City of Plainwell

"The Island City"

211 N. Main Street
Plainwell, Michigan 49080
Phone: 269-685-6821
Fax: 269-685-7282
Web Address: www.plainwell.org

October 29, 2018

Dear Plainwell Water Customer:

As previous communications have indicated, the City continues to closely monitor the Otsego Water Investigation and how results there could impact our water source. The Allegan County Health Department has tested several Otsego Township drinking water wells for PFAS, Dioxin/Furans, PCBs and Chlorinated Organic Compounds.

While not required, we felt it was important to conduct the same tests at our three community drinking water supply wells. The results of our most recent tests for Chlorinated Organic Compounds was non-detect for all our wells and are attached to this letter.

In summary, our recent Dioxin related testing of our water source was highly comprehensive and included Dioxin/Furan compounds (17 total), PCB congeners (12 total) and Chlorinated Organic Compounds (12 total). In addition, earlier this year we tested our wells for PFAS and other routine tests.

There is nothing more important than ensuring our water is safe and of high quality. Information related to the City's water quality is posted on the City's webpage under Reference Desk-News and Announcements.

Sincerely,

Erik J. Wilson, Manager
City of Plainwell

ALS Environmental
ALS Group USA, Corp
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Kelso, WA 98626
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www.alsglobal.com

October 09, 2018

Analytical Report for Service Request No: K1809256

Will Cole
Pace Analytical Services
5560 Corporate Exchange Ct Se
Grand Rapids, MI 49512

RE: City of Plainwell / 4617977

Dear Will,

Enclosed are the results of the sample(s) submitted to our laboratory September 25, 2018
For your reference, these analyses have been assigned our service request number **K1809256.**

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 3342. You may also contact me via email at Amanda.Juell@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Amanda Juell
Project Manager

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Table of Contents

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.

Case Narrative

ALS Environmental—Kelso Laboratory
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ALS Environmental

Client: Pace Analytical Services
Project: City of Plainwell
Sample Matrix: Water

Service Request: K1809256
Date Received: 09/25/2018

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), Matrix Spike (MS), Matrix/Duplicate Matrix Spike (MS/DMS), Laboratory Control Sample (LCS), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt:

Three water samples were received for analysis at ALS Environmental on 09/25/2018. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4ºC upon receipt at the laboratory.

Semivolatiles by GC/MS:

The detection limit was slightly elevated for samples Well 7, Well 4, Well 5, and Well 7 Duplicate (DUP) due to less than optimal sample volume received for analysis.

Approved by Amanda Juell Date 10/09/2018

Chain of Custody

ALS Environmental—Kelso Laboratory
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Chain of Custody

KI 809256

Pace Analytical®
www.pacelabs.com

Workorder: 4617977 Workorder Name: City of Plainwell Results Requested By: 10/12/2018

Report / Invoice To	Subcontract To
Will Cole Pace Analytical Services 5560 Corporate Exchange Ct. SE Grand Rapids, MI 49512 USA Phone (616)975-4500 Email: will.cole@pacelabs.com	Amanda Juell ALS 1317 South 13th Ave Kelso, WA 98626 P.O._____

State of Sample Origin: MI

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	1653 Chlorinated Phenolics	LAB USE ONLY
1	Well 7	9/21/2018 13:35	4617977001	Water		2	
2	Well 4	9/21/2018 13:40	4617977002	Water		2	
3	Well 5	9/21/2018 13:50	4617977003	Water		2	
4							
5							

Transfers	Released By	Date/Time	Received By	Date/Time
1	A Watts/Pace	09/24/18 1700	[signature]	9/25/18 0730
2				
3				

Comments

Cooler Temperature on Receipt °C | Custody Seal Y or N | Received on Ice Y or N | Samples Intact Y or N

PC 91

Cooler Receipt and Preservation Form

Client Pace Analytical Service Request *K18* 092516

Received: 9/25/18 Opened: 9/25/18 By: BR Unloaded: 9/25/18 By: BR

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

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
-0.5	-0.5	0.9	0.9	0.0	325	1/2	454332336559 8	
0.5	0.5	1.5	1.7	+0.0	298	2/2	454332336 5402	

4. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA Y N
   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
11. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
12. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

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

*Votes, Discrepancies, & Resolutions:*_____

Chlorinated Phenols

ALS Environmental—Kelso Laboratory
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ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Pace Analytical Services	**Service Request:**	K1809256
Project:	City of Plainwell/4617977	**Date Collected:**	9/21/2018
Sample Matrix:	Water	**Date Received:**	9/25/2018

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	Well 7	Units:	ug/L (ppb)
Lab Code:	K1809256-001	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	2.6	1	9/28/2018	10/2/2018	ND	
2,4,5-Trichlorophenol	METHOD	1653A	2.6	1	9/28/2018	10/2/2018	ND	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.6	1	9/28/2018	10/2/2018	ND	
3,4,6-Trichloroguaiacol	METHOD	1653A	2.6	1	9/28/2018	10/2/2018	ND	
3,4,5-Trichloroguaiacol	METHOD	1653A	2.6	1	9/28/2018	10/2/2018	ND	
3,4,6-Trichlorocatechol	METHOD	1653A	5.2	1	9/28/2018	10/2/2018	ND	
3,4,5-Trichlorocatechol	METHOD	1653A	5.2	1	9/28/2018	10/2/2018	ND	
Trichlorosyringol	METHOD	1653A	2.6	1	9/28/2018	10/2/2018	ND	
4,5,6-Trichloroguaiacol	METHOD	1653A	2.6	1	9/28/2018	10/2/2018	ND	
Pentachlorophenol	METHOD	1653A	5.2	1	9/28/2018	10/2/2018	ND	
Tetrachloroguaiacol	METHOD	1653A	5.2	1	9/28/2018	10/2/2018	ND	
Tetrachlorocatechol	METHOD	1653A	5.2	1	9/28/2018	10/2/2018	ND	

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Pace Analytical Services	**Service Request:**	K1809256
Project:	City of Plainwell/4617977	**Date Collected:**	9/21/2018
Sample Matrix:	Water	**Date Received:**	9/25/2018

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	Well 4	Units:	ug/L (ppb)
Lab Code:	K1809256-002	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	2.6	1	9/28/2018	10/2/2018	ND	
2,4,5-Trichlorophenol	METHOD	1653A	2.6	1	9/28/2018	10/2/2018	ND	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.6	1	9/28/2018	10/2/2018	ND	
3,4,6-Trichloroguaiacol	METHOD	1653A	2.6	1	9/28/2018	10/2/2018	ND	
3,4,5-Trichloroguaiacol	METHOD	1653A	2.6	1	9/28/2018	10/2/2018	ND	
3,4,6-Trichlorocatechol	METHOD	1653A	5.2	1	9/28/2018	10/2/2018	ND	
3,4,5-Trichlorocatechol	METHOD	1653A	5.2	1	9/28/2018	10/2/2018	ND	
Trichlorosyringol	METHOD	1653A	2.6	1	9/28/2018	10/2/2018	ND	
4,5,6-Trichloroguaiacol	METHOD	1653A	2.6	1	9/28/2018	10/2/2018	ND	
Pentachlorophenol	METHOD	1653A	5.2	1	9/28/2018	10/2/2018	ND	
Tetrachloroguaiacol	METHOD	1653A	5.2	1	9/28/2018	10/2/2018	ND	
Tetrachlorocatechol	METHOD	1653A	5.2	1	9/28/2018	10/2/2018	ND	

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Pace Analytical Services	**Service Request:**	K1809256
Project:	City of Plainwell/4617977	**Date Collected:**	9/21/2018
Sample Matrix:	Water	**Date Received:**	9/25/2018

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	Well 5	Units:	ug/L (ppb)
Lab Code:	K1809256-003	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	2.7	1	9/28/2018	10/2/2018	ND	
2,4,5-Trichlorophenol	METHOD	1653A	2.7	1	9/28/2018	10/2/2018	ND	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.7	1	9/28/2018	10/2/2018	ND	
3,4,6-Trichloroguaiacol	METHOD	1653A	2.7	1	9/28/2018	10/2/2018	ND	
3,4,5-Trichloroguaiacol	METHOD	1653A	2.7	1	9/28/2018	10/2/2018	ND	
3,4,6-Trichlorocatechol	METHOD	1653A	5.3	1	9/28/2018	10/2/2018	ND	
3,4,5-Trichlorocatechol	METHOD	1653A	5.3	1	9/28/2018	10/2/2018	ND	
Trichlorosyringol	METHOD	1653A	2.7	1	9/28/2018	10/2/2018	ND	
4,5,6-Trichloroguaiacol	METHOD	1653A	2.7	1	9/28/2018	10/2/2018	ND	
Pentachlorophenol	METHOD	1653A	5.3	1	9/28/2018	10/2/2018	ND	
Tetrachloroguaiacol	METHOD	1653A	5.3	1	9/28/2018	10/2/2018	ND	
Tetrachlorocatechol	METHOD	1653A	5.3	1	9/28/2018	10/2/2018	ND	

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Pace Analytical Services	**Service Request:**	K1809256
Project:	City of Plainwell/4617977	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	Method Blank	Units:	ug/L (ppb)
Lab Code:	KWG1804856-3	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	2.5	1	9/28/2018	10/2/2018	ND	
2,4,5-Trichlorophenol	METHOD	1653A	2.5	1	9/28/2018	10/2/2018	ND	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	1	9/28/2018	10/2/2018	ND	
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	1	9/28/2018	10/2/2018	ND	
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	1	9/28/2018	10/2/2018	ND	
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	1	9/28/2018	10/2/2018	ND	
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	1	9/28/2018	10/2/2018	ND	
Trichlorosyringol	METHOD	1653A	2.5	1	9/28/2018	10/2/2018	ND	
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	1	9/28/2018	10/2/2018	ND	
Pentachlorophenol	METHOD	1653A	5.0	1	9/28/2018	10/2/2018	ND	
Tetrachloroguaiacol	METHOD	1653A	5.0	1	9/28/2018	10/2/2018	ND	
Tetrachlorocatechol	METHOD	1653A	5.0	1	9/28/2018	10/2/2018	ND	

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Pace Analytical Services	**Service Request:**	K1809256
Project:	City of Plainwell/4617977	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	9/28/2018

Labeled Compound and Internal Standard Recovery Summary
Chlorinated Phenolic Organic Compounds
1653A

			Percent Recovery		
	ALS Percent Recovery Acceptance	Sample Name:	**Well 7**	**Well 4**	**Well 5**
		Lab Code:	K1809256-001	K1809256-002	K1809256-003
		Date Analyzed:	10/2/2018	10/2/2018	10/2/2018
Analyte	**Criteria**				
3,4,5-Trichlorophenol	36-131		93	76	86
4,5,6-Trichloroguaiacol-13c6	25-134		85	68	77
Pentachlorophenol-13c6	22-117		67	56	64
Tetrachloroguaiacol-13c6	18-129		77	59	74
Tetrachlorocatechol-13c6	D-121		51	25	11

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Pace Analytical Services	**Service Request:**	K1809256
Project:	City of Plainwell/4617977	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	9/28/2018

Labeled Compound and Internal Standard Recovery Summary
Chlorinated Phenolic Organic Compounds
1653A

			Percent Recovery
	ALS Percent Recovery Acceptance	Sample Name:	**Method Blank**
		Lab Code:	KWG1804856-3
		Date Analyzed:	10/2/2018
Analyte	**Criteria**		
3,4,5-Trichlorophenol	36-131		93
4,5,6-Trichloroguaiacol-13c6	25-134		82
Pentachlorophenol-13c6	22-117		65
Tetrachloroguaiacol-13c6	18-129		71
Tetrachlorocatechol-13c6	D-121		52

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Pace Analytical Services	**Service Request:**	K1809256
Project:	City of Plainwell/4617977	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	9/28/2018
		Date Analyzed:	10/2/2018

Duplicate Summary
Chlorinated Phenolic Organic Compounds

Sample Name:	Well 7	Units:	ug/L (ppb)
Lab Code:	KWG1804856-1	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	2.7	ND	ND	ND	-	
2,4,5-Trichlorophenol	METHOD	1653A	2.7	ND	ND	ND	-	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.7	ND	ND	ND	-	
3,4,6-Trichloroguaiacol	METHOD	1653A	2.7	ND	ND	ND	-	
3,4,5-Trichloroguaiacol	METHOD	1653A	2.7	ND	ND	ND	-	
3,4,6-Trichlorocatechol	METHOD	1653A	5.4	ND	ND	ND	-	
3,4,5-Trichlorocatechol	METHOD	1653A	5.4	ND	ND	ND	-	
Trichlorosyringol	METHOD	1653A	2.7	ND	ND	ND	-	
4,5,6-Trichloroguaiacol	METHOD	1653A	2.7	ND	ND	ND	-	
Pentachlorophenol	METHOD	1653A	5.4	ND	ND	ND	-	
Tetrachloroguaiacol	METHOD	1653A	5.4	ND	ND	ND	-	
Tetrachlorocatechol	METHOD	1653A	5.4	ND	ND	ND	-	

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Pace Analytical Services	**Service Request:**	K1809256
Project:	City of Plainwell/4617977	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	9/28/2018
		Date Analyzed:	10/2/2018

Ongoing Precision and Recovery Summary
Chlorinated Phenolic Organic Compounds

Sample Name:	Lab Control Sample	Units:	ug/L (ppb)
Lab Code:	KWG1804856-2	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	ALS Percent Recovery Acceptance Limits	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	50	47.1	94	72-146	
2,4,5-Trichlorophenol	METHOD	1653A	50	49.1	98	82-128	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	50	41.3	83	82-132	
3,4,6-Trichloroguaiacol	METHOD	1653A	50	42.0	84	74-140	
3,4,5-Trichloroguaiacol	METHOD	1653A	50	44.6	89	80-134	
3,4,6-Trichlorocatechol	METHOD	1653A	100	94.8	95	64-149	
3,4,5-Trichlorocatechol	METHOD	1653A	100	89.0	89	72-128	
Trichlorosyringol	METHOD	1653A	50	37.0	74	66-174	
4,5,6-Trichloroguaiacol	METHOD	1653A	50	53.9	108	88-116	
Pentachlorophenol	METHOD	1653A	100	92.2	92	84-120	
Tetrachloroguaiacol	METHOD	1653A	100	96.9	97	81-126	
Tetrachlorocatechol	METHOD	1653A	100	101	101	81-132	