ATTACHMENT 4

August 6, 2020 Stormwater Laboratory Analysis Reports

City of Portland
Water Pollution Control Laboratory
6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656

August 26, 2020

Peter Abrams

MS4

Work Order	Project	Received
W20H047	**Riot Control Agent Stormwater**	08/06/20 10:23

Enclosed are the results of analysis for the above work order. If you have questions concerning this report, please contact your project coordinator Peter Abrams at 503-823-5533.

Jennifer Shackelford

Laboratory Manager

City of Portland
Water Pollution Control Laboratory
6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656
ORELAP Certification ID 4023

LABORATORY ANALYSIS REPORT

Project:	**Riot Control Agent Stormwater**	Client:	MS4
Work Order:	**W20H047**	Project Mgr:	Peter Abrams
Received:	8/6/20 10:23		
Submitted By:	Field Operations		

Sample	Laboratory ID	Matrix	Type	Sample Collection Date Start	Sample Collection Date End	Qualifier
ABQ484	W20H047-01	Water	Grab	08/06/20 08:19	08/06/20 08:19	
ABQ608	W20H047-02	Water	Grab	08/06/20 08:52	08/06/20 08:52	

Case Narrative

Hexavalent chromium analysis: the subcontract lab indicated that the results for hexavalent chromium are reported as 'dissolved' per their method.

Analyte	Result	Units	MRL	Dil.	Batch	Prepared	Analyzed	Method	Qualifier
Total Metals									
Total Metals by ICPMS									
ABQ484 : W20H047-01									
Barium	**3540**	ug/L	12.5	5	B20H192	08/13/20	08/13/20	EPA 200.8	
Chromium	**24.8**	ug/L	1.00	1	B20H192	08/13/20	08/13/20	EPA 200.8	
Copper	**191**	ug/L	1.00	1	B20H192	08/13/20	08/13/20	EPA 200.8	
Lead	**49.2**	ug/L	0.500	1	B20H192	08/13/20	08/13/20	EPA 200.8	
Zinc	**2540**	ug/L	12.5	5	B20H192	08/13/20	08/13/20	EPA 200.8	
ABQ608 : W20H047-02									
Barium	**113**	ug/L	2.50	1	B20H192	08/13/20	08/13/20	EPA 200.8	
Chromium	**4.43**	ug/L	1.00	1	B20H192	08/13/20	08/13/20	EPA 200.8	
Copper	**84.9**	ug/L	1.00	1	B20H192	08/13/20	08/13/20	EPA 200.8	
Lead	**11.8**	ug/L	0.500	1	B20H192	08/13/20	08/13/20	EPA 200.8	
Zinc	**506**	ug/L	2.50	1	B20H192	08/13/20	08/13/20	EPA 200.8	

Reported: 08/26/20 15:07

Jennifer Shackelford

Jennifer Shackelford, Laboratory Manager

The results in this report apply only to the samples analyzed. Qualifiers and case narrative comments are essential to interpretation of the analytical results. Report reproductions and/or data summaries without qualifiers and comments are incomplete.

City of Portland
Water Pollution Control Laboratory
6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656
ORELAP Certification ID 4023

Project:	**Riot Control Agent Stormwater**	Client:	MS4
Work Order:	**W20H047**	Received:	08/06/20 10:23

Quality Control Report

Total Metals - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec *(Limits)*	RPD *(Limit)*	Prepared: Analyzed	Qualifier
Total Metals by ICPMS - Batch B20H192									
Blank (B20H192-BLK1)									
Barium	ND	ug/L	0.556					08/13/20 :08/13/20	
Chromium	ND	ug/L	0.222					08/13/20 :08/13/20	
Copper	ND	ug/L	0.222					08/13/20 :08/13/20	
Lead	ND	ug/L	0.111					08/13/20 :08/13/20	
Zinc	ND	ug/L	0.556					08/13/20 :08/13/20	
LCS (B20H192-BS1)									
Barium	**5.64**	ug/L	0.556	5.56		101% *(85-115)*		08/13/20 :08/13/20	
Chromium	**5.24**	ug/L	0.222	5.56		94% *(85-115)*		08/13/20 :08/13/20	
Copper	**5.03**	ug/L	0.222	5.56		91% *(85-115)*		08/13/20 :08/13/20	
Lead	**5.64**	ug/L	0.111	5.56		101% *(85-115)*		08/13/20 :08/13/20	
Zinc	**27.2**	ug/L	0.556	27.8		98% *(85-115)*		08/13/20 :08/13/20	
Duplicate (B20H192-DUP1)			**Source: W20H102-01**						
Barium	**81.4**	ug/L	0.556		83.7		3 (20)	08/13/20 :08/13/20	
Chromium	**0.266**	ug/L	0.222		0.305		14 (20)	08/13/20 :08/13/20	
Copper	**8.51**	ug/L	0.222		8.52		0.2 (20)	08/13/20 :08/13/20	
Lead	**0.464**	ug/L	0.111		0.481		4 (20)	08/13/20 :08/13/20	
Zinc	**19.8**	ug/L	0.556		20.1		2 (20)	08/13/20 :08/13/20	
Matrix Spike (B20H192-MS1)			**Source: W20H102-01**						
Barium	**89.3**	ug/L	0.556	5.56	83.7	101% *(70-130)*		08/13/20 :08/13/20	
Chromium	**5.46**	ug/L	0.222	5.56	0.305	93% *(70-130)*		08/13/20 :08/13/20	
Copper	**13.2**	ug/L	0.222	5.56	8.52	85% *(70-130)*		08/13/20 :08/13/20	
Lead	**6.33**	ug/L	0.111	5.56	0.481	105% *(70-130)*		08/13/20 :08/13/20	
Zinc	**45.5**	ug/L	0.556	27.8	20.1	91% *(70-130)*		08/13/20 :08/13/20	

Definitions

DET	Analyte Detected	ND	Analyte Not Detected at or above the reporting limit
MRL	Method Reporting Limit	MDL	Method Detection Limit
NR	Not Reportable	dry	Sample results reported on a dry weight basis
% Rec.	Percent Recovery	RPD	Relative Percent Difference
*	This analyte is not certified under NELAP		

Reported: 08/26/20 15:07

Jennifer Shackelford

Jennifer Shackelford, Laboratory Manager

The results in this report apply only to the samples analyzed. Qualifiers and case narrative comments are essential to interpretation of the analytical results. Report reproductions and/or data summaries without qualifiers and comments are incomplete.

Date: 8-6-20

Water Pollution Control Laboratory
6543 N. Burlington Ave.
Portland, Oregon 97203-4552
Sample Custodian: (503) 823-5696
General Lab: (503) 823-5681

City of Portland Chain-of-Custody

Bureau of Environmental Services

Work Order #: W20H047

Collected By: MJS/ECP/JXB/JXL

Client Name: ~~Strategy~~/MS4 AC 8/6/20

Project Number (if applicable):

Project Name: **Riot Control Agent Stormwater**

Project Contact: **Barb Adkins**

Requested Analyses

Special Instructions:

Turn-Around-Time Request:

- ☐ Standard (10 business days)
- ☐ Rush (5 business days)
- ☐ Other: _____

Lab Number	Sample Name	Location Code*	Sample Date	Sample Time	Sample Type	Sample Matrix	Total Metals AC 8/6/20 (Ba, ~~Cd~~, Cr, Pb, Zn) Cu	Hexavalent Chromium	Perchlorate	# of Containers	Remarks
01	ABQ484		8-6-20	0819	G		•	•	•	3	
02	ABQ608		8-6-20	0852	G		•	•	•	3	

Relinquished By:	Received By:	Relinquished By:	Received By:
Signature:	Signature:	Signature:	Signature:
Printed Name: Matt Sullivan	Printed Name: Matt Clark	Printed Name:	Printed Name:
Date: 8/6/20	Date: 8/6/20	Date:	Date:
Time: 1023	Time: 1023	Time:	Time:

WPCL Cooler Receipt Form

Work Order Number: W20H047 **Cooler Receipt Form Filled Out By:** MC

Project: Riot Control Agent Stormwater

Received on ice: YES NO (circle one) *[If directly from field, indicate here:____]*

Sample(s) Received From: CBWTP fridge____ Client ✓ Courier____

Temperature (°C): 13

	Yes	No	N/A
Is the COC present and signed?	✓		
Are sample bottles intact?	✓		
Do the COC and sample labels match?	✓		
Are the appropriate containers used?	✓		
Are samples appropriately preserved?	✓		
Do VOA vials or alkalinity bottles have Headspace? (circle which this applies to)			✓
Are samples received within holding times (except for pH and residual chlorine)?	✓		

Pres. #	Preservative	LIMS ID	Standard Preservation Amounts
1	HNO_3 (1:1) to pH <2	2000696	0.5mL/250mL; 1.0mL/500mL; 4-5 drops/50mL centrifuge tube
2	H_2SO_4 (18N) to pH <2		0.4mL/250mL; 0.8mL/500mL ; 1.6mL/1000mL
3	HCl (1:1) to pH <2		1.0mL/500mL; 2.0mL/1000mL
4	HCl (1:1) to pH 2-3		For TOC: 2-5 drops/250mL
5	NaOH (pellets) to pH >12		4-10 pellets/500mL; 8-20 pellets/1000mL
6	Ammonium Sulfate Buffer	2001073	2.5mL/250mL

Date	Time	Analyst	Sample LIMS ID	Bottle ID	Pres. #	Comments
8/6/20	1143	MC	W20H047-01,02	B	6	Pre-preserved in field. -01 required 1.25mL additional preservative. -02 pH ok ✓
↓	1152	↓	↓	A	1	

Comments:_____

ALS Environmental
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Kelso, WA 98626
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www.alsglobal.com

August 21, 2020 **Analytical Report for Service Request No:** K2006782

Jennifer Shackelford
City of Portland
6543 N. Burlington Ave
Portland, OR 97203

RE: Riot Control Agent Stormwater / W20H047

Dear Jennifer,

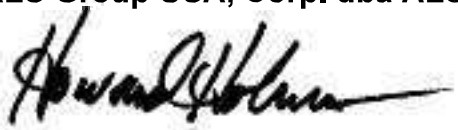
Enclosed are the results of the sample(s) submitted to our laboratory August 07, 2020
For your reference, these analyses have been assigned our service request number **K2006782.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3364. You may also contact me via email at howard.holmes@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental



Howard Holmes
Project Manager

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Kelso, WA 98626
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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Chain of Custody

ALS Environmental—Kelso Laboratory
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Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

SUBCONTRACT ORDER

City of Portland Water Pollution Control Lab

W20H047

11200 67 82

SENDING LABORATORY:

City of Portland Water Pollution Control Lab
6543 N. Burlington Ave
Portland, OR 97203
Phone: 503-823-5600
Fax: 503-823-5656
Invoice To: Charles Lytle

RECEIVING LABORATORY:

ALS Environmental
1317 S. 13th Avenue
Kelso, WA 98626
Phone :(360) 577-7222
Fax: (360) 636-1068

WPCL Project Name
Riot Control Agent Stormwater

TURNAROUND REQUEST

[X] Standard

[ ] Rush _ day(s)

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: W20H047-01	**Water**	**Sampled:08/06/20 08:19**		
Out-Perchlorate	08/20/20 17:00	09/03/20 08:19		
Out-Cr+6	08/20/20 17:00	09/05/20 08:19		
Containers Supplied:				
P 250ml (B)	P 250ml (C)			
Sample ID: W20H047-02	**Water**	**Sampled:08/06/20 08:52**		
Out-Perchlorate	08/20/20 17:00	09/03/20 08:52		
Out-Cr+6	08/20/20 17:00	09/05/20 08:52		
Containers Supplied:				
P 250ml (B)	P 250ml (C)			

ALS Texted

Released By	Date	Received By	Date
	8/7/20	ALS	8/7/20 0925
ALS	8/7/20 1245		8/7/20 1245

Released By / Date / Received By / Date

PM HH

Cooler Receipt and Preservation Form

Client WPCC Service Request K20 206782

Received: 8/7/20 Opened: 8/7/20 By: [illegible] Unloaded: 8/7/20 By: [illegible]

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? _____
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N
4. Was a Temperature Blank present in cooler? NA Y N If yes, notate the temperature in the appropriate column below:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? ~~NA~~ Y N
   If no, were they received on ice and same day as collected? If not, notate the cooler # below and notify the PM. NA Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified If out of temp	Tracking Number / NA	Filed
N/A	5.6	IR01		—	—		

6. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
8. Were samples received in good condition (unbroken) NA Y N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA Y N
10. Did all sample labels and tags agree with custody papers? NA Y N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
14. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

Subcontract Lab Results

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

August 21, 2020 Service Request No:E2000728

Howard Holmes
ALS Environmental - Kelso

Laboratory Results for: K2006782

Dear Howard,

Enclosed are the results of the sample(s) submitted to our laboratory August 11, 2020
For your reference, these analyses have been assigned our service request number **E2000728.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety and ALS Environmental is not responsible for use of less than the complete final report. Results apply only to the items submitted to the laboratory, as received for analysis. In accordance with the current TNI Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Corey Grandits
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	ALS Kelso	**Service Request No.:**	E2000728
Project:	K2006782	**Date Received:**	08/11/20
Sample Matrix:	W		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Two samples were received for analysis at ALS Environmental in Houston on 08/06/20.

The samples were received in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2000337: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for this extraction batch. The LCS and DLCS recoveries are within QC limits.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2000728-001	W20H047-01	8/6/2020	0819
E2000728-002	W20H047-02	8/6/2020	0852

Service Request Summary

Folder #: **E2000728**
Client Name: ALS Environmental - US
Project Name: K2006782
Project Number:

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 08/11/20
Internal Due Date: 8/20/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: K2006782
EDD: No EDD Specified

2 250 mL-Plastic Bottle HDPE WM CLEAR Unpreserved
Location: EHRMS-WIC 6C
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4/6850
E2000728-001	W20H047-01	Water	08/06/20 0819	II
E2000728-002	W20H047-02	Water	08/06/20 0852	II

Service Request Summary

Folder #: **E2000728**
Client Name: ALS Environmental - US
Project Name: K2006782
Project Number:

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 08/11/20
Internal Due Date: 8/20/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: K2006782
EDD: No EDD Specified

2 250 mL-Plastic Bottle HDPE WM CLEAR Unpreserved
Location: EHRMS-WIC 6C
Pressure Gas:

Data Qualifiers

Lab Standard

+	Possible Tedlar bag artifact.
A	TIC is a suspected aldol-condensation product
B	Analyte found in the associated method blank as well as in the sample.
BC	Reported results are not blank corrected.
BH	The back section of the tube yielded higher results than the front.
BT	Results indicated possible breakthrough; back section >=10% front section.
C	Result identification confirmed.
D	Compound identified in an analysis at a secondary dilution factor
D	Spike was diluted out
DE	Reported results are corrected for desorption efficiency.
E	Estimated value. Concentration above calibration range
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
H1	Sample analysis performed past holding time. See case narrative.
H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
H3	Sample was received and analyzed past holding time.
H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time. See case narrative.
I	Internal standard not within the specified limits. See case narrative.
J	Estimated Value. Concentration found below MRL.
K	A deflection in the QC ion may indicate interference with the quantitation of this ion. The concentration of this analyte should be considered as an estimate.
K	Analyte was detected above the method reporting limit prior to normalization.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
L1	Laboratory control sample recovery outside the specified limits; results may be biased high.
L2	Laboratory control sample recovery outside the specified limits; results may be biased low.
L3	Laboratory control sample recovery outside the specified limits.
M	Matrix interference; results may be biased high.
M	The duplicate injection precision not met.
M1	Matrix interference due to coelution with a non-target compound; results may be biased high.
N	Presumptive evidence of a compound for TICs that have been identified based on a mass spectral library search.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.

Data Qualifiers

Lab Standard

P	Indicates chlorodiphenyl ether interference present at the retention time of the target compound.
P	Pesticide/Aroclor target analyte > 40% difference for detected concentrations between GC columns
Q	Indicates as estimated value because the P and P + 2 theoretical abundance ratio does not meet method criteria.
R	Duplicate Precision not met.
R1	Duplicate precision not within the specified limits; however, the results are below the MRL and considered estimated.
S	Surrogate recovery not within specified limits.
S	The reported value was determined by the Method of Standard Additions (MSA).
T	Analyte is a tentatively identified compound, result is estimated.
U	Compound was analyzed for, but was not detected (ND).
V1	The continuing calibration verification standard was outside (biased high) the specified limits for this compound.
V2	The continuing calibration verification standard was outside (biased low) the specified limits for this compound.
W	Result quantified, but the corresponding peak was detected outside the generated retention time window.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
X	See case narrative.
Y	Recovery outside limits
Y	The chromatogram resembles a petroleum product but does not match the calibration standard.
Z	The chromatogram does not resemble a petroleum product.
i	The MRL/MDL has been elevated due to a matrix interference.

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
American Association for Laboratory Accreditation	2897.01 2020	11/30/2021
Arkansas Department of Environmental Quality	20-030-0	3/26/2021
Department of Defense	A2LA 2897.01	11/30/2021
Hawaii Department of Health	2020	4/30/2021
Illinois Environmental Protection Agency	2000322020-4	5/9/2021
Louisiana Department of Health and Hospitals	LA028-2020	12/31/2020
Maine Department of Health and Human Services	2020016	6/5/2022
Minnesota Department of Health	1785988	12/31/2020
Nebraska Department of Health and Human Services	NE-OS-25-13 (2020)	4/30/2021
Nevada Department of Concervation and Natural Resources	TX026932021-1	7/31/2021
New Hampshire Environmental Laboratory Accreditation Program	209420	4/24/2021
New York Department of Health	11707	3/31/2021
Oklahoma Department of Environmental Quality	2019-067	8/31/2020
Tennessee Department of Environment and Concervation	04016-2020	4/30/2021
Texas Commision on Environmental Quality	T104704231-20-26	4/30/2021
United States Department of Agriculture	P330-19-00299	10/10/2022
Washington Department of Health	C819	11/14/2020

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental Chain of Custody

1317 South 13th Avenue • Kelso, WA 98626 • 1-360-577-7222 • FAX 1-360-636-1068

ALS Contact: Howard Holmes

Project Number: K2006782
Project Manager: Howard Holmes
QAP: LAB QAP

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	Misc Out 1 None
K2006782-001	W20H047-01	1	Water	8/6/20	0819	Houston Full	X
K2006782-002	W20H047-02	1	Water	8/6/20	0852	Houston Full	X

Test Comments
Misc Out 1 - None K2006782-001,2 Perchlorate 6850

Folder Comments:
Tier II

Special Instructions/Comments
Please provide the electronic (PDF and EDD) report to the following e-mail address: ALKLS.Data@alsglobal.com.

Send report & EDD to ALKLS.Data & Howard.Holmes

H - Test is On Hold P - Test is Authorized for Prep Only

Turnaround Requirements
___ **RUSH** (Surcharges Apply)
PLEASE CIRCLE WORK DAYS
1 2 3 4 5
___ **STANDARD**
Requested FAX Date: _____
Requested Report Date: 08/20/20

Report Requirements
___ I. Results Only
X II. Results + QC Summaries
___ III. Results + QC and Calibration Summaries
___ IV. Data Validation Report with Raw Data
PQL/MDL/J Y
EDD Y

Invoice Information
PO# 51K2006782
Bill to

Relinquished By: 8/10/2020 1100 Received By: Airbill Number:

Cooler Receipt Form

ALS Environmental

Project Chemist: CH

Client/Project: Ash

Thermometer ID: IR1

Date/Time Received: 3/11/22 Initials: CH

Date/Time Logged in: 3/11/22 Initials: CH

1. Method of delivery: ○ US Mail ⊘ Fed Ex ○ UPS ○ DHL ○ Courier ○ Client

2. Samples received in: ⊘ Cooler ○ Box ○ Envelope ○ Other

3. Were custody seals on coolers? ⊘ Yes ○ No

Were they intact? ⊘ Yes ○ No ○ N/A

Were they signed and dated? ⊘ Yes ○ No ○ N/A

If yes, how many and where?

4. Packing Material: ○ Inserts ⊘ Baggies ⊘ Bubble Wrap ⊘ Gel Packs ○ Wet Ice ○ Sleeves ○ Other

5. Foreign or Regulated Soil? ○ Yes ○ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
-		3/11/22	1015	CH	3.2	☒
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ⊘ Yes ○ No

7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ⊘ Yes ○ No

8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ⊘ Yes ○ No

9. Were appropriate bottles/containers and volumes received for the requested tests? ⊘ Yes ○ No

10. Did sample labels and tags agree with custody documents? ⊘ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label:

10450 Stancliff Rd., Suite 210
Houston, TX 77099
T: +1 713 266 1599
F: +1 713 266 1599
www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 363303 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 8/11/20 15:47

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2000711-001	W20H006-01	.01	6850/ClO4			Water	10mL	
2	E2000711-002	W20H006-02	.01	6850/ClO4			Water	10mL	
3	E2000723-001	PT Lot 8213-53	.01	6850/ClO4			Water	10mL	
4	E2000724-001	GW-MW-29D-20200806-01	.01	6850/ClO4			Water	10mL	
5	E2000724-002	GW-MW-66D2-20200806-01	.01	6850/ClO4			Water	10mL	
6	E2000724-003	GW-MW-89D-20200806-01	.01	6850/ClO4			Water	10mL	
7	E2000724-004	GW-MW-98D-20200806-01	.01	6850/ClO4			Water	10mL	
8	E2000728-001	W20H047-01	.01	6850/ClO4			Water	10mL	
9	E2000728-002	W20H047-02	.01	6850/ClO4			Water	10mL	
10	E2000729-001	W20H048-01	.01	6850/ClO4			Water	10mL	
11	EQ2000337-01	MB		6850/ClO4			Liquid	10mL	
12	EQ2000337-02	LCS		6850/ClO4			Liquid	10mL	
13	EQ2000337-03	DLCS		6850/ClO4			Liquid	10mL	

Spiking Solutions

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 202037 Logbook Ref: Sodium Perchlorate Expires On: 05/22/2021

E2000723-001 100.00µL EQ2000337-01 100.00µL EQ2000337-02 100.00µL EQ2000337-03 100.00µL

Name: Perchlorate Intermediate Stock1 Inventory ID 209764 Logbook Ref: Perchlorate Int. Stock1 51820 Expires On: 11/18/2020

EQ2000337-02 100.00µL EQ2000337-03 100.00µL

Preparation Steps

Step: Preparation
Started: 8/11/20 15:47
Finished: 8/11/20 17:00
By: GRIVERA
Comments

Comments: _____

Reviewed By: _____ Date: _____

Preparation Information Benchsheet

Prep Run#: 363303
Team: Semivoa GCMS/GRIVERA

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 8/11/20 15:47

in of Custody

elinquished By: _____ Date: _____

eceived By: _____ Date: _____

Extracts Examined
Yes No

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Client:	ALS Environmental - US	**Service Request:**	E2000728
Project:	K2006782	**Date Collected:**	8/ 6/20 0819
Sample Matrix:	Water	**Date Received:**	8/11/20
Sample Name:	W20H047-01	**Units:**	µg/L
Lab Code:	E2000728-001	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**320**		1.00	0.500	0.250	10	8/11/20	8/20/20 14:27	363303	691901	

Client:	ALS Environmental - US	**Service Request:**	E2000728
Project:	K2006782	**Date Collected:**	8/ 6/20 0852
Sample Matrix:	Water	**Date Received:**	8/11/20
Sample Name:	W20H047-02	**Units:**	µg/L
Lab Code:	E2000728-002	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**49.2**		0.100	0.0500	0.0250	1	8/11/20	8/19/20 20:46	363303	691901	

Client:	ALS Environmental - US	**Service Request:**	E2000728
Project:	K2006782	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2000337-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	8/11/20	8/19/20 12:38	363303	691901	

Accuracy & Precision

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Client: ALS Environmental - US
Project: K2006782
Sample Matrix: Water

Service Request: E2000728
Date Analyzed: 8/19/20

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 363303

	Lab Control Sample EQ2000337-02			Duplicate Lab Control Sample EQ2000337-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	9.42	10.0	94	9.92	10.0	99	80 - 120	5	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	ALS Environmental - US	**Service Request:**	E2000728
Project:	K2006782	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2000337-02	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**9.42**		0.100	0.0500	0.0250	1	8/11/20	8/19/20 12:46	363303	691901	

Client:	ALS Environmental - US	**Service Request:**	E2000728
Project:	K2006782	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2000337-03	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**9.92**		0.100	0.0500	0.0250	1	8/11/20	8/19/20 12:53	363303	691901	

August 18, 2020 Service Request No:K2006782

Jennifer Shackelford
City of Portland
6543 N. Burlington Ave
Portland, OR 97203

Laboratory Results for: Riot Control Agent Stormwater

Dear Jennifer,

Enclosed are the results of the sample(s) submitted to our laboratory August 07, 2020
For your reference, these analyses have been assigned our service request number **K2006782.**

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Brady Kalkman
For
Janice Jaeger
Project Manager

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Environmental

Client: Portland, City of
Project: Riot Control Agent Stormwater
Sample Matrix: Water

Service Request: K2006782
Date Received: 08/07/2020

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

Two water samples were received for analysis at ALS Environmental on 08/07/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by _____ Date 08/18/2020

SAMPLE DETECTION SUMMARY

CLIENT ID: W20H047-01			Lab ID: K2006782-001			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Chromium, Hexavalent, Dissolved	1.80		0.05	0.10	ug/L	218.6

CLIENT ID: W20H047-02			Lab ID: K2006782-002			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Chromium, Hexavalent, Dissolved	0.272		0.010	0.020	ug/L	218.6

Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
K2006782-001	W20H047-01	8/6/2020	0819
K2006782-002	W20H047-02	8/6/2020	0852

Intra-Network Chain of Custody

1317 South 13th Avenue • Kelso, WA 98626 • 1-360-577-7222 • FAX 1-360-636-1068

ALS Contact: Howard Holmes

Project Name: Riot Control Agent Stormwater
Project Number: W20H047
Project Manager: Jennifer Shackelford
Company: City of Portland
QAP: LAB QAP

2 CR6 218.6 LL
8620
08:14-08:52

Lab Code	Client Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Date Received	Send To	Cr6 D LL 218.6 LL
K2006782-001	W20H047-01	1	Water	8/6/20	0819	8/7/20	ROCHESTER	II
K2006782-002	W20H047-02	1	Water	8/6/20	0852	8/7/20	ROCHESTER	II

Folder Comments:
Tier II

Special Instructions/Comments
Please provide the electronic (PDF and EDD) report to the following e-mail address: ALKLS.Data@alsglobal.com.

Send report to ALKLS.Data & Howard.Holmes

pH Checked _____

Turnaround Requirements
____ **RUSH** (Surcharges Apply)
PLEASE CIRCLE WORK DAYS
1 2 3 4 5
____ **STANDARD**
Requested FAX Date: _____
Requested Report Date: 08/20/20

Report Requirements
____ I. Results Only
X II. Results + QC Summaries
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
PQL/MDL/J Y
EDD Y

Invoice Information
PO# 51K2006782
Bill to

Relinquished By: _____ 8/10/2020 1100 Received By: _____ 8-11-2020 10:10 Airbill Number: _____

K2006782 5
City of Portland
Riot Control Agent Stormwater

K2006782 5
City of Portland
Riot Control Agent Stormwater

Cooler Receipt and Preservation Check Form

Project/Client ALS Kelso Folder Number

Cooler received on 8-11-2020 by: KE

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	(Y) N	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y N (NA)
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate? ALS/ROC	(CLIENT)
4	Circle: **Wet Ice** **Dry Ice** (**Gel packs**) - present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 8/11/2020 Time: 10:31 ID: IR#7 (IR#10) From: (Temp Blank) Sample Bottle

Observed Temp (°C)	2.2						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: SMO by KE on 8/11/20 at 10:33
5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 8/11/2020 Time: 1242 by: [illegible]

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (N/A)
13. Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**						

Bottle lot numbers: Client

Explain all Discrepancies/ Other Comments:

CRF6 Check

HPROD	BULK
(HTR)	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: [signature]

PC Secondary Review: _____

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Miscellaneous Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
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REPORT QUALIFIERS AND DEFINITIONS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.
MRL LOQ	Method Reporting Limit. Also known as: Limit of Quantitation (LOQ) The lowest concentration at which the method analyte may be reliably quantified under the method conditions.
MDL	Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).
LOD	Limit of Detection. A value at or above the MDL which has been verified to be detectable.
ND	Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	Pennsylvania ID# 68-786
Delaware Approved	New Hampshire ID # 2941	Rhode Island ID # 158
DoD ELAP #65817	New York ID # 10145	Virginia #460167
Florida ID # E87674	North Carolina #676	

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	Portland, City of	**Service Request:**	K2006782
Project:	Riot Control Agent Stormwater/W20H047		

Sample Name:	W20H047-01	**Date Collected:**	08/6/20
Lab Code:	K2006782-001	**Date Received:**	08/7/20
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
218.6 LL		CWOODS

Sample Name:	W20H047-02	**Date Collected:**	08/6/20
Lab Code:	K2006782-002	**Date Received:**	08/7/20
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
218.6 LL		CWOODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9034 Sulfide Acid Soluble	9030B
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7199	3060A
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction
For analytical methods not listed, the preparation method is the same as the analytical method reference.	

Sample Results

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Phone (585) 288-5380 Fax (585) 288-8475
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General Chemistry

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www.alsglobal.com

Analytical Report

Client:	Portland, City of	**Service Request:**	K2006782
Project:	Riot Control Agent Stormwater/W20H047	**Date Collected:**	08/06/20 08:19
Sample Matrix:	Water	**Date Received:**	08/07/20 12:45
Sample Name:	W20H047-01	**Basis:**	NA
Lab Code:	K2006782-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Chromium, Hexavalent, Dissolved	218.6	**1.80**	ug/L	0.10	0.05	5	08/14/20 19:09	

Analytical Report

Client:	Portland, City of	**Service Request:**	K2006782
Project:	Riot Control Agent Stormwater/W20H047	**Date Collected:**	08/06/20 08:52
Sample Matrix:	Water	**Date Received:**	08/07/20 12:45
Sample Name:	W20H047-02	**Basis:**	NA
Lab Code:	K2006782-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Chromium, Hexavalent, Dissolved	218.6	**0.272**	ug/L	0.020	0.010	1	08/14/20 18:26	

QC Summary Forms

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General Chemistry

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Analytical Report

Client:	Portland, City of	**Service Request:**	K2006782
Project:	Riot Control Agent Stormwater/W20H047	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	K2006782-MB		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Chromium, Hexavalent, Dissolved	218.6	ND U	ug/L	0.020	0.010	1	08/14/20 12:45	

Client: Portland, City of
Project: Riot Control Agent Stormwater/W20H047
Sample Matrix: Water

Service Request: K2006782
Date Analyzed: 08/14/20

Lab Control Sample Summary
General Chemistry Parameters

Units:ug/L
Basis:NA

Lab Control Sample
K2006782-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Chromium, Hexavalent, Dissolved	218.6	0.214	0.200	107	90-110

City of Portland
Water Pollution Control Laboratory
6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656

August 26, 2020

Peter Abrams

MS4

Work Order	Project	Received
W20H048	**Riot Control Agent Stormwater**	08/06/20 10:23

Enclosed are the results of analysis for the above work order. If you have questions concerning this report, please contact your project coordinator Peter Abrams at 503-823-5533.

Jennifer Shackelford

Laboratory Manager

City of Portland
Water Pollution Control Laboratory
6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656
ORELAP Certification ID 4023

LABORATORY ANALYSIS REPORT

Project:	**Riot Control Agent Stormwater**	Client:	MS4
Work Order:	**W20H048**	Project Mgr:	Peter Abrams
Received:	8/6/20 10:23		
Submitted By:	Field Operations		

Sample	Laboratory ID	Matrix	Type	Sample Collection Date Start	End	Qualifier
ABQ669	W20H048-01	Water	Grab	08/06/20 08:53	08/06/20 08:53	

Case Narrative

Hexavalent chromium analysis: the subcontract lab indicated that the results for hexavalent chromium are reported as 'dissolved' per their method.

Analyte	Result	Units	MRL	Dil.	Batch	Prepared	Analyzed	Method	Qualifier
ABQ669 : W20H048-01									
Total Metals									
Total Metals by ICPMS									
Barium	**48.7**	ug/L	2.50	1	B20H192	08/13/20	08/13/20	EPA 200.8	
Chromium	**2.83**	ug/L	1.00	1	B20H192	08/13/20	08/13/20	EPA 200.8	
Copper	**143**	ug/L	1.00	1	B20H192	08/13/20	08/13/20	EPA 200.8	
Lead	**5.65**	ug/L	0.500	1	B20H192	08/13/20	08/13/20	EPA 200.8	
Zinc	**621**	ug/L	2.50	1	B20H192	08/13/20	08/13/20	EPA 200.8	

Reported: 08/26/20 15:07

Jennifer Shackelford

Jennifer Shackelford, Laboratory Manager

The results in this report apply only to the samples analyzed. Qualifiers and case narrative comments are essential to interpretation of the analytical results. Report reproductions and/or data summaries without qualifiers and comments are incomplete.

City of Portland
Water Pollution Control Laboratory
6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656
ORELAP Certification ID 4023

Project:	**Riot Control Agent Stormwater**	Client:	MS4
Work Order:	**W20H048**	Received:	08/06/20 10:23

Quality Control Report

Total Metals - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec *(Limits)*	RPD *(Limit)*	Prepared: Analyzed	Qualifier
Total Metals by ICPMS - Batch B20H192									
Blank (B20H192-BLK1)									
Barium	ND	ug/L	0.556					08/13/20 :08/13/20	
Chromium	ND	ug/L	0.222					08/13/20 :08/13/20	
Copper	ND	ug/L	0.222					08/13/20 :08/13/20	
Lead	ND	ug/L	0.111					08/13/20 :08/13/20	
Zinc	ND	ug/L	0.556					08/13/20 :08/13/20	
LCS (B20H192-BS1)									
Barium	**5.64**	ug/L	0.556	5.56		101% *(85-115)*		08/13/20 :08/13/20	
Chromium	**5.24**	ug/L	0.222	5.56		94% *(85-115)*		08/13/20 :08/13/20	
Copper	**5.03**	ug/L	0.222	5.56		91% *(85-115)*		08/13/20 :08/13/20	
Lead	**5.64**	ug/L	0.111	5.56		101% *(85-115)*		08/13/20 :08/13/20	
Zinc	**27.2**	ug/L	0.556	27.8		98% *(85-115)*		08/13/20 :08/13/20	
Duplicate (B20H192-DUP1)			**Source: W20H102-01**						
Barium	**81.4**	ug/L	0.556		83.7		3 (20)	08/13/20 :08/13/20	
Chromium	**0.266**	ug/L	0.222		0.305		14 (20)	08/13/20 :08/13/20	
Copper	**8.51**	ug/L	0.222		8.52		0.2 (20)	08/13/20 :08/13/20	
Lead	**0.464**	ug/L	0.111		0.481		4 (20)	08/13/20 :08/13/20	
Zinc	**19.8**	ug/L	0.556		20.1		2 (20)	08/13/20 :08/13/20	
Matrix Spike (B20H192-MS1)			**Source: W20H102-01**						
Barium	**89.3**	ug/L	0.556	5.56	83.7	101% *(70-130)*		08/13/20 :08/13/20	
Chromium	**5.46**	ug/L	0.222	5.56	0.305	93% *(70-130)*		08/13/20 :08/13/20	
Copper	**13.2**	ug/L	0.222	5.56	8.52	85% *(70-130)*		08/13/20 :08/13/20	
Lead	**6.33**	ug/L	0.111	5.56	0.481	105% *(70-130)*		08/13/20 :08/13/20	
Zinc	**45.5**	ug/L	0.556	27.8	20.1	91% *(70-130)*		08/13/20 :08/13/20	

Definitions

DET	Analyte Detected	ND	Analyte Not Detected at or above the reporting limit
MRL	Method Reporting Limit	MDL	Method Detection Limit
NR	Not Reportable	dry	Sample results reported on a dry weight basis
% Rec.	Percent Recovery	RPD	Relative Percent Difference
*	This analyte is not certified under NELAP		

Reported: 08/26/20 15:07

Jennifer Shackelford

Jennifer Shackelford, Laboratory Manager

The results in this report apply only to the samples analyzed. Qualifiers and case narrative comments are essential to interpretation of the analytical results. Report reproductions and/or data summaries without qualifiers and comments are incomplete.

Date: 8/6/2020

Water Pollution Control Laboratory
6543 N. Burlington Ave.
Portland, Oregon 97203-4552
Sample Custodian: (503) 823-5696
General Lab: (503) 823-5681

City of Portland Chain-of-Custody

Bureau of Environmental Services

Work Order #: W204048

Collected By: JXL, JXB

mc 8/6/20

Client Name: ~~Strategy~~/MS4

Project Number (if applicable):

Project Name: **Riot Control Agent Stormwater**

Project Contact: **Barb Adkins**

Requested Analyses

Special Instructions:

Turn-Around-Time Request:

- ☐ Standard (10 business days)
- ☐ Rush (5 business days)
- ☐ Other: _____

Lab Number	Sample Name	Location Code*	Sample Date	Sample Time	Sample Type	Sample Matrix	Total Metals mc 8/6/20 (Ba, ~~Cd~~, Cr, Pb, Zn) Cu	Hexavalent Chromium	Perchlorate	# of Containers	Remarks
01	ABQ069		8/6/2020	0853	G	ST	•	•	•	3	

Relinquished By:	Received By:	Relinquished By:	Received By:
Signature:	Signature:	Signature:	Signature:
Printed Name: Jeremiah Bowden	Printed Name: Matt Clark	Printed Name:	Printed Name:
Date: 8/6/20	Date: 8/6/20	Date:	Date:
Time: 10:23	Time: 1023	Time:	Time:

WPCL Cooler Receipt Form

Work Order Number: W20H048 **Cooler Receipt Form Filled Out By:** MC

Project: Riot Control Agent Stormwater

Received on ice: (YES) **NO** (circle one) *[If directly from field, indicate here:____]*

Sample(s) Received From: CBWTP fridge____ Client ✓ Courier____

Temperature (°C): 13

	Yes	No	N/A
Is the COC present and signed?	✓		
Are sample bottles intact?	✓		
Do the COC and sample labels match?	✓		
Are the appropriate containers used?	✓		
Are samples appropriately preserved?	✓		
Do VOA vials or alkalinity bottles have Headspace? (circle which this applies to)			✓
Are samples received within holding times (except for pH and residual chlorine)?	✓		

Pres. #	Preservative	LIMS ID	Standard Preservation Amounts
1	**HNO_3 (1:1) to pH <2**	2000696	0.5mL/250mL; 1.0mL/500mL; 4-5 drops/50mL centrifuge tube
2	**H_2SO_4 (18N) to pH <2**		0.4mL/250mL; 0.8mL/500mL ; 1.6mL/1000mL
3	**HCl (1:1) to pH <2**		1.0mL/500mL; 2.0mL/1000mL
4	**HCl (1:1) to pH 2-3**		For TOC: 2-5 drops/250mL
5	**NaOH (pellets) to pH >12**		4-10 pellets/500mL; 8-20 pellets/1000mL
6	Ammonium Sulfate Buffer	2001073	2.5mL/250mL

Date	Time	Analyst	Sample LIMS ID	Bottle ID	Pres. #	Comments
8/6/20	1143	MC	W20H048-01	B	6	Pre-preserved in field - pH ok ✓
↓	1152	↓	↓	A	1	

Comments:_____

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

August 21, 2020 **Analytical Report for Service Request No:** K2006781

Jennifer Shackelford
City of Portland
6543 N. Burlington Ave
Portland, OR 97203

RE: Riot Control Agent Stormwater / W20H048

Dear Jennifer,

Enclosed are the results of the sample(s) submitted to our laboratory August 07, 2020
For your reference, these analyses have been assigned our service request number **K2006781.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3364. You may also contact me via email at howard.holmes@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Howard Holmes
Project Manager

ALS Environmental
ALS Group USA, Corp
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F : +1 360 636 1068
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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

SUBCONTRACT ORDER

City of Portland Water Pollution Control Lab

W20H048

K2006781

SENDING LABORATORY:

City of Portland Water Pollution Control Lab
6543 N. Burlington Ave
Portland, OR 97203
Phone: 503-823-5600
Fax: 503-823-5656
Invoice To: Charles Lytle

RECEIVING LABORATORY:

ALS Environmental
1317 S. 13th Avenue
Kelso, WA 98626
Phone :(360) 577-7222
Fax: (360) 636-1068

WPCL Project Name
Riot Control Agent Stormwater

TURNAROUND REQUEST
[X] Standard
[ ] Rush _ day(s)

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: W20H048-01	**Water**	**Sampled:08/06/20 08:53**		
Out-Perchlorate	08/20/20 17:00	09/03/20 08:53		
Out-Cr+6	08/20/20 17:00	09/05/20 08:53		
Containers Supplied:				
P 250ml (B)	P 250ml (C)			

ALS Textel.

Released By	Date	Received By	Date
	8/7/20	ALS	8/7/20 0925
ALS	8/7/20 1245	ALS	8/7/20 1245

PM HH

Cooler Receipt and Preservation Form

Client WPCL Service Request K20 06781

Received: 8/7/20 Opened: 8/7/20 By: Unloaded: 8/7/20 By:

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? _____
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N
4. Was a Temperature Blank present in cooler? NA Y N If yes, notate the temperature in the appropriate column below:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? ~~NA~~ Y N
   If no, were they received on ice and same day as collected? If not, notate the cooler # below and notify the PM. NA Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified if out of temp	Tracking Number NA	Filed
N/A	5.6	IR01		—	—		

6. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
8. Were samples received in good condition (unbroken) NA Y N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA Y N
10. Did all sample labels and tags agree with custody papers? NA Y N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
14. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

Subcontract Lab Results

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

August 21, 2020 Service Request No:E2000729

Howard Holmes
ALS Environmental - Kelso

Laboratory Results for: K2006781

Dear Howard,

Enclosed are the results of the sample(s) submitted to our laboratory August 11, 2020
For your reference, these analyses have been assigned our service request number **E2000729.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety and ALS Environmental is not responsible for use of less than the complete final report. Results apply only to the items submitted to the laboratory, as received for analysis. In accordance with the current TNI Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Corey Grandits
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	ALS Kelso	**Service Request No.:**	E2000729
Project:	K2006781	**Date Received:**	08/11/20
Sample Matrix:	W		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

One sample was received for analysis at ALS Environmental in Houston on 08/11/20.

The sample was received in good condition and is consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2000337: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for this extraction batch. The LCS and DLCS recoveries are within QC limits.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2000729-001	W20H048-01	8/6/2020	0853

Service Request Summary

Folder #: **E2000729**
Client Name: ALS Environmental - US
Project Name: K2006781
Project Number:

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 08/11/20
Internal Due Date: 8/20/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: K2006781
EDD: No EDD Specified

1 250 mL-Plastic Bottle HDPE WM CLEAR Unpreserved
Location: EHRMS-WIC 6C
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4/6850
E2000729-001	W20H048-01	Water	08/06/20 0853	II

Service Request Summary

Folder #: **E2000729**
Client Name: ALS Environmental - US
Project Name: K2006781
Project Number:

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 08/11/20
Internal Due Date: 8/20/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: K2006781
EDD: No EDD Specified

1 250 mL-Plastic Bottle HDPE WM CLEAR Unpreserved
Location: EHRMS-WIC 6C
Pressure Gas:

Data Qualifiers

Lab Standard

+	Possible Tedlar bag artifact.
A	TIC is a suspected aldol-condensation product
B	Analyte found in the associated method blank as well as in the sample.
BC	Reported results are not blank corrected.
BH	The back section of the tube yielded higher results than the front.
BT	Results indicated possible breakthrough; back section >=10% front section.
C	Result identification confirmed.
D	Compound identified in an analysis at a secondary dilution factor
D	Spike was diluted out
DE	Reported results are corrected for desorption efficiency.
E	Estimated value. Concentration above calibration range
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
H1	Sample analysis performed past holding time. See case narrative.
H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
H3	Sample was received and analyzed past holding time.
H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time. See case narrative.
I	Internal standard not within the specified limits. See case narrative.
J	Estimated Value. Concentration found below MRL.
K	A deflection in the QC ion may indicate interference with the quantitation of this ion. The concentration of this analyte should be considered as an estimate.
K	Analyte was detected above the method reporting limit prior to normalization.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
L1	Laboratory control sample recovery outside the specified limits; results may be biased high.
L2	Laboratory control sample recovery outside the specified limits; results may be biased low.
L3	Laboratory control sample recovery outside the specified limits.
M	Matrix interference; results may be biased high.
M	The duplicate injection precision not met.
M1	Matrix interference due to coelution with a non-target compound; results may be biased high.
N	Presumptive evidence of a compound for TICs that have been identified based on a mass spectral library search.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.

Data Qualifiers

Lab Standard

P	Indicates chlorodiphenyl ether interference present at the retention time of the target compound.
P	Pesticide/Aroclor target analyte > 40% difference for detected concentrations between GC columns
Q	Indicates as estimated value because the P and P + 2 theoretical abundance ratio does not meet method criteria.
R	Duplicate Precision not met.
R1	Duplicate precision not within the specified limits; however, the results are below the MRL and considered estimated.
S	Surrogate recovery not within specified limits.
S	The reported value was determined by the Method of Standard Additions (MSA).
T	Analyte is a tentatively identified compound, result is estimated.
U	Compound was analyzed for, but was not detected (ND).
V1	The continuing calibration verification standard was outside (biased high) the specified limits for this compound.
V2	The continuing calibration verification standard was outside (biased low) the specified limits for this compound.
W	Result quantified, but the corresponding peak was detected outside the generated retention time window.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
X	See case narrative.
Y	Recovery outside limits
Y	The chromatogram resembles a petroleum product but does not match the calibration standard.
Z	The chromatogram does not resemble a petroleum product.
i	The MRL/MDL has been elevated due to a matrix interference.

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
American Association for Laboratory Accreditation	2897.01 2020	11/30/2021
Arkansas Department of Environmental Quality	20-030-0	3/26/2021
Department of Defense	A2LA 2897.01	11/30/2021
Hawaii Department of Health	2020	4/30/2021
Illinois Environmental Protection Agency	2000322020-4	5/9/2021
Louisiana Department of Health and Hospitals	LA028-2020	12/31/2020
Maine Department of Health and Human Services	2020016	6/5/2022
Minnesota Department of Health	1785988	12/31/2020
Nebraska Department of Health and Human Services	NE-OS-25-13 (2020)	4/30/2021
Nevada Department of Concervation and Natural Resources	TX026932021-1	7/31/2021
New Hampshire Environmental Laboratory Accreditation Program	209420	4/24/2021
New York Department of Health	11707	3/31/2021
Oklahoma Department of Environmental Quality	2019-067	8/31/2020
Tennessee Department of Environment and Concervation	04016-2020	4/30/2021
Texas Commision on Environmental Quality	T104704231-20-26	4/30/2021
United States Department of Agriculture	P330-19-00299	10/10/2022
Washington Department of Health	C819	11/14/2020

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental Chain of Custody

1317 South 13th Avenue • Kelso, WA 98626 • 1-360-577-7222 • FAX 1-360-636-1068

ALS Contact: Howard Holmes

Project Number: K2006781
Project Manager: Howard Holmes
QAP: LAB QAP

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	Misc Out 1 None
K2006781-001	W20H048-01	/	Water	8/6/20	0853	Houston Full	X

Test Comments
Misc Out 1 - None

K2006781-001 Perchlorate 6850

Folder Comments:
Tier II

Special Instructions/Comments
Please provide the electronic (PDF and EDD) report to the following e-mail address: ALKLS.Data@alsglobal.com.

Send report & EDD to ALKLS.Data & Howard.Holmes

- Test is On Hold P - Test is Authorized for Prep Only

Turnaround Requirements
____ **RUSH** (Surcharges Apply)
PLEASE CIRCLE WORK DAYS
1 2 3 4 5
____ **STANDARD**
Requested FAX Date: ____
Requested Report Date: 08/20/20

Report Requirements
____ I. Results Only
X II. Results + QC Summaries
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
PQL/MDL/J Y
EDD Y

Invoice Information
PO# 51K2006781
Bill to

Relinquished By: [signature] 8/10/2020 1100 Received By: [signature] 8/11/20 1616 Airbill Number:

Cooler Receipt Form

ALS Environmental

Project Chemist: [illegible]

Client/Project: Alsh

Thermometer ID: IR1

Date/Time Received: [illegible] Initials: [illegible]

Date/Time Logged in: [illegible] Initials: [illegible]

1. Method of delivery: ○ US Mail ⊘ Fed Ex ○ UPS ○ DHL ○ Courier ○ Client

2. Samples received in: ⊘ Cooler ○ Box ○ Envelope ○ Other

3. Were custody seals on coolers? ⊘ Yes ○ No

If yes, how many and where?

Were they intact? ⊘ Yes ○ No ○ N/A

Were they signed and dated? ⊘ Yes ○ No ○ N/A

4. Packing Material: ○ Inserts ⊘ Baggies ⊘ Bubble Wrap ⊘ Gel Packs ○ Wet Ice ○ Sleeves ○ Other

5. Foreign or Regulated Soil? ○ Yes ○ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
-		[illegible]	[illegible]	[illegible]	3.2	☒
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ⊘ Yes ○ No

7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ⊘ Yes ○ No

8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ⊘ Yes ○ No

9. Were appropriate bottles/containers and volumes received for the requested tests? ⊘ Yes ○ No

10. Did sample labels and tags agree with custody documents? ⊘ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label:

10450 Stancliff Rd., Suite 210
Houston, TX 77099
T: +1 713 266 1599
F: +1 713 266 1599
www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 363303 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 8/11/20 15:47

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2000711-001	W20H006-01	.01	6850/ClO4			Water	10mL	
2	E2000711-002	W20H006-02	.01	6850/ClO4			Water	10mL	
3	E2000723-001	PT Lot 8213-53	.01	6850/ClO4			Water	10mL	
4	E2000724-001	GW-MW-29D-20200806-01	.01	6850/ClO4			Water	10mL	
5	E2000724-002	GW-MW-66D2-20200806-01	.01	6850/ClO4			Water	10mL	
6	E2000724-003	GW-MW-89D-20200806-01	.01	6850/ClO4			Water	10mL	
7	E2000724-004	GW-MW-98D-20200806-01	.01	6850/ClO4			Water	10mL	
8	E2000728-001	W20H047-01	.01	6850/ClO4			Water	10mL	
9	E2000728-002	W20H047-02	.01	6850/ClO4			Water	10mL	
10	E2000729-001	W20H048-01	.01	6850/ClO4			Water	10mL	
11	EQ2000337-01	MB		6850/ClO4			Liquid	10mL	
12	EQ2000337-02	LCS		6850/ClO4			Liquid	10mL	
13	EQ2000337-03	DLCS		6850/ClO4			Liquid	10mL	

Spiking Solutions

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 202037 Logbook Ref: Sodium Perchlorate Expires On: 05/22/2021

E2000723-001 100.00µL EQ2000337-01 100.00µL EQ2000337-02 100.00µL EQ2000337-03 100.00µL

Name: Perchlorate Intermediate Stock1 Inventory ID 209764 Logbook Ref: Perchlorate Int. Stock1 51820 Expires On: 11/18/2020

EQ2000337-02 100.00µL EQ2000337-03 100.00µL

Preparation Steps

Step: Preparation
Started: 8/11/20 15:47
Finished: 8/11/20 17:00
By: GRIVERA
Comments

Comments: _____

Reviewed By: _____ Date: _____

Preparation Information Benchsheet

Prep Run#: 363303
Team: Semivoa GCMS/GRIVERA

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 8/11/20 15:47

Page 31 of 58

in of Custody

elinquished By: _____ Date: _____

eceived By: _____ Date: _____

Extracts Examined
Yes No

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Client:	ALS Environmental - US	**Service Request:**	E2000729
Project:	K2006781	**Date Collected:**	8/ 6/20 0853
Sample Matrix:	Water	**Date Received:**	8/11/20
Sample Name:	W20H048-01	**Units:**	µg/L
Lab Code:	E2000729-001	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**10.2**		0.100	0.0500	0.0250	1	8/11/20	8/19/20 20:54	363303	691901	

Client:	ALS Environmental - US	**Service Request:**	E2000729
Project:	K2006781	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2000337-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	8/11/20	8/19/20 12:38	363303	691901	

Accuracy & Precision

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Client: ALS Environmental - US
Project: K2006781
Sample Matrix: Water

Service Request: E2000729
Date Analyzed: 8/19/20

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 363303

	Lab Control Sample EQ2000337-02			Duplicate Lab Control Sample EQ2000337-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	9.42	10.0	94	9.92	10.0	99	80 - 120	5	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	ALS Environmental - US	**Service Request:**	E2000729
Project:	K2006781	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2000337-02	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**9.42**		0.100	0.0500	0.0250	1	8/11/20	8/19/20 12:46	363303	691901	

Client:	ALS Environmental - US	**Service Request:**	E2000729
Project:	K2006781	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2000337-03	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**9.92**		0.100	0.0500	0.0250	1	8/11/20	8/19/20 12:53	363303	691901	

August 18, 2020 Service Request No:K2006781

Jennifer Shackelford
City of Portland
6543 N. Burlington Ave
Portland, OR 97203

Laboratory Results for: Riot Control Agent Stormwater

Dear Jennifer,

Enclosed are the results of the sample(s) submitted to our laboratory August 07, 2020
For your reference, these analyses have been assigned our service request number **K2006781.**

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Brady Kalkman
For
Janice Jaeger
Project Manager

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Environmental

Client: Portland, City of
Project: Riot Control Agent Stormwater
Sample Matrix: Water

Service Request: K2006781
Date Received: 08/07/2020

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

One water sample was received for analysis at ALS Environmental on 08/07/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by _____ Date 08/18/2020

SAMPLE DETECTION SUMMARY

CLIENT ID: W20H048-01			Lab ID: K2006781-001			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Chromium, Hexavalent, Dissolved	0.352		0.010	0.020	ug/L	218.6

Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
K2006781-001	W20H048-01	8/6/2020	0853

Intra-Network Chain of Custody

1317 South 13th Avenue • Kelso, WA 98626 • 1-360-577-7222 • FAX 1-360-636-1068

ALS Contact: Howard Holmes

Project Name: Riot Control Agent Stormwater
Project Number: W20H048
Project Manager: Jennifer Shackelford
Company: City of Portland
QAP: LAB QAP

Lab Code	Client Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Date Received	Send To	Cr6 D LL 218.6 LL
K2006781-001	W20H048-01		Water	8/6/20	0853	8/7/20	ROCHESTER	II

1 Cr#6 218.6 LL
8-6-2020
09:53

Folder Comments:
Tier II

Special Instructions/Comments
Please provide the electronic (PDF and EDD) report to the following e-mail address: ALKLS.Data@alsglobal.com.

Send report & EDD to ALKLS.Data & Howard.Holmes

pH Checked _____

Turnaround Requirements
____ **RUSH** (Surcharges Apply)
PLEASE CIRCLE WORK DAYS
1 2 3 4 5
____ **STANDARD**
Requested FAX Date: _____
Requested Report Date: 08/20/20

Report Requirements
____ I. Results Only
X II. Results + QC Summaries
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
PQL/MDL/J Y
EDD Y

Invoice Information
PO# 51K2006781
Bill to

Relinquished By: _____ 8/10/2020 1100 Received By: _____ 8/7/2020 10:10 Airbill Number: _____

K2006781 5
City of Portland
Riot Control Agent Stormwater

K2006781 5
City of Portland
Riot Control Agent Stormwater

Cooler Receipt and Preservation Check Form

Project/Client ALS Kelso Folder Number

Cooler received on 8-11-2020 by: RE

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	(Y)	N
2	**Custody papers** properly completed (ink, signed)?	(Y)	N
3	Did all bottles arrive in good **condition** (unbroken)?	(Y)	N
4	Circle: **Wet Ice** **Dry Ice** **Gel packs** present?	(Y)	N

5a	**Perchlorate** samples have required headspace?	Y	N	(NA)
5b	Did VOA vials, Alk, or Sulfide have sig* **bubbles**?	Y	N	(NA)
6	Where did the bottles originate? ALS/ROC	(CLIENT)		
7	Soil VOA received as: Bulk Encore 5035set	(NA)		

8. Temperature Readings Date: 8/11/2020 Time: 10:31 ID: IR#7 (IR#10) From: (Temp Blank) Sample Bottle

Observed Temp (°C)	2.2						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: SMO by RE on 8/11/20 at 10:33

5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 8/11/2020 Time: 1243 by: (RE)

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (N/A)
13. Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-						
		HCl	**	**						

**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).

Bottle lot numbers: client

Explain all Discrepancies/ Other Comments:

HPROD	BULK
(HTR)	FLDT
SUB	HGFB
ALS	LL3541

CrHi Check

Labels secondary reviewed by: (RE)

PC Secondary Review: _____

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Miscellaneous Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
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REPORT QUALIFIERS AND DEFINITIONS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.
MRL LOQ	Method Reporting Limit. Also known as: Limit of Quantitation (LOQ) The lowest concentration at which the method analyte may be reliably quantified under the method conditions.
MDL	Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).
LOD	Limit of Detection. A value at or above the MDL which has been verified to be detectable.
ND	Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	Pennsylvania ID# 68-786
Delaware Approved	New Hampshire ID # 2941	Rhode Island ID # 158
DoD ELAP #65817	New York ID # 10145	Virginia #460167
Florida ID # E87674	North Carolina #676	

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Analyst Summary report

Client:	Portland, City of	**Service Request:**	K2006781
Project:	Riot Control Agent Stormwater/W20H048		

Sample Name:	W20H048-01	**Date Collected:**	08/6/20
Lab Code:	K2006781-001	**Date Received:**	08/7/20
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
218.6 LL		CWOODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9034 Sulfide Acid Soluble	9030B
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7199	3060A
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction
For analytical methods not listed, the preparation method is the same as the analytical method reference.	

Sample Results

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

General Chemistry

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1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Analytical Report

Client:	Portland, City of	**Service Request:**	K2006781
Project:	Riot Control Agent Stormwater/W20H048	**Date Collected:**	08/06/20 08:53
Sample Matrix:	Water	**Date Received:**	08/07/20 12:45
Sample Name:	W20H048-01	**Basis:**	NA
Lab Code:	K2006781-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Chromium, Hexavalent, Dissolved	218.6	**0.352**	ug/L	0.020	0.010	1	08/14/20 17:55	

QC Summary Forms

ALS Environmental—Rochester Laboratory
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www.alsglobal.com

General Chemistry

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Analytical Report

Client:	Portland, City of	**Service Request:**	K2006781
Project:	Riot Control Agent Stormwater/W20H048	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	K2006781-MB		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Chromium, Hexavalent, Dissolved	218.6	ND U	ug/L	0.020	0.010	1	08/14/20 12:45	

Client: Portland, City of
Project: Riot Control Agent Stormwater/W20H048
Sample Matrix: Water

Service Request: K2006781
Date Analyzed: 08/14/20

Lab Control Sample Summary
General Chemistry Parameters

Units:ug/L
Basis:NA

Lab Control Sample
K2006781-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Chromium, Hexavalent, Dissolved	218.6	0.214	0.200	107	90-110

City of Portland
Water Pollution Control Laboratory
6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656

August 26, 2020

Kevin Veaudry-Casaus
Spill Protection and Citizen Response

Work Order	Project	Received
W20H056	**Riot Control Agent Residual Investigation**	08/07/20 08:41

Enclosed are the results of analysis for the above work order. If you have questions concerning this report, please contact your project coordinator Peter Abrams at 503-823-5533.

Jennifer Shackelford
Laboratory Manager

City of Portland
Water Pollution Control Laboratory
6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656
ORELAP Certification ID 4023

LABORATORY ANALYSIS REPORT

Project:	**Riot Control Agent Residual Investigation**	Client:	Spill Protection and Citizen Response
Work Order:	**W20H056**	Project Mgr:	Kevin Veaudry-Casaus
Received:	8/7/20 8:41		
Submitted By:	Field Operations		

Sample	Laboratory ID	Matrix	Type	Sample Collection Date Start	End	Qualifier
ABQ669	W20H056-01	Stormwater	Grab	08/06/20 08:53	08/06/20 08:53	

Case Narrative

EPA 8270: Diphenylamine is reported as N-nitrosodiphenylamine.
The following compounds were either not detected as TICs or not detectable by method 8270:
Centralite 1,3-diethyldiphenylurea, Malononitrile, and o-chlorobenzaldehyde.

Analyte	Result	Units	MRL	Dil.	Batch	Prepared	Analyzed	Method	Qualifier
ABQ669 : W20H056-01									
General Chemistry									
Cyanide	ND	mg/L	0.0100		B20H176	08/12/20	08/12/20	SM 4500-CN E	
Nutrients									
Chloride	**13.9**	mg/L	1.00	1	B20H171	08/12/20	08/12/20	EPA 300.0	
Dissolved Metals									
Dissolved Metals by ICPMS									
Barium, dissolved	**39.8**	ug/L	2.50	1	B20H190	08/13/20	08/13/20	EPA 200.8	
Chromium, dissolved	**2.14**	ug/L	1.00	1	B20H190	08/13/20	08/13/20	EPA 200.8	
Copper, dissolved	**127**	ug/L	1.00	1	B20H190	08/13/20	08/13/20	EPA 200.8	
Lead, dissolved	**2.11**	ug/L	0.500	1	B20H190	08/13/20	08/13/20	EPA 200.8	
Zinc, dissolved	**565**	ug/L	2.50	1	B20H190	08/13/20	08/13/20	EPA 200.8	

Reported: 08/26/20 15:02

The results in this report apply only to the samples analyzed. Qualifiers and case narrative comments are essential to interpretation of the analytical results. Report reproductions and/or data summaries without qualifiers and comments are incomplete.

Jennifer Shackelford

Jennifer Shackelford, Laboratory Manager

City of Portland
Water Pollution Control Laboratory
6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656
ORELAP Certification ID 4023

Project:	**Riot Control Agent Residual Investigation**	Client:	Spill Protection and Citizen Response
Work Order:	**W20H056**	Received:	08/07/20 08:41

Analyte	Result	Units	MRL	Dil.	Batch	Prepared	Analyzed	Method	Qualifier
Semivolatile Organics									
Semivolatile Organic Compounds by GCMS									
Acenaphthene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Acenaphthylene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Anthracene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Benzo(a)anthracene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Benzo(a)pyrene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Benzo(b)fluoranthene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Benzo(g,h,i)perylene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Benzo(k)fluoranthene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
4-Bromophenylphenyl ether	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Butyl benzyl phthalate	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
4-Chloro-3-methylphenol	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
4-Chloroaniline	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Bis(2-chloroethoxy) methane	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Bis(2-chloroethyl) ether	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Bis(2-chloroisopropyl) ether	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2-Chloronaphthalene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	L1
2-Chlorophenol	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
4-Chlorophenylphenyl ether	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Chrysene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Di-n-butyl phthalate	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Di-n-octyl phthalate	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Dibenzo(a,h)anthracene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Dibenzofuran	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
1,2-Dichlorobenzene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
1,3-Dichlorobenzene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
1,4-Dichlorobenzene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
3,3'-Dichlorobenzidine	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2,4-Dichlorophenol	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Diethyl phthalate	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2,4-Dimethylphenol	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Dimethyl phthalate	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
4,6-Dinitro-2-methylphenol	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	L1
2,4-Dinitrophenol	ND	ug/L	15	1	B20H170	08/12/20	08/12/20	EPA 8270	L1
2,4-Dinitrotoluene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2,6-Dinitrotoluene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Diphenylamine*	ND	ug/L	10	1	B20H170	08/12/20	08/12/20	EPA 8270	
Bis(2-ethylhexyl) phthalate	ND	ug/L	4.5	1	B20H170	08/12/20	08/12/20	EPA 8270	
Fluoranthene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Fluorene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Hexachlorobenzene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Hexachlorobutadiene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	L1

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Jennifer Shackelford

Jennifer Shackelford, Laboratory Manager

City of Portland
Water Pollution Control Laboratory
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ORELAP Certification ID 4023

Project:	**Riot Control Agent Residual Investigation**	Client:	Spill Protection and Citizen Response
Work Order:	**W20H056**	Received:	08/07/20 08:41

Semivolatile Organics

Semivolatile Organic Compounds by GCMS

Analyte	Result	Units	MRL	Dil.	Batch	Prepared	Analyzed	Method	Qualifier
Hexachlorocyclopentadiene	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	L1
Hexachloroethane	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Indeno(1,2,3-cd)pyrene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Isophorone	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2-Methylnaphthalene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2-Methylphenol	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
3- & 4-Methylphenol	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Naphthalene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	L1
2-Nitroaniline	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
3-Nitroaniline	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
4-Nitroaniline	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Nitrobenzene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2-Nitrophenol	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
4-Nitrophenol	ND	ug/L	15	1	B20H170	08/12/20	08/12/20	EPA 8270	
N-Nitrosodimethylamine*	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
N-Nitrosodi-n-propylamine	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
N-Nitrosodiphenylamine	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	N
Pentachlorophenol	**3.3**	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Phenanthrene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Phenol	**3.6**	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Pyrene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2,3,4,6-Tetrachlorophenol	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
1,2,4-Trichlorobenzene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	L1
2,4,5-Trichlorophenol	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2,4,6-Trichlorophenol	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	

Surrogate	*Result*		*Expected*	*%Rec*	*Limits(%)*				
2-Fluorophenol	*24*	ug/L	*24.2*	*98%*	*34-84*	*B20H170*	*08/12/20*	*08/12/20*	*EPA 8270*	*SU2*
Phenol-d6	*19*	ug/L	*24.2*	*79%*	*26-77*	*B20H170*	*08/12/20*	*08/12/20*	*EPA 8270*	*SU2*
Nitrobenzene-d5	*26*	ug/L	*24.2*	*107%*	*52-126*	*B20H170*	*08/12/20*	*08/12/20*	*EPA 8270*	
2-Fluorobiphenyl	*23*	ug/L	*24.2*	*94%*	*44-130*	*B20H170*	*08/12/20*	*08/12/20*	*EPA 8270*	
2,4,6-Tribromophenol	*26*	ug/L	*24.2*	*107%*	*42-141*	*B20H170*	*08/12/20*	*08/12/20*	*EPA 8270*	
p-Terphenyl-d14	*15*	ug/L	*24.2*	*62%*	*38-175*	*B20H170*	*08/12/20*	*08/12/20*	*EPA 8270*	

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Project:	**Riot Control Agent Residual Investigation**	Client:	Spill Protection and Citizen Response
Work Order:	**W20H056**	Received:	08/07/20 08:41

Quality Control Report

General Chemistry - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec *(Limits)*	RPD *(Limit)*	Prepared: Analyzed	Qualifier
Total Cyanide - Batch B20H176									
Blank (B20H176-BLK1)									
Cyanide	ND	mg/L	0.0100					08/12/20 :08/12/20	
LCS (B20H176-BS1)									
Cyanide	**0.0440**	mg/L	0.0100	0.0500		88% *(85-115)*		08/12/20 :08/12/20	
Duplicate (B20H176-DUP1)			**Source: W20H056-01**						
Cyanide	ND	mg/L	0.0100		ND		(20)	08/12/20 :08/12/20	
Matrix Spike (B20H176-MS1)			**Source: W20H056-01**						
Cyanide	**0.0455**	mg/L	0.0100	0.0500	ND	91% *(80-120)*		08/12/20 :08/12/20	
Matrix Spike Dup (B20H176-MSD1)			**Source: W20H056-01**						
Cyanide	**0.0448**	mg/L	0.0100	0.0500	ND	90% *(80-120)*	2 (20)	08/12/20 :08/12/20	

Nutrients - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec *(Limits)*	RPD *(Limit)*	Prepared: Analyzed	Qualifier
Chloride - Batch B20H171									
Blank (B20H171-BLK1)									
Chloride	ND	mg/L	1.00					08/12/20 :08/12/20	
LCS (B20H171-BS1)									
Chloride	**3.93**	mg/L	1.00	4.00		98% *(90-110)*		08/12/20 :08/12/20	
Duplicate (B20H171-DUP1)			**Source: W20H090-01**						
Chloride	**8.34**	mg/L	1.00		8.33		0.06 (20)	08/12/20 :08/12/20	
Duplicate (B20H171-DUP2)			**Source: W20H056-01**						
Chloride	**13.9**	mg/L	1.00		13.9		0.03 (20)	08/12/20 :08/12/20	
Duplicate (B20H171-DUP3)			**Source: W20H015-02**						
Chloride	**46.7**	mg/L	2.00		46.8		0.2 (20)	08/12/20 :08/12/20	
Duplicate (B20H171-DUP4)			**Source: W20H099-03**						
Chloride	**40.7**	mg/L	5.00		40.6		0.04 (20)	08/13/20 :08/13/20	
Matrix Spike (B20H171-MS1)			**Source: W20H090-01**						
Chloride	**12.5**	mg/L	1.00	4.08	8.33	102% *(80-120)*		08/12/20 :08/12/20	

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Nutrients - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec *(Limits)*	RPD *(Limit)*	Prepared: Analyzed	Qualifier
Chloride - Batch B20H171									
Matrix Spike (B20H171-MS2)			**Source: W20H056-01**						
Chloride	**22.0**	mg/L	2.00	8.00	13.9	101% *(80-120)*		08/12/20 :08/12/20	D2
Matrix Spike (B20H171-MS3)			**Source: W20H015-02**						
Chloride	**66.9**	mg/L	5.00	20.0	46.8	101% *(80-120)*		08/12/20 :08/12/20	D2
Matrix Spike (B20H171-MS4)			**Source: W20H099-03**						
Chloride	**60.9**	mg/L	5.00	20.0	40.6	101% *(80-120)*		08/13/20 :08/13/20	

Dissolved Metals - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec *(Limits)*	RPD *(Limit)*	Prepared: Analyzed	Qualifier
Dissolved Metals by ICPMS - Batch B20H190									
Blank (B20H190-BLK1)									
Barium, dissolved	ND	ug/L	0.529					08/13/20 :08/13/20	
Chromium, dissolved	ND	ug/L	0.211					08/13/20 :08/13/20	
Copper, dissolved	ND	ug/L	0.211					08/13/20 :08/13/20	
Lead, dissolved	ND	ug/L	0.106					08/13/20 :08/13/20	
Zinc, dissolved	ND	ug/L	0.529					08/13/20 :08/13/20	
LCS (B20H190-BS1)									
Barium, dissolved	**5.42**	ug/L	0.529	5.29		103% *(85-115)*		08/13/20 :08/13/20	
Chromium, dissolved	**5.21**	ug/L	0.211	5.29		98% *(85-115)*		08/13/20 :08/13/20	
Copper, dissolved	**5.31**	ug/L	0.211	5.29		100% *(85-115)*		08/13/20 :08/13/20	
Lead, dissolved	**5.30**	ug/L	0.106	5.29		100% *(85-115)*		08/13/20 :08/13/20	
Zinc, dissolved	**26.6**	ug/L	0.529	26.4		101% *(85-115)*		08/13/20 :08/13/20	
Duplicate (B20H190-DUP1)			**Source: W20H057-01**						
Barium, dissolved	**78.9**	ug/L	2.50		77.0		2 (20)	08/13/20 :08/13/20	
Chromium, dissolved	**3.98**	ug/L	1.00		4.05		2 (20)	08/13/20 :08/13/20	
Copper, dissolved	**54.0**	ug/L	1.00		54.5		1 (20)	08/13/20 :08/13/20	
Lead, dissolved	**0.590**	ug/L	0.500		0.569		4 (20)	08/13/20 :08/13/20	
Zinc, dissolved	**276**	ug/L	2.50		281		2 (20)	08/13/20 :08/13/20	
Matrix Spike (B20H190-MS1)			**Source: W20H057-01**						
Barium, dissolved	**103**	ug/L	2.50	25.0	77.0	104% *(70-130)*		08/13/20 :08/13/20	
Chromium, dissolved	**27.9**	ug/L	1.00	25.0	4.05	96% *(70-130)*		08/13/20 :08/13/20	
Copper, dissolved	**77.0**	ug/L	1.00	25.0	54.5	90% *(70-130)*		08/13/20 :08/13/20	
Lead, dissolved	**25.8**	ug/L	0.500	25.0	0.569	101% *(70-130)*		08/13/20 :08/13/20	
Zinc, dissolved	**403**	ug/L	2.50	125	281	98% *(70-130)*		08/13/20 :08/13/20	

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Project:	**Riot Control Agent Residual Investigation**	Client:	Spill Protection and Citizen Response
Work Order:	**W20H056**	Received:	08/07/20 08:41

Semivolatile Organics - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec (Limits)	RPD (Limit)	Prepared: Analyzed	Qualifier
Semivolatile Organic Compounds by GCMS - Batch B20H170									
Blank (B20H170-BLK1)									
Acenaphthene	ND	ug/L	3.0					08/12/20 :08/12/20	
Acenaphthylene	ND	ug/L	3.0					08/12/20 :08/12/20	
Anthracene	ND	ug/L	3.0					08/12/20 :08/12/20	
Benzo(a)anthracene	ND	ug/L	3.0					08/12/20 :08/12/20	
Benzo(a)pyrene	ND	ug/L	3.0					08/12/20 :08/12/20	
Benzo(b)fluoranthene	ND	ug/L	3.0					08/12/20 :08/12/20	
Benzo(g,h,i)perylene	ND	ug/L	3.0					08/12/20 :08/12/20	
Benzo(k)fluoranthene	ND	ug/L	3.0					08/12/20 :08/12/20	
4-Bromophenylphenyl ether	ND	ug/L	3.0					08/12/20 :08/12/20	
Butyl benzyl phthalate	ND	ug/L	3.0					08/12/20 :08/12/20	
4-Chloro-3-methylphenol	ND	ug/L	3.0					08/12/20 :08/12/20	
4-Chloroaniline	ND	ug/L	3.0					08/12/20 :08/12/20	
Bis(2-chloroethoxy) methane	ND	ug/L	3.0					08/12/20 :08/12/20	
Bis(2-chloroethyl) ether	ND	ug/L	3.0					08/12/20 :08/12/20	
Bis(2-chloroisopropyl) ether	ND	ug/L	3.0					08/12/20 :08/12/20	
2-Chloronaphthalene	ND	ug/L	3.0					08/12/20 :08/12/20	L1
2-Chlorophenol	ND	ug/L	3.0					08/12/20 :08/12/20	
4-Chlorophenylphenyl ether	ND	ug/L	3.0					08/12/20 :08/12/20	
Chrysene	ND	ug/L	3.0					08/12/20 :08/12/20	
Di-n-butyl phthalate	ND	ug/L	3.0					08/12/20 :08/12/20	
Di-n-octyl phthalate	ND	ug/L	3.0					08/12/20 :08/12/20	
Dibenzo(a,h)anthracene	ND	ug/L	3.0					08/12/20 :08/12/20	
Dibenzofuran	ND	ug/L	3.0					08/12/20 :08/12/20	
1,2-Dichlorobenzene	ND	ug/L	3.0					08/12/20 :08/12/20	
1,3-Dichlorobenzene	ND	ug/L	3.0					08/12/20 :08/12/20	
1,4-Dichlorobenzene	ND	ug/L	3.0					08/12/20 :08/12/20	
3,3'-Dichlorobenzidine	ND	ug/L	3.0					08/12/20 :08/12/20	
2,4-Dichlorophenol	ND	ug/L	3.0					08/12/20 :08/12/20	
Diethyl phthalate	ND	ug/L	3.0					08/12/20 :08/12/20	
2,4-Dimethylphenol	ND	ug/L	6.0					08/12/20 :08/12/20	
Dimethyl phthalate	ND	ug/L	3.0					08/12/20 :08/12/20	
4,6-Dinitro-2-methylphenol	ND	ug/L	6.0					08/12/20 :08/12/20	L1
2,4-Dinitrophenol	ND	ug/L	15					08/12/20 :08/12/20	L1
2,4-Dinitrotoluene	ND	ug/L	3.0					08/12/20 :08/12/20	
2,6-Dinitrotoluene	ND	ug/L	3.0					08/12/20 :08/12/20	
Diphenylamine	ND	ug/L	10					08/12/20 :08/12/20	
Bis(2-ethylhexyl) phthalate	ND	ug/L	4.5					08/12/20 :08/12/20	
Fluoranthene	ND	ug/L	3.0					08/12/20 :08/12/20	
Fluorene	ND	ug/L	3.0					08/12/20 :08/12/20	

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Project:	**Riot Control Agent Residual Investigation**	Client:	Spill Protection and Citizen Response
Work Order:	**W20H056**	Received:	08/07/20 08:41

Semivolatile Organics - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec *(Limits)*	RPD *(Limit)*	Prepared: Analyzed	Qualifier
Semivolatile Organic Compounds by GCMS - Batch B20H170									
Blank (B20H170-BLK1)									
Hexachlorobenzene	ND	ug/L	3.0					08/12/20 :08/12/20	
Hexachlorobutadiene	ND	ug/L	3.0					08/12/20 :08/12/20	L1
Hexachlorocyclopentadiene	ND	ug/L	6.0					08/12/20 :08/12/20	L1
Hexachloroethane	ND	ug/L	3.0					08/12/20 :08/12/20	
Indeno(1,2,3-cd)pyrene	ND	ug/L	3.0					08/12/20 :08/12/20	
Isophorone	ND	ug/L	3.0					08/12/20 :08/12/20	
2-Methylnaphthalene	ND	ug/L	3.0					08/12/20 :08/12/20	
2-Methylphenol	ND	ug/L	6.0					08/12/20 :08/12/20	
3- & 4-Methylphenol	ND	ug/L	6.0					08/12/20 :08/12/20	
Naphthalene	ND	ug/L	3.0					08/12/20 :08/12/20	L1
2-Nitroaniline	ND	ug/L	6.0					08/12/20 :08/12/20	
3-Nitroaniline	ND	ug/L	6.0					08/12/20 :08/12/20	
4-Nitroaniline	ND	ug/L	6.0					08/12/20 :08/12/20	
Nitrobenzene	ND	ug/L	3.0					08/12/20 :08/12/20	
2-Nitrophenol	ND	ug/L	6.0					08/12/20 :08/12/20	
4-Nitrophenol	ND	ug/L	15					08/12/20 :08/12/20	
N-Nitrosodimethylamine	ND	ug/L	3.0					08/12/20 :08/12/20	
N-Nitrosodi-n-propylamine	ND	ug/L	3.0					08/12/20 :08/12/20	
N-Nitrosodiphenylamine	ND	ug/L	3.0					08/12/20 :08/12/20	
Pentachlorophenol	ND	ug/L	3.0					08/12/20 :08/12/20	
Phenanthrene	ND	ug/L	3.0					08/12/20 :08/12/20	
Phenol	ND	ug/L	3.0					08/12/20 :08/12/20	
Pyrene	ND	ug/L	3.0					08/12/20 :08/12/20	
2,3,4,6-Tetrachlorophenol	ND	ug/L	6.0					08/12/20 :08/12/20	
1,2,4-Trichlorobenzene	ND	ug/L	3.0					08/12/20 :08/12/20	L1
2,4,5-Trichlorophenol	ND	ug/L	6.0					08/12/20 :08/12/20	
2,4,6-Trichlorophenol	ND	ug/L	3.0					08/12/20 :08/12/20	
Surrogate									
2-Fluorophenol	*19*	ug/L		*24.2*		79% *(34-84)*		08/12/20 :08/12/20	
Phenol-d6	*18*	ug/L		*24.2*		75% *(26-77)*		08/12/20 :08/12/20	
Nitrobenzene-d5	*24*	ug/L		*24.2*		98% *(52-126)*		08/12/20 :08/12/20	
2-Fluorobiphenyl	*22*	ug/L		*24.2*		92% *(44-130)*		08/12/20 :08/12/20	
2,4,6-Tribromophenol	*18*	ug/L		*24.2*		72% *(42-141)*		08/12/20 :08/12/20	
p-Terphenyl-d14	*24*	ug/L		*24.2*		97% *(38-175)*		08/12/20 :08/12/20	
LCS (B20H170-BS1)									
Acenaphthene	**9.27**	ug/L	3.0	12.1		76% *(70-120)*		08/12/20 :08/12/20	
Acenaphthylene	**8.71**	ug/L	3.0	12.1		72% *(70-127)*		08/12/20 :08/12/20	
Anthracene	**11.0**	ug/L	3.0	12.1		91% *(76-129)*		08/12/20 :08/12/20	
Benzo(a)anthracene	**12.0**	ug/L	3.0	12.1		99% *(80-130)*		08/12/20 :08/12/20	
Benzo(a)pyrene	**10.8**	ug/L	3.0	12.1		89% *(75-127)*		08/12/20 :08/12/20	

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City of Portland
Water Pollution Control Laboratory
6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656
ORELAP Certification ID 4023

Project:	**Riot Control Agent Residual Investigation**	Client:	Spill Protection and Citizen Response
Work Order:	**W20H056**	Received:	08/07/20 08:41

Semivolatile Organics - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec (Limits)	RPD (Limit)	Prepared: Analyzed	Qualifier
Semivolatile Organic Compounds by GCMS - Batch B20H170									
LCS (B20H170-BS1)									
Benzo(b)fluoranthene	**11.1**	ug/L	3.0	12.1		91% *(72-124)*		08/12/20 :08/12/20	
Benzo(g,h,i)perylene	**11.3**	ug/L	3.0	12.1		93% *(68-126)*		08/12/20 :08/12/20	
Benzo(k)fluoranthene	**11.4**	ug/L	3.0	12.1		94% *(71-122)*		08/12/20 :08/12/20	
4-Bromophenylphenyl ether	**10.6**	ug/L	3.0	12.1		87% *(70-130)*		08/12/20 :08/12/20	
Butyl benzyl phthalate	**13.9**	ug/L	3.0	12.1		115% *(73-140)*		08/12/20 :08/12/20	
4-Chloro-3-methylphenol	**14.4**	ug/L	3.0	12.1		119% *(68-123)*		08/12/20 :08/12/20	
4-Chloroaniline	**11.1**	ug/L	3.0	12.1		92% *(57-124)*		08/12/20 :08/12/20	
Bis(2-chloroethoxy) methane	**11.8**	ug/L	3.0	12.1		97% *(69-130)*		08/12/20 :08/12/20	
Bis(2-chloroethyl) ether	**11.4**	ug/L	3.0	12.1		94% *(72-130)*		08/12/20 :08/12/20	
Bis(2-chloroisopropyl) ether	**10.8**	ug/L	3.0	12.1		89% *(63-130)*		08/12/20 :08/12/20	
2-Chloronaphthalene	**7.28**	ug/L	3.0	12.1		60% *(70-126)*		08/12/20 :08/12/20	L1
2-Chlorophenol	**11.3**	ug/L	3.0	12.1		93% *(58-119)*		08/12/20 :08/12/20	
4-Chlorophenylphenyl ether	**9.83**	ug/L	3.0	12.1		81% *(59-123)*		08/12/20 :08/12/20	
Chrysene	**11.4**	ug/L	3.0	12.1		94% *(76-125)*		08/12/20 :08/12/20	
Di-n-butyl phthalate	**13.0**	ug/L	3.0	12.1		107% *(65-130)*		08/12/20 :08/12/20	
Di-n-octyl phthalate	**14.0**	ug/L	3.0	12.1		116% *(61-150)*		08/12/20 :08/12/20	
Dibenzo(a,h)anthracene	**11.4**	ug/L	3.0	12.1		94% *(70-126)*		08/12/20 :08/12/20	
Dibenzofuran	**9.47**	ug/L	3.0	12.1		78% *(67-121)*		08/12/20 :08/12/20	
1,2-Dichlorobenzene	**7.58**	ug/L	3.0	12.1		63% *(47-119)*		08/12/20 :08/12/20	
1,3-Dichlorobenzene	**7.37**	ug/L	3.0	12.1		61% *(45-120)*		08/12/20 :08/12/20	
1,4-Dichlorobenzene	**7.27**	ug/L	3.0	12.1		60% *(45-121)*		08/12/20 :08/12/20	
2,4-Dichlorophenol	**10.4**	ug/L	3.0	12.1		86% *(67-123)*		08/12/20 :08/12/20	
Diethyl phthalate	**11.7**	ug/L	3.0	12.1		97% *(51-130)*		08/12/20 :08/12/20	
2,4-Dimethylphenol	**13.9**	ug/L	6.0	12.1		115% *(59-124)*		08/12/20 :08/12/20	
Dimethyl phthalate	**12.2**	ug/L	3.0	12.1		101% *(66-130)*		08/12/20 :08/12/20	
4,6-Dinitro-2-methylphenol	**1.78**	ug/L	1.2	12.1		15% *(56-118)*		08/12/20 :08/12/20	L1
2,4-Dinitrophenol	ND	ug/L	15	60.6		% *(39-123)*		08/12/20 :08/12/20	L1
2,4-Dinitrotoluene	**9.47**	ug/L	3.0	12.1		78% *(76-133)*		08/12/20 :08/12/20	
2,6-Dinitrotoluene	**11.1**	ug/L	3.0	12.1		92% *(77-133)*		08/12/20 :08/12/20	
Bis(2-ethylhexyl) phthalate	**14.8**	ug/L	4.5	12.1		122% *(58-137)*		08/12/20 :08/12/20	
Fluoranthene	**11.2**	ug/L	3.0	12.1		93% *(74-130)*		08/12/20 :08/12/20	
Fluorene	**10.1**	ug/L	3.0	12.1		83% *(70-122)*		08/12/20 :08/12/20	
Hexachlorobenzene	**11.4**	ug/L	3.0	12.1		94% *(62-142)*		08/12/20 :08/12/20	
Hexachlorobutadiene	**6.12**	ug/L	3.0	12.1		50% *(68-128)*		08/12/20 :08/12/20	L1
Hexachlorocyclopentadiene	**2.73**	ug/L	0.60	12.1		23% *(28-108)*		08/12/20 :08/12/20	L1
Hexachloroethane	**6.82**	ug/L	3.0	12.1		56% *(55-118)*		08/12/20 :08/12/20	
Indeno(1,2,3-cd)pyrene	**11.4**	ug/L	3.0	12.1		94% *(69-130)*		08/12/20 :08/12/20	
Isophorone	**12.3**	ug/L	3.0	12.1		101% *(62-136)*		08/12/20 :08/12/20	
2-Methylnaphthalene	**7.42**	ug/L	3.0	12.1		61% *(58-117)*		08/12/20 :08/12/20	

Reported: 08/26/20 15:02

Jennifer Shackelford

Jennifer Shackelford, Laboratory Manager

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Project:	**Riot Control Agent Residual Investigation**	Client:	Spill Protection and Citizen Response
Work Order:	**W20H056**	Received:	08/07/20 08:41

Semivolatile Organics - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec (Limits)	RPD (Limit)	Prepared: Analyzed	Qualifier
Semivolatile Organic Compounds by GCMS - Batch B20H170									
LCS (B20H170-BS1)									
2-Methylphenol	**12.2**	ug/L	6.0	12.1		101% *(55-123)*		08/12/20 :08/12/20	
3- & 4-Methylphenol	**12.0**	ug/L	6.0	12.1		99% *(50-119)*		08/12/20 :08/12/20	
Naphthalene	**8.09**	ug/L	3.0	12.1		67% *(70-119)*		08/12/20 :08/12/20	L1
2-Nitroaniline	**10.6**	ug/L	6.0	12.1		88% *(74-143)*		08/12/20 :08/12/20	
3-Nitroaniline	**10.1**	ug/L	6.0	12.1		83% *(53-135)*		08/12/20 :08/12/20	
4-Nitroaniline	**9.28**	ug/L	6.0	12.1		77% *(42-147)*		08/12/20 :08/12/20	
Nitrobenzene	**10.8**	ug/L	3.0	12.1		89% *(65-123)*		08/12/20 :08/12/20	
2-Nitrophenol	**9.99**	ug/L	6.0	12.1		82% *(65-120)*		08/12/20 :08/12/20	
4-Nitrophenol	**26.8**	ug/L	15	60.6		44% *(35-54)*		08/12/20 :08/12/20	
N-Nitrosodimethylamine	**6.98**	ug/L	3.0	12.1		58% *(33-69)*		08/12/20 :08/12/20	
N-Nitrosodi-n-propylamine	**12.8**	ug/L	3.0	12.1		105% *(59-131)*		08/12/20 :08/12/20	
N-Nitrosodiphenylamine	**11.6**	ug/L	3.0	12.1		96% *(72-127)*		08/12/20 :08/12/20	
Pentachlorophenol	**9.17**	ug/L	3.0	12.1		76% *(42-130)*		08/12/20 :08/12/20	
Phenanthrene	**10.6**	ug/L	3.0	12.1		88% *(73-126)*		08/12/20 :08/12/20	
Phenol	**9.79**	ug/L	3.0	12.1		81% *(48-88)*		08/12/20 :08/12/20	
Pyrene	**10.9**	ug/L	3.0	12.1		90% *(72-130)*		08/12/20 :08/12/20	
2,3,4,6-Tetrachlorophenol	**9.15**	ug/L	6.0	12.1		75% *(52-114)*		08/12/20 :08/12/20	
1,2,4-Trichlorobenzene	**7.05**	ug/L	3.0	12.1		58% *(61-124)*		08/12/20 :08/12/20	L1
2,4,5-Trichlorophenol	**11.2**	ug/L	6.0	12.1		93% *(63-120)*		08/12/20 :08/12/20	
2,4,6-Trichlorophenol	**10.5**	ug/L	3.0	12.1		86% *(71-119)*		08/12/20 :08/12/20	
Surrogate									
2-Fluorophenol	*21*	ug/L		*24.2*		86% *(34-84)*		08/12/20 :08/12/20	*SU2*
Phenol-d6	*19*	ug/L		*24.2*		79% *(26-77)*		08/12/20 :08/12/20	*SU2*
Nitrobenzene-d5	*26*	ug/L		*24.2*		108% *(52-126)*		08/12/20 :08/12/20	
2-Fluorobiphenyl	*23*	ug/L		*24.2*		97% *(44-130)*		08/12/20 :08/12/20	
2,4,6-Tribromophenol	*20*	ug/L		*24.2*		80% *(42-141)*		08/12/20 :08/12/20	
p-Terphenyl-d14	*24*	ug/L		*24.2*		98% *(38-175)*		08/12/20 :08/12/20	
Matrix Spike (B20H170-MS1)			**Source: W20H057-02**						
Acenaphthene	**10.9**	ug/L	3.0	12.1	ND	90% *(70-130)*		08/12/20 :08/12/20	
Acenaphthylene	**11.2**	ug/L	3.0	12.1	ND	92% *(70-130)*		08/12/20 :08/12/20	
Anthracene	**12.4**	ug/L	3.0	12.1	ND	102% *(70-130)*		08/12/20 :08/12/20	
Benzo(a)anthracene	**12.6**	ug/L	3.0	12.1	ND	104% *(70-130)*		08/12/20 :08/12/20	
Benzo(a)pyrene	**11.3**	ug/L	3.0	12.1	ND	93% *(70-130)*		08/12/20 :08/12/20	
Benzo(b)fluoranthene	**11.6**	ug/L	3.0	12.1	ND	96% *(70-130)*		08/12/20 :08/12/20	
Benzo(g,h,i)perylene	**12.1**	ug/L	3.0	12.1	ND	100% *(70-130)*		08/12/20 :08/12/20	
Benzo(k)fluoranthene	**11.4**	ug/L	3.0	12.1	ND	94% *(70-130)*		08/12/20 :08/12/20	
4-Bromophenylphenyl ether	**11.4**	ug/L	3.0	12.1	ND	94% *(70-130)*		08/12/20 :08/12/20	
Butyl benzyl phthalate	**16.0**	ug/L	3.0	12.1	ND	132% *(70-130)*		08/12/20 :08/12/20	M11
4-Chloro-3-methylphenol	**18.9**	ug/L	3.0	12.1	ND	156% *(70-130)*		08/12/20 :08/12/20	M11
4-Chloroaniline	**2.82**	ug/L	0.60	12.1	ND	23% *(70-130)*		08/12/20 :08/12/20	M4

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Jennifer Shackelford, Laboratory Manager

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Work Order:	**W20H056**	Received:	08/07/20 08:41

Semivolatile Organics - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec *(Limits)*	RPD *(Limit)*	Prepared: Analyzed	Qualifier
Semivolatile Organic Compounds by GCMS - Batch B20H170									
Matrix Spike (B20H170-MS1)			**Source: W20H057-02**						
Bis(2-chloroethoxy) methane	**13.0**	ug/L	3.0	12.1	ND	107% *(70-130)*		08/12/20 :08/12/20	
Bis(2-chloroethyl) ether	**12.9**	ug/L	3.0	12.1	ND	106% *(70-130)*		08/12/20 :08/12/20	
Bis(2-chloroisopropyl) ether	**12.1**	ug/L	3.0	12.1	ND	100% *(70-130)*		08/12/20 :08/12/20	
2-Chloronaphthalene	**9.59**	ug/L	3.0	12.1	ND	79% *(70-130)*		08/12/20 :08/12/20	L1
2-Chlorophenol	**12.6**	ug/L	3.0	12.1	ND	104% *(70-130)*		08/12/20 :08/12/20	
4-Chlorophenylphenyl ether	**11.3**	ug/L	3.0	12.1	ND	93% *(70-130)*		08/12/20 :08/12/20	
Chrysene	**11.8**	ug/L	3.0	12.1	ND	97% *(70-130)*		08/12/20 :08/12/20	
Di-n-butyl phthalate	**14.9**	ug/L	3.0	12.1	ND	123% *(70-130)*		08/12/20 :08/12/20	
Di-n-octyl phthalate	**18.4**	ug/L	3.0	12.1	ND	152% *(70-130)*		08/12/20 :08/12/20	M11
Dibenzo(a,h)anthracene	**12.1**	ug/L	3.0	12.1	ND	100% *(70-130)*		08/12/20 :08/12/20	
Dibenzofuran	**11.1**	ug/L	3.0	12.1	ND	92% *(70-130)*		08/12/20 :08/12/20	
1,2-Dichlorobenzene	**8.58**	ug/L	3.0	12.1	ND	71% *(70-130)*		08/12/20 :08/12/20	
1,3-Dichlorobenzene	**8.40**	ug/L	3.0	12.1	ND	69% *(70-130)*		08/12/20 :08/12/20	M4
1,4-Dichlorobenzene	**8.57**	ug/L	3.0	12.1	ND	71% *(70-130)*		08/12/20 :08/12/20	
2,4-Dichlorophenol	**13.4**	ug/L	3.0	12.1	ND	110% *(70-130)*		08/12/20 :08/12/20	
Diethyl phthalate	**14.5**	ug/L	3.0	12.1	ND	120% *(70-130)*		08/12/20 :08/12/20	
2,4-Dimethylphenol	**16.2**	ug/L	6.0	12.1	ND	134% *(70-130)*		08/12/20 :08/12/20	M11
Dimethyl phthalate	**13.6**	ug/L	3.0	12.1	ND	112% *(70-130)*		08/12/20 :08/12/20	
4,6-Dinitro-2-methylphenol	**13.6**	ug/L	6.0	12.1	ND	113% *(50-150)*		08/12/20 :08/12/20	L1
2,4-Dinitrophenol	**65.2**	ug/L	15	60.6	ND	108% *(50-150)*		08/12/20 :08/12/20	L1
2,4-Dinitrotoluene	**11.8**	ug/L	3.0	12.1	ND	97% *(70-130)*		08/12/20 :08/12/20	
2,6-Dinitrotoluene	**11.6**	ug/L	3.0	12.1	ND	96% *(70-130)*		08/12/20 :08/12/20	
Bis(2-ethylhexyl) phthalate	**23.1**	ug/L	4.5	12.1	6.67	135% *(70-130)*		08/12/20 :08/12/20	M5
Fluoranthene	**12.2**	ug/L	3.0	12.1	ND	100% *(70-130)*		08/12/20 :08/12/20	
Fluorene	**11.4**	ug/L	3.0	12.1	ND	94% *(70-130)*		08/12/20 :08/12/20	
Hexachlorobenzene	**11.9**	ug/L	3.0	12.1	ND	98% *(70-130)*		08/12/20 :08/12/20	
Hexachlorobutadiene	**7.43**	ug/L	3.0	12.1	ND	61% *(70-130)*		08/12/20 :08/12/20	L1
Hexachlorocyclopentadiene	**7.13**	ug/L	6.0	12.1	ND	59% *(70-130)*		08/12/20 :08/12/20	L1
Hexachloroethane	**8.22**	ug/L	3.0	12.1	ND	68% *(70-130)*		08/12/20 :08/12/20	M4
Indeno(1,2,3-cd)pyrene	**12.1**	ug/L	3.0	12.1	ND	100% *(70-130)*		08/12/20 :08/12/20	
Isophorone	**15.3**	ug/L	3.0	12.1	ND	126% *(70-130)*		08/12/20 :08/12/20	
2-Methylnaphthalene	**10.4**	ug/L	3.0	12.1	ND	85% *(70-130)*		08/12/20 :08/12/20	
2-Methylphenol	**16.8**	ug/L	6.0	12.1	ND	138% *(70-130)*		08/12/20 :08/12/20	M11
3- & 4-Methylphenol	**19.2**	ug/L	6.0	12.1	ND	158% *(70-130)*		08/12/20 :08/12/20	M11
Naphthalene	**9.44**	ug/L	3.0	12.1	ND	78% *(70-130)*		08/12/20 :08/12/20	L1
2-Nitroaniline	**13.8**	ug/L	6.0	12.1	ND	113% *(70-130)*		08/12/20 :08/12/20	
3-Nitroaniline	**2.88**	ug/L	1.2	12.1	ND	24% *(70-130)*		08/12/20 :08/12/20	M4
4-Nitroaniline	**4.73**	ug/L	1.2	12.1	ND	39% *(70-130)*		08/12/20 :08/12/20	M4
Nitrobenzene	**12.8**	ug/L	3.0	12.1	ND	105% *(70-130)*		08/12/20 :08/12/20	

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Project:	**Riot Control Agent Residual Investigation**	Client:	Spill Protection and Citizen Response
Work Order:	**W20H056**	Received:	08/07/20 08:41

Semivolatile Organics - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec (Limits)	RPD (Limit)	Prepared: Analyzed	Qualifier
Semivolatile Organic Compounds by GCMS - Batch B20H170									
Matrix Spike (B20H170-MS1)			**Source: W20H057-02**						
2-Nitrophenol	**12.1**	ug/L	6.0	12.1	ND	100% *(70-130)*		08/12/20 :08/12/20	
4-Nitrophenol	**52.9**	ug/L	15	60.6	ND	87% *(50-150)*		08/12/20 :08/12/20	
N-Nitrosodimethylamine	**7.37**	ug/L	3.0	12.1	ND	61% *(70-130)*		08/12/20 :08/12/20	M4
N-Nitrosodi-n-propylamine	**14.8**	ug/L	3.0	12.1	ND	122% *(70-130)*		08/12/20 :08/12/20	
N-Nitrosodiphenylamine	**12.6**	ug/L	3.0	12.1	ND	104% *(70-130)*		08/12/20 :08/12/20	
Pentachlorophenol	**22.3**	ug/L	3.0	12.1	ND	184% *(70-130)*		08/12/20 :08/12/20	M11
Phenanthrene	**11.8**	ug/L	3.0	12.1	ND	98% *(70-130)*		08/12/20 :08/12/20	
Phenol	**12.8**	ug/L	3.0	12.1	ND	106% *(50-150)*		08/12/20 :08/12/20	
Pyrene	**12.0**	ug/L	3.0	12.1	ND	99% *(70-130)*		08/12/20 :08/12/20	
2,3,4,6-Tetrachlorophenol	**12.3**	ug/L	6.0	12.1	ND	102% *(70-130)*		08/12/20 :08/12/20	
1,2,4-Trichlorobenzene	**8.27**	ug/L	3.0	12.1	ND	68% *(70-130)*		08/12/20 :08/12/20	L1
2,4,5-Trichlorophenol	**14.1**	ug/L	6.0	12.1	ND	117% *(70-130)*		08/12/20 :08/12/20	
2,4,6-Trichlorophenol	**13.6**	ug/L	3.0	12.1	ND	112% *(70-130)*		08/12/20 :08/12/20	
Surrogate									
2-Fluorophenol	*25*	ug/L		*24.2*		103% *(34-84)*		08/12/20 :08/12/20	*SU2*
Phenol-d6	*21*	ug/L		*24.2*		87% *(26-77)*		08/12/20 :08/12/20	*SU2*
Nitrobenzene-d5	*29*	ug/L		*24.2*		119% *(52-126)*		08/12/20 :08/12/20	
2-Fluorobiphenyl	*24*	ug/L		*24.2*		100% *(44-130)*		08/12/20 :08/12/20	
2,4,6-Tribromophenol	*28*	ug/L		*24.2*		115% *(42-141)*		08/12/20 :08/12/20	
p-Terphenyl-d14	*19*	ug/L		*24.2*		78% *(38-175)*		08/12/20 :08/12/20	
Matrix Spike Dup (B20H170-MSD1)			**Source: W20H057-02**						
Acenaphthene	**11.2**	ug/L	3.0	12.1	ND	92% *(70-130)*	2 (50)	08/12/20 :08/12/20	
Acenaphthylene	**11.6**	ug/L	3.0	12.1	ND	96% *(70-130)*	4 (50)	08/12/20 :08/12/20	
Anthracene	**12.1**	ug/L	3.0	12.1	ND	100% *(70-130)*	2 (50)	08/12/20 :08/12/20	
Benzo(a)anthracene	**12.7**	ug/L	3.0	12.1	ND	104% *(70-130)*	0.2 (50)	08/12/20 :08/12/20	
Benzo(a)pyrene	**11.0**	ug/L	3.0	12.1	ND	91% *(70-130)*	3 (50)	08/12/20 :08/12/20	
Benzo(b)fluoranthene	**10.8**	ug/L	3.0	12.1	ND	89% *(70-130)*	7 (50)	08/12/20 :08/12/20	
Benzo(g,h,i)perylene	**11.6**	ug/L	3.0	12.1	ND	96% *(70-130)*	5 (50)	08/12/20 :08/12/20	
Benzo(k)fluoranthene	**10.7**	ug/L	3.0	12.1	ND	88% *(70-130)*	7 (50)	08/12/20 :08/12/20	
4-Bromophenylphenyl ether	**11.3**	ug/L	3.0	12.1	ND	93% *(70-130)*	0.8 (50)	08/12/20 :08/12/20	
Butyl benzyl phthalate	**15.3**	ug/L	3.0	12.1	ND	126% *(70-130)*	4 (50)	08/12/20 :08/12/20	
4-Chloro-3-methylphenol	**18.1**	ug/L	3.0	12.1	ND	150% *(70-130)*	4 (50)	08/12/20 :08/12/20	M11
4-Chloroaniline	**3.14**	ug/L	3.0	12.1	ND	26% *(70-130)*	(50)	08/12/20 :08/12/20	M4
Bis(2-chloroethoxy) methane	**12.8**	ug/L	3.0	12.1	ND	106% *(70-130)*	1 (50)	08/12/20 :08/12/20	
Bis(2-chloroethyl) ether	**12.2**	ug/L	3.0	12.1	ND	101% *(70-130)*	6 (50)	08/12/20 :08/12/20	
Bis(2-chloroisopropyl) ether	**11.1**	ug/L	3.0	12.1	ND	91% *(70-130)*	9 (50)	08/12/20 :08/12/20	
2-Chloronaphthalene	**10.3**	ug/L	3.0	12.1	ND	85% *(70-130)*	7 (50)	08/12/20 :08/12/20	L1
2-Chlorophenol	**12.2**	ug/L	3.0	12.1	ND	101% *(70-130)*	3 (50)	08/12/20 :08/12/20	
4-Chlorophenylphenyl ether	**10.8**	ug/L	3.0	12.1	ND	89% *(70-130)*	5 (50)	08/12/20 :08/12/20	
Chrysene	**11.5**	ug/L	3.0	12.1	ND	94% *(70-130)*	3 (50)	08/12/20 :08/12/20	

Reported: 08/26/20 15:02

The results in this report apply only to the samples analyzed. Qualifiers and case narrative comments are essential to interpretation of the analytical results. Report reproductions and/or data summaries without qualifiers and comments are incomplete.

Jennifer Shackelford

Jennifer Shackelford, Laboratory Manager

City of Portland
Water Pollution Control Laboratory
6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656
ORELAP Certification ID 4023

Project:	**Riot Control Agent Residual Investigation**	Client:	Spill Protection and Citizen Response
Work Order:	**W20H056**	Received:	08/07/20 08:41

Semivolatile Organics - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec (Limits)	RPD (Limit)	Prepared: Analyzed	Qualifier
Semivolatile Organic Compounds by GCMS - Batch B20H170									
Matrix Spike Dup (B20H170-MSD1)			**Source: W20H057-02**						
Di-n-butyl phthalate	**14.4**	ug/L	3.0	12.1	ND	119% *(70-130)*	3 (50)	08/12/20 :08/12/20	
Di-n-octyl phthalate	**17.7**	ug/L	3.0	12.1	ND	146% *(70-130)*	3 (50)	08/12/20 :08/12/20	M11
Dibenzo(a,h)anthracene	**11.8**	ug/L	3.0	12.1	ND	98% *(70-130)*	2 (50)	08/12/20 :08/12/20	
Dibenzofuran	**11.2**	ug/L	3.0	12.1	ND	93% *(70-130)*	1 (50)	08/12/20 :08/12/20	
1,2-Dichlorobenzene	**8.87**	ug/L	3.0	12.1	ND	73% *(70-130)*	3 (50)	08/12/20 :08/12/20	
1,3-Dichlorobenzene	**9.06**	ug/L	3.0	12.1	ND	75% *(70-130)*	8 (50)	08/12/20 :08/12/20	M4
1,4-Dichlorobenzene	**9.09**	ug/L	3.0	12.1	ND	75% *(70-130)*	6 (50)	08/12/20 :08/12/20	
2,4-Dichlorophenol	**13.0**	ug/L	3.0	12.1	ND	108% *(70-130)*	3 (50)	08/12/20 :08/12/20	
Diethyl phthalate	**14.1**	ug/L	3.0	12.1	ND	116% *(70-130)*	3 (50)	08/12/20 :08/12/20	
2,4-Dimethylphenol	**15.5**	ug/L	6.0	12.1	ND	128% *(70-130)*	4 (50)	08/12/20 :08/12/20	
Dimethyl phthalate	**13.2**	ug/L	3.0	12.1	ND	109% *(70-130)*	3 (50)	08/12/20 :08/12/20	
4,6-Dinitro-2-methylphenol	**13.9**	ug/L	6.0	12.1	ND	114% *(50-150)*	2 (50)	08/12/20 :08/12/20	L1
2,4-Dinitrophenol	**65.8**	ug/L	15	60.6	ND	109% *(50-150)*	0.9 (50)	08/12/20 :08/12/20	L1
2,4-Dinitrotoluene	**11.8**	ug/L	3.0	12.1	ND	98% *(70-130)*	0.4 (50)	08/12/20 :08/12/20	
2,6-Dinitrotoluene	**11.8**	ug/L	3.0	12.1	ND	98% *(70-130)*	2 (50)	08/12/20 :08/12/20	
Bis(2-ethylhexyl) phthalate	**24.2**	ug/L	4.5	12.1	6.67	145% *(70-130)*	5 (50)	08/12/20 :08/12/20	M5
Fluoranthene	**12.2**	ug/L	3.0	12.1	ND	100% *(70-130)*	0.02 (50)	08/12/20 :08/12/20	
Fluorene	**11.4**	ug/L	3.0	12.1	ND	94% *(70-130)*	0.1 (50)	08/12/20 :08/12/20	
Hexachlorobenzene	**11.7**	ug/L	3.0	12.1	ND	96% *(70-130)*	2 (50)	08/12/20 :08/12/20	
Hexachlorobutadiene	**8.48**	ug/L	3.0	12.1	ND	70% *(70-130)*	13 (50)	08/12/20 :08/12/20	L1
Hexachlorocyclopentadiene	**7.81**	ug/L	6.0	12.1	ND	64% *(70-130)*	9 (50)	08/12/20 :08/12/20	L1
Hexachloroethane	**8.86**	ug/L	3.0	12.1	ND	73% *(70-130)*	7 (50)	08/12/20 :08/12/20	M4
Indeno(1,2,3-cd)pyrene	**11.7**	ug/L	3.0	12.1	ND	96% *(70-130)*	4 (50)	08/12/20 :08/12/20	
Isophorone	**15.0**	ug/L	3.0	12.1	ND	124% *(70-130)*	2 (50)	08/12/20 :08/12/20	
2-Methylnaphthalene	**11.3**	ug/L	3.0	12.1	ND	93% *(70-130)*	9 (50)	08/12/20 :08/12/20	
2-Methylphenol	**13.7**	ug/L	6.0	12.1	ND	113% *(70-130)*	20 (50)	08/12/20 :08/12/20	
3- & 4-Methylphenol	**17.9**	ug/L	6.0	12.1	ND	148% *(70-130)*	7 (50)	08/12/20 :08/12/20	M11
Naphthalene	**10.5**	ug/L	3.0	12.1	ND	87% *(70-130)*	11 (50)	08/12/20 :08/12/20	L1
2-Nitroaniline	**13.9**	ug/L	6.0	12.1	ND	115% *(70-130)*	1 (50)	08/12/20 :08/12/20	
3-Nitroaniline	**3.15**	ug/L	0.60	12.1	1.05	17% *(70-130)*	(50)	08/12/20 :08/12/20	M4
4-Nitroaniline	**4.82**	ug/L	0.60	12.1	0.898	32% *(70-130)*	(50)	08/12/20 :08/12/20	M4
Nitrobenzene	**12.5**	ug/L	3.0	12.1	ND	103% *(70-130)*	2 (50)	08/12/20 :08/12/20	
2-Nitrophenol	**12.6**	ug/L	6.0	12.1	ND	104% *(70-130)*	4 (50)	08/12/20 :08/12/20	
4-Nitrophenol	**51.0**	ug/L	15	60.6	ND	84% *(50-150)*	4 (50)	08/12/20 :08/12/20	
N-Nitrosodimethylamine	**6.99**	ug/L	3.0	12.1	ND	58% *(70-130)*	5 (50)	08/12/20 :08/12/20	M4
N-Nitrosodi-n-propylamine	**14.4**	ug/L	3.0	12.1	ND	119% *(70-130)*	2 (50)	08/12/20 :08/12/20	
N-Nitrosodiphenylamine	**12.1**	ug/L	3.0	12.1	ND	100% *(70-130)*	4 (50)	08/12/20 :08/12/20	
Pentachlorophenol	**22.8**	ug/L	3.0	12.1	ND	188% *(70-130)*	2 (50)	08/12/20 :08/12/20	M11
Phenanthrene	**11.4**	ug/L	3.0	12.1	ND	94% *(70-130)*	4 (50)	08/12/20 :08/12/20	

Reported: 08/26/20 15:02

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Jennifer Shackelford

Jennifer Shackelford, Laboratory Manager

City of Portland
Water Pollution Control Laboratory
6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656
ORELAP Certification ID 4023

Project:	**Riot Control Agent Residual Investigation**	Client:	Spill Protection and Citizen Response
Work Order:	**W20H056**	Received:	08/07/20 08:41

Semivolatile Organics - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec (Limits)	RPD (Limit)	Prepared: Analyzed	Qualifier
Semivolatile Organic Compounds by GCMS - Batch B20H170									
Matrix Spike Dup (B20H170-MSD1)			**Source: W20H057-02**						
Phenol	**12.4**	ug/L	3.0	12.1	ND	102% *(50-150)*	4 (50)	08/12/20 :08/12/20	
Pyrene	**11.5**	ug/L	3.0	12.1	ND	95% *(70-130)*	5 (50)	08/12/20 :08/12/20	
2,3,4,6-Tetrachlorophenol	**12.2**	ug/L	6.0	12.1	ND	101% *(70-130)*	1 (50)	08/12/20 :08/12/20	
1,2,4-Trichlorobenzene	**8.97**	ug/L	3.0	12.1	ND	74% *(70-130)*	8 (50)	08/12/20 :08/12/20	L1
2,4,5-Trichlorophenol	**13.9**	ug/L	6.0	12.1	ND	115% *(70-130)*	1 (50)	08/12/20 :08/12/20	
2,4,6-Trichlorophenol	**13.7**	ug/L	3.0	12.1	ND	113% *(70-130)*	1 (50)	08/12/20 :08/12/20	
Surrogate									
2-Fluorophenol	*24*	ug/L		*24.2*		98% *(34-84)*		08/12/20 :08/12/20	*SU2*
Phenol-d6	*20*	ug/L		*24.2*		83% *(26-77)*		08/12/20 :08/12/20	*SU2*
Nitrobenzene-d5	*28*	ug/L		*24.2*		116% *(52-126)*		08/12/20 :08/12/20	
2-Fluorobiphenyl	*23*	ug/L		*24.2*		93% *(44-130)*		08/12/20 :08/12/20	
2,4,6-Tribromophenol	*27*	ug/L		*24.2*		111% *(42-141)*		08/12/20 :08/12/20	
p-Terphenyl-d14	*17*	ug/L		*24.2*		69% *(38-175)*		08/12/20 :08/12/20	

Qualifiers

D2	The sample required dilution due to high levels of target analytes.
L1	Recovery for this analyte in the laboratory control sample was outside the acceptance range (low). Sample results may be low estimates.
M11	Matrix spike recovery for this analyte was high; the analyte was not detected in the sample and results are not affected.
M4	Based on low matrix spike recovery, the sample result may be a low estimate due to matrix interference.
M5	Based on high matrix spike recovery, the sample result should be considered an estimate due to matrix effect and/or non-homogeneous matrix.
N	Refer to case narrative.
SU2	Recovery for one or more surrogate compounds was outside the acceptance range (high). Sample results may be high estimates.

Definitions

DET	Analyte Detected	ND	Analyte Not Detected at or above the reporting limit
MRL	Method Reporting Limit	MDL	Method Detection Limit
NR	Not Reportable	dry	Sample results reported on a dry weight basis
% Rec.	Percent Recovery	RPD	Relative Percent Difference
*	This analyte is not certified under NELAP		

Reported: 08/26/20 15:02

Jennifer Shackelford

Jennifer Shackelford, Laboratory Manager

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Date: 8/6/20

Water Pollution Control Laboratory
6543 N. Burlington Ave.
Portland, Oregon 97203-4552
Sample Custodian: (503) 823-5696
General Lab: (503) 823-5681

City of Portland Chain-of-Custody

Bureau of Environmental Services

Work Order #: W20H056

Collected By: JXL, JXB

Client Name:	SPCR	Project Number (if applicable):	
Project Name:	**Riot Control Agent Residual Investigation**	Project Contact:	**Kevin Veaudry-Casaus**

Requested Analyses

Stormwater Samples Additional Analyses:
Total Metals (Ba, Cu, Cr, Pb, Zn), Total Hexavalent Chromium, and Perchlorate were analyzed on these same samples submitted under the Riot Control Agent Stormwater project in response to letter from DEQ (W20H047, W20H048). *field filtered 8/12/20

Turn-Around-Time Request:
- ☐ Standard (10 business days)
- ☐ Rush (5 business days)
- ☐ Other: _____

Lab Number	Sample Name	Sample Date	Sample Time	Sample Type	Sample Matrix	Total Cyanide	Dissolved Metals* (Ba, Cu, Cr, Pb, Zn)	Diss. Hexavalent Chromium*	Chloride, Nitrate, Organic Ex. only	SVOC 8270	# of Containers	Remarks
01	ABQ664	8/6/20	0853	G	ST	•	•	•	•	•	3	total metals, total hexavalent chromium and perchlorate on workorder. W20H048

Relinquished By:	Received By:	Relinquished By:	Received By:
Signature:	Signature:	Signature:	Signature:
Printed Name: J Veaudry Casaus	Printed Name: Cara Jung	Printed Name:	Printed Name:
Date: 8/7/20	Date: 8/7/20	Date:	Date:
Time: 0841	Time: 0841	Time:	Time:

W20H056 8/7/20

WPCL Cooler Receipt Form

Work Order Number: SPCR / Rat Co **Cooler Receipt Form Filled Out By:** S

Project: SPCR / Rat Control Agent

Received on ice: YES NO (circle one) *[If directly from field, indicate here:_____]*

Sample(s) Received From: CBWTP fridge_____ Client X Courier_____

Temperature (°C): 5

	Yes	No	N/A
Is the COC present and signed?	✓		
Are sample bottles intact?	✓		
Do the COC and sample labels match?	✓		
Are the appropriate containers used?	✓		
Are samples appropriately preserved?	✓		
Do VOA vials or alkalinity bottles have Headspace? (circle which this applies to)			✓
Are samples received within holding times (except for pH and residual chlorine)?	✓		

Pres. #	Preservative	LIMS ID	Standard Preservation Amounts
1	HNO_3 (1:1) to pH <2	2000696	0.5mL/250mL; 1.0mL/500mL; 4-5 drops/50mL centrifuge tube
2	H_2SO_4 (18N) to pH <2		0.4mL/250mL; 0.8mL/500mL ; 1.6mL/1000mL
3	HCl (1:1) to pH <2		1.0mL/500mL; 2.0mL/1000mL
4	HCl (1:1) to pH 2-3		For TOC: 2-5 drops/250mL
5	NaOH (pellets) to pH >12	1800987	4-10 pellets/500mL; 8-20 pellets/1000mL pre-pres. pH OK
6	Ammonium Sulfate Buffer	2001073	2.5mL/250mL

Date	Time	Analyst	Sample LIMS ID	Bottle ID	Pres. #	Comments
8/7/20	0910	S	W20H056-01	B	1	
↓	↓	↓	↓	C	5	pre-pres. pH ok
↓	↓	↓	↓	D	6	

Comments:_____

WPCL Cooler Receipt Form

Work Order Number: W20H056 **Cooler Receipt Form Filled Out By:** RH

Project: Riot Control Agent Residual Investigation

Received on ice: YES (NO) (circle one) *[If directly from field, indicate here:_____]*

Sample(s) Received From: CBWTP fridge_____ Client ✓ Courier_____

Temperature (°C): 4

	Yes	No	N/A
Is the COC present and signed?	✓		
Are sample bottles intact?	✓		
Do the COC and sample labels match?	✓		
Are the appropriate containers used?	✓		
Are samples appropriately preserved?			✓
Do VOA vials or alkalinity bottles have Headspace? (circle which this applies to)			✓
Are samples received within holding times (except for pH and residual chlorine)?	✓		

Pres. #	Preservative	LIMS ID	Standard Preservation Amounts
1	HNO_3 (1:1) to pH <2		0.5mL/250mL; 1.0mL/500mL; 4-5 drops/50mL centrifuge tube
2	H_2SO_4 (18N) to pH <2		0.4mL/250mL; 0.8mL/500mL ; 1.6mL/1000mL
3	HCl (1:1) to pH <2		1.0mL/500mL; 2.0mL/1000mL
4	HCl (1:1) to pH 2-3		For TOC: 2-5 drops/250mL
5	NaOH (pellets) to pH >12		4-10 pellets/500mL; 8-20 pellets/1000mL

Date	Time	Analyst	Sample LIMS ID	Bottle ID	Pres. #	Comments

Comments: * For additional samples, received in sample receiving on 8/10/20
Bottles

S:\LAB\Forms\WPCL Cooler Receipt Form February 2020.doc

August 19, 2020 Service Request No:K2006772

Jennifer Shackelford
City of Portland
6543 N. Burlington Ave
Portland, OR 97203

Laboratory Results for: Riot Control Agent Residual Investigation

Dear Jennifer,

Enclosed are the results of the sample(s) submitted to our laboratory August 07, 2020
For your reference, these analyses have been assigned our service request number **K2006772.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3364. You may also contact me via email at howard.holmes@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Howard Holmes
Project Manager

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626
PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

ALS Environmental

Client: Portland, City of
Project: Riot Control Agent Residual Investigation
Sample Matrix: Water

Service Request: K2006772
Date Received: 08/07/2020

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

One water sample was received for analysis at ALS Environmental on 08/07/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Subcontracted Analytical Parameters:

Chromium (VI) by EPA Method 218.6
Chromium (VI) analysis by EPA Method 218.6 was performed at ALS Rochester, NY Laboratory. The data for this analysis is included in the corresponding section of this report.

Approved by _____ Date 08/19/2020

Sample Receipt Information

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
K2006772-001	W20H056-01	8/6/2020	0853

SUBCONTRACT ORDER

City of Portland Water Pollution Control Lab

W20H056

K2006772

SENDING LABORATORY:

City of Portland Water Pollution Control Lab
6543 N. Burlington Ave
Portland, OR 97203
Phone: 503-823-5600
Fax: 503-823-5656
Invoice To: Charles Lytle

RECEIVING LABORATORY:

ALS Environmental
1317 S. 13th Avenue
Kelso, WA 98626
Phone :(360) 577-7222
Fax: (360) 636-1068

WPCL Project Name
Riot Control Agent Residual Investigation

TURNAROUND REQUEST
[X] Standard
[ ] Rush _ day(s)

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: W20H056-01	**Water**	**Sampled:08/06/20 08:53**		
Out-Cr+6 diss	08/21/20 17:00	09/05/20 08:53		
Containers Supplied:				
P 250ml (D)				

Released By	Date	Received By	Date
	8/7/20	ALS	8/7/20 0925
	8/7/20 ALS 1245	ALS	8/7/20 1245

PM HH

Cooler Receipt and Preservation Form

Client WRCC Service Request K20 R6772

Received: 8/7/20 Opened: 8/7/20 By: [illegible] Unloaded: 8/7/20 By: [illegible]

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* (*Courier*) *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other*_____ *NA*
3. Were custody seals on coolers? NA Y (N) If yes, how many and where? _____
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N
4. Was a Temperature Blank present in cooler? NA Y (N) If yes, notate the temperature in the appropriate column below:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? ~~NA~~ (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # below and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / (NA)	Out of temp indicate with "X"	PM Notified if out of temp	Tracking Number (NA)	Filed
NA	5.6	IR01		—	—		

6. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
14. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

Miscellaneous Forms

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Subcontracted Analytical Parameters

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

August 18, 2020 Service Request No:K2006772

Jennifer Shackelford
City of Portland
6543 N. Burlington Ave
Portland, OR 97203

Laboratory Results for: Riot Control Agent Residual Investigation

Dear Jennifer,

Enclosed are the results of the sample(s) submitted to our laboratory August 07, 2020
For your reference, these analyses have been assigned our service request number **K2006772.**

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Brady Kalkman
For
Janice Jaeger
Project Manager

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Environmental

Client: Portland, City of
Project: Riot Control Agent Residual Investigation
Sample Matrix: Water

Service Request: K2006772
Date Received: 08/07/2020

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

One water sample was received for analysis at ALS Environmental on 08/07/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by _____ Date 08/18/2020

SAMPLE DETECTION SUMMARY

CLIENT ID: W20H056-01			Lab ID: K2006772-001			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Chromium, Hexavalent, Dissolved	0.24		0.05	0.10	ug/L	218.6

Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
K2006772-001	W20H056-01	8/6/2020	0853

Intra-Network Chain of Custody

1317 South 13th Avenue • Kelso, WA 98626 • 1-360-577-7222 • FAX 1-360-636-1068

ALS Contact: Howard Holmes

Project Name: Riot Control Agent Residual Investigation
Project Number: W20H056
Project Manager: Jennifer Shackelford
Company: City of Portland
QAP: LAB QAP

Lab Code	Client Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Date Received	Send To	Cr6 D LL 218.6 LL
K2006772-001	W20H056-01	1	Water	8/6/20	0853	8/7/20	ROCHESTER	II

1 Cr6 D 218.6 LL
8-6-20 0853

Folder Comments:
Tier II

Special Instructions/Comments
Please provide the electronic (PDF and EDD) report to the following e-mail address: ALKLS.Data@alsglobal.com.

Send report & EDD to ALKLS.Data & Howard.Holmes

pH Checked _____

Turnaround Requirements
____ **RUSH** (Surcharges Apply)
PLEASE CIRCLE WORK DAYS
1 2 3 4 5
____ **STANDARD**
Requested FAX Date: _____
Requested Report Date: 08/20/20

Report Requirements
____ I. Results Only
X II. Results + QC Summaries
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
PQL/MDL/J Y
EDD Y

Invoice Information
PO# 51K2006772
Bill to

Relinquished By: [signature] 8/10/2020 1100
Received By: [signature] 8-11-2020 10:60
Airbill Number:

K2006772 5
City of Portland
Riot Control Agent Residual Investigation

Page 36 of 49

K2006772 5
City of Portland
Riot Control Agent Residual Investigation

Cooler Receipt and Preservation Check Form

Project/Client ALS Kelso Folder Number

Cooler received on 8-11-2020 by: IE

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	(Y) N	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y N (NA)
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate? ALS/ROC	(CLIENT)
4	Circle: **Wet Ice** **Dry Ice** (**Gel packs**) present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 8-11-2020 Time: 10:31 ID: IR#7 (IR#10) From: (Temp Blank) Sample Bottle

Observed Temp (°C)	2.2						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: SMO by IE on 8/12/20 at 10:33

5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 8/11/2020 Time: 1245 by:

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? YES (NO)
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (N/A)
13. Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**						

Bottle lot numbers: Client

Explain all Discrepancies/ Other Comments:

- station pres. acid but not filtered

CMG

HPROD	BULK
(HTR)	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: _____

PC Secondary Review: _____

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Miscellaneous Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
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REPORT QUALIFIERS AND DEFINITIONS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.
MRL LOQ	Method Reporting Limit. Also known as: Limit of Quantitation (LOQ) The lowest concentration at which the method analyte may be reliably quantified under the method conditions.
MDL	Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).
LOD	Limit of Detection. A value at or above the MDL which has been verified to be detectable.
ND	Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	Pennsylvania ID# 68-786
Delaware Approved	New Hampshire ID # 2941	Rhode Island ID # 158
DoD ELAP #65817	New York ID # 10145	Virginia #460167
Florida ID # E87674	North Carolina #676	

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	Portland, City of	**Service Request:**	K2006772
Project:	Riot Control Agent Residual Investigation/W20H056		

Sample Name:	W20H056-01	**Date Collected:**	08/6/20
Lab Code:	K2006772-001	**Date Received:**	08/7/20
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
218.6 LL		CWOODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9034 Sulfide Acid Soluble	9030B
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7199	3060A
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction
For analytical methods not listed, the preparation method is the same as the analytical method reference.	

Sample Results

ALS Environmental—Rochester Laboratory
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General Chemistry

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Analytical Report

Client:	Portland, City of	**Service Request:**	K2006772
Project:	Riot Control Agent Residual Investigation/W20H056	**Date Collected:**	08/06/20 08:53
Sample Matrix:	Water	**Date Received:**	08/07/20 12:45
Sample Name:	W20H056-01	**Basis:**	NA
Lab Code:	K2006772-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Chromium, Hexavalent, Dissolved	218.6	**0.24**	ug/L	0.10	0.05	5	08/12/20 16:05	

QC Summary Forms

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General Chemistry

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Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Analytical Report

Client:	Portland, City of	**Service Request:**	K2006772
Project:	Riot Control Agent Residual Investigation/W20H056	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	K2006772-MB		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Chromium, Hexavalent, Dissolved	218.6	ND U	ug/L	0.020	0.010	1	08/12/20 11:27	

Client: Portland, City of
Project: Riot Control Agent Residual Investigation/W20H056
Sample Matrix: Water

Service Request: K2006772
Date Analyzed: 08/12/20

Lab Control Sample Summary
General Chemistry Parameters

Units:ug/L
Basis:NA

Lab Control Sample
K2006772-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Chromium, Hexavalent, Dissolved	218.6	0.208	0.200	104	90-110

City of Portland
Water Pollution Control Laboratory
6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656

August 26, 2020

Kevin Veaudry-Casaus
Spill Protection and Citizen Response

Work Order	Project	Received
W20H057	**Riot Control Agent Residual Investigation**	08/07/20 08:41

Enclosed are the results of analysis for the above work order. If you have questions concerning this report, please contact your project coordinator Peter Abrams at 503-823-5533.

Jennifer Shackelford
Laboratory Manager

City of Portland
Water Pollution Control Laboratory
6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656
ORELAP Certification ID 4023

LABORATORY ANALYSIS REPORT

Project:	**Riot Control Agent Residual Investigation**	Client:	Spill Protection and Citizen Response
Work Order:	**W20H057**	Project Mgr:	Kevin Veaudry-Casaus
Received:	8/7/20 8:41		
Submitted By:	Field Operations		

Sample	Laboratory ID	Matrix	Type	Sample Collection Date Start	End	Qualifier
ABQ484	W20H057-01	Stormwater	Grab	08/06/20 08:19	08/06/20 08:19	
ABQ608	W20H057-02	Stormwater	Grab	08/06/20 08:52	08/06/20 08:52	

Case Narrative

EPA 8270: Diphenylamine is reported as N-nitrosodiphenylamine.
The following compounds were either not detected as TICs or not detectable by method 8270:
Centralite 1,3-diethyldiphenylurea, Malononitrile, and o-chlorobenzaldehyde.

Analyte	Result	Units	MRL	Dil.	Batch	Prepared	Analyzed	Method	Qualifier
General Chemistry									
Total Cyanide									
ABQ484 : W20H057-01									
Cyanide	ND	mg/L	0.0100		B20H176	08/12/20	08/12/20	SM 4500-CN E	
ABQ608 : W20H057-02									
Cyanide	ND	mg/L	0.0100		B20H176	08/12/20	08/12/20	SM 4500-CN E	
Nutrients									
Chloride									
ABQ484 : W20H057-01									
Chloride	**34.6**	mg/L	2.00	2	B20H171	08/13/20	08/13/20	EPA 300.0	
ABQ608 : W20H057-02									
Chloride	**84.2**	mg/L	10.0	10	B20H171	08/13/20	08/13/20	EPA 300.0	

Reported: 08/26/20 15:02

The results in this report apply only to the samples analyzed. Qualifiers and case narrative comments are essential to interpretation of the analytical results. Report reproductions and/or data summaries without qualifiers and comments are incomplete.

Jennifer Shackelford

Jennifer Shackelford, Laboratory Manager

City of Portland
Water Pollution Control Laboratory
6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656
ORELAP Certification ID 4023

Project:	**Riot Control Agent Residual Investigation**	Client:	Spill Protection and Citizen Response
Work Order:	**W20H057**	Received:	08/07/20 08:41

Analyte	Result	Units	MRL	Dil.	Batch	Prepared	Analyzed	Method	Qualifier
Dissolved Metals									
Dissolved Metals by ICPMS									
ABQ484 : W20H057-01									
Barium, dissolved	**77.0**	ug/L	2.50	1	B20H190	08/13/20	08/13/20	EPA 200.8	
Chromium, dissolved	**4.05**	ug/L	1.00	1	B20H190	08/13/20	08/13/20	EPA 200.8	
Copper, dissolved	**54.5**	ug/L	1.00	1	B20H190	08/13/20	08/13/20	EPA 200.8	
Lead, dissolved	**0.569**	ug/L	0.500	1	B20H190	08/13/20	08/13/20	EPA 200.8	
Zinc, dissolved	**281**	ug/L	2.50	1	B20H190	08/13/20	08/13/20	EPA 200.8	
ABQ608 : W20H057-02									
Barium, dissolved	**56.9**	ug/L	2.50	1	B20H190	08/13/20	08/13/20	EPA 200.8	
Chromium, dissolved	**1.26**	ug/L	1.00	1	B20H190	08/13/20	08/13/20	EPA 200.8	
Copper, dissolved	**55.6**	ug/L	1.00	1	B20H190	08/13/20	08/13/20	EPA 200.8	
Lead, dissolved	**1.02**	ug/L	0.500	1	B20H190	08/13/20	08/13/20	EPA 200.8	
Zinc, dissolved	**304**	ug/L	2.50	1	B20H190	08/13/20	08/13/20	EPA 200.8	

Reported: 08/26/20 15:02

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City of Portland
Water Pollution Control Laboratory
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ORELAP Certification ID 4023

Project:	**Riot Control Agent Residual Investigation**	Client:	Spill Protection and Citizen Response
Work Order:	**W20H057**	Received:	08/07/20 08:41

Semivolatile Organics

Semivolatile Organic Compounds by GCMS

ABQ484 : W20H057-01

Analyte	Result	Units	MRL	Dil.	Batch	Prepared	Analyzed	Method	Qualifier
Acenaphthene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Acenaphthylene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Anthracene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Benzo(a)anthracene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Benzo(a)pyrene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Benzo(b)fluoranthene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Benzo(g,h,i)perylene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Benzo(k)fluoranthene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
4-Bromophenylphenyl ether	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Butyl benzyl phthalate	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
4-Chloro-3-methylphenol	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
4-Chloroaniline	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Bis(2-chloroethoxy) methane	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Bis(2-chloroethyl) ether	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Bis(2-chloroisopropyl) ether	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2-Chloronaphthalene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	L1
2-Chlorophenol	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
4-Chlorophenylphenyl ether	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Chrysene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Di-n-butyl phthalate	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Di-n-octyl phthalate	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Dibenzo(a,h)anthracene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Dibenzofuran	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
1,2-Dichlorobenzene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
1,3-Dichlorobenzene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
1,4-Dichlorobenzene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
3,3'-Dichlorobenzidine	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2,4-Dichlorophenol	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Diethyl phthalate	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2,4-Dimethylphenol	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Dimethyl phthalate	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
4,6-Dinitro-2-methylphenol	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	L1
2,4-Dinitrophenol	ND	ug/L	30	1	B20H170	08/12/20	08/12/20	EPA 8270	D4, L1
2,4-Dinitrotoluene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2,6-Dinitrotoluene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Diphenylamine*	ND	ug/L	10	1	B20H170	08/12/20	08/12/20	EPA 8270	
Bis(2-ethylhexyl) phthalate	**13**	ug/L	4.5	1	B20H170	08/12/20	08/12/20	EPA 8270	
Fluoranthene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Fluorene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Hexachlorobenzene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Hexachlorobutadiene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	L1

Reported: 08/26/20 15:02

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Jennifer Shackelford

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ORELAP Certification ID 4023

Project:	**Riot Control Agent Residual Investigation**	Client:	Spill Protection and Citizen Response
Work Order:	**W20H057**	Received:	08/07/20 08:41

Semivolatile Organics

Semivolatile Organic Compounds by GCMS

Analyte	Result	Units	MRL	Dil.	Batch	Prepared	Analyzed	Method	Qualifier
ABQ484 : W20H057-01									
Hexachlorocyclopentadiene	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	L1
Hexachloroethane	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Indeno(1,2,3-cd)pyrene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Isophorone	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2-Methylnaphthalene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2-Methylphenol	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
3- & 4-Methylphenol	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Naphthalene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	L1
2-Nitroaniline	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
3-Nitroaniline	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
4-Nitroaniline	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Nitrobenzene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2-Nitrophenol	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
4-Nitrophenol	ND	ug/L	15	1	B20H170	08/12/20	08/12/20	EPA 8270	
N-Nitrosodimethylamine*	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
N-Nitrosodi-n-propylamine	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
N-Nitrosodiphenylamine	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	N
Pentachlorophenol	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Phenanthrene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Phenol	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Pyrene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2,3,4,6-Tetrachlorophenol	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
1,2,4-Trichlorobenzene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	L1
2,4,5-Trichlorophenol	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2,4,6-Trichlorophenol	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Surrogate	***Result***		***Expected***	***%Rec***	***Limits(%)***				
2-Fluorophenol	*23*	ug/L	*24.2*	*94%*	*34-84*	*B20H170*	*08/12/20*	*08/12/20*	*EPA 8270*	*SU2*
Phenol-d6	*20*	ug/L	*24.2*	*83%*	*26-77*	*B20H170*	*08/12/20*	*08/12/20*	*EPA 8270*	*SU2*
Nitrobenzene-d5	*25*	ug/L	*24.2*	*102%*	*52-126*	*B20H170*	*08/12/20*	*08/12/20*	*EPA 8270*	
2-Fluorobiphenyl	*21*	ug/L	*24.2*	*88%*	*44-130*	*B20H170*	*08/12/20*	*08/12/20*	*EPA 8270*	
2,4,6-Tribromophenol	*25*	ug/L	*24.2*	*101%*	*42-141*	*B20H170*	*08/12/20*	*08/12/20*	*EPA 8270*	
p-Terphenyl-d14	*17*	ug/L	*24.2*	*69%*	*38-175*	*B20H170*	*08/12/20*	*08/12/20*	*EPA 8270*	
ABQ608 : W20H057-02									
Acenaphthene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Acenaphthylene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Anthracene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Benzo(a)anthracene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Benzo(a)pyrene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Benzo(b)fluoranthene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Benzo(g,h,i)perylene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Benzo(k)fluoranthene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
4-Bromophenylphenyl ether	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	

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Project:	**Riot Control Agent Residual Investigation**	Client:	Spill Protection and Citizen Response
Work Order:	**W20H057**	Received:	08/07/20 08:41

Semivolatile Organics

Semivolatile Organic Compounds by GCMS

ABQ608 : W20H057-02

Analyte	Result	Units	MRL	Dil.	Batch	Prepared	Analyzed	Method	Qualifier
Butyl benzyl phthalate	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
4-Chloro-3-methylphenol	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
4-Chloroaniline	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	M4
Bis(2-chloroethoxy) methane	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Bis(2-chloroethyl) ether	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Bis(2-chloroisopropyl) ether	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2-Chloronaphthalene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	L1
2-Chlorophenol	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
4-Chlorophenylphenyl ether	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Chrysene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Di-n-butyl phthalate	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Di-n-octyl phthalate	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Dibenzo(a,h)anthracene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Dibenzofuran	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
1,2-Dichlorobenzene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
1,3-Dichlorobenzene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	M4
1,4-Dichlorobenzene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
3,3'-Dichlorobenzidine	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2,4-Dichlorophenol	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Diethyl phthalate	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2,4-Dimethylphenol	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Dimethyl phthalate	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
4,6-Dinitro-2-methylphenol	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	L1
2,4-Dinitrophenol	ND	ug/L	15	1	B20H170	08/12/20	08/12/20	EPA 8270	L1
2,4-Dinitrotoluene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2,6-Dinitrotoluene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Diphenylamine*	ND	ug/L	10	1	B20H170	08/12/20	08/12/20	EPA 8270	
Bis(2-ethylhexyl) phthalate	**6.7**	ug/L	4.5	1	B20H170	08/12/20	08/12/20	EPA 8270	M5
Fluoranthene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Fluorene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Hexachlorobenzene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Hexachlorobutadiene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	L1
Hexachlorocyclopentadiene	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	L1
Hexachloroethane	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	M4
Indeno(1,2,3-cd)pyrene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Isophorone	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2-Methylnaphthalene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2-Methylphenol	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
3- & 4-Methylphenol	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Naphthalene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	L1
2-Nitroaniline	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	

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Project:	**Riot Control Agent Residual Investigation**	Client:	Spill Protection and Citizen Response
Work Order:	**W20H057**	Received:	08/07/20 08:41

Analyte	Result	Units	MRL	Dil.	Batch	Prepared	Analyzed	Method	Qualifier
Semivolatile Organics									
Semivolatile Organic Compounds by GCMS									
ABQ608 : W20H057-02									
3-Nitroaniline	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	M4
4-Nitroaniline	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	M4
Nitrobenzene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2-Nitrophenol	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
4-Nitrophenol	ND	ug/L	15	1	B20H170	08/12/20	08/12/20	EPA 8270	
N-Nitrosodimethylamine*	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	M4
N-Nitrosodi-n-propylamine	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
N-Nitrosodiphenylamine	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	N
Pentachlorophenol	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Phenanthrene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Phenol	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Pyrene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2,3,4,6-Tetrachlorophenol	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
1,2,4-Trichlorobenzene	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	L1
2,4,5-Trichlorophenol	ND	ug/L	6.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
2,4,6-Trichlorophenol	ND	ug/L	3.0	1	B20H170	08/12/20	08/12/20	EPA 8270	
Surrogate	***Result***		***Expected***	***%Rec***	***Limits(%)***				
2-Fluorophenol	*25*	ug/L	*24.2*	*102%*	*34-84*	*B20H170*	*08/12/20*	*08/12/20*	*EPA 8270*	*SU2*
Phenol-d6	*21*	ug/L	*24.2*	*85%*	*26-77*	*B20H170*	*08/12/20*	*08/12/20*	*EPA 8270*	*SU2*
Nitrobenzene-d5	*26*	ug/L	*24.2*	*107%*	*52-126*	*B20H170*	*08/12/20*	*08/12/20*	*EPA 8270*	
2-Fluorobiphenyl	*23*	ug/L	*24.2*	*96%*	*44-130*	*B20H170*	*08/12/20*	*08/12/20*	*EPA 8270*	
2,4,6-Tribromophenol	*26*	ug/L	*24.2*	*108%*	*42-141*	*B20H170*	*08/12/20*	*08/12/20*	*EPA 8270*	
p-Terphenyl-d14	*18*	ug/L	*24.2*	*75%*	*38-175*	*B20H170*	*08/12/20*	*08/12/20*	*EPA 8270*	

Reported: 08/26/20 15:02

Jennifer Shackelford

Jennifer Shackelford, Laboratory Manager

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Water Pollution Control Laboratory
6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656
ORELAP Certification ID 4023

Project:	**Riot Control Agent Residual Investigation**	Client:	Spill Protection and Citizen Response
Work Order:	**W20H057**	Received:	08/07/20 08:41

Quality Control Report

General Chemistry - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec *(Limits)*	RPD *(Limit)*	Prepared: Analyzed	Qualifier
Total Cyanide - Batch B20H176									
Blank (B20H176-BLK1)									
Cyanide	ND	mg/L	0.0100					08/12/20 :08/12/20	
LCS (B20H176-BS1)									
Cyanide	**0.0440**	mg/L	0.0100	0.0500		88% *(85-115)*		08/12/20 :08/12/20	
Duplicate (B20H176-DUP1)			**Source: W20H056-01**						
Cyanide	ND	mg/L	0.0100		ND		(20)	08/12/20 :08/12/20	
Matrix Spike (B20H176-MS1)			**Source: W20H056-01**						
Cyanide	**0.0455**	mg/L	0.0100	0.0500	ND	91% *(80-120)*		08/12/20 :08/12/20	
Matrix Spike Dup (B20H176-MSD1)			**Source: W20H056-01**						
Cyanide	**0.0448**	mg/L	0.0100	0.0500	ND	90% *(80-120)*	2 (20)	08/12/20 :08/12/20	

Nutrients - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec *(Limits)*	RPD *(Limit)*	Prepared: Analyzed	Qualifier
Chloride - Batch B20H171									
Blank (B20H171-BLK1)									
Chloride	ND	mg/L	1.00					08/12/20 :08/12/20	
LCS (B20H171-BS1)									
Chloride	**3.93**	mg/L	1.00	4.00		98% *(90-110)*		08/12/20 :08/12/20	
Duplicate (B20H171-DUP1)			**Source: W20H090-01**						
Chloride	**8.34**	mg/L	1.00		8.33		0.06 (20)	08/12/20 :08/12/20	
Duplicate (B20H171-DUP2)			**Source: W20H056-01**						
Chloride	**13.9**	mg/L	1.00		13.9		0.03 (20)	08/12/20 :08/12/20	
Duplicate (B20H171-DUP3)			**Source: W20H015-02**						
Chloride	**46.7**	mg/L	2.00		46.8		0.2 (20)	08/12/20 :08/12/20	
Duplicate (B20H171-DUP4)			**Source: W20H099-03**						
Chloride	**40.7**	mg/L	5.00		40.6		0.04 (20)	08/13/20 :08/13/20	
Matrix Spike (B20H171-MS1)			**Source: W20H090-01**						
Chloride	**12.5**	mg/L	1.00	4.08	8.33	102% *(80-120)*		08/12/20 :08/12/20	

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Nutrients - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec *(Limits)*	RPD *(Limit)*	Prepared: Analyzed	Qualifier
Chloride - Batch B20H171									
Matrix Spike (B20H171-MS2)			**Source: W20H056-01**						
Chloride	**22.0**	mg/L	2.00	8.00	13.9	101% *(80-120)*		08/12/20 :08/12/20	D2
Matrix Spike (B20H171-MS3)			**Source: W20H015-02**						
Chloride	**66.9**	mg/L	5.00	20.0	46.8	101% *(80-120)*		08/12/20 :08/12/20	D2
Matrix Spike (B20H171-MS4)			**Source: W20H099-03**						
Chloride	**60.9**	mg/L	5.00	20.0	40.6	101% *(80-120)*		08/13/20 :08/13/20	

Dissolved Metals - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec *(Limits)*	RPD *(Limit)*	Prepared: Analyzed	Qualifier
Dissolved Metals by ICPMS - Batch B20H190									
Blank (B20H190-BLK1)									
Barium, dissolved	ND	ug/L	0.529					08/13/20 :08/13/20	
Chromium, dissolved	ND	ug/L	0.211					08/13/20 :08/13/20	
Copper, dissolved	ND	ug/L	0.211					08/13/20 :08/13/20	
Lead, dissolved	ND	ug/L	0.106					08/13/20 :08/13/20	
Zinc, dissolved	ND	ug/L	0.529					08/13/20 :08/13/20	
LCS (B20H190-BS1)									
Barium, dissolved	**5.42**	ug/L	0.529	5.29		103% *(85-115)*		08/13/20 :08/13/20	
Chromium, dissolved	**5.21**	ug/L	0.211	5.29		98% *(85-115)*		08/13/20 :08/13/20	
Copper, dissolved	**5.31**	ug/L	0.211	5.29		100% *(85-115)*		08/13/20 :08/13/20	
Lead, dissolved	**5.30**	ug/L	0.106	5.29		100% *(85-115)*		08/13/20 :08/13/20	
Zinc, dissolved	**26.6**	ug/L	0.529	26.4		101% *(85-115)*		08/13/20 :08/13/20	
Duplicate (B20H190-DUP1)			**Source: W20H057-01**						
Barium, dissolved	**78.9**	ug/L	2.50		77.0		2 (20)	08/13/20 :08/13/20	
Chromium, dissolved	**3.98**	ug/L	1.00		4.05		2 (20)	08/13/20 :08/13/20	
Copper, dissolved	**54.0**	ug/L	1.00		54.5		1 (20)	08/13/20 :08/13/20	
Lead, dissolved	**0.590**	ug/L	0.500		0.569		4 (20)	08/13/20 :08/13/20	
Zinc, dissolved	**276**	ug/L	2.50		281		2 (20)	08/13/20 :08/13/20	
Matrix Spike (B20H190-MS1)			**Source: W20H057-01**						
Barium, dissolved	**103**	ug/L	2.50	25.0	77.0	104% *(70-130)*		08/13/20 :08/13/20	
Chromium, dissolved	**27.9**	ug/L	1.00	25.0	4.05	96% *(70-130)*		08/13/20 :08/13/20	
Copper, dissolved	**77.0**	ug/L	1.00	25.0	54.5	90% *(70-130)*		08/13/20 :08/13/20	
Lead, dissolved	**25.8**	ug/L	0.500	25.0	0.569	101% *(70-130)*		08/13/20 :08/13/20	
Zinc, dissolved	**403**	ug/L	2.50	125	281	98% *(70-130)*		08/13/20 :08/13/20	

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Project:	**Riot Control Agent Residual Investigation**	Client:	Spill Protection and Citizen Response
Work Order:	**W20H057**	Received:	08/07/20 08:41

Semivolatile Organics - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec (Limits)	RPD (Limit)	Prepared: Analyzed	Qualifier
Semivolatile Organic Compounds by GCMS - Batch B20H170									
Blank (B20H170-BLK1)									
Acenaphthene	ND	ug/L	3.0					08/12/20 :08/12/20	
Acenaphthylene	ND	ug/L	3.0					08/12/20 :08/12/20	
Anthracene	ND	ug/L	3.0					08/12/20 :08/12/20	
Benzo(a)anthracene	ND	ug/L	3.0					08/12/20 :08/12/20	
Benzo(a)pyrene	ND	ug/L	3.0					08/12/20 :08/12/20	
Benzo(b)fluoranthene	ND	ug/L	3.0					08/12/20 :08/12/20	
Benzo(g,h,i)perylene	ND	ug/L	3.0					08/12/20 :08/12/20	
Benzo(k)fluoranthene	ND	ug/L	3.0					08/12/20 :08/12/20	
4-Bromophenylphenyl ether	ND	ug/L	3.0					08/12/20 :08/12/20	
Butyl benzyl phthalate	ND	ug/L	3.0					08/12/20 :08/12/20	
4-Chloro-3-methylphenol	ND	ug/L	3.0					08/12/20 :08/12/20	
4-Chloroaniline	ND	ug/L	3.0					08/12/20 :08/12/20	
Bis(2-chloroethoxy) methane	ND	ug/L	3.0					08/12/20 :08/12/20	
Bis(2-chloroethyl) ether	ND	ug/L	3.0					08/12/20 :08/12/20	
Bis(2-chloroisopropyl) ether	ND	ug/L	3.0					08/12/20 :08/12/20	
2-Chloronaphthalene	ND	ug/L	3.0					08/12/20 :08/12/20	L1
2-Chlorophenol	ND	ug/L	3.0					08/12/20 :08/12/20	
4-Chlorophenylphenyl ether	ND	ug/L	3.0					08/12/20 :08/12/20	
Chrysene	ND	ug/L	3.0					08/12/20 :08/12/20	
Di-n-butyl phthalate	ND	ug/L	3.0					08/12/20 :08/12/20	
Di-n-octyl phthalate	ND	ug/L	3.0					08/12/20 :08/12/20	
Dibenzo(a,h)anthracene	ND	ug/L	3.0					08/12/20 :08/12/20	
Dibenzofuran	ND	ug/L	3.0					08/12/20 :08/12/20	
1,2-Dichlorobenzene	ND	ug/L	3.0					08/12/20 :08/12/20	
1,3-Dichlorobenzene	ND	ug/L	3.0					08/12/20 :08/12/20	
1,4-Dichlorobenzene	ND	ug/L	3.0					08/12/20 :08/12/20	
3,3'-Dichlorobenzidine	ND	ug/L	3.0					08/12/20 :08/12/20	
2,4-Dichlorophenol	ND	ug/L	3.0					08/12/20 :08/12/20	
Diethyl phthalate	ND	ug/L	3.0					08/12/20 :08/12/20	
2,4-Dimethylphenol	ND	ug/L	6.0					08/12/20 :08/12/20	
Dimethyl phthalate	ND	ug/L	3.0					08/12/20 :08/12/20	
4,6-Dinitro-2-methylphenol	ND	ug/L	6.0					08/12/20 :08/12/20	L1
2,4-Dinitrophenol	ND	ug/L	15					08/12/20 :08/12/20	L1
2,4-Dinitrotoluene	ND	ug/L	3.0					08/12/20 :08/12/20	
2,6-Dinitrotoluene	ND	ug/L	3.0					08/12/20 :08/12/20	
Diphenylamine	ND	ug/L	10					08/12/20 :08/12/20	
Bis(2-ethylhexyl) phthalate	ND	ug/L	4.5					08/12/20 :08/12/20	
Fluoranthene	ND	ug/L	3.0					08/12/20 :08/12/20	
Fluorene	ND	ug/L	3.0					08/12/20 :08/12/20	

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Semivolatile Organics - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec *(Limits)*	RPD *(Limit)*	Prepared: Analyzed	Qualifier
Semivolatile Organic Compounds by GCMS - Batch B20H170									
Blank (B20H170-BLK1)									
Hexachlorobenzene	ND	ug/L	3.0					08/12/20 :08/12/20	
Hexachlorobutadiene	ND	ug/L	3.0					08/12/20 :08/12/20	L1
Hexachlorocyclopentadiene	ND	ug/L	6.0					08/12/20 :08/12/20	L1
Hexachloroethane	ND	ug/L	3.0					08/12/20 :08/12/20	
Indeno(1,2,3-cd)pyrene	ND	ug/L	3.0					08/12/20 :08/12/20	
Isophorone	ND	ug/L	3.0					08/12/20 :08/12/20	
2-Methylnaphthalene	ND	ug/L	3.0					08/12/20 :08/12/20	
2-Methylphenol	ND	ug/L	6.0					08/12/20 :08/12/20	
3- & 4-Methylphenol	ND	ug/L	6.0					08/12/20 :08/12/20	
Naphthalene	ND	ug/L	3.0					08/12/20 :08/12/20	L1
2-Nitroaniline	ND	ug/L	6.0					08/12/20 :08/12/20	
3-Nitroaniline	ND	ug/L	6.0					08/12/20 :08/12/20	
4-Nitroaniline	ND	ug/L	6.0					08/12/20 :08/12/20	
Nitrobenzene	ND	ug/L	3.0					08/12/20 :08/12/20	
2-Nitrophenol	ND	ug/L	6.0					08/12/20 :08/12/20	
4-Nitrophenol	ND	ug/L	15					08/12/20 :08/12/20	
N-Nitrosodimethylamine	ND	ug/L	3.0					08/12/20 :08/12/20	
N-Nitrosodi-n-propylamine	ND	ug/L	3.0					08/12/20 :08/12/20	
N-Nitrosodiphenylamine	ND	ug/L	3.0					08/12/20 :08/12/20	
Pentachlorophenol	ND	ug/L	3.0					08/12/20 :08/12/20	
Phenanthrene	ND	ug/L	3.0					08/12/20 :08/12/20	
Phenol	ND	ug/L	3.0					08/12/20 :08/12/20	
Pyrene	ND	ug/L	3.0					08/12/20 :08/12/20	
2,3,4,6-Tetrachlorophenol	ND	ug/L	6.0					08/12/20 :08/12/20	
1,2,4-Trichlorobenzene	ND	ug/L	3.0					08/12/20 :08/12/20	L1
2,4,5-Trichlorophenol	ND	ug/L	6.0					08/12/20 :08/12/20	
2,4,6-Trichlorophenol	ND	ug/L	3.0					08/12/20 :08/12/20	
Surrogate									
2-Fluorophenol	*19*	ug/L		*24.2*		79% *(34-84)*		08/12/20 :08/12/20	
Phenol-d6	*18*	ug/L		*24.2*		75% *(26-77)*		08/12/20 :08/12/20	
Nitrobenzene-d5	*24*	ug/L		*24.2*		98% *(52-126)*		08/12/20 :08/12/20	
2-Fluorobiphenyl	*22*	ug/L		*24.2*		92% *(44-130)*		08/12/20 :08/12/20	
2,4,6-Tribromophenol	*18*	ug/L		*24.2*		72% *(42-141)*		08/12/20 :08/12/20	
p-Terphenyl-d14	*24*	ug/L		*24.2*		97% *(38-175)*		08/12/20 :08/12/20	
LCS (B20H170-BS1)									
Acenaphthene	**9.27**	ug/L	3.0	12.1		76% *(70-120)*		08/12/20 :08/12/20	
Acenaphthylene	**8.71**	ug/L	3.0	12.1		72% *(70-127)*		08/12/20 :08/12/20	
Anthracene	**11.0**	ug/L	3.0	12.1		91% *(76-129)*		08/12/20 :08/12/20	
Benzo(a)anthracene	**12.0**	ug/L	3.0	12.1		99% *(80-130)*		08/12/20 :08/12/20	
Benzo(a)pyrene	**10.8**	ug/L	3.0	12.1		89% *(75-127)*		08/12/20 :08/12/20	

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Semivolatile Organics - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec (Limits)	RPD (Limit)	Prepared: Analyzed	Qualifier
Semivolatile Organic Compounds by GCMS - Batch B20H170									
LCS (B20H170-BS1)									
Benzo(b)fluoranthene	**11.1**	ug/L	3.0	12.1		91% *(72-124)*		08/12/20 :08/12/20	
Benzo(g,h,i)perylene	**11.3**	ug/L	3.0	12.1		93% *(68-126)*		08/12/20 :08/12/20	
Benzo(k)fluoranthene	**11.4**	ug/L	3.0	12.1		94% *(71-122)*		08/12/20 :08/12/20	
4-Bromophenylphenyl ether	**10.6**	ug/L	3.0	12.1		87% *(70-130)*		08/12/20 :08/12/20	
Butyl benzyl phthalate	**13.9**	ug/L	3.0	12.1		115% *(73-140)*		08/12/20 :08/12/20	
4-Chloro-3-methylphenol	**14.4**	ug/L	3.0	12.1		119% *(68-123)*		08/12/20 :08/12/20	
4-Chloroaniline	**11.1**	ug/L	3.0	12.1		92% *(57-124)*		08/12/20 :08/12/20	
Bis(2-chloroethoxy) methane	**11.8**	ug/L	3.0	12.1		97% *(69-130)*		08/12/20 :08/12/20	
Bis(2-chloroethyl) ether	**11.4**	ug/L	3.0	12.1		94% *(72-130)*		08/12/20 :08/12/20	
Bis(2-chloroisopropyl) ether	**10.8**	ug/L	3.0	12.1		89% *(63-130)*		08/12/20 :08/12/20	
2-Chloronaphthalene	**7.28**	ug/L	3.0	12.1		60% *(70-126)*		08/12/20 :08/12/20	L1
2-Chlorophenol	**11.3**	ug/L	3.0	12.1		93% *(58-119)*		08/12/20 :08/12/20	
4-Chlorophenylphenyl ether	**9.83**	ug/L	3.0	12.1		81% *(59-123)*		08/12/20 :08/12/20	
Chrysene	**11.4**	ug/L	3.0	12.1		94% *(76-125)*		08/12/20 :08/12/20	
Di-n-butyl phthalate	**13.0**	ug/L	3.0	12.1		107% *(65-130)*		08/12/20 :08/12/20	
Di-n-octyl phthalate	**14.0**	ug/L	3.0	12.1		116% *(61-150)*		08/12/20 :08/12/20	
Dibenzo(a,h)anthracene	**11.4**	ug/L	3.0	12.1		94% *(70-126)*		08/12/20 :08/12/20	
Dibenzofuran	**9.47**	ug/L	3.0	12.1		78% *(67-121)*		08/12/20 :08/12/20	
1,2-Dichlorobenzene	**7.58**	ug/L	3.0	12.1		63% *(47-119)*		08/12/20 :08/12/20	
1,3-Dichlorobenzene	**7.37**	ug/L	3.0	12.1		61% *(45-120)*		08/12/20 :08/12/20	
1,4-Dichlorobenzene	**7.27**	ug/L	3.0	12.1		60% *(45-121)*		08/12/20 :08/12/20	
2,4-Dichlorophenol	**10.4**	ug/L	3.0	12.1		86% *(67-123)*		08/12/20 :08/12/20	
Diethyl phthalate	**11.7**	ug/L	3.0	12.1		97% *(51-130)*		08/12/20 :08/12/20	
2,4-Dimethylphenol	**13.9**	ug/L	6.0	12.1		115% *(59-124)*		08/12/20 :08/12/20	
Dimethyl phthalate	**12.2**	ug/L	3.0	12.1		101% *(66-130)*		08/12/20 :08/12/20	
4,6-Dinitro-2-methylphenol	**1.78**	ug/L	1.2	12.1		15% *(56-118)*		08/12/20 :08/12/20	L1
2,4-Dinitrophenol	ND	ug/L	15	60.6		% *(39-123)*		08/12/20 :08/12/20	L1
2,4-Dinitrotoluene	**9.47**	ug/L	3.0	12.1		78% *(76-133)*		08/12/20 :08/12/20	
2,6-Dinitrotoluene	**11.1**	ug/L	3.0	12.1		92% *(77-133)*		08/12/20 :08/12/20	
Bis(2-ethylhexyl) phthalate	**14.8**	ug/L	4.5	12.1		122% *(58-137)*		08/12/20 :08/12/20	
Fluoranthene	**11.2**	ug/L	3.0	12.1		93% *(74-130)*		08/12/20 :08/12/20	
Fluorene	**10.1**	ug/L	3.0	12.1		83% *(70-122)*		08/12/20 :08/12/20	
Hexachlorobenzene	**11.4**	ug/L	3.0	12.1		94% *(62-142)*		08/12/20 :08/12/20	
Hexachlorobutadiene	**6.12**	ug/L	3.0	12.1		50% *(68-128)*		08/12/20 :08/12/20	L1
Hexachlorocyclopentadiene	**2.73**	ug/L	0.60	12.1		23% *(28-108)*		08/12/20 :08/12/20	L1
Hexachloroethane	**6.82**	ug/L	3.0	12.1		56% *(55-118)*		08/12/20 :08/12/20	
Indeno(1,2,3-cd)pyrene	**11.4**	ug/L	3.0	12.1		94% *(69-130)*		08/12/20 :08/12/20	
Isophorone	**12.3**	ug/L	3.0	12.1		101% *(62-136)*		08/12/20 :08/12/20	
2-Methylnaphthalene	**7.42**	ug/L	3.0	12.1		61% *(58-117)*		08/12/20 :08/12/20	

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City of Portland
Water Pollution Control Laboratory
6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656
ORELAP Certification ID 4023

Project:	**Riot Control Agent Residual Investigation**	Client:	Spill Protection and Citizen Response
Work Order:	**W20H057**	Received:	08/07/20 08:41

Semivolatile Organics - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec (Limits)	RPD (Limit)	Prepared: Analyzed	Qualifier
Semivolatile Organic Compounds by GCMS - Batch B20H170									
LCS (B20H170-BS1)									
2-Methylphenol	**12.2**	ug/L	6.0	12.1		101% *(55-123)*		08/12/20 :08/12/20	
3- & 4-Methylphenol	**12.0**	ug/L	6.0	12.1		99% *(50-119)*		08/12/20 :08/12/20	
Naphthalene	**8.09**	ug/L	3.0	12.1		67% *(70-119)*		08/12/20 :08/12/20	L1
2-Nitroaniline	**10.6**	ug/L	6.0	12.1		88% *(74-143)*		08/12/20 :08/12/20	
3-Nitroaniline	**10.1**	ug/L	6.0	12.1		83% *(53-135)*		08/12/20 :08/12/20	
4-Nitroaniline	**9.28**	ug/L	6.0	12.1		77% *(42-147)*		08/12/20 :08/12/20	
Nitrobenzene	**10.8**	ug/L	3.0	12.1		89% *(65-123)*		08/12/20 :08/12/20	
2-Nitrophenol	**9.99**	ug/L	6.0	12.1		82% *(65-120)*		08/12/20 :08/12/20	
4-Nitrophenol	**26.8**	ug/L	15	60.6		44% *(35-54)*		08/12/20 :08/12/20	
N-Nitrosodimethylamine	**6.98**	ug/L	3.0	12.1		58% *(33-69)*		08/12/20 :08/12/20	
N-Nitrosodi-n-propylamine	**12.8**	ug/L	3.0	12.1		105% *(59-131)*		08/12/20 :08/12/20	
N-Nitrosodiphenylamine	**11.6**	ug/L	3.0	12.1		96% *(72-127)*		08/12/20 :08/12/20	
Pentachlorophenol	**9.17**	ug/L	3.0	12.1		76% *(42-130)*		08/12/20 :08/12/20	
Phenanthrene	**10.6**	ug/L	3.0	12.1		88% *(73-126)*		08/12/20 :08/12/20	
Phenol	**9.79**	ug/L	3.0	12.1		81% *(48-88)*		08/12/20 :08/12/20	
Pyrene	**10.9**	ug/L	3.0	12.1		90% *(72-130)*		08/12/20 :08/12/20	
2,3,4,6-Tetrachlorophenol	**9.15**	ug/L	6.0	12.1		75% *(52-114)*		08/12/20 :08/12/20	
1,2,4-Trichlorobenzene	**7.05**	ug/L	3.0	12.1		58% *(61-124)*		08/12/20 :08/12/20	L1
2,4,5-Trichlorophenol	**11.2**	ug/L	6.0	12.1		93% *(63-120)*		08/12/20 :08/12/20	
2,4,6-Trichlorophenol	**10.5**	ug/L	3.0	12.1		86% *(71-119)*		08/12/20 :08/12/20	
Surrogate									
2-Fluorophenol	*21*	ug/L		*24.2*		86% *(34-84)*		08/12/20 :08/12/20	*SU2*
Phenol-d6	*19*	ug/L		*24.2*		79% *(26-77)*		08/12/20 :08/12/20	*SU2*
Nitrobenzene-d5	*26*	ug/L		*24.2*		108% *(52-126)*		08/12/20 :08/12/20	
2-Fluorobiphenyl	*23*	ug/L		*24.2*		97% *(44-130)*		08/12/20 :08/12/20	
2,4,6-Tribromophenol	*20*	ug/L		*24.2*		80% *(42-141)*		08/12/20 :08/12/20	
p-Terphenyl-d14	*24*	ug/L		*24.2*		98% *(38-175)*		08/12/20 :08/12/20	
Matrix Spike (B20H170-MS1)			**Source: W20H057-02**						
Acenaphthene	**10.9**	ug/L	3.0	12.1	ND	90% *(70-130)*		08/12/20 :08/12/20	
Acenaphthylene	**11.2**	ug/L	3.0	12.1	ND	92% *(70-130)*		08/12/20 :08/12/20	
Anthracene	**12.4**	ug/L	3.0	12.1	ND	102% *(70-130)*		08/12/20 :08/12/20	
Benzo(a)anthracene	**12.6**	ug/L	3.0	12.1	ND	104% *(70-130)*		08/12/20 :08/12/20	
Benzo(a)pyrene	**11.3**	ug/L	3.0	12.1	ND	93% *(70-130)*		08/12/20 :08/12/20	
Benzo(b)fluoranthene	**11.6**	ug/L	3.0	12.1	ND	96% *(70-130)*		08/12/20 :08/12/20	
Benzo(g,h,i)perylene	**12.1**	ug/L	3.0	12.1	ND	100% *(70-130)*		08/12/20 :08/12/20	
Benzo(k)fluoranthene	**11.4**	ug/L	3.0	12.1	ND	94% *(70-130)*		08/12/20 :08/12/20	
4-Bromophenylphenyl ether	**11.4**	ug/L	3.0	12.1	ND	94% *(70-130)*		08/12/20 :08/12/20	
Butyl benzyl phthalate	**16.0**	ug/L	3.0	12.1	ND	132% *(70-130)*		08/12/20 :08/12/20	M11
4-Chloro-3-methylphenol	**18.9**	ug/L	3.0	12.1	ND	156% *(70-130)*		08/12/20 :08/12/20	M11
4-Chloroaniline	**2.82**	ug/L	0.60	12.1	ND	23% *(70-130)*		08/12/20 :08/12/20	M4

Reported: 08/26/20 15:02

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Project:	**Riot Control Agent Residual Investigation**	Client:	Spill Protection and Citizen Response
Work Order:	**W20H057**	Received:	08/07/20 08:41

Semivolatile Organics - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec (Limits)	RPD (Limit)	Prepared: Analyzed	Qualifier
Semivolatile Organic Compounds by GCMS - Batch B20H170									
Matrix Spike (B20H170-MS1)			**Source: W20H057-02**						
Bis(2-chloroethoxy) methane	**13.0**	ug/L	3.0	12.1	ND	107% *(70-130)*		08/12/20 :08/12/20	
Bis(2-chloroethyl) ether	**12.9**	ug/L	3.0	12.1	ND	106% *(70-130)*		08/12/20 :08/12/20	
Bis(2-chloroisopropyl) ether	**12.1**	ug/L	3.0	12.1	ND	100% *(70-130)*		08/12/20 :08/12/20	
2-Chloronaphthalene	**9.59**	ug/L	3.0	12.1	ND	79% *(70-130)*		08/12/20 :08/12/20	L1
2-Chlorophenol	**12.6**	ug/L	3.0	12.1	ND	104% *(70-130)*		08/12/20 :08/12/20	
4-Chlorophenylphenyl ether	**11.3**	ug/L	3.0	12.1	ND	93% *(70-130)*		08/12/20 :08/12/20	
Chrysene	**11.8**	ug/L	3.0	12.1	ND	97% *(70-130)*		08/12/20 :08/12/20	
Di-n-butyl phthalate	**14.9**	ug/L	3.0	12.1	ND	123% *(70-130)*		08/12/20 :08/12/20	
Di-n-octyl phthalate	**18.4**	ug/L	3.0	12.1	ND	152% *(70-130)*		08/12/20 :08/12/20	M11
Dibenzo(a,h)anthracene	**12.1**	ug/L	3.0	12.1	ND	100% *(70-130)*		08/12/20 :08/12/20	
Dibenzofuran	**11.1**	ug/L	3.0	12.1	ND	92% *(70-130)*		08/12/20 :08/12/20	
1,2-Dichlorobenzene	**8.58**	ug/L	3.0	12.1	ND	71% *(70-130)*		08/12/20 :08/12/20	
1,3-Dichlorobenzene	**8.40**	ug/L	3.0	12.1	ND	69% *(70-130)*		08/12/20 :08/12/20	M4
1,4-Dichlorobenzene	**8.57**	ug/L	3.0	12.1	ND	71% *(70-130)*		08/12/20 :08/12/20	
2,4-Dichlorophenol	**13.4**	ug/L	3.0	12.1	ND	110% *(70-130)*		08/12/20 :08/12/20	
Diethyl phthalate	**14.5**	ug/L	3.0	12.1	ND	120% *(70-130)*		08/12/20 :08/12/20	
2,4-Dimethylphenol	**16.2**	ug/L	6.0	12.1	ND	134% *(70-130)*		08/12/20 :08/12/20	M11
Dimethyl phthalate	**13.6**	ug/L	3.0	12.1	ND	112% *(70-130)*		08/12/20 :08/12/20	
4,6-Dinitro-2-methylphenol	**13.6**	ug/L	6.0	12.1	ND	113% *(50-150)*		08/12/20 :08/12/20	L1
2,4-Dinitrophenol	**65.2**	ug/L	15	60.6	ND	108% *(50-150)*		08/12/20 :08/12/20	L1
2,4-Dinitrotoluene	**11.8**	ug/L	3.0	12.1	ND	97% *(70-130)*		08/12/20 :08/12/20	
2,6-Dinitrotoluene	**11.6**	ug/L	3.0	12.1	ND	96% *(70-130)*		08/12/20 :08/12/20	
Bis(2-ethylhexyl) phthalate	**23.1**	ug/L	4.5	12.1	6.67	135% *(70-130)*		08/12/20 :08/12/20	M5
Fluoranthene	**12.2**	ug/L	3.0	12.1	ND	100% *(70-130)*		08/12/20 :08/12/20	
Fluorene	**11.4**	ug/L	3.0	12.1	ND	94% *(70-130)*		08/12/20 :08/12/20	
Hexachlorobenzene	**11.9**	ug/L	3.0	12.1	ND	98% *(70-130)*		08/12/20 :08/12/20	
Hexachlorobutadiene	**7.43**	ug/L	3.0	12.1	ND	61% *(70-130)*		08/12/20 :08/12/20	L1
Hexachlorocyclopentadiene	**7.13**	ug/L	6.0	12.1	ND	59% *(70-130)*		08/12/20 :08/12/20	L1
Hexachloroethane	**8.22**	ug/L	3.0	12.1	ND	68% *(70-130)*		08/12/20 :08/12/20	M4
Indeno(1,2,3-cd)pyrene	**12.1**	ug/L	3.0	12.1	ND	100% *(70-130)*		08/12/20 :08/12/20	
Isophorone	**15.3**	ug/L	3.0	12.1	ND	126% *(70-130)*		08/12/20 :08/12/20	
2-Methylnaphthalene	**10.4**	ug/L	3.0	12.1	ND	85% *(70-130)*		08/12/20 :08/12/20	
2-Methylphenol	**16.8**	ug/L	6.0	12.1	ND	138% *(70-130)*		08/12/20 :08/12/20	M11
3- & 4-Methylphenol	**19.2**	ug/L	6.0	12.1	ND	158% *(70-130)*		08/12/20 :08/12/20	M11
Naphthalene	**9.44**	ug/L	3.0	12.1	ND	78% *(70-130)*		08/12/20 :08/12/20	L1
2-Nitroaniline	**13.8**	ug/L	6.0	12.1	ND	113% *(70-130)*		08/12/20 :08/12/20	
3-Nitroaniline	**2.88**	ug/L	1.2	12.1	ND	24% *(70-130)*		08/12/20 :08/12/20	M4
4-Nitroaniline	**4.73**	ug/L	1.2	12.1	ND	39% *(70-130)*		08/12/20 :08/12/20	M4
Nitrobenzene	**12.8**	ug/L	3.0	12.1	ND	105% *(70-130)*		08/12/20 :08/12/20	

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Semivolatile Organics - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec (Limits)	RPD (Limit)	Prepared: Analyzed	Qualifier
Semivolatile Organic Compounds by GCMS - Batch B20H170									
Matrix Spike (B20H170-MS1)			**Source: W20H057-02**						
2-Nitrophenol	**12.1**	ug/L	6.0	12.1	ND	100% *(70-130)*		08/12/20 :08/12/20	
4-Nitrophenol	**52.9**	ug/L	15	60.6	ND	87% *(50-150)*		08/12/20 :08/12/20	
N-Nitrosodimethylamine	**7.37**	ug/L	3.0	12.1	ND	61% *(70-130)*		08/12/20 :08/12/20	M4
N-Nitrosodi-n-propylamine	**14.8**	ug/L	3.0	12.1	ND	122% *(70-130)*		08/12/20 :08/12/20	
N-Nitrosodiphenylamine	**12.6**	ug/L	3.0	12.1	ND	104% *(70-130)*		08/12/20 :08/12/20	
Pentachlorophenol	**22.3**	ug/L	3.0	12.1	ND	184% *(70-130)*		08/12/20 :08/12/20	M11
Phenanthrene	**11.8**	ug/L	3.0	12.1	ND	98% *(70-130)*		08/12/20 :08/12/20	
Phenol	**12.8**	ug/L	3.0	12.1	ND	106% *(50-150)*		08/12/20 :08/12/20	
Pyrene	**12.0**	ug/L	3.0	12.1	ND	99% *(70-130)*		08/12/20 :08/12/20	
2,3,4,6-Tetrachlorophenol	**12.3**	ug/L	6.0	12.1	ND	102% *(70-130)*		08/12/20 :08/12/20	
1,2,4-Trichlorobenzene	**8.27**	ug/L	3.0	12.1	ND	68% *(70-130)*		08/12/20 :08/12/20	L1
2,4,5-Trichlorophenol	**14.1**	ug/L	6.0	12.1	ND	117% *(70-130)*		08/12/20 :08/12/20	
2,4,6-Trichlorophenol	**13.6**	ug/L	3.0	12.1	ND	112% *(70-130)*		08/12/20 :08/12/20	
Surrogate									
2-Fluorophenol	*25*	ug/L		*24.2*		103% *(34-84)*		08/12/20 :08/12/20	*SU2*
Phenol-d6	*21*	ug/L		*24.2*		87% *(26-77)*		08/12/20 :08/12/20	*SU2*
Nitrobenzene-d5	*29*	ug/L		*24.2*		119% *(52-126)*		08/12/20 :08/12/20	
2-Fluorobiphenyl	*24*	ug/L		*24.2*		100% *(44-130)*		08/12/20 :08/12/20	
2,4,6-Tribromophenol	*28*	ug/L		*24.2*		115% *(42-141)*		08/12/20 :08/12/20	
p-Terphenyl-d14	*19*	ug/L		*24.2*		78% *(38-175)*		08/12/20 :08/12/20	
Matrix Spike Dup (B20H170-MSD1)			**Source: W20H057-02**						
Acenaphthene	**11.2**	ug/L	3.0	12.1	ND	92% *(70-130)*	2 (50)	08/12/20 :08/12/20	
Acenaphthylene	**11.6**	ug/L	3.0	12.1	ND	96% *(70-130)*	4 (50)	08/12/20 :08/12/20	
Anthracene	**12.1**	ug/L	3.0	12.1	ND	100% *(70-130)*	2 (50)	08/12/20 :08/12/20	
Benzo(a)anthracene	**12.7**	ug/L	3.0	12.1	ND	104% *(70-130)*	0.2 (50)	08/12/20 :08/12/20	
Benzo(a)pyrene	**11.0**	ug/L	3.0	12.1	ND	91% *(70-130)*	3 (50)	08/12/20 :08/12/20	
Benzo(b)fluoranthene	**10.8**	ug/L	3.0	12.1	ND	89% *(70-130)*	7 (50)	08/12/20 :08/12/20	
Benzo(g,h,i)perylene	**11.6**	ug/L	3.0	12.1	ND	96% *(70-130)*	5 (50)	08/12/20 :08/12/20	
Benzo(k)fluoranthene	**10.7**	ug/L	3.0	12.1	ND	88% *(70-130)*	7 (50)	08/12/20 :08/12/20	
4-Bromophenylphenyl ether	**11.3**	ug/L	3.0	12.1	ND	93% *(70-130)*	0.8 (50)	08/12/20 :08/12/20	
Butyl benzyl phthalate	**15.3**	ug/L	3.0	12.1	ND	126% *(70-130)*	4 (50)	08/12/20 :08/12/20	
4-Chloro-3-methylphenol	**18.1**	ug/L	3.0	12.1	ND	150% *(70-130)*	4 (50)	08/12/20 :08/12/20	M11
4-Chloroaniline	**3.14**	ug/L	3.0	12.1	ND	26% *(70-130)*	(50)	08/12/20 :08/12/20	M4
Bis(2-chloroethoxy) methane	**12.8**	ug/L	3.0	12.1	ND	106% *(70-130)*	1 (50)	08/12/20 :08/12/20	
Bis(2-chloroethyl) ether	**12.2**	ug/L	3.0	12.1	ND	101% *(70-130)*	6 (50)	08/12/20 :08/12/20	
Bis(2-chloroisopropyl) ether	**11.1**	ug/L	3.0	12.1	ND	91% *(70-130)*	9 (50)	08/12/20 :08/12/20	
2-Chloronaphthalene	**10.3**	ug/L	3.0	12.1	ND	85% *(70-130)*	7 (50)	08/12/20 :08/12/20	L1
2-Chlorophenol	**12.2**	ug/L	3.0	12.1	ND	101% *(70-130)*	3 (50)	08/12/20 :08/12/20	
4-Chlorophenylphenyl ether	**10.8**	ug/L	3.0	12.1	ND	89% *(70-130)*	5 (50)	08/12/20 :08/12/20	
Chrysene	**11.5**	ug/L	3.0	12.1	ND	94% *(70-130)*	3 (50)	08/12/20 :08/12/20	

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Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec (Limits)	RPD (Limit)	Prepared: Analyzed	Qualifier
Semivolatile Organic Compounds by GCMS - Batch B20H170									
Matrix Spike Dup (B20H170-MSD1)			**Source: W20H057-02**						
Di-n-butyl phthalate	**14.4**	ug/L	3.0	12.1	ND	119% *(70-130)*	3 (50)	08/12/20 :08/12/20	
Di-n-octyl phthalate	**17.7**	ug/L	3.0	12.1	ND	146% *(70-130)*	3 (50)	08/12/20 :08/12/20	M11
Dibenzo(a,h)anthracene	**11.8**	ug/L	3.0	12.1	ND	98% *(70-130)*	2 (50)	08/12/20 :08/12/20	
Dibenzofuran	**11.2**	ug/L	3.0	12.1	ND	93% *(70-130)*	1 (50)	08/12/20 :08/12/20	
1,2-Dichlorobenzene	**8.87**	ug/L	3.0	12.1	ND	73% *(70-130)*	3 (50)	08/12/20 :08/12/20	
1,3-Dichlorobenzene	**9.06**	ug/L	3.0	12.1	ND	75% *(70-130)*	8 (50)	08/12/20 :08/12/20	M4
1,4-Dichlorobenzene	**9.09**	ug/L	3.0	12.1	ND	75% *(70-130)*	6 (50)	08/12/20 :08/12/20	
2,4-Dichlorophenol	**13.0**	ug/L	3.0	12.1	ND	108% *(70-130)*	3 (50)	08/12/20 :08/12/20	
Diethyl phthalate	**14.1**	ug/L	3.0	12.1	ND	116% *(70-130)*	3 (50)	08/12/20 :08/12/20	
2,4-Dimethylphenol	**15.5**	ug/L	6.0	12.1	ND	128% *(70-130)*	4 (50)	08/12/20 :08/12/20	
Dimethyl phthalate	**13.2**	ug/L	3.0	12.1	ND	109% *(70-130)*	3 (50)	08/12/20 :08/12/20	
4,6-Dinitro-2-methylphenol	**13.9**	ug/L	6.0	12.1	ND	114% *(50-150)*	2 (50)	08/12/20 :08/12/20	L1
2,4-Dinitrophenol	**65.8**	ug/L	15	60.6	ND	109% *(50-150)*	0.9 (50)	08/12/20 :08/12/20	L1
2,4-Dinitrotoluene	**11.8**	ug/L	3.0	12.1	ND	98% *(70-130)*	0.4 (50)	08/12/20 :08/12/20	
2,6-Dinitrotoluene	**11.8**	ug/L	3.0	12.1	ND	98% *(70-130)*	2 (50)	08/12/20 :08/12/20	
Bis(2-ethylhexyl) phthalate	**24.2**	ug/L	4.5	12.1	6.67	145% *(70-130)*	5 (50)	08/12/20 :08/12/20	M5
Fluoranthene	**12.2**	ug/L	3.0	12.1	ND	100% *(70-130)*	0.02 (50)	08/12/20 :08/12/20	
Fluorene	**11.4**	ug/L	3.0	12.1	ND	94% *(70-130)*	0.1 (50)	08/12/20 :08/12/20	
Hexachlorobenzene	**11.7**	ug/L	3.0	12.1	ND	96% *(70-130)*	2 (50)	08/12/20 :08/12/20	
Hexachlorobutadiene	**8.48**	ug/L	3.0	12.1	ND	70% *(70-130)*	13 (50)	08/12/20 :08/12/20	L1
Hexachlorocyclopentadiene	**7.81**	ug/L	6.0	12.1	ND	64% *(70-130)*	9 (50)	08/12/20 :08/12/20	L1
Hexachloroethane	**8.86**	ug/L	3.0	12.1	ND	73% *(70-130)*	7 (50)	08/12/20 :08/12/20	M4
Indeno(1,2,3-cd)pyrene	**11.7**	ug/L	3.0	12.1	ND	96% *(70-130)*	4 (50)	08/12/20 :08/12/20	
Isophorone	**15.0**	ug/L	3.0	12.1	ND	124% *(70-130)*	2 (50)	08/12/20 :08/12/20	
2-Methylnaphthalene	**11.3**	ug/L	3.0	12.1	ND	93% *(70-130)*	9 (50)	08/12/20 :08/12/20	
2-Methylphenol	**13.7**	ug/L	6.0	12.1	ND	113% *(70-130)*	20 (50)	08/12/20 :08/12/20	
3- & 4-Methylphenol	**17.9**	ug/L	6.0	12.1	ND	148% *(70-130)*	7 (50)	08/12/20 :08/12/20	M11
Naphthalene	**10.5**	ug/L	3.0	12.1	ND	87% *(70-130)*	11 (50)	08/12/20 :08/12/20	L1
2-Nitroaniline	**13.9**	ug/L	6.0	12.1	ND	115% *(70-130)*	1 (50)	08/12/20 :08/12/20	
3-Nitroaniline	**3.15**	ug/L	0.60	12.1	1.05	17% *(70-130)*	(50)	08/12/20 :08/12/20	M4
4-Nitroaniline	**4.82**	ug/L	0.60	12.1	0.898	32% *(70-130)*	(50)	08/12/20 :08/12/20	M4
Nitrobenzene	**12.5**	ug/L	3.0	12.1	ND	103% *(70-130)*	2 (50)	08/12/20 :08/12/20	
2-Nitrophenol	**12.6**	ug/L	6.0	12.1	ND	104% *(70-130)*	4 (50)	08/12/20 :08/12/20	
4-Nitrophenol	**51.0**	ug/L	15	60.6	ND	84% *(50-150)*	4 (50)	08/12/20 :08/12/20	
N-Nitrosodimethylamine	**6.99**	ug/L	3.0	12.1	ND	58% *(70-130)*	5 (50)	08/12/20 :08/12/20	M4
N-Nitrosodi-n-propylamine	**14.4**	ug/L	3.0	12.1	ND	119% *(70-130)*	2 (50)	08/12/20 :08/12/20	
N-Nitrosodiphenylamine	**12.1**	ug/L	3.0	12.1	ND	100% *(70-130)*	4 (50)	08/12/20 :08/12/20	
Pentachlorophenol	**22.8**	ug/L	3.0	12.1	ND	188% *(70-130)*	2 (50)	08/12/20 :08/12/20	M11
Phenanthrene	**11.4**	ug/L	3.0	12.1	ND	94% *(70-130)*	4 (50)	08/12/20 :08/12/20	

Reported: 08/26/20 15:02

The results in this report apply only to the samples analyzed. Qualifiers and case narrative comments are essential to interpretation of the analytical results. Report reproductions and/or data summaries without qualifiers and comments are incomplete.

Jennifer Shackelford

Jennifer Shackelford, Laboratory Manager

City of Portland
Water Pollution Control Laboratory
6543 N. Burlington Ave. / Portland OR 97203 (503) 823-5600 fax (503) 823-5656
ORELAP Certification ID 4023

Project:	**Riot Control Agent Residual Investigation**	Client:	Spill Protection and Citizen Response
Work Order:	**W20H057**	Received:	08/07/20 08:41

Semivolatile Organics - QC

Analyte	Result	Units	MRL	Spike Level	Source Result	%Rec (Limits)	RPD (Limit)	Prepared: Analyzed	Qualifier
Semivolatile Organic Compounds by GCMS - Batch B20H170									
Matrix Spike Dup (B20H170-MSD1)				**Source: W20H057-02**					
Phenol	**12.4**	ug/L	3.0	12.1	ND	102% *(50-150)*	4 (50)	08/12/20 :08/12/20	
Pyrene	**11.5**	ug/L	3.0	12.1	ND	95% *(70-130)*	5 (50)	08/12/20 :08/12/20	
2,3,4,6-Tetrachlorophenol	**12.2**	ug/L	6.0	12.1	ND	101% *(70-130)*	1 (50)	08/12/20 :08/12/20	
1,2,4-Trichlorobenzene	**8.97**	ug/L	3.0	12.1	ND	74% *(70-130)*	8 (50)	08/12/20 :08/12/20	L1
2,4,5-Trichlorophenol	**13.9**	ug/L	6.0	12.1	ND	115% *(70-130)*	1 (50)	08/12/20 :08/12/20	
2,4,6-Trichlorophenol	**13.7**	ug/L	3.0	12.1	ND	113% *(70-130)*	1 (50)	08/12/20 :08/12/20	
Surrogate									
2-Fluorophenol	*24*	ug/L		*24.2*		98% *(34-84)*		08/12/20 :08/12/20	*SU2*
Phenol-d6	*20*	ug/L		*24.2*		83% *(26-77)*		08/12/20 :08/12/20	*SU2*
Nitrobenzene-d5	*28*	ug/L		*24.2*		116% *(52-126)*		08/12/20 :08/12/20	
2-Fluorobiphenyl	*23*	ug/L		*24.2*		93% *(44-130)*		08/12/20 :08/12/20	
2,4,6-Tribromophenol	*27*	ug/L		*24.2*		111% *(42-141)*		08/12/20 :08/12/20	
p-Terphenyl-d14	*17*	ug/L		*24.2*		69% *(38-175)*		08/12/20 :08/12/20	

Qualifiers

D2	The sample required dilution due to high levels of target analytes.
D4	Reporting limit is raised for this analyte due to non-target matrix interference.
L1	Recovery for this analyte in the laboratory control sample was outside the acceptance range (low). Sample results may be low estimates.
M11	Matrix spike recovery for this analyte was high; the analyte was not detected in the sample and results are not affected.
M4	Based on low matrix spike recovery, the sample result may be a low estimate due to matrix interference.
M5	Based on high matrix spike recovery, the sample result should be considered an estimate due to matrix effect and/or non-homogeneous matrix.
N	Refer to case narrative.
SU2	Recovery for one or more surrogate compounds was outside the acceptance range (high). Sample results may be high estimates.

Definitions

DET	Analyte Detected	ND	Analyte Not Detected at or above the reporting limit
MRL	Method Reporting Limit	MDL	Method Detection Limit
NR	Not Reportable	dry	Sample results reported on a dry weight basis
% Rec.	Percent Recovery	RPD	Relative Percent Difference
*	This analyte is not certified under NELAP		

Reported: 08/26/20 15:02

Jennifer Shackelford

Jennifer Shackelford, Laboratory Manager

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Water Pollution Control Laboratory
6543 N. Burlington Ave.
Portland, Oregon 97203-4552
Sample Custodian: (503) 823-5696
General Lab: (503) 823-5681

City of Portland Chain-of-Custody

Bureau of Environmental Services

Date: 8/6/20

Work Order #: W20H057

Collected By: MJS, ECP, JXB, JXL

Client Name:	SPCR
Project Name:	**Riot Control Agent Residual Investigation**
Project Number (if applicable):	
Project Contact:	**Kevin Veaudry-Casaus**

Requested Analyses

Stormwater Samples Additional Analyses:
Total Metals (Ba, Cu, Cr, Pb, Zn), Total Hexavalent Chromium, and Perchlorate were analyzed on these same samples submitted under the Riot Control Agent Stormwater project in response to letter from DEQ (W20H047, W20H048).

Lab Number	Sample Name	Sample Date	Sample Time	Sample Type	Sample Matrix	Total Cyanide	Dissolved Metals * (Ba, Cu, Cr, Pb, Zn)	Diss. Hexavalent Chromium *	Chloride Jr. 8/10/20	Organic Ext. only Jr. 8/10/20 SVOC 8260 8270	# of Containers	Remarks
01	ABQ484	8/6/20	0819	G	ST	•	•	•	•	•	3	Total metals
02	ABQ608	8/6/20	0852	G	ST	•	•	•	•	•	3	total hexavalent chromium and perchlorate on work order W20H047

Turn-Around-Time Request:
- ☐ Standard (10 business days)
- ☐ Rush (5 business days)
- ☐ Other: _____

* field filter

Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: Matt Sullivan	Signature: Cora Jung	Signature:	Signature:
Printed Name: Matt Sullivan	Printed Name: Cora Jung	Printed Name:	Printed Name:
Date: 8/7/20	Date: 8/7/20	Date:	Date:
Time: 0841	Time: 0841	Time:	Time:

WPCL Cooler Receipt Form

Work Order Number: W20H057 **Cooler Receipt Form Filled Out By:** S

Project: SPCR / Riot Control Agent

Received on ice: (YES) NO (circle one) *[If directly from field, indicate here:_____]*

Sample(s) Received From: CBWTP fridge_____ Client X Courier_____

Temperature (°C): 5

	Yes	No	N/A
Is the COC present and signed?	✓		
Are sample bottles intact?	✓		
Do the COC and sample labels match?	✓		
Are the appropriate containers used?	✓		
Are samples appropriately preserved?	✓		
Do VOA vials or alkalinity bottles have Headspace? (circle which this applies to)			✓
Are samples received within holding times (except for pH and residual chlorine)?	✓		

Pres. #	Preservative	LIMS ID	Standard Preservation Amounts
1	HNO_3 (1:1) to pH <2	2000696	0.5mL/250mL; 1.0mL/500mL; 4-5 drops/50mL centrifuge tube
2	H_2SO_4 (18N) to pH <2		0.4mL/250mL; 0.8mL/500mL ; 1.6mL/1000mL
3	HCl (1:1) to pH <2		1.0mL/500mL; 2.0mL/1000mL
4	HCl (1:1) to pH 2-3		For TOC: 2-5 drops/250mL
5	NaOH (pellets) to pH >12	1800987	4-10 pellets/500mL; 8-20 pellets/1000mL
6	Ammonium Sulfate Buffer	2001073	2.5mL/250mL

Date	Time	Analyst	Sample LIMS ID	Bottle ID	Pres. #	Comments
8/7/20	0910	S	W20H057-01 & 02	B	1	
↓	↓	↓	↓ ↓	C	5	pre-pres. pH ok
↓	↓	↓	↓ ↓	D	6	

Comments:_____

WPCL Cooler Receipt Form

Work Order Number: W20H057 **Cooler Receipt Form Filled Out By:** RK

Project: Riot Control Agent Residual Investigation

Received on ice: YES (NO) (circle one) *[If directly from field, indicate here:_____]*

Sample(s) Received From: CBWTP fridge_____ Client ✓ Courier_____

Temperature (°C): 4

	Yes	No	N/A
Is the COC present and signed?	✓		
Are sample bottles intact?	✓		
Do the COC and sample labels match?	✓		
Are the appropriate containers used?	✓		
Are samples appropriately preserved?			✓
Do VOA vials or alkalinity bottles have Headspace? (circle which this applies to)			✓
Are samples received within holding times (except for pH and residual chlorine)?	✓		

Pres. #	Preservative	LIMS ID	Standard Preservation Amounts
1	**HNO_3 (1:1) to pH <2**		0.5mL/250mL; 1.0mL/500mL; 4-5 drops/50mL centrifuge tube
2	**H_2SO_4 (18N) to pH <2**		0.4mL/250mL; 0.8mL/500mL ; 1.6mL/1000mL
3	**HCl (1:1) to pH <2**		1.0mL/500mL; 2.0mL/1000mL
4	**HCl (1:1) to pH 2-3**		For TOC: 2-5 drops/250mL
5	**NaOH (pellets) to pH >12**		4-10 pellets/500mL; 8-20 pellets/1000mL

Date	Time	Analyst	Sample LIMS ID	Bottle ID	Pres. #	Comments

Comments: * For additional samples received in sample receiving on 8/10/20
Bottles

S:\LAB\Forms\WPCL Cooler Receipt Form February 2020.doc

August 19, 2020 Service Request No:K2006780

Jennifer Shackelford
City of Portland
6543 N. Burlington Ave
Portland, OR 97203

Laboratory Results for: Riot Control Agent Residual Investigation

Dear Jennifer,

Enclosed are the results of the sample(s) submitted to our laboratory August 07, 2020
For your reference, these analyses have been assigned our service request number **K2006780.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3364. You may also contact me via email at howard.holmes@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Howard Holmes
Project Manager

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626
PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

ALS Environmental

Client: Portland, City of
Project: Riot Control Agent Residual Investigation
Sample Matrix: Water

Service Request: K2006780
Date Received: 08/07/2020

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

Two water samples were received for analysis at ALS Environmental on 08/07/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Subcontracted Analytical Parameters:

Chromium (VI) by EPA Method 218.6
Chromium (VI) analysis by EPA Method 218.6 was performed at ALS Rochester, NY Laboratory. The data for this analysis is included in the corresponding section of this report.

Approved by  Date 08/18/2020

Sample Receipt Information

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
K2006780-001	W20H057-01	8/6/2020	0819
K2006780-002	W20H057-02	8/6/2020	0852

SUBCONTRACT ORDER

City of Portland Water Pollution Control Lab

W20H057

SENDING LABORATORY:

City of Portland Water Pollution Control Lab
6543 N. Burlington Ave
Portland, OR 97203
Phone: 503-823-5600
Fax: 503-823-5656
Invoice To: Charles Lytle

RECEIVING LABORATORY:

ALS Environmental
1317 S. 13th Avenue
Kelso, WA 98626
Phone :(360) 577-7222
Fax: (360) 636-1068

WPCL Project Name
Riot Control Agent Residual Investigation

TURNAROUND REQUEST
[X] Standard
[ ] Rush _ day(s)

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: W20H057-01	**Water**	**Sampled:08/06/20 08:19**		
Out-Cr+6 diss	08/21/20 17:00	09/05/20 08:19		
Containers Supplied:				
Sample ID: W20H057-02	**Water**	**Sampled:08/06/20 08:52**		
Out-Cr+6 diss	08/21/20 17:00	09/05/20 08:52		
Containers Supplied:				

Released By	Date	Received By	Date
	8/7/20	ALS	8/7/20 0925
ALS	8/7/20 1245	ALS	8/7/20 1245

PM_____

Cooler Receipt and Preservation Form

Client WPCL Service Request K20

Received: 8/7/20 Opened: 8/7/20 By: [illegible] Unloaded: 8/7/20 By: [illegible]

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* (*Courier*) *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other*_____ *NA*
3. Were custody seals on coolers? NA Y (N) If yes, how many and where? _____
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N
4. Was a Temperature Blank present in cooler? NA Y (N) If yes, notate the temperature in the appropriate column below:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? ~~NA~~ (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # below and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified if out of temp	Tracking Number (NA)	Filed
N/A	5.6	IR01		—	—		

6. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
14. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

Miscellaneous Forms

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Subcontracted Analytical Parameters

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

August 18, 2020 Service Request No:K2006780

Jennifer Shackelford
City of Portland
6543 N. Burlington Ave
Portland, OR 97203

Laboratory Results for: Riot Control Agent Residual Investigation

Dear Jennifer,

Enclosed are the results of the sample(s) submitted to our laboratory August 07, 2020
For your reference, these analyses have been assigned our service request number **K2006780.**

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Brady Kalkman
For
Janice Jaeger
Project Manager

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Environmental

Client: Portland, City of
Project: Riot Control Agent Residual Investigation
Sample Matrix: Water

Service Request: K2006780
Date Received: 08/07/2020

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

Two water samples were received for analysis at ALS Environmental on 08/07/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by _____ Date 08/18/2020

SAMPLE DETECTION SUMMARY

CLIENT ID: W20H057-01			Lab ID: K2006780-001			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Chromium, Hexavalent, Dissolved	2.33		0.05	0.10	ug/L	218.6

CLIENT ID: W20H057-02			Lab ID: K2006780-002			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Chromium, Hexavalent, Dissolved	0.16		0.05	0.10	ug/L	218.6

Sample Receipt Information

ALS Environmental—Rochester Laboratory
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Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
K2006780-001	W20H057-01	8/6/2020	0819
K2006780-002	W20H057-02	8/6/2020	0852

Intra-Network Chain of Custody

1317 South 13th Avenue • Kelso, WA 98626 • 1-360-577-7222 • FAX 1-360-636-1068

ALS Contact: Howard Holmes

2 Cr6 218.6 LL
8/6/2020 0819-0852

Project Name: Riot Control Agent Residual Investigation
Project Number: W20H057
Project Manager: Jennifer Shackelford
Company: City of Portland
QAP: LAB QAP

Lab Code	Client Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Date Received	Send To	Cr6 D LL 218.6 LL
K2006780-001	W20H057-01	1	Water	8/6/20	0819	8/7/20	ROCHESTER	II
K2006780-002	W20H057-02	1	Water	8/6/20	0852	8/7/20	ROCHESTER	II

Folder Comments:
Tier II

Special Instructions/Comments
Please provide the electronic (PDF and EDD) report to the following e-mail address: ALKLS.Data@alsglobal.com.

Send report & EDD to ALKLS.Data & Howard.Holmes7

pH Checked _____

Turnaround Requirements
____ **RUSH** (Surcharges Apply)
PLEASE CIRCLE WORK DAYS
1 2 3 4 5
____ **STANDARD**
Requested FAX Date: _____
Requested Report Date: 08/20/20

Report Requirements
___ I. Results Only
X II. Results + QC Summaries
___ III. Results + QC and Calibration Summaries
___ IV. Data Validation Report with Raw Data
PQL/MDL/J Y
EDD Y

Invoice Information
PO# 51K2006780
Bill to

Relinquished By: [signature] 8/10/2020 1100
Received By: [signature] 8-11-2020 10:10
Airbill Number:

K2006780 5
City of Portland
Riot Control Agent Residual Investigation

Page 1

K2006780 5
City of Portland
Riot Control Agent Residual Investigation

Cooler Receipt and Preservation Check Form

Project/Client ALS Kelso Folder Number

Cooler received on 8-11-2020 by: KE

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	(Y)	N
2	**Custody papers** properly completed (ink, signed)?	(Y)	N
3	Did all bottles arrive in good **condition** (unbroken)?	(Y)	N
4	Circle: **Wet Ice** **Dry Ice** (**Gel packs**) present?	(Y)	N

5a	**Perchlorate** samples have required headspace?	Y	N	(NA)
5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y	N	(NA)
6	Where did the bottles originate? ALS/ROC	(CLIENT)		
7	Soil VOA received as: Bulk Encore 5035set	(NA)		

8. Temperature Readings Date: 8/11/2020 Time: 10:31 ID: IR#7 (IR#10) From: (Temp Blank) Sample Bottle

Observed Temp (°C)	2.2						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: SMO by KE on 8/12/20 at 0933
5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 8/11/2020 Time: 1246 by: AD

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? YES (NO)
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (N/A)
13. Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**						

Bottle lot numbers: Client

Explain all Discrepancies/ Other Comments:

pres. bottles acid and not filtered

Cust Check

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: AD

PC Secondary Review: _____

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

P:\INTRANET\QAQC\Forms Controlled\Cooler Receipt r17.doc 1/16/2020

Miscellaneous Forms

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REPORT QUALIFIERS AND DEFINITIONS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.
MRL LOQ	Method Reporting Limit. Also known as: Limit of Quantitation (LOQ) The lowest concentration at which the method analyte may be reliably quantified under the method conditions.
MDL	Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).
LOD	Limit of Detection. A value at or above the MDL which has been verified to be detectable.
ND	Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	Pennsylvania ID# 68-786
Delaware Approved	New Hampshire ID # 2941	Rhode Island ID # 158
DoD ELAP #65817	New York ID # 10145	Virginia #460167
Florida ID # E87674	North Carolina #676	

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	Portland, City of	**Service Request:**	K2006780
Project:	Riot Control Agent Residual Investigation/W20H057		

Sample Name:	W20H057-01	**Date Collected:**	08/6/20
Lab Code:	K2006780-001	**Date Received:**	08/7/20
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
218.6 LL		CWOODS

Sample Name:	W20H057-02	**Date Collected:**	08/6/20
Lab Code:	K2006780-002	**Date Received:**	08/7/20
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
218.6 LL		CWOODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9034 Sulfide Acid Soluble	9030B
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7199	3060A
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction
For analytical methods not listed, the preparation method is the same as the analytical method reference.	

Sample Results

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General Chemistry

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Analytical Report

Client:	Portland, City of	**Service Request:**	K2006780
Project:	Riot Control Agent Residual Investigation/W20H057	**Date Collected:**	08/06/20 08:19
Sample Matrix:	Water	**Date Received:**	08/07/20 12:45
Sample Name:	W20H057-01	**Basis:**	NA
Lab Code:	K2006780-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Chromium, Hexavalent, Dissolved	218.6	**2.33**	ug/L	0.10	0.05	5	08/14/20 18:41	

Analytical Report

Client:	Portland, City of	**Service Request:**	K2006780
Project:	Riot Control Agent Residual Investigation/W20H057	**Date Collected:**	08/06/20 08:52
Sample Matrix:	Water	**Date Received:**	08/07/20 12:45
Sample Name:	W20H057-02	**Basis:**	NA
Lab Code:	K2006780-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Chromium, Hexavalent, Dissolved	218.6	**0.16**	ug/L	0.10	0.05	5	08/12/20 16:20	

QC Summary Forms

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General Chemistry

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Analytical Report

Client:	Portland, City of	**Service Request:**	K2006780
Project:	Riot Control Agent Residual Investigation/W20H057	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	K2006780-MB1		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Chromium, Hexavalent, Dissolved	218.6	ND U	ug/L	0.020	0.010	1	08/12/20 11:27	

Analytical Report

Client:	Portland, City of	**Service Request:**	K2006780
Project:	Riot Control Agent Residual Investigation/W20H057	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	K2006780-MB2		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Chromium, Hexavalent, Dissolved	218.6	ND U	ug/L	0.020	0.010	1	08/14/20 12:45	

Client: Portland, City of
Project: Riot Control Agent Residual Investigation/W20H057
Sample Matrix: Water

Service Request: K2006780
Date Analyzed: 08/12/20

Lab Control Sample Summary
General Chemistry Parameters

Units:ug/L
Basis:NA

Lab Control Sample
K2006780-LCS1

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Chromium, Hexavalent, Dissolved	218.6	0.208	0.200	104	90-110

Client: Portland, City of
Project: Riot Control Agent Residual Investigation/W20H057
Sample Matrix: Water

Service Request: K2006780
Date Analyzed: 08/14/20

Lab Control Sample Summary
General Chemistry Parameters

Units:ug/L
Basis:NA

Lab Control Sample
K2006780-LCS2

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Chromium, Hexavalent, Dissolved	218.6	0.214	0.200	107	90-110