 2:35:28 PM	A50328
Surr: Toluene-d8	95.5	70-130		%Rec	10	4/4/2018 2:35:28 PM	A50328

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Analytical Report

Lab Order 1803F29

Date Reported: 4/12/2018

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #2

Project: Mudge LS 6

Collection Date: 3/28/2018 10:05:00 AM

Lab ID: 1803F29-002

Matrix: AQUEOUS

Received Date: 3/29/2018 7:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES				Analyst: DJF			
Benzene	21	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
Toluene	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
Ethylbenzene	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
Naphthalene	ND	2.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
1-Methylnaphthalene	ND	4.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
2-Methylnaphthalene	ND	4.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
Acetone	ND	10		µg/L	1	4/4/2018 3:04:53 PM	A50328
Bromobenzene	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
Bromodichloromethane	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
Bromoform	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
Bromomethane	ND	3.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
2-Butanone	ND	10		µg/L	1	4/4/2018 3:04:53 PM	A50328
Carbon disulfide	ND	10		µg/L	1	4/4/2018 3:04:53 PM	A50328
Carbon Tetrachloride	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
Chlorobenzene	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
Chloroethane	ND	2.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
Chloroform	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
Chloromethane	ND	3.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
2-Chlorotoluene	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
4-Chlorotoluene	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
cis-1,2-DCE	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
Dibromochloromethane	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
Dibromomethane	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
1,2-Dichlorobenzene	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
1,3-Dichlorobenzene	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
1,4-Dichlorobenzene	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
Dichlorodifluoromethane	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
1,1-Dichloroethane	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
1,1-Dichloroethene	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
1,2-Dichloropropane	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
1,3-Dichloropropane	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
2,2-Dichloropropane	ND	2.0		µg/L	1	4/4/2018 3:04:53 PM	A50328

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Analytical Report

Lab Order 1803F29

Date Reported: 4/12/2018

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #2

Project: Mudge LS 6

Collection Date: 3/28/2018 10:05:00 AM

Lab ID: 1803F29-002

Matrix: AQUEOUS

Received Date: 3/29/2018 7:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES				Analyst: DJF			
1,1-Dichloropropene	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
Hexachlorobutadiene	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
2-Hexanone	ND	10		µg/L	1	4/4/2018 3:04:53 PM	A50328
Isopropylbenzene	9.9	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
4-Isopropyltoluene	1.7	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
4-Methyl-2-pentanone	ND	10		µg/L	1	4/4/2018 3:04:53 PM	A50328
Methylene Chloride	ND	3.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
n-Butylbenzene	ND	3.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
n-Propylbenzene	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
sec-Butylbenzene	4.0	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
Styrene	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
tert-Butylbenzene	1.8	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
trans-1,2-DCE	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
Trichlorofluoromethane	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
1,2,3-Trichloropropane	ND	2.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
Vinyl chloride	ND	1.0		µg/L	1	4/4/2018 3:04:53 PM	A50328
Xylenes, Total	ND	1.5		µg/L	1	4/4/2018 3:04:53 PM	A50328
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	4/4/2018 3:04:53 PM	A50328
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	4/4/2018 3:04:53 PM	A50328
Surr: Dibromofluoromethane	98.8	70-130		%Rec	1	4/4/2018 3:04:53 PM	A50328
Surr: Toluene-d8	96.7	70-130		%Rec	1	4/4/2018 3:04:53 PM	A50328

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Analytical Report

Lab Order 1803F29

Date Reported: 4/12/2018

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #9

Project: Mudge LS 6

Collection Date: 3/28/2018 11:00:00 AM

Lab ID: 1803F29-003

Matrix: AQUEOUS

Received Date: 3/29/2018 7:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
SM2340B: HARDNESS							Analyst: pmf
Hardness (As CaCO ₃)	480	6.6		mg/L	1	4/2/2018	R50251
SPECIFIC GRAVITY							Analyst: JRR
Specific Gravity	0.9981	0			1	3/30/2018 1:39:00 PM	R50215
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	40	10		mg/L	20	3/29/2018 11:38:52 PM	A50201
Sulfate	3100	50	*	mg/L	100	4/6/2018 10:23:52 PM	R50374
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR
Conductivity	5900	5.0		µmhos/cm	1	4/2/2018 4:23:19 PM	R50247
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	491.2	20.00		mg/L CaCO ₃	1	4/2/2018 4:23:19 PM	R50247
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	4/2/2018 4:23:19 PM	R50247
Total Alkalinity (as CaCO ₃)	491.2	20.00		mg/L CaCO ₃	1	4/2/2018 4:23:19 PM	R50247
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	4370	200	*D	mg/L	1	4/4/2018 6:50:00 PM	37401
SM4500-H+B / 9040C: PH							Analyst: JRR
pH	7.92		H	pH units	1	4/2/2018 4:23:19 PM	R50247
EPA METHOD 200.7: DISSOLVED METALS							Analyst: pmf
Calcium	170	5.0		mg/L	5	4/2/2018 4:17:56 PM	A50251
Iron	ND	0.020		mg/L	1	3/30/2018 2:16:03 PM	A50228
Magnesium	13	1.0		mg/L	1	3/30/2018 2:16:03 PM	A50228
Potassium	10	1.0		mg/L	1	3/30/2018 2:16:03 PM	A50228
Sodium	1600	20		mg/L	20	4/2/2018 4:19:46 PM	A50251
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
Toluene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
Ethylbenzene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
Naphthalene	ND	2.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
1-Methylnaphthalene	ND	4.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
2-Methylnaphthalene	ND	4.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
Acetone	ND	10		µg/L	1	4/4/2018 1:35:51 PM	A50328

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Analytical Report

Lab Order 1803F29

Date Reported: 4/12/2018

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #9

Project: Mudge LS 6

Collection Date: 3/28/2018 11:00:00 AM

Lab ID: 1803F29-003

Matrix: AQUEOUS

Received Date: 3/29/2018 7:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Bromobenzene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
Bromodichloromethane	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
Bromoform	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
Bromomethane	ND	3.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
2-Butanone	ND	10		µg/L	1	4/4/2018 1:35:51 PM	A50328
Carbon disulfide	ND	10		µg/L	1	4/4/2018 1:35:51 PM	A50328
Carbon Tetrachloride	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
Chlorobenzene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
Chloroethane	ND	2.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
Chloroform	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
Chloromethane	ND	3.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
2-Chlorotoluene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
4-Chlorotoluene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
cis-1,2-DCE	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
Dibromochloromethane	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
Dibromomethane	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
1,2-Dichlorobenzene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
1,3-Dichlorobenzene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
1,4-Dichlorobenzene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
Dichlorodifluoromethane	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
1,1-Dichloroethane	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
1,1-Dichloroethene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
1,2-Dichloropropane	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
1,3-Dichloropropane	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
2,2-Dichloropropane	ND	2.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
1,1-Dichloropropene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
Hexachlorobutadiene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
2-Hexanone	ND	10		µg/L	1	4/4/2018 1:35:51 PM	A50328
Isopropylbenzene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
4-Isopropyltoluene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
4-Methyl-2-pentanone	ND	10		µg/L	1	4/4/2018 1:35:51 PM	A50328
Methylene Chloride	ND	3.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
n-Butylbenzene	ND	3.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
n-Propylbenzene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
sec-Butylbenzene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
Styrene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
tert-Butylbenzene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Analytical Report

Lab Order 1803F29

Date Reported: 4/12/2018

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #9

Project: Mudge LS 6

Collection Date: 3/28/2018 11:00:00 AM

Lab ID: 1803F29-003

Matrix: AQUEOUS

Received Date: 3/29/2018 7:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
trans-1,2-DCE	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
Trichlorofluoromethane	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
1,2,3-Trichloropropane	ND	2.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
Vinyl chloride	ND	1.0		µg/L	1	4/4/2018 1:35:51 PM	A50328
Xylenes, Total	ND	1.5		µg/L	1	4/4/2018 1:35:51 PM	A50328
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	1	4/4/2018 1:35:51 PM	A50328
Surr: 4-Bromofluorobenzene	112	70-130		%Rec	1	4/4/2018 1:35:51 PM	A50328
Surr: Dibromofluoromethane	102	70-130		%Rec	1	4/4/2018 1:35:51 PM	A50328
Surr: Toluene-d8	91.7	70-130		%Rec	1	4/4/2018 1:35:51 PM	A50328

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1806I50

Date Reported: 7/9/2018

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #1

Project: Mudge LS 6

Collection Date: 6/28/2018 11:20:00 AM

Lab ID: 1806I50-001

Matrix: AQUEOUS

Received Date: 6/30/2018 10:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	470	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
Toluene	300	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
Ethylbenzene	170	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
1,2,4-Trimethylbenzene	230	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
1,3,5-Trimethylbenzene	11	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
1,2-Dichloroethane (EDC)	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
1,2-Dibromoethane (EDB)	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
Naphthalene	ND	20		µg/L	10	7/6/2018 7:10:00 PM	R52521
1-Methylnaphthalene	ND	40		µg/L	10	7/6/2018 7:10:00 PM	R52521
2-Methylnaphthalene	ND	40		µg/L	10	7/6/2018 7:10:00 PM	R52521
Acetone	ND	100		µg/L	10	7/6/2018 7:10:00 PM	R52521
Bromobenzene	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
Bromodichloromethane	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
Bromoform	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
Bromomethane	ND	30		µg/L	10	7/6/2018 7:10:00 PM	R52521
2-Butanone	ND	100		µg/L	10	7/6/2018 7:10:00 PM	R52521
Carbon disulfide	ND	100		µg/L	10	7/6/2018 7:10:00 PM	R52521
Carbon Tetrachloride	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
Chlorobenzene	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
Chloroethane	ND	20		µg/L	10	7/6/2018 7:10:00 PM	R52521
Chloroform	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
Chloromethane	ND	30		µg/L	10	7/6/2018 7:10:00 PM	R52521
2-Chlorotoluene	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
4-Chlorotoluene	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
cis-1,2-DCE	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
cis-1,3-Dichloropropene	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
1,2-Dibromo-3-chloropropane	ND	20		µg/L	10	7/6/2018 7:10:00 PM	R52521
Dibromochloromethane	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
Dibromomethane	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
1,2-Dichlorobenzene	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
1,3-Dichlorobenzene	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
1,4-Dichlorobenzene	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
Dichlorodifluoromethane	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
1,1-Dichloroethane	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
1,1-Dichloroethene	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
1,2-Dichloropropane	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
1,3-Dichloropropane	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
2,2-Dichloropropane	ND	20		µg/L	10	7/6/2018 7:10:00 PM	R52521

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Analytical Report

Lab Order 1806I50

Date Reported: 7/9/2018

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #1

Project: Mudge LS 6

Collection Date: 6/28/2018 11:20:00 AM

Lab ID: 1806I50-001

Matrix: AQUEOUS

Received Date: 6/30/2018 10:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,1-Dichloropropene	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
Hexachlorobutadiene	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
2-Hexanone	ND	100		µg/L	10	7/6/2018 7:10:00 PM	R52521
Isopropylbenzene	50	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
4-Isopropyltoluene	11	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
4-Methyl-2-pentanone	ND	100		µg/L	10	7/6/2018 7:10:00 PM	R52521
Methylene Chloride	ND	30		µg/L	10	7/6/2018 7:10:00 PM	R52521
n-Butylbenzene	ND	30		µg/L	10	7/6/2018 7:10:00 PM	R52521
n-Propylbenzene	37	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
sec-Butylbenzene	10	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
Styrene	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
tert-Butylbenzene	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
1,1,2,2-Tetrachloroethane	ND	20		µg/L	10	7/6/2018 7:10:00 PM	R52521
Tetrachloroethene (PCE)	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
trans-1,2-DCE	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
trans-1,3-Dichloropropene	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
1,2,3-Trichlorobenzene	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
1,2,4-Trichlorobenzene	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
1,1,1-Trichloroethane	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
1,1,2-Trichloroethane	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
Trichloroethene (TCE)	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
Trichlorofluoromethane	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
1,2,3-Trichloropropane	ND	20		µg/L	10	7/6/2018 7:10:00 PM	R52521
Vinyl chloride	ND	10		µg/L	10	7/6/2018 7:10:00 PM	R52521
Xylenes, Total	680	15		µg/L	10	7/6/2018 7:10:00 PM	R52521
Surr: 1,2-Dichloroethane-d4	97.2	70-130		%Rec	10	7/6/2018 7:10:00 PM	R52521
Surr: 4-Bromofluorobenzene	96.6	70-130		%Rec	10	7/6/2018 7:10:00 PM	R52521
Surr: Dibromofluoromethane	92.4	70-130		%Rec	10	7/6/2018 7:10:00 PM	R52521
Surr: Toluene-d8	98.1	70-130		%Rec	10	7/6/2018 7:10:00 PM	R52521

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Analytical Report

Lab Order 1806I50

Date Reported: 7/9/2018

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #9

Project: Mudge LS 6

Collection Date: 6/28/2018 4:30:00 PM

Lab ID: 1806I50-002

Matrix: AQUEOUS

Received Date: 6/30/2018 10:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
Toluene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
Ethylbenzene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
Naphthalene	ND	2.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
1-Methylnaphthalene	ND	4.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
2-Methylnaphthalene	ND	4.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
Acetone	ND	10		µg/L	1	7/6/2018 7:35:00 PM	R52521
Bromobenzene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
Bromodichloromethane	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
Bromoform	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
Bromomethane	ND	3.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
2-Butanone	ND	10		µg/L	1	7/6/2018 7:35:00 PM	R52521
Carbon disulfide	ND	10		µg/L	1	7/6/2018 7:35:00 PM	R52521
Carbon Tetrachloride	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
Chlorobenzene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
Chloroethane	ND	2.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
Chloroform	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
Chloromethane	ND	3.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
2-Chlorotoluene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
4-Chlorotoluene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
cis-1,2-DCE	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
Dibromochloromethane	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
Dibromomethane	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
1,2-Dichlorobenzene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
1,3-Dichlorobenzene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
1,4-Dichlorobenzene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
Dichlorodifluoromethane	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
1,1-Dichloroethane	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
1,1-Dichloroethene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
1,2-Dichloropropane	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
1,3-Dichloropropane	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
2,2-Dichloropropane	ND	2.0		µg/L	1	7/6/2018 7:35:00 PM	R52521

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Analytical Report

Lab Order 1806I50

Date Reported: 7/9/2018

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #9

Project: Mudge LS 6

Collection Date: 6/28/2018 4:30:00 PM

Lab ID: 1806I50-002

Matrix: AQUEOUS

Received Date: 6/30/2018 10:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,1-Dichloropropene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
Hexachlorobutadiene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
2-Hexanone	ND	10		µg/L	1	7/6/2018 7:35:00 PM	R52521
Isopropylbenzene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
4-Isopropyltoluene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
4-Methyl-2-pentanone	ND	10		µg/L	1	7/6/2018 7:35:00 PM	R52521
Methylene Chloride	ND	3.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
n-Butylbenzene	ND	3.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
n-Propylbenzene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
sec-Butylbenzene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
Styrene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
tert-Butylbenzene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
trans-1,2-DCE	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
Trichlorofluoromethane	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
1,2,3-Trichloropropane	ND	2.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
Vinyl chloride	ND	1.0		µg/L	1	7/6/2018 7:35:00 PM	R52521
Xylenes, Total	ND	1.5		µg/L	1	7/6/2018 7:35:00 PM	R52521
Surr: 1,2-Dichloroethane-d4	99.1	70-130		%Rec	1	7/6/2018 7:35:00 PM	R52521
Surr: 4-Bromofluorobenzene	97.4	70-130		%Rec	1	7/6/2018 7:35:00 PM	R52521
Surr: Dibromofluoromethane	93.7	70-130		%Rec	1	7/6/2018 7:35:00 PM	R52521
Surr: Toluene-d8	94.6	70-130		%Rec	1	7/6/2018 7:35:00 PM	R52521

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Analytical Report

Lab Order 1809H30

Date Reported: 10/4/2018

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #1

Project: Mudge LS 6

Collection Date: 9/26/2018 1:00:00 PM

Lab ID: 1809H30-001

Matrix: AQUEOUS

Received Date: 9/28/2018 8:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	400	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
Toluene	80	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
Ethylbenzene	94	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
1,2,4-Trimethylbenzene	120	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
1,3,5-Trimethylbenzene	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
1,2-Dichloroethane (EDC)	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
1,2-Dibromoethane (EDB)	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
Naphthalene	ND	20		µg/L	10	10/1/2018 2:59:00 PM	R54556
1-Methylnaphthalene	ND	40		µg/L	10	10/1/2018 2:59:00 PM	R54556
2-Methylnaphthalene	ND	40		µg/L	10	10/1/2018 2:59:00 PM	R54556
Acetone	ND	100		µg/L	10	10/1/2018 2:59:00 PM	R54556
Bromobenzene	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
Bromodichloromethane	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
Bromoform	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
Bromomethane	ND	30		µg/L	10	10/1/2018 2:59:00 PM	R54556
2-Butanone	ND	100		µg/L	10	10/1/2018 2:59:00 PM	R54556
Carbon disulfide	ND	100		µg/L	10	10/1/2018 2:59:00 PM	R54556
Carbon Tetrachloride	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
Chlorobenzene	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
Chloroethane	ND	20		µg/L	10	10/1/2018 2:59:00 PM	R54556
Chloroform	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
Chloromethane	ND	30		µg/L	10	10/1/2018 2:59:00 PM	R54556
2-Chlorotoluene	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
4-Chlorotoluene	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
cis-1,2-DCE	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
cis-1,3-Dichloropropene	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
1,2-Dibromo-3-chloropropane	ND	20		µg/L	10	10/1/2018 2:59:00 PM	R54556
Dibromochloromethane	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
Dibromomethane	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
1,2-Dichlorobenzene	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
1,3-Dichlorobenzene	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
1,4-Dichlorobenzene	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
Dichlorodifluoromethane	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
1,1-Dichloroethane	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
1,1-Dichloroethene	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
1,2-Dichloropropane	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
1,3-Dichloropropane	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
2,2-Dichloropropane	ND	20		µg/L	10	10/1/2018 2:59:00 PM	R54556

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Analytical Report

Lab Order 1809H30

Date Reported: 10/4/2018

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #1

Project: Mudge LS 6

Collection Date: 9/26/2018 1:00:00 PM

Lab ID: 1809H30-001

Matrix: AQUEOUS

Received Date: 9/28/2018 8:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,1-Dichloropropene	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
Hexachlorobutadiene	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
2-Hexanone	ND	100		µg/L	10	10/1/2018 2:59:00 PM	R54556
Isopropylbenzene	34	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
4-Isopropyltoluene	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
4-Methyl-2-pentanone	ND	100		µg/L	10	10/1/2018 2:59:00 PM	R54556
Methylene Chloride	ND	30		µg/L	10	10/1/2018 2:59:00 PM	R54556
n-Butylbenzene	ND	30		µg/L	10	10/1/2018 2:59:00 PM	R54556
n-Propylbenzene	19	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
sec-Butylbenzene	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
Styrene	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
tert-Butylbenzene	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
1,1,2,2-Tetrachloroethane	ND	20		µg/L	10	10/1/2018 2:59:00 PM	R54556
Tetrachloroethene (PCE)	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
trans-1,2-DCE	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
trans-1,3-Dichloropropene	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
1,2,3-Trichlorobenzene	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
1,2,4-Trichlorobenzene	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
1,1,1-Trichloroethane	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
1,1,2-Trichloroethane	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
Trichloroethene (TCE)	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
Trichlorofluoromethane	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
1,2,3-Trichloropropane	ND	20		µg/L	10	10/1/2018 2:59:00 PM	R54556
Vinyl chloride	ND	10		µg/L	10	10/1/2018 2:59:00 PM	R54556
Xylenes, Total	320	15		µg/L	10	10/1/2018 2:59:00 PM	R54556
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	10	10/1/2018 2:59:00 PM	R54556
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	10	10/1/2018 2:59:00 PM	R54556
Surr: Dibromofluoromethane	104	70-130		%Rec	10	10/1/2018 2:59:00 PM	R54556
Surr: Toluene-d8	101	70-130		%Rec	10	10/1/2018 2:59:00 PM	R54556

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Analytical Report

Lab Order 1809H30

Date Reported: 10/4/2018

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #9

Project: Mudge LS 6

Collection Date: 9/26/2018 12:05:00 PM

Lab ID: 1809H30-002

Matrix: AQUEOUS

Received Date: 9/28/2018 8:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
Toluene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
Ethylbenzene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
Naphthalene	ND	2.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
1-Methylnaphthalene	ND	4.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
2-Methylnaphthalene	ND	4.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
Acetone	ND	10		µg/L	1	10/1/2018 4:11:00 PM	R54556
Bromobenzene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
Bromodichloromethane	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
Bromoform	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
Bromomethane	ND	3.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
2-Butanone	ND	10		µg/L	1	10/1/2018 4:11:00 PM	R54556
Carbon disulfide	ND	10		µg/L	1	10/1/2018 4:11:00 PM	R54556
Carbon Tetrachloride	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
Chlorobenzene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
Chloroethane	ND	2.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
Chloroform	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
Chloromethane	ND	3.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
2-Chlorotoluene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
4-Chlorotoluene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
cis-1,2-DCE	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
Dibromochloromethane	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
Dibromomethane	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
1,2-Dichlorobenzene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
1,3-Dichlorobenzene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
1,4-Dichlorobenzene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
Dichlorodifluoromethane	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
1,1-Dichloroethane	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
1,1-Dichloroethene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
1,2-Dichloropropane	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
1,3-Dichloropropane	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
2,2-Dichloropropane	ND	2.0		µg/L	1	10/1/2018 4:11:00 PM	R54556

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Analytical Report

Lab Order 1809H30

Date Reported: 10/4/2018

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #9

Project: Mudge LS 6

Collection Date: 9/26/2018 12:05:00 PM

Lab ID: 1809H30-002

Matrix: AQUEOUS

Received Date: 9/28/2018 8:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,1-Dichloropropene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
Hexachlorobutadiene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
2-Hexanone	ND	10		µg/L	1	10/1/2018 4:11:00 PM	R54556
Isopropylbenzene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
4-Isopropyltoluene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
4-Methyl-2-pentanone	ND	10		µg/L	1	10/1/2018 4:11:00 PM	R54556
Methylene Chloride	ND	3.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
n-Butylbenzene	ND	3.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
n-Propylbenzene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
sec-Butylbenzene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
Styrene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
tert-Butylbenzene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
trans-1,2-DCE	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
1,1,1-Trichloroethane	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
1,1,2-Trichloroethane	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
Trichloroethene (TCE)	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
Trichlorofluoromethane	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
1,2,3-Trichloropropane	ND	2.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
Vinyl chloride	ND	1.0		µg/L	1	10/1/2018 4:11:00 PM	R54556
Xylenes, Total	ND	1.5		µg/L	1	10/1/2018 4:11:00 PM	R54556
Surr: 1,2-Dichloroethane-d4	111	70-130		%Rec	1	10/1/2018 4:11:00 PM	R54556
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	10/1/2018 4:11:00 PM	R54556
Surr: Dibromofluoromethane	114	70-130		%Rec	1	10/1/2018 4:11:00 PM	R54556
Surr: Toluene-d8	98.8	70-130		%Rec	1	10/1/2018 4:11:00 PM	R54556

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 Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Analytical Report

Lab Order 1812B52

Date Reported: 12/31/2018

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #1

Project: Mudge LS #6

Collection Date: 12/19/2018 2:00:00 PM

Lab ID: 1812B52-001

Matrix: AQUEOUS

Received Date: 12/20/2018 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	2000	100		µg/L	100	12/28/2018 6:06:00 PM	R56590
Toluene	1600	100		µg/L	100	12/28/2018 6:06:00 PM	R56590
Ethylbenzene	490	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
1,2,4-Trimethylbenzene	510	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
1,3,5-Trimethylbenzene	57	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
1,2-Dichloroethane (EDC)	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
1,2-Dibromoethane (EDB)	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
Naphthalene	27	20		µg/L	10	12/21/2018 2:11:00 PM	R56574
1-Methylnaphthalene	ND	40		µg/L	10	12/21/2018 2:11:00 PM	R56574
2-Methylnaphthalene	ND	40		µg/L	10	12/21/2018 2:11:00 PM	R56574
Acetone	ND	100		µg/L	10	12/21/2018 2:11:00 PM	R56574
Bromobenzene	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
Bromodichloromethane	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
Bromoform	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
Bromomethane	ND	30		µg/L	10	12/21/2018 2:11:00 PM	R56574
2-Butanone	ND	100		µg/L	10	12/21/2018 2:11:00 PM	R56574
Carbon disulfide	ND	100		µg/L	10	12/21/2018 2:11:00 PM	R56574
Carbon Tetrachloride	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
Chlorobenzene	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
Chloroethane	ND	20		µg/L	10	12/21/2018 2:11:00 PM	R56574
Chloroform	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
Chloromethane	ND	30		µg/L	10	12/21/2018 2:11:00 PM	R56574
2-Chlorotoluene	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
4-Chlorotoluene	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
cis-1,2-DCE	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
cis-1,3-Dichloropropene	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
1,2-Dibromo-3-chloropropane	ND	20		µg/L	10	12/21/2018 2:11:00 PM	R56574
Dibromochloromethane	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
Dibromomethane	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
1,2-Dichlorobenzene	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
1,3-Dichlorobenzene	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
1,4-Dichlorobenzene	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
Dichlorodifluoromethane	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
1,1-Dichloroethane	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
1,1-Dichloroethene	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
1,2-Dichloropropane	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
1,3-Dichloropropane	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
2,2-Dichloropropane	ND	20		µg/L	10	12/21/2018 2:11:00 PM	R56574

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	Page 1 of 7
	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 Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

Analytical Report

Lab Order 1812B52

Date Reported: 12/31/2018

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #1

Project: Mudge LS #6

Collection Date: 12/19/2018 2:00:00 PM

Lab ID: 1812B52-001

Matrix: AQUEOUS

Received Date: 12/20/2018 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,1-Dichloropropene	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
Hexachlorobutadiene	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
2-Hexanone	ND	100		µg/L	10	12/21/2018 2:11:00 PM	R56574
Isopropylbenzene	75	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
4-Isopropyltoluene	13	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
4-Methyl-2-pentanone	ND	100		µg/L	10	12/21/2018 2:11:00 PM	R56574
Methylene Chloride	ND	30		µg/L	10	12/21/2018 2:11:00 PM	R56574
n-Butylbenzene	ND	30		µg/L	10	12/21/2018 2:11:00 PM	R56574
n-Propylbenzene	79	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
sec-Butylbenzene	12	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
Styrene	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
tert-Butylbenzene	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
1,1,2,2-Tetrachloroethane	ND	20		µg/L	10	12/21/2018 2:11:00 PM	R56574
Tetrachloroethene (PCE)	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
trans-1,2-DCE	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
trans-1,3-Dichloropropene	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
1,2,3-Trichlorobenzene	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
1,2,4-Trichlorobenzene	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
1,1,1-Trichloroethane	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
1,1,2-Trichloroethane	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
Trichloroethene (TCE)	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
Trichlorofluoromethane	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
1,2,3-Trichloropropane	ND	20		µg/L	10	12/21/2018 2:11:00 PM	R56574
Vinyl chloride	ND	10		µg/L	10	12/21/2018 2:11:00 PM	R56574
Xylenes, Total	2400	15		µg/L	10	12/21/2018 2:11:00 PM	R56574
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	10	12/21/2018 2:11:00 PM	R56574
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	10	12/21/2018 2:11:00 PM	R56574
Surr: Dibromofluoromethane	95.5	70-130		%Rec	10	12/21/2018 2:11:00 PM	R56574
Surr: Toluene-d8	101	70-130		%Rec	10	12/21/2018 2:11:00 PM	R56574

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	Page 2 of 7
	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 Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

Analytical Report

Lab Order 1812B52

Date Reported: 12/31/2018

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #9

Project: Mudge LS #6

Collection Date: 12/19/2018 1:10:00 PM

Lab ID: 1812B52-002

Matrix: AQUEOUS

Received Date: 12/20/2018 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
Toluene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
Ethylbenzene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
Naphthalene	ND	2.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
1-Methylnaphthalene	ND	4.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
2-Methylnaphthalene	ND	4.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
Acetone	ND	10		µg/L	1	12/21/2018 3:23:00 PM	R56574
Bromobenzene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
Bromodichloromethane	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
Bromoform	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
Bromomethane	ND	3.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
2-Butanone	ND	10		µg/L	1	12/21/2018 3:23:00 PM	R56574
Carbon disulfide	ND	10		µg/L	1	12/21/2018 3:23:00 PM	R56574
Carbon Tetrachloride	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
Chlorobenzene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
Chloroethane	ND	2.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
Chloroform	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
Chloromethane	ND	3.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
2-Chlorotoluene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
4-Chlorotoluene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
cis-1,2-DCE	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
Dibromochloromethane	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
Dibromomethane	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
1,1-Dichloroethane	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
1,1-Dichloroethene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
1,2-Dichloropropane	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
1,3-Dichloropropane	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
2,2-Dichloropropane	ND	2.0		µg/L	1	12/21/2018 3:23:00 PM	R56574

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	Page 3 of 7
	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 Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

Analytical Report

Lab Order 1812B52

Date Reported: 12/31/2018

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #9

Project: Mudge LS #6

Collection Date: 12/19/2018 1:10:00 PM

Lab ID: 1812B52-002

Matrix: AQUEOUS

Received Date: 12/20/2018 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,1-Dichloropropene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
Hexachlorobutadiene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
2-Hexanone	ND	10		µg/L	1	12/21/2018 3:23:00 PM	R56574
Isopropylbenzene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
4-Isopropyltoluene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
4-Methyl-2-pentanone	ND	10		µg/L	1	12/21/2018 3:23:00 PM	R56574
Methylene Chloride	ND	3.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
n-Butylbenzene	ND	3.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
n-Propylbenzene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
sec-Butylbenzene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
Styrene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
tert-Butylbenzene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
trans-1,2-DCE	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
Trichlorofluoromethane	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
Vinyl chloride	ND	1.0		µg/L	1	12/21/2018 3:23:00 PM	R56574
Xylenes, Total	ND	1.5		µg/L	1	12/21/2018 3:23:00 PM	R56574
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	12/21/2018 3:23:00 PM	R56574
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	12/21/2018 3:23:00 PM	R56574
Surr: Dibromofluoromethane	98.3	70-130		%Rec	1	12/21/2018 3:23:00 PM	R56574
Surr: Toluene-d8	98.4	70-130		%Rec	1	12/21/2018 3:23:00 PM	R56574

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	Page 4 of 7
	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 Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

Analytical Report

Lab Order 1904024

Date Reported: 4/10/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW#1

Project: MUDGE LS 6

Collection Date: 3/29/2019 12:45:00 PM

Lab ID: 1904024-001

Matrix: AQUEOUS

Received Date: 3/30/2019 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	450	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Toluene	380	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Ethylbenzene	120	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Methyl tert-butyl ether (MTBE)	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
1,2,4-Trimethylbenzene	180	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
1,3,5-Trimethylbenzene	14	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
1,2-Dichloroethane (EDC)	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
1,2-Dibromoethane (EDB)	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Naphthalene	ND	20	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
1-Methylnaphthalene	ND	40	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
2-Methylnaphthalene	ND	40	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Acetone	ND	100	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Bromobenzene	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Bromodichloromethane	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Bromoform	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Bromomethane	ND	30	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
2-Butanone	ND	100	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Carbon disulfide	ND	100	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Carbon Tetrachloride	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Chlorobenzene	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Chloroethane	ND	20	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Chloroform	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Chloromethane	ND	30	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
2-Chlorotoluene	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
4-Chlorotoluene	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
cis-1,2-DCE	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
cis-1,3-Dichloropropene	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
1,2-Dibromo-3-chloropropane	ND	20	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Dibromochloromethane	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Dibromomethane	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
1,2-Dichlorobenzene	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
1,3-Dichlorobenzene	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
1,4-Dichlorobenzene	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Dichlorodifluoromethane	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
1,1-Dichloroethane	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
1,1-Dichloroethene	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
1,2-Dichloropropane	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
1,3-Dichloropropane	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
2,2-Dichloropropane	ND	20	D	µg/L	10	4/9/2019 3:51:17 PM	W59020

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

Qualifiers:	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

Analytical Report

Lab Order 1904024

Date Reported: 4/10/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW#1

Project: MUDGE LS 6

Collection Date: 3/29/2019 12:45:00 PM

Lab ID: 1904024-001

Matrix: AQUEOUS

Received Date: 3/30/2019 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
1,1-Dichloropropene	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Hexachlorobutadiene	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
2-Hexanone	ND	100	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Isopropylbenzene	44	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
4-Isopropyltoluene	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
4-Methyl-2-pentanone	ND	100	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Methylene Chloride	ND	30	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
n-Butylbenzene	ND	30	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
n-Propylbenzene	32	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
sec-Butylbenzene	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Styrene	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
tert-Butylbenzene	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
1,1,1,2-Tetrachloroethane	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
1,1,2,2-Tetrachloroethane	ND	20	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Tetrachloroethene (PCE)	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
trans-1,2-DCE	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
trans-1,3-Dichloropropene	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
1,2,3-Trichlorobenzene	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
1,2,4-Trichlorobenzene	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
1,1,1-Trichloroethane	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
1,1,2-Trichloroethane	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Trichloroethene (TCE)	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Trichlorofluoromethane	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
1,2,3-Trichloropropane	ND	20	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Vinyl chloride	ND	10	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Xylenes, Total	510	15	D	µg/L	10	4/9/2019 3:51:17 PM	W59020
Surr: 1,2-Dichloroethane-d4	99.5	70-130	D	%Rec	10	4/9/2019 3:51:17 PM	W59020
Surr: 4-Bromofluorobenzene	92.9	70-130	D	%Rec	10	4/9/2019 3:51:17 PM	W59020
Surr: Dibromofluoromethane	109	70-130	D	%Rec	10	4/9/2019 3:51:17 PM	W59020
Surr: Toluene-d8	97.7	70-130	D	%Rec	10	4/9/2019 3:51:17 PM	W59020

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

Qualifiers:	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

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Analytical Report

Lab Order 1904024

Date Reported: 4/10/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW#9

Project: MUDGE LS 6

Collection Date: 3/29/2019 1:35:00 PM

Lab ID: 1904024-002

Matrix: AQUEOUS

Received Date: 3/30/2019 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
Toluene	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
Ethylbenzene	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
Naphthalene	ND	2.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
1-Methylnaphthalene	ND	4.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
2-Methylnaphthalene	ND	4.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
Acetone	ND	10		µg/L	1	4/8/2019 9:21:59 PM	A58989
Bromobenzene	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
Bromodichloromethane	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
Bromoform	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
Bromomethane	ND	3.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
2-Butanone	ND	10		µg/L	1	4/8/2019 9:21:59 PM	A58989
Carbon disulfide	ND	10		µg/L	1	4/8/2019 9:21:59 PM	A58989
Carbon Tetrachloride	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
Chlorobenzene	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
Chloroethane	ND	2.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
Chloroform	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
Chloromethane	ND	3.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
2-Chlorotoluene	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
4-Chlorotoluene	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
cis-1,2-DCE	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
Dibromochloromethane	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
Dibromomethane	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
1,2-Dichlorobenzene	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
1,3-Dichlorobenzene	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
1,4-Dichlorobenzene	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
Dichlorodifluoromethane	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
1,1-Dichloroethane	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
1,1-Dichloroethene	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
1,2-Dichloropropane	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
1,3-Dichloropropane	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
2,2-Dichloropropane	ND	2.0		µg/L	1	4/8/2019 9:21:59 PM	A58989

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

Qualifiers:	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

Analytical Report

Lab Order 1904024

Date Reported: 4/10/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW#9

Project: MUDGE LS 6

Collection Date: 3/29/2019 1:35:00 PM

Lab ID: 1904024-002

Matrix: AQUEOUS

Received Date: 3/30/2019 9:20:00 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	4/8/2019 9:21:59 PM	A58989
Hexachlorobutadiene	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
2-Hexanone	ND	10		µg/L	1	4/8/2019 9:21:59 PM	A58989
Isopropylbenzene	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
4-Isopropyltoluene	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
4-Methyl-2-pentanone	ND	10		µg/L	1	4/8/2019 9:21:59 PM	A58989
Methylene Chloride	ND	3.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
n-Butylbenzene	ND	3.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
n-Propylbenzene	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
sec-Butylbenzene	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
Styrene	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
tert-Butylbenzene	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
trans-1,2-DCE	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
Trichlorofluoromethane	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
1,2,3-Trichloropropane	ND	2.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
Vinyl chloride	ND	1.0		µg/L	1	4/8/2019 9:21:59 PM	A58989
Xylenes, Total	ND	1.5		µg/L	1	4/8/2019 9:21:59 PM	A58989
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	4/8/2019 9:21:59 PM	A58989
Surr: 4-Bromofluorobenzene	94.7	70-130		%Rec	1	4/8/2019 9:21:59 PM	A58989
Surr: Dibromofluoromethane	118	70-130		%Rec	1	4/8/2019 9:21:59 PM	A58989
Surr: Toluene-d8	97.9	70-130		%Rec	1	4/8/2019 9:21:59 PM	A58989

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

Qualifiers:	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

Analytical Report

Lab Order 1907080

Date Reported: 7/10/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW#1

Project: Mudge LS 6

Collection Date: 6/28/2019 11:35:00 AM

Lab ID: 1907080-001

Matrix: AQUEOUS

Received Date: 7/2/2019 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	5400	200		µg/L	200	7/9/2019 3:49:44 PM	R61256
Toluene	3600	200		µg/L	200	7/9/2019 3:49:44 PM	R61256
Ethylbenzene	810	20		µg/L	20	7/9/2019 3:18:32 AM	W61218
Methyl tert-butyl ether (MTBE)	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
1,2,4-Trimethylbenzene	500	20		µg/L	20	7/9/2019 3:18:32 AM	W61218
1,3,5-Trimethylbenzene	180	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
1,2-Dichloroethane (EDC)	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
1,2-Dibromoethane (EDB)	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
Naphthalene	97	4.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
1-Methylnaphthalene	18	8.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
2-Methylnaphthalene	21	8.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
Acetone	ND	20		µg/L	2	7/9/2019 3:47:54 AM	W61218
Bromobenzene	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
Bromodichloromethane	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
Bromoform	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
Bromomethane	ND	6.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
2-Butanone	ND	20		µg/L	2	7/9/2019 3:47:54 AM	W61218
Carbon disulfide	ND	20		µg/L	2	7/9/2019 3:47:54 AM	W61218
Carbon Tetrachloride	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
Chlorobenzene	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
Chloroethane	ND	4.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
Chloroform	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
Chloromethane	ND	6.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
2-Chlorotoluene	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
4-Chlorotoluene	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
cis-1,2-DCE	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
cis-1,3-Dichloropropene	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
1,2-Dibromo-3-chloropropane	ND	4.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
Dibromochloromethane	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
Dibromomethane	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
1,2-Dichlorobenzene	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
1,3-Dichlorobenzene	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
1,4-Dichlorobenzene	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
Dichlorodifluoromethane	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
1,1-Dichloroethane	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
1,1-Dichloroethene	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
1,2-Dichloropropane	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
1,3-Dichloropropane	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
2,2-Dichloropropane	ND	4.0		µg/L	2	7/9/2019 3:47:54 AM	W61218

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

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Analytical Report

Lab Order 1907080

Date Reported: 7/10/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW#1

Project: Mudge LS 6

Collection Date: 6/28/2019 11:35:00 AM

Lab ID: 1907080-001

Matrix: AQUEOUS

Received Date: 7/2/2019 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
1,1-Dichloropropene	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
Hexachlorobutadiene	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
2-Hexanone	ND	20		µg/L	2	7/9/2019 3:47:54 AM	W61218
Isopropylbenzene	67	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
4-Isopropyltoluene	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
4-Methyl-2-pentanone	ND	20		µg/L	2	7/9/2019 3:47:54 AM	W61218
Methylene Chloride	ND	6.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
n-Butylbenzene	6.3	6.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
n-Propylbenzene	65	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
sec-Butylbenzene	7.5	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
Styrene	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
tert-Butylbenzene	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
1,1,1,2-Tetrachloroethane	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
1,1,2,2-Tetrachloroethane	ND	4.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
Tetrachloroethene (PCE)	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
trans-1,2-DCE	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
trans-1,3-Dichloropropene	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
1,2,3-Trichlorobenzene	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
1,2,4-Trichlorobenzene	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
1,1,1-Trichloroethane	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
1,1,2-Trichloroethane	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
Trichloroethene (TCE)	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
Trichlorofluoromethane	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
1,2,3-Trichloropropane	ND	4.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
Vinyl chloride	ND	2.0		µg/L	2	7/9/2019 3:47:54 AM	W61218
Xylenes, Total	6000	300		µg/L	200	7/9/2019 3:49:44 PM	R61256
Surr: 1,2-Dichloroethane-d4	84.7	70-130		%Rec	2	7/9/2019 3:47:54 AM	W61218
Surr: 4-Bromofluorobenzene	113	70-130		%Rec	2	7/9/2019 3:47:54 AM	W61218
Surr: Dibromofluoromethane	86.6	70-130		%Rec	2	7/9/2019 3:47:54 AM	W61218
Surr: Toluene-d8	103	70-130		%Rec	2	7/9/2019 3:47:54 AM	W61218

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

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Analytical Report

Lab Order 1907080

Date Reported: 7/10/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW#9

Project: Mudge LS 6

Collection Date: 6/28/2019 10:35:00 AM

Lab ID: 1907080-002

Matrix: AQUEOUS

Received Date: 7/2/2019 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
Toluene	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
Ethylbenzene	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
Naphthalene	ND	2.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
1-Methylnaphthalene	ND	4.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
2-Methylnaphthalene	ND	4.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
Acetone	ND	10		µg/L	1	7/9/2019 3:20:21 PM	R61256
Bromobenzene	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
Bromodichloromethane	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
Bromoform	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
Bromomethane	ND	3.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
2-Butanone	ND	10		µg/L	1	7/9/2019 3:20:21 PM	R61256
Carbon disulfide	ND	10		µg/L	1	7/9/2019 3:20:21 PM	R61256
Carbon Tetrachloride	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
Chlorobenzene	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
Chloroethane	ND	2.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
Chloroform	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
Chloromethane	ND	3.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
2-Chlorotoluene	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
4-Chlorotoluene	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
cis-1,2-DCE	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
Dibromochloromethane	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
Dibromomethane	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
1,2-Dichlorobenzene	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
1,3-Dichlorobenzene	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
1,4-Dichlorobenzene	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
Dichlorodifluoromethane	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
1,1-Dichloroethane	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
1,1-Dichloroethene	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
1,2-Dichloropropane	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
1,3-Dichloropropane	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
2,2-Dichloropropane	ND	2.0		µg/L	1	7/9/2019 3:20:21 PM	R61256

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		

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Analytical Report

Lab Order 1907080

Date Reported: 7/10/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW#9

Project: Mudge LS 6

Collection Date: 6/28/2019 10:35:00 AM

Lab ID: 1907080-002

Matrix: AQUEOUS

Received Date: 7/2/2019 7:15:00 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	7/9/2019 3:20:21 PM	R61256
Hexachlorobutadiene	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
2-Hexanone	ND	10		µg/L	1	7/9/2019 3:20:21 PM	R61256
Isopropylbenzene	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
4-Isopropyltoluene	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
4-Methyl-2-pentanone	ND	10		µg/L	1	7/9/2019 3:20:21 PM	R61256
Methylene Chloride	ND	3.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
n-Butylbenzene	ND	3.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
n-Propylbenzene	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
sec-Butylbenzene	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
Styrene	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
tert-Butylbenzene	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
trans-1,2-DCE	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
Trichlorofluoromethane	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
1,2,3-Trichloropropane	ND	2.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
Vinyl chloride	ND	1.0		µg/L	1	7/9/2019 3:20:21 PM	R61256
Xylenes, Total	ND	1.5		µg/L	1	7/9/2019 3:20:21 PM	R61256
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	7/9/2019 3:20:21 PM	R61256
Surr: 4-Bromofluorobenzene	96.4	70-130		%Rec	1	7/9/2019 3:20:21 PM	R61256
Surr: Dibromofluoromethane	103	70-130		%Rec	1	7/9/2019 3:20:21 PM	R61256
Surr: Toluene-d8	98.1	70-130		%Rec	1	7/9/2019 3:20:21 PM	R61256

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		

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Analytical Report

Lab Order 1909A98

Date Reported: 9/26/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #1

Project: Mudge LS 6

Collection Date: 9/19/2019 12:30:00 PM

Lab ID: 1909A98-001

Matrix: AQUEOUS

Received Date: 9/20/2019 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	1400	20		µg/L	20	9/24/2019 12:46:32 PM	R63166
Toluene	1400	20		µg/L	20	9/24/2019 12:46:32 PM	R63166
Ethylbenzene	330	20		µg/L	20	9/24/2019 12:46:32 PM	R63166
Methyl tert-butyl ether (MTBE)	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
1,2,4-Trimethylbenzene	230	20		µg/L	20	9/24/2019 12:46:32 PM	R63166
1,3,5-Trimethylbenzene	72	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
1,2-Dichloroethane (EDC)	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
1,2-Dibromoethane (EDB)	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
Naphthalene	24	4.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
1-Methylnaphthalene	10	8.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
2-Methylnaphthalene	9.4	8.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
Acetone	ND	20		µg/L	2	9/23/2019 4:39:24 PM	R63131
Bromobenzene	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
Bromodichloromethane	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
Bromoform	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
Bromomethane	ND	6.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
2-Butanone	ND	20		µg/L	2	9/23/2019 4:39:24 PM	R63131
Carbon disulfide	ND	20		µg/L	2	9/23/2019 4:39:24 PM	R63131
Carbon Tetrachloride	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
Chlorobenzene	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
Chloroethane	ND	4.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
Chloroform	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
Chloromethane	ND	6.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
2-Chlorotoluene	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
4-Chlorotoluene	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
cis-1,2-DCE	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
cis-1,3-Dichloropropene	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
1,2-Dibromo-3-chloropropane	ND	4.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
Dibromochloromethane	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
Dibromomethane	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
1,2-Dichlorobenzene	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
1,3-Dichlorobenzene	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
1,4-Dichlorobenzene	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
Dichlorodifluoromethane	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
1,1-Dichloroethane	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
1,1-Dichloroethene	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
1,2-Dichloropropane	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
1,3-Dichloropropane	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
2,2-Dichloropropane	ND	4.0		µg/L	2	9/23/2019 4:39:24 PM	R63131

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		

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Analytical Report

Lab Order 1909A98

Date Reported: 9/26/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #1

Project: Mudge LS 6

Collection Date: 9/19/2019 12:30:00 PM

Lab ID: 1909A98-001

Matrix: AQUEOUS

Received Date: 9/20/2019 8:15:00 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	9/23/2019 4:39:24 PM	R63131
Hexachlorobutadiene	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
2-Hexanone	ND	20		µg/L	2	9/23/2019 4:39:24 PM	R63131
Isopropylbenzene	51	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
4-Isopropyltoluene	11	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
4-Methyl-2-pentanone	ND	20		µg/L	2	9/23/2019 4:39:24 PM	R63131
Methylene Chloride	ND	6.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
n-Butylbenzene	ND	6.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
n-Propylbenzene	42	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
sec-Butylbenzene	9.7	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
Styrene	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
tert-Butylbenzene	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
1,1,1,2-Tetrachloroethane	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
1,1,2,2-Tetrachloroethane	ND	4.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
Tetrachloroethene (PCE)	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
trans-1,2-DCE	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
trans-1,3-Dichloropropene	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
1,2,3-Trichlorobenzene	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
1,2,4-Trichlorobenzene	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
1,1,1-Trichloroethane	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
1,1,2-Trichloroethane	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
Trichloroethene (TCE)	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
Trichlorofluoromethane	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
1,2,3-Trichloropropane	ND	4.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
Vinyl chloride	ND	2.0		µg/L	2	9/23/2019 4:39:24 PM	R63131
Xylenes, Total	2000	30		µg/L	20	9/24/2019 12:46:32 PM	R63166
Surr: 1,2-Dichloroethane-d4	120	70-130		%Rec	2	9/23/2019 4:39:24 PM	R63131
Surr: 4-Bromofluorobenzene	99.1	70-130		%Rec	2	9/23/2019 4:39:24 PM	R63131
Surr: Dibromofluoromethane	122	70-130		%Rec	2	9/23/2019 4:39:24 PM	R63131
Surr: Toluene-d8	102	70-130		%Rec	2	9/23/2019 4:39:24 PM	R63131

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

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Analytical Report

Lab Order 1909A98

Date Reported: 9/26/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #9

Project: Mudge LS 6

Collection Date: 9/19/2019 1:15:00 PM

Lab ID: 1909A98-002

Matrix: AQUEOUS

Received Date: 9/20/2019 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
Toluene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
Ethylbenzene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
Naphthalene	ND	2.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
1-Methylnaphthalene	ND	4.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
2-Methylnaphthalene	ND	4.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
Acetone	ND	10		µg/L	1	9/23/2019 5:07:58 PM	R63131
Bromobenzene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
Bromodichloromethane	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
Bromoform	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
Bromomethane	ND	3.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
2-Butanone	ND	10		µg/L	1	9/23/2019 5:07:58 PM	R63131
Carbon disulfide	ND	10		µg/L	1	9/23/2019 5:07:58 PM	R63131
Carbon Tetrachloride	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
Chlorobenzene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
Chloroethane	ND	2.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
Chloroform	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
Chloromethane	ND	3.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
2-Chlorotoluene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
4-Chlorotoluene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
cis-1,2-DCE	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
Dibromochloromethane	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
Dibromomethane	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
1,2-Dichlorobenzene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
1,3-Dichlorobenzene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
1,4-Dichlorobenzene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
Dichlorodifluoromethane	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
1,1-Dichloroethane	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
1,1-Dichloroethene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
1,2-Dichloropropane	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
1,3-Dichloropropane	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
2,2-Dichloropropane	ND	2.0		µg/L	1	9/23/2019 5:07:58 PM	R63131

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		

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Analytical Report

Lab Order 1909A98

Date Reported: 9/26/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #9

Project: Mudge LS 6

Collection Date: 9/19/2019 1:15:00 PM

Lab ID: 1909A98-002

Matrix: AQUEOUS

Received Date: 9/20/2019 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,1-Dichloropropene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
Hexachlorobutadiene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
2-Hexanone	ND	10		µg/L	1	9/23/2019 5:07:58 PM	R63131
Isopropylbenzene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
4-Isopropyltoluene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
4-Methyl-2-pentanone	ND	10		µg/L	1	9/23/2019 5:07:58 PM	R63131
Methylene Chloride	ND	3.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
n-Butylbenzene	ND	3.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
n-Propylbenzene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
sec-Butylbenzene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
Styrene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
tert-Butylbenzene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
trans-1,2-DCE	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
Trichloroethene (TCE)	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
Trichlorofluoromethane	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
1,2,3-Trichloropropane	ND	2.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
Vinyl chloride	ND	1.0		µg/L	1	9/23/2019 5:07:58 PM	R63131
Xylenes, Total	ND	1.5		µg/L	1	9/23/2019 5:07:58 PM	R63131
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	9/23/2019 5:07:58 PM	R63131
Surr: 4-Bromofluorobenzene	98.7	70-130		%Rec	1	9/23/2019 5:07:58 PM	R63131
Surr: Dibromofluoromethane	104	70-130		%Rec	1	9/23/2019 5:07:58 PM	R63131
Surr: Toluene-d8	105	70-130		%Rec	1	9/23/2019 5:07:58 PM	R63131

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		

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Analytical Report

Lab Order 1912C40

Date Reported: 1/3/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #1

Project: MUDGE LS 6

Collection Date: 12/20/2019 1:00:00 PM

Lab ID: 1912C40-001

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: RAA
Benzene	480	20		µg/L	20	12/30/2019 9:06:52 PM	R65492
Toluene	480	20		µg/L	20	12/30/2019 9:06:52 PM	R65492
Ethylbenzene	120	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
Methyl tert-butyl ether (MTBE)	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
1,2,4-Trimethylbenzene	94	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
1,3,5-Trimethylbenzene	17	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
1,2-Dichloroethane (EDC)	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
1,2-Dibromoethane (EDB)	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
Naphthalene	6.6	4.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
1-Methylnaphthalene	ND	8.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
2-Methylnaphthalene	ND	8.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
Acetone	ND	20		µg/L	2	12/30/2019 9:35:20 PM	R65492
Bromobenzene	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
Bromodichloromethane	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
Bromoform	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
Bromomethane	ND	6.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
2-Butanone	ND	20		µg/L	2	12/30/2019 9:35:20 PM	R65492
Carbon disulfide	ND	20		µg/L	2	12/30/2019 9:35:20 PM	R65492
Carbon Tetrachloride	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
Chlorobenzene	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
Chloroethane	ND	4.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
Chloroform	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
Chloromethane	ND	6.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
2-Chlorotoluene	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
4-Chlorotoluene	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
cis-1,2-DCE	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
cis-1,3-Dichloropropene	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
1,2-Dibromo-3-chloropropane	ND	4.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
Dibromochloromethane	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
Dibromomethane	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
1,2-Dichlorobenzene	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
1,3-Dichlorobenzene	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
1,4-Dichlorobenzene	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
Dichlorodifluoromethane	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
1,1-Dichloroethane	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
1,1-Dichloroethene	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
1,2-Dichloropropane	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
1,3-Dichloropropane	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
2,2-Dichloropropane	ND	4.0		µg/L	2	12/30/2019 9:35:20 PM	R65492

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		

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Analytical Report

Lab Order 1912C40

Date Reported: 1/3/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #1

Project: MUDGE LS 6

Collection Date: 12/20/2019 1:00:00 PM

Lab ID: 1912C40-001

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: RAA
1,1-Dichloropropene	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
Hexachlorobutadiene	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
2-Hexanone	ND	20		µg/L	2	12/30/2019 9:35:20 PM	R65492
Isopropylbenzene	32	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
4-Isopropyltoluene	8.0	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
4-Methyl-2-pentanone	ND	20		µg/L	2	12/30/2019 9:35:20 PM	R65492
Methylene Chloride	ND	6.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
n-Butylbenzene	ND	6.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
n-Propylbenzene	18	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
sec-Butylbenzene	8.9	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
Styrene	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
tert-Butylbenzene	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
1,1,1,2-Tetrachloroethane	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
1,1,2,2-Tetrachloroethane	ND	4.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
Tetrachloroethene (PCE)	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
trans-1,2-DCE	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
trans-1,3-Dichloropropene	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
1,2,3-Trichlorobenzene	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
1,2,4-Trichlorobenzene	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
1,1,1-Trichloroethane	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
1,1,2-Trichloroethane	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
Trichloroethene (TCE)	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
Trichlorofluoromethane	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
1,2,3-Trichloropropane	ND	4.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
Vinyl chloride	ND	2.0		µg/L	2	12/30/2019 9:35:20 PM	R65492
Xylenes, Total	600	30		µg/L	20	12/30/2019 9:06:52 PM	R65492
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	2	12/30/2019 9:35:20 PM	R65492
Surr: 4-Bromofluorobenzene	94.2	70-130		%Rec	2	12/30/2019 9:35:20 PM	R65492
Surr: Dibromofluoromethane	103	70-130		%Rec	2	12/30/2019 9:35:20 PM	R65492
Surr: Toluene-d8	103	70-130		%Rec	2	12/30/2019 9:35:20 PM	R65492

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

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Analytical Report

Lab Order 1912C40

Date Reported: 1/3/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #9

Project: MUDGE LS 6

Collection Date: 12/20/2019 2:00:00 PM

Lab ID: 1912C40-002

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: RAA
Benzene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
Toluene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
Ethylbenzene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
Naphthalene	ND	2.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
1-Methylnaphthalene	ND	4.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
2-Methylnaphthalene	ND	4.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
Acetone	ND	10		µg/L	1	12/30/2019 10:03:57 PM	R65492
Bromobenzene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
Bromodichloromethane	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
Bromoform	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
Bromomethane	ND	3.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
2-Butanone	ND	10		µg/L	1	12/30/2019 10:03:57 PM	R65492
Carbon disulfide	ND	10		µg/L	1	12/30/2019 10:03:57 PM	R65492
Carbon Tetrachloride	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
Chlorobenzene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
Chloroethane	ND	2.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
Chloroform	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
Chloromethane	ND	3.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
2-Chlorotoluene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
4-Chlorotoluene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
cis-1,2-DCE	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
Dibromochloromethane	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
Dibromomethane	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
1,1-Dichloroethane	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
1,1-Dichloroethene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
1,2-Dichloropropane	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
1,3-Dichloropropane	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
2,2-Dichloropropane	ND	2.0		µg/L	1	12/30/2019 10:03:57 PM	R65492

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		

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Analytical Report

Lab Order 1912C40

Date Reported: 1/3/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #9

Project: MUDGE LS 6

Collection Date: 12/20/2019 2:00:00 PM

Lab ID: 1912C40-002

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: RAA
1,1-Dichloropropene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
Hexachlorobutadiene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
2-Hexanone	ND	10		µg/L	1	12/30/2019 10:03:57 PM	R65492
Isopropylbenzene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
4-Isopropyltoluene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
4-Methyl-2-pentanone	ND	10		µg/L	1	12/30/2019 10:03:57 PM	R65492
Methylene Chloride	ND	3.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
n-Butylbenzene	ND	3.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
n-Propylbenzene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
sec-Butylbenzene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
Styrene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
tert-Butylbenzene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
trans-1,2-DCE	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
Trichlorofluoromethane	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
Vinyl chloride	ND	1.0		µg/L	1	12/30/2019 10:03:57 PM	R65492
Xylenes, Total	ND	1.5		µg/L	1	12/30/2019 10:03:57 PM	R65492
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	12/30/2019 10:03:57 PM	R65492
Surr: 4-Bromofluorobenzene	94.8	70-130		%Rec	1	12/30/2019 10:03:57 PM	R65492
Surr: Dibromofluoromethane	108	70-130		%Rec	1	12/30/2019 10:03:57 PM	R65492
Surr: Toluene-d8	102	70-130		%Rec	1	12/30/2019 10:03:57 PM	R65492

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

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Analytical Report

Lab Order 2004023

Date Reported: 4/14/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #1

Project: Mudge LS 6

Collection Date: 3/31/2020 12:05:00 PM

Lab ID: 2004023-001

Matrix: AQUEOUS

Received Date: 4/1/2020 8:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	2800	200		µg/L	200	4/10/2020 3:14:28 PM	W68033
Toluene	2200	200		µg/L	200	4/10/2020 3:14:28 PM	W68033
Ethylbenzene	370	20		µg/L	20	4/9/2020 9:07:46 PM	A68017
Methyl tert-butyl ether (MTBE)	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
1,2,4-Trimethylbenzene	330	20		µg/L	20	4/9/2020 9:07:46 PM	A68017
1,3,5-Trimethylbenzene	70	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
1,2-Dichloroethane (EDC)	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
1,2-Dibromoethane (EDB)	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
Naphthalene	24	4.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
1-Methylnaphthalene	9.1	8.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
2-Methylnaphthalene	10	8.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
Acetone	ND	20		µg/L	2	4/9/2020 9:36:36 PM	A68017
Bromobenzene	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
Bromodichloromethane	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
Bromoform	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
Bromomethane	ND	6.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
2-Butanone	ND	20		µg/L	2	4/9/2020 9:36:36 PM	A68017
Carbon disulfide	ND	20		µg/L	2	4/9/2020 9:36:36 PM	A68017
Carbon Tetrachloride	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
Chlorobenzene	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
Chloroethane	ND	4.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
Chloroform	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
Chloromethane	ND	6.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
2-Chlorotoluene	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
4-Chlorotoluene	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
cis-1,2-DCE	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
cis-1,3-Dichloropropene	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
1,2-Dibromo-3-chloropropane	ND	4.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
Dibromochloromethane	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
Dibromomethane	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
1,2-Dichlorobenzene	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
1,3-Dichlorobenzene	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
1,4-Dichlorobenzene	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
Dichlorodifluoromethane	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
1,1-Dichloroethane	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
1,1-Dichloroethene	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
1,2-Dichloropropane	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
1,3-Dichloropropane	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
2,2-Dichloropropane	ND	4.0		µg/L	2	4/9/2020 9:36:36 PM	A68017

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

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Analytical Report

Lab Order 2004023

Date Reported: 4/14/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW #1

Project: Mudge LS 6

Collection Date: 3/31/2020 12:05:00 PM

Lab ID: 2004023-001

Matrix: AQUEOUS

Received Date: 4/1/2020 8:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: DJF	
1,1-Dichloropropene	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
Hexachlorobutadiene	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
2-Hexanone	ND	20		µg/L	2	4/9/2020 9:36:36 PM	A68017
Isopropylbenzene	47	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
4-Isopropyltoluene	7.3	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
4-Methyl-2-pentanone	ND	20		µg/L	2	4/9/2020 9:36:36 PM	A68017
Methylene Chloride	ND	6.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
n-Butylbenzene	ND	6.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
n-Propylbenzene	36	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
sec-Butylbenzene	7.3	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
Styrene	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
tert-Butylbenzene	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
1,1,1,2-Tetrachloroethane	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
1,1,2,2-Tetrachloroethane	ND	4.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
Tetrachloroethene (PCE)	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
trans-1,2-DCE	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
trans-1,3-Dichloropropene	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
1,2,3-Trichlorobenzene	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
1,2,4-Trichlorobenzene	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
1,1,1-Trichloroethane	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
1,1,2-Trichloroethane	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
Trichloroethene (TCE)	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
Trichlorofluoromethane	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
1,2,3-Trichloropropane	ND	4.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
Vinyl chloride	ND	2.0		µg/L	2	4/9/2020 9:36:36 PM	A68017
Xylenes, Total	2300	30		µg/L	20	4/9/2020 9:07:46 PM	A68017
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	2	4/9/2020 9:36:36 PM	A68017
Surr: 4-Bromofluorobenzene	91.3	70-130		%Rec	2	4/9/2020 9:36:36 PM	A68017
Surr: Dibromofluoromethane	110	70-130		%Rec	2	4/9/2020 9:36:36 PM	A68017
Surr: Toluene-d8	97.0	70-130		%Rec	2	4/9/2020 9:36:36 PM	A68017

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

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Analytical Report

Lab Order 2006428

Date Reported: 6/12/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW#1

Project: Mudge LS #6

Collection Date: 6/8/2020 10:15:00 AM

Lab ID: 2006428-001

Matrix: AQUEOUS

Received Date: 6/9/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	1700	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
Toluene	1900	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
Ethylbenzene	450	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
Methyl tert-butyl ether (MTBE)	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
1,2,4-Trimethylbenzene	350	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
1,3,5-Trimethylbenzene	83	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
1,2-Dichloroethane (EDC)	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
1,2-Dibromoethane (EDB)	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
Naphthalene	ND	40		µg/L	20	6/10/2020 7:27:25 PM	R69551
1-Methylnaphthalene	ND	80		µg/L	20	6/10/2020 7:27:25 PM	R69551
2-Methylnaphthalene	ND	80		µg/L	20	6/10/2020 7:27:25 PM	R69551
Acetone	ND	200		µg/L	20	6/10/2020 7:27:25 PM	R69551
Bromobenzene	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
Bromodichloromethane	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
Bromoform	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
Bromomethane	ND	60		µg/L	20	6/10/2020 7:27:25 PM	R69551
2-Butanone	ND	200		µg/L	20	6/10/2020 7:27:25 PM	R69551
Carbon disulfide	ND	200		µg/L	20	6/10/2020 7:27:25 PM	R69551
Carbon Tetrachloride	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
Chlorobenzene	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
Chloroethane	ND	40		µg/L	20	6/10/2020 7:27:25 PM	R69551
Chloroform	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
Chloromethane	ND	60		µg/L	20	6/10/2020 7:27:25 PM	R69551
2-Chlorotoluene	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
4-Chlorotoluene	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
cis-1,2-DCE	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
cis-1,3-Dichloropropene	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
1,2-Dibromo-3-chloropropane	ND	40		µg/L	20	6/10/2020 7:27:25 PM	R69551
Dibromochloromethane	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
Dibromomethane	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
1,2-Dichlorobenzene	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
1,3-Dichlorobenzene	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
1,4-Dichlorobenzene	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
Dichlorodifluoromethane	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
1,1-Dichloroethane	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
1,1-Dichloroethene	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
1,2-Dichloropropane	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
1,3-Dichloropropane	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
2,2-Dichloropropane	ND	40		µg/L	20	6/10/2020 7:27:25 PM	R69551

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		

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Analytical Report

Lab Order 2006428

Date Reported: 6/12/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: MW#1

Project: Mudge LS #6

Collection Date: 6/8/2020 10:15:00 AM

Lab ID: 2006428-001

Matrix: AQUEOUS

Received Date: 6/9/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,1-Dichloropropene	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
Hexachlorobutadiene	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
2-Hexanone	ND	200		µg/L	20	6/10/2020 7:27:25 PM	R69551
Isopropylbenzene	58	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
4-Isopropyltoluene	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
4-Methyl-2-pentanone	ND	200		µg/L	20	6/10/2020 7:27:25 PM	R69551
Methylene Chloride	ND	60		µg/L	20	6/10/2020 7:27:25 PM	R69551
n-Butylbenzene	ND	60		µg/L	20	6/10/2020 7:27:25 PM	R69551
n-Propylbenzene	51	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
sec-Butylbenzene	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
Styrene	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
tert-Butylbenzene	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
1,1,1,2-Tetrachloroethane	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
1,1,2,2-Tetrachloroethane	ND	40		µg/L	20	6/10/2020 7:27:25 PM	R69551
Tetrachloroethene (PCE)	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
trans-1,2-DCE	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
trans-1,3-Dichloropropene	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
1,2,3-Trichlorobenzene	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
1,2,4-Trichlorobenzene	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
1,1,1-Trichloroethane	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
1,1,2-Trichloroethane	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
Trichloroethene (TCE)	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
Trichlorofluoromethane	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
1,2,3-Trichloropropane	ND	40		µg/L	20	6/10/2020 7:27:25 PM	R69551
Vinyl chloride	ND	20		µg/L	20	6/10/2020 7:27:25 PM	R69551
Xylenes, Total	2700	30		µg/L	20	6/10/2020 7:27:25 PM	R69551
Surr: 1,2-Dichloroethane-d4	100	70-130		%Rec	20	6/10/2020 7:27:25 PM	R69551
Surr: 4-Bromofluorobenzene	89.5	70-130		%Rec	20	6/10/2020 7:27:25 PM	R69551
Surr: Dibromofluoromethane	101	70-130		%Rec	20	6/10/2020 7:27:25 PM	R69551
Surr: Toluene-d8	106	70-130		%Rec	20	6/10/2020 7:27:25 PM	R69551

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

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Analytical Report

Lab Order 2009A93

Date Reported: 9/29/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: SIMCOE/Cottonwood Consulting

Client Sample ID: MW #1

Project: Mudge LS 6

Collection Date: 9/17/2020 12:35:00 PM

Lab ID: 2009A93-001

Matrix: AQUEOUS

Received Date: 9/18/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	2500	200		µg/L	200	9/24/2020 8:29:00 PM	R72120
Toluene	2200	200		µg/L	200	9/24/2020 8:29:00 PM	R72120
Ethylbenzene	530	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
Methyl tert-butyl ether (MTBE)	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
1,2,4-Trimethylbenzene	420	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
1,3,5-Trimethylbenzene	92	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
1,2-Dichloroethane (EDC)	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
1,2-Dibromoethane (EDB)	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
Naphthalene	ND	40		µg/L	20	9/24/2020 12:39:00 PM	B72085
1-Methylnaphthalene	ND	80		µg/L	20	9/24/2020 12:39:00 PM	B72085
2-Methylnaphthalene	ND	80		µg/L	20	9/24/2020 12:39:00 PM	B72085
Acetone	ND	200		µg/L	20	9/24/2020 12:39:00 PM	B72085
Bromobenzene	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
Bromodichloromethane	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
Bromoform	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
Bromomethane	ND	60		µg/L	20	9/24/2020 12:39:00 PM	B72085
2-Butanone	ND	200		µg/L	20	9/24/2020 12:39:00 PM	B72085
Carbon disulfide	ND	200		µg/L	20	9/24/2020 12:39:00 PM	B72085
Carbon Tetrachloride	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
Chlorobenzene	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
Chloroethane	ND	40		µg/L	20	9/24/2020 12:39:00 PM	B72085
Chloroform	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
Chloromethane	ND	60		µg/L	20	9/24/2020 12:39:00 PM	B72085
2-Chlorotoluene	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
4-Chlorotoluene	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
cis-1,2-DCE	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
cis-1,3-Dichloropropene	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
1,2-Dibromo-3-chloropropane	ND	40		µg/L	20	9/24/2020 12:39:00 PM	B72085
Dibromochloromethane	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
Dibromomethane	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
1,2-Dichlorobenzene	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
1,3-Dichlorobenzene	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
1,4-Dichlorobenzene	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
Dichlorodifluoromethane	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
1,1-Dichloroethane	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
1,1-Dichloroethene	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
1,2-Dichloropropane	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
1,3-Dichloropropane	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
2,2-Dichloropropane	ND	40		µg/L	20	9/24/2020 12:39:00 PM	B72085

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		

Page 1 of 6

Analytical Report

Lab Order 2009A93

Date Reported: 9/29/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: SIMCOE/Cottonwood Consulting

Client Sample ID: MW #1

Project: Mudge LS 6

Collection Date: 9/17/2020 12:35:00 PM

Lab ID: 2009A93-001

Matrix: AQUEOUS

Received Date: 9/18/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,1-Dichloropropene	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
Hexachlorobutadiene	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
2-Hexanone	ND	200		µg/L	20	9/24/2020 12:39:00 PM	B72085
Isopropylbenzene	61	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
4-Isopropyltoluene	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
4-Methyl-2-pentanone	ND	200		µg/L	20	9/24/2020 12:39:00 PM	B72085
Methylene Chloride	ND	60		µg/L	20	9/24/2020 12:39:00 PM	B72085
n-Butylbenzene	ND	60		µg/L	20	9/24/2020 12:39:00 PM	B72085
n-Propylbenzene	57	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
sec-Butylbenzene	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
Styrene	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
tert-Butylbenzene	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
1,1,1,2-Tetrachloroethane	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
1,1,2,2-Tetrachloroethane	ND	40		µg/L	20	9/24/2020 12:39:00 PM	B72085
Tetrachloroethene (PCE)	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
trans-1,2-DCE	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
trans-1,3-Dichloropropene	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
1,2,3-Trichlorobenzene	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
1,2,4-Trichlorobenzene	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
1,1,1-Trichloroethane	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
1,1,2-Trichloroethane	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
Trichloroethene (TCE)	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
Trichlorofluoromethane	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
1,2,3-Trichloropropane	ND	40		µg/L	20	9/24/2020 12:39:00 PM	B72085
Vinyl chloride	ND	20		µg/L	20	9/24/2020 12:39:00 PM	B72085
Xylenes, Total	2900	30		µg/L	20	9/24/2020 12:39:00 PM	B72085
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	20	9/24/2020 12:39:00 PM	B72085
Surr: 4-Bromofluorobenzene	99.5	70-130		%Rec	20	9/24/2020 12:39:00 PM	B72085
Surr: Dibromofluoromethane	102	70-130		%Rec	20	9/24/2020 12:39:00 PM	B72085
Surr: Toluene-d8	99.2	70-130		%Rec	20	9/24/2020 12:39:00 PM	B72085

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

Page 2 of 6

Analytical Report

Lab Order 2012A72

Date Reported: 12/30/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: SIMCOE/Cottonwood Consulting

Client Sample ID: MW #1

Project: Mudge LS 6

Collection Date: 12/19/2020 11:15:00 AM

Lab ID: 2012A72-001

Matrix: AQUEOUS

Received Date: 12/22/2020 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: JMR
Benzene	3100	200		µg/L	200	12/27/2020 7:21:22 PM
Toluene	3100	200		µg/L	200	12/27/2020 7:21:22 PM
Ethylbenzene	570	20		µg/L	20	12/27/2020 7:49:56 PM
Methyl tert-butyl ether (MTBE)	ND	20		µg/L	20	12/27/2020 7:49:56 PM
1,2,4-Trimethylbenzene	480	20		µg/L	20	12/27/2020 7:49:56 PM
1,3,5-Trimethylbenzene	100	20		µg/L	20	12/27/2020 7:49:56 PM
1,2-Dichloroethane (EDC)	ND	20		µg/L	20	12/27/2020 7:49:56 PM
1,2-Dibromoethane (EDB)	ND	20		µg/L	20	12/27/2020 7:49:56 PM
Naphthalene	34	20		µg/L	20	12/27/2020 7:49:56 PM
1-Methylnaphthalene	ND	80		µg/L	20	12/27/2020 7:49:56 PM
2-Methylnaphthalene	ND	80		µg/L	20	12/27/2020 7:49:56 PM
Acetone	ND	200		µg/L	20	12/27/2020 7:49:56 PM
Bromobenzene	ND	20		µg/L	20	12/27/2020 7:49:56 PM
Bromodichloromethane	ND	20		µg/L	20	12/27/2020 7:49:56 PM
Bromoform	ND	20		µg/L	20	12/27/2020 7:49:56 PM
Bromomethane	ND	60		µg/L	20	12/27/2020 7:49:56 PM
2-Butanone	ND	200		µg/L	20	12/27/2020 7:49:56 PM
Carbon disulfide	ND	200		µg/L	20	12/27/2020 7:49:56 PM
Carbon Tetrachloride	ND	20		µg/L	20	12/27/2020 7:49:56 PM
Chlorobenzene	ND	20		µg/L	20	12/27/2020 7:49:56 PM
Chloroethane	ND	40		µg/L	20	12/27/2020 7:49:56 PM
Chloroform	ND	20		µg/L	20	12/27/2020 7:49:56 PM
Chloromethane	ND	60		µg/L	20	12/27/2020 7:49:56 PM
2-Chlorotoluene	ND	20		µg/L	20	12/27/2020 7:49:56 PM
4-Chlorotoluene	ND	20		µg/L	20	12/27/2020 7:49:56 PM
cis-1,2-DCE	ND	20		µg/L	20	12/27/2020 7:49:56 PM
cis-1,3-Dichloropropene	ND	20		µg/L	20	12/27/2020 7:49:56 PM
1,2-Dibromo-3-chloropropane	ND	40		µg/L	20	12/27/2020 7:49:56 PM
Dibromochloromethane	ND	20		µg/L	20	12/27/2020 7:49:56 PM
Dibromomethane	ND	20		µg/L	20	12/27/2020 7:49:56 PM
1,2-Dichlorobenzene	ND	20		µg/L	20	12/27/2020 7:49:56 PM
1,3-Dichlorobenzene	ND	20		µg/L	20	12/27/2020 7:49:56 PM
1,4-Dichlorobenzene	ND	20		µg/L	20	12/27/2020 7:49:56 PM
Dichlorodifluoromethane	ND	20		µg/L	20	12/27/2020 7:49:56 PM
1,1-Dichloroethane	ND	20		µg/L	20	12/27/2020 7:49:56 PM
1,1-Dichloroethene	ND	20		µg/L	20	12/27/2020 7:49:56 PM
1,2-Dichloropropane	ND	20		µg/L	20	12/27/2020 7:49:56 PM
1,3-Dichloropropane	ND	20		µg/L	20	12/27/2020 7:49:56 PM
2,2-Dichloropropane	ND	40		µg/L	20	12/27/2020 7:49:56 PM

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

Page 1 of 5

Analytical Report

Lab Order 2012A72

Date Reported: 12/30/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: SIMCOE/Cottonwood Consulting

Client Sample ID: MW #1

Project: Mudge LS 6

Collection Date: 12/19/2020 11:15:00 AM

Lab ID: 2012A72-001

Matrix: AQUEOUS

Received Date: 12/22/2020 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: JMR
1,1-Dichloropropene	ND	20		µg/L	20	12/27/2020 7:49:56 PM
Hexachlorobutadiene	ND	20		µg/L	20	12/27/2020 7:49:56 PM
2-Hexanone	ND	200		µg/L	20	12/27/2020 7:49:56 PM
Isopropylbenzene	68	20		µg/L	20	12/27/2020 7:49:56 PM
4-Isopropyltoluene	11	10		µg/L	20	12/27/2020 7:49:56 PM
4-Methyl-2-pentanone	ND	200		µg/L	20	12/27/2020 7:49:56 PM
Methylene Chloride	ND	60		µg/L	20	12/27/2020 7:49:56 PM
n-Butylbenzene	ND	60		µg/L	20	12/27/2020 7:49:56 PM
n-Propylbenzene	58	20		µg/L	20	12/27/2020 7:49:56 PM
sec-Butylbenzene	ND	20		µg/L	20	12/27/2020 7:49:56 PM
Styrene	ND	20		µg/L	20	12/27/2020 7:49:56 PM
tert-Butylbenzene	ND	20		µg/L	20	12/27/2020 7:49:56 PM
1,1,1,2-Tetrachloroethane	ND	20		µg/L	20	12/27/2020 7:49:56 PM
1,1,2,2-Tetrachloroethane	ND	40		µg/L	20	12/27/2020 7:49:56 PM
Tetrachloroethene (PCE)	ND	20		µg/L	20	12/27/2020 7:49:56 PM
trans-1,2-DCE	ND	20		µg/L	20	12/27/2020 7:49:56 PM
trans-1,3-Dichloropropene	ND	20		µg/L	20	12/27/2020 7:49:56 PM
1,2,3-Trichlorobenzene	ND	20		µg/L	20	12/27/2020 7:49:56 PM
1,2,4-Trichlorobenzene	ND	20		µg/L	20	12/27/2020 7:49:56 PM
1,1,1-Trichloroethane	ND	20		µg/L	20	12/27/2020 7:49:56 PM
1,1,2-Trichloroethane	ND	20		µg/L	20	12/27/2020 7:49:56 PM
Trichloroethene (TCE)	ND	20		µg/L	20	12/27/2020 7:49:56 PM
Trichlorofluoromethane	ND	20		µg/L	20	12/27/2020 7:49:56 PM
1,2,3-Trichloropropane	ND	40		µg/L	20	12/27/2020 7:49:56 PM
Vinyl chloride	ND	20		µg/L	20	12/27/2020 7:49:56 PM
Xylenes, Total	3500	30		µg/L	20	12/27/2020 7:49:56 PM
Surr: 1,2-Dichloroethane-d4	97.8	70-130		%Rec	20	12/27/2020 7:49:56 PM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	20	12/27/2020 7:49:56 PM
Surr: Dibromofluoromethane	98.6	70-130		%Rec	20	12/27/2020 7:49:56 PM
Surr: Toluene-d8	94.6	70-130		%Rec	20	12/27/2020 7:49:56 PM

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		

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CHAIN-OF-CUSTODY RECORDS

Chain-of-Custody Record

Client: **BLAGG ENGR. / BP AMERICA**

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

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

Email or Fax#:

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

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

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name:
MUDGE LS # 6

Project #:

Project Manager:
JEFF BLAGG

Sampler: **JEFF BLAGG**

On Ice: ☒ Yes ☐ No

Sample Temperature: **21.4**



HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX (8021B)	BTEX + MTBE + TMB (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	Nitrate N / Nitrite N	Manganese	Total Iron	Iron, Ferrous (filtered)	Anion / Cation Balance	Total Dissolved Solids	Grab sample	5 pt. composite sample
6/18/15	0900	WATER	MW # 1	40 ml VOA - 3	HCl & Cool	1506917 -001	✓														✓	
6/18/15		WATER	MW # 1	500 ml - 1	Cool														✓	✓	✓	
6/18/15		WATER	MW # 1	500 ml - 1	HNO ₃ & Cool											✓	✓				✓	
6/18/15		WATER	MW # 1	125 ml - 1	HNO ₃ & Cool													✓			✓	
6/18/15		WATER	MW # 1	125 ml - 1	H ₂ SO ₄ & Cool										✓						✓	
6/18/15	0932	WATER	MW # 2	40 ml VOA - 3	HCl & Cool	-002	✓														✓	
6/18/15		WATER	MW # 2	500 ml - 1	Cool														✓	✓	✓	
6/18/15		WATER	MW # 2	500 ml - 1	HNO ₃ & Cool											✓	✓				✓	
6/18/15		WATER	MW # 2	125 ml - 1	HNO ₃ & Cool													✓			✓	
6/18/15		WATER	MW # 2	125 ml - 1	H ₂ SO ₄ & Cool										✓						✓	

Date: **6/18/2015** Time: **1700** Relinquished by: **JH Blagg**

Date: **6/19/15** Time: **0720** Received by: **Jeff Peace**

Remarks: Report F, Cl, SO₄ only for Anion/Cation Balance.
BILL DIRECTLY TO BP:
 Jeff Peace, 200 Energy Court, Farmington, NM 87401
 Paykey: **ZEVH01REME**

PAGE 1 OF 2

Released to Imaging: 1/16/2024 2:59:18 PM

Turn-Around Time.

☒ Standard ☐ Rush

Project Name:

MUDGE LS # 6

Project #:

Project Manager

JEFF BLAGG

Sampler:	JEFF BLAGG
----------	------------

On Ice: ☒ Yes ☐ No

Sample Temperature: 21°C

[illegible]

Date:	Time:	Relinquished by:
1/8/2015	1700	Jeff Blegel

Received by:	Date	Time
1/22/15	01/19/15	1730

Date:	Time:	Requisitioned by:
-------	-------	-------------------

Received by	Date	Time
-------------	------	------

Remarks: Report F, Cl, SO ₄ only for Anion/Cation Balance	
--	--

BILL DIRECTLY TO BP:

Jeff Peace, 200 Energy Court, Farmington, NM 87401

Paykey: **ZEVH01REME**

PAGE 2 OF 2



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

[illegible]

Released to Imaging: 1/16/2024 2:59:18 PM

Chain-of-Custody Record

Client: **BLAGG ENGR. / BP AMERICA**Mailing Address: **P.O. BOX 87****BLOOMFIELD, NM 87413**Phone #: **(505) 632-1199**

Email or Fax#:

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation:

☐ NELAP ☐ Other☐ EDD (Type)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

MUDGE LS # 6

Project #:

Project Manager:

JEFF BLAGG

Sampler:

NELSON VELEZOn Ice: ☒ Yes ☐ NoSample Temperature: **1.5**

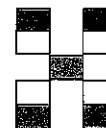
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TPH (8021B)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Nitrate N / Nitrite N	Manganese	Total Iron	Iron, Ferrous (filtered)	Anion / Cation Balance	Grab sample	5 pt. composite sample	Air Bubbles (Y or N)	
12/8/15	1300	WATER	MW # 1	40 ml VOA - 2	HCl & Cool	1512617 -001	✓													✓		
12/8/15	1205	WATER	MW # 2	40 ml VOA - 2	HCl & Cool	-002	✓													✓		
12/8/15	1400	WATER	MW # 3	40 ml VOA - 2	HCl & Cool	-003	✓													✓		

Date: **12/10/15** Time: **1258** Relinquished by: *[Signature]*Received by: *[Signature]* Date: **12/10/15** Time: **1258**

Remarks:

BILL DIRECTLY TO BP:**200 Energy Court, Farmington, NM 87401 Attn.: S. Moskal**VID: **VHIXONEVRM**Date: **1/10/15** Time: **1840** Relinquished by: *[Signature]*Received by: *[Signature]* Date: **12/11/15** Time: **0700**

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 noted on the analytical report.

**HALL ENVIRONMENTAL
ANALYSIS LABORATORY**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Released to Imaging: 1/16/2024 2:59:18 PM

|Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

MUDGE LS # 6

Project #:

Project Manager:

JEFF BLAGG

Sampler:	NELSON VELEZ
----------	--------------

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.6

Analysis Request					
BTEX + MTBE + TAME + (8021B)	☒				
BTEX + MTBE + TPH (Gas only)		☒			
TPH 8015B (GRO / DRO / MRO)					
TPH (Method 418.1)				☒	
EDB (Method 504.1)					
PAH (8310 or 8270SIMS)					
RCRA & Metals					
Nitrate N / Nitrite N					
Manganese					
Total Iron					
Iron, Ferrous (filtered)					
Anion / Cation Balance					
Grab sample	☒		☒	☒	
5 pt. composite sample					
Air Bubbles (Y or N)					

Remarks:

BILL DIRECTLY TO BP:
200 Energy Court, Farmington, NM 87401 Attn.: John Ritchie
VID: VRITCIWFEC

Received by	Date	Time
<i>Chris Moore</i>	03/11/16	12:15

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 noted on the analytical report.

Chain-of-Custody Record

Client: **BLAGG ENGR. / BP AMERICA**

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

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

Email or Fax#:

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

Accreditation:
☒ NELAP ☐ Other _____

☒ EDD (Type) _____

Turn-Around Time:

☒ Standard ☐ Rush _____

Project Name:

MUDGE LS # 6

Project #:

Project Manager:

JEFF BLAGG

Sampler:

NELSON VELEZ

On Ice:

☒ Yes☐ No

Sample Temperature:

1.5

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX (MTBE + TMB) (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	Nitrate N / Nitrite N	Manganese	Total Iron	Iron, Ferrous (filtered)	Anion / Cation Balance	Grab sample	5 pt. composite sample	Air Bubbles (Y or N)	
8/31/16	1220	WATER	MW # 1	40 ml VOA - 2	HCl & Cool	1609142 -001	✓													✓		
8/31/16	1130	WATER	MW # 2	40 ml VOA - 2	HCl & Cool	-002	✓													✓		

Relinquished by:	Received by:	Date	Time
7/1/16 1420 <i>[Signature]</i>	<i>[Signature]</i>	9/1/16	1420
Relinquished by:	Received by:	Date	Time
7/1/14 1815 <i>[Signature]</i>	<i>[Signature]</i>	09/02/16	0705

Remarks:

BILL DIRECTLY TO BP:
 200 Energy Court, Farmington, NM 87401 Attn.: John Ritchie

VID: VDRINKJWA1



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

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.

Released to Imaging: 1/16/2024 2:59:18 PM

REFERENCES

Project Name:

MUDGE LS # 6

Project #:

Project Manager:

JEFF BLAGG

☐ Standard ☐ Level 4 (Full Validation)

Sampler: NELSON VELEZ

On Ice: ☒ Yes ☐ No

Sample Temperature:	0
---------------------	---

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

	V	BTEX - MTBE + TAPAs (8021B)
	V	BTEX + MTBE + TPH (Gas only)
	V	TPH 8015B (GRO / DRO / MRO)
	V	TPH (Method 418.1)
	V	EDB (Method 504.1)
	V	PAH (8310 or 8270SIMS)
	V	RCRA 8 Metals
	V	Nitrate N / Nitrite N
	V	Manganese
	V	Total Iron
	V	Iron, Ferrous (filtered)
	V	Anion / Cation Balance
	V	Grab sample
	V	5 pt. composite sample
	V	Air Bubbles (Y or N)

Remarks:
BILL DIRECTLY TO BP:
200 Energy Court, Farmington, NM 87401 Attn.: John Ritchie
VID: VDRINKIWA1

If necessary, samples submitted to Hail 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.

Released to Imaging: 1/16/2024 2:59:18 PM

BLOOMFIELD, NM 87413

Email or Fax#:

☐ Level 4 (Full Validation)

☒ NELAP ☐ Other _____

EDD (Type) _____

☒ Standard ☐ Rush

MUDGE LS # 6

Project #:

Project Manager:

JEFF BLAGG

Sampler: **NELSON VELEZ**

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.2

[illegible]

ate:	Time:	Relinquished by:	Received by:	Date	Time
2/28/16	1612	<i>[Signature]</i>	<i>[Signature]</i>	2/28/16	1612
ate:	Time:	Relinquished by:	Received by:	Date	Time
2/28/16	1749	<i>[Signature]</i>	<i>[Signature]</i>	2/28/16	1749

Remarks:
BILL DIRECTLY TO BP:
200 Energy Court, Farmington, NM 87401 Attn.: John Ritchie
VID: VDRINKWJA1

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.



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

Analysis Request

[illegible]

☐ EDD (Type)

Sample Temperature: 7.1



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.

Turn-Around Time:

Client: **BLAGG ENGR. / BP AMERICA**

☒ Standard ☐ Rush

Mailing Address: P.O. BOX 87

Project Name:

MUDGE LS # 6

BLOOMFIELD, NM 87413

Project #:

Phone #: (505) 632-1199

email or Fax#:

Project Manager:

QA/QC Package:

JEFF BLAGG

☒ Standard ☐ Level 4 (Full Validation)

Accreditation:

Sampler: NELSON VELEZ

☐ NELAP ☐ Other

On Ice: ☒ Yes ☐ No

☐ EDD (Type)

Sample Temperature: $19.05(^{\circ}\text{F}) = 1.4$

[illegible]

Date:	Time:
12/20/17	1500

Relinquished by: 

Received by: 

Date	Time
12/21/17	1500

Remarks:	
----------	--

BILL DIRECTLY TO BP:

200 Energy Court, Farmington, NM 87401 Attn.: Steve Moskal

VID: VMOS6HQFEC WBS ELEMENT: L1-0018M-E:MUDGLELS6

Date:	Time:
12/21/17	1846

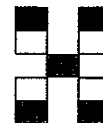
Relinquished by: 

Received by: 

Date 12/27/17 Time 08

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.

Courier



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

[illegible]

Page 108 of 209

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.

Chain-of-Custody Record

Client: **BLAGG ENGR. / BP AMERICA**

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

Phone #: **(505) 632-1199**
 email or Fax#:

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

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

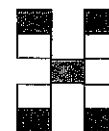
Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name:
MUDGE LS # 6

Project #:

Project Manager:
STEVE MOSKAL

Sampler: **NELSON VELEZ**
 On Ice: ☒ Yes ☐ No
 Sample Temperature: **3 Coolers @ 40° 1° 1.4°**



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021B)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)	8081 Pesticides / 8082 PCB's	8260B (VOA)	Cation / Anion Balance	Total Dissolved Solids	Grab sample	5 pt. composite sample	Air Bubbles (Y or N)
12/19/18	1400	WATER	MW # 1	40 ml VOA - 2	HCl & Cool	1812 B52 -001										✓				✓	
12/19/18	1310	WATER	MW # 9	40 ml VOA - 2	HCl & Cool	-002										✓				✓	
Date: 12/19/18	Time: 1511	Relinquished by: <i>[Signature]</i>	Received by: <i>[Signature]</i>	Date: 12/19/18	Time: 1511	Remarks: BILL DIRECTLY TO BP: Contact: Steve Moskal SIO #: 190040007685 WBS ELEMENT: L1-001CV-E:MUDGLELS6															
Date: 12/19/18	Time: 1907	Relinquished by: <i>[Signature]</i>	Received by: <i>[Signature]</i>	Date: 12/20/18	Time: 0800																

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.

Released to Imaging: 1/16/2024 2:59:18 PM

[illegible]

Date: 3/29/19	Time: 1404	Relinquished by: 	Received by: 	Date 3/29/19	Time 1404
Date: 3/29/19	Time: 1846	Relinquished by: 	Received by: 	Date 03/30/19	Time 0920

[illegible]

Should receive/Should've received PO from BPX.

Chain-of-Custody Record

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

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

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

email or Fax#:

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

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

Turn-Around Time:

☒ Standard ☐ Rush _____

Project Name:

MUDGE LS # 6

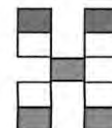
Project #:

Project Manager:

STEVE MOSKALSampler: **NELSON VELEZ**On Ice: ☒ Yes ☐ NoSample Temperature: **2.8°C - 0 (CF) 2.8**

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
6/28/19	1135	WATER	MW # 1	40 ml VOA - 2	HCl & Cool	1907080 -001
6/28/19	1035	WATER	MW # 9	40 ml VOA - 2	HCl & Cool	-002

Date: 7/1/19	Time: 1727	Relinquished by: <i>[Signature]</i>	Received by: <i>[Signature]</i>	Date: 7/1/19	Time: 1727
Date: 7/1/19	Time: 1820	Relinquished by: <i>[Signature]</i>	Received by: <i>[Signature]</i>	Date: 7/2/19	Time: 745

**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	Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)	8081 Pesticides / 8082 PCB's	8260B (VOA)	Cation / Anion Balance	Total Dissolved Solids	Grab sample	5 pt. composite sample	Air Bubbles
									✓			✓		
									✓			✓		

Remarks:

BILL DIRECTLY TO BPX:

Contact: Steve Moskal

PO to be provided

AERIAL SITE MAP

Released to Imaging: 1/16/2024 2:59:18 PM

☐ EDD (Type) _____

Sample Temperature: $5.3 - 0.3 = 5.0^\circ$

Preservative Type	0-2-0-3; 5A HEAL No. 1909A98
-------------------	------------------------------------

Heute von Christa

When courier arrived 4:15

[illegible]

PO to be provided

Released to Imaging: 1/16/2024 2:59:18 PM

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

Analysis Request

Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

Mailing Address: P.O. BOX 87

MUDGE LS # 6

BLOOMFIELD, NM 87413

Project #:

Phone #: (505) 632-1199

email or Fax#:

Project Manager:

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

STEVE MOSKAL

Accreditation:

☐ NELAP ☐ Other _____

Sampler: **NELSON VELEZ**

On Ice: ☒ Yes ☐ No

☐ EDD (Type)

Sample Temperature: $1.7 - 0 = 1.7$

[illegible]

Date:	Time:	Relinquished by:
-------	-------	------------------

3/31/20 | 4434

Relinquished by: 

Received by:

Date	Time
------	------

Misty Waite

$$3 \mid 31 \mid 20 \mid 42$$

Remarks:

BILL DIRECTLY TO BPX:

Contact: Steve Moskal

PO to be provided

Date:	Time:
-------	-------

Relinquished by: Christine Waeten

Received by:

Date	Time
------	------

owner 4/1/20 8:05

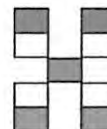
If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 1/16/2024 2:59:18 PM

Released to Imaging: 1/16/2024 2:59:18 PM

☐ EDD (Type) _____

Sample Temperature: $4.5 \pm 0 = 4.5$



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

[illegible][illegible]

Date:	Time:	Relinquished by:	Received by:	Date	Time
9/17/20	1910	<i>[Signature]</i>	EM Courier	9/18/20	8:00
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: BILL DIRECTLY TO SIMCOE LLC USING INFORMATION BELOW.

CONTACT: Steve Moskal / Erin Dunman

PO #: Already or to be provided.

- seal intact

Released to Imaging: 1/16/2024 2:59:18 PM

☐ EDD (Type) _____

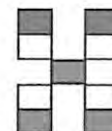
Sample Temperature: $29^{\circ} \pm 0^{\circ}$

00

Remarks: BILL DIRECTLY TO IKAV ENERGY INC.

CONTACT: Steve Moskal / Erin Dunman

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



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

Analysis Request

Air Bubbles (V or N)

Received by OCD: 1/26/2021 10:27:23 AM

Air Bubbles (Y or N)

Page 121 of 209

LABORATORY QUALITY CONTROL / QUALITY ASSURANCE

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1509078

04-Sep-15

Client: Blagg Engineering**Project:** Mudge LS # 6

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: PBW	Batch ID: A28626			RunNo: 28626						
Prep Date:	Analysis Date: 9/2/2015			SeqNo: 866329		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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.6		10.00		95.7	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130			
Surr: Dibromofluoromethane	11		10.00		108	70	130			
Surr: Toluene-d8	9.8		10.00		98.1	70	130			

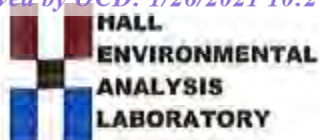
Sample ID 100ng lcs	SampType: LCS			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: LCSW	Batch ID: A28626			RunNo: 28626						
Prep Date:	Analysis Date: 9/2/2015			SeqNo: 866330		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	98.9	70	130			
Toluene	19	1.0	20.00	0	97.2	70	130			
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.1	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130			
Surr: Dibromofluoromethane	11		10.00		108	70	130			
Surr: Toluene-d8	9.7		10.00		97.2	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
R RPD outside accepted recovery limits
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 Detection Limit

Page 4 of 4



Hall Environmental Analysis Laboratory
1901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: BLAGG

Work Order Number: 1509078

RcptNo: 1

Received by/date: LM 09/02/15

Logged By: Celina Sessa 9/2/2015 8:00:00 AM

Completed By: Celina Sessa 9/2/2015 8:41:32 AM

Reviewed By: Ja 09/02/15

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. 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)

16. 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: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good	Yes			

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1506917

01-Jul-15

Client: Blagg Engineering**Project:** Mudge LS #6

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R26991		RunNo: 26991							
Prep Date:	Analysis Date: 6/19/2015		SeqNo: 806025		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R26991		RunNo: 26991							
Prep Date:	Analysis Date: 6/19/2015		SeqNo: 806026		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	98.3	90	110			
Nitrogen, Nitrite (As N)	1.0	0.10	1.000	0	99.8	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	102	90	110			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R26991		RunNo: 26991							
Prep Date:	Analysis Date: 6/19/2015		SeqNo: 806085		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R26991		RunNo: 26991							
Prep Date:	Analysis Date: 6/19/2015		SeqNo: 806086		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.0	0.50	5.000	0	101	90	110			
Nitrogen, Nitrite (As N)	1.0	0.10	1.000	0	103	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	105	90	110			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R27123		RunNo: 27123							
Prep Date:	Analysis Date: 6/25/2015		SeqNo: 811147		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Sulfate	ND	0.50								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
 E Value above quantitation range
 J Analyte detected below quantitation limits
 O RSD is greater than RSDlimit
 R RPD outside accepted recovery limits
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit
 P Sample pH Not In Range
 RL Reporting Detection Limit

Page 5 of 10

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1506917

01-Jul-15

Client: Blagg Engineering**Project:** Mudge LS #6

Sample ID LCS	SampType: LCS			TestCode: EPA Method 300.0: Anions						
Client ID: LCSW	Batch ID: R27123			RunNo: 27123						
Prep Date:	Analysis Date: 6/25/2015			SeqNo: 811148		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	104	90	110			
Sulfate	9.9	0.50	10.00	0	99.4	90	110			

Sample ID MB	SampType: MBLK			TestCode: EPA Method 300.0: Anions						
Client ID: PBW	Batch ID: R27123			RunNo: 27123						
Prep Date:	Analysis Date: 6/25/2015			SeqNo: 811204		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Sulfate	ND	0.50								

Sample ID LCS	SampType: LCS			TestCode: EPA Method 300.0: Anions						
Client ID: LCSW	Batch ID: R27123			RunNo: 27123						
Prep Date:	Analysis Date: 6/25/2015			SeqNo: 811205		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.53	0.10	0.5000	0	106	90	110			
Sulfate	9.9	0.50	10.00	0	98.7	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
 E Value above quantitation range
 J Analyte detected below quantitation limits
 O RSD is greater than RSDlimit
 R RPD outside accepted recovery limits
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit
 P Sample pH Not In Range
 RL Reporting Detection Limit

Page 6 of 10

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1506917

01-Jul-15

Client: Blagg Engineering**Project:** Mudge LS #6

Sample ID	5ML RB		SampType:	MBLK		TestCode:	EPA Method 8021B: Volatiles			
Client ID:	PBW		Batch ID:	R27099		RunNo:	27099			
Prep Date:			Analysis Date:	6/25/2015		SeqNo:	810156	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								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	18		20.00		89.4	80	120			

Sample ID	100NG BTEX LCS		SampType:	LCS		TestCode:	EPA Method 8021B: Volatiles			
Client ID:	LCSW		Batch ID:	R27099		RunNo:	27099			
Prep Date:			Analysis Date:	6/25/2015		SeqNo:	810159	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	108	80	120			
Toluene	22	1.0	20.00	0	108	80	120			
Ethylbenzene	22	1.0	20.00	0	110	80	120			
Xylenes, Total	65	2.0	60.00	0	109	80	120			
Surr: 4-Bromofluorobenzene	20		20.00		98.7	80	120			

Sample ID	5ML RB		SampType:	MBLK		TestCode:	EPA Method 8021B: Volatiles			
Client ID:	PBW		Batch ID:	R27129		RunNo:	27129			
Prep Date:			Analysis Date:	6/26/2015		SeqNo:	811420	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								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	18		20.00		89.2	80	120			

Sample ID	100NG BTEX LCS		SampType:	LCS		TestCode:	EPA Method 8021B: Volatiles			
Client ID:	LCSW		Batch ID:	R27129		RunNo:	27129			
Prep Date:			Analysis Date:	6/26/2015		SeqNo:	811421	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	80	120			
Toluene	21	1.0	20.00	0	104	80	120			
Ethylbenzene	21	1.0	20.00	0	107	80	120			
Xylenes, Total	64	2.0	60.00	0	106	80	120			
Surr: 4-Bromofluorobenzene	19		20.00		92.7	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
 E Value above quantitation range
 J Analyte detected below quantitation limits
 O RSD is greater than RSDlimit
 R RPD outside accepted recovery limits
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit
 P Sample pH Not In Range
 RL Reporting Detection Limit

Page 7 of 10

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1506917

01-Jul-15

Client: Blagg Engineering**Project:** Mudge LS #6

Sample ID MB	SampType: MBLK			TestCode: EPA Method 6010B: Dissolved Metals						
Client ID: PBW	Batch ID: R27058			RunNo: 27058						
Prep Date:	Analysis Date: 6/24/2015			SeqNo: 808438		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								

Sample ID LCS	SampType: LCS			TestCode: EPA Method 6010B: Dissolved Metals						
Client ID: LCSW	Batch ID: R27058			RunNo: 27058						
Prep Date:	Analysis Date: 6/24/2015			SeqNo: 808439		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.48	0.020	0.5000	0	96.2	80	120			

Sample ID MB	SampType: MBLK			TestCode: EPA Method 6010B: Dissolved Metals						
Client ID: PBW	Batch ID: R27144			RunNo: 27144						
Prep Date:	Analysis Date: 6/29/2015			SeqNo: 812160		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								

Sample ID LCS	SampType: LCS			TestCode: EPA Method 6010B: Dissolved Metals						
Client ID: LCSW	Batch ID: R27144			RunNo: 27144						
Prep Date:	Analysis Date: 6/29/2015			SeqNo: 812161		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.49	0.020	0.5000	0	97.7	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
 E Value above quantitation range
 J Analyte detected below quantitation limits
 O RSD is greater than RSDlimit
 R RPD outside accepted recovery limits
 S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit
 P Sample pH Not In Range
 RL Reporting Detection Limit

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1506917
01-Jul-15

Client: Blagg Engineering
Project: Mudge LS #6

Sample ID	MB-19871	SampType:	MBLK	TestCode:	EPA 6010B: Total Recoverable Metals					
Client ID:	PBW	Batch ID:	19871	RunNo:	27058					
Prep Date:	6/23/2015	Analysis Date:	6/24/2015	SeqNo:	808436	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.050								
Manganese	ND	0.0020								

Sample ID	LCS-19871	SampType:	LCS	TestCode:	EPA 6010B: Total Recoverable Metals					
Client ID:	LCSW	Batch ID:	19871	RunNo:	27058					
Prep Date:	6/23/2015	Analysis Date:	6/24/2015	SeqNo:	808437	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.48	0.050	0.5000	0	96.9	80	120			
Manganese	0.47	0.0020	0.5000	0	94.7	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
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
O RSD is greater than RSDlimit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1506917

01-Jul-15

Client: Blagg Engineering
Project: Mudge LS #6

Sample ID	MB-19880	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	19880	RunNo:	27051					
Prep Date:	6/23/2015	Analysis Date:	6/24/2015	SeqNo:	808149	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-19880	SampType:	LCS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW	Batch ID:	19880	RunNo:	27051					
Prep Date:	6/23/2015	Analysis Date:	6/24/2015	SeqNo:	808150	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	101	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	Page 10 of 10
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	
O RSD is greater than RSDlimit	P Sample pH Not In Range	
R RPD outside accepted recovery limits	RL Reporting Detection Limit	
S Spike Recovery outside accepted recovery limits		



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

Sample Log-In Check List

Client Name: **BLAGG**Work Order Number: **1506917**RcptNo: **1**

Received by/date:

Logged By: **Ashley Gallegos**

6/19/2015 7:20:00 AM

Completed By: **Ashley Gallegos**

6/19/2015 7:48:17 AM

Reviewed By:

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

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

Special Handling (if applicable)

16. 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:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.4	Good	Yes			

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512617
15-Dec-15

Client: Blagg Engineering
Project: Mudge LS #6

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID:	B30824	RunNo:	30824					
Prep Date:		Analysis Date:	12/14/2015	SeqNo:	941933	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								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	24		20.00		122	65	127			

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSW	Batch ID:	B30824	RunNo:	30824					
Prep Date:		Analysis Date:	12/14/2015	SeqNo:	941934	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	97.5	80	120			
Toluene	19	1.0	20.00	0	95.7	80	120			
Ethylbenzene	19	1.0	20.00	0	96.7	80	120			
Xylenes, Total	57	2.0	60.00	0	94.9	80	120			
Surr: 4-Bromofluorobenzene	28		20.00		141	65	127			S

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

R RPD outside accepted recovery limits

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 Detection Limit

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

Sample Log-In Check List

Client Name: BLAGG

Work Order Number: 1512617

RcptNo: 1

Received by/date:

Logged By: Ashley Gallegos

12/11/2015 7:00:00 AM

Completed By: Ashley Gallegos

12/14/2015 10:16:44 AM

Reviewed By:

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. 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)

16. 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: _____

17. Additional remarks:

18. 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#: 1603608

16-Mar-16

Client: Blagg Engineering**Project:** Mudge LS #6

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID:	R32778	RunNo:	32778					
Prep Date:		Analysis Date:	3/14/2016	SeqNo:	1004279	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								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	22		20.00		109	65	127			

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSW	Batch ID:	R32778	RunNo:	32778					
Prep Date:		Analysis Date:	3/14/2016	SeqNo:	1004280	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	80	120			
Toluene	19	1.0	20.00	0	96.7	80	120			
Ethylbenzene	19	1.0	20.00	0	96.0	80	120			
Xylenes, Total	58	2.0	60.00	0	97.0	80	120			
Surr: 4-Bromofluorobenzene	24		20.00		119	65	127			

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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
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Website: www.hallenvironmental.com

Sample Log-in Check List

Client Name: **BLAGG**Work Order Number: **1603608**ReptNo: **1**Received by/date: AT 03/11/16Logged By: **Lindsay Mangin**

3/11/2016 7:20:00 AM

Completed By: **Lindsay Mangin**

3/11/2016 9:22:45 AM

Reviewed By: [Signature]03/11/16[Signature][Signature]**Chain of Custody**

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6 0° C? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. 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)

16. 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: _____

17. Additional remarks: _____

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606G13
07-Jul-16

Client: Blagg Engineering
Project: Mudge LS 6

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID:	D35389	RunNo:	35389					
Prep Date:		Analysis Date:	7/1/2016	SeqNo:	1095044	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								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	20		20.00		100	87.9	146			

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSW	Batch ID:	D35389	RunNo:	35389					
Prep Date:		Analysis Date:	7/1/2016	SeqNo:	1095045	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	110	80	120			
Toluene	21	1.0	20.00	0	105	80	120			
Ethylbenzene	20	1.0	20.00	0	101	80	120			
Xylenes, Total	59	2.0	60.00	0	98.3	80	120			
Surr: 4-Bromofluorobenzene	21		20.00		105	87.9	146			

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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank

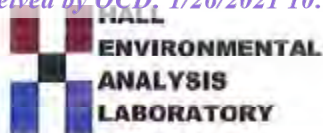
E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified



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Albuquerque, NM 87109
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Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: BLAGG

Work Order Number: 1606G13

RcptNo: 1

Received by/date

AT

06/29/16

Logged By: Ashley Gallegos

6/29/2016 7:45:00 AM

AG

Completed By: Ashley Gallegos

6/29/2016 11:04:50 AM

AG

Reviewed By:

Ja

06/29/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Cooler

Log In

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

Special Handling (if applicable)

16. 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: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1609142

09-Sep-16

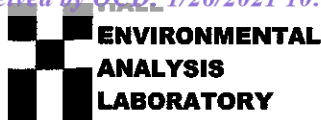
Client: Blagg Engineering**Project:** Mudge LS # 6

Sample ID	100NG BTEX LCS	SampType: LCS				TestCode: EPA Method 8021B: Volatiles				
Client ID:	LCSW	Batch ID: B37021			RunNo: 37021					
Prep Date:	Analysis Date: 9/6/2016				SeqNo: 1147659		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	106	80	120			
Toluene	20	1.0	20.00	0	102	80	120			
Ethylbenzene	20	1.0	20.00	0	97.6	80	120			
Xylenes, Total	58	2.0	60.00	0	96.7	80	120			
Surr: 4-Bromofluorobenzene	20		20.00		101	87.9	146			

Sample ID	5ML RB	SampType: MBLK			TestCode: EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID: B37021			RunNo: 37021					
Prep Date:		Analysis Date: 9/6/2016			SeqNo: 1147667		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								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	20		20.00		99.2	87.9	146			

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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified



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Sample Log-In Check List

Client Name: **BLAGG**Work Order Number: **1609142**RcptNo: **1**Received by/date: Ar 09/02/16Logged By: **Lindsay Mangin** 9/2/2016 7:02:00 AMCompleted By: **Lindsay Mangin** 9/2/2016 3:34:41 PMReviewed By: aj 09/06/16Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. 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)

16. 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: _____

17. Additional remarks:

18. 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#: 1612D92

03-Jan-17

Client: Blagg Engineering**Project:** MUDGE LS #6

Sample ID RB	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBW	Batch ID: WB39753		RunNo: 39753							
Prep Date:	Analysis Date: 12/30/2016		SeqNo: 1245955		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								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	19		20.00		95.3	80	120			

Sample ID 100NG BTEX LCS	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSW	Batch ID: WB39753		RunNo: 39753							
Prep Date:	Analysis Date: 12/30/2016		SeqNo: 1245956		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	17	1.0	20.00	0	83.8	80	120			
Toluene	17	1.0	20.00	0	82.6	80	120			
Ethylbenzene	16	1.0	20.00	0	81.2	80	120			
Xylenes, Total	49	2.0	60.00	0	81.6	80	120			
Surr: 4-Bromofluorobenzene	20		20.00		98.4	80	120			

Sample ID 1612D92-001AMS	SampType: MS		TestCode: EPA Method 8021B: Volatiles							
Client ID: MW #1	Batch ID: WB39753		RunNo: 39753							
Prep Date:	Analysis Date: 12/30/2016		SeqNo: 1245958		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	760	10	200.0	484.9	139	63	126			S
Toluene	490	10	200.0	260.6	112	80	120			
Ethylbenzene	450	10	200.0	246.2	101	80	120			
Xylenes, Total	1800	20	600.0	1221	95.6	80	120			
Surr: 4-Bromofluorobenzene	220		200.0		112	80	120			

Sample ID 1612D92-001AMSD	SampType: MSD		TestCode: EPA Method 8021B: Volatiles							
Client ID: MW #1	Batch ID: WB39753		RunNo: 39753							
Prep Date:	Analysis Date: 12/30/2016		SeqNo: 1245959		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	750	10	200.0	484.9	135	63	126	1.24	20	S
Toluene	480	10	200.0	260.6	108	80	120	1.99	20	
Ethylbenzene	440	10	200.0	246.2	97.9	80	120	1.54	20	
Xylenes, Total	1800	20	600.0	1221	92.4	80	120	1.09	20	
Surr: 4-Bromofluorobenzene	220		200.0		110	80	120	0	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
R RPD outside accepted recovery limits
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 Detection Limit
W Sample container temperature is out of limit as specified



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Sample Log-In Check List

Client Name: BLAGG

Work Order Number: 1612D92

RcptNo: 1

Received by/date Sm 12/29/16

Logged By: Lindsey Aragon 12/29/2016 7:25:00 AM

Completed By: Lindsey Aragon 12/29/16

Reviewed By: ds 12/29/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. 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)

16. 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:	_____		

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good	Yes			

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1703857

17-Mar-17

Client: Blagg Engineering**Project:** MUDGE LS 6

Sample ID RB	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBW	Batch ID: R41422		RunNo: 41422							
Prep Date:	Analysis Date: 3/16/2017		SeqNo: 1299249		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								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	22		20.00		109	80	120			

Sample ID 100NG BTEX LCS	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSW	Batch ID: R41422		RunNo: 41422							
Prep Date:	Analysis Date: 3/16/2017		SeqNo: 1299250		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.9	71.7	126			
Toluene	20	1.0	20.00	0	99.1	73.3	119			
Ethylbenzene	20	1.0	20.00	0	102	80	120			
Xylenes, Total	63	2.0	60.00	0	106	80	120			
Surr: 4-Bromofluorobenzene	22		20.00		111	80	120			

Sample ID 1703857-001AMS	SampType: MS		TestCode: EPA Method 8021B: Volatiles							
Client ID: MW #1	Batch ID: R41422		RunNo: 41422							
Prep Date:	Analysis Date: 3/16/2017		SeqNo: 1299254		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	810	10	200.0	618.9	97.7	63	126			
Toluene	580	10	200.0	376.1	104	80	120			
Ethylbenzene	480	10	200.0	253.7	111	80	120			
Xylenes, Total	1800	20	600.0	1167	108	80	120			
Surr: 4-Bromofluorobenzene	270		200.0		134	80	120			S

Sample ID 1703857-001AMSD	SampType: MSD		TestCode: EPA Method 8021B: Volatiles							
Client ID: MW #1	Batch ID: R41422		RunNo: 41422							
Prep Date:	Analysis Date: 3/16/2017		SeqNo: 1299255		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	790	10	200.0	618.9	86.5	63	126	2.77	20	
Toluene	560	10	200.0	376.1	93.6	80	120	3.63	20	
Ethylbenzene	460	10	200.0	253.7	105	80	120	2.52	20	
Xylenes, Total	1800	20	600.0	1167	98.4	80	120	3.14	20	
Surr: 4-Bromofluorobenzene	260		200.0		131	80	120	0	0	S

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
R RPD outside accepted recovery limits
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 Detection Limit
W Sample container temperature is out of limit as specified



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Sample Log-In Check List

Client Name: **BLAGG**Work Order Number: **1703857**RcptNo: **1**Received by/date: 03/16/17Logged By: **Lindsay Mangin**

3/16/2017 7:09:00 AM

Completed By: **Lindsay Mangin**

3/16/2017 9:12:03 AM

Reviewed By: AG03/16/17

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

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

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

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

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.6	Good	Yes			

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**WO#: **1709B72****27-Sep-17****Client:** Blagg Engineering**Project:** MUDGE LS 6

Sample ID B27	SampType: MBLK			TestCode: EPA Method 8021B: Volatiles						
Client ID: PBW	Batch ID: B45793			RunNo: 45793						
Prep Date:	Analysis Date: 9/21/2017			SeqNo: 1455026		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								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	24		20.00		118	72.5	140			

Sample ID 100NG BTEX LCS	SampType: LCS			TestCode: EPA Method 8021B: Volatiles						
Client ID: LCSW	Batch ID: B45793			RunNo: 45793						
Prep Date:	Analysis Date: 9/21/2017			SeqNo: 1455027		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	108	71.7	126			
Toluene	21	1.0	20.00	0	106	73.3	119			
Ethylbenzene	22	1.0	20.00	0	109	80	120			
Xylenes, Total	66	2.0	60.00	0	110	80	120			
Surr: 4-Bromofluorobenzene	23		20.00		115	72.5	140			

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 Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified



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Sample Log-In Check List

Client Name: BLAGG

Work Order Number: 1709B72

RcptNo: 1

Received By: Anne Thorne

9/21/2017 7:10:00 AM

Completed By: Anne Thorne

9/21/2017 9:32:29 AM

Reviewed By: ENM

9/21/17

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. 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)

16. 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: _____

17. Additional remarks: _____

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1.1	1.1	Good	Yes			

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1712D64
02-Jan-18

Client: Blagg Engineering
Project: MUDGE LS 6

Sample ID	100ng btex lcs	SampType:	LCS4	TestCode:	EPA Method 8260: Volatiles Short List						
Client ID:	BatchQC	Batch ID:	S48062	RunNo:	48062						
Prep Date:		Analysis Date:	12/28/2017	SeqNo:	1542092	Units:	µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	21	1.0	20.00	0	106	80	120				
Toluene	20	1.0	20.00	0	99.4	80	120				
Ethylbenzene	19	1.0	20.00	0	96.3	80	120				
Xylenes, Total	57	1.5	60.00	0	95.4	80	120				
Surr: 4-Bromofluorobenzene	9.3		10.00		92.6	70	130				
Surr: Toluene-d8	9.9		10.00		99.3	70	130				

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List						
Client ID:	PBW	Batch ID:	S48062	RunNo:	48062						
Prep Date:		Analysis Date:	12/28/2017	SeqNo:	1542095	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									
Xylenes, Total	ND	1.5									
Surr: 1,2-Dichloroethane-d4	0		10.00		0	70	130			S	
Surr: 4-Bromofluorobenzene	9.6		10.00		96.4	70	130				
Surr: Dibromofluoromethane	0		10.00		0	70	130			S	
Surr: Toluene-d8	10		10.00		101	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 Detection Limit

W Sample container temperature is out of limit as specified



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Sample Log-In Check List

Client Name: BLAGG

Work Order Number: 1712D64

RcptNo: 1

Received By: Erin Melendrez 12/22/2017 8:00:00 AM

Completed By: Sophia Campuzano 12/22/2017 9:48:46 AM

Reviewed By: ENM 12/22/17

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. 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)

16. 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:			

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good	Yes			

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1803F29

12-Apr-18

Client: Blagg Engineering**Project:** Mudge LS 6

Sample ID MB-A	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: PBW	Batch ID: A50228			RunNo: 50228						
Prep Date:	Analysis Date: 3/30/2018			SeqNo: 1627096			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID LCS-A	SampType: LCS			TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: LCSW	Batch ID: A50228			RunNo: 50228						
Prep Date:	Analysis Date: 3/30/2018			SeqNo: 1627098			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.0020	0.5000	0	96.8	85	115			
Cadmium	0.49	0.0020	0.5000	0	98.4	85	115			
Chromium	0.49	0.0060	0.5000	0	97.9	85	115			
Iron	0.49	0.020	0.5000	0	97.1	85	115			
Magnesium	48	1.0	50.00	0	96.9	85	115			
Manganese	0.49	0.0020	0.5000	0	98.4	85	115			
Potassium	47	1.0	50.00	0	94.3	85	115			
Silver	0.092	0.0050	0.1000	0	92.3	85	115			
Zinc	0.49	0.010	0.5000	0	98.8	85	115			

Sample ID MB-A	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: PBW	Batch ID: A50251			RunNo: 50251						
Prep Date:	Analysis Date: 4/2/2018			SeqNo: 1628042			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Sodium	ND	1.0								

Sample ID LCS-A	SampType: LCS			TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: LCSW	Batch ID: A50251			RunNo: 50251						
Prep Date:	Analysis Date: 4/2/2018			SeqNo: 1628044			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	48	1.0	50.00	0	95.8	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical 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 Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1803F29
12-Apr-18

Client: Blagg Engineering
Project: Mudge LS 6

Sample ID	LCS-A	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	A50251	RunNo:	50251					
Prep Date:		Analysis Date:	4/2/2018	SeqNo:	1628044	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	48	1.0	50.00	0	96.5	85	115			
Sodium	48	1.0	50.00	0	96.2	85	115			

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 Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Page 10 of 20

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1803F29

12-Apr-18

Client: Blagg Engineering**Project:** Mudge LS 6

Sample ID MB	SampType: mblk		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: A50201		RunNo: 50201							
Prep Date:	Analysis Date: 3/29/2018		SeqNo: 1625918		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID LCS	SampType: lcs		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: A50201		RunNo: 50201							
Prep Date:	Analysis Date: 3/29/2018		SeqNo: 1625919		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.1	90	110			

Sample ID MB	SampType: mblk		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R50374		RunNo: 50374							
Prep Date:	Analysis Date: 4/6/2018		SeqNo: 1633011		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								
Sulfate	ND	0.50								

Sample ID LCS	SampType: lcs		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R50374		RunNo: 50374							
Prep Date:	Analysis Date: 4/6/2018		SeqNo: 1633012		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.47	0.10	0.5000	0	93.6	90	110			
Chloride	4.6	0.50	5.000	0	91.5	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	95.2	90	110			
Phosphorus, Orthophosphate (As P)	4.7	0.50	5.000	0	93.4	90	110			
Sulfate	9.2	0.50	10.00	0	91.7	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical 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 Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1803F29

12-Apr-18

Client: Blagg Engineering

Project: Mudge LS 6

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: A50328			RunNo: 50328					
Prep Date:		Analysis Date: 4/4/2018			SeqNo: 1630469	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 Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1803F29

12-Apr-18

Client: Blagg Engineering**Project:** Mudge LS 6

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: A50328			RunNo: 50328						
Prep Date:	Analysis Date: 4/4/2018			SeqNo: 1630469			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	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		109	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	9.1		10.00		91.1	70	130			

Sample ID 100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: A50328			RunNo: 50328						
Prep Date:	Analysis Date: 4/4/2018			SeqNo: 1630470			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	110	70	130			
Toluene	18	1.0	20.00	0	91.6	70	130			
Chlorobenzene	19	1.0	20.00	0	93.3	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 Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1803F29
12-Apr-18

Client: Blagg Engineering
Project: Mudge LS 6

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: A50328			RunNo: 50328					
Prep Date:		Analysis Date: 4/4/2018			SeqNo: 1630470		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	23	1.0	20.00	0	113	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	98.1	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		113	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	9.3		10.00		93.2	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 Detection Limit

W Sample container temperature is out of limit as specified

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1803F29
12-Apr-18

Client: Blagg Engineering
Project: Mudge LS 6

Sample ID	lcs-1 ~20uS eC	SampType:	LCS	TestCode:	SM2510B: Specific Conductance						
Client ID:	LCSW	Batch ID:	R50247	RunNo:	50247						
Prep Date:		Analysis Date:	4/2/2018	SeqNo:	1628517	Units:	µmhos/cm				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Conductivity	23	5.0	19.98	0	116	80	120				

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 Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1803F29

12-Apr-18

Client: Blagg Engineering**Project:** Mudge LS 6

Sample ID	mb-1 alk	SampType:	MBLK	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R50247	RunNo:	50247					
Prep Date:		Analysis Date:	4/2/2018	SeqNo:	1628467	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	lcs-1 alk	SampType:	LCS	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R50247	RunNo:	50247					
Prep Date:		Analysis Date:	4/2/2018	SeqNo:	1628468	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.72	20.00	80.00	0	99.6	90	110			

Sample ID	lcsd-1 alk	SampType:	LCSd	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSS02	Batch ID:	R50247	RunNo:	50247					
Prep Date:		Analysis Date:	4/2/2018	SeqNo:	1628469	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.80	20.00	80.00	0	99.7	90	110	0.100	20	

Sample ID	mb-2 alk	SampType:	MBLK	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R50247	RunNo:	50247					
Prep Date:		Analysis Date:	4/2/2018	SeqNo:	1628492	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	lcs-2 alk	SampType:	LCS	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R50247	RunNo:	50247					
Prep Date:		Analysis Date:	4/2/2018	SeqNo:	1628493	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.88	20.00	80.00	0	99.8	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 Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1803F29
12-Apr-18

Client: Blagg Engineering
Project: Mudge LS 6

Sample ID	MB-37401	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	37401	RunNo:	50325					
Prep Date:	4/3/2018	Analysis Date:	4/4/2018	SeqNo:	1630409	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-37401	SampType:	LCS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW	Batch ID:	37401	RunNo:	50325					
Prep Date:	4/3/2018	Analysis Date:	4/4/2018	SeqNo:	1630410	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical 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 Detection Limit

W Sample container temperature is out of limit as specified

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

Sample Log-In Check List

Client Name: **BLAGG**Work Order Number: **1803F29**RcptNo: **1**Received By: **Isalah Ortiz** 3/29/2018 7:05:00 AMCompleted By: **Isalah Ortiz** 3/29/2018 7:53:20 AMReviewed By: **IMO** 3/29/18**LB: ENM**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?
(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: **1**
(≤ 2 or >12 unless noted)
Adjusted? **YES**
Checked by: **ENM**

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:

Filtered and poured ppt from provided 500mL HDPE into 125mL HDPE. For metals analysis added approx 0.4 mL HNO₃ for acceptable pH. Sample held for 24 hrs prior to analysis. -ENM 3/29/18 @08:30

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.6	Good	Yes			

API WATER LIST

EPA METHOD 300.0 ANIONS

Chloride
Sulfate

EPA 6010B: HARDNESS

Hardness (As CaCO_3)

EPA METHOD 6010B: DISSOLVED METALS

Calcium
Magnesium
Iron
Potassium
Sodium

SM2320C: ALKALINITY

Alkalinity, Total (As CaCO_3)
Carbonate
Bicarbonate
Hydroxide

EPA 120.1: SPECIFIC CONDUCTANCE

Specific Conductance

SM4500-H+B: PH

pH

SPECIFIC GRAVITY BY SM 2710F

Specific Gravity

SM2540C: TDS

Total Dissolved Solids

REQUIRED BOTTLES:

1-500mL HDPE unpreserved
1-125mL HDPE HNO_3 preserved
1- Filter
1-Syringe

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806I50
09-Jul-18

Client: Blagg Engineering
Project: Mudge LS 6

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R52521			RunNo: 52521					
Prep Date:		Analysis Date: 7/6/2018			SeqNo: 1722668		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	17	1.0	20.00	0	84.1	70	130			
Toluene	18	1.0	20.00	0	89.5	70	130			
Chlorobenzene	18	1.0	20.00	0	90.6	70	130			
1,1-Dichloroethene	18	1.0	20.00	0	89.0	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	82.7	70	130			
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.4	70	130			
Surr: 4-Bromofluorobenzene	9.1		10.00		91.1	70	130			
Surr: Dibromofluoromethane	9.3		10.00		93.0	70	130			
Surr: Toluene-d8	9.6		10.00		96.1	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R52521			RunNo: 52521					
Prep Date:		Analysis Date: 7/6/2018			SeqNo: 1722669		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 Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806I50

09-Jul-18

Client: Blagg Engineering

Project: Mudge LS 6

Sample ID	rb	SampType: MBLK				TestCode: EPA Method 8260B: VOLATILES				
Client ID:	PBW	Batch ID: R52521				RunNo: 52521				
Prep Date:		Analysis Date: 7/6/2018				SeqNo: 1722669	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.	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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806I50
09-Jul-18

Client: Blagg Engineering
Project: Mudge LS 6

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R52521	RunNo:	52521					
Prep Date:		Analysis Date:	7/6/2018	SeqNo:	1722669	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	9.8		10.00		98.1	70	130			
Surr: Dibromofluoromethane	9.2		10.00		92.3	70	130			
Surr: Toluene-d8	9.6		10.00		95.7	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical 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 Detection Limit

W Sample container temperature is out of limit as specified

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

Sample Log-In Check List

Client Name: BLAGG

Work Order Number: 1806150

RcptNo: 1

Received By: Erin Melendrez 6/30/2018 10:15:00 AM

Completed By: Erin Melendrez 6/30/2018 12:38:50 PM

Reviewed By: ENM 7/2/18

LB: *[Signature]* 07/02/18Chain 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? *ALL VOAs received w/Headspace* Yes ☒ No ☐ No VOA Vials ☐
10. Were any sample containers received broken? Yes ☐ No ☒
11. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
13. Is it clear what analyses were requested? Yes ☒ No ☐
14. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved bottles checked for pH: *[Signature]*
(<2 or >12 unless noted)
Adjusted? *[Signature]*
Checked by: 07/02/18

Special Handling (if applicable)

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

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

16. Additional remarks:

17. Cooler Information

Cooler No	Temp. °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.9	Good	Yes			

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**WO#: **1809H30****04-Oct-18****Client:** Blagg Engineering**Project:** Mudge LS 6

Sample ID 100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: R54556			RunNo: 54556						
Prep Date:	Analysis Date: 10/1/2018			SeqNo: 1808975		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	104	70	130			
Toluene	21	1.0	20.00	0	105	70	130			
Chlorobenzene	22	1.0	20.00	0	108	70	130			
1,1-Dichloroethene	22	1.0	20.00	0	111	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	99.9	70	130			
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	10		10.00		99.8	70	130			

Sample ID RB	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R54556			RunNo: 54556						
Prep Date:	Analysis Date: 10/1/2018			SeqNo: 1808978		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.	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 Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1809H30

04-Oct-18

Client: Blagg Engineering

Project: Mudge LS 6

Sample ID	RB	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R54556			RunNo: 54556					
Prep Date:		Analysis Date: 10/1/2018			SeqNo: 1808978	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.	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 Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1809H30
04-Oct-18

Client: Blagg Engineering
Project: Mudge LS 6

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R54556	RunNo:	54556					
Prep Date:		Analysis Date:	10/1/2018	SeqNo:	1808978	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	10		10.00		104	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.5	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	9.9		10.00		99.0	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical 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 Detection Limit

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87105
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **BLAGG**Work Order Number: **1809H30**

RcptNo: 1

Received By: **Anne Thorne**

9/28/2018 8:40:00 AM

Completed By: **Ashley Gallegos**

9/28/2018 11:16:25 AM

Reviewed By:

Thom Mayke

labeled by JO 9.28.18

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?
(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:

JO 9.28.18

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	1.3	Good	Yes			

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1812B52

31-Dec-18

Client: Blagg Engineering**Project:** Mudge LS #6

Sample ID	100ng lcs		SampType: LCS		TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW		Batch ID: R56574		RunNo: 56574					
Prep Date:			Analysis Date: 12/21/2018		SeqNo: 1892893		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	97.6	70	130			
Toluene	20	1.0	20.00	0	98.1	70	130			
Chlorobenzene	19	1.0	20.00	0	96.6	70	130			
1,1-Dichloroethene	20	1.0	20.00	0	101	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	94.6	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		99.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	9.6		10.00		95.7	70	130			
Surr: Toluene-d8	10		10.00		99.7	70	130			

Sample ID	rb	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES						
Client ID:	PBW	Batch ID: R56574		RunNo: 56574						
Prep Date:		Analysis Date: 12/21/2018		SeqNo: 1892894		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 Detection Limit
W Sample container temperature is out of limit as specified

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812B52

31-Dec-18

Client: Blagg Engineering

Project: Mudge LS #6

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R56574	RunNo:	56574					
Prep Date:		Analysis Date:	12/21/2018	SeqNo:	1892894	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 Detection Limit
W Sample container temperature is out of limit as specified

Page 6 of 7

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1812B52

31-Dec-18

Client: Blagg Engineering**Project:** Mudge LS #6

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R56574			RunNo: 56574						
Prep Date:	Analysis Date: 12/21/2018			SeqNo: 1892894		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	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.0	70	130			
Surr: Toluene-d8	9.9		10.00		98.6	70	130			

Sample ID 100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: R56590			RunNo: 56590						
Prep Date:	Analysis Date: 12/28/2018			SeqNo: 1895813		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	97.7	70	130			
Toluene	20	1.0	20.00	0	98.1	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	10		10.00		99.8	70	130			

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R56590			RunNo: 56590						
Prep Date:	Analysis Date: 12/28/2018			SeqNo: 1895814		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								
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	9.8		10.00		98.1	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical 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 Detection Limit
W Sample container temperature is out of limit as specified

Page 7 of 7



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

Sample Log-In Check List

Client Name: **BLAGG**Work Order Number: **1812B52**RcptNo: **1**Received By: **Anne Thorne** 12/20/2018 8:00:00 AMCompleted By: **Isaiah Ortiz** 12/20/2018 9:29:18 AMReviewed By: **JAB 12/20/18****CB: DAD 12/20/18**

Anne Thorne
I-Ortiz

Chain of Custody

1. Is Chain of Custody 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. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☒
10. Were any sample containers received broken? Yes ☐ No ☒
11. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
13. Is it clear what analyses were requested? Yes ☒ No ☐
14. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH: _____

(<2 or >12 unless noted)

Adjusted? _____

Checked by: **DAD 12/20/18**

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	1.0	Good	Yes			
2	1.0	Good	Yes			
3	1.0	Good	Yes			
4	1.0	Good	Yes			



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

Sample Log-In Check List

Client Name: BLAGG

Work Order Number: 1812B52

RcptNo: 1

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
5	1.0	Good	Yes			
6	1.4	Good	Yes			

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1904024

10-Apr-19

Client: Blagg Engineering

Project: MUDGE LS 6

Sample ID: rb	SampType: MBLK	TestCode: EPA Method 8260B: VOLATILES								
Client ID: PBW	Batch ID: A58989	RunNo: 58989								
Prep Date:	Analysis Date: 4/8/2019	SeqNo: 1984814	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:

H Holding times for preparation or analysis exceeded
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

ND Not Detected at the Reporting Limit
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified at testcode

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1904024

10-Apr-19

Client: Blagg Engineering**Project:** MUDGE LS 6

Sample ID: rb	SampType: MBLK	TestCode: EPA Method 8260B: VOLATILES								
Client ID: PBW	Batch ID: A58989	RunNo: 58989								
Prep Date:	Analysis Date: 4/8/2019	SeqNo: 1984814	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	9.5		10.00		94.7	70	130			
Surr: 4-Bromofluorobenzene	8.9		10.00		89.0	70	130			
Surr: Dibromofluoromethane	11		10.00		108	70	130			
Surr: Toluene-d8	9.6		10.00		96.0	70	130			

Sample ID: 100ng lcs	SampType: LCS	TestCode: EPA Method 8260B: VOLATILES								
Client ID: LCSW	Batch ID: A58989	RunNo: 58989								
Prep Date:	Analysis Date: 4/8/2019	SeqNo: 1984818	Units: µg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	94.8	70	130			
Toluene	20	1.0	20.00	0	98.1	70	130			
Chlorobenzene	20	1.0	20.00	0	98.0	70	130			

Qualifiers:

H Holding times for preparation or analysis exceeded
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

ND Not Detected at the Reporting Limit
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified at testcode

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1904024

10-Apr-19

Client: Blagg Engineering**Project:** MUDGE LS 6

Sample ID: 100ng lcs	SampType: LCS		TestCode: EPA Method 8260B: VOLATILES							
Client ID: LCSW	Batch ID: A58989		RunNo: 58989							
Prep Date:	Analysis Date: 4/8/2019		SeqNo: 1984818		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	20	1.0	20.00	0	102	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	97.5	70	130			
Surr: 1,2-Dichloroethane-d4	9.0		10.00		90.2	70	130			
Surr: 4-Bromofluorobenzene	8.9		10.00		88.8	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.8		10.00		98.3	70	130			

Sample ID: rb	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: W59020		RunNo: 59020							
Prep Date:	Analysis Date: 4/9/2019		SeqNo: 1985773		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								

Qualifiers:

H Holding times for preparation or analysis exceeded
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

ND Not Detected at the Reporting Limit
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified at testcode

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1904024

10-Apr-19

Client: Blagg Engineering**Project:** MUDGE LS 6

Sample ID: rb	SampType: MBLK	TestCode: EPA Method 8260B: VOLATILES								
Client ID: PBW	Batch ID: W59020	RunNo: 59020								
Prep Date:	Analysis Date: 4/9/2019	SeqNo: 1985773	Units: µg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			

Qualifiers:

H Holding times for preparation or analysis exceeded
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

ND Not Detected at the Reporting Limit
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified at testcode

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1904024

10-Apr-19

Client: Blagg Engineering**Project:** MUDGE LS 6

Sample ID: rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: W59020			RunNo: 59020						
Prep Date:	Analysis Date: 4/9/2019			SeqNo: 1985773		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	9.3		10.00		93.3	70	130			
Surr: Dibromofluoromethane	11		10.00		113	70	130			
Surr: Toluene-d8	9.7		10.00		96.9	70	130			

Sample ID: 100ng lcsb	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: W59020			RunNo: 59020						
Prep Date:	Analysis Date: 4/9/2019			SeqNo: 1985774		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.4	70	130			
Toluene	19	1.0	20.00	0	96.0	70	130			
Chlorobenzene	19	1.0	20.00	0	94.9	70	130			
1,1-Dichloroethene	20	1.0	20.00	0	102	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	95.3	70	130			
Surr: 1,2-Dichloroethane-d4	9.4		10.00		93.5	70	130			
Surr: 4-Bromofluorobenzene	9.1		10.00		90.7	70	130			
Surr: Dibromofluoromethane	11		10.00		108	70	130			
Surr: Toluene-d8	10		10.00		99.6	70	130			

Qualifiers:

H Holding times for preparation or analysis exceeded
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

ND Not Detected at the Reporting Limit
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified at testcode



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

Sample Log-In Check List

Client Name: **BLAGG**Work Order Number: **1904024**

RcptNo: 1

Received By: **Anne Thorne** 3/30/2019 9:20:00 AMCompleted By: **Yazmine Garduno** 4/1/2019 11:30:25 AMReviewed By: **ENM** 4/1/19LB: TO 04/01/19

Anne Thorne
Yazmine Garduno

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? TO

Checked by: 4/01/19

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	1.0	Good	Yes			
2	1.0	Good	Yes			
3	1.0	Good	Yes			

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1907080

10-Jul-19

Client: Blagg Engineering

Project: Mudge LS 6

Sample ID: rb	SampType: MBLK	TestCode: EPA Method 8260B: VOLATILES								
Client ID: PBW	Batch ID: W61218	RunNo: 61218								
Prep Date:	Analysis Date: 7/8/2019	SeqNo: 2075313	Units: µg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	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

Page 5 of 9

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1907080

10-Jul-19

Client: Blagg Engineering**Project:** Mudge LS 6

Sample ID: rb	SampType: MBLK	TestCode: EPA Method 8260B: VOLATILES								
Client ID: PBW	Batch ID: W61218	RunNo: 61218								
Prep Date:	Analysis Date: 7/8/2019	SeqNo: 2075313	Units: µg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.3	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.8	70	130			
Surr: Dibromofluoromethane	9.8		10.00		97.9	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID: 100ng lcs	SampType: LCS	TestCode: EPA Method 8260B: VOLATILES								
Client ID: LCSW	Batch ID: W61218	RunNo: 61218								
Prep Date:	Analysis Date: 7/8/2019	SeqNo: 2075314	Units: µg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlorobenzene	19	1.0	20.00	0	93.5	70	130			
1,1-Dichloroethene	18	1.0	20.00	0	92.3	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	90.3	70	130			
Surr: 1,2-Dichloroethane-d4	9.6		10.00		95.9	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.3	70	130			
Surr: Dibromofluoromethane	9.3		10.00		92.7	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical 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#: 1907080

10-Jul-19

Client: Blagg Engineering**Project:** Mudge LS 6

Sample ID: 100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: W61218			RunNo: 61218						
Prep Date:	Analysis Date: 7/8/2019			SeqNo: 2075314	Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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: R61256			RunNo: 61256						
Prep Date:	Analysis Date: 7/9/2019			SeqNo: 2076453	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								

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#: 1907080

10-Jul-19

Client: Blagg Engineering

Project: Mudge LS 6

Sample ID: rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R61256			RunNo: 61256						
Prep Date:	Analysis Date: 7/9/2019			SeqNo: 2076453		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	9.3		10.00		93.4	70	130			
Surr: Dibromofluoromethane	10		10.00		105	70	130			
Surr: Toluene-d8	9.6		10.00		95.7	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical 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

Page 8 of 9

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1907080

10-Jul-19

Client: Blagg Engineering

Project: Mudge LS 6

Sample ID: 100ng lcs		SampType: LCS		TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW		Batch ID: R61256		RunNo: 61256						
Prep Date:		Analysis Date: 7/9/2019		SeqNo: 2076454		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	112	70	130			
Toluene	19	1.0	20.00	0	96.2	70	130			
Chlorobenzene	17	1.0	20.00	0	86.8	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	93.5	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	89.8	70	130			
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.2	70	130			
Surr: 4-Bromofluorobenzene	9.4		10.00		93.5	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.0	70	130			
Surr: Toluene-d8	9.4		10.00		93.9	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

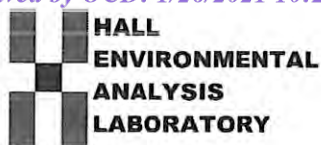
E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 9 of 9



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

Sample Log-In Check List

Client Name: BLAGG

Work Order Number: 1907080

RcptNo: 1

Received By: Isaiah Ortiz 7/2/2019 7:15:00 AM

Completed By: Yazmine Garduno 7/2/2019 8:38:24 AM

Reviewed By: LB 7/2/19

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ 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: DAD 7/2/19

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: Sample 002A Both vials have headspace. DAD 7/2/19

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.8	Good	Yes			

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1909A98

26-Sep-19

Client: Blagg Engineering**Project:** Mudge LS 6

Sample ID: 100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: R63131			RunNo: 63131						
Prep Date:	Analysis Date: 9/23/2019			SeqNo: 2153819		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	101	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Chlorobenzene	20	1.0	20.00	0	102	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	96.0	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	97.1	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.6	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		96.5	70	130			
Surr: Dibromofluoromethane	10		10.00		105	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID: rb1	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R63131			RunNo: 63131						
Prep Date:	Analysis Date: 9/23/2019			SeqNo: 2153841		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#: 1909A98

26-Sep-19

Client: Blagg Engineering

Project: Mudge LS 6

Sample ID: rb1	SampType: MBLK	TestCode: EPA Method 8260B: VOLATILES								
Client ID: PBW	Batch ID: R63131	RunNo: 63131								
Prep Date:	Analysis Date: 9/23/2019	SeqNo: 2153841	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

Page 6 of 7

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1909A98

26-Sep-19

Client: Blagg Engineering**Project:** Mudge LS 6

Sample ID: rb1		SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID: PBW		Batch ID: R63131			RunNo: 63131					
Prep Date:		Analysis Date: 9/23/2019			SeqNo: 2153841		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.5		10.00		95.3	70	130			
Surr: 4-Bromofluorobenzene	9.4		10.00		94.4	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	11		10.00		105	70	130			

Sample ID: 100ng lcs		SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID: LCSW		Batch ID: R63166			RunNo: 63166					
Prep Date:		Analysis Date: 9/24/2019			SeqNo: 2154950		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	107	70	130			
Toluene	21	1.0	20.00	0	103	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	9.4		10.00		94.2	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID: rb1	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R63166			RunNo: 63166						
Prep Date:	Analysis Date: 9/24/2019			SeqNo: 2154953			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								
1,2,4-Trimethylbenzene	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.9		10.00		99.0	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		96.2	70	130			
Surr: Dibromofluoromethane	10		10.00		104	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



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

Sample Log-In Check List

Client Name: BLAGG

Work Order Number: 1909A98

RcptNo: 1

Received By: Yazmine Garduno

9/20/2019 8:15:00 AM

Yazmine Garduno

Completed By: Michelle Garcia

9/20/2019 10:15:02 AM

Michelle Garcia

Reviewed By:

YOG 9/23/19

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ 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?
(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: *DAD 9/23/19*

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 $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.0	Good	Yes			
2	5.9	Good	Yes			

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1912C40

03-Jan-20

Client: Blagg Engineering**Project:** MUDGE LS 6

Sample ID: 100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: R65492			RunNo: 65492						
Prep Date:	Analysis Date: 12/30/2019			SeqNo: 2250071		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.4	70	130			
Toluene	19	1.0	20.00	0	94.8	70	130			
Chlorobenzene	20	1.0	20.00	0	99.1	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	95.8	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	90.6	70	130			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.8	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		95.5	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	9.9		10.00		98.9	70	130			

Sample ID: rb1	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R65492			RunNo: 65492						
Prep Date:	Analysis Date: 12/30/2019			SeqNo: 2250101		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#: 1912C40

03-Jan-20

Client: Blagg Engineering

Project: MUDGE LS 6

Sample ID: rb1	SampType: MBLK	TestCode: EPA Method 8260B: VOLATILES								
Client ID: PBW	Batch ID: R65492	RunNo: 65492								
Prep Date:	Analysis Date: 12/30/2019	SeqNo: 2250101	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

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1912C40

03-Jan-20

Client: Blagg Engineering

Project: MUDGE LS 6

Sample ID: rb1		SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID: PBW		Batch ID: R65492			RunNo: 65492					
Prep Date:		Analysis Date: 12/30/2019			SeqNo: 2250101		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	9.6		10.00		95.6	70	130			
Surr: 4-Bromofluorobenzene	9.3		10.00		93.0	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	9.9		10.00		99.0	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

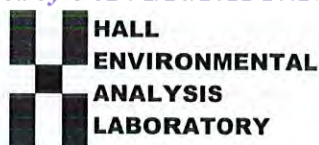
E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

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

Sample Log-In Check List

Client Name: **BLAGG**Work Order Number: **1912C40**

RcptNo: 1

Received By: **Desiree Dominguez** 12/24/2019 8:30:00 AMCompleted By: **Erin Melendrez** 12/24/2019 9:29:16 AMReviewed By: **ENM** 12/24/19

DD
EM

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 $>0^{\circ}\text{C}$ 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: **DAD 12/24/19**

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2004023

14-Apr-20

Client: Blagg Engineering

Project: Mudge LS 6

Sample ID: mb1	SampType: MBLK	TestCode: EPA Method 8260B: VOLATILES								
Client ID: PBW	Batch ID: A68017	RunNo: 68017								
Prep Date:	Analysis Date: 4/9/2020	SeqNo: 2350499	Units: µg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	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

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2004023

14-Apr-20

Client: Blagg Engineering

Project: Mudge LS 6

Sample ID: mb1	SampType: MBLK	TestCode: EPA Method 8260B: VOLATILES								
Client ID: PBW	Batch ID: A68017	RunNo: 68017								
Prep Date:	Analysis Date: 4/9/2020	SeqNo: 2350499 Units: µg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	11		10.00		105	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.3	70	130			
Surr: Dibromofluoromethane	11		10.00		109	70	130			
Surr: Toluene-d8	9.4		10.00		93.6	70	130			

Sample ID: 100ng lcs	SampType: LCS	TestCode: EPA Method 8260B: VOLATILES								
Client ID: LCSW	Batch ID: A68017	RunNo: 68017								
Prep Date:	Analysis Date: 4/9/2020	SeqNo: 2350500 Units: µg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlorobenzene	20	1.0	20.00	0	102	70	130			
1,1-Dichloroethene	20	1.0	20.00	0	102	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	97.6	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		105	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		96.9	70	130			

Qualifiers:

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

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2004023

14-Apr-20

Client: Blagg Engineering

Project: Mudge LS 6

Sample ID: 100ng lcs	SampType: LCS	TestCode: EPA Method 8260B: VOLATILES								
Client ID: LCSW	Batch ID: A68017	RunNo: 68017								
Prep Date:	Analysis Date: 4/9/2020	SeqNo: 2350500	Units: µg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Dibromofluoromethane	11		10.00		105	70	130			
Surr: Toluene-d8	9.3		10.00		92.7	70	130			

Sample ID: mb1	SampType: MBLK	TestCode: EPA Method 8260B: VOLATILES								
Client ID: PBW	Batch ID: W68033	RunNo: 68033								
Prep Date:	Analysis Date: 4/10/2020	SeqNo: 2351005	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								
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		95.6	70	130			
Surr: Dibromofluoromethane	11		10.00		112	70	130			
Surr: Toluene-d8	9.3		10.00		92.7	70	130			

Sample ID: 100ng lcs	SampType: LCS	TestCode: EPA Method 8260B: VOLATILES								
Client ID: LCSW	Batch ID: W68033	RunNo: 68033								
Prep Date:	Analysis Date: 4/10/2020	SeqNo: 2351006	Units: µg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	106	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.2	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	9.2		10.00		92.0	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical 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

Page 5 of 5



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

Sample Log-In Check List

Client Name: **BLAGG**Work Order Number: **2004023**RcptNo: **1**Received By: **Juan Rojas**

4/1/2020 8:05:00 AM

Completed By: **John Caldwell**

4/1/2020 12:50:04 PM

Reviewed By:

JR 4/1/20 @ 13.20

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 $>0^{\circ}\text{C}$ 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: LB 4/1/20

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	1.7	Good				

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2006428

12-Jun-20

Client: Blagg Engineering

Project: Mudge LS #6

Sample ID: mb1	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R69551			RunNo: 69551						
Prep Date:	Analysis Date: 6/10/2020			SeqNo: 2413998		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

Page 3 of 5

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2006428

12-Jun-20

Client: Blagg Engineering**Project:** Mudge LS #6

Sample ID: mb1	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R69551			RunNo: 69551						
Prep Date:	Analysis Date: 6/10/2020			SeqNo: 2413998		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		96.3	70	130			
Surr: 4-Bromofluorobenzene	9.0		10.00		89.8	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	9.8		10.00		97.6	70	130			

Sample ID: 100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: R69551			RunNo: 69551						
Prep Date:	Analysis Date: 6/10/2020			SeqNo: 2413999		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	108	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Chlorobenzene	21	1.0	20.00	0	103	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical 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#: 2006428

12-Jun-20

Client: Blagg Engineering**Project:** Mudge LS #6

Sample ID: 100ng lcs	SampType: LCS		TestCode: EPA Method 8260B: VOLATILES							
Client ID: LCSW	Batch ID: R69551		RunNo: 69551							
Prep Date:	Analysis Date: 6/10/2020		SeqNo: 2413999		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	24	1.0	20.00	0	120	70	130			
Trichloroethene (TCE)	22	1.0	20.00	0	108	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.8	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	9.9		10.00		99.3	70	130			

Sample ID: 2006428-001ams	SampType: MS		TestCode: EPA Method 8260B: VOLATILES							
Client ID: MW#1	Batch ID: R69551		RunNo: 69551							
Prep Date:	Analysis Date: 6/10/2020		SeqNo: 2414004		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	2200	20	400.0	1687	130	70	130			E
Toluene	2200	20	400.0	1905	63.4	70	130			ES
Chlorobenzene	400	20	400.0	0	101	70	130			
1,1-Dichloroethene	470	20	400.0	0	118	70	130			
Trichloroethene (TCE)	430	20	400.0	0	107	70	130			
Surr: 1,2-Dichloroethane-d4	200		200.0		99.6	70	130			
Surr: 4-Bromofluorobenzene	190		200.0		96.9	70	130			
Surr: Dibromofluoromethane	200		200.0		102	70	130			
Surr: Toluene-d8	190		200.0		93.8	70	130			

Sample ID: 2006428-001amsd	SampType: MSD		TestCode: EPA Method 8260B: VOLATILES							
Client ID: MW#1	Batch ID: R69551		RunNo: 69551							
Prep Date:	Analysis Date: 6/10/2020		SeqNo: 2414005		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	2200	20	400.0	1687	131	70	130	0.209	20	ES
Toluene	2000	20	400.0	1905	18.3	70	130	8.73	20	S
Chlorobenzene	410	20	400.0	0	102	70	130	1.01	20	
1,1-Dichloroethene	450	20	400.0	0	113	70	130	4.85	20	
Trichloroethene (TCE)	410	20	400.0	0	104	70	130	3.13	20	
Surr: 1,2-Dichloroethane-d4	200		200.0		102	70	130	0	0	
Surr: 4-Bromofluorobenzene	200		200.0		100	70	130	0	0	
Surr: Dibromofluoromethane	200		200.0		101	70	130	0	0	
Surr: Toluene-d8	190		200.0		96.3	70	130	0	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



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

Sample Log-In Check List

Client Name: BLAGG

Work Order Number: 2006428

RcptNo: 1

Received By: Isaiah Ortiz

6/9/2020 8:00:00 AM

Completed By: Juan Rojas

6/9/2020 8:24:52 AM

Reviewed By: DAD 6/9/20

I-Ox
Juan Rojas

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. 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	2.9	Good				

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2009A93

29-Sep-20

Client: SIMCOE/Cottonwood Consulting**Project:** Mudge LS 6

Sample ID: 100ng lcs2	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: B72085			RunNo: 72085						
Prep Date:	Analysis Date: 9/24/2020			SeqNo: 2527480		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlorobenzene	21	1.0	20.00	0	103	70	130			
1,1-Dichloroethene	21	1.0	20.00	0	103	70	130			
Trichloroethene (TCE)	21	1.0	20.00	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		108	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		96.8	70	130			
Surr: Dibromofluoromethane	11		10.00		105	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID: mb2	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: B72085			RunNo: 72085						
Prep Date:	Analysis Date: 9/24/2020			SeqNo: 2527481		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								

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

Page 3 of 6

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2009A93

29-Sep-20

Client: SIMCOE/Cottonwood Consulting

Project: Mudge LS 6

Sample ID: mb2	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: B72085			RunNo: 72085						
Prep Date:	Analysis Date: 9/24/2020			SeqNo: 2527481		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		99.6	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.5	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#: 2009A93

29-Sep-20

Client: SIMCOE/Cottonwood Consulting**Project:** Mudge LS 6

Sample ID: mb2	SampType: MBLK				TestCode: EPA Method 8260B: VOLATILES					
Client ID: PBW	Batch ID: B72085				RunNo: 72085					
Prep Date:	Analysis Date: 9/24/2020				SeqNo: 2527481	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	9.2		10.00		92.1	70	130			

Sample ID: 100ng lcs	SampType: LCS				TestCode: EPA Method 8260B: VOLATILES					
Client ID: LCSW	Batch ID: R72120				RunNo: 72120					
Prep Date:	Analysis Date: 9/24/2020				SeqNo: 2528446	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	113	70	130			
Toluene	21	1.0	20.00	0	105	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.1	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID: mb	SampType: MBLK				TestCode: EPA Method 8260B: VOLATILES					
Client ID: PBW	Batch ID: R72120				RunNo: 72120					
Prep Date:	Analysis Date: 9/24/2020				SeqNo: 2528447	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								
Surr: 1,2-Dichloroethane-d4	10		10.00		104	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.6	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.6		10.00		96.5	70	130			

Sample ID: 2009b80-001ams	SampType: MS				TestCode: EPA Method 8260B: VOLATILES					
Client ID: BatchQC	Batch ID: R72120				RunNo: 72120					
Prep Date:	Analysis Date: 9/25/2020				SeqNo: 2528460	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	113	70	130			
Toluene	21	1.0	20.00	0	105	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		100	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.0	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	9.6		10.00		95.7	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical 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#: 2009A93

29-Sep-20

Client: SIMCOE/Cottonwood Consulting

Project: Mudge LS 6

Sample ID: 2009b80-001amsd		SampType: MSD		TestCode: EPA Method 8260B: VOLATILES						
Client ID: BatchQC		Batch ID: R72120		RunNo: 72120						
Prep Date:		Analysis Date: 9/25/2020		SeqNo: 2528461		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	110	70	130	2.14	20	
Toluene	20	1.0	20.00	0	101	70	130	3.88	20	
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.8		10.00		97.8	70	130	0	0	
Surr: Dibromofluoromethane	10		10.00		102	70	130	0	0	
Surr: Toluene-d8	9.5		10.00		95.0	70	130	0	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

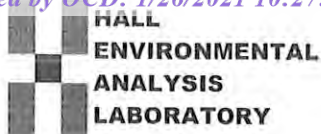
S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit



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

Sample Log-In Check List

Client Name: **SIMCOE/Cottonwood Consulting**

Work Order Number: **2009A93**

RcptNo: 1

Received By: **Emily Mocho** 9/18/2020 8:00:00 AM

Completed By: **Emily Mocho** 9/18/2020 8:53:00 AM

Reviewed By: *EM 9/18/20*

Chain of Custody

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

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?
(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: *SPA 9.18.20*

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	4.5	Good	Yes			

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2012A72

30-Dec-20

Client: SIMCOE/Cottonwood Consulting**Project:** Mudge LS 6

Sample ID: 100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: R74256			RunNo: 74256						
Prep Date:	Analysis Date: 12/27/2020			SeqNo: 2621264		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	101	70	130			
Toluene	19	1.0	20.00	0	93.8	70	130			
Chlorobenzene	20	1.0	20.00	0	98.0	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	93.4	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	88.9	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		99.9	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.8	70	130			
Surr: Dibromofluoromethane	8.0		10.00		80.3	70	130			
Surr: Toluene-d8	9.4		10.00		93.6	70	130			

Sample ID: mb1	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R74256			RunNo: 74256						
Prep Date:	Analysis Date: 12/27/2020			SeqNo: 2621265		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#: 2012A72

30-Dec-20

Client: SIMCOE/Cottonwood Consulting

Project: Mudge LS 6

Sample ID: mb1	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R74256			RunNo: 74256						
Prep Date:	Analysis Date: 12/27/2020			SeqNo: 2621265		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#: 2012A72

30-Dec-20

Client: SIMCOE/Cottonwood Consulting

Project: Mudge LS 6

Sample ID: mb1		SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID: PBW		Batch ID: R74256			RunNo: 74256					
Prep Date:		Analysis Date: 12/27/2020			SeqNo: 2621265		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	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	7.7		10.00		76.8	70	130			
Surr: Toluene-d8	9.5		10.00		95.4	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

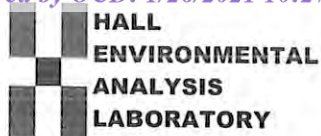
Analyte detected in the associated Method Blank
- E

Value above quantitation range
- J

Analyte detected below quantitation limits
- P

Sample pH Not In Range
- RL

Reporting Limit



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

Sample Log-In Check List

Client Name: SIMCOE/Cottonwood Con

Work Order Number: 2012A72

RcptNo: 1

Received By: Isaiah Ortiz 12/22/2020 7:45:00 AM

Completed By: Isaiah Ortiz 12/22/20

Reviewed By: SGL 12/22/20

I-OK

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. 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: JR 12/22/20

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	Not Present			

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 15658

CONDITIONS

Operator: SIMCOE LLC 1199 Main Ave., Suite 101 Durango, CO 81301	OGRID:
	329736
	Action Number:
	15658
Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)	

CONDITIONS

Created By	Condition	Condition Date
michael.buchanan	Review of the Monitor Well Testing Report for 2020 at Mudge LS 006: Content Satisfactory 1.Continue monitoring groundwater wells, until eight (8) consecutive quarterly samples result in below standard of the WQCC 20.6.2 of NMAC. 2. Any wells that are requesting to have P&A must submit a P&A work plan to the NMOCD with approval from the OSE or director of NMOCD. 3. A closure report must be submitted as a request for termination per 19.15.30.19 paragraphs (A) and (B) which must be approved and reviewed by the director of OCD. 4. Please submit documentation for future annual reports by April 1 of each calendar year.	1/16/2024