Technical Memorandum
Groundwater Quality Sampling, May 2014 Event

Date: September 11, 2014

By: Amy Blain, P.E., City of Longview

Subject: Groundwater Quality Sampling Results, May 2014 Monitoring Event

This memorandum summarizes the results of the groundwater monitoring and sampling event conducted in May 2014 for the Mint Farm Regional Water Treatment Plant well field (Mint Farm). Groundwater sampling continues to be sampled semi-annually to confirm consistent groundwater quality and monitor for potential water quality changes. Groundwater samples are collected from deep sentinel wells DW-1, DW-2, DW-5, DW-6, DW-7, and DW-9 during each semi-annual sampling event. These wells were selected based on their locations relative to nearby industrial facilities and their ability to detect potential contaminant migration from those industries.

ACTIVITIES CONDUCTED DURING THE MAY 2014 MONITORING EVENT

Activities completed during this groundwater monitoring event were conducted in general accordance with *Technical Memorandum 2, Water Quality Sampling Protocol* (Kennedy/Jenks, 28 April 2009). Activities included:

- Collecting groundwater samples from deep sentinel wells DW-1, DW-2, DW-5, DW-6, DW-7, and DW-9 on May 20 and 21, 2014. The groundwater samples were collected following well purging to stabilizate pH, temperature, conductivity, and dissolved oxygen levels.

- Submitting the groundwater samples to ALS Environmental (ALS), an EPA- certified laboratory, to analyze for constituents identified based on drinking water regulations, historical activities in the area, unregulated contaminants of emerging concern, and local industrial activity.

- Reviewing the analytical data and preparation of this summary memorandum.

DATA QUALITY

Based on a review of the laboratory reports, it is my opinion the analytical data are of acceptable quality for their intended use. A laboratory case narrative prepared by ALS is included as part of the lab reports in Attachment A.

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RESULTS OF GROUNDWATER MONITORING

The laboratory analytical reports for the groundwater samples collected during May 2014 sampling event are included on compact disc in Attachment A.

Iron, manganese and color were detected in the groundwater samples at levels that exceed the Washington Department of Health (DOH) secondary water quality standard for these constituents. Although these constituents are not regulated as a health concern, DOH regulates them in drinking water due to their aesthetic character. No other analytes were detected in groundwater samples at concentrations above their respective screening levels.

Screening levels for regulated contaminants are equivalent to the Maximum Contaminent Level (MCL) and Secondary Maximum Contaminant Level (SMCL) established by the Washington State Department of Health and National Primary Drinking Water Regulations. Screening levels for unregulated contaminants are determined by the methods described in the Mint Farm Regional Water Treatment Plant Preliminary Design Report (PDR), dated March 2010 and referred to in the Wellhead Protection Program described in Chapter 5 of the current City of Longview Comprehensive Water System Plan.

FUTURE SAMPLING ACTIVITIES

Groundwater monitoring will continue on a semi-annual basis to confirm consistent raw water quality. Pressure transducer data was not downloaded during this sampling event and is recommended to be downloaded during the second 2014 sampling event to evaluate any change in groundwater flow patterns.

REFERENCES

Kennedy/Jenks Consultants, 2009. *Technical Memorandum 2, Water Quality Sampling Protocol.* Kennedy/Jenks Consultants, 28 April 2009.

Kennedy/Jenks Consultants, 2010. *Preliminary Design Report (PDR Part 2) for the City of Longview (City) Mint Farm Regional Water Treatment Plant and Well Field, Part 2A: Hydrogeologic Characterization of the Mint Farm Area.* Kennedy/Jenks Consultants, March 2010.

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

June 11, 2014 Analytical Report for Service Request No: K1405046

Jeff Coleman
Longview, City of
W/S Operation Center
P.O. Box 128
Longview, WA 98632

RE: MFWTP Sentinel Wells

Dear Jeff:

Enclosed are the results of the sample submitted to our laboratory on May 20, 2014. For your reference, these analyses have been assigned our service request number K1405046.

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 call if you have any questions. My extension is 3275. You may also contact me via Email at Chris.Leaf@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Chris Leaf
Project Manager

CL/mj

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 DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	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	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
ISO 17025	http://www.pjlabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	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	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	4704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
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.

ALS Environmental

CHAIN OF CUSTODY
49241

001

SR#_____

COC Set____of____

COC#_____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: DFWTP Sentinel Wells	Project Number:
Project Manager: Jeff Coleman	
Company: City of Longview	
Address: PO Box 128, Longview WA 98632	
Phone #: (360) 442-5700	email
Sampler Signature: T Daly	Sampler Printed Name

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	7D: 900.0 / Radioact	7D: 903.1 / Radium 226	7D: 904.0 / Radium 228	180D: 200.8 / Metals T	1	2	3	4	5	Remarks
1. DW-2		5/20/14	1110		7										
2.															
3.															
4.															
5.															
6.															
7.															
8.															
9.															
10.															

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. CLP Like Summary (no raw data)

___ IV. Data Validation Report

___ V. EDD

Invoice Information

P.O.# 16-4327

Bill To: City of Longview

PO Box 128, Longview WA

Turnaround Requirements

___ 24 hr. ___ 48 hr.

___ 5 Day

___ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: H McGowan	Signature: Karla Smith	Signature	Signature	Signature	Signature
Printed Name: Hal McGowan	Printed Name: Karla Smith	Printed Name	Printed Name	Printed Name	Printed Name
Firm: City of Longview	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 5/20/14 1505	Date/Time: 5/20/14 1502	Date/Time	Date/Time	Date/Time	Date/Time

PC CL

Cooler Receipt and Preservation Form

Client / Project: City of LV Service Request K14 50446

Received: 5/20/14 Opened: 5/20/14 By: [illegible] Unloaded: 5/20/14 By: [illegible]

1. Samples were received via? *Mail* *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
15.9	15.7	16.6	16.4	-0.2	321			
18.1	18.2	19.6	19.7	0.1	340			
18.0	18.0	19.4	19.4	0	343			

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. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
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

Notes, Discrepancies, & Resolutions: _____

Page _____ *of* _____

ALS Group USA, Corp.
dba ALS Enviromental

- Cover Page -
INORGANIC ANALYSIS DATA PACKAGE

Client : Longview, City of
Project Name : MFWTP Sentinel Wells
Project No. : NA

Service Request : K1405046

Sample Name :	Lab Code :
DW-2	K1405046-001
Laboratory Control Sample	K1405046-LCS
Method Blank	K1405046-MB
Batch QC	K1405285-002D
Batch QC	K1405285-002S

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Longview, City of	**Service Request :**	K1405046
Project Name :	MFWTP Sentinel Wells	**Date Collected :**	05/20/14
Project No. :	NA	**Date Received :**	05/20/14
Matrix :	Drinking Water	**Date Extracted :**	05/30/14

Total Metals

Sample Name :	DW-2	**Units :**	ug/L (ppb)
Lab Code :	K1405046-001	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Uranium	200.8	0.02	06/02/14	ND	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Longview, City of	**Service Request :**	K1405046
Project Name :	MFWTP Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	05/30/14

Total Metals

Sample Name :	Method Blank	**Units :**	ug/L (ppb)
Lab Code :	K1405046-MB	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Uranium	200.8	0.02	06/02/14	ND	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1405046
Project Name :	MFWTP Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	05/30/14
		Date Analyzed :	06/02/14

Duplicate Summary
Total Metals

Sample Name :	Batch QC	**Units :**	ug/L (ppb)
Lab Code :	K1405285-002D	**Basis :**	NA

Analyte	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Uranium	200.8	0.02	ND	ND	ND	-	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1405046
Project Name :	MFWTP Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	05/30/14
		Date Analyzed :	06/02/14

Matrix Spike Summary
Total Metals

Sample Name :	Batch QC	**Units :**	ug/L (ppb)
Lab Code :	K1405285-002S	**Basis :**	NA

Analyte	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Uranium	0.02	20.0	ND	20.1	101	70-130	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1405046
Project Name :	MFWTP Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	05/30/14
		Date Analyzed :	06/02/14

Laboratory Control Sample Summary
Total Metals

Sample Name :	Laboratory Control Sample	**Units :**	ug/L (ppb)
Lab Code :	K1405046-LCS	**Basis :**	NA

Analyte	Analysis Method	True Value	Result	Percent	CAS Percent Recovery Acceptance Limits	Result Notes
Uranium	200.8	20.0	19.6	98	85-115	

Comments:

Wednesday, June 11, 2014

Ms. Chris Leaf
ALS Environmental
1317 South 13th Ave
Kelso, WA 98626

Re: ALS Workorder: 1405496
Project Name:
Project Number: K1405046

Dear Ms. Leaf:

One water sample was received from ALS Environmental, on 5/23/2014. The sample was scheduled for the following analyses:

Radium-226
Radium-228
Gross Alpha/Beta

The results for these analyses are contained in the enclosed reports.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

Debbie Fazio (for)

ALS Environmental
Jeff R. Kujawa
Project Manager

JRK/mlc
Enclosure(s): Report

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Laboratory Certifications	
Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nebraska	NE-OS-24-13
Nevada (NV)	CO000782008A
New Jersey (NJ)	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO01099
Washington	C1280

1405496

Gross Alpha/Beta:
The sample was analyzed for gross alpha and beta activity by gas flow proportional counting according to the current revision of SOP 724. Gross alpha results are referenced to ^{241}Am. Gross beta results are referenced to ^{90}Sr/Y.

All acceptance criteria were met.

Radium-228:
The sample was analyzed for the presence of ^{228}Ra by low background gas flow proportional counting of ^{228}Ac, which is the ingrown progeny of ^{228}Ra, according to the current revision of SOP 724.

All acceptance criteria were met.

Radium-226:
This sample was prepared and analyzed according to the current revision of SOP 783.

All acceptance criteria were met.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1405496
Client Name: ALS Environmental
Client Project Name:
Client Project Number: K1405046
Client PO Number: K1405046

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
DW-2	1405496-1		WATER	20-May-14	11:10

ALS Environmental Chain of Custody

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

ALS Contact: Chris Leaf

1405496

Project Number: K1405046
Project Manager: Chris Leaf

	Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	Radioact 900.0	Radium 226 903.1	Radium 228 904.0
(1)	K1405046-001	DW-2	6	Drinking Water	5/20/14	1110	Fort Collins	X	X	X

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

CL 5/21/14

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: 06/17/14

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

Invoice Information
PO# K1405046 ✓
Bill to

Relinquished By: [signature] 5/21/14 1210
Received By: [signature] 5/23/14 @0940
Airbill Number: _____

3 of 10

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS-Kelso Workorder No: 1405496

Project Manager: Jeff. K. Initials: ARM Date: 5/23/14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	NONE	(YES)	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16. Were the samples shipped on ice?		YES	(NO)
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	(RAD ONLY)	YES	NO

Cooler #:	1							
Temperature (°C):	AMB							
No. of custody seals on cooler:	1							
DOT Survey/ Acceptance Information — External µR/hr reading:	13							
Background µR/hr reading:	11							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: 5-23-14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

Page 1 of 1

ORIGIN ID:LOGA (360) 577-7222
SAMPLE RECEIVING
ALS ENVIROMENTAL
1317 S 13TH AVE

KELSO, WA 98626
UNITED STATES US

SHIP DATE: 21MAY14
ACTWGT: 51.8 LB
CAD: 102641/CAFE2704
DIMS: 26x16x14 IN

BILL SENDER

TO SAMPLE RECEIVING
ALS LABORATORY, GROUP./CO
225 COMMERCE DRIVE

FORT COLLINS CO 80524
(970) 490-1511
PO: CL/CL/CL

REF: SAMPLE K1405046 1405048 1405049

FedEx Express

FRI - 23 MAY AA
** 2DAY **

TRK# 0201 5478 9733 6451

TI FTCA

80524
CO-US DEN

Part # 156148-434 RIT2 07/13 **

Client:	ALS Environmental	**Date:**	*10-Jun-14*
Project:	K1405046	**Work Order:**	1405496
Sample ID:	DW-2	**Lab ID:**	1405496-1
Legal Location:		**Matrix:**	WATER
Collection Date:	5/20/2014 11:10	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GROSS ALPHA/BETA ANALYSIS BY GFPC			**PAI 724**		Prep Date: **5/28/2014**	PrepBy: **PJW**
GROSS ALPHA	ND (+/- 1)	U	2.7	pCi/l	NA	6/2/2014 12:50
GROSS BETA	**5.3 (+/- 1.8)**		**2.9**	**pCi/l**	NA	6/2/2014 12:50
RA-226 BY RADON EMANATION - METHOD 903.1			**PAI 783**		Prep Date: **5/29/2014**	PrepBy: **PJW**
Ra-226	ND (+/- 0.087)	U	0.109	pCi/l	NA	6/6/2014 13:46
Carr: BARIUM	*87*		*40-110*	*%REC*	NA	6/6/2014 13:46
RADIUM-228 ANALYSIS BY GFPC			**PAI 724**		Prep Date: **6/2/2014**	PrepBy: **TDE**
Ra-228	ND (+/- 0.19)	Y1,U	0.43	pCi/l	NA	6/6/2014 12:37
Carr: BARIUM	*101*	Y1	*40-110*	*%REC*	NA	6/6/2014 12:37

Client:	ALS Environmental	**Date:**	*10-Jun-14*
Project:	K1405046	**Work Order:**	1405496
Sample ID:	DW-2	**Lab ID:**	1405496-1
Legal Location:		**Matrix:**	WATER
Collection Date:	5/20/2014 11:10	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed

Explanation of Qualifiers

Radiochemistry:

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

G - Sample density differs by more than 15% of LCS density.

D - DER is greater than Control Limit

M - Requested MDC not met.

LT - Result is less than requested MDC but greater than achieved MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

G - A pattern resembling gasoline was detected in this sample.

D - A pattern resembling diesel was detected in this sample.

M - A pattern resembling motor oil was detected in this sample.

C - A pattern resembling crude oil was detected in this sample.

4 - A pattern resembling JP-4 was detected in this sample.

5 - A pattern resembling JP-5 was detected in this sample.

H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.

L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.

Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
- gasoline
- JP-8
- diesel
- mineral spirits
- motor oil
- Stoddard solvent
- bunker C

Batch ID: **RE140529-1-2** Instrument ID: **Alpha Scin** Method: **Ra-226 by Radon Emanation - Me**

LCS Sample ID: **RE140529-1** Units: **pCi/l** Analysis Date: **6/6/2014 14:55**

Client ID: Run ID: **RE140529-1A** Prep Date: **5/29/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	30.1 (+/- 7.5)	0.2	30.2		99.8	67-120				P
Carr: BARIUM	15940		17800		89.5	40-110				

LCSD Sample ID: **RE140529-1** Units: **pCi/l** Analysis Date: **6/6/2014 14:55**

Client ID: Run ID: **RE140529-1A** Prep Date: **5/29/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	29.6 (+/- 7.4)	0.2	30.2		97.9	67-120	30.1	0.0527	2.13	P
Carr: BARIUM	15100		17800		84.8	40-110	15940			

MB Sample ID: **RE140529-1** Units: **pCi/l** Analysis Date: **6/6/2014 14:55**

Client ID: Run ID: **RE140529-1A** Prep Date: **5/29/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.106								U
Carr: BARIUM	16110		17800		90.5	40-110				

The following samples were analyzed in this batch: 1405496-1

QC BATCH REPORT

Batch ID: **AB140528-1-5** Instrument ID: **LB4100-A** Method: **Gross Alpha/Beta Analysis by G**

LCS Sample ID: **AB140528-1** Units: **pCi/l** Analysis Date: **6/2/2014 10:45**

Client ID: Run ID: **AB140528-1A** Prep Date: **5/28/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
GROSS ALPHA	183 (+/- 30)	2	206.8		88.5	70-130				P
GROSS BETA	198 (+/- 32)	5	215.9		91.5	70-130				P,M3

MB Sample ID: **AB140528-1** Units: **pCi/l** Analysis Date: **6/2/2014 14:44**

Client ID: Run ID: **AB140528-1A** Prep Date: **5/28/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
GROSS ALPHA	ND	0.61								U
GROSS BETA	ND	1.03								U

The following samples were analyzed in this batch: 1405496-1

QC BATCH REPORT

Batch ID: **RA140602-2-2** Instrument ID: **LB4100-A** Method: **Radium-228 Analysis by GFPC**

LCS Sample ID: **RA140602-2** Units: **pCi/l** Analysis Date: **6/6/2014 12:37**

Client ID: Run ID: **RA140602-2A** Prep Date: **6/2/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	7.8 (+/- 1.8)	0.5	8.723		89	70-130				P,Y1
Carr: BARIUM	33110		32580		102	40-110				Y1

MB Sample ID: **RA140602-2** Units: **pCi/l** Analysis Date: **6/6/2014 12:37**

Client ID: Run ID: **RA140602-2A** Prep Date: **6/2/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	ND	0.57								U
Carr: BARIUM	32260		32580		99	40-110				

The following samples were analyzed in this batch: 1405496-1

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

June 11, 2014 Analytical Report for Service Request No: K1405048

Jeff Coleman
Longview, City of
W/S Operation Center
P.O. Box 128
Longview, WA 98632

RE: MFWTP Sentinel Wells

Dear Jeff:

Enclosed are the results of the sample submitted to our laboratory on May 20, 2014. For your reference, these analyses have been assigned our service request number K1405048.

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 call if you have any questions. My extension is 3275. You may also contact me via Email at Chris.Leaf@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Chris Leaf
Project Manager

CL/mj

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 DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	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	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
ISO 17025	http://www.pjlabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	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	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	4704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
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.

ALS Environmental

CHAIN OF CUSTODY
49249

001

SR# 1140528

COC Set____of____

COC#_____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: MFWTP Sentinel Wells
Project Number:
Project Manager: JEFF Coleman
Company: City of Longview
Address: Po Box 128, Longview, WA 98632
Phone #: (360) 442-5700
email:
Sampler Signature:
Sampler Printed Name:

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	900.0 / Radioact 7D	903.1 / Radium 226 7D	904.0 / Radium 228 7D	200.8 / Metals T 180D	1	2	3	4	5	Remarks
1. DW-1		5/20/14	1332		7	✓	—	—	✓						
2.															
3.															
4.															
5.															
6.															
7.															
8.															
9.															
10.															

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. CLP Like Summary (no raw data)
___ IV. Data Validation Report
___ V. EDD

Invoice Information

P.O.# 36-4325
Bill To: City of Longview
Po Box 128, Longview, WA

Turnaround Requirements

___ 24 hr. ___ 48 hr.
___ 5 Day
___ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: Hal McGrowen	Signature: Karla Smith	Signature	Signature	Signature	Signature
Printed Name: City of Longview	Printed Name: ALS	Printed Name	Printed Name	Printed Name	Printed Name
Firm: 5/20/14 1501	Firm: 5/20/14 1502	Firm	Firm	Firm	Firm
Date/Time	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

PC CL

Cooler Receipt and Preservation Form

Client / Project: City of LV Service Request *K14* 5048

Received: 5/20/14 Opened: 5/20/14 By: [illegible] Unloaded: 5/20/14 By: [illegible]

1. Samples were received via? *Mail* *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
15.9	15.7	16.6	16.4	-0.2	321			
18.1	18.2	17.6	17.7	0.1	540			
19.0	19.0	19.4	19.4	~~0~~	543			

4. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* N/A PC
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA (Y) N
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

Notes, Discrepancies, & Resolutions: _____

Page ____ *of* ____

ALS Group USA, Corp.
dba ALS Enviromental

- Cover Page -
INORGANIC ANALYSIS DATA PACKAGE

Client : Longview, City of
Project Name : MFWTP Sentinel Wells
Project No. : NA

Service Request : K1405048

Sample Name :	Lab Code :
DW-1	K1405048-001
Laboratory Control Sample	K1405048-LCS
Method Blank	K1405048-MB
Batch QC	K1405285-002D
Batch QC	K1405285-002S

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Longview, City of	**Service Request :**	K1405048
Project Name :	MFWTP Sentinel Wells	**Date Collected :**	05/20/14
Project No. :	NA	**Date Received :**	05/20/14
Matrix :	Drinking Water	**Date Extracted :**	05/30/14

Total Metals

Sample Name :	DW-1	**Units :**	ug/L (ppb)
Lab Code :	K1405048-001	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Uranium	200.8	0.02	06/02/14	ND	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Longview, City of	**Service Request :**	K1405048
Project Name :	MFWTP Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	05/30/14

Total Metals

Sample Name :	Method Blank	**Units :**	ug/L (ppb)
Lab Code :	K1405048-MB	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Uranium	200.8	0.02	06/02/14	ND	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1405048
Project Name :	MFWTP Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	05/30/14
		Date Analyzed :	06/02/14

Duplicate Summary
Total Metals

Sample Name :	Batch QC	**Units :**	ug/L (ppb)
Lab Code :	K1405285-002D	**Basis :**	NA

Analyte	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Uranium	200.8	0.02	ND	ND	ND	-	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1405048
Project Name :	MFWTP Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	05/30/14
		Date Analyzed :	06/02/14

Matrix Spike Summary
Total Metals

Sample Name :	Batch QC	**Units :**	ug/L (ppb)
Lab Code :	K1405285-002S	**Basis :**	NA

Analyte	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Uranium	0.02	20.0	ND	20.1	101	70-130	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1405048
Project Name :	MFWTP Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	05/30/14
		Date Analyzed :	06/02/14

Laboratory Control Sample Summary
Total Metals

Sample Name :	Laboratory Control Sample	**Units :**	ug/L (ppb)
Lab Code :	K1405048-LCS	**Basis :**	NA

Analyte	Analysis Method	True Value	Result	Percent	CAS Percent Recovery Acceptance Limits	Result Notes
Uranium	200.8	20.0	19.6	98	85-115	

Comments:

Wednesday, June 11, 2014

Ms. Chris Leaf
ALS Environmental
1317 South 13th Ave
Kelso, WA 98626

Re: ALS Workorder: 1405495
Project Name:
Project Number: K1405048

Dear Ms. Leaf:

One water sample was received from ALS Environmental, on 5/23/2014. The sample was scheduled for the following analyses:

Radium-226
Radium-228
Gross Alpha/Beta

The results for these analyses are contained in the enclosed reports.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

Debbie Fazio (for)

ALS Environmental
Jeff R. Kujawa
Project Manager

JRK/mlc
Enclosure(s): Report

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Laboratory Certifications	
Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nebraska	NE-OS-24-13
Nevada (NV)	CO000782008A
New Jersey (NJ)	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO01099
Washington	C1280

1405495

Gross Alpha/Beta:
The sample was analyzed for gross alpha and beta activity by gas flow proportional counting according to the current revision of SOP 724. Gross alpha results are referenced to ^{241}Am. Gross beta results are referenced to ^{90}Sr/Y.

All acceptance criteria were met.

Radium-228:
The sample was analyzed for the presence of ^{228}Ra by low background gas flow proportional counting of ^{228}Ac, which is the ingrown progeny of ^{228}Ra, according to the current revision of SOP 724.

All acceptance criteria were met.

Radium-226:
This sample was prepared and analyzed according to the current revision of SOP 783.

All acceptance criteria were met.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1405495
Client Name: ALS Environmental
Client Project Name:
Client Project Number: K1405048
Client PO Number: K1405048

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
DW-1	1405495-1		WATER	20-May-14	13:32

ALS Environmental Chain of Custody

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

ALS Contact: Chris Leaf

1405495

Project Number: K1405048
Project Manager: Chris Leaf

	Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	Radioact 900.0	Radium 226 903.1	Radium 228 904.0
(1)	K1405048-001	DW-1	6	Drinking Water	5/20/14	1332	Fort Collins	X	X	X

17

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

CC 5/21/14

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: 06/17/14

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

Invoice Information
PO# K1405048 ✓
Bill to

Relinquished By: [signature] 5/21/14 1210
Received By: [signature] 5/23 @0935
Airbill Number:

3 of 10

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS-Kelso Workorder No: 1405495

Project Manager: Jeff. K. Initials: ARA Date: 5/23/14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	NONE	(YES)	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16. Were the samples shipped on ice?		YES	(NO)
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	(RAD ONLY)	YES	NO

Cooler #:	1							
Temperature (°C):	AMB							
No. of custody seals on cooler:	1							
DOT Survey/ Acceptance Information: External µR/hr reading:	13							
Background µR/hr reading:	11							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: 5-23-14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

Page 1 of 1

ORIGIN ID:LOGA (360) 577-7222
SAMPLE RECEIVING
ALS ENVIROMENTAL
1317 S 13TH AVE

KELSO, WA 98626
UNITED STATES US

SHIP DATE: 21MAY14
ACTWGT: 51.8 LB
CAD: 102641/CAFE2704
DIMS: 26x16x14 IN

BILL SENDER

TO SAMPLE RECEIVING
ALS LABORATORY, GROUP./CO
225 COMMERCE DRIVE

FORT COLLINS CO 80524
(970) 490-1511
PO: CL/CL/CL

REF: SAMPLE K1405046 1405048 1405049

FedEx Express

FRI - 23 MAY AA
** 2DAY **

TRK# 0201 5478 9733 6451

TI FTCA

80524
CO-US DEN

Part # 1561-48-434 RIT2 07/13 **

Client:	ALS Environmental	**Date:**	*10-Jun-14*
Project:	K1405048	**Work Order:**	1405495
Sample ID:	DW-1	**Lab ID:**	1405495-1
Legal Location:		**Matrix:**	WATER
Collection Date:	5/20/2014 13:32	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GROSS ALPHA/BETA ANALYSIS BY GFPC			**PAI 724**		Prep Date: **5/28/2014**	PrepBy: **PJW**
GROSS ALPHA	ND (+/- 1)	U	2.4	pCi/l	NA	6/2/2014 10:45
GROSS BETA	ND (+/- 1.7)	U	3.4	pCi/l	NA	6/2/2014 10:45
RA-226 BY RADON EMANATION - METHOD 903.1			**PAI 783**		Prep Date: **5/29/2014**	PrepBy: **PJW**
Ra-226	0.072 (+/- 0.072)	LT	0.039	pCi/l	NA	6/6/2014 13:46
Carr: BARIUM	*90.2*		*40-110*	*%REC*	NA	6/6/2014 13:46
RADIUM-228 ANALYSIS BY GFPC			**PAI 724**		Prep Date: **6/2/2014**	PrepBy: **TDE**
Ra-228	ND (+/- 0.22)	U	0.44	pCi/l	NA	6/6/2014 12:37
Carr: BARIUM	*95.3*		*40-110*	*%REC*	NA	6/6/2014 12:37

Client:	ALS Environmental	**Date:**	*10-Jun-14*
Project:	K1405048	**Work Order:**	1405495
Sample ID:	DW-1	**Lab ID:**	1405495-1
Legal Location:		**Matrix:**	WATER
Collection Date:	5/20/2014 13:32	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed

Explanation of Qualifiers

Radiochemistry:

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

G - Sample density differs by more than 15% of LCS density.

D - DER is greater than Control Limit

M - Requested MDC not met.

LT - Result is less than requested MDC but greater than achieved MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

G - A pattern resembling gasoline was detected in this sample.

D - A pattern resembling diesel was detected in this sample.

M - A pattern resembling motor oil was detected in this sample.

C - A pattern resembling crude oil was detected in this sample.

4 - A pattern resembling JP-4 was detected in this sample.

5 - A pattern resembling JP-5 was detected in this sample.

H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.

L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.

Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
- gasoline
- JP-8
- diesel
- mineral spirits
- motor oil
- Stoddard solvent
- bunker C

Batch ID: **RE140529-1-2** Instrument ID: **Alpha Scin** Method: **Ra-226 by Radon Emanation - Me**

LCS Sample ID: **RE140529-1** Units: **pCi/l** Analysis Date: **6/6/2014 14:55**

Client ID: Run ID: **RE140529-1A** Prep Date: **5/29/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	30.1 (+/- 7.5)	0.2	30.2		99.8	67-120				P
Carr: BARIUM	15940		17800		89.5	40-110				

LCSD Sample ID: **RE140529-1** Units: **pCi/l** Analysis Date: **6/6/2014 14:55**

Client ID: Run ID: **RE140529-1A** Prep Date: **5/29/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	29.6 (+/- 7.4)	0.2	30.2		97.9	67-120	30.1	0.0527	2.13	P
Carr: BARIUM	15100		17800		84.8	40-110	15940			

MB Sample ID: **RE140529-1** Units: **pCi/l** Analysis Date: **6/6/2014 14:55**

Client ID: Run ID: **RE140529-1A** Prep Date: **5/29/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.106								U
Carr: BARIUM	16110		17800		90.5	40-110				

The following samples were analyzed in this batch: 1405495-1

QC BATCH REPORT

Batch ID: **AB140528-1-5** Instrument ID: **LB4100-A** Method: **Gross Alpha/Beta Analysis by G**

LCS Sample ID: **AB140528-1** Units: **pCi/l** Analysis Date: **6/2/2014 10:45**

Client ID: Run ID: **AB140528-1A** Prep Date: **5/28/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
GROSS ALPHA	183 (+/- 30)	2	206.8		88.5	70-130				P
GROSS BETA	198 (+/- 32)	5	215.9		91.5	70-130				P,M3

MB Sample ID: **AB140528-1** Units: **pCi/l** Analysis Date: **6/2/2014 14:44**

Client ID: Run ID: **AB140528-1A** Prep Date: **5/28/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
GROSS ALPHA	ND	0.61								U
GROSS BETA	ND	1.03								U

The following samples were analyzed in this batch: 1405495-1 1405306-2 1405512-12

QC BATCH REPORT

Batch ID: **RA140602-2-2** Instrument ID: **LB4100-A** Method: **Radium-228 Analysis by GFPC**

LCS Sample ID: **RA140602-2** Units: **pCi/l** Analysis Date: **6/6/2014 12:37**

Client ID: Run ID: **RA140602-2A** Prep Date: **6/2/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	7.8 (+/- 1.8)	0.5	8.723		89	70-130				P,Y1
Carr: BARIUM	33110		32580		102	40-110				Y1

MB Sample ID: **RA140602-2** Units: **pCi/l** Analysis Date: **6/6/2014 12:37**

Client ID: Run ID: **RA140602-2A** Prep Date: **6/2/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	ND	0.57								U
Carr: BARIUM	32260		32580		99	40-110				

The following samples were analyzed in this batch: 1405495-1

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

June 11, 2014 Analytical Report for Service Request No: K1405049

Jeff Coleman
Longview, City of
W/S Operation Center
P.O. Box 128
Longview, WA 98632

RE: MFWTP Sentinel Wells

Dear Jeff:

Enclosed are the results of the sample submitted to our laboratory on May 20, 2014. For your reference, these analyses have been assigned our service request number K1405049.

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 call if you have any questions. My extension is 3275. You may also contact me via Email at Chris.Leaf@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Chris Leaf
Project Manager

CL/mj

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 DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	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	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
ISO 17025	http://www.pjlabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	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	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	4704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
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.

ALS Environmental

CHAIN OF CUSTODY
49243

001

SR# K1405049

COC Set____of____

COC#_____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name	NFWTP Sentinel Wells
Project Number:	
Project Manager	Jeff Coleman
Company	City of Longview
Address	PO Box 128, Longview, WA 98632
Phone #	(360) 442-5700
Email	
Sampler Signature	
Sampler Printed Name	

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	7D 900.0 / Radioact	7D 903.1 / Radium 226	7D 904.0 / Radium 228	180D 200.8 / Metals T	1	2	3	4	5	Remarks
1. DW-9		5/20/14	0915		7										
2.															
3.															
4.															
5.															
6.															
7.															
8.															
9.															
10.															

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. CLP Like Summary (no raw data)

___ IV. Data Validation Report

___ V. EDD

Invoice Information

P.O.# 36-4329

Bill To: City of Longview
PO Box 128
Longview WA 98632

Turnaround Requirements

____ 24 hr. ____48 hr.
____ 5 Day
____ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: Hal McGowel	Signature: Karla Smith	Signature	Signature	Signature	Signature
Printed Name: Hal McGowel	Printed Name: Karla Smith	Printed Name	Printed Name	Printed Name	Printed Name
Firm: City of Longview	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 5/20/14 1502	Date/Time: 5/20/14 1502	Date/Time	Date/Time	Date/Time	Date/Time

PC CL

Cooler Receipt and Preservation Form

Client / Project: City of LV Service Request K14 5049

Received: 5/20/14 Opened: 5/20/14 By: RC Unloaded: 5/20/14 By: RC

1. Samples were received via? *Mail* *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
15.9	15.7	16.6	16.4	-0.2	321			
18.1	18.2	19.6	19.7	0.1	340			
18.0	18.0	19.4	19.4	0	343			

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. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
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

*Notes, Discrepancies, & Resolutions:*_____

*Page*____ *of*____

ALS Group USA, Corp.
dba ALS Enviromental

- Cover Page -
INORGANIC ANALYSIS DATA PACKAGE

Client : Longview, City of
Project Name : MFWTP Sentinel Wells
Project No. : NA

Service Request : K1405049

Sample Name :	Lab Code :
DW-9	K1405049-001
Laboratory Control Sample	K1405049-LCS
Method Blank	K1405049-MB
Batch QC	K1405285-002D
Batch QC	K1405285-002S

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Longview, City of	**Service Request :**	K1405049
Project Name :	MFWTP Sentinel Wells	**Date Collected :**	05/20/14
Project No. :	NA	**Date Received :**	05/20/14
Matrix :	Drinking Water	**Date Extracted :**	05/30/14

Total Metals

Sample Name :	DW-9	**Units :**	ug/L (ppb)
Lab Code :	K1405049-001	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Uranium	200.8	0.02	06/02/14	ND	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Longview, City of	**Service Request :**	K1405049
Project Name :	MFWTP Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	05/30/14

Total Metals

Sample Name :	Method Blank	**Units :**	ug/L (ppb)
Lab Code :	K1405049-MB	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Uranium	200.8	0.02	06/02/14	ND	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1405049
Project Name :	MFWTP Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	05/30/14
		Date Analyzed :	06/02/14

Duplicate Summary
Total Metals

Sample Name :	Batch QC	**Units :**	ug/L (ppb)
Lab Code :	K1405285-002D	**Basis :**	NA

Analyte	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Uranium	200.8	0.02	ND	ND	ND	-	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1405049
Project Name :	MFWTP Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	05/30/14
		Date Analyzed :	06/02/14

Matrix Spike Summary
Total Metals

Sample Name :	Batch QC	**Units :**	ug/L (ppb)
Lab Code :	K1405285-002S	**Basis :**	NA

Analyte	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Uranium	0.02	20.0	ND	20.1	101	70-130	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1405049
Project Name :	MFWTP Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	05/30/14
		Date Analyzed :	06/02/14

Laboratory Control Sample Summary
Total Metals

Sample Name :	Laboratory Control Sample	**Units :**	ug/L (ppb)
Lab Code :	K1405049-LCS	**Basis :**	NA

Analyte	Analysis Method	True Value	Result	Percent	CAS Percent Recovery Acceptance Limits	Result Notes
Uranium	200.8	20.0	19.6	98	85-115	

Comments:

Wednesday, June 11, 2014

Ms. Chris Leaf
ALS Environmental
1317 South 13th Ave
Kelso, WA 98626

Re: ALS Workorder: 1405497
Project Name:
Project Number: K1405049

Dear Ms. Leaf:

One water sample was received from ALS Environmental, on 5/23/2014. The sample was scheduled for the following analyses:

Radium-226
Radium-228
Gross Alpha/Beta

The results for these analyses are contained in the enclosed reports.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

Debbie Fazio (for)

ALS Environmental
Jeff R. Kujawa
Project Manager

JRK/mlc
Enclosure(s): Report

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Laboratory Certifications	
Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nebraska	NE-OS-24-13
Nevada (NV)	CO000782008A
New Jersey (NJ)	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO01099
Washington	C1280

1405497

Gross Alpha/Beta:
The sample was analyzed for gross alpha and beta activity by gas flow proportional counting according to the current revision of SOP 724. Gross alpha results are referenced to ^{241}Am. Gross beta results are referenced to ^{90}Sr/Y.

All acceptance criteria were met.

Radium-228:
The sample was analyzed for the presence of ^{228}Ra by low background gas flow proportional counting of ^{228}Ac, which is the ingrown progeny of ^{228}Ra, according to the current revision of SOP 724.

All acceptance criteria were met.

Radium-226:
This sample was prepared and analyzed according to the current revision of SOP 783.

All acceptance criteria were met.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1405497
Client Name: ALS Environmental
Client Project Name:
Client Project Number: K1405049
Client PO Number: K1405049

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
DW-9	1405497-1		WATER	20-May-14	9:15

ALS Environmental Chain of Custody

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

ALS Contact: Chris Leaf

14054497

Project Number: K1405049
Project Manager: Chris Leaf

	Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	Radioact 900.0	Radium 226 903.1	Radium 228 904.0
(1)	K1405049-001	DW-9	6	Drinking Water	5/20/14	0915	Fort Collins	X	X	X

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

CC 5/21/14

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: 06/17/14

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

Invoice Information
PO# K1405049 ✓
Bill to

Relinquished By: [signature] 5/21/14 1216 Received By: [signature] 5/23/14 @0935 Airbill Number:

3 of 10

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS-Kelso Workorder No: 1405497

Project Manager: Jeff K. Initials: ARA Date: 5/23/14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	NONE	(YES)	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16. Were the samples shipped on ice?		YES	(NO)
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	(RAD ONLY)	YES	NO

Cooler #:	1								
Temperature (°C):	AMB								
No. of custody seals on cooler:	1								
DOT Survey/ Acceptance Information — External µR/hr reading:	13								
Background µR/hr reading:	11								

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: 5-28-14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

ORIGIN ID:LOGA (360) 577-7222
SAMPLE RECEIVING
ALS ENVIROMENTAL
1317 S 13TH AVE

KELSO, WA 98626
UNITED STATES US

SHIP DATE: 21MAY14
ACTWGT: 51.8 LB
CAD: 102641/CAFE2704
DIMS: 26x16x14 IN

BILL SENDER

TO SAMPLE RECEIVING
ALS LABORATORY, GROUP./CO
225 COMMERCE DRIVE

FORT COLLINS CO 80524
(970) 490-1611
PO: CL/CL/CL

REF: SAMPLE K1405046 1405048 1405049

13.1

FedEx Express

FRI - 23 MAY AA
** 2DAY **

TRK# 0201 5478 9733 6451

TI FTCA

80524
CO-US DEN

Client:	ALS Environmental	**Date:**	*10-Jun-14*
Project:	K1405049	**Work Order:**	1405497
Sample ID:	DW-9	**Lab ID:**	1405497-1
Legal Location:		**Matrix:**	WATER
Collection Date:	5/20/2014 09:15	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GROSS ALPHA/BETA ANALYSIS BY GFPC			**PAI 724**		Prep Date: **5/28/2014**	PrepBy: **PJW**
GROSS ALPHA	ND (+/- 0.63)	U	2.4	pCi/l	NA	6/2/2014 10:45
GROSS BETA	ND (+/- 1.6)	U	3.4	pCi/l	NA	6/2/2014 10:45
RA-226 BY RADON EMANATION - METHOD 903.1			**PAI 783**		Prep Date: **5/29/2014**	PrepBy: **PJW**
Ra-226	ND (+/- 0.099)	U	0.142	pCi/l	NA	6/6/2014 13:46
Carr: BARIUM	*86.6*		*40-110*	*%REC*	NA	6/6/2014 13:46
RADIUM-228 ANALYSIS BY GFPC			**PAI 724**		Prep Date: **6/2/2014**	PrepBy: **TDE**
Ra-228	ND (+/- 0.19)	U	0.43	pCi/l	NA	6/6/2014 12:37
Carr: BARIUM	*96.9*		*40-110*	*%REC*	NA	6/6/2014 12:37

Client:	ALS Environmental	**Date:**	*10-Jun-14*
Project:	K1405049	**Work Order:**	1405497
Sample ID:	DW-9	**Lab ID:**	1405497-1
Legal Location:		**Matrix:**	WATER
Collection Date:	5/20/2014 09:15	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed

Explanation of Qualifiers

Radiochemistry:

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

G - Sample density differs by more than 15% of LCS density.

D - DER is greater than Control Limit

M - Requested MDC not met.

LT - Result is less than requested MDC but greater than achieved MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

G - A pattern resembling gasoline was detected in this sample.

D - A pattern resembling diesel was detected in this sample.

M - A pattern resembling motor oil was detected in this sample.

C - A pattern resembling crude oil was detected in this sample.

4 - A pattern resembling JP-4 was detected in this sample.

5 - A pattern resembling JP-5 was detected in this sample.

H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.

L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.

Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
- gasoline
- JP-8
- diesel
- mineral spirits
- motor oil
- Stoddard solvent
- bunker C

Batch ID: **RE140529-1-2** Instrument ID: **Alpha Scin** Method: **Ra-226 by Radon Emanation - Me**

LCS Sample ID: **RE140529-1** Units: **pCi/l** Analysis Date: **6/6/2014 14:55**

Client ID: Run ID: **RE140529-1A** Prep Date: **5/29/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	30.1 (+/- 7.5)	0.2	30.2		99.8	67-120				P
Carr: BARIUM	15940		17800		89.5	40-110				

LCSD Sample ID: **RE140529-1** Units: **pCi/l** Analysis Date: **6/6/2014 14:55**

Client ID: Run ID: **RE140529-1A** Prep Date: **5/29/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	29.6 (+/- 7.4)	0.2	30.2		97.9	67-120	30.1	0.0527	2.13	P
Carr: BARIUM	15100		17800		84.8	40-110	15940			

MB Sample ID: **RE140529-1** Units: **pCi/l** Analysis Date: **6/6/2014 14:55**

Client ID: Run ID: **RE140529-1A** Prep Date: **5/29/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.106								U
Carr: BARIUM	16110		17800		90.5	40-110				

The following samples were analyzed in this batch: 1405497-1

QC BATCH REPORT

Batch ID: **AB140528-1-5** Instrument ID: **LB4100-A** Method: **Gross Alpha/Beta Analysis by G**

LCS Sample ID: **AB140528-1** Units: **pCi/l** Analysis Date: **6/2/2014 10:45**

Client ID: Run ID: **AB140528-1A** Prep Date: **5/28/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
GROSS ALPHA	183 (+/- 30)	2	206.8		88.5	70-130				P
GROSS BETA	198 (+/- 32)	5	215.9		91.5	70-130				P,M3

MB Sample ID: **AB140528-1** Units: **pCi/l** Analysis Date: **6/2/2014 14:44**

Client ID: Run ID: **AB140528-1A** Prep Date: **5/28/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
GROSS ALPHA	ND	0.61								U
GROSS BETA	ND	1.03								U

The following samples were analyzed in this batch: 1405497-1

QC BATCH REPORT

Batch ID: **RA140602-2-2** Instrument ID: **LB4100-A** Method: **Radium-228 Analysis by GFPC**

LCS Sample ID: **RA140602-2** Units: **pCi/l** Analysis Date: **6/6/2014 12:37**

Client ID: Run ID: **RA140602-2A** Prep Date: **6/2/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	7.8 (+/- 1.8)	0.5	8.723		89	70-130				P,Y1
Carr: BARIUM	33110		32580		102	40-110				Y1

MB Sample ID: **RA140602-2** Units: **pCi/l** Analysis Date: **6/6/2014 12:37**

Client ID: Run ID: **RA140602-2A** Prep Date: **6/2/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	ND	0.57								U
Carr: BARIUM	32260		32580		99	40-110				

The following samples were analyzed in this batch: 1405497-1

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

June 26, 2014 Analytical Report for Service Request No: K1405052

Jeff Coleman
Longview, City of
W/S Operation Center
P.O. Box 128
Longview, WA 98632

RE: MFWTP Sentinel Wells

Dear Jeff:

Enclosed are the results of the samples submitted to our laboratory on May 20, 2014. For your reference, these analyses have been assigned our service request number K1405052.

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 call if you have any questions. My extension is 3275. You may also contact me via Email at Chris.Leaf@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Chris Leaf
Project Manager

CL/aj

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 DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	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	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
ISO 17025	http://www.pjlabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	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	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	4704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
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.

ALS ENVIRONMENTAL

Client:	Longview, City of	**Service Request No.:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Received:**	05/20/14
Sample Matrix:	Drinking Water		

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

One drinking water sample was received for analysis at ALS Environmental on 05/20/14. The sample was received in good condition and consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4ºC upon receipt at the laboratory.

General Chemistry Parameters

Total Cyanide by EPA Method 335.4:
The matrix spike recovery for sample Batch QC was outside control criteria because of suspected matrix interference. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. No further corrective action was taken.

No other anomalies associated with the analysis of this sample were observed.

Total Metals

Matrix Spike Recovery Exceptions:
The control criteria for matrix spike recovery of Iron for the Batch QC2 sample were not applicable. The analyzed concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

No other anomalies associated with the analysis of this sample were observed.

Chlorinated Phenols by EPA Method 1653

No anomalies associated with the analysis of this sample were observed.

EDB and DBCP by EPA Method 504.1

No anomalies associated with the analysis of this sample were observed.

Approved by_____

Pesticides and Polychlorinated Biphenyls by EPA Method 508.1

Calibration Verification Exceptions:
The analysis of Chlorinated Pesticides and PCB Aroclors by EPA 508.1 requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for Endrin in CCV file 0603014. The results were reported from the column with an acceptable CCV. The data quality was not affected. No further corrective action was necessary.

No other anomalies associated with the analysis of this sample were observed.

Chlorinated Acides by EPA Method 515.4

No anomalies associated with the analysis of this sample were observed.

Volatile Organic Compounds by EPA Method 524.2

Matrix Spike Recovery Exceptions:
The matrix spike recovery of Dichlorodifluoromethane for sample DW-2MS KWG1404851-1 and the duplicate matrix spike recovery of trans-1,3-Dichloropropene for sample DW-2DMS KWG1404851-2 were outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential bias in this matrix. No further corrective action was appropriate.

No other anomalies associated with the analysis of this sample were observed.

Semivolatile Organic Compounds by EPA Method 525.2

Matrix Spike Recovery Exceptions:
The matrix spike recovery of Benz(a)pyrene and duplicate matrix spike recovery of Benz(a)pyrene and Perylene-d12 for sample DW-1 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outliers suggested a potential low bias in this matrix. No further corrective action was appropriate.

Relative Percent Difference Exceptions:
The Relative Percent Difference (RPD) for Benz(a)pyrene in the replicate matrix spike analyses of DW-1 was outside control criteria.

No other anomalies associated with the analysis of this sample were observed.

Endothall by EPA Method 548.1

No anomalies associated with the analysis of this sample were observed.

Diquat by High Performance Liquid Chromatography

Sample Notes and Discussion:
The recovery of Paraquat in the MRL-level Lab fortified Blank (LFB) KWG1404738-4 was below the ALS advisory criteria of 50-150%. The recovery met the MRL verification criteria specified in the EPA manual. Additionally, recovery was acceptable in the Lab Control Sample (LCS) which indicated the analytical batch was in control. The data quality was not significantly affected. No further corrective action was required.

No other anomalies associated with the analysis of these samples were observed.

Approved by_____

Sulfur

This analysis was performed at ALS Environmental, Simi Valley, CA. The data for this analysis is included in the corresponding section of this report.

Carbamates and Glyphosate

These analyses were performed at ALS Environmental, Middletown, PA. The data for these analyses is included in the corresponding section of this report.

Approved by 

ALS Environmental

CHAIN OF CUSTODY
49242

001, 005

SR# K1406052

COC Set____of____

COC#_____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: MFNTP Sentinel Wells
Project Number:
Project Manager: Jeff Coleman
Company: City of Longview
Address: PO Box 128, Longview WA 98632
Phone #: (360) 442-5700
email:
Sampler Signature:
Sampler Printed Name:

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	6H: SM 9223 B / Coli L (+/-)	48H: 180.1 / Turbidity	48H: 300.0 / NO2	48H: 300.0 / NO3	48H: SM 2120 B / Color	48H: SM 4500-P E / O Phos	7D: 548.1 / ENDO	7D: 549.2 / DIQ_PARAQ	7D: SM 2540 C / TDS	14D: 335.4 / CN T	14D: 504.1 / EDB DBCP 123TCP	14D: 508.1 / PEST_CL	14D: 515.4 / CL_ACID_HERB	14D: 524.2 / VOC	14D: 525.2 / SVO	14D: 547 / GLYPH	14D: SM 2320 B / Alkalinity Titr	14D: Sulfur Liq / Sulfur	28D: 300.0 / Br	28D: 300.0 / SO4	28D: 350.1 / Ammonia T	28D: 531.1 / CARBAM	28D: SM 2510 B / Conductivity	Remarks
1. DW-2		5/20/14	1125		42	/	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	/	
2. Temp Blank K					2																								
3.																													
4.																													
5.																													
6.																													
7.																													
8.																													
9.																													
10.																													

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. CLP Like Summary (no raw data)
___ IV. Data Validation Report
___ V. EDD

Invoice Information

P.O.# 36-4326
Bill To: City of Longview
PO Box 128, Longview WA

Turnaround Requirements

____ 24 hr. ____ 48 hr.
____ 5 Day
____ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: Hal McGrowes	Signature: Karla Smith	Signature	Signature	Signature	Signature
Printed Name: Hal McGrowes	Printed Name: Karla Smith	Printed Name	Printed Name	Printed Name	Printed Name
Firm: City of Longview	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 5/20/14 1506	Date/Time: 5/20/14 1509	Date/Time	Date/Time	Date/Time	Date/Time

ALS Environmental

CHAIN OF CUSTODY
49242

001, 005

SR#_____

COC Set____of____

COC#_____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: MFWTP Sentinel Wells
Project Number:
Project Manager: Jeff Coleman
Company: City of Longview
Address: PO Box 128, Longview WA 98632
Phone #: (360) 442-5700
email:
Sampler Signature:
Sampler Printed Name:

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	28D: 245.1 / Hg T	28D: 300.0 / Chloride	28D: 300.0 / F	28D: 314.0 / ClO4	30D: 1653A / CHLOR_PHEN	180D: 1630 / Methyl Hg T	180D: 200.7 / Metals T	180D: 200.8 / Metals T	999D: Calculation / NO2 NO3 Calc	999D: SM 2340 B / Hardness Calc	1	2	3	4	5	Remarks
1. DW-2		5/20/14	1125			/									/						
2.																					
3.																					
4.																					
5.																					
6.																					
7.																					
8.																					
9.																					
10.																					

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. CLP Like Summary (no raw data)

___ IV. Data Validation Report

___ V. EDD

Invoice Information

P.O.# 36-4326

Bill To: City of Longview

PO Box 128, Longview WA

Turnaround Requirements

___ 24 hr. ___ 48 hr.

___ 5 Day

___ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
H. McGowan	Barla Smith				
Signature	Signature	Signature	Signature	Signature	Signature
Hai McGowan	Barla Smith				
Printed Name	Printed Name	Printed Name	Printed Name	Printed Name	Printed Name
City of Longview	ALS				
Firm	Firm	Firm	Firm	Firm	Firm
5/20/14 1500	5/20/14 1502				
Date/Time	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

PC CL

Cooler Receipt and Preservation Form

Client / Project: City of Longview Service Request *K14* 05052

Received: 5/20/14 Opened: 5/20/14 By: PO Unloaded: 5/20/14 By: PO

1. Samples were received via? *Mail* *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
5.6	5.6	10.9	10.9	0	298			
10.9	11.0	11.8	11.9	+.1	282			

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. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
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

Notes, Discrepancies, & Resolutions: Rec'd 6 total for 594's

SHORT HOLD TIME

Page ____ *of* ____

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	180.1	**Units:**	NTU
Prep Method:	None	**Basis:**	NA

Turbidity

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-2	K1405052-001	**1.16**	0.20	1	05/21/14 10:28	
Method Blank	K1405052-MB1	ND U	0.20	1	05/21/14 10:26	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
		Date Analyzed:	05/21/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW-2	**Units:**	NTU
Lab Code:	K1405052-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405052-001DUP Result	Average	RPD	RPD Limit
Turbidity	180.1	0.20	1.16	1.17	1.17	<1	20

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Turbidity

Analysis Method:	180.1	**Units:**	NTU
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393856

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405052-LCS1	5.79	5.80	100	90-110

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Bromide

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-2	K1405052-001	ND U	0.20	2	05/21/14 06:55	
Method Blank	K1405052-MB1	ND U	0.10	1	05/21/14 06:12	
Method Blank	K1405052-MB2	ND U	0.10	1	05/21/14 19:19	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
		Date Analyzed:	05/21/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405052-001DUP Result	Average	RPD	RPD Limit
Bromide	300.0	0.20	ND	ND	NC	NC	20

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

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Bromide

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike K1405052-001MS			**Duplicate Matrix Spike** K1405052-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Bromide	ND U	3.84	4.00	96	3.84	4.00	96	90-110	<1	20

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Bromide

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393505

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405052-LCS1	2.33	2.50	93	90-110
Lab Control Sample	K1405052-LCS2	2.33	2.50	93	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Chloride

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-2	K1405052-001	**9.15**	0.40	2	05/21/14 06:55	
Method Blank	K1405052-MB1	ND U	0.20	1	05/21/14 06:12	
Method Blank	K1405052-MB2	ND U	0.20	1	05/21/14 19:19	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
		Date Analyzed:	05/21/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405052-001DUP Result	Average	RPD	RPD Limit
Chloride	300.0	0.40	9.15	9.03	9.09	1	20

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Chloride

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike K1405052-001MS			**Duplicate Matrix Spike** K1405052-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Chloride	9.15	13.5	4.00	109	13.4	4.00	106	90-110	<1	20

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Chloride

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393505

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405052-LCS1	4.70	5.00	94	90-110
Lab Control Sample	K1405052-LCS2	4.72	5.00	94	90-110

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Fluoride

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-2	K1405052-001	ND U	0.20	2	05/21/14 06:55	
Method Blank	K1405052-MB1	ND U	0.10	1	05/21/14 06:12	
Method Blank	K1405052-MB2	ND U	0.10	1	05/21/14 19:19	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
		Date Analyzed:	05/21/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405052-001DUP Result	Average	RPD	RPD Limit
Fluoride	300.0	0.20	ND	ND	NC	NC	20

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ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Fluoride

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike K1405052-001MS			Duplicate Matrix Spike K1405052-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Fluoride	ND U	4.18	4.00	104	4.20	4.00	105	90-110	<1	20

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ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Fluoride

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393505

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405052-LCS1	4.93	5.00	99	90-110
Lab Control Sample	K1405052-LCS2	5.05	5.00	101	90-110

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Nitrite as Nitrogen

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-2	K1405052-001	ND U	0.10	2	05/21/14 06:55	
Method Blank	K1405052-MB1	ND U	0.050	1	05/21/14 06:12	
Method Blank	K1405052-MB2	ND U	0.050	1	05/21/14 19:19	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
		Date Analyzed:	05/21/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405052-001DUP Result	Average	RPD	RPD Limit
Nitrite as Nitrogen	300.0	0.10	ND	ND	NC	NC	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrite as Nitrogen

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike K1405052-001MS			**Duplicate Matrix Spike** K1405052-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrite as Nitrogen	ND U	4.08	4.00	102	4.08	4.00	102	90-110	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Nitrite as Nitrogen

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393505

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405052-LCS1	2.42	2.50	97	90-110
Lab Control Sample	K1405052-LCS2	2.43	2.50	97	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Nitrate as Nitrogen

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-2	K1405052-001	ND U	0.10	2	05/21/14 06:55	
Method Blank	K1405052-MB1	ND U	0.050	1	05/21/14 06:12	
Method Blank	K1405052-MB2	ND U	0.050	1	05/21/14 19:19	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
		Date Analyzed:	05/21/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405052-001DUP Result	Average	RPD	RPD Limit
Nitrate as Nitrogen	300.0	0.10	ND	ND	NC	NC	20

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ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrate as Nitrogen

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike K1405052-001MS			Duplicate Matrix Spike K1405052-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrate as Nitrogen	ND U	3.77	4.00	94	3.79	4.00	95	90-110	<1	20

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Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Nitrate as Nitrogen

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393505

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405052-LCS1	2.36	2.50	94	90-110
Lab Control Sample	K1405052-LCS2	2.35	2.50	94	90-110

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Sulfate

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-2	K1405052-001	ND U	0.20	2	05/21/14 06:55	
Method Blank	K1405052-MB1	ND U	0.10	1	05/21/14 06:12	
Method Blank	K1405052-MB2	ND U	0.10	1	05/21/14 19:19	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
		Date Analyzed:	05/21/14

Replicate Sample Summary

General Chemistry Parameters

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405052-001DUP Result	Average	RPD	RPD Limit
Sulfate	300.0	0.20	ND	ND	NC	NC	20

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Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Sulfate

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike			Duplicate Matrix Spike					
		K1405052-001MS			K1405052-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Sulfate	ND U	3.84	4.00	96	3.88	4.00	97	90-110	<1	20

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Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Sulfate

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393505

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405052-LCS1	4.78	5.00	96	90-110
Lab Control Sample	K1405052-LCS2	4.79	5.00	96	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	314.0	**Units:**	ug/L
Prep Method:	None	**Basis:**	NA

Perchlorate

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-2	K1405052-001	ND U	1.0	1	05/22/14 11:44	
Method Blank	K1405052-MB1	ND U	1.0	1	05/22/14 09:12	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405052-001DUP Result	Average	RPD	RPD Limit
Perchlorate	314.0	1.0	ND	ND	NC	NC	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
		Date Analyzed:	05/22/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Perchlorate

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Analysis Method:	314.0		
Prep Method:	None		

		Matrix Spike K1405052-001MS			Duplicate Matrix Spike K1405052-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	ND U	11.9	10.0	119	10.4	10.0	104	80-120	13	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Perchlorate

Analysis Method:	314.0	**Units:**	ug/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393851

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405052-LCS1	16.3	16.8	97	85-115

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	335.4	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA

Cyanide, Total

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
DW-2	K1405052-001	ND U	0.010	1	05/30/14 10:04	5/29/14	
Method Blank	K1405052-MB1	ND U	0.010	1	05/30/14 10:04	5/29/14	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/30/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405867-03	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405867-03DUP Result	Average	RPD	RPD Limit
Cyanide, Total	335.4	0.010	ND	0.010	NC	NC	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/30/14
		Date Extracted:	05/29/14

Duplicate Matrix Spike Summary
Cyanide, Total

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405867-03	**Basis:**	NA
Analysis Method:	335.4		
Prep Method:	Method		

		Matrix Spike KQ1405867-03MS			Duplicate Matrix Spike KQ1405867-03DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Cyanide, Total	ND U	0.113	0.100	112 *	0.107	0.100	106	90-110	5	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/30/14
Sample Matrix:	Drinking Water	**Date Extracted:**	05/29/14

Lab Control Sample Summary
Cyanide, Total

Analysis Method:	335.4	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	394880

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405052-LCS1	0.139	0.150	93	90-110

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	5/20/2014
Sample Matrix:	Drinking water	**Date Received:**	5/20/2014

Nitrite + Nitrate as Nitrogen

Prep Method:	NONE	Units:	mg/L
Analysis Method:	300.0/300.0	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
DW-2	K1405052-001	0.10	2	5/21/2014	ND	

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	SM 2120 B	**Units:**	ColorUnits
Prep Method:	None	**Basis:**	NA

Color

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-2	K1405052-001	**20.0**	5.0	1	05/22/14 09:15	
Method Blank	K1405052-MB1	ND U	5.0	1	05/22/14 08:42	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	ColorUnits
Lab Code:	K1405057-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405057-001DUP Result	Average	RPD	RPD Limit
Color	SM 2120 B	5.0	15.0	15.0	15.0	<1	20

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Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Color

Analysis Method:	SM 2120 B	**Units:**	ColorUnits
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393796

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405052-LCS1	65.0	65.0	100	85-115

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	SM 2320 B	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Alkalinity as CaCO3, Total

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-2	K1405052-001	**139**	2.0	1	05/30/14 13:50	
Method Blank	K1405052-MB1	ND U	2.0	1	05/30/14 13:50	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
		Date Analyzed:	05/30/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405052-001DUP Result	Average	RPD	RPD Limit
Alkalinity as CaCO3, Total	SM 2320 B	2.0	139	139	139	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/30/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Alkalinity as CaCO3, Total

Analysis Method:	SM 2320 B	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	394959

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405052-LCS1	175	177	99	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	SM 2510 B	**Units:**	uMHOS/cm
Prep Method:	None	**Basis:**	NA

Conductivity at 25 Degrees Celsius

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-2	K1405052-001	**297**	2.0	1	05/31/14 15:10	
Method Blank	K1405052-MB1	ND U	2.0	1	05/31/14 15:10	

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dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/31/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	uMHOS/cm
Lab Code:	K1405011-002	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405011-002DUP Result	Average	RPD	RPD Limit
Conductivity at 25 Degrees Celsius	SM 2510 B	2.0	844	856	850	1	20

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/31/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Conductivity at 25 Degrees Celsius

Analysis Method:	SM 2510 B	**Units:**	uMHOS/cm
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	395025

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405052-LCS1	342	330	104	86-113

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	SM 2540 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Solids, Total Dissolved

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-2	K1405052-001	**194**	10	1	05/22/14 22:30	
Method Blank	K1405052-MB1	ND U	5.0	1	05/22/14 22:30	
Method Blank	K1405052-MB2	ND U	10	1	05/22/14 22:30	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
Analysis Method:	SM 2540 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary

Solids, Total Dissolved

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1405011-002DUP	10	590	600	595	2	10	05/22/14
Batch QC	K1405058-022DUP	10	709	704	707	<1	10	05/22/14

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

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Solids, Total Dissolved

Analysis Method:	SM 2540 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393910

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405052-LCS1	874	886	99	85-115

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	SM 4500-NH3 G	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA

Ammonia

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
DW-2	K1405052-001	**0.061**	0.050	1	06/04/14 18:40	6/4/14	
Method Blank	K1405052-MB1	ND U	0.050	1	06/04/14 18:40	6/4/14	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	06/04/14

Replicate Sample Summary

General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1406157-09	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1406157-09DUP Result	Average	RPD	RPD Limit
Ammonia	SM 4500-NH3 G	0.050	2.58	2.56	2.57	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	06/4/14
		Date Extracted:	06/4/14

Duplicate Matrix Spike Summary
Ammonia

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1406157-09	**Basis:**	NA
Analysis Method:	SM 4500-NH3 G		
Prep Method:	Method		

		Matrix Spike KQ1406157-09MS			Duplicate Matrix Spike KQ1406157-09DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Ammonia	2.58	4.56	2.00	99	4.52	2.00	97	90-110	<1	20

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

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	06/04/14
Sample Matrix:	Drinking Water	**Date Extracted:**	06/04/14

Lab Control Sample Summary
Ammonia

Analysis Method:	SM 4500-NH3 G	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	395732

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405052-LCS1	10.8	10.8	100	90-110

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	SM 4500-P E	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Orthophosphate as Phosphorus

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-2	K1405052-001	**0.483**	0.050	1	05/21/14 13:29	
Method Blank	K1405052-MB1	ND U	0.050	1	05/21/14 13:29	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
		Date Analyzed:	05/21/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405052-001DUP Result	Average	RPD	RPD Limit
Orthophosphate as Phosphorus	SM 4500-P E	0.050	0.483	0.485	0.484	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Orthophosphate as Phosphorus

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA
Analysis Method:	SM 4500-P E		
Prep Method:	None		

		Matrix Spike K1405052-001MS			Duplicate Matrix Spike K1405052-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Orthophosphate as Phosphorus	0.483	0.91	0.40	107	0.85	0.40	92	75-125	15	20

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Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Orthophosphate as Phosphorus

Analysis Method:	SM 4500-P E	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393629

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405052-LCS1	3.86	3.94	98	85-115
Lab Control Sample	K1405052-LCS2	3.81	3.94	97	85-115
Lab Control Sample	K1405052-LCS3	3.83	3.94	97	85-115
Lab Control Sample	K1405052-LCS4	3.85	3.94	98	85-115

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	5/20/2014
Sample Matrix:	Drinking water	**Date Received:**	5/20/2014

Colilert, E. Coli

Prep Method: NONE
Analysis Method: SM 9223B
Basis: NA
Test Notes:

Sample Name	Lab Code	MRL	Date Analyzed	Time Test Started		Result	Result Notes
DW-2	K1405052-001	-	5/21/2014	12:00	hrs	Absent	

SM *Standard Methods for the Examination of Water and Wastewater* , 20th Ed., 1998.

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	5/20/2014
Sample Matrix:	Drinking water	**Date Received:**	5/20/2014

Colilert, T. Coli

Prep Method: NONE
Analysis Method: SM 9223B
Basis: NA
Test Notes:

Sample Name	Lab Code	MRL	Date Analyzed	Time Test Started		Result	Result Notes
DW-2	K1405052-001	-	5/21/2014	12:00	hrs	Absent	

SM *Standard Methods for the Examination of Water and Wastewater* , 20th Ed., 1998.

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking water	**Date Received:**	05/20/14

Hardness as CaCO3

Prep Method:	CLAA	Units:	mg/L (ppm)
Analysis Method:	200.7/SM 2340B	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
DW-2	K1405052-001	0.07	1	05/28/14	05/29/14	116	
Method Blank	K1405052-MB	0.07	1	05/28/14	05/29/14	ND	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	05/28/14
		Date Analyzed:	05/29/14

Duplicate Summary
Metals

Sample Name:	Batch QC	Units:	mg/L (ppm)
Lab Code:	K1405061-001D	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Hardness as CaCO3	CLAA	200.7/SM 2340B	0.07	175	180	178	3	

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking water	**Date Received:**	05/20/14

Methyl Mercury

Prep Method:	Method	Units:	ng/L
Analysis Method:	1630	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
DW-2	K1405052-001	0.1	1	06/05/14	06/06/14	ND	
Method Blank	K1405052-MB1	0.1	1	06/05/14	06/06/14	ND	
Method Blank	K1405052-MB2	0.1	1	06/05/14	06/06/14	ND	
Method Blank	K1405052-MB3	0.1	1	06/05/14	06/06/14	ND	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking water	**Date Received:**	05/20/14
		Date Extracted:	06/05/14
		Date Analyzed:	06/06/14

Matrix Spike/Duplicate Matrix Spike Summary
Metals

Sample Name:	DW-2	Units:	ng/L
Lab Code:	K1405052-001MS, K1405052-001MSD	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Spike Level MS	Spike Level DMS	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	CAS Acceptance Limits	Relative Percent Difference	Result Notes
Mercury, Methyl	Method	1630	0.1	2.22	2.22	ND	2.48	2.40	112	108	65-135	3	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	06/05/14
		Date Analyzed:	06/06/14

Ongoing Precision and Recovery (OPR) Sample Summary
Metals

Sample Name: Ongoing Precision and Recovery (Initial)

Units: ng/L
Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Mercury, Methyl	Method	1630	2.22	2.31	104	67-133	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	06/05/14
		Date Analyzed:	06/06/14

Ongoing Precision and Recovery (OPR) Sample Summary
Metals

Sample Name: Ongoing Precision and Recovery (Final)

Units: ng/L
Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Mercury, Methyl	Method	1630	2.22	2.12	95	67-133	

ALS Group USA, Corp.
dba ALS Environmental
QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	06/05/14
		Date Analyzed:	06/06/14

Quality Control Sample (QCS) Summary
Metals

Sample Name: Quality Control Sample

Units: pg
Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Mercury, Methyl	Method	1630	100	94.9	95	67-133	

ALS Group USA, Corp.
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- Cover Page -
INORGANIC ANALYSIS DATA PACKAGE

Client: Longview, City of
Project Name: MFWTP Sentinel Wells
Project No.:

Service Request: K1405052

Sample Name:	Lab Code:
Batch QC1D	K1404917-005D
Batch QC1S	K1404917-005S
DW-2	K1405052-001
DW-2D	K1405052-001D
DW-2S	K1405052-001S
Method Blank	K1405052-MB
Batch QC2D	K1405061-001D
Batch QC2S	K1405061-001S

Comments:

Metals

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

Client: Longview, City of
Project No.: NA
Project Name: MFWTP Sentinel Wells
Matrix: WATER

Service Request: K1405052
Date Collected: 05/20/14
Date Received: 05/20/14
Units: mg/L
Basis: NA

Sample Name: DW-2
Lab Code: K1405052-001

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Antimony	200.8	0.00005	1.0	05/23/14	05/27/14	0.00005	U	
Arsenic	200.8	0.0005	1.0	05/23/14	05/27/14	0.0098		
Barium	200.7	0.0040	1.0	05/28/14	05/29/14	0.0218		
Beryllium	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Cadmium	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Chromium	200.8	0.0002	1.0	05/23/14	05/27/14	0.0002	U	
Copper	200.7	0.004	1.0	05/28/14	05/29/14	0.004	U	
Iron	200.7	0.020	1.0	05/28/14	05/29/14	0.542		
Lead	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Manganese	200.7	0.001	1.0	05/28/14	05/29/14	0.300		
Mercury	245.1	0.0002	1.0	05/29/14	05/29/14	0.0002	U	
Nickel	200.8	0.0002	1.0	05/23/14	05/27/14	0.0004		
Selenium	200.8	0.001	1.0	05/23/14	05/27/14	0.001	U	
Silver	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Sodium	200.7	0.20	1.0	05/28/14	05/29/14	15.0		
Thallium	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Zinc	200.7	0.004	1.0	05/28/14	05/29/14	0.004	U	

Comments:

Metals

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INORGANIC ANALYSIS DATA PACKAGE

Client: Longview, City of
Project No.: NA
Project Name: MFWTP Sentinel Wells
Matrix: WATER

Service Request: K1405052
Date Collected:
Date Received:
Units: mg/L
Basis: NA

Sample Name: Method Blank
Lab Code: K1405052-MB

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Antimony	200.8	0.00005	1.0	05/23/14	05/27/14	0.00005	U	
Arsenic	200.8	0.0005	1.0	05/23/14	05/27/14	0.0005	U	
Barium	200.7	0.0040	1.0	05/28/14	05/29/14	0.0040	U	
Beryllium	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Cadmium	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Chromium	200.8	0.0002	1.0	05/23/14	05/27/14	0.0002	U	
Copper	200.7	0.004	1.0	05/28/14	05/29/14	0.004	U	
Iron	200.7	0.020	1.0	05/28/14	05/29/14	0.020	U	
Lead	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Manganese	200.7	0.001	1.0	05/28/14	05/29/14	0.001	U	
Mercury	245.1	0.0002	1.0	05/29/14	05/29/14	0.0002	U	
Nickel	200.8	0.0002	1.0	05/23/14	05/27/14	0.0002	U	
Selenium	200.8	0.001	1.0	05/23/14	05/27/14	0.001	U	
Silver	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Sodium	200.7	0.20	1.0	05/28/14	05/29/14	0.20	U	
Thallium	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Zinc	200.7	0.004	1.0	05/28/14	05/29/14	0.004	U	

Comments:

Metals
- 5A -
SPIKE SAMPLE RECOVERY

Client: Longview, City of
Service Request: K1405052
Project No.: NA
Units: MG/L
Project Name: MFWTP Sentinel Wells
Basis: NA
Matrix: WATER

Sample Name: Batch QC1S
Lab Code: K1404917-005S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Antimony	70 - 130	0.054134		0.000119		0.050000	108		200.8
Arsenic	70 - 130	0.05816		0.00281		0.05000	111		200.8
Beryllium	70 - 130	0.00249		0.00002	U	0.00250	100		200.8
Cadmium	70 - 130	0.02635		0.00002	U	0.025000	105		200.8
Chromium	70 - 130	0.0103		0.0006		0.01000	97		200.8
Lead	70 - 130	0.05020		0.00003		0.050000	100		200.8
Nickel	70 - 130	0.0256		0.0017		0.02500	96		200.8
Selenium	70 - 130	0.055		0.001	U	0.0500	108		200.8
Silver	70 - 130	0.01253		0.00002	U	0.012500	100		200.8
Thallium	70 - 130	0.05210		0.00002	U	0.050000	104		200.8

An empty field in the Control Limit column indicates the control limit is not applicable

Metals
- 5A -
SPIKE SAMPLE RECOVERY

Client: Longview, City of
Service Request: K1405052
Project No.: NA
Units: MG/L
Project Name: MFWTP Sentinel Wells
Basis: NA
Matrix: WATER

Sample Name: DW-2S
Lab Code: K1405052-001S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Mercury	80 - 120	0.0010		0.0002	U	0.001	100		245.1

An empty field in the Control Limit column indicates the control limit is not applicable

Metals
- 5A -
SPIKE SAMPLE RECOVERY

Client: Longview, City of
Service Request: K1405052
Project No.: NA
Units: MG/L
Project Name: MFWTP Sentinel Wells
Basis: NA
Matrix: WATER

Sample Name: Batch QC2S
Lab Code: K1405061-001S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Barium	70 - 130	2.1		0.0136		2.00	104.3		200.7
Copper	70 - 130	0.258		0.005		0.25	101.2		200.7
Iron		10.8		9.63		1.00	117.0		200.7
Manganese	70 - 130	1.33		0.812		0.50	103.6		200.7
Sodium	70 - 130	25.5		15.2		10.00	103.0		200.7
Zinc	70 - 130	0.634		0.130		0.50	100.8		200.7

An empty field in the Control Limit column indicates the control limit is not applicable

Metals

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DUPLICATES

Client: Longview, City of **Service Request:** K1405052

Project No.: NA **Units:** MG/L

Project Name: MFWTP Sentinel Wells **Basis:** NA

Matrix: WATER

Sample Name: Batch QC1D **Lab Code:** K1404917-005D

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Antimony		0.000119		0.000120		0.8		200.8
Arsenic	20	0.00281		0.00283		0.7		200.8
Beryllium		0.00002	U	0.00002	U			200.8
Cadmium		0.00002	U	0.00002	U			200.8
Chromium		0.0006		0.0006		0.0		200.8
Lead		0.00003		0.00003		0.0		200.8
Nickel	20	0.0017		0.0017		0.0		200.8
Selenium		0.001	U	0.001	U			200.8
Silver		0.00002	U	0.00002	U			200.8
Thallium		0.00002	U	0.00002	U			200.8

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals

- 6 -

DUPLICATES

Client: Longview, City of **Service Request:** K1405052

Project No.: NA **Units:** MG/L

Project Name: MFWTP Sentinel Wells **Basis:** NA

Matrix: WATER

Sample Name: **DW-2D** **Lab Code:** **K1405052-001D**

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Mercury		0.0002	U	0.0002	U			245.1

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals

- 6 -

DUPLICATES

Client: Longview, City of **Service Request:** K1405052

Project No.: NA **Units:** MG/L

Project Name: MFWTP Sentinel Wells **Basis:** NA

Matrix: WATER

Sample Name: Batch QC2D **Lab Code:** K1405061-001D

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Barium		0.0136		0.0141		3.6		200.7
Copper		0.005		0.005		0.0		200.7
Iron	20	9.63		9.90		2.8		200.7
Manganese	20	0.812		0.834		2.7		200.7
Sodium	20	15.2		15.5		2.0		200.7
Zinc	20	0.130		0.132		1.5		200.7

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals

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LABORATORY CONTROL SAMPLE

Client: Longview, City of **Service Request:** K1405052

Project No.: NA

Project Name: MFWTP Sentinel Wells

Aqueous LCS Source: **ALS MIXED** **Solid LCS Source:**

Analyte	Aqueous (ug/L)			Solid (mg/kg)				
	True	Found	%R	True	Found	C	Limits	%R
Antimony	0.050	0.0526	105					
Arsenic	0.050	0.051	102					
Barium	5	5.1	102					
Beryllium	0.003	0.0025	100					
Cadmium	0.025	0.0261	104					
Calcium	12.5	12.5	100					
Chromium	0.010	0.0101	101					
Copper	.625	0.627	103					
Iron	2.5	2.53	101					
Lead	0.050	0.0506	101					
Magnesium	12.5	12.6	101					
Manganese	1.25	1.25	100					
Mercury	.005	0.0051	102					
Nickel	0.025	0.0249	100					
Selenium	0.050	0.052	104					
Silver	0.013	0.0125	100					
Sodium	12.5	12.9	103					
Thallium	0.050	0.0518	104					
Zinc	1.25	1.28	102					

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**
Project:	MFWTP Sentinel Wells	**Date Collected:**
Sample Matrix:	Drinking water	**Date Received:**

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	DW-2	Units:
Lab Code:	K1405052-001	Basis:
Test Notes:		

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result
2,4,6-Trichlorophenol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
2,4,5-Trichlorophenol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND
Trichlorosyringol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
Pentachlorophenol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND
Tetrachloroguaiacol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND
Tetrachlorocatechol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**
Project:	MFWTP Sentinel Wells	**Date Collected:**
Sample Matrix:	Drinking water	**Date Received:**

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	Method Blank	Units:
Lab Code:	KWG1404597-3	Basis:
Test Notes:		

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result
2,4,6-Trichlorophenol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
2,4,5-Trichlorophenol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND
Trichlorosyringol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
Pentachlorophenol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND
Tetrachloroguaiacol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND
Tetrachlorocatechol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	5/21/2014

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

Percent Recovery

Analyte	**CAS Percent Recovery Acceptance Criteria**	Sample Name:	**DW-2**	**Method Blank**
		Lab Code:	K1405052-001	KWG1404597-3
		Date Analyzed:	5/22/2014	5/22/2014
3,4,5-Trichlorophenol	36-131		95	91
4,5,6-Trichloroguaiacol-13c6	25-134		84	86
Pentachlorophenol-13c6	22-117		71	63
Tetrachloroguaiacol-13c6	18-129		79	63
Tetrachlorocatechol-13c6	D-121		18	44

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client: Longview, City of
Project: MFWTP Sentinel Wells
Sample Matrix: Drinking water

Service Request: K1405052
Date Collected: NA
Date Received: NA
Date Extracted: 5/21/2014
Date Analyzed: 5/22/2014

Duplicate Summary
Chlorinated Phenolic Organic Compounds

Sample Name: Batch QC
Lab Code: KWG1404597-1
Test Notes:

Units: ug/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	2.5	ND	ND	ND	-	
2,4,5-Trichlorophenol	METHOD	1653A	2.5	ND	ND	ND	-	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	ND	ND	ND	-	
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	ND	ND	ND	-	
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	ND	ND	ND	-	
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	ND	ND	ND	-	
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	ND	ND	ND	-	
Trichlorosyringol	METHOD	1653A	2.5	ND	ND	ND	-	
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	ND	ND	ND	-	
Pentachlorophenol	METHOD	1653A	5.0	ND	ND	ND	-	
Tetrachloroguaiacol	METHOD	1653A	5.0	ND	ND	ND	-	
Tetrachlorocatechol	METHOD	1653A	5.0	ND	ND	ND	-	

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	5/21/2014
		Date Analyzed:	5/22/2014

Ongoing Precision and Recovery Summary
Chlorinated Phenolic Organic Compounds

Sample Name:	Lab Control Sample	Units:	ug/L (ppb)
Lab Code:	KWG1404597-2	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	50	56.7	113	72-146	
2,4,5-Trichlorophenol	METHOD	1653A	50	58.5	117	82-128	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	50	53.5	107	82-132	
3,4,6-Trichloroguaiacol	METHOD	1653A	50	53.5	107	74-140	
3,4,5-Trichloroguaiacol	METHOD	1653A	50	51.9	104	80-134	
3,4,6-Trichlorocatechol	METHOD	1653A	100	104	104	64-149	
3,4,5-Trichlorocatechol	METHOD	1653A	100	93.7	94	72-128	
Trichlorosyringol	METHOD	1653A	50	42.3	85	66-174	
4,5,6-Trichloroguaiacol	METHOD	1653A	50	51.3	103	88-116	
Pentachlorophenol	METHOD	1653A	100	102	102	84-120	
Tetrachloroguaiacol	METHOD	1653A	100	107	107	81-126	
Tetrachlorocatechol	METHOD	1653A	100	124	124	81-132	

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

EPA Method 504.1

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	504.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	0.0097	1	05/28/14	05/28/14	KWG1404828	
1,2,3-Trichloropropane	ND	U	0.098	1	05/28/14	05/28/14	KWG1404828	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.0097	1	05/28/14	05/28/14	KWG1404828	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

EPA Method 504.1

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404828-4	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	504.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	0.0099	1	05/28/14	05/28/14	KWG1404828	
1,2,3-Trichloropropane	ND	U	0.10	1	05/28/14	05/28/14	KWG1404828	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.0099	1	05/28/14	05/28/14	KWG1404828	

Comments:

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/28/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/28/2014

Matrix Spike/Duplicate Matrix Spike Summary
EPA Method 504.1

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	504.1	**Extraction Lot:**	KWG1404828

		DW-2MS KWG1404828-1 Matrix Spike			DW-2DMS KWG1404828-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
1,2-Dibromoethane (EDB)	ND	0.244	0.242	101	0.259	0.243	107	65-135	6	30
1,2,3-Trichloropropane	ND	0.192	0.242	79	0.214	0.243	88	65-135	11	30
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.210	0.242	87	0.231	0.243	95	65-135	9	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/28/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/28/2014

Lab Control Spike Summary
EPA Method 504.1

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	504.1	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404828

Lab Control Sample
KWG1404828-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
1,2-Dibromoethane (EDB)	0.264	0.250	106	70-130
1,2,3-Trichloropropane	0.223	0.250	89	70-130
1,2-Dibromo-3-chloropropane (DBCP)	0.230	0.250	92	70-130

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

Pesticides/PCBs by EPA Method 508.1

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
gamma-BHC (Lindane)	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Heptachlor	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Aldrin	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Heptachlor Epoxide	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Heptachlor Epoxide (Isomer A)	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
4,4'-DDE	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Dieldrin	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Endrin	ND	U	0.0098	1	05/29/14	06/03/14	KWG1404875	
4,4'-DDD	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
4,4'-DDT	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Methoxychlor	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Toxaphene	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Chlordane	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1016	ND	U	0.049	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1221	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1232	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1242	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1248	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1254	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1260	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4,4'-Dibromooctafluorobiphenyl	95	70-130	06/02/14	Acceptable

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Pesticides/PCBs by EPA Method 508.1

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404875-7	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
gamma-BHC (Lindane)	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Heptachlor	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Aldrin	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Heptachlor Epoxide	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Heptachlor Epoxide (Isomer A)	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
4,4'-DDE	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Dieldrin	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Endrin	ND	U	0.010	1	05/29/14	06/04/14	KWG1404875	
4,4'-DDD	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
4,4'-DDT	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Methoxychlor	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Toxaphene	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Chlordane	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1016	ND	U	0.050	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1221	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1232	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1242	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1248	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1254	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1260	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4,4'-Dibromooctafluorobiphenyl	94	70-130	06/02/14	Acceptable

Comments:

Client: Longview, City of
Project: MFWTP Sentinel Wells
Sample Matrix: Drinking water

Service Request: K1405052

Surrogate Recovery Summary
Pesticides/PCBs by EPA Method 508.1

Extraction Method: METHOD
Analysis Method: 508.1

Units: Percent
Level: Low

Sample Name	Lab Code	Sur1
DW-2	K1405052-001	95
Batch QC	K1405057-001	97
Method Blank	KWG1404875-7	94
Batch QCMS	KWG1404875-1	88
Batch QCDMS	KWG1404875-2	88
Lab Control Sample	KWG1404875-3	87

Surrogate Recovery Control Limits (%)

Sur1 = 4,4'-Dibromooctafluorobiphenyl 70-130

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/02/2014 - 06/03/2014

Matrix Spike/Duplicate Matrix Spike Summary
Pesticides/PCBs by EPA Method 508.1

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405057-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1	**Extraction Lot:**	KWG1404875

		Batch QCMS KWG1404875-1 Matrix Spike			Batch QCDMS KWG1404875-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
gamma-BHC (Lindane)	ND	0.0984	0.0962	102	0.0982	0.0962	102	65-135	0	30
Heptachlor	ND	0.0739	0.0962	77	0.0681	0.0962	71	65-135	8	30
Aldrin	ND	0.0888	0.0962	92	0.0871	0.0962	91	65-135	2	30
Heptachlor Epoxide	ND	0.0836	0.0962	87	0.0782	0.0962	81	65-135	7	30
Heptachlor Epoxide (Isomer A)	ND	0.0893	0.0962	93	0.0848	0.0962	88	65-135	5	30
4,4'-DDE	ND	0.0954	0.0962	99	0.0955	0.0962	99	65-135	0	30
Dieldrin	ND	0.0918	0.0962	95	0.0905	0.0962	94	65-135	1	30
Endrin	ND	0.0807	0.0962	84	0.0791	0.0962	82	65-135	2	30
4,4'-DDD	ND	0.103	0.0962	107	0.103	0.0962	107	65-135	0	30
4,4'-DDT	ND	0.0995	0.0962	103	0.0998	0.0962	104	65-135	0	30
Methoxychlor	ND	0.0990	0.0962	103	0.0949	0.0962	99	65-135	4	30
Aroclor 1248	ND	0.373	0.481	78	0.368	0.481	76	65-135	1	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/02/2014 - 06/04/2014

Lab Control Spike Summary
Pesticides/PCBs by EPA Method 508.1

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	508.1	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404875

	Lab Control Sample KWG1404875-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
gamma-BHC (Lindane)	0.100	0.100	100	70-130
Heptachlor	0.0882	0.100	88	70-130
Aldrin	0.0916	0.100	92	70-130
Heptachlor Epoxide	0.0963	0.100	96	70-130
Heptachlor Epoxide (Isomer A)	0.102	0.100	102	70-130
4,4'-DDE	0.101	0.100	101	70-130
Dieldrin	0.0997	0.100	100	70-130
Endrin	0.104	0.100	104	70-130
4,4'-DDD	0.110	0.100	110	70-130
4,4'-DDT	0.102	0.100	102	70-130
Methoxychlor	0.0965	0.100	97	70-130
Aroclor 1248	0.420	0.500	84	70-130

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

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

Chlorinated Herbicides by EPA 515.4

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	515.4		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dalapon	ND	U	0.50	1	05/30/14	06/02/14	KWG1404919	
3,5-Dichlorobenzoic Acid	ND	U	0.25	1	05/30/14	06/02/14	KWG1404919	
Dicamba	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Dichlorprop	ND	U	0.25	1	05/30/14	06/02/14	KWG1404919	
2,4-D	ND	U	0.089	1	05/30/14	06/02/14	KWG1404919	
Pentachlorophenol	ND	U	0.020	1	05/30/14	06/02/14	KWG1404919	
2,4,5-TP (Silvex)	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Chloramben	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
2,4-DB	ND	U	0.50	1	05/30/14	06/02/14	KWG1404919	
Dinoseb	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Dacthal Diacid	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Picloram	ND	U	0.091	1	05/30/14	06/02/14	KWG1404919	
Acifluorfen	ND	U	1.0	1	05/30/14	06/02/14	KWG1404919	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2,4-Dichlorophenylacetic Acid	75	70-130	06/02/14	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Chlorinated Herbicides by EPA 515.4

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404919-4	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	515.4		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dalapon	ND	U	0.50	1	05/30/14	06/02/14	KWG1404919	
3,5-Dichlorobenzoic Acid	ND	U	0.25	1	05/30/14	06/02/14	KWG1404919	
Dicamba	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Dichlorprop	ND	U	0.25	1	05/30/14	06/02/14	KWG1404919	
2,4-D	ND	U	0.089	1	05/30/14	06/02/14	KWG1404919	
Pentachlorophenol	ND	U	0.020	1	05/30/14	06/02/14	KWG1404919	
2,4,5-TP (Silvex)	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Chloramben	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
2,4-DB	ND	U	0.50	1	05/30/14	06/02/14	KWG1404919	
Dinoseb	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Dacthal Diacid	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Picloram	ND	U	0.091	1	05/30/14	06/02/14	KWG1404919	
Acifluorfen	ND	U	1.0	1	05/30/14	06/02/14	KWG1404919	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2,4-Dichlorophenylacetic Acid	113	70-130	06/02/14	Acceptable

Comments:

Client: Longview, City of
Project: MFWTP Sentinel Wells
Sample Matrix: Drinking water

Service Request: K1405052

Surrogate Recovery Summary
Chlorinated Herbicides by EPA 515.4

Extraction Method: METHOD
Analysis Method: 515.4

Units: Percent
Level: Low

Sample Name	Lab Code	Sur1
DW-2	K1405052-001	75
Method Blank	KWG1404919-4	113
DW-2MS	KWG1404919-1	119
DW-2DMS	KWG1404919-2	115
Lab Control Sample	KWG1404919-3	109

Surrogate Recovery Control Limits (%)

Sur1 = 2,4-Dichlorophenylacetic Acid 70-130

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Results flagged with a pound (#) indicate the control criteria is not applicable.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/30/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/02/2014 - 06/03/2014

Matrix Spike/Duplicate Matrix Spike Summary
Chlorinated Herbicides by EPA 515.4

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	515.4	**Extraction Lot:**	KWG1404919

		DW-2MS KWG1404919-1 Matrix Spike			DW-2DMS KWG1404919-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dalapon	ND	2.44	2.49	98	2.48	2.49	99	70-130	1	30
3,5-Dichlorobenzoic Acid	ND	2.41	2.49	97	2.36	2.49	95	70-130	2	30
Dicamba	ND	2.43	2.49	98	2.42	2.49	97	70-130	1	30
Dichlorprop	ND	2.33	2.49	94	2.27	2.49	91	70-130	3	30
2,4-D	ND	2.33	2.49	94	2.31	2.49	93	70-130	1	30
Pentachlorophenol	ND	2.44	2.49	98	2.42	2.49	97	70-130	1	30
2,4,5-TP (Silvex)	ND	2.46	2.49	99	2.46	2.49	99	70-130	0	30
Chloramben	ND	2.54	2.49	102	2.55	2.49	102	70-130	0	30
2,4-DB	ND	2.44	2.49	98	2.41	2.49	97	70-130	1	30
Dinoseb	ND	2.28	2.49	92	2.33	2.49	93	70-130	2	30
Dacthal Diacid	ND	2.75	2.49	110	2.73	2.49	110	70-130	1	30
Picloram	ND	2.60	2.49	104	2.56	2.49	103	70-130	2	30
Acifluorfen	ND	2.41	2.49	97	2.40	2.49	96	70-130	0	30

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

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/30/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/02/2014

Lab Control Spike Summary
Chlorinated Herbicides by EPA 515.4

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	515.4	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404919

Lab Control Sample
KWG1404919-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Dalapon	2.39	2.50	95	70-130
3,5-Dichlorobenzoic Acid	2.34	2.50	94	70-130
Dicamba	2.37	2.50	95	70-130
Dichlorprop	2.30	2.50	92	70-130
2,4-D	2.29	2.50	91	70-130
Pentachlorophenol	2.31	2.50	92	70-130
2,4,5-TP (Silvex)	2.41	2.50	96	70-130
Chloramben	2.57	2.50	103	70-130
2,4-DB	2.38	2.50	95	70-130
Dinoseb	2.37	2.50	95	70-130
Dacthal Diacid	2.42	2.50	97	70-130
Picloram	2.32	2.50	93	70-130
Acifluorfen	2.41	2.50	96	70-130

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

Volatile Organic Compounds

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Vinyl Chloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromomethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Trichlorofluoromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Methylene Chloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
trans-1,2-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
cis-1,2-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Methyl tert-Butyl Ether	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloroform	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromochloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Carbon Tetrachloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Benzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Trichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromodichloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Dibromomethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
cis-1,3-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Toluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
trans-1,3-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Tetrachloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
2,2-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Dibromochloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Ethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Styrene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
m,p-Xylenes	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

Volatile Organic Compounds

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
o-Xylene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,1-Trichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromoform	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Isopropylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
n-Propylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3,5-Trimethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
2-Chlorotoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
4-Chlorotoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
tert-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,4-Trimethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
sec-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
p-Isopropyltoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,4-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
n-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,4-Trichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Hexachlorobutadiene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Naphthalene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,2-Trichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,3-Trichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,3-Trichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

Volatile Organic Compounds

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	98	70-130	05/29/14	Acceptable
Dibromofluoromethane	93	82-124	05/29/14	Acceptable
Toluene-d8	101	82-124	05/29/14	Acceptable

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404851-5	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Vinyl Chloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromomethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Trichlorofluoromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Methylene Chloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
trans-1,2-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
cis-1,2-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Methyl tert-Butyl Ether	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloroform	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromochloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Carbon Tetrachloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Benzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Trichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromodichloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Dibromomethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
cis-1,3-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Toluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
trans-1,3-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Tetrachloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
2,2-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Dibromochloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Ethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Styrene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
m,p-Xylenes	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404851-5	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
o-Xylene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,1-Trichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromoform	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Isopropylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
n-Propylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3,5-Trimethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
2-Chlorotoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
4-Chlorotoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
tert-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,4-Trimethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
sec-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
p-Isopropyltoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,4-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
n-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,4-Trichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Hexachlorobutadiene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Naphthalene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,2-Trichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,3-Trichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,3-Trichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404851-5	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	99	70-130	05/29/14	Acceptable
Dibromofluoromethane	93	82-124	05/29/14	Acceptable
Toluene-d8	101	82-124	05/29/14	Acceptable

Comments:

Client: Longview, City of **Service Request:** K1405052
Project: MFWTP Sentinel Wells
Sample Matrix: Drinking water

Surrogate Recovery Summary
Volatile Organic Compounds

Extraction Method: METHOD **Units:** Percent
Analysis Method: 524.2 **Level:** Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
DW-2	K1405052-001	98	93	101
Method Blank	KWG1404851-5	99	93	101
DW-2MS	KWG1404851-1	100	97	103
DW-2DMS	KWG1404851-2	103	98	104
Lab Control Sample	KWG1404851-3	102	99	104

Surrogate Recovery Control Limits (%)

Sur1	=	4-Bromofluorobenzene	70-130
Sur2	=	Dibromofluoromethane	82-124
Sur3	=	Toluene-d8	82-124

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/29/2014

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2	**Extraction Lot:**	KWG1404851

		DW-2MS KWG1404851-1 Matrix Spike			DW-2DMS KWG1404851-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dichlorodifluoromethane	ND	6.83	5.00	137 *	5.31	5.00	106	70-130	25	30
Chloromethane	ND	5.99	5.00	120	4.99	5.00	100	70-130	18	30
Vinyl Chloride	ND	5.77	5.00	115	4.57	5.00	91	70-130	23	30
Bromomethane	ND	4.87	5.00	97	3.96	5.00	79	70-130	21	30
Chloroethane	ND	6.07	5.00	121	4.94	5.00	99	70-130	21	30
Trichlorofluoromethane	ND	5.48	5.00	110	4.33	5.00	87	70-130	23	30
Methylene Chloride	ND	5.27	5.00	105	4.57	5.00	91	70-130	14	30
trans-1,2-Dichloroethene	ND	5.41	5.00	108	4.49	5.00	90	70-130	19	30
1,1-Dichloroethene	ND	5.32	5.00	106	4.28	5.00	86	70-130	22	30
cis-1,2-Dichloroethene	ND	5.35	5.00	107	4.47	5.00	89	70-130	18	30
Methyl tert-Butyl Ether	ND	10.2	10.0	102	9.03	10.0	90	70-130	12	30
Chloroform	ND	5.21	5.00	104	4.41	5.00	88	70-130	17	30
Bromochloromethane	ND	5.24	5.00	105	4.44	5.00	89	70-130	17	30
Carbon Tetrachloride	ND	4.90	5.00	98	3.96	5.00	79	70-130	21	30
Benzene	ND	5.38	5.00	108	4.50	5.00	90	70-130	18	30
1,2-Dichloroethane	ND	4.99	5.00	100	4.37	5.00	87	70-130	13	30
Trichloroethene	ND	5.10	5.00	102	4.17	5.00	83	70-130	20	30
1,2-Dichloropropane	ND	5.04	5.00	101	4.26	5.00	85	70-130	17	30
Bromodichloromethane	ND	4.41	5.00	88	3.79	5.00	76	70-130	15	30
Dibromomethane	ND	4.80	5.00	96	4.25	5.00	85	70-130	12	30
cis-1,3-Dichloropropene	ND	4.13	5.00	83	3.49	5.00	70	70-130	17	30
Toluene	ND	5.54	5.00	111	4.61	5.00	92	70-130	18	30
1,1-Dichloroethane	ND	5.31	5.00	106	4.43	5.00	89	70-130	18	30
trans-1,3-Dichloropropene	ND	3.69	5.00	74	3.25	5.00	65 *	70-130	13	30
Tetrachloroethene	ND	5.52	5.00	110	4.65	5.00	93	70-130	17	30
1,3-Dichloropropane	ND	5.55	5.00	111	5.01	5.00	100	70-130	10	30
2,2-Dichloropropane	ND	4.94	5.00	99	3.98	5.00	80	70-130	22	30
Dibromochloromethane	ND	4.00	5.00	80	3.54	5.00	71	70-130	12	30
1,2-Dibromoethane (EDB)	ND	4.89	5.00	98	4.42	5.00	88	70-130	10	30
Chlorobenzene	ND	5.51	5.00	110	4.78	5.00	96	70-130	14	30
Ethylbenzene	ND	5.45	5.00	109	4.66	5.00	93	70-130	16	30
Styrene	ND	5.77	5.00	115	4.98	5.00	100	70-130	15	30
m,p-Xylenes	ND	11.5	10.0	115	9.84	10.0	98	70-130	16	30

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/29/2014

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2	**Extraction Lot:**	KWG1404851

		DW-2MS KWG1404851-1 Matrix Spike			DW-2DMS KWG1404851-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
o-Xylene	ND	5.60	5.00	112	4.85	5.00	97	70-130	14	30
1,1,1-Trichloroethane	ND	4.88	5.00	98	4.02	5.00	80	70-130	19	30
Bromoform	ND	4.15	5.00	83	3.65	5.00	73	70-130	13	30
1,1,2,2-Tetrachloroethane	ND	4.17	5.00	83	3.74	5.00	75	70-130	11	30
Isopropylbenzene	ND	5.78	5.00	116	4.87	5.00	97	70-130	17	30
1,1-Dichloropropene	ND	5.34	5.00	107	4.31	5.00	86	70-130	21	30
Bromobenzene	ND	4.31	5.00	86	3.81	5.00	76	70-130	12	30
n-Propylbenzene	ND	4.47	5.00	89	3.85	5.00	77	70-130	15	30
1,3,5-Trimethylbenzene	ND	4.76	5.00	95	4.13	5.00	83	70-130	14	30
2-Chlorotoluene	ND	4.50	5.00	90	3.95	5.00	79	70-130	13	30
4-Chlorotoluene	ND	4.85	5.00	97	4.20	5.00	84	70-130	14	30
tert-Butylbenzene	ND	5.17	5.00	103	4.39	5.00	88	70-130	16	30
1,2,4-Trimethylbenzene	ND	5.60	5.00	112	4.84	5.00	97	70-130	15	30
sec-Butylbenzene	ND	5.62	5.00	112	4.76	5.00	95	70-130	17	30
p-Isopropyltoluene	ND	5.89	5.00	118	4.96	5.00	99	70-130	17	30
1,3-Dichlorobenzene	ND	5.12	5.00	102	4.47	5.00	89	70-130	14	30
1,4-Dichlorobenzene	ND	5.13	5.00	103	4.49	5.00	90	70-130	13	30
n-Butylbenzene	ND	5.51	5.00	110	4.64	5.00	93	70-130	17	30
1,2-Dichlorobenzene	ND	5.32	5.00	106	4.74	5.00	95	70-130	12	30
1,2-Dibromo-3-chloropropane (DBCP)	ND	4.16	5.00	83	3.68	5.00	74	70-130	12	30
1,2,4-Trichlorobenzene	ND	4.48	5.00	90	3.98	5.00	80	70-130	12	30
Hexachlorobutadiene	ND	4.70	5.00	94	3.98	5.00	80	70-130	17	30
Naphthalene	ND	4.09	5.00	82	3.72	5.00	74	70-130	9	30
1,1,2-Trichloroethane	ND	5.03	5.00	101	4.53	5.00	91	70-130	10	30
1,1,1,2-Tetrachloroethane	ND	4.69	5.00	94	4.01	5.00	80	70-130	16	30
1,2,3-Trichloropropane	ND	4.81	5.00	96	4.41	5.00	88	70-130	9	30
1,2,3-Trichlorobenzene	ND	4.73	5.00	95	4.27	5.00	85	70-130	10	30

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/29/2014

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	524.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404851

Lab Control Sample
KWG1404851-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Dichlorodifluoromethane	5.94	5.00	119	70-130
Chloromethane	5.27	5.00	105	70-130
Vinyl Chloride	5.03	5.00	101	70-130
Bromomethane	4.33	5.00	87	70-130
Chloroethane	5.27	5.00	105	70-130
Trichlorofluoromethane	4.91	5.00	98	70-130
Methylene Chloride	5.02	5.00	100	70-130
trans-1,2-Dichloroethene	4.85	5.00	97	70-130
cis-1,2-Dichloroethene	4.85	5.00	97	70-130
1,1-Dichloroethene	4.67	5.00	93	70-130
Methyl tert-Butyl Ether	10.3	10.0	103	70-130
Chloroform	4.86	5.00	97	70-130
Bromochloromethane	4.84	5.00	97	70-130
Carbon Tetrachloride	4.56	5.00	91	70-130
Benzene	4.90	5.00	98	70-130
1,2-Dichloroethane	4.74	5.00	95	70-130
Trichloroethene	4.61	5.00	92	70-130
1,2-Dichloropropane	4.66	5.00	93	70-130
Bromodichloromethane	4.29	5.00	86	70-130
Dibromomethane	4.63	5.00	93	70-130
cis-1,3-Dichloropropene	4.07	5.00	81	70-130
Toluene	5.00	5.00	100	70-130
1,1-Dichloroethane	4.84	5.00	97	70-130
trans-1,3-Dichloropropene	3.67	5.00	73	70-130
Tetrachloroethene	4.98	5.00	100	70-130
2,2-Dichloropropane	4.48	5.00	90	70-130
1,3-Dichloropropane	5.26	5.00	105	70-130
Dibromochloromethane	4.01	5.00	80	70-130
1,2-Dibromoethane (EDB)	4.81	5.00	96	70-130
Chlorobenzene	5.04	5.00	101	70-130
Ethylbenzene	4.95	5.00	99	70-130
Styrene	5.16	5.00	103	70-130
m,p-Xylenes	10.4	10.0	104	70-130
o-Xylene	5.08	5.00	102	70-130
1,1,2,2-Tetrachloroethane	3.98	5.00	80	70-130

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/29/2014

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	524.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404851

Lab Control Sample
KWG1404851-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Bromoform	4.07	5.00	81	70-130
1,1,1-Trichloroethane	4.60	5.00	92	70-130
Isopropylbenzene	5.20	5.00	104	70-130
1,1-Dichloropropene	4.78	5.00	96	70-130
Bromobenzene	4.00	5.00	80	70-130
n-Propylbenzene	4.02	5.00	80	70-130
1,3,5-Trimethylbenzene	4.28	5.00	86	70-130
2-Chlorotoluene	4.11	5.00	82	70-130
4-Chlorotoluene	4.38	5.00	88	70-130
tert-Butylbenzene	4.65	5.00	93	70-130
1,2,4-Trimethylbenzene	5.02	5.00	100	70-130
sec-Butylbenzene	5.01	5.00	100	70-130
p-Isopropyltoluene	5.29	5.00	106	70-130
1,3-Dichlorobenzene	4.70	5.00	94	70-130
1,4-Dichlorobenzene	4.65	5.00	93	70-130
n-Butylbenzene	4.90	5.00	98	70-130
1,2-Dichlorobenzene	4.99	5.00	100	70-130
1,2-Dibromo-3-chloropropane (DBCP)	4.11	5.00	82	70-130
1,2,4-Trichlorobenzene	4.29	5.00	86	70-130
Hexachlorobutadiene	4.24	5.00	85	70-130
Naphthalene	4.02	5.00	80	70-130
1,1,2-Trichloroethane	4.88	5.00	98	70-130
1,1,1,2-Tetrachloroethane	4.56	5.00	91	70-130
1,2,3-Trichloropropane	4.98	5.00	100	70-130
1,2,3-Trichlorobenzene	4.51	5.00	90	70-130

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

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

Semivolatile Organics by EPA Method 525.2

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	525.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Hexachlorocyclopentadiene	ND	U	0.098	1	05/29/14	06/09/14	KWG1404877	
Fluorene	ND	U	0.049	1	05/29/14	06/09/14	KWG1404877	
Propachlor	ND	U	0.098	1	05/29/14	06/09/14	KWG1404877	
Hexachlorobenzene	ND	U	0.098	1	05/29/14	06/09/14	KWG1404877	
Simazine	ND	U	0.049	1	05/29/14	06/09/14	KWG1404877	
Atrazine	ND	U	0.098	1	05/29/14	06/09/14	KWG1404877	
Metribuzin	ND	U	0.20	1	05/29/14	06/09/14	KWG1404877	
Alachlor	ND	U	0.070	1	05/29/14	06/09/14	KWG1404877	
Bromacil	ND	U	0.20	1	05/29/14	06/09/14	KWG1404877	
Metolachlor	ND	U	0.088	1	05/29/14	06/09/14	KWG1404877	
Butachlor	ND	U	0.098	1	05/29/14	06/09/14	KWG1404877	
Bis(2-ethylhexyl) Adipate	ND	U	0.59	1	05/29/14	06/09/14	KWG1404877	
Bis(2-ethylhexyl) Phthalate	ND	U	0.59	1	05/29/14	06/09/14	KWG1404877	
Benzo(a)pyrene	ND	U	0.020	1	05/29/14	06/09/14	KWG1404877	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,3-Dimethyl-2-nitrobenzene	118	70-130	06/09/14	Acceptable
Triphenyl Phosphate	92	70-130	06/09/14	Acceptable
Perylene-d12	104	70-130	06/09/14	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Ocean water	**Date Received:**	NA

Semivolatile Organics by EPA Method 525.2

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404877-4	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	525.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Hexachlorocyclopentadiene	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Fluorene	ND	U	0.050	1	05/29/14	06/09/14	KWG1404877	
Propachlor	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Hexachlorobenzene	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Simazine	ND	U	0.050	1	05/29/14	06/09/14	KWG1404877	
Atrazine	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Metribuzin	ND	U	0.20	1	05/29/14	06/09/14	KWG1404877	
Alachlor	ND	U	0.072	1	05/29/14	06/09/14	KWG1404877	
Bromacil	ND	U	0.20	1	05/29/14	06/09/14	KWG1404877	
Metolachlor	ND	U	0.090	1	05/29/14	06/09/14	KWG1404877	
Butachlor	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Bis(2-ethylhexyl) Adipate	ND	U	0.60	1	05/29/14	06/09/14	KWG1404877	
Bis(2-ethylhexyl) Phthalate	ND	U	0.60	1	05/29/14	06/09/14	KWG1404877	
Benzo(a)pyrene	ND	U	0.020	1	05/29/14	06/09/14	KWG1404877	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,3-Dimethyl-2-nitrobenzene	119	70-130	06/09/14	Acceptable
Triphenyl Phosphate	77	70-130	06/09/14	Acceptable
Perylene-d12	82	70-130	06/09/14	Acceptable

Comments:

Client: Longview, City of **Service Request:** K1405052
Project: MFWTP Sentinel Wells
Sample Matrix: Drinking water

Surrogate Recovery Summary
Semivolatile Organics by EPA Method 525.2

Extraction Method: METHOD **Units:** Percent
Analysis Method: 525.2 **Level:** Low

Sample Name	Lab Code	Sur1	Sur2	Sur3	
DW-2	K1405052-001	118	92	104	
Batch QC	K1405054-001	126	96	77	
Method Blank	KWG1404877-4	119	77	82	
Batch QCMS	KWG1404877-1	118	107	95	
Batch QCDMS	KWG1404877-2	120	101	66	*
Lab Control Sample	KWG1404877-3	116	106	95	

Surrogate Recovery Control Limits (%)

Sur1	=	1,3-Dimethyl-2-nitrobenzene	70-130
Sur2	=	Triphenyl Phosphate	70-130
Sur3	=	Perylene-d12	70-130

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/09/2014

Matrix Spike/Duplicate Matrix Spike Summary
Semivolatile Organics by EPA Method 525.2

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405054-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	525.2	**Extraction Lot:**	KWG1404877

		Batch QCMS KWG1404877-1 Matrix Spike			Batch QCDMS KWG1404877-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Hexachlorocyclopentadiene	ND	1.06	0.971	109	1.09	0.971	112	70-130	3	30
Fluorene	ND	1.04	0.971	107	1.06	0.971	110	70-130	2	30
Propachlor	ND	0.931	0.971	96	0.920	0.971	95	70-130	1	30
Hexachlorobenzene	ND	1.02	0.971	105	1.01	0.971	104	70-130	1	30
Simazine	ND	0.728	0.971	75	0.705	0.971	73	70-130	3	30
Atrazine	ND	0.774	0.971	80	0.703	0.971	72	70-130	10	30
Metribuzin	ND	1.02	0.971	105	0.993	0.971	102	70-130	3	30
Alachlor	ND	0.880	0.971	91	0.861	0.971	89	70-130	2	30
Bromacil	ND	1.04	0.971	108	0.994	0.971	102	70-130	5	30
Metolachlor	ND	0.888	0.971	91	0.863	0.971	89	70-130	3	30
Butachlor	ND	0.992	0.971	102	0.967	0.971	100	70-130	3	30
Bis(2-ethylhexyl) Adipate	ND	1.01	0.971	104	0.964	0.971	99	70-130	4	30
Bis(2-ethylhexyl) Phthalate	ND	1.05	0.971	108	1.05	0.971	108	70-130	0	30
Benzo(a)pyrene	ND	0.631	0.971	65 *	0.216	0.971	22 *	70-130	98 *	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Ocean water	**Date Analyzed:**	06/09/2014

Lab Control Spike Summary
Semivolatile Organics by EPA Method 525.2

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	525.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404877

	Lab Control Sample KWG1404877-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Hexachlorocyclopentadiene	1.04	1.00	104	70-130
Fluorene	1.08	1.00	108	70-130
Propachlor	0.930	1.00	93	70-130
Hexachlorobenzene	1.06	1.00	106	70-130
Simazine	0.903	1.00	90	70-130
Atrazine	0.865	1.00	87	70-130
Metribuzin	1.03	1.00	103	70-130
Alachlor	0.914	1.00	91	70-130
Bromacil	0.960	1.00	96	70-130
Metolachlor	0.944	1.00	94	70-130
Butachlor	1.08	1.00	108	70-130
Bis(2-ethylhexyl) Adipate	0.969	1.00	97	70-130
Bis(2-ethylhexyl) Phthalate	1.03	1.00	103	70-130
Benzo(a)pyrene	1.02	1.00	102	70-130

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

Endothall by EPA Method 548.1

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	548.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Endothall	ND	U	5.0	1	05/21/14	05/27/14	KWG1404615	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Endothall by EPA Method 548.1

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404615-4	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	548.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Endothall	ND	U	5.0	1	05/21/14	05/27/14	KWG1404615	

Comments:

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/21/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/27/2014

Matrix Spike/Duplicate Matrix Spike Summary
Endothall by EPA Method 548.1

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	548.1	**Extraction Lot:**	KWG1404615

		DW-2MS KWG1404615-1 Matrix Spike			DW-2DMS KWG1404615-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Endothall	ND	113	100	113	128	100	128	30-142	12	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/21/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/27/2014

Lab Control Spike Summary
Endothall by EPA Method 548.1

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	548.1	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404615

	Lab Control Sample KWG1404615-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Endothall	140	100	140	30-142

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

Diquat and Paraquat by EPA Method 549.2

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	549.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diquat	ND	U	0.40	1	05/27/14	05/30/14	KWG1404738	
Paraquat	ND	U	0.80	1	05/27/14	05/30/14	KWG1404738	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Diquat and Paraquat by EPA Method 549.2

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404738-5	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	549.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diquat	ND	U	0.40	1	05/27/14	05/30/14	KWG1404738	
Paraquat	ND	U	0.80	1	05/27/14	05/30/14	KWG1404738	

Comments:

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/27/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/30/2014

Matrix Spike/Duplicate Matrix Spike Summary
Diquat and Paraquat by EPA Method 549.2

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405130-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	549.2	**Extraction Lot:**	KWG1404738

		Batch QCMS KWG1404738-1 Matrix Spike			Batch QCDMS KWG1404738-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Diquat	ND	12.0	12.0	100	11.9	12.0	100	70-130	0	30
Paraquat	ND	11.0	12.0	92	11.2	12.0	94	70-130	2	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405052
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/27/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/30/2014

Lab Control Spike Summary
Diquat and Paraquat by EPA Method 549.2

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	549.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404738

	Lab Control Sample KWG1404738-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Diquat	11.0	12.0	91	70-130
Paraquat	10.1	12.0	84	70-130

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.

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www.alsglobal.com

LABORATORY REPORT

May 31, 2014

Jeff Coleman
Longview, City of
W/S Operation Center
Longview, WA 98632

RE: MFWTP Sentinel Wells

Dear Jeff:

Enclosed are the results of the sample submitted to our laboratory on May 20, 2014. For your reference, this analysis has been assigned our service request number K1405052.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 9:57 am, May 31, 2014

For Kate Aguilera
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

Client: Longview, City of
Project: MFWTP Sentinel Wells

Service Request No: K1405052

CASE NARRATIVE

The sample was received intact under chain of custody on May 20, 2014 and was stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the sample at the time of sample receipt.

Hydrogen Sulfide Analysis

The sample was analyzed for hydrogen sulfide using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

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ALS Environmental – Simi Valley

Certifications, Accreditations, and Registrations

Agency	Web Site	Number
AIHA	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
DoD ELAP	http://www.pjlabs.com/search-accredited-labs	L14-2
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2012039
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	643428
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	CA200007
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-13-4
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA016272013-3
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

Intra-Network Chain of Custody

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

ALS Contact: Chris Leaf

Project Name: Sentinel Well Program
Project Number:
Project Manager: Jeff Coleman
Company: Longview, City of

Lab Code	Client Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Date Received	Send To	Sulfur Sulfur Liq
K1405052-001	DW-2	3	Drinking Water	5/20/14	1125	5/20/14	SIMIVALLEY	II

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

CL 5/21/14

pH Checked _____

Turnaround Requirements
____ RUSH (Surcharges Apply)
PLEASE CIRCLE WORK DAYS
1 2 3 4 5
✓ STANDARD
Requested FAX Date: _____
Requested Report Date: 06/06/14

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

Invoice Information
CSOk
40 CaCl3 TB
PO# K1405052
Bill to

Relinquished By: [signature] 5/21/14 1210
Received By: [signature] 5/21/14 0930
Airbill Number: _____

ALS Environmental
Sample Acceptance Check Form

Client: Longview, City of Work order: K1405052

Project: MFWTP Sentinel Wells

Sample(s) received on: 5/22/14 Date opened: 5/22/14 by: MZAMORA

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Container(s) **supplied by ALS**?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: ° C Blank Temperature: 4° C **Gel Packs**			
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☒	☐	☐
	Location of seal(s)? Top of cooler, down the front. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☒	☐	☐
	Is there a client indication that the submitted samples are **pH** preserved?	☒	☐	☐
	Were **VOA vials** checked for presence/absence of air bubbles?	☒	☐	☐
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☒	☐	☐
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
K1405052-001.01	40mL VOA NP		7	1	A	MC 5/27/2014
K1405052-001.02	40mL VOA NP				A	
K1405052-001.03	40mL VOA NP				A	

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Longview, City of**
Client Project ID: **MFWTP Sentinel Wells** ALS Project ID: K1405052

Hydrogen Sulfide

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 7890A/GC22/SCD Date(s) Collected: 5/20/14
Analyst: Mike Conejo Date Received: 5/20/14
Sample Type: Drinking Water Date Analyzed: 5/27/14
Test Notes:

Client Sample ID	ALS Sample ID	Sample Amount ml(s)	Purge Volume Liter(s)	Injection Volume ml(s)	**Result µg/L**	MRL µg/L	Data Qualifier
DW-2	K1405052-001	10.0	0.30	1.00	ND	0.84	
Method Blank	P140527-MB	10.0	0.30	1.0	ND	0.84	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Longview, City of**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **MFWTP Sentinel Wells**

ALS Project ID: K1405052
ALS Sample ID: P140527-DLCS

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Mike Conejo
Sample Type: Drinking Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 5/27/14
Liquid Amount: 10.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume: 0.20 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result LCS ug/L	Result DLCS ug/L	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
7783-06-4	Hydrogen Sulfide	428	414	438	**97**	**102**	54-133	5	20	

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 421 , WV 343

May 30, 2014

Ms. Chris Leaf
ALS Environmental - Kelso
1317 S. 13th Avenue
Kelso, WA 98626

Certificate of Analysis

Project Name:	**SOCs**	Workorder:	**2008318**
Purchase Order:	**K1405052**	Workorder ID:	**K1405052**

Dear Ms. Leaf:

Enclosed are the analytical results for samples received by the laboratory on Thursday, May 22, 2014.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Mrs. Kelli L Wolfgang (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

This laboratory report may not be reproduced, except in full, without the written approval of ALS Environmental.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

Kelli Wolfgang

Mrs. Kelli L Wolfgang
Project Coordinator

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 421 , WV 343

SAMPLE SUMMARY

Workorder: 2008318 K1405052

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2008318001	K1405052-001	Drinking Water	5/20/2014 11:25	5/22/2014 09:00	Collected by Client

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 421 , WV 343

ANALYTICAL RESULTS

Workorder: 2008318 K1405052

Lab ID: **2008318001** Date Collected: 5/20/2014 11:25 Matrix: Drinking Water

Sample ID: **K1405052-001** Date Received: 5/22/2014 09:00

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
HERBICIDES										
Glyphosate	ND		ug/L	4.5	EPA 547	5/28/14	CGS	5/28/14 19:14	CGS	C
CARBAMATES										
Aldicarb	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 06:10	CGS	A
Aldicarb Sulfone	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 06:10	CGS	A
Aldicarb Sulfoxide	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 06:10	CGS	A
Carbaryl	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 06:10	CGS	A
Carbofuran	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 06:10	CGS	A
3-Hydroxycarbofuran	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 06:10	CGS	A
Methiocarb	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 06:10	CGS	A
Methomyl	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 06:10	CGS	A
Oxamyl	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 06:10	CGS	A
Propoxur	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 06:10	CGS	A

Kelli Wolfgang

Mrs. Kelli L Wolfgang
Project Coordinator

ALS Environmental Chain of Custody

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

ALS Contact: Chris Leaf

2008318

Project Number: K1405052
Project Manager: Chris Leaf

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	CARBAM 531.1	GLYPH 547
K1405052-001	DW-2	5	Drinking Water	5/20/14	1125	Middletown	X	X

Test Comments
CARBAM - 531.1 K1405052-001 Full list for WA Regulations - no compliance report required.

KW ENTERED 5/22/14 1344

	Y	N	Initials
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Lbls Complete			
Cont in Good Cond?			
Correct Containers?			
Correct Samp Vol?			
Correct Preservation?			
Headspace/Volatiles?			

Cooler Temp: ____ °C
Cooler #: ____
Therm ID: TH-291
Ship Carrier: FedEx UPS DHL
Tracking #: 547897330402

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

5/21/14

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: 06/06/14

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

Invoice Information
PO# K1405052
Bill to

Relinquished By: 5/21/14 1210
Received By: Megan Hoerly ALS 5/22/14 0900
Airbill Number:

✓ **Ship To: Middletown**
ALS Laboratory Group
34 Dogwood Lane
Middletown, PA 17057

PC _____ Date 5/21/14
SMO _____ Date 5/21/14

Instructions:

Ice	✓
Dry Ice	
No Ice	

Shipping:

Overnight	✓
2nd Day	
Ground	

Bill to Client Account _____

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

June 26, 2014 Analytical Report for Service Request No: K1405054

Jeff Coleman
Longview, City of
W/S Operation Center
P.O. Box 128
Longview, WA 98632

RE: MFWTP Sentinel Wells

Dear Jeff:

Enclosed are the results of the samples submitted to our laboratory on May 20, 2014. For your reference, these analyses have been assigned our service request number K1405054.

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 call if you have any questions. My extension is 3275. You may also contact me via Email at Chris.Leaf@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Chris Leaf
Project Manager

CL/aj

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 DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	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	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
ISO 17025	http://www.pjlabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	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	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	4704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
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.

ALS ENVIRONMENTAL

Client:	Longview, City of	**Service Request No.:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Received:**	05/20/14
Sample Matrix:	Drinking Water		

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

One drinking water sample was received for analysis at ALS Environmental on 05/20/14. The sample was received in good condition and consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4ºC upon receipt at the laboratory.

General Chemistry Parameters

Total Cyanide by EPA Method 335.4:
The matrix spike recovery for sample Batch QC was outside control criteria because of suspected matrix interference. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. No further corrective action was taken.

No other anomalies associated with the analysis of this sample were observed.

Total Metals

Matrix Spike Recovery Exceptions:
The control criteria for matrix spike recovery of Iron for the Batch QC2 sample were not applicable. The analyzed concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

No other anomalies associated with the analysis of this sample were observed.

Chlorinated Phenols by EPA Method 1653

No anomalies associated with the analysis of this sample were observed.

EDB and DBCP by EPA Method 504.1

No anomalies associated with the analysis of this sample were observed.

Approved by_____

Pesticides and Polychlorinated Biphenyls by EPA Method 508.1

Calibration Verification Exceptions:
The analysis of Chlorinated Pesticides and PCB Aroclors by EPA 508.1 requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for Endrin in CCV file 0603014. The results were reported from the column with an acceptable CCV. The data quality was not affected. No further corrective action was necessary.

No other anomalies associated with the analysis of this sample were observed.

Chlorinated Acides by EPA Method 515.4

No anomalies associated with the analysis of this sample were observed.

Volatile Organic Compounds by EPA Method 524.2

Matrix Spike Recovery Exceptions:
The matrix spike recovery of Dichlorodifluoromethane for sample Batch QCMS KWG1404851-1 and the duplicate matrix spike recovery of trans-1,3-Dichloropropene for sample Batch QCDMS KWG1404851-2 were outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential bias in this matrix. No further corrective action was appropriate.

No other anomalies associated with the analysis of this sample were observed.

Semivolatile Organic Compounds by EPA Method 525.2

Matrix Spike Recovery Exceptions:
The matrix spike recovery of Benz(a)pyrene and duplicate matrix spike recovery of Benz(a)pyrene and Perylene-d12 for sample DW-1 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outliers suggested a potential low bias in this matrix. No further corrective action was appropriate.

Relative Percent Difference Exceptions:
The Relative Percent Difference (RPD) for Benz(a)pyrene in the replicate matrix spike analyses of DW-1 was outside control criteria.

No other anomalies associated with the analysis of this sample were observed.

Endothall by EPA Method 548.1

No anomalies associated with the analysis of this sample were observed.

Diquat by High Performance Liquid Chromatography

Sample Notes and Discussion:
The recovery of Paraquat in the MRL-level Lab fortified Blank (LFB) KWG1404738-4 was below the ALS advisory criteria of 50-150%. The recovery met the MRL verification criteria specified in the EPA manual. Additionally, recovery was acceptable in the Lab Control Sample (LCS) which indicated the analytical batch was in control. The data quality was not significantly affected. No further corrective action was required.

No other anomalies associated with the analysis of these samples were observed.

Approved by_____

Sulfur

This analysis was performed at ALS Environmental, Simi Valley, CA. The data for this analysis is included in the corresponding section of this report.

Carbamates and Glyphosate

These analyses were performed at ALS Environmental, Middletown, PA. The data for these analyses is included in the corresponding section of this report.

Approved by_____

ALS Environmental

CHAIN OF CUSTODY
49250

001, 005

SR# 1114050524

COC Set____of____

COC#_____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name	MFWTP Sentinel Wells
Project Number:	
Project Manager	JEFF Coleman
Company	City of Longview
Address	PO Box 128, Longview, WA 98632
Phone #	(360) 442-5700
email	
Sampler Signature	
Sampler Printed Name	

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	6H: SM 9223 B / Coli L (+/-)	48H: 180.1 / Turbidity	48H: 300.0 / NO2	48H: 300.0 / NO3	48H: SM 2120 B / Color	48H: SM 4500-P E / O Phos	7D: 548.1 / ENDO	7D: 549.2 / DIQ_PARAQ	7D: SM 2540 C / TDS	14D: 335.4 / CN T	14D: 504.1 / EDB DBCP 123TCP	14D: 508.1 / PEST_CL	14D: 515.4 / CL_ACID_HERB	14D: 524.2 / VOC	14D: 525.2 / SVO	14D: 547 / GLYPH	14D: SM 2320 B / Alkalinity Titr	14D: Sulfur Liq / Sulfur	28D: 245.1 / Hg T	28D: 300.0 / Br	28D: 300.0 / Chloride	28D: 300.0 / F	28D: 531.1 / CARBAM	Remarks
1. DW-1		5/20/14	1347		39	✓																						✓	
2. Temp BlanKs					2																								
3.																													
4.																													
5.																													
6.																													
7.																													
8.																													
9.																													
10.																													

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. CLP Like Summary (no raw data)

___ IV. Data Validation Report

___ V. EDD

Invoice Information

P.O.# 36-4324

Bill To: City of Longview

PO Box 128, Longview, WA

Turnaround Requirements

___ 24 hr. ___ 48 hr.

___ 5 Day

___ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: Hal McGowen	Signature: Karla Smith	Signature	Signature	Signature	Signature
Printed Name: Hal McGowen	Printed Name: Karla Smith	Printed Name	Printed Name	Printed Name	Printed Name
Firm: City of Longview	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 5/20/14 1502	Date/Time: 5/20/14 1502	Date/Time	Date/Time	Date/Time	Date/Time

ALS Environmental

CHAIN OF CUSTODY
49250

001, 005

SR# 1405054

COC Set ____ of ____

COC# ____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: MFWTP Sentinel Well	Project Number:
Project Manager: Jeff Coleman	
Company: City of Longview	
Address: PO Box 128, Longview, WA 98632	
Phone #: (360) 442-5700	email:
Sampler Signature:	Sampler Printed Name:

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	28D: 300.0 / SO4	28D: 314.0 / ClO4	28D: 350.1 / Ammonia T	28D: SM 2510 B / Conductivity	30D: 1653A / CHLOR_PHEN	180D: 1630 / Methyl Hg T	180D: 200.7 / Metals T	180D: 200.8 / Metals T	999D: Calculation / NO2 NO3 Calc	999D: SM 2340 B / Hardness Calc	1	2	3	4	5	Remarks
1. DW-1		5/20/14	1347			X									X						
2.																					
3.																					
4.																					
5.																					
6.																					
7.																					
8.																					
9.																					
10.																					

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. CLP Like Summary (no raw data)

___ IV. Data Validation Report

___ V. EDD

Invoice Information

P.O.# 36-4324

Bill To: City of Longview

PO Box 128, Longview, WA

Turnaround Requirements

___ 24 hr. ___ 48 hr.

___ 5 Day

___ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: Hal McGaw	Signature: Barla Smith	Signature	Signature	Signature	Signature
Printed Name: Hal McGaw	Printed Name: Barla Smith	Printed Name	Printed Name	Printed Name	Printed Name
Firm: City of Longview	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 5/20/14 1502	Date/Time: 5/20/14 1502	Date/Time	Date/Time	Date/Time	Date/Time

PC C

Cooler Receipt and Preservation Form

Client / Project: City of Longview Service Request K14 5054

Received: 5/20/14 Opened: 5/20/14 By: [illegible] Unloaded: 5/20/14 By: [illegible]

1. Samples were received via? *Mail* *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
4.9	4.9	10.1	10.1	0	339			
12.6	12.6	13.9	13.9	0	333			

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. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
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

*Notes, Discrepancies, & Resolutions:*_____

SHORT HOLD TIME

*Page*____ *of*____

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	180.1	**Units:**	NTU
Prep Method:	None	**Basis:**	NA

Turbidity

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-1	K1405054-001	**6.62**	0.20	1	05/21/14 10:30	
Method Blank	K1405054-MB1	ND U	0.20	1	05/21/14 10:26	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/21/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	NTU
Lab Code:	K1405052-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405052-001DUP Result	Average	RPD	RPD Limit
Turbidity	180.1	0.20	1.16	1.17	1.17	<1	20

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Turbidity

Analysis Method:	180.1	**Units:**	NTU
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393856

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405054-LCS1	5.79	5.80	100	90-110

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Bromide

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-1	K1405054-001	ND U	0.20	2	05/21/14 07:09	
Method Blank	K1405054-MB1	ND U	0.10	1	05/21/14 06:12	
Method Blank	K1405054-MB2	ND U	0.10	1	05/21/14 19:19	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/21/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405603-35	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405603-35DUP Result	Average	RPD	RPD Limit
Bromide	300.0	0.20	ND	ND	NC	NC	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Bromide

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405603-35	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405603-35MS			Duplicate Matrix Spike KQ1405603-35DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Bromide	ND U	3.84	4.00	96	3.84	4.00	96	90-110	<1	20

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Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Bromide

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393505

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405054-LCS1	2.33	2.50	93	90-110
Lab Control Sample	K1405054-LCS2	2.33	2.50	93	90-110

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Chloride

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-1	K1405054-001	**5.18**	0.40	2	05/21/14 07:09	
Method Blank	K1405054-MB1	ND U	0.20	1	05/21/14 06:12	
Method Blank	K1405054-MB2	ND U	0.20	1	05/21/14 19:19	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary

Chloride

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1405059-001DUP	0.40	2.90	2.88	2.89	<1	20	05/21/14
Batch QC	K1405066-001DUP	2.0	20.9	20.5	20.7	2	20	05/21/14
Batch QC	KQ1405603-35DUP	0.40	9.15	9.03	9.09	1	20	05/21/14

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Chloride

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405059-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike K1405059-001MS			Duplicate Matrix Spike K1405059-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Chloride	2.90	6.84	4.00	98	6.84	4.00	99	90-110	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Chloride

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405066-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike			Duplicate Matrix Spike					
		K1405066-001MS			K1405066-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Chloride	20.9	41.2	20.0	101	41.1	20.0	101	90-110	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Chloride

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405603-35	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405603-35MS			Duplicate Matrix Spike KQ1405603-35DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Chloride	9.15	13.5	4.00	109	13.4	4.00	106	90-110	<1	20

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Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Chloride

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393505

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405054-LCS1	4.70	5.00	94	90-110
Lab Control Sample	K1405054-LCS2	4.72	5.00	94	90-110

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Fluoride

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-1	K1405054-001	ND U	0.20	2	05/21/14 07:09	
Method Blank	K1405054-MB1	ND U	0.10	1	05/21/14 06:12	
Method Blank	K1405054-MB2	ND U	0.10	1	05/21/14 19:19	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/21/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405603-35	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405603-35DUP Result	Average	RPD	RPD Limit
Fluoride	300.0	0.20	ND	ND	NC	NC	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Fluoride

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405603-35	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405603-35MS			Duplicate Matrix Spike KQ1405603-35DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Fluoride	ND U	4.18	4.00	104	4.20	4.00	105	90-110	<1	20

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Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Fluoride

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393505

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405054-LCS1	4.93	5.00	99	90-110
Lab Control Sample	K1405054-LCS2	5.05	5.00	101	90-110

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Nitrite as Nitrogen

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-1	K1405054-001	ND U	0.10	2	05/21/14 07:09	
Method Blank	K1405054-MB1	ND U	0.050	1	05/21/14 06:12	
Method Blank	K1405054-MB2	ND U	0.050	1	05/21/14 19:19	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/21/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405603-35	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405603-35DUP Result	Average	RPD	RPD Limit
Nitrite as Nitrogen	300.0	0.10	ND	ND	NC	NC	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrite as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405603-35	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405603-35MS			Duplicate Matrix Spike KQ1405603-35DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrite as Nitrogen	ND U	4.08	4.00	102	4.08	4.00	102	90-110	<1	20

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Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Nitrite as Nitrogen

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393505

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405054-LCS1	2.42	2.50	97	90-110
Lab Control Sample	K1405054-LCS2	2.43	2.50	97	90-110

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Nitrate as Nitrogen

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-1	K1405054-001	ND U	0.10	2	05/21/14 07:09	
Method Blank	K1405054-MB1	ND U	0.050	1	05/21/14 06:12	
Method Blank	K1405054-MB2	ND U	0.050	1	05/21/14 19:19	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Nitrate as Nitrogen

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1405059-001DUP	0.10	0.66	0.66	0.661	<1	20	05/21/14
Batch QC	K1405066-001DUP	0.50	2.76	2.76	2.76	<1	20	05/21/14
Batch QC	K1405084-003DUP	0.10	0.39	0.39	0.392	<1	20	05/21/14
Batch QC	KQ1405603-35DUP	0.10	ND U	ND U	NC	NC	20	05/21/14

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrate as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405059-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike K1405059-001MS			Duplicate Matrix Spike K1405059-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrate as Nitrogen	0.66	4.70	4.00	101	4.68	4.00	101	90-110	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrate as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405066-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike K1405066-001MS			Duplicate Matrix Spike K1405066-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrate as Nitrogen	2.76	22.7	20.0	100	22.8	20.0	100	90-110	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrate as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405084-003	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike			Duplicate Matrix Spike					
		K1405084-003MS			K1405084-003DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrate as Nitrogen	0.39	4.46	4.00	102	4.48	4.00	102	90-110	<1	20

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Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrate as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405603-35	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405603-35MS			Duplicate Matrix Spike KQ1405603-35DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrate as Nitrogen	ND U	3.77	4.00	94	3.79	4.00	95	90-110	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Nitrate as Nitrogen

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393505

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405054-LCS1	2.36	2.50	94	90-110
Lab Control Sample	K1405054-LCS2	2.35	2.50	94	90-110

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	5/20/2014
Sample Matrix:	Drinking water	**Date Received:**	5/20/2014

Nitrite + Nitrate as Nitrogen

Prep Method:	NONE	Units:	mg/L
Analysis Method:	300.0/300.0	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
DW-1	K1405054-001	0.10	2	5/21/2014	ND	

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Sulfate

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-1	K1405054-001	**2.52**	0.20	2	05/21/14 07:09	
Method Blank	K1405054-MB1	ND U	0.10	1	05/21/14 06:12	
Method Blank	K1405054-MB2	ND U	0.10	1	05/21/14 19:19	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary

Sulfate

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1405059-001DUP	0.20	0.78	0.80	0.787	3	20	05/21/14
Batch QC	K1405066-001DUP	1.0	17.3	16.2	16.8	6	20	05/21/14
Batch QC	KQ1405603-35DUP	0.20	ND U	ND U	NC	NC	20	05/21/14

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Sulfate

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405059-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike K1405059-001MS			Duplicate Matrix Spike K1405059-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Sulfate	0.78	4.71	4.00	98	4.72	4.00	99	90-110	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Sulfate

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405066-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike K1405066-001MS			Duplicate Matrix Spike K1405066-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Sulfate	17.3	37.0	20.0	99	37.2	20.0	100	90-110	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Sulfate

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405603-35	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405603-35MS			**Duplicate Matrix Spike** KQ1405603-35DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Sulfate	ND U	3.84	4.00	96	3.88	4.00	97	90-110	<1	20

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Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Sulfate

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393505

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405054-LCS1	4.78	5.00	96	90-110
Lab Control Sample	K1405054-LCS2	4.79	5.00	96	90-110

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	314.0	**Units:**	ug/L
Prep Method:	None	**Basis:**	NA

Perchlorate

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-1	K1405054-001	ND U	1.0	1	05/22/14 11:58	
Method Blank	K1405054-MB1	ND U	1.0	1	05/22/14 09:12	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405052-001DUP Result	Average	RPD	RPD Limit
Perchlorate	314.0	1.0	ND	ND	NC	NC	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/22/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Perchlorate

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Analysis Method:	314.0		
Prep Method:	None		

		Matrix Spike K1405052-001MS			Duplicate Matrix Spike K1405052-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	ND U	11.9	10.0	119	10.4	10.0	104	80-120	13	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Perchlorate

Analysis Method:	314.0	**Units:**	ug/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393851

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405054-LCS1	16.3	16.8	97	85-115

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	335.4	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA

Cyanide, Total

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
DW-1	K1405054-001	ND U	0.010	1	05/30/14 10:04	5/29/14	
Method Blank	K1405054-MB1	ND U	0.010	1	05/30/14 10:04	5/29/14	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/30/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405867-03	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405867-03DUP Result	Average	RPD	RPD Limit
Cyanide, Total	335.4	0.010	ND	0.010	NC	NC	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/30/14
		Date Extracted:	05/29/14

Duplicate Matrix Spike Summary
Cyanide, Total

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405867-03	**Basis:**	NA
Analysis Method:	335.4		
Prep Method:	Method		

		Matrix Spike KQ1405867-03MS			Duplicate Matrix Spike KQ1405867-03DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Cyanide, Total	ND U	0.113	0.100	112 *	0.107	0.100	106	90-110	5	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/30/14
Sample Matrix:	Drinking Water	**Date Extracted:**	05/29/14

Lab Control Sample Summary
Cyanide, Total

Analysis Method:	335.4	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	394880

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405054-LCS1	0.139	0.150	93	90-110

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	SM 2120 B	**Units:**	ColorUnits
Prep Method:	None	**Basis:**	NA

Color

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-1	K1405054-001	**20.0**	5.0	1	05/22/14 08:55	
Method Blank	K1405054-MB1	ND U	5.0	1	05/22/14 08:42	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	ColorUnits
Lab Code:	K1405057-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405057-001DUP Result	Average	RPD	RPD Limit
Color	SM 2120 B	5.0	15.0	15.0	15.0	<1	20

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Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Color

Analysis Method:	SM 2120 B	**Units:**	ColorUnits
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393796

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405054-LCS1	65.0	65.0	100	85-115

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	SM 2320 B	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Alkalinity as CaCO3, Total

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-1	K1405054-001	**82.5**	2.0	1	05/30/14 13:50	
Method Blank	K1405054-MB1	ND U	2.0	1	05/30/14 13:50	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/30/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405052-001DUP Result	Average	RPD	RPD Limit
Alkalinity as CaCO3, Total	SM 2320 B	2.0	139	139	139	<1	20

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Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/30/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Alkalinity as CaCO3, Total

Analysis Method:	SM 2320 B	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	394959

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405054-LCS1	175	177	99	90-110

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	SM 2510 B	**Units:**	uMHOS/cm
Prep Method:	None	**Basis:**	NA

Conductivity at 25 Degrees Celsius

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-1	K1405054-001	**188**	2.0	1	05/31/14 15:10	
Method Blank	K1405054-MB1	ND U	2.0	1	05/31/14 15:10	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/31/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	uMHOS/cm
Lab Code:	K1405011-002	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405011-002DUP Result	Average	RPD	RPD Limit
Conductivity at 25 Degrees Celsius	SM 2510 B	2.0	844	856	850	1	20

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Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/31/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Conductivity at 25 Degrees Celsius

Analysis Method:	SM 2510 B	**Units:**	uMHOS/cm
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	395025

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405054-LCS1	342	330	104	86-113

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	SM 2540 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Solids, Total Dissolved

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-1	K1405054-001	**179**	10	1	05/22/14 22:30	
Method Blank	K1405054-MB1	ND U	10	1	05/22/14 22:30	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405064-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405064-001DUP Result	Average	RPD	RPD Limit
Solids, Total Dissolved	SM 2540 C	20	572	590	581	3	10

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Solids, Total Dissolved

Analysis Method:	SM 2540 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393911

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405054-LCS1	874	886	99	85-115

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	SM 4500-NH3 G	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA

Ammonia

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
DW-1	K1405054-001	**0.341**	0.050	1	06/04/14 18:40	6/4/14	
Method Blank	K1405054-MB1	ND U	0.050	1	06/04/14 18:40	6/4/14	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	06/04/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1406157-09	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1406157-09DUP Result	Average	RPD	RPD Limit
Ammonia	SM 4500-NH3 G	0.050	2.58	2.56	2.57	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	06/4/14
		Date Extracted:	06/4/14

Duplicate Matrix Spike Summary
Ammonia

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1406157-09	**Basis:**	NA
Analysis Method:	SM 4500-NH3 G		
Prep Method:	Method		

		Matrix Spike KQ1406157-09MS			Duplicate Matrix Spike KQ1406157-09DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Ammonia	2.58	4.56	2.00	99	4.52	2.00	97	90-110	<1	20

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Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	06/04/14
Sample Matrix:	Drinking Water	**Date Extracted:**	06/04/14

Lab Control Sample Summary
Ammonia

Analysis Method:	SM 4500-NH3 G	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	395732

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405054-LCS1	10.8	10.8	100	90-110

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	SM 4500-P E	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Orthophosphate as Phosphorus

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-1	K1405054-001	**0.189**	0.050	1	05/21/14 13:29	
Method Blank	K1405054-MB1	ND U	0.050	1	05/21/14 13:29	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/21/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405052-001DUP Result	Average	RPD	RPD Limit
Orthophosphate as Phosphorus	SM 4500-P E	0.050	0.483	0.485	0.484	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Orthophosphate as Phosphorus

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA
Analysis Method:	SM 4500-P E		
Prep Method:	None		

		Matrix Spike K1405052-001MS			Duplicate Matrix Spike K1405052-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Orthophosphate as Phosphorus	0.483	0.91	0.40	107	0.85	0.40	92	75-125	15	20

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Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Orthophosphate as Phosphorus

Analysis Method:	SM 4500-P E	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393629

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405054-LCS1	3.86	3.94	98	85-115
Lab Control Sample	K1405054-LCS2	3.81	3.94	97	85-115
Lab Control Sample	K1405054-LCS3	3.83	3.94	97	85-115
Lab Control Sample	K1405054-LCS4	3.85	3.94	98	85-115

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	5/20/2014
Sample Matrix:	Drinking water	**Date Received:**	5/20/2014

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Prep Method: NONE
Analysis Method: SM 9223B
Basis: NA
Test Notes:

Sample Name	Lab Code	MRL	Date Analyzed	Time Test Started		Result	Result Notes
DW-1	K1405054-001	-	5/21/2014	12:00	hrs	Absent	

SM *Standard Methods for the Examination of Water and Wastewater* , 20th Ed., 1998.

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	5/20/2014
Sample Matrix:	Drinking water	**Date Received:**	5/20/2014

Colilert, T. Coli

Prep Method: NONE
Analysis Method: SM 9223B
Basis: NA
Test Notes:

Sample Name	Lab Code	MRL	Date Analyzed	Time Test Started		Result	Result Notes
DW-1	K1405054-001	-	5/21/2014	12:00	hrs	Absent	

SM *Standard Methods for the Examination of Water and Wastewater* , 20th Ed., 1998.

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking water	**Date Received:**	05/20/14

Hardness as CaCO3

Prep Method:	CLAA	Units:	mg/L (ppm)
Analysis Method:	200.7/SM 2340B	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
DW-1	K1405054-001	0.07	1	05/28/14	05/29/14	70.0	
Method Blank	K1405054-MB	0.07	1	05/28/14	05/29/14	ND	

ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	05/28/14
		Date Analyzed:	05/29/14

Duplicate Summary
Metals

Sample Name:	Batch QC	Units:	mg/L (ppm)
Lab Code:	K1405061-001D	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Hardness as CaCO3	CLAA	200.7/SM 2340B	0.07	175	180	178	2	

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking water	**Date Received:**	05/20/14

Methyl Mercury

Prep Method:	Method	Units:	ng/L
Analysis Method:	1630	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
DW-1	K1405054-001	0.1	1	06/08/14	06/09/14	ND	
Method Blank 1	K1405054-MB1	0.1	1	06/08/14	06/09/14	ND	
Method Blank 2	K1405054-MB2	0.1	1	06/08/14	06/09/14	ND	
Method Blank 3	K1405054-MB3	0.1	1	06/08/14	06/09/14	ND	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking water	**Date Received:**	05/20/14
		Date Extracted:	06/08/14
		Date Analyzed:	06/09/14

Matrix Spike/Duplicate Matrix Spike Summary
Metals

Sample Name:	DW-1	Units:	ng/L
Lab Code:	K1405054-001MS, K1405054-001MSD	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Spike Level MS	Spike Level DMS	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	CAS Acceptance Limits	Relative Percent Difference	Result Notes
Mercury, Methyl	Method	1630	0.1	2.22	2.22	ND	2.54	2.52	114	114	65-135	<1	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	06/08/14
		Date Analyzed:	06/09/14

Ongoing Precision and Recovery (OPR) Sample Summary
Metals

Sample Name: Ongoing Precision and Recovery (Initial)

Units: ng/L
Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Mercury, Methyl	Method	1630	2.22	2.54	114	67-133	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	06/08/14
		Date Analyzed:	06/09/14

Ongoing Precision and Recovery (OPR) Sample Summary

Metals

Sample Name: Ongoing Precision and Recovery (Final)

Units: ng/L

Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Mercury, Methyl	Method	1630	2.22	2.50	113	67-133	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	06/08/14
		Date Analyzed:	06/09/14

Quality Control Sample (QCS) Summary
Metals

Sample Name: Quality Control Sample

Units: pg
Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Mercury, Methyl	Method	1630	100	106	106	67-133	

ALS Group USA, Corp.
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- Cover Page -
INORGANIC ANALYSIS DATA PACKAGE

Client: Longview, City of
Project Name: MFWTP Sentinel Wells
Project No.:

Service Request: K1405054

Sample Name:	Lab Code:
Batch QC1D	K1404917-005D
Batch QC1S	K1404917-005S
Batch QC3D	K1405052-001D
Batch QC3S	K1405052-001S
DW-1	K1405054-001
Method Blank	K1405054-MB
Batch QC2D	K1405061-001D
Batch QC2S	K1405061-001S

Comments:

Metals

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INORGANIC ANALYSIS DATA PACKAGE

Client:	Longview, City of	**Service Request:**	K1405054
Project No.:	NA	**Date Collected:**	05/20/14
Project Name:	MFWTP Sentinel Wells	**Date Received:**	05/20/14
Matrix:	WATER	**Units:**	mg/L
		Basis:	NA

Sample Name: **DW-1** **Lab Code:** **K1405054-001**

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Antimony	200.8	0.00005	1.0	05/23/14	05/27/14	0.00005	U	
Arsenic	200.8	0.0005	1.0	05/23/14	05/27/14	0.0035		
Barium	200.7	0.0040	1.0	05/28/14	05/29/14	0.0101		
Beryllium	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Cadmium	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Chromium	200.8	0.0002	1.0	05/23/14	05/27/14	0.0003		
Copper	200.7	0.004	1.0	05/28/14	05/29/14	0.004	U	
Iron	200.7	0.020	1.0	05/28/14	05/29/14	2.28		
Lead	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Manganese	200.7	0.001	1.0	05/28/14	05/29/14	0.531		
Mercury	245.1	0.0002	1.0	05/29/14	05/29/14	0.0002	U	
Nickel	200.8	0.0002	1.0	05/23/14	05/27/14	0.0004		
Selenium	200.8	0.001	1.0	05/23/14	05/27/14	0.001	U	
Silver	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Sodium	200.7	0.20	1.0	05/28/14	05/29/14	8.90		
Thallium	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Zinc	200.7	0.004	1.0	05/28/14	05/29/14	0.004	U	

Comments:

Metals

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

Client: Longview, City of
Project No.: NA
Project Name: MFWTP Sentinel Wells
Matrix: WATER

Service Request: K1405054
Date Collected:
Date Received:
Units: mg/L
Basis: NA

Sample Name: Method Blank
Lab Code: K1405054-MB

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Antimony	200.8	0.00005	1.0	05/23/14	05/27/14	0.00005	U	
Arsenic	200.8	0.0005	1.0	05/23/14	05/27/14	0.0005	U	
Barium	200.7	0.0040	1.0	05/28/14	05/29/14	0.0040	U	
Beryllium	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Cadmium	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Chromium	200.8	0.0002	1.0	05/23/14	05/27/14	0.0002	U	
Copper	200.7	0.004	1.0	05/28/14	05/29/14	0.004	U	
Iron	200.7	0.020	1.0	05/28/14	05/29/14	0.020	U	
Lead	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Manganese	200.7	0.001	1.0	05/28/14	05/29/14	0.001	U	
Mercury	245.1	0.0002	1.0	05/29/14	05/29/14	0.0002	U	
Nickel	200.8	0.0002	1.0	05/23/14	05/27/14	0.0002	U	
Selenium	200.8	0.001	1.0	05/23/14	05/27/14	0.001	U	
Silver	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Sodium	200.7	0.20	1.0	05/28/14	05/29/14	0.20	U	
Thallium	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Zinc	200.7	0.004	1.0	05/28/14	05/29/14	0.004	U	

Comments:

Metals
- 5A -
SPIKE SAMPLE RECOVERY

Client: Longview, City of
Service Request: K1405054
Project No.: NA
Units: MG/L
Project Name: MFWTP Sentinel Wells
Basis: NA
Matrix: WATER

Sample Name: Batch QC1S
Lab Code: K1404917-005S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Antimony	70 - 130	0.054134		0.000119		0.050000	108		200.8
Arsenic	70 - 130	0.05816		0.00281		0.05000	111		200.8
Beryllium	70 - 130	0.00249		0.00002	U	0.00250	100		200.8
Cadmium	70 - 130	0.02635		0.00002	U	0.025000	105		200.8
Chromium	70 - 130	0.0103		0.0006		0.01000	97		200.8
Lead	70 - 130	0.05020		0.00003		0.050000	100		200.8
Nickel	70 - 130	0.0256		0.0017		0.02500	96		200.8
Selenium	70 - 130	0.055		0.001	U	0.0500	108		200.8
Silver	70 - 130	0.01253		0.00002	U	0.012500	100		200.8
Thallium	70 - 130	0.05210		0.00002	U	0.050000	104		200.8

An empty field in the Control Limit column indicates the control limit is not applicable

Metals
- 5A -
SPIKE SAMPLE RECOVERY

Client: Longview, City of
Service Request: K1405054
Project No.: NA
Units: MG/L
Project Name: MFWTP Sentinel Wells
Basis: NA
Matrix: WATER

Sample Name: Batch QC3S
Lab Code: K1405052-001S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Mercury	80 - 120	0.0010		0.0002	U	0.001	100		245.1

An empty field in the Control Limit column indicates the control limit is not applicable

Metals
- 5A -
SPIKE SAMPLE RECOVERY

Client: Longview, City of
Service Request: K1405054
Project No.: NA
Units: MG/L
Project Name: MFWTP Sentinel Wells
Basis: NA
Matrix: WATER

Sample Name: Batch QC2S
Lab Code: K1405061-001S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Barium	70 - 130	2.1		0.0136		2.00	104.3		200.7
Copper	70 - 130	0.258		0.005		0.25	101.2		200.7
Iron		10.8		9.63		1.00	117.0		200.7
Manganese	70 - 130	1.33		0.812		0.50	103.6		200.7
Sodium	70 - 130	25.5		15.2		10.00	103.0		200.7
Zinc	70 - 130	0.634		0.130		0.50	100.8		200.7

An empty field in the Control Limit column indicates the control limit is not applicable

Metals

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DUPLICATES

Client: Longview, City of **Service Request:** K1405054

Project No.: NA **Units:** MG/L

Project Name: MFWTP Sentinel Wells **Basis:** NA

Matrix: WATER

Sample Name: Batch QC1D **Lab Code:** K1404917-005D

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Antimony		0.000119		0.000120		0.8		200.8
Arsenic	20	0.00281		0.00283		0.7		200.8
Beryllium		0.00002	U	0.00002	U			200.8
Cadmium		0.00002	U	0.00002	U			200.8
Chromium		0.0006		0.0006		0.0		200.8
Lead		0.00003		0.00003		0.0		200.8
Nickel	20	0.0017		0.0017		0.0		200.8
Selenium		0.001	U	0.001	U			200.8
Silver		0.00002	U	0.00002	U			200.8
Thallium		0.00002	U	0.00002	U			200.8

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals

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DUPLICATES

Client: Longview, City of **Service Request:** K1405054

Project No.: NA **Units:** MG/L

Project Name: MFWTP Sentinel Wells **Basis:** NA

Matrix: WATER

Sample Name: Batch QC3D **Lab Code:** K1405052-001D

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Mercury		0.0002	U	0.0002	U			245.1

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals

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DUPLICATES

Client: Longview, City of **Service Request:** K1405054

Project No.: NA **Units:** MG/L

Project Name: MFWTP Sentinel Wells **Basis:** NA

Matrix: WATER

Sample Name: Batch QC2D **Lab Code:** K1405061-001D

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Barium		0.0136		0.0141		3.6		200.7
Copper		0.005		0.005		0.0		200.7
Iron	20	9.63		9.90		2.8		200.7
Manganese	20	0.812		0.834		2.7		200.7
Sodium	20	15.2		15.5		2.0		200.7
Zinc	20	0.130		0.132		1.5		200.7

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals

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LABORATORY CONTROL SAMPLE

Client: Longview, City of **Service Request:** K1405054

Project No.: NA

Project Name: MFWTP Sentinel Wells

Aqueous LCS Source: **ALS MIXED** **Solid LCS Source:**

Analyte	Aqueous (ug/L)			Solid (mg/kg)				
	True	Found	%R	True	Found	C	Limits	%R
Antimony	0.050	0.0526	105					
Arsenic	0.050	0.051	102					
Barium	5	5.1	102					
Beryllium	0.003	0.0025	100					
Cadmium	0.025	0.0261	104					
Calcium	12.5	12.5	100					
Chromium	0.010	0.0101	101					
Copper	.625	0.627	100					
Iron	2.5	2.53	101					
Lead	0.050	0.0506	101					
Magnesium	12.5	12.6	101					
Manganese	1.25	1.25	100					
Mercury	.005	0.0051	102					
Nickel	0.025	0.0249	100					
Selenium	0.050	0.052	104					
Silver	0.013	0.0125	100					
Sodium	12.5	12.9	103					
Thallium	0.050	0.0518	104					
Zinc	1.25	1.28	102					

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**
Project:	MFWTP Sentinel Wells	**Date Collected:**
Sample Matrix:	Drinking water	**Date Received:**

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	DW-1	Units:
Lab Code:	K1405054-001	Basis:
Test Notes:		

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result
2,4,6-Trichlorophenol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
2,4,5-Trichlorophenol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND
Trichlorosyringol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
Pentachlorophenol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND
Tetrachloroguaiacol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND
Tetrachlorocatechol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**
Project:	MFWTP Sentinel Wells	**Date Collected:**
Sample Matrix:	Drinking water	**Date Received:**

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	Method Blank	Units:
Lab Code:	KWG1404597-3	Basis:
Test Notes:		

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result
2,4,6-Trichlorophenol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
2,4,5-Trichlorophenol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND
Trichlorosyringol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
Pentachlorophenol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND
Tetrachloroguaiacol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND
Tetrachlorocatechol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	5/21/2014

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

Percent Recovery

Analyte	**CAS Percent Recovery Acceptance Criteria**	Sample Name:	**DW-1**	**Method Blank**
		Lab Code:	K1405054-001	KWG1404597-3
		Date Analyzed:	5/22/2014	5/22/2014
3,4,5-Trichlorophenol	36-131		92	91
4,5,6-Trichloroguaiacol-13c6	25-134		92	86
Pentachlorophenol-13c6	22-117		70	63
Tetrachloroguaiacol-13c6	18-129		76	63
Tetrachlorocatechol-13c6	D-121		14	44

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client: Longview, City of
Project: MFWTP Sentinel Wells
Sample Matrix: Drinking water

Service Request: K1405054
Date Collected: NA
Date Received: NA
Date Extracted: 5/21/2014
Date Analyzed: 5/22/2014

Duplicate Summary
Chlorinated Phenolic Organic Compounds

Sample Name: Batch QC
Lab Code: KWG1404597-1
Test Notes:

Units: ug/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	2.5	ND	ND	ND	-	
2,4,5-Trichlorophenol	METHOD	1653A	2.5	ND	ND	ND	-	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	ND	ND	ND	-	
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	ND	ND	ND	-	
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	ND	ND	ND	-	
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	ND	ND	ND	-	
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	ND	ND	ND	-	
Trichlorosyringol	METHOD	1653A	2.5	ND	ND	ND	-	
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	ND	ND	ND	-	
Pentachlorophenol	METHOD	1653A	5.0	ND	ND	ND	-	
Tetrachloroguaiacol	METHOD	1653A	5.0	ND	ND	ND	-	
Tetrachlorocatechol	METHOD	1653A	5.0	ND	ND	ND	-	

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	5/21/2014
		Date Analyzed:	5/22/2014

Ongoing Precision and Recovery Summary
Chlorinated Phenolic Organic Compounds

Sample Name:	Lab Control Sample	Units:	ug/L (ppb)
Lab Code:	KWG1404597-2	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	50	56.7	113	72-146	
2,4,5-Trichlorophenol	METHOD	1653A	50	58.5	117	82-128	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	50	53.5	107	82-132	
3,4,6-Trichloroguaiacol	METHOD	1653A	50	53.5	107	74-140	
3,4,5-Trichloroguaiacol	METHOD	1653A	50	51.9	104	80-134	
3,4,6-Trichlorocatechol	METHOD	1653A	100	104	104	64-149	
3,4,5-Trichlorocatechol	METHOD	1653A	100	93.7	94	72-128	
Trichlorosyringol	METHOD	1653A	50	42.3	85	66-174	
4,5,6-Trichloroguaiacol	METHOD	1653A	50	51.3	103	88-116	
Pentachlorophenol	METHOD	1653A	100	102	102	84-120	
Tetrachloroguaiacol	METHOD	1653A	100	107	107	81-126	
Tetrachlorocatechol	METHOD	1653A	100	124	124	81-132	

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

EPA Method 504.1

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1405054-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	504.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	0.0097	1	05/28/14	05/28/14	KWG1404828	
1,2,3-Trichloropropane	ND	U	0.098	1	05/28/14	05/28/14	KWG1404828	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.0097	1	05/28/14	05/28/14	KWG1404828	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

EPA Method 504.1

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404828-4	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	504.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	0.0099	1	05/28/14	05/28/14	KWG1404828	
1,2,3-Trichloropropane	ND	U	0.10	1	05/28/14	05/28/14	KWG1404828	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.0099	1	05/28/14	05/28/14	KWG1404828	

Comments:

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/28/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/28/2014

Matrix Spike/Duplicate Matrix Spike Summary
EPA Method 504.1

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	504.1	**Extraction Lot:**	KWG1404828

		Batch QCMS KWG1404828-1 Matrix Spike			Batch QCDMS KWG1404828-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
1,2-Dibromoethane (EDB)	ND	0.244	0.242	101	0.259	0.243	107	65-135	6	30
1,2,3-Trichloropropane	ND	0.192	0.242	79	0.214	0.243	88	65-135	11	30
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.210	0.242	87	0.231	0.243	95	65-135	9	30

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Results flagged with a pound (#) indicate the control criteria is not applicable.

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

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/28/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/28/2014

Lab Control Spike Summary
EPA Method 504.1

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	504.1	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404828

Lab Control Sample
KWG1404828-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
1,2-Dibromoethane (EDB)	0.264	0.250	106	70-130
1,2,3-Trichloropropane	0.223	0.250	89	70-130
1,2-Dibromo-3-chloropropane (DBCP)	0.230	0.250	92	70-130

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

Pesticides/PCBs by EPA Method 508.1

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1405054-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
gamma-BHC (Lindane)	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Heptachlor	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Aldrin	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Heptachlor Epoxide	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Heptachlor Epoxide (Isomer A)	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
4,4'-DDE	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Dieldrin	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Endrin	ND	U	0.0098	1	05/29/14	06/03/14	KWG1404875	
4,4'-DDD	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
4,4'-DDT	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Methoxychlor	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Toxaphene	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Chlordane	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1016	ND	U	0.049	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1221	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1232	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1242	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1248	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1254	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1260	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4,4'-Dibromooctafluorobiphenyl	92	70-130	06/02/14	Acceptable

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Pesticides/PCBs by EPA Method 508.1

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404875-7	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
gamma-BHC (Lindane)	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Heptachlor	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Aldrin	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Heptachlor Epoxide	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Heptachlor Epoxide (Isomer A)	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
4,4'-DDE	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Dieldrin	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Endrin	ND	U	0.010	1	05/29/14	06/04/14	KWG1404875	
4,4'-DDD	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
4,4'-DDT	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Methoxychlor	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Toxaphene	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Chlordane	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1016	ND	U	0.050	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1221	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1232	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1242	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1248	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1254	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1260	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4,4'-Dibromooctafluorobiphenyl	94	70-130	06/02/14	Acceptable

Comments:

Client: Longview, City of
Project: MFWTP Sentinel Wells
Sample Matrix: Drinking water

Service Request: K1405054

Surrogate Recovery Summary
Pesticides/PCBs by EPA Method 508.1

Extraction Method: METHOD
Analysis Method: 508.1

Units: Percent
Level: Low

Sample Name	Lab Code	Sur1
DW-1	K1405054-001	92
Batch QC	K1405057-001	97
Method Blank	KWG1404875-7	94
Batch QCMS	KWG1404875-1	88
Batch QCDMS	KWG1404875-2	88
Lab Control Sample	KWG1404875-3	87

Surrogate Recovery Control Limits (%)

Sur1 = 4,4'-Dibromooctafluorobiphenyl 70-130

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/02/2014 - 06/03/2014

Matrix Spike/Duplicate Matrix Spike Summary
Pesticides/PCBs by EPA Method 508.1

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405057-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1	**Extraction Lot:**	KWG1404875

		Batch QCMS KWG1404875-1 Matrix Spike			Batch QCDMS KWG1404875-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
gamma-BHC (Lindane)	ND	0.0984	0.0962	102	0.0982	0.0962	102	65-135	0	30
Heptachlor	ND	0.0739	0.0962	77	0.0681	0.0962	71	65-135	8	30
Aldrin	ND	0.0888	0.0962	92	0.0871	0.0962	91	65-135	2	30
Heptachlor Epoxide	ND	0.0836	0.0962	87	0.0782	0.0962	81	65-135	7	30
Heptachlor Epoxide (Isomer A)	ND	0.0893	0.0962	93	0.0848	0.0962	88	65-135	5	30
4,4'-DDE	ND	0.0954	0.0962	99	0.0955	0.0962	99	65-135	0	30
Dieldrin	ND	0.0918	0.0962	95	0.0905	0.0962	94	65-135	1	30
Endrin	ND	0.0807	0.0962	84	0.0791	0.0962	82	65-135	2	30
4,4'-DDD	ND	0.103	0.0962	107	0.103	0.0962	107	65-135	0	30
4,4'-DDT	ND	0.0995	0.0962	103	0.0998	0.0962	104	65-135	0	30
Methoxychlor	ND	0.0990	0.0962	103	0.0949	0.0962	99	65-135	4	30
Aroclor 1248	ND	0.373	0.481	78	0.368	0.481	76	65-135	1	30

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

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/02/2014 - 06/04/2014

Lab Control Spike Summary
Pesticides/PCBs by EPA Method 508.1

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	508.1	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404875

	Lab Control Sample KWG1404875-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
gamma-BHC (Lindane)	0.100	0.100	100	70-130
Heptachlor	0.0882	0.100	88	70-130
Aldrin	0.0916	0.100	92	70-130
Heptachlor Epoxide	0.0963	0.100	96	70-130
Heptachlor Epoxide (Isomer A)	0.102	0.100	102	70-130
4,4'-DDE	0.101	0.100	101	70-130
Dieldrin	0.0997	0.100	100	70-130
Endrin	0.104	0.100	104	70-130
4,4'-DDD	0.110	0.100	110	70-130
4,4'-DDT	0.102	0.100	102	70-130
Methoxychlor	0.0965	0.100	97	70-130
Aroclor 1248	0.420	0.500	84	70-130

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

Chlorinated Herbicides by EPA 515.4

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1405054-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	515.4		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dalapon	ND	U	0.50	1	05/30/14	06/03/14	KWG1404919	
3,5-Dichlorobenzoic Acid	ND	U	0.25	1	05/30/14	06/03/14	KWG1404919	
Dicamba	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
Dichlorprop	ND	U	0.25	1	05/30/14	06/03/14	KWG1404919	
2,4-D	ND	U	0.089	1	05/30/14	06/03/14	KWG1404919	
Pentachlorophenol	ND	U	0.020	1	05/30/14	06/03/14	KWG1404919	
2,4,5-TP (Silvex)	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
Chloramben	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
2,4-DB	ND	U	0.50	1	05/30/14	06/03/14	KWG1404919	
Dinoseb	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
Dacthal Diacid	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
Picloram	ND	U	0.091	1	05/30/14	06/03/14	KWG1404919	
Acifluorfen	ND	U	1.0	1	05/30/14	06/03/14	KWG1404919	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2,4-Dichlorophenylacetic Acid	81	70-130	06/03/14	Acceptable

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Chlorinated Herbicides by EPA 515.4

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404919-4	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	515.4		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dalapon	ND	U	0.50	1	05/30/14	06/02/14	KWG1404919	
3,5-Dichlorobenzoic Acid	ND	U	0.25	1	05/30/14	06/02/14	KWG1404919	
Dicamba	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Dichlorprop	ND	U	0.25	1	05/30/14	06/02/14	KWG1404919	
2,4-D	ND	U	0.089	1	05/30/14	06/02/14	KWG1404919	
Pentachlorophenol	ND	U	0.020	1	05/30/14	06/02/14	KWG1404919	
2,4,5-TP (Silvex)	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Chloramben	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
2,4-DB	ND	U	0.50	1	05/30/14	06/02/14	KWG1404919	
Dinoseb	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Dacthal Diacid	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Picloram	ND	U	0.091	1	05/30/14	06/02/14	KWG1404919	
Acifluorfen	ND	U	1.0	1	05/30/14	06/02/14	KWG1404919	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2,4-Dichlorophenylacetic Acid	113	70-130	06/02/14	Acceptable

Comments:

Client: Longview, City of
Project: MFWTP Sentinel Wells
Sample Matrix: Drinking water

Service Request: K1405054

Surrogate Recovery Summary
Chlorinated Herbicides by EPA 515.4

Extraction Method: METHOD
Analysis Method: 515.4

Units: Percent
Level: Low

Sample Name	Lab Code	Sur1
Batch QC	K1405052-001	75
DW-1	K1405054-001	81
Method Blank	KWG1404919-4	113
Batch QCMS	KWG1404919-1	119
Batch QCDMS	KWG1404919-2	115
Lab Control Sample	KWG1404919-3	109

Surrogate Recovery Control Limits (%)

Sur1	=	2,4-Dichlorophenylacetic Acid	70-130

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/30/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/02/2014 - 06/03/2014

Matrix Spike/Duplicate Matrix Spike Summary
Chlorinated Herbicides by EPA 515.4

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	515.4	**Extraction Lot:**	KWG1404919

		Batch QCMS KWG1404919-1 Matrix Spike			Batch QCDMS KWG1404919-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dalapon	ND	2.44	2.49	98	2.48	2.49	99	70-130	1	30
3,5-Dichlorobenzoic Acid	ND	2.41	2.49	97	2.36	2.49	95	70-130	2	30
Dicamba	ND	2.43	2.49	98	2.42	2.49	97	70-130	1	30
Dichlorprop	ND	2.33	2.49	94	2.27	2.49	91	70-130	3	30
2,4-D	ND	2.33	2.49	94	2.31	2.49	93	70-130	1	30
Pentachlorophenol	ND	2.44	2.49	98	2.42	2.49	97	70-130	1	30
2,4,5-TP (Silvex)	ND	2.46	2.49	99	2.46	2.49	99	70-130	0	30
Chloramben	ND	2.54	2.49	102	2.55	2.49	102	70-130	0	30
2,4-DB	ND	2.44	2.49	98	2.41	2.49	97	70-130	1	30
Dinoseb	ND	2.28	2.49	92	2.33	2.49	93	70-130	2	30
Dacthal Diacid	ND	2.75	2.49	110	2.73	2.49	110	70-130	1	30
Picloram	ND	2.60	2.49	104	2.56	2.49	103	70-130	2	30
Acifluorfen	ND	2.41	2.49	97	2.40	2.49	96	70-130	0	30

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Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/30/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/02/2014

Lab Control Spike Summary
Chlorinated Herbicides by EPA 515.4

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	515.4	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404919

Lab Control Sample
KWG1404919-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Dalapon	2.39	2.50	95	70-130
3,5-Dichlorobenzoic Acid	2.34	2.50	94	70-130
Dicamba	2.37	2.50	95	70-130
Dichlorprop	2.30	2.50	92	70-130
2,4-D	2.29	2.50	91	70-130
Pentachlorophenol	2.31	2.50	92	70-130
2,4,5-TP (Silvex)	2.41	2.50	96	70-130
Chloramben	2.57	2.50	103	70-130
2,4-DB	2.38	2.50	95	70-130
Dinoseb	2.37	2.50	95	70-130
Dacthal Diacid	2.42	2.50	97	70-130
Picloram	2.32	2.50	93	70-130
Acifluorfen	2.41	2.50	96	70-130

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

Volatile Organic Compounds

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1405054-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Vinyl Chloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromomethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Trichlorofluoromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Methylene Chloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
trans-1,2-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
cis-1,2-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Methyl tert-Butyl Ether	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloroform	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromochloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Carbon Tetrachloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Benzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Trichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromodichloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Dibromomethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
cis-1,3-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Toluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
trans-1,3-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Tetrachloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
2,2-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Dibromochloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Ethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Styrene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
m,p-Xylenes	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

Volatile Organic Compounds

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1405054-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
o-Xylene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,1-Trichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromoform	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Isopropylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
n-Propylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3,5-Trimethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
2-Chlorotoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
4-Chlorotoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
tert-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,4-Trimethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
sec-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
p-Isopropyltoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,4-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
n-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,4-Trichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Hexachlorobutadiene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Naphthalene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,2-Trichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,3-Trichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,3-Trichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

Volatile Organic Compounds

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1405054-001	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	98	70-130	05/29/14	Acceptable
Dibromofluoromethane	93	82-124	05/29/14	Acceptable
Toluene-d8	102	82-124	05/29/14	Acceptable

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404851-5	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Vinyl Chloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromomethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Trichlorofluoromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Methylene Chloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
trans-1,2-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
cis-1,2-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Methyl tert-Butyl Ether	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloroform	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromochloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Carbon Tetrachloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Benzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Trichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromodichloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Dibromomethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
cis-1,3-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Toluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
trans-1,3-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Tetrachloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
2,2-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Dibromochloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Ethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Styrene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
m,p-Xylenes	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404851-5	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
o-Xylene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,1-Trichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromoform	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Isopropylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
n-Propylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3,5-Trimethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
2-Chlorotoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
4-Chlorotoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
tert-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,4-Trimethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
sec-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
p-Isopropyltoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,4-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
n-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,4-Trichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Hexachlorobutadiene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Naphthalene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,2-Trichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,3-Trichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,3-Trichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404851-5	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	99	70-130	05/29/14	Acceptable
Dibromofluoromethane	93	82-124	05/29/14	Acceptable
Toluene-d8	101	82-124	05/29/14	Acceptable

Comments:

Client: Longview, City of **Service Request:** K1405054
Project: MFWTP Sentinel Wells
Sample Matrix: Drinking water

Surrogate Recovery Summary
Volatile Organic Compounds

Extraction Method: METHOD **Units:** Percent
Analysis Method: 524.2 **Level:** Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
Batch QC	K1405052-001	98	93	101
DW-1	K1405054-001	98	93	102
Method Blank	KWG1404851-5	99	93	101
Batch QCMS	KWG1404851-1	100	97	103
Batch QCDMS	KWG1404851-2	103	98	104
Lab Control Sample	KWG1404851-3	102	99	104

Surrogate Recovery Control Limits (%)

Sur1	=	4-Bromofluorobenzene	70-130
Sur2	=	Dibromofluoromethane	82-124
Sur3	=	Toluene-d8	82-124

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/29/2014

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2	**Extraction Lot:**	KWG1404851

		Batch QCMS KWG1404851-1 Matrix Spike			Batch QCDMS KWG1404851-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dichlorodifluoromethane	ND	6.83	5.00	137 *	5.31	5.00	106	70-130	25	30
Chloromethane	ND	5.99	5.00	120	4.99	5.00	100	70-130	18	30
Vinyl Chloride	ND	5.77	5.00	115	4.57	5.00	91	70-130	23	30
Bromomethane	ND	4.87	5.00	97	3.96	5.00	79	70-130	21	30
Chloroethane	ND	6.07	5.00	121	4.94	5.00	99	70-130	21	30
Trichlorofluoromethane	ND	5.48	5.00	110	4.33	5.00	87	70-130	23	30
Methylene Chloride	ND	5.27	5.00	105	4.57	5.00	91	70-130	14	30
trans-1,2-Dichloroethene	ND	5.41	5.00	108	4.49	5.00	90	70-130	19	30
cis-1,2-Dichloroethene	ND	5.35	5.00	107	4.47	5.00	89	70-130	18	30
1,1-Dichloroethene	ND	5.32	5.00	106	4.28	5.00	86	70-130	22	30
Methyl tert-Butyl Ether	ND	10.2	10.0	102	9.03	10.0	90	70-130	12	30
Chloroform	ND	5.21	5.00	104	4.41	5.00	88	70-130	17	30
Bromochloromethane	ND	5.24	5.00	105	4.44	5.00	89	70-130	17	30
Carbon Tetrachloride	ND	4.90	5.00	98	3.96	5.00	79	70-130	21	30
Benzene	ND	5.38	5.00	108	4.50	5.00	90	70-130	18	30
1,2-Dichloroethane	ND	4.99	5.00	100	4.37	5.00	87	70-130	13	30
Trichloroethene	ND	5.10	5.00	102	4.17	5.00	83	70-130	20	30
1,2-Dichloropropane	ND	5.04	5.00	101	4.26	5.00	85	70-130	17	30
Bromodichloromethane	ND	4.41	5.00	88	3.79	5.00	76	70-130	15	30
Dibromomethane	ND	4.80	5.00	96	4.25	5.00	85	70-130	12	30
cis-1,3-Dichloropropene	ND	4.13	5.00	83	3.49	5.00	70	70-130	17	30
1,1-Dichloroethane	ND	5.31	5.00	106	4.43	5.00	89	70-130	18	30
Toluene	ND	5.54	5.00	111	4.61	5.00	92	70-130	18	30
trans-1,3-Dichloropropene	ND	3.69	5.00	74	3.25	5.00	65 *	70-130	13	30
Tetrachloroethene	ND	5.52	5.00	110	4.65	5.00	93	70-130	17	30
2,2-Dichloropropane	ND	4.94	5.00	99	3.98	5.00	80	70-130	22	30
1,3-Dichloropropane	ND	5.55	5.00	111	5.01	5.00	100	70-130	10	30
Dibromochloromethane	ND	4.00	5.00	80	3.54	5.00	71	70-130	12	30
1,2-Dibromoethane (EDB)	ND	4.89	5.00	98	4.42	5.00	88	70-130	10	30
Chlorobenzene	ND	5.51	5.00	110	4.78	5.00	96	70-130	14	30
Ethylbenzene	ND	5.45	5.00	109	4.66	5.00	93	70-130	16	30
Styrene	ND	5.77	5.00	115	4.98	5.00	100	70-130	15	30
m,p-Xylenes	ND	11.5	10.0	115	9.84	10.0	98	70-130	16	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/29/2014

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2	**Extraction Lot:**	KWG1404851

		Batch QCMS KWG1404851-1 Matrix Spike			Batch QCDMS KWG1404851-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
o-Xylene	ND	5.60	5.00	112	4.85	5.00	97	70-130	14	30
Bromoform	ND	4.15	5.00	83	3.65	5.00	73	70-130	13	30
1,1,2,2-Tetrachloroethane	ND	4.17	5.00	83	3.74	5.00	75	70-130	11	30
1,1,1-Trichloroethane	ND	4.88	5.00	98	4.02	5.00	80	70-130	19	30
Isopropylbenzene	ND	5.78	5.00	116	4.87	5.00	97	70-130	17	30
1,1-Dichloropropene	ND	5.34	5.00	107	4.31	5.00	86	70-130	21	30
Bromobenzene	ND	4.31	5.00	86	3.81	5.00	76	70-130	12	30
n-Propylbenzene	ND	4.47	5.00	89	3.85	5.00	77	70-130	15	30
1,3,5-Trimethylbenzene	ND	4.76	5.00	95	4.13	5.00	83	70-130	14	30
2-Chlorotoluene	ND	4.50	5.00	90	3.95	5.00	79	70-130	13	30
4-Chlorotoluene	ND	4.85	5.00	97	4.20	5.00	84	70-130	14	30
tert-Butylbenzene	ND	5.17	5.00	103	4.39	5.00	88	70-130	16	30
1,2,4-Trimethylbenzene	ND	5.60	5.00	112	4.84	5.00	97	70-130	15	30
sec-Butylbenzene	ND	5.62	5.00	112	4.76	5.00	95	70-130	17	30
p-Isopropyltoluene	ND	5.89	5.00	118	4.96	5.00	99	70-130	17	30
1,3-Dichlorobenzene	ND	5.12	5.00	102	4.47	5.00	89	70-130	14	30
1,4-Dichlorobenzene	ND	5.13	5.00	103	4.49	5.00	90	70-130	13	30
n-Butylbenzene	ND	5.51	5.00	110	4.64	5.00	93	70-130	17	30
1,2-Dichlorobenzene	ND	5.32	5.00	106	4.74	5.00	95	70-130	12	30
1,2-Dibromo-3-chloropropane (DBCP)	ND	4.16	5.00	83	3.68	5.00	74	70-130	12	30
1,2,4-Trichlorobenzene	ND	4.48	5.00	90	3.98	5.00	80	70-130	12	30
Hexachlorobutadiene	ND	4.70	5.00	94	3.98	5.00	80	70-130	17	30
Naphthalene	ND	4.09	5.00	82	3.72	5.00	74	70-130	9	30
1,1,2-Trichloroethane	ND	5.03	5.00	101	4.53	5.00	91	70-130	10	30
1,1,1,2-Tetrachloroethane	ND	4.69	5.00	94	4.01	5.00	80	70-130	16	30
1,2,3-Trichloropropane	ND	4.81	5.00	96	4.41	5.00	88	70-130	9	30
1,2,3-Trichlorobenzene	ND	4.73	5.00	95	4.27	5.00	85	70-130	10	30

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

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/29/2014

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	524.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404851

Lab Control Sample
KWG1404851-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Dichlorodifluoromethane	5.94	5.00	119	70-130
Chloromethane	5.27	5.00	105	70-130
Vinyl Chloride	5.03	5.00	101	70-130
Bromomethane	4.33	5.00	87	70-130
Chloroethane	5.27	5.00	105	70-130
Trichlorofluoromethane	4.91	5.00	98	70-130
Methylene Chloride	5.02	5.00	100	70-130
trans-1,2-Dichloroethene	4.85	5.00	97	70-130
1,1-Dichloroethene	4.67	5.00	93	70-130
cis-1,2-Dichloroethene	4.85	5.00	97	70-130
Methyl tert-Butyl Ether	10.3	10.0	103	70-130
Chloroform	4.86	5.00	97	70-130
Bromochloromethane	4.84	5.00	97	70-130
Carbon Tetrachloride	4.56	5.00	91	70-130
Benzene	4.90	5.00	98	70-130
1,2-Dichloroethane	4.74	5.00	95	70-130
Trichloroethene	4.61	5.00	92	70-130
1,2-Dichloropropane	4.66	5.00	93	70-130
Bromodichloromethane	4.29	5.00	86	70-130
Dibromomethane	4.63	5.00	93	70-130
cis-1,3-Dichloropropene	4.07	5.00	81	70-130
Toluene	5.00	5.00	100	70-130
1,1-Dichloroethane	4.84	5.00	97	70-130
trans-1,3-Dichloropropene	3.67	5.00	73	70-130
Tetrachloroethene	4.98	5.00	100	70-130
1,3-Dichloropropane	5.26	5.00	105	70-130
2,2-Dichloropropane	4.48	5.00	90	70-130
Dibromochloromethane	4.01	5.00	80	70-130
1,2-Dibromoethane (EDB)	4.81	5.00	96	70-130
Chlorobenzene	5.04	5.00	101	70-130
Ethylbenzene	4.95	5.00	99	70-130
Styrene	5.16	5.00	103	70-130
m,p-Xylenes	10.4	10.0	104	70-130
o-Xylene	5.08	5.00	102	70-130
1,1,1-Trichloroethane	4.60	5.00	92	70-130

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/29/2014

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	524.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404851

	Lab Control Sample KWG1404851-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Bromoform	4.07	5.00	81	70-130
1,1,2,2-Tetrachloroethane	3.98	5.00	80	70-130
Isopropylbenzene	5.20	5.00	104	70-130
1,1-Dichloropropene	4.78	5.00	96	70-130
Bromobenzene	4.00	5.00	80	70-130
n-Propylbenzene	4.02	5.00	80	70-130
1,3,5-Trimethylbenzene	4.28	5.00	86	70-130
2-Chlorotoluene	4.11	5.00	82	70-130
4-Chlorotoluene	4.38	5.00	88	70-130
tert-Butylbenzene	4.65	5.00	93	70-130
1,2,4-Trimethylbenzene	5.02	5.00	100	70-130
sec-Butylbenzene	5.01	5.00	100	70-130
p-Isopropyltoluene	5.29	5.00	106	70-130
1,3-Dichlorobenzene	4.70	5.00	94	70-130
1,4-Dichlorobenzene	4.65	5.00	93	70-130
n-Butylbenzene	4.90	5.00	98	70-130
1,2-Dichlorobenzene	4.99	5.00	100	70-130
1,2-Dibromo-3-chloropropane (DBCP)	4.11	5.00	82	70-130
1,2,4-Trichlorobenzene	4.29	5.00	86	70-130
Hexachlorobutadiene	4.24	5.00	85	70-130
Naphthalene	4.02	5.00	80	70-130
1,1,2-Trichloroethane	4.88	5.00	98	70-130
1,1,1,2-Tetrachloroethane	4.56	5.00	91	70-130
1,2,3-Trichloropropane	4.98	5.00	100	70-130
1,2,3-Trichlorobenzene	4.51	5.00	90	70-130

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Analytical Results

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

Semivolatile Organics by EPA Method 525.2

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1405054-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	525.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Hexachlorocyclopentadiene	ND	U	0.098	1	05/29/14	06/09/14	KWG1404877	
Fluorene	ND	U	0.049	1	05/29/14	06/09/14	KWG1404877	
Propachlor	ND	U	0.098	1	05/29/14	06/09/14	KWG1404877	
Hexachlorobenzene	ND	U	0.098	1	05/29/14	06/09/14	KWG1404877	
Simazine	ND	U	0.049	1	05/29/14	06/09/14	KWG1404877	
Atrazine	ND	U	0.098	1	05/29/14	06/09/14	KWG1404877	
Metribuzin	ND	U	0.20	1	05/29/14	06/09/14	KWG1404877	
Alachlor	ND	U	0.070	1	05/29/14	06/09/14	KWG1404877	
Bromacil	ND	U	0.20	1	05/29/14	06/09/14	KWG1404877	
Metolachlor	ND	U	0.088	1	05/29/14	06/09/14	KWG1404877	
Butachlor	ND	U	0.098	1	05/29/14	06/09/14	KWG1404877	
Bis(2-ethylhexyl) Adipate	ND	U	0.59	1	05/29/14	06/09/14	KWG1404877	
Bis(2-ethylhexyl) Phthalate	ND	U	0.59	1	05/29/14	06/09/14	KWG1404877	
Benzo(a)pyrene	ND	U	0.020	1	05/29/14	06/09/14	KWG1404877	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,3-Dimethyl-2-nitrobenzene	126	70-130	06/09/14	Acceptable
Triphenyl Phosphate	96	70-130	06/09/14	Acceptable
Perylene-d12	77	70-130	06/09/14	Acceptable

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Ocean water	**Date Received:**	NA

Semivolatile Organics by EPA Method 525.2

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404877-4	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	525.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Hexachlorocyclopentadiene	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Fluorene	ND	U	0.050	1	05/29/14	06/09/14	KWG1404877	
Propachlor	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Hexachlorobenzene	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Simazine	ND	U	0.050	1	05/29/14	06/09/14	KWG1404877	
Atrazine	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Metribuzin	ND	U	0.20	1	05/29/14	06/09/14	KWG1404877	
Alachlor	ND	U	0.072	1	05/29/14	06/09/14	KWG1404877	
Bromacil	ND	U	0.20	1	05/29/14	06/09/14	KWG1404877	
Metolachlor	ND	U	0.090	1	05/29/14	06/09/14	KWG1404877	
Butachlor	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Bis(2-ethylhexyl) Adipate	ND	U	0.60	1	05/29/14	06/09/14	KWG1404877	
Bis(2-ethylhexyl) Phthalate	ND	U	0.60	1	05/29/14	06/09/14	KWG1404877	
Benzo(a)pyrene	ND	U	0.020	1	05/29/14	06/09/14	KWG1404877	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,3-Dimethyl-2-nitrobenzene	119	70-130	06/09/14	Acceptable
Triphenyl Phosphate	77	70-130	06/09/14	Acceptable
Perylene-d12	82	70-130	06/09/14	Acceptable

Comments:

Client: Longview, City of **Service Request:** K1405054
Project: MFWTP Sentinel Wells
Sample Matrix: Drinking water

Surrogate Recovery Summary
Semivolatile Organics by EPA Method 525.2

Extraction Method: METHOD **Units:** Percent
Analysis Method: 525.2 **Level:** Low

Sample Name	Lab Code	Sur1	Sur2	Sur3	
DW-1	K1405054-001	126	96	77	
Method Blank	KWG1404877-4	119	77	82	
DW-1MS	KWG1404877-1	118	107	95	
DW-1DMS	KWG1404877-2	120	101	66	*
Lab Control Sample	KWG1404877-3	116	106	95	

Surrogate Recovery Control Limits (%)

Sur1	=	1,3-Dimethyl-2-nitrobenzene	70-130
Sur2	=	Triphenyl Phosphate	70-130
Sur3	=	Perylene-d12	70-130

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Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/09/2014

Matrix Spike/Duplicate Matrix Spike Summary
Semivolatile Organics by EPA Method 525.2

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1405054-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	525.2	**Extraction Lot:**	KWG1404877

		DW-1MS KWG1404877-1 Matrix Spike			DW-1DMS KWG1404877-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Hexachlorocyclopentadiene	ND	1.06	0.971	109	1.09	0.971	112	70-130	3	30
Fluorene	ND	1.04	0.971	107	1.06	0.971	110	70-130	2	30
Propachlor	ND	0.931	0.971	96	0.920	0.971	95	70-130	1	30
Hexachlorobenzene	ND	1.02	0.971	105	1.01	0.971	104	70-130	1	30
Simazine	ND	0.728	0.971	75	0.705	0.971	73	70-130	3	30
Atrazine	ND	0.774	0.971	80	0.703	0.971	72	70-130	10	30
Metribuzin	ND	1.02	0.971	105	0.993	0.971	102	70-130	3	30
Alachlor	ND	0.880	0.971	91	0.861	0.971	89	70-130	2	30
Bromacil	ND	1.04	0.971	108	0.994	0.971	102	70-130	5	30
Metolachlor	ND	0.888	0.971	91	0.863	0.971	89	70-130	3	30
Butachlor	ND	0.992	0.971	102	0.967	0.971	100	70-130	3	30
Bis(2-ethylhexyl) Adipate	ND	1.01	0.971	104	0.964	0.971	99	70-130	4	30
Bis(2-ethylhexyl) Phthalate	ND	1.05	0.971	108	1.05	0.971	108	70-130	0	30
Benzo(a)pyrene	ND	0.631	0.971	65 *	0.216	0.971	22 *	70-130	98 *	30

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Ocean water	**Date Analyzed:**	06/09/2014

Lab Control Spike Summary
Semivolatile Organics by EPA Method 525.2

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	525.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404877

	Lab Control Sample KWG1404877-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Hexachlorocyclopentadiene	1.04	1.00	104	70-130
Fluorene	1.08	1.00	108	70-130
Propachlor	0.930	1.00	93	70-130
Hexachlorobenzene	1.06	1.00	106	70-130
Simazine	0.903	1.00	90	70-130
Atrazine	0.865	1.00	87	70-130
Metribuzin	1.03	1.00	103	70-130
Alachlor	0.914	1.00	91	70-130
Bromacil	0.960	1.00	96	70-130
Metolachlor	0.944	1.00	94	70-130
Butachlor	1.08	1.00	108	70-130
Bis(2-ethylhexyl) Adipate	0.969	1.00	97	70-130
Bis(2-ethylhexyl) Phthalate	1.03	1.00	103	70-130
Benzo(a)pyrene	1.02	1.00	102	70-130

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Analytical Results

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

Endothall by EPA Method 548.1

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1405054-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	548.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Endothall	ND	U	5.0	1	05/21/14	05/27/14	KWG1404615	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Endothall by EPA Method 548.1

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404615-4	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	548.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Endothall	ND	U	5.0	1	05/21/14	05/27/14	KWG1404615	

Comments:

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/21/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/27/2014

Matrix Spike/Duplicate Matrix Spike Summary
Endothall by EPA Method 548.1

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	548.1	**Extraction Lot:**	KWG1404615

		Batch QCMS KWG1404615-1 Matrix Spike			Batch QCDMS KWG1404615-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Endothall	ND	113	100	113	128	100	128	30-142	12	30

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/21/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/27/2014

Lab Control Spike Summary
Endothall by EPA Method 548.1

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	548.1	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404615

	Lab Control Sample KWG1404615-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Endothall	140	100	140	30-142

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

Diquat and Paraquat by EPA Method 549.2

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1405054-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	549.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diquat	ND	U	0.40	1	05/27/14	05/30/14	KWG1404738	
Paraquat	ND	U	0.80	1	05/27/14	05/30/14	KWG1404738	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Diquat and Paraquat by EPA Method 549.2

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404738-5	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	549.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diquat	ND	U	0.40	1	05/27/14	05/30/14	KWG1404738	
Paraquat	ND	U	0.80	1	05/27/14	05/30/14	KWG1404738	

Comments:

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/27/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/30/2014

Matrix Spike/Duplicate Matrix Spike Summary
Diquat and Paraquat by EPA Method 549.2

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405130-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	549.2	**Extraction Lot:**	KWG1404738

		Batch QCMS KWG1404738-1 Matrix Spike			Batch QCDMS KWG1404738-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Diquat	ND	12.0	12.0	100	11.9	12.0	100	70-130	0	30
Paraquat	ND	11.0	12.0	92	11.2	12.0	94	70-130	2	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405054
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/27/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/30/2014

Lab Control Spike Summary
Diquat and Paraquat by EPA Method 549.2

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	549.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404738

	Lab Control Sample KWG1404738-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Diquat	11.0	12.0	91	70-130
Paraquat	10.1	12.0	84	70-130

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.

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
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F: +1 805 526 7270
www.alsglobal.com

LABORATORY REPORT

May 31, 2014

Jeff Coleman
Longview, City of
W/S Operation Center
Longview, WA 98632

RE: MFWTP Sentinel Wells

Dear Jeff:

Enclosed are the results of the sample submitted to our laboratory on May 20, 2014. For your reference, this analysis has been assigned our service request number K1405054.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 9:59 am, May 31, 2014

For Kate Aguilera
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

Client: Longview, City of
Project: MFWTP Sentinel Wells

Service Request No: K1405054

CASE NARRATIVE

The sample was received intact under chain of custody on May 20, 2014 and was stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the sample at the time of sample receipt.

Hydrogen Sulfide Analysis

The sample was analyzed for hydrogen sulfide using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

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ALS Environmental – Simi Valley

Certifications, Accreditations, and Registrations

Agency	Web Site	Number
AIHA	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
DoD ELAP	http://www.pjlabs.com/search-accredited-labs	L14-2
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2012039
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	643428
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	CA200007
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-13-4
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA016272013-3
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

Intra-Network Chain of Custody

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

ALS Contact: Chris Leaf

Project Name: MFWTP Sentinel Wells
Project Number:
Project Manager: Jeff Coleman
Company: Longview, City of

Lab Code	Client Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Date Received	Send To	Sulfur Sulfur Liq
K1405054-001	DW-1	3	Drinking Water	5/20/14	1347	5/20/14	SIMIVALLEY	II

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

pH Checked _____

Turnaround Requirements
_____ **RUSH** (Surcharges Apply)
PLEASE CIRCLE WORK DAYS
1 2 3 4 5
____ **STANDARD**
Requested FAX Date: _____
Requested Report Date: 06/06/14

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

Invoice Information
CS 08
4°C Gel Ice TB
PO#
K1405054
Bill to

Relinquished By: [signature] 5/21/14 1210 Received By: [signature] 0930 Airbill Number: _____

ALS Environmental
Sample Acceptance Check Form

Client: Longview, City of Work order: K1405054

Project: MFWTP Sentinel Wells

Sample(s) received on: 5/22/14 Date opened: 5/22/14 by: MZAMORA

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Container(s) **supplied by ALS**?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: ° C Blank Temperature: 4° C **Gel Packs**			
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☒	☐	☐
	Location of seal(s)? Top of cooler, down the front. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☒	☐	☐
	Is there a client indication that the submitted samples are **pH** preserved?	☒	☐	☐
	Were **VOA vials** checked for presence/absence of air bubbles?	☒	☐	☐
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☒	☐	☐
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
K1405054-001.32	40mL VOA NP		7	1	A	MC 5/27/2014
K1405054-001.33	40mL VOA NP				A	
K1405054-001.34	40mL VOA NP				P	

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Longview, City of**
Client Project ID: **MFWTP Sentinel Wells** ALS Project ID: K1405054

Hydrogen Sulfide

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 7890A/GC22/SCD Date(s) Collected: 5/20/14
Analyst: Mike Conejo Date Received: 5/20/14
Sample Type: Drinking Water Date Analyzed: 5/27/14
Test Notes:

Client Sample ID	ALS Sample ID	Sample Amount ml(s)	Purge Volume Liter(s)	Injection Volume ml(s)	**Result µg/L**	MRL µg/L	Data Qualifier
DW-1	K1405054-001	10.0	0.30	1.0	ND	0.84	
Method Blank	P140527-MB	10.0	0.30	1.0	ND	0.84	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Longview, City of**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **MFWTP Sentinel Wells**

ALS Project ID: K1405054
ALS Sample ID: P140527-DLCS

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Mike Conejo
Sample Type: Drinking Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 5/27/14
Liquid Amount: 10.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume: 0.20 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result LCS ug/L	Result DLCS ug/L	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
7783-06-4	Hydrogen Sulfide	428	414	438	**97**	**102**	54-133	5	20	

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 421 , WV 343

May 30, 2014

Ms. Chris Leaf
ALS Environmental - Kelso
1317 S. 13th Avenue
Kelso, WA 98626

Certificate of Analysis

Project Name:	**SOCs**	Workorder:	**2008317**
Purchase Order:	**K1405054**	Workorder ID:	**K1405054**

Dear Ms. Leaf:

Enclosed are the analytical results for samples received by the laboratory on Thursday, May 22, 2014.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Mrs. Kelli L Wolfgang (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

Kelli Wolfgang

Mrs. Kelli L Wolfgang
Project Coordinator

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 421 , WV 343

SAMPLE SUMMARY

Workorder: 2008317 K1405054

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2008317001	K1405054-001	Drinking Water	5/20/2014 13:47	5/22/2014 09:00	Collected by Client

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 421 , WV 343

ANALYTICAL RESULTS

Workorder: 2008317 K1405054

Lab ID: **2008317001** Date Collected: 5/20/2014 13:47 Matrix: Drinking Water

Sample ID: **K1405054-001** Date Received: 5/22/2014 09:00

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
HERBICIDES										
Glyphosate	ND		ug/L	4.5	EPA 547	5/28/14	CGS	5/28/14 19:30	CGS	C
CARBAMATES										
Aldicarb	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 04:49	CGS	A
Aldicarb Sulfone	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 04:49	CGS	A
Aldicarb Sulfoxide	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 04:49	CGS	A
Carbaryl	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 04:49	CGS	A
Carbofuran	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 04:49	CGS	A
3-Hydroxycarbofuran	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 04:49	CGS	A
Methiocarb	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 04:49	CGS	A
Methomyl	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 04:49	CGS	A
Oxamyl	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 04:49	CGS	A
Propoxur	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 04:49	CGS	A

Kelli Wolfgang

Mrs. Kelli L Wolfgang
Project Coordinator

ALS Environmental Chain of Custody

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

2008317

Project Number: K1405054
Project Manager: Chris Leaf

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	CARBAM 531.1	GLYPH 547
K1405054-001	DW-1	2/5	Drinking Water	5/20/14	1347	Middletown	X	X

	Y	N	Initials
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?	✓		MM
COC/Lbls Complete	✓		
Cont in Good Cond?	✓		
Correct Containers?	✓		
Correct Samp Vol?	✓		
Correct Preservation?	✓		
Headspace/Volatiles?		✓	

Cooler Temp: 1 °C
Cooler #:
Therm ID: TH-291
Ship Carrier: FedEx UPS DHL
Tracking #: 547897330462

Test Comments
CARBAM - 531.1 K1405054-001 Full list for WA Regulations - no compliance report required.

KW 5/22/14 1741

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

CL 5/21/14

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: 06/06/14

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

Invoice Information
PO# K1405054 ✓
Bill to

Relinquished By: 5/21/14 1210 Received By: ALS 5-22-14 0900 Airbill Number:

✓ **Ship To: Middletown**
ALS Laboratory Group
34 Dogwood Lane
Middletown, PA 17057

PC _____ Date 5/21/14
SMO _____ Date 5/21/14

Instructions:
Ice ✓
Dry Ice
No Ice

Shipping:
Overnight ✓
2nd Day
Ground

Bill to Client Account _____

Comments:

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

June 26, 2014 Analytical Report for Service Request No: K1405057

Jeff Coleman
Longview, City of
W/S Operation Center
P.O. Box 128
Longview, WA 98632

RE: MFWTP Sentinel Wells

Dear Jeff:

Enclosed are the results of the samples submitted to our laboratory on May 20, 2014. For your reference, these analyses have been assigned our service request number K1405057.

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 call if you have any questions. My extension is 3275. You may also contact me via Email at Chris.Leaf@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Chris Leaf
Project Manager

CL/aj

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 DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	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	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
ISO 17025	http://www.pjlabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	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	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	4704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
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.

ALS ENVIRONMENTAL

Client:	Longview, City of	**Service Request No.:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Received:**	05/20/14
Sample Matrix:	Drinking Water		

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

One drinking water sample was received for analysis at ALS Environmental on 05/20/14. The sample was received in good condition and consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4ºC upon receipt at the laboratory.

General Chemistry Parameters

Total Cyanide by EPA Method 335.4:
The matrix spike recovery for sample Batch QC was outside control criteria because of suspected matrix interference. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. No further corrective action was taken.

No other anomalies associated with the analysis of this sample were observed.

Total Metals

Matrix Spike Recovery Exceptions:
The control criteria for matrix spike recovery of Iron for the Batch QC2 sample were not applicable. The analyzed concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

No other anomalies associated with the analysis of this sample were observed.

Chlorinated Phenols by EPA Method 1653

No anomalies associated with the analysis of this sample were observed.

EDB and DBCP by EPA Method 504.1

No anomalies associated with the analysis of this sample were observed.

Approved by_____

Pesticides and Polychlorinated Biphenyls by EPA Method 508.1

Calibration Verification Exceptions:
The analysis of Chlorinated Pesticides and PCB Aroclors by EPA 508.1 requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for Endrin in CCV file 0603014. The results were reported from the column with an acceptable CCV. The data quality was not affected. No further corrective action was necessary.

No other anomalies associated with the analysis of this sample were observed.

Chlorinated Acides by EPA Method 515.4

No anomalies associated with the analysis of this sample were observed.

Volatile Organic Compounds by EPA Method 524.2

Matrix Spike Recovery Exceptions:
The matrix spike recovery of Dichlorodifluoromethane for sample Batch QCMS KWG1404851-1 and the duplicate matrix spike recovery of trans-1,3-Dichloropropene for sample Batch QCDMS KWG1404851-2 were outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential bias in this matrix. No further corrective action was appropriate.

No other anomalies associated with the analysis of this sample were observed.

Semivolatile Organic Compounds by EPA Method 525.2

Matrix Spike Recovery Exceptions:
The matrix spike recovery of Benz(a)pyrene and duplicate matrix spike recovery of Benz(a)pyrene and Perylene-d12 for sample DW-1 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outliers suggested a potential low bias in this matrix. No further corrective action was appropriate.

Relative Percent Difference Exceptions:
The Relative Percent Difference (RPD) for Benz(a)pyrene in the replicate matrix spike analyses of DW-1 was outside control criteria.

No other anomalies associated with the analysis of this sample were observed.

Endothall by EPA Method 548.1

No anomalies associated with the analysis of this sample were observed.

Diquat by High Performance Liquid Chromatography

Sample Notes and Discussion:
The recovery of Paraquat in the MRL-level Lab fortified Blank (LFB) KWG1404738-4 was below the ALS advisory criteria of 50-150%. The recovery met the MRL verification criteria specified in the EPA manual. Additionally, recovery was acceptable in the Lab Control Sample (LCS) which indicated the analytical batch was in control. The data quality was not significantly affected. No further corrective action was required.

No other anomalies associated with the analysis of these samples were observed.

Approved by 

Sulfur

This analysis was performed at ALS Environmental, Simi Valley, CA. The data for this analysis is included in the corresponding section of this report.

Carbamates and Glyphosate

These analyses were performed at ALS Environmental, Middletown, PA. The data for these analyses is included in the corresponding section of this report.

Approved by 

ALS Environmental

CHAIN OF CUSTODY
49244

001, 005

SR# 614050614

COC Set____of____

COC#_____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: WFWTP SENTINEL Wells	Project Number:
Project Manager: JEFF Coleman	
Company: City of Longview	
Address: PO Box 128, Longview, WA 98632	
Phone #: (360) 442-5700	email
Sampler Signature:	Sampler Printed Name

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	6H: SM 9223 B / Coli L (+/-)	48H: 180.1 / Turbidity	48H: 300.0 / NO2	48H: 300.0 / NO3	48H: SM 2120 B / Color	48H: SM 4500-P E / O Phos	7D: 548.1 / ENDO	7D: 549.2 / DIQ_PARAQ	7D: SM 2540 C / TDS	14D: 335.4 / CN T	14D: 504.1 / EDB DBCP 123TCP	14D: 508.1 / PEST_CL	14D: 515.4 / CL_ACID_HERB	14D: 524.2 / VOC	14D: 525.2 / SVO	14D: 547 / GLYPH	14D: SM 2320 B / Alkalinity Titr	14D: Sulfur Liq / Sulfur	28D: 300.0 / F	28D: 300.0 / SO4	28D: 350.1 / Ammonia T	28D: 531.1 / CARBAM	28D: SM 2510 B / Conductivity	Remarks
1. DWI-9		5/20/14	0930		39	✓																						✓	
2. Temp Blanks					2																								
3.																													
4.																													
5.																													
6.																													
7.																													
8.																													
9.																													
10.																													

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. CLP Like Summary (no raw data)

___ IV. Data Validation Report

___ V. EDD

Invoice Information

P.O.# 36-4328

Bill To: City of Longview
PO Box 128
Longview WA

Turnaround Requirements

___ 24 hr. ___ 48 hr.
___ 5 Day
___ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: Hal McFarlane	Signature: Karla Smith	Signature	Signature	Signature	Signature
Printed Name: Hal McFarlane	Printed Name: Karla Smith	Printed Name	Printed Name	Printed Name	Printed Name
Firm: City of Longview	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 5/20/14 1502	Date/Time: 5/20/14 1502	Date/Time	Date/Time	Date/Time	Date/Time

ALS Environmental

CHAIN OF CUSTODY
49244

001, 005

SR# K140607

COC Set____of____

COC#_____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name	NFWTP SENTINEL WELLS
Project Number:	
Project Manager	JEFF COLEMAN
Company	CITY OF LONGVIEW
Address	PO BOX 128 Longview, WA 98632
Phone #	(360) 442-5700
email	
Sampler Signature	
Sampler Printed Name	

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	28D 245.1 / Hg T	28D 300.0 / Br	28D 300.0 / Chloride	28D 314.0 / ClO4	30D 1653A / CHLOR_PHEN	180D 1630 / Methyl Hg T	180D 200.7 / Metals T	180D 200.8 / Metals T	999D Calculation / NO2 NO3 Calc	999D SM 2340 B / Hardness Calc	1	2	3	4	5	Remarks
1. DW-9		5/20/14				X									X						
2.																					
3.																					
4.																					
5.																					
6.																					
7.																					
8.																					
9.																					
10.																					

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. CLP Like Summary (no raw data)

___ IV. Data Validation Report

___ V. EDD

Invoice Information

P.O.# 36-4328

Bill To:_____

Turnaround Requirements

___ 24 hr. ___ 48 hr.

___ 5 Day

___ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other_____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: H Mc Gowan	Signature: Karla Smith	Signature	Signature	Signature	Signature
Printed Name: HAL McGowan	Printed Name: Karla Smith	Printed Name	Printed Name	Printed Name	Printed Name
Firm: City of Longview	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 5/20/14 1502	Date/Time: 5/20/14 1502	Date/Time	Date/Time	Date/Time	Date/Time

PC CV

Cooler Receipt and Preservation Form

Client / Project: City of Longview Service Request *K14* 05057

Received: 5/20/14 Opened: 5/20/14 By: KO Unloaded: 5/20/14 By: KO

1. Samples were received via? *Mail* *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
6.8	6.6	7.7	7.5	-.2	337			
7.2	6.9	13.0	12.7	-.3	327			

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. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
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

Notes, Discrepancies, & Resolutions: Rec'd 2-40ml Amber vials for 531's.

SHORT HOLD TIME

Page ____ *of* ____

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	180.1	**Units:**	NTU
Prep Method:	None	**Basis:**	NA

Turbidity

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-9	K1405057-001	**1.15**	0.20	1	05/21/14 10:33	
Method Blank	K1405057-MB1	ND U	0.20	1	05/21/14 10:26	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/21/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	NTU
Lab Code:	K1405052-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405052-001DUP Result	Average	RPD	RPD Limit
Turbidity	180.1	0.20	1.16	1.17	1.17	<1	20

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Turbidity

Analysis Method:	180.1	**Units:**	NTU
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393856

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405057-LCS1	5.79	5.80	100	90-110

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Bromide

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-9	K1405057-001	ND U	0.20	2	05/21/14 07:23	
Method Blank	K1405057-MB1	ND U	0.10	1	05/21/14 06:12	
Method Blank	K1405057-MB2	ND U	0.10	1	05/21/14 19:19	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/21/14

Replicate Sample Summary

General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405603-35	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405603-35DUP Result	Average	RPD	RPD Limit
Bromide	300.0	0.20	ND	ND	NC	NC	20

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

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Bromide

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405603-35	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405603-35MS			Duplicate Matrix Spike KQ1405603-35DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Bromide	ND U	3.84	4.00	96	3.84	4.00	96	90-110	<1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Bromide

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393505

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405057-LCS1	2.33	2.50	93	90-110
Lab Control Sample	K1405057-LCS2	2.33	2.50	93	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Chloride

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-9	K1405057-001	**5.53**	0.40	2	05/21/14 07:23	
Method Blank	K1405057-MB1	ND U	0.20	1	05/21/14 06:12	
Method Blank	K1405057-MB2	ND U	0.20	1	05/21/14 19:19	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary

Chloride

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1405059-001DUP	0.40	2.90	2.88	2.89	<1	20	05/21/14
Batch QC	K1405066-001DUP	2.0	20.9	20.5	20.7	2	20	05/21/14
Batch QC	KQ1405603-35DUP	0.40	9.15	9.03	9.09	1	20	05/21/14

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

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Chloride

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405059-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike			Duplicate Matrix Spike					
		K1405059-001MS			K1405059-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Chloride	2.90	6.84	4.00	98	6.84	4.00	99	90-110	<1	20

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Chloride

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405066-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike			Duplicate Matrix Spike					
		K1405066-001MS			K1405066-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Chloride	20.9	41.2	20.0	101	41.1	20.0	101	90-110	<1	20

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Chloride

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405603-35	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405603-35MS			Duplicate Matrix Spike KQ1405603-35DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Chloride	9.15	13.5	4.00	109	13.4	4.00	106	90-110	<1	20

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Chloride

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393505

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405057-LCS1	4.70	5.00	94	90-110
Lab Control Sample	K1405057-LCS2	4.72	5.00	94	90-110

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Fluoride

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-9	K1405057-001	ND U	0.20	2	05/21/14 07:23	
Method Blank	K1405057-MB1	ND U	0.10	1	05/21/14 06:12	
Method Blank	K1405057-MB2	ND U	0.10	1	05/21/14 19:19	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/21/14

Replicate Sample Summary

General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405603-35	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405603-35DUP Result	Average	RPD	RPD Limit
Fluoride	300.0	0.20	ND	ND	NC	NC	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Fluoride

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405603-35	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405603-35MS			Duplicate Matrix Spike KQ1405603-35DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Fluoride	ND U	4.18	4.00	104	4.20	4.00	105	90-110	<1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Fluoride

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393505

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405057-LCS1	4.93	5.00	99	90-110
Lab Control Sample	K1405057-LCS2	5.05	5.00	101	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Nitrite as Nitrogen

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-9	K1405057-001	ND U	0.10	2	05/21/14 07:23	
Method Blank	K1405057-MB1	ND U	0.050	1	05/21/14 06:12	
Method Blank	K1405057-MB2	ND U	0.050	1	05/21/14 19:19	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/21/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405603-35	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405603-35DUP Result	Average	RPD	RPD Limit
Nitrite as Nitrogen	300.0	0.10	ND	ND	NC	NC	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrite as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405603-35	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405603-35MS			Duplicate Matrix Spike KQ1405603-35DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrite as Nitrogen	ND U	4.08	4.00	102	4.08	4.00	102	90-110	<1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Nitrite as Nitrogen

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393505

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405057-LCS1	2.42	2.50	97	90-110
Lab Control Sample	K1405057-LCS2	2.43	2.50	97	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Nitrate as Nitrogen

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-9	K1405057-001	ND U	0.10	2	05/21/14 07:23	
Method Blank	K1405057-MB1	ND U	0.050	1	05/21/14 06:12	
Method Blank	K1405057-MB2	ND U	0.050	1	05/21/14 19:19	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Nitrate as Nitrogen

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1405059-001DUP	0.10	0.66	0.66	0.661	<1	20	05/21/14
Batch QC	K1405066-001DUP	0.50	2.76	2.76	2.76	<1	20	05/21/14
Batch QC	K1405084-003DUP	0.10	0.39	0.39	0.392	<1	20	05/21/14
Batch QC	KQ1405603-35DUP	0.10	ND U	ND U	NC	NC	20	05/21/14

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrate as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405059-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike K1405059-001MS			Duplicate Matrix Spike K1405059-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrate as Nitrogen	0.66	4.70	4.00	101	4.68	4.00	101	90-110	<1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrate as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405066-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike K1405066-001MS			Duplicate Matrix Spike K1405066-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrate as Nitrogen	2.76	22.7	20.0	100	22.8	20.0	100	90-110	<1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrate as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405084-003	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike			Duplicate Matrix Spike					
		K1405084-003MS			K1405084-003DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrate as Nitrogen	0.39	4.46	4.00	102	4.48	4.00	102	90-110	<1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrate as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405603-35	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405603-35MS			Duplicate Matrix Spike KQ1405603-35DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrate as Nitrogen	ND U	3.77	4.00	94	3.79	4.00	95	90-110	<1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Nitrate as Nitrogen

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393505

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405057-LCS1	2.36	2.50	94	90-110
Lab Control Sample	K1405057-LCS2	2.35	2.50	94	90-110

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	5/20/2014
Sample Matrix:	Drinking water	**Date Received:**	5/20/2014

Nitrite + Nitrate as Nitrogen

Prep Method:	NONE	Units:	mg/L
Analysis Method:	300.0/300.0	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	Dilution Factor	Date Analyzed	Result	Result Notes
DW-9	K1405057-001	0.10	2	5/21/2014	ND	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Sulfate

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-9	K1405057-001	**2.20**	0.20	2	05/21/14 07:23	
Method Blank	K1405057-MB1	ND U	0.10	1	05/21/14 06:12	
Method Blank	K1405057-MB2	ND U	0.10	1	05/21/14 19:19	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary

Sulfate

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1405059-001DUP	0.20	0.78	0.80	0.787	3	20	05/21/14
Batch QC	K1405066-001DUP	1.0	17.3	16.2	16.8	6	20	05/21/14
Batch QC	KQ1405603-35DUP	0.20	ND U	ND U	NC	NC	20	05/21/14

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Sulfate

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405059-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike			Duplicate Matrix Spike					
		K1405059-001MS			K1405059-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Sulfate	0.78	4.71	4.00	98	4.72	4.00	99	90-110	<1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Sulfate

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405066-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike K1405066-001MS			Duplicate Matrix Spike K1405066-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Sulfate	17.3	37.0	20.0	99	37.2	20.0	100	90-110	<1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Sulfate

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405603-35	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405603-35MS			Duplicate Matrix Spike KQ1405603-35DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Sulfate	ND U	3.84	4.00	96	3.88	4.00	97	90-110	<1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Sulfate

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393505

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405057-LCS1	4.78	5.00	96	90-110
Lab Control Sample	K1405057-LCS2	4.79	5.00	96	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	314.0	**Units:**	ug/L
Prep Method:	None	**Basis:**	NA

Perchlorate

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-9	K1405057-001	ND U	1.0	1	05/22/14 12:12	
Method Blank	K1405057-MB1	ND U	1.0	1	05/22/14 09:12	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405052-001DUP Result	Average	RPD	RPD Limit
Perchlorate	314.0	1.0	ND	ND	NC	NC	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/22/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Perchlorate

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Analysis Method:	314.0		
Prep Method:	None		

		Matrix Spike K1405052-001MS			Duplicate Matrix Spike K1405052-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	ND U	11.9	10.0	119	10.4	10.0	104	80-120	13	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Perchlorate

Analysis Method:	314.0	**Units:**	ug/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393851

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405057-LCS1	16.3	16.8	97	85-115

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	335.4	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA

Cyanide, Total

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
DW-9	K1405057-001	ND U	0.010	1	05/30/14 10:04	5/29/14	
Method Blank	K1405057-MB1	ND U	0.010	1	05/30/14 10:04	5/29/14	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/30/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405867-03	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405867-03DUP Result	Average	RPD	RPD Limit
Cyanide, Total	335.4	0.010	ND	0.010	NC	NC	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/30/14
		Date Extracted:	05/29/14

Duplicate Matrix Spike Summary
Cyanide, Total

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405867-03	**Basis:**	NA
Analysis Method:	335.4		
Prep Method:	Method		

		Matrix Spike KQ1405867-03MS			Duplicate Matrix Spike KQ1405867-03DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Cyanide, Total	ND U	0.113	0.100	112 *	0.107	0.100	106	90-110	5	20

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Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/30/14
Sample Matrix:	Drinking Water	**Date Extracted:**	05/29/14

Lab Control Sample Summary
Cyanide, Total

Analysis Method:	335.4	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	394880

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405057-LCS1	0.139	0.150	93	90-110

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	SM 2120 B	**Units:**	ColorUnits
Prep Method:	None	**Basis:**	NA

Color

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-9	K1405057-001	**15.0**	5.0	1	05/22/14 08:50	
Method Blank	K1405057-MB1	ND U	5.0	1	05/22/14 08:42	

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dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW-9	**Units:**	ColorUnits
Lab Code:	K1405057-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405057-001DUP Result	Average	RPD	RPD Limit
Color	SM 2120 B	5.0	15.0	15.0	15.0	<1	20

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Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Color

Analysis Method:	SM 2120 B	**Units:**	ColorUnits
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393796

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405057-LCS1	65.0	65.0	100	85-115

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	SM 2320 B	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Alkalinity as CaCO3, Total

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-9	K1405057-001	**88.9**	2.0	1	05/30/14 13:50	
Method Blank	K1405057-MB1	ND U	2.0	1	05/30/14 13:50	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/30/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405052-001DUP Result	Average	RPD	RPD Limit
Alkalinity as CaCO3, Total	SM 2320 B	2.0	139	139	139	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/30/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Alkalinity as CaCO3, Total

Analysis Method:	SM 2320 B	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	394959

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405057-LCS1	175	177	99	90-110

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	SM 2510 B	**Units:**	uMHOS/cm
Prep Method:	None	**Basis:**	NA

Conductivity at 25 Degrees Celsius

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-9	K1405057-001	**202**	2.0	1	05/31/14 15:10	
Method Blank	K1405057-MB1	ND U	2.0	1	05/31/14 15:10	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/31/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	uMHOS/cm
Lab Code:	K1405011-002	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405011-002DUP Result	Average	RPD	RPD Limit
Conductivity at 25 Degrees Celsius	SM 2510 B	2.0	844	856	850	1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/31/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Conductivity at 25 Degrees Celsius

Analysis Method:	SM 2510 B	**Units:**	uMHOS/cm
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	395025

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405057-LCS1	342	330	104	86-113

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	SM 2540 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Solids, Total Dissolved

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-9	K1405057-001	**155**	10	1	05/22/14 22:30	
Method Blank	K1405057-MB1	ND U	10	1	05/22/14 22:30	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405064-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405064-001DUP Result	Average	RPD	RPD Limit
Solids, Total Dissolved	SM 2540 C	20	572	590	581	3	10

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Solids, Total Dissolved

Analysis Method:	SM 2540 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393911

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405057-LCS1	874	886	99	85-115

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	SM 4500-NH3 G	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA

Ammonia

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
DW-9	K1405057-001	**0.149**	0.050	1	06/04/14 18:40	6/4/14	
Method Blank	K1405057-MB1	ND U	0.050	1	06/04/14 18:40	6/4/14	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	06/04/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1406157-09	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1406157-09DUP Result	Average	RPD	RPD Limit
Ammonia	SM 4500-NH3 G	0.050	2.58	2.56	2.57	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	06/4/14
		Date Extracted:	06/4/14

Duplicate Matrix Spike Summary
Ammonia

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1406157-09	**Basis:**	NA
Analysis Method:	SM 4500-NH3 G		
Prep Method:	Method		

		Matrix Spike KQ1406157-09MS			Duplicate Matrix Spike KQ1406157-09DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Ammonia	2.58	4.56	2.00	99	4.52	2.00	97	90-110	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	06/04/14
Sample Matrix:	Drinking Water	**Date Extracted:**	06/04/14

Lab Control Sample Summary
Ammonia

Analysis Method:	SM 4500-NH3 G	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	395732

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405057-LCS1	10.8	10.8	100	90-110

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking Water	**Date Received:**	05/20/14
Analysis Method:	SM 4500-P E	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Orthophosphate as Phosphorus

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-9	K1405057-001	**0.109**	0.050	1	05/21/14 13:29	
Method Blank	K1405057-MB1	ND U	0.050	1	05/21/14 13:29	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/21/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405052-001DUP Result	Average	RPD	RPD Limit
Orthophosphate as Phosphorus	SM 4500-P E	0.050	0.483	0.485	0.484	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Orthophosphate as Phosphorus

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA
Analysis Method:	SM 4500-P E		
Prep Method:	None		

		Matrix Spike K1405052-001MS			Duplicate Matrix Spike K1405052-001DMS				
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Orthophosphate as Phosphorus	0.483	0.91	0.40	107	0.85	0.40	92	75-125	15	20

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ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Orthophosphate as Phosphorus

Analysis Method:	SM 4500-P E	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393629

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405057-LCS1	3.86	3.94	98	85-115
Lab Control Sample	K1405057-LCS2	3.81	3.94	97	85-115
Lab Control Sample	K1405057-LCS3	3.83	3.94	97	85-115
Lab Control Sample	K1405057-LCS4	3.85	3.94	98	85-115

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	5/20/2014
Sample Matrix:	Drinking water	**Date Received:**	5/20/2014

Colilert, E. Coli

Prep Method: NONE
Analysis Method: SM 9223B
Basis: NA
Test Notes:

Sample Name	Lab Code	MRL	Date Analyzed	Time Test Started		Result	Result Notes
DW-9	K1405057-001	-	5/21/2014	12:00	hrs	Absent	

SM *Standard Methods for the Examination of Water and Wastewater* , 20th Ed., 1998.

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	5/20/2014
Sample Matrix:	Drinking water	**Date Received:**	5/20/2014

Colilert, T. Coli

Prep Method: NONE
Analysis Method: SM 9223B
Basis: NA
Test Notes:

Sample Name	Lab Code	MRL	Date Analyzed	Time Test Started		Result	Result Notes
DW-9	K1405057-001	-	5/21/2014	12:00	hrs	Present	

SM *Standard Methods for the Examination of Water and Wastewater* , 20th Ed., 1998.

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking water	**Date Received:**	05/20/14

Hardness as CaCO3

Prep Method:	CLAA	Units:	mg/L (ppm)
Analysis Method:	200.7/SM 2340B	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
DW-9	K1405057-001	0.07	1	05/28/14	05/29/14	75.2	
Method Blank	K1405057-MB	0.07	1	05/28/14	05/29/14	ND	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	05/28/14
		Date Analyzed:	05/29/14

Duplicate Summary
Metals

Sample Name:	Batch QC	Units:	mg/L (ppm)
Lab Code:	K1405061-001D	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Hardness as CaCO3	CLAA	200.7/SM 2340B	0.07	175	180	178	2	

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/14
Sample Matrix:	Drinking water	**Date Received:**	05/20/14

Methyl Mercury

Prep Method:	Method	Units:	ng/L
Analysis Method:	1630	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
DW-9	K1405057-001	0.1	1	06/08/14	06/09/14	ND	
Method Blank 1	K1405057-MB1	0.1	1	06/08/14	06/09/14	ND	
Method Blank 2	K1405057-MB2	0.1	1	06/08/14	06/09/14	ND	
Method Blank 3	K1405057-MB3	0.1	1	06/08/14	06/09/14	ND	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	06/08/14
		Date Analyzed:	06/09/14

Matrix Spike/Duplicate Matrix Spike Summary
Metals

Sample Name:	Batch QC	Units:	ng/L
Lab Code:	K1405054-001MS, K1405054-001MSD	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Spike Level MS	Spike Level DMS	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	CAS Acceptance Limits	Relative Percent Difference	Result Notes
Mercury, Methyl	Method	1630	0.1	2.22	2.22	ND	2.54	2.52	114	114	65-135	<1	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	06/08/14
		Date Analyzed:	06/09/14

Ongoing Precision and Recovery (OPR) Sample Summary

Metals

Sample Name: Ongoing Precision and Recovery (Initial)

Units: ng/L

Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Mercury, Methyl	Method	1630	2.22	2.54	114	67-133	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	06/08/14
		Date Analyzed:	06/09/14

Ongoing Precision and Recovery (OPR) Sample Summary

Metals

Sample Name: Ongoing Precision and Recovery (Final)

Units: ng/L

Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Mercury, Methyl	Method	1630	2.22	2.50	113	67-133	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	06/08/14
		Date Analyzed:	06/09/14

Quality Control Sample (QCS) Summary
Metals

Sample Name: Quality Control Sample

Units: pg
Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Mercury, Methyl	Method	1630	100	106	106	67-133	

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- Cover Page -
INORGANIC ANALYSIS DATA PACKAGE

Client: Longview, City of
Project Name: MFWTP Sentinel Wells
Project No.:

Service Request: K1405057

Sample Name:	Lab Code:
Batch QC1D	K1404917-005D
Batch QC1S	K1404917-005S
Batch QC3D	K1405052-001D
Batch QC3S	K1405052-001S
DW-9	K1405057-001
Method Blank	K1405057-MB
Batch QC2D	K1405061-001D
Batch QC2S	K1405061-001S

Comments:

Metals

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INORGANIC ANALYSIS DATA PACKAGE

Client:	Longview, City of	**Service Request:**	K1405057
Project No.:	NA	**Date Collected:**	05/20/14
Project Name:	MFWTP Sentinel Wells	**Date Received:**	05/20/14
Matrix:	WATER	**Units:**	mg/L
		Basis:	NA

Sample Name: **DW-9** **Lab Code:** **K1405057-001**

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Antimony	200.8	0.00005	1.0	05/23/14	05/27/14	0.00005	U	
Arsenic	200.8	0.0005	1.0	05/23/14	05/27/14	0.0041		
Barium	200.7	0.0040	1.0	05/28/14	05/29/14	0.0093		
Beryllium	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Cadmium	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Chromium	200.8	0.0002	1.0	05/23/14	05/27/14	0.0002		
Copper	200.7	0.004	1.0	05/28/14	05/29/14	0.004	U	
Iron	200.7	0.020	1.0	05/28/14	05/29/14	0.633		
Lead	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Manganese	200.7	0.001	1.0	05/28/14	05/29/14	0.522		
Mercury	245.1	0.0002	1.0	05/29/14	05/29/14	0.0002	U	
Nickel	200.8	0.0002	1.0	05/23/14	05/27/14	0.0004		
Selenium	200.8	0.001	1.0	05/23/14	05/27/14	0.001	U	
Silver	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Sodium	200.7	0.20	1.0	05/28/14	05/29/14	9.03		
Thallium	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Zinc	200.7	0.004	1.0	05/28/14	05/29/14	0.004	U	

Comments:

Metals

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INORGANIC ANALYSIS DATA PACKAGE

Client: Longview, City of
Project No.: NA
Project Name: MFWTP Sentinel Wells
Matrix: WATER

Service Request: K1405057
Date Collected:
Date Received:
Units: mg/L
Basis: NA

Sample Name: Method Blank
Lab Code: K1405057-MB

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Antimony	200.8	0.00005	1.0	05/23/14	05/27/14	0.00005	U	
Arsenic	200.8	0.0005	1.0	05/23/14	05/27/14	0.0005	U	
Barium	200.7	0.0040	1.0	05/28/14	05/29/14	0.0040	U	
Beryllium	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Cadmium	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Chromium	200.8	0.0002	1.0	05/23/14	05/27/14	0.0002	U	
Copper	200.7	0.004	1.0	05/28/14	05/29/14	0.004	U	
Iron	200.7	0.020	1.0	05/28/14	05/29/14	0.020	U	
Lead	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Manganese	200.7	0.001	1.0	05/28/14	05/29/14	0.001	U	
Mercury	245.1	0.0002	1.0	05/29/14	05/29/14	0.0002	U	
Nickel	200.8	0.0002	1.0	05/23/14	05/27/14	0.0002	U	
Selenium	200.8	0.001	1.0	05/23/14	05/27/14	0.001	U	
Silver	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Sodium	200.7	0.20	1.0	05/28/14	05/29/14	0.20	U	
Thallium	200.8	0.00002	1.0	05/23/14	05/27/14	0.00002	U	
Zinc	200.7	0.004	1.0	05/28/14	05/29/14	0.004	U	

Comments:

Metals
- 5A -
SPIKE SAMPLE RECOVERY

Client: Longview, City of
Service Request: K1405057
Project No.: NA
Units: MG/L
Project Name: MFWTP Sentinel Wells
Basis: NA
Matrix: WATER

Sample Name: Batch QC1S
Lab Code: K1404917-005S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Antimony	70 - 130	0.054134		0.000119		0.050000	108		200.8
Arsenic	70 - 130	0.05816		0.00281		0.05000	111		200.8
Beryllium	70 - 130	0.00249		0.00002	U	0.00250	100		200.8
Cadmium	70 - 130	0.02635		0.00002	U	0.025000	105		200.8
Chromium	70 - 130	0.0103		0.0006		0.01000	97		200.8
Lead	70 - 130	0.05020		0.00003		0.050000	100		200.8
Nickel	70 - 130	0.0256		0.0017		0.02500	96		200.8
Selenium	70 - 130	0.055		0.001	U	0.0500	108		200.8
Silver	70 - 130	0.01253		0.00002	U	0.012500	100		200.8
Thallium	70 - 130	0.05210		0.00002	U	0.050000	104		200.8

An empty field in the Control Limit column indicates the control limit is not applicable

Metals
- 5A -
SPIKE SAMPLE RECOVERY

Client: Longview, City of
Service Request: K1405057
Project No.: NA
Units: MG/L
Project Name: MFWTP Sentinel Wells
Basis: NA
Matrix: WATER

Sample Name: Batch QC3S
Lab Code: K1405052-001S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Mercury	80 - 120	0.0010		0.0002	U	0.001	100		245.1

An empty field in the Control Limit column indicates the control limit is not applicable

Metals
- 5A -
SPIKE SAMPLE RECOVERY

Client: Longview, City of
Service Request: K1405057
Project No.: NA
Units: MG/L
Project Name: MFWTP Sentinel Wells
Basis: NA
Matrix: WATER

Sample Name: Batch QC2S
Lab Code: K1405061-001S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Barium	70 - 130	2.1		0.0136		2.00	104.3		200.7
Copper	70 - 130	0.258		0.005		0.25	101.2		200.7
Iron		10.8		9.63		1.00	117.0		200.7
Manganese	70 - 130	1.33		0.812		0.50	103.6		200.7
Sodium	70 - 130	25.5		15.2		10.00	103.0		200.7
Zinc	70 - 130	0.634		0.130		0.50	100.8		200.7

An empty field in the Control Limit column indicates the control limit is not applicable

Metals

- 6 -

DUPLICATES

Client: Longview, City of **Service Request:** K1405057

Project No.: NA **Units:** MG/L

Project Name: MFWTP Sentinel Wells **Basis:** NA

Matrix: WATER

Sample Name: Batch QC1D **Lab Code:** K1404917-005D

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Antimony		0.000119		0.000120		0.8		200.8
Arsenic	20	0.00281		0.00283		0.7		200.8
Beryllium		0.00002	U	0.00002	U			200.8
Cadmium		0.00002	U	0.00002	U			200.8
Chromium		0.0006		0.0006		0.0		200.8
Lead		0.00003		0.00003		0.0		200.8
Nickel	20	0.0017		0.0017		0.0		200.8
Selenium		0.001	U	0.001	U			200.8
Silver		0.00002	U	0.00002	U			200.8
Thallium		0.00002	U	0.00002	U			200.8

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals

- 6 -

DUPLICATES

Client: Longview, City of **Service Request:** K1405057

Project No.: NA **Units:** MG/L

Project Name: MFWTP Sentinel Wells **Basis:** NA

Matrix: WATER

Sample Name: **Batch QC3D** **Lab Code:** **K1405052-001D**

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Mercury		0.0002	U	0.0002	U			245.1

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals

- 6 -

DUPLICATES

Client: Longview, City of **Service Request:** K1405057

Project No.: NA **Units:** MG/L

Project Name: MFWTP Sentinel Wells **Basis:** NA

Matrix: WATER

Sample Name: Batch QC2D **Lab Code:** K1405061-001D

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Barium		0.0136		0.0141		3.6		200.7
Copper		0.005		0.005		0.0		200.7
Iron	20	9.63		9.90		2.8		200.7
Manganese	20	0.812		0.834		2.7		200.7
Sodium	20	15.2		15.5		2.0		200.7
Zinc	20	0.130		0.132		1.5		200.7

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals

- 7 -

LABORATORY CONTROL SAMPLE

Client: Longview, City of **Service Request:** K1405057

Project No.: NA

Project Name: MFWTP Sentinel Wells

Aqueous LCS Source: **ALS MIXED** **Solid LCS Source:**

Analyte	Aqueous (ug/L)			Solid (mg/kg)				
	True	Found	%R	True	Found	C	Limits	%R
Antimony	0.050	0.0526	105					
Arsenic	0.050	0.051	102					
Barium	5	5.1	102.0					
Beryllium	0.003	0.0025	100					
Cadmium	0.025	0.0261	104					
Calcium	12.5	12.5	100.0					
Chromium	0.010	0.0101	101					
Copper	.625	0.627	100.3					
Iron	2.5	2.53	101.2					
Lead	0.050	0.0506	101					
Magnesium	12.5	12.6	100.8					
Manganese	1.25	1.25	100.0					
Mercury	0.005	0.0051	102					
Nickel	0.025	0.0249	100					
Selenium	0.050	0.052	104					
Silver	0.013	0.0125	100					
Sodium	12.5	12.9	103.2					
Thallium	0.050	0.0518	104					
Zinc	1.25	1.28	102.4					

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Analytical Results

Client:	Longview, City of	**Service Request:**
Project:	MFWTP Sentinel Wells	**Date Collected:**
Sample Matrix:	Drinking water	**Date Received:**

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	DW-9	Units:
Lab Code:	K1405057-001	Basis:
Test Notes:		

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result
2,4,6-Trichlorophenol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
2,4,5-Trichlorophenol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND
Trichlorosyringol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
Pentachlorophenol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND
Tetrachloroguaiacol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND
Tetrachlorocatechol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**
Project:	MFWTP Sentinel Wells	**Date Collected:**
Sample Matrix:	Drinking water	**Date Received:**

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	Method Blank	Units:
Lab Code:	KWG1404597-3	Basis:
Test Notes:		

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result
2,4,6-Trichlorophenol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
2,4,5-Trichlorophenol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND
Trichlorosyringol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	1	5/21/2014	5/22/2014	ND
Pentachlorophenol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND
Tetrachloroguaiacol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND
Tetrachlorocatechol	METHOD	1653A	5.0	1	5/21/2014	5/22/2014	ND

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Analytical Results

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	5/21/2014

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

Percent Recovery

Analyte	**CAS Percent Recovery Acceptance Criteria**	Sample Name:	**DW-9**	**Method Blank**
		Lab Code:	K1405057-001	KWG1404597-3
		Date Analyzed:	5/22/2014	5/22/2014
3,4,5-Trichlorophenol	36-131		92	91
4,5,6-Trichloroguaiacol-13c6	25-134		85	86
Pentachlorophenol-13c6	22-117		71	63
Tetrachloroguaiacol-13c6	18-129		77	63
Tetrachlorocatechol-13c6	D-121		30	44

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client: Longview, City of
Project: MFWTP Sentinel Wells
Sample Matrix: Drinking water

Service Request: K1405057
Date Collected: NA
Date Received: NA
Date Extracted: 5/21/2014
Date Analyzed: 5/22/2014

Duplicate Summary
Chlorinated Phenolic Organic Compounds

Sample Name: Batch QC
Lab Code: KWG1404597-1
Test Notes:

Units: ug/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	2.5	ND	ND	ND	-	
2,4,5-Trichlorophenol	METHOD	1653A	2.5	ND	ND	ND	-	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	ND	ND	ND	-	
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	ND	ND	ND	-	
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	ND	ND	ND	-	
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	ND	ND	ND	-	
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	ND	ND	ND	-	
Trichlorosyringol	METHOD	1653A	2.5	ND	ND	ND	-	
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	ND	ND	ND	-	
Pentachlorophenol	METHOD	1653A	5.0	ND	ND	ND	-	
Tetrachloroguaiacol	METHOD	1653A	5.0	ND	ND	ND	-	
Tetrachlorocatechol	METHOD	1653A	5.0	ND	ND	ND	-	

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	5/21/2014
		Date Analyzed:	5/22/2014

Ongoing Precision and Recovery Summary
Chlorinated Phenolic Organic Compounds

Sample Name:	Lab Control Sample	Units:	ug/L (ppb)
Lab Code:	KWG1404597-2	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	50	56.7	113	72-146	
2,4,5-Trichlorophenol	METHOD	1653A	50	58.5	117	82-128	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	50	53.5	107	82-132	
3,4,6-Trichloroguaiacol	METHOD	1653A	50	53.5	107	74-140	
3,4,5-Trichloroguaiacol	METHOD	1653A	50	51.9	104	80-134	
3,4,6-Trichlorocatechol	METHOD	1653A	100	104	104	64-149	
3,4,5-Trichlorocatechol	METHOD	1653A	100	93.7	94	72-128	
Trichlorosyringol	METHOD	1653A	50	42.3	85	66-174	
4,5,6-Trichloroguaiacol	METHOD	1653A	50	51.3	103	88-116	
Pentachlorophenol	METHOD	1653A	100	102	102	84-120	
Tetrachloroguaiacol	METHOD	1653A	100	107	107	81-126	
Tetrachlorocatechol	METHOD	1653A	100	124	124	81-132	

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

EPA Method 504.1

Sample Name:	DW-9	**Units:**	ug/L
Lab Code:	K1405057-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	504.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	0.0097	1	05/28/14	05/28/14	KWG1404828	
1,2,3-Trichloropropane	ND	U	0.098	1	05/28/14	05/28/14	KWG1404828	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.0097	1	05/28/14	05/28/14	KWG1404828	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

EPA Method 504.1

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404828-4	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	504.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	0.0099	1	05/28/14	05/28/14	KWG1404828	
1,2,3-Trichloropropane	ND	U	0.10	1	05/28/14	05/28/14	KWG1404828	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.0099	1	05/28/14	05/28/14	KWG1404828	

Comments:

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/28/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/28/2014

Matrix Spike/Duplicate Matrix Spike Summary
EPA Method 504.1

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	504.1	**Extraction Lot:**	KWG1404828

		Batch QCMS KWG1404828-1 Matrix Spike			Batch QCDMS KWG1404828-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
1,2-Dibromoethane (EDB)	ND	0.244	0.242	101	0.259	0.243	107	65-135	6	30
1,2,3-Trichloropropane	ND	0.192	0.242	79	0.214	0.243	88	65-135	11	30
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.210	0.242	87	0.231	0.243	95	65-135	9	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/28/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/28/2014

Lab Control Spike Summary
EPA Method 504.1

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	504.1	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404828

	Lab Control Sample KWG1404828-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
1,2-Dibromoethane (EDB)	0.264	0.250	106	70-130
1,2,3-Trichloropropane	0.223	0.250	89	70-130
1,2-Dibromo-3-chloropropane (DBCP)	0.230	0.250	92	70-130

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

Pesticides/PCBs by EPA Method 508.1

Sample Name:	DW-9	**Units:**	ug/L
Lab Code:	K1405057-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
gamma-BHC (Lindane)	ND	U	0.0097	1	05/29/14	06/02/14	KWG1404875	
Heptachlor	ND	U	0.0097	1	05/29/14	06/02/14	KWG1404875	
Aldrin	ND	U	0.0097	1	05/29/14	06/02/14	KWG1404875	
Heptachlor Epoxide	ND	U	0.0097	1	05/29/14	06/02/14	KWG1404875	
Heptachlor Epoxide (Isomer A)	ND	U	0.0097	1	05/29/14	06/02/14	KWG1404875	
4,4'-DDE	ND	U	0.0097	1	05/29/14	06/02/14	KWG1404875	
Dieldrin	ND	U	0.0097	1	05/29/14	06/02/14	KWG1404875	
Endrin	ND	U	0.0097	1	05/29/14	06/03/14	KWG1404875	
4,4'-DDD	ND	U	0.0097	1	05/29/14	06/02/14	KWG1404875	
4,4'-DDT	ND	U	0.0097	1	05/29/14	06/02/14	KWG1404875	
Methoxychlor	ND	U	0.0097	1	05/29/14	06/02/14	KWG1404875	
Toxaphene	ND	U	0.097	1	05/29/14	06/02/14	KWG1404875	
Chlordane	ND	U	0.097	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1016	ND	U	0.049	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1221	ND	U	0.097	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1232	ND	U	0.097	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1242	ND	U	0.097	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1248	ND	U	0.097	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1254	ND	U	0.097	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1260	ND	U	0.097	1	05/29/14	06/02/14	KWG1404875	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4,4'-Dibromooctafluorobiphenyl	97	70-130	06/02/14	Acceptable

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Pesticides/PCBs by EPA Method 508.1

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404875-7	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
gamma-BHC (Lindane)	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Heptachlor	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Aldrin	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Heptachlor Epoxide	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Heptachlor Epoxide (Isomer A)	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
4,4'-DDE	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Dieldrin	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Endrin	ND	U	0.010	1	05/29/14	06/04/14	KWG1404875	
4,4'-DDD	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
4,4'-DDT	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Methoxychlor	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Toxaphene	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Chlordane	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1016	ND	U	0.050	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1221	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1232	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1242	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1248	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1254	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1260	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4,4'-Dibromooctafluorobiphenyl	94	70-130	06/02/14	Acceptable

Comments:

Client: Longview, City of
Project: MFWTP Sentinel Wells
Sample Matrix: Drinking water

Service Request: K1405057

Surrogate Recovery Summary
Pesticides/PCBs by EPA Method 508.1

Extraction Method: METHOD
Analysis Method: 508.1

Units: Percent
Level: Low

Sample Name	Lab Code	Sur1
DW-9	K1405057-001	97
Method Blank	KWG1404875-7	94
DW-9MS	KWG1404875-1	88
DW-9DMS	KWG1404875-2	88
Lab Control Sample	KWG1404875-3	87

Surrogate Recovery Control Limits (%)

Sur1	4,4'-Dibromooctafluorobiphenyl	70-130

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/02/2014 - 06/03/2014

Matrix Spike/Duplicate Matrix Spike Summary
Pesticides/PCBs by EPA Method 508.1

Sample Name:	DW-9	**Units:**	ug/L
Lab Code:	K1405057-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1	**Extraction Lot:**	KWG1404875

		DW-9MS KWG1404875-1 Matrix Spike			DW-9DMS KWG1404875-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
gamma-BHC (Lindane)	ND	0.0984	0.0962	102	0.0982	0.0962	102	65-135	0	30
Heptachlor	ND	0.0739	0.0962	77	0.0681	0.0962	71	65-135	8	30
Aldrin	ND	0.0888	0.0962	92	0.0871	0.0962	91	65-135	2	30
Heptachlor Epoxide	ND	0.0836	0.0962	87	0.0782	0.0962	81	65-135	7	30
Heptachlor Epoxide (Isomer A)	ND	0.0893	0.0962	93	0.0848	0.0962	88	65-135	5	30
4,4'-DDE	ND	0.0954	0.0962	99	0.0955	0.0962	99	65-135	0	30
Dieldrin	ND	0.0918	0.0962	95	0.0905	0.0962	94	65-135	1	30
Endrin	ND	0.0807	0.0962	84	0.0791	0.0962	82	65-135	2	30
4,4'-DDD	ND	0.103	0.0962	107	0.103	0.0962	107	65-135	0	30
4,4'-DDT	ND	0.0995	0.0962	103	0.0998	0.0962	104	65-135	0	30
Methoxychlor	ND	0.0990	0.0962	103	0.0949	0.0962	99	65-135	4	30
Aroclor 1248	ND	0.373	0.481	78	0.368	0.481	76	65-135	1	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/02/2014 - 06/04/2014

Lab Control Spike Summary
Pesticides/PCBs by EPA Method 508.1

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	508.1	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404875

	Lab Control Sample KWG1404875-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
gamma-BHC (Lindane)	0.100	0.100	100	70-130
Heptachlor	0.0882	0.100	88	70-130
Aldrin	0.0916	0.100	92	70-130
Heptachlor Epoxide	0.0963	0.100	96	70-130
Heptachlor Epoxide (Isomer A)	0.102	0.100	102	70-130
4,4'-DDE	0.101	0.100	101	70-130
Dieldrin	0.0997	0.100	100	70-130
Endrin	0.104	0.100	104	70-130
4,4'-DDD	0.110	0.100	110	70-130
4,4'-DDT	0.102	0.100	102	70-130
Methoxychlor	0.0965	0.100	97	70-130
Aroclor 1248	0.420	0.500	84	70-130

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

Chlorinated Herbicides by EPA 515.4

Sample Name:	DW-9	**Units:**	ug/L
Lab Code:	K1405057-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	515.4		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dalapon	ND	U	0.50	1	05/30/14	06/03/14	KWG1404919	
3,5-Dichlorobenzoic Acid	ND	U	0.25	1	05/30/14	06/03/14	KWG1404919	
Dicamba	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
Dichlorprop	ND	U	0.25	1	05/30/14	06/03/14	KWG1404919	
2,4-D	ND	U	0.089	1	05/30/14	06/03/14	KWG1404919	
Pentachlorophenol	ND	U	0.020	1	05/30/14	06/03/14	KWG1404919	
2,4,5-TP (Silvex)	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
Chloramben	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
2,4-DB	ND	U	0.50	1	05/30/14	06/03/14	KWG1404919	
Dinoseb	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
Dacthal Diacid	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
Picloram	ND	U	0.091	1	05/30/14	06/03/14	KWG1404919	
Acifluorfen	ND	U	1.0	1	05/30/14	06/03/14	KWG1404919	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2,4-Dichlorophenylacetic Acid	84	70-130	06/03/14	Acceptable

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Chlorinated Herbicides by EPA 515.4

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404919-4	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	515.4		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dalapon	ND	U	0.50	1	05/30/14	06/02/14	KWG1404919	
3,5-Dichlorobenzoic Acid	ND	U	0.25	1	05/30/14	06/02/14	KWG1404919	
Dicamba	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Dichlorprop	ND	U	0.25	1	05/30/14	06/02/14	KWG1404919	
2,4-D	ND	U	0.089	1	05/30/14	06/02/14	KWG1404919	
Pentachlorophenol	ND	U	0.020	1	05/30/14	06/02/14	KWG1404919	
2,4,5-TP (Silvex)	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Chloramben	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
2,4-DB	ND	U	0.50	1	05/30/14	06/02/14	KWG1404919	
Dinoseb	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Dacthal Diacid	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Picloram	ND	U	0.091	1	05/30/14	06/02/14	KWG1404919	
Acifluorfen	ND	U	1.0	1	05/30/14	06/02/14	KWG1404919	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2,4-Dichlorophenylacetic Acid	113	70-130	06/02/14	Acceptable

Comments:

Client: Longview, City of
Project: MFWTP Sentinel Wells
Sample Matrix: Drinking water

Service Request: K1405057

Surrogate Recovery Summary
Chlorinated Herbicides by EPA 515.4

Extraction Method: METHOD
Analysis Method: 515.4

Units: Percent
Level: Low

Sample Name	Lab Code	Sur1
Batch QC	K1405052-001	75
DW-9	K1405057-001	84
Method Blank	KWG1404919-4	113
Batch QCMS	KWG1404919-1	119
Batch QCDMS	KWG1404919-2	115
Lab Control Sample	KWG1404919-3	109

Surrogate Recovery Control Limits (%)

Sur1 = 2,4-Dichlorophenylacetic Acid 70-130

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/30/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/02/2014 - 06/03/2014

Matrix Spike/Duplicate Matrix Spike Summary
Chlorinated Herbicides by EPA 515.4

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	515.4	**Extraction Lot:**	KWG1404919

		Batch QCMS KWG1404919-1 Matrix Spike			Batch QCDMS KWG1404919-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dalapon	ND	2.44	2.49	98	2.48	2.49	99	70-130	1	30
3,5-Dichlorobenzoic Acid	ND	2.41	2.49	97	2.36	2.49	95	70-130	2	30
Dicamba	ND	2.43	2.49	98	2.42	2.49	97	70-130	1	30
Dichlorprop	ND	2.33	2.49	94	2.27	2.49	91	70-130	3	30
2,4-D	ND	2.33	2.49	94	2.31	2.49	93	70-130	1	30
Pentachlorophenol	ND	2.44	2.49	98	2.42	2.49	97	70-130	1	30
2,4,5-TP (Silvex)	ND	2.46	2.49	99	2.46	2.49	99	70-130	0	30
Chloramben	ND	2.54	2.49	102	2.55	2.49	102	70-130	0	30
2,4-DB	ND	2.44	2.49	98	2.41	2.49	97	70-130	1	30
Dinoseb	ND	2.28	2.49	92	2.33	2.49	93	70-130	2	30
Dacthal Diacid	ND	2.75	2.49	110	2.73	2.49	110	70-130	1	30
Picloram	ND	2.60	2.49	104	2.56	2.49	103	70-130	2	30
Acifluorfen	ND	2.41	2.49	97	2.40	2.49	96	70-130	0	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/30/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/02/2014

Lab Control Spike Summary
Chlorinated Herbicides by EPA 515.4

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	515.4	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404919

Lab Control Sample
KWG1404919-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Dalapon	2.39	2.50	95	70-130
3,5-Dichlorobenzoic Acid	2.34	2.50	94	70-130
Dicamba	2.37	2.50	95	70-130
Dichlorprop	2.30	2.50	92	70-130
2,4-D	2.29	2.50	91	70-130
Pentachlorophenol	2.31	2.50	92	70-130
2,4,5-TP (Silvex)	2.41	2.50	96	70-130
Chloramben	2.57	2.50	103	70-130
2,4-DB	2.38	2.50	95	70-130
Dinoseb	2.37	2.50	95	70-130
Dacthal Diacid	2.42	2.50	97	70-130
Picloram	2.32	2.50	93	70-130
Acifluorfen	2.41	2.50	96	70-130

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

Volatile Organic Compounds

Sample Name:	DW-9	**Units:**	ug/L
Lab Code:	K1405057-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Vinyl Chloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromomethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Trichlorofluoromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Methylene Chloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
trans-1,2-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
cis-1,2-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Methyl tert-Butyl Ether	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloroform	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromochloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Carbon Tetrachloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Benzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Trichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromodichloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Dibromomethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
cis-1,3-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Toluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
trans-1,3-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Tetrachloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
2,2-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Dibromochloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Ethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Styrene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
m,p-Xylenes	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

Volatile Organic Compounds

Sample Name:	DW-9	**Units:**	ug/L
Lab Code:	K1405057-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
o-Xylene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,1-Trichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromoform	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Isopropylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
n-Propylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3,5-Trimethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
2-Chlorotoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
4-Chlorotoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
tert-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,4-Trimethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
sec-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
p-Isopropyltoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,4-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
n-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,4-Trichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Hexachlorobutadiene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Naphthalene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,2-Trichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,3-Trichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,3-Trichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

Volatile Organic Compounds

Sample Name:	DW-9	**Units:**	ug/L
Lab Code:	K1405057-001	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	98	70-130	05/29/14	Acceptable
Dibromofluoromethane	94	82-124	05/29/14	Acceptable
Toluene-d8	102	82-124	05/29/14	Acceptable

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404851-5	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Vinyl Chloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromomethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Trichlorofluoromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Methylene Chloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
trans-1,2-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
cis-1,2-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Methyl tert-Butyl Ether	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloroform	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromochloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Carbon Tetrachloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Benzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Trichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromodichloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Dibromomethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
cis-1,3-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Toluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
trans-1,3-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Tetrachloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
2,2-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Dibromochloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Ethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Styrene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
m,p-Xylenes	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404851-5	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
o-Xylene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,1-Trichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromoform	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Isopropylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
n-Propylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3,5-Trimethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
2-Chlorotoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
4-Chlorotoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
tert-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,4-Trimethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
sec-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
p-Isopropyltoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,4-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
n-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,4-Trichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Hexachlorobutadiene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Naphthalene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,2-Trichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,3-Trichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,3-Trichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404851-5	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	99	70-130	05/29/14	Acceptable
Dibromofluoromethane	93	82-124	05/29/14	Acceptable
Toluene-d8	101	82-124	05/29/14	Acceptable

Comments:

Client: Longview, City of **Service Request:** K1405057
Project: MFWTP Sentinel Wells
Sample Matrix: Drinking water

Surrogate Recovery Summary
Volatile Organic Compounds

Extraction Method: METHOD **Units:** Percent
Analysis Method: 524.2 **Level:** Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
Batch QC	K1405052-001	98	93	101
DW-9	K1405057-001	98	94	102
Method Blank	KWG1404851-5	99	93	101
Batch QCMS	KWG1404851-1	100	97	103
Batch QCDMS	KWG1404851-2	103	98	104
Lab Control Sample	KWG1404851-3	102	99	104

Surrogate Recovery Control Limits (%)

Sur1	=	4-Bromofluorobenzene	70-130
Sur2	=	Dibromofluoromethane	82-124
Sur3	=	Toluene-d8	82-124

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/29/2014

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2	**Extraction Lot:**	KWG1404851

		Batch QCMS KWG1404851-1 Matrix Spike			Batch QCDMS KWG1404851-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dichlorodifluoromethane	ND	6.83	5.00	137 *	5.31	5.00	106	70-130	25	30
Chloromethane	ND	5.99	5.00	120	4.99	5.00	100	70-130	18	30
Vinyl Chloride	ND	5.77	5.00	115	4.57	5.00	91	70-130	23	30
Bromomethane	ND	4.87	5.00	97	3.96	5.00	79	70-130	21	30
Chloroethane	ND	6.07	5.00	121	4.94	5.00	99	70-130	21	30
Trichlorofluoromethane	ND	5.48	5.00	110	4.33	5.00	87	70-130	23	30
Methylene Chloride	ND	5.27	5.00	105	4.57	5.00	91	70-130	14	30
trans-1,2-Dichloroethene	ND	5.41	5.00	108	4.49	5.00	90	70-130	19	30
cis-1,2-Dichloroethene	ND	5.35	5.00	107	4.47	5.00	89	70-130	18	30
1,1-Dichloroethene	ND	5.32	5.00	106	4.28	5.00	86	70-130	22	30
Methyl tert-Butyl Ether	ND	10.2	10.0	102	9.03	10.0	90	70-130	12	30
Chloroform	ND	5.21	5.00	104	4.41	5.00	88	70-130	17	30
Bromochloromethane	ND	5.24	5.00	105	4.44	5.00	89	70-130	17	30
Carbon Tetrachloride	ND	4.90	5.00	98	3.96	5.00	79	70-130	21	30
Benzene	ND	5.38	5.00	108	4.50	5.00	90	70-130	18	30
1,2-Dichloroethane	ND	4.99	5.00	100	4.37	5.00	87	70-130	13	30
Trichloroethene	ND	5.10	5.00	102	4.17	5.00	83	70-130	20	30
1,2-Dichloropropane	ND	5.04	5.00	101	4.26	5.00	85	70-130	17	30
Bromodichloromethane	ND	4.41	5.00	88	3.79	5.00	76	70-130	15	30
Dibromomethane	ND	4.80	5.00	96	4.25	5.00	85	70-130	12	30
cis-1,3-Dichloropropene	ND	4.13	5.00	83	3.49	5.00	70	70-130	17	30
1,1-Dichloroethane	ND	5.31	5.00	106	4.43	5.00	89	70-130	18	30
Toluene	ND	5.54	5.00	111	4.61	5.00	92	70-130	18	30
trans-1,3-Dichloropropene	ND	3.69	5.00	74	3.25	5.00	65 *	70-130	13	30
Tetrachloroethene	ND	5.52	5.00	110	4.65	5.00	93	70-130	17	30
1,3-Dichloropropane	ND	5.55	5.00	111	5.01	5.00	100	70-130	10	30
2,2-Dichloropropane	ND	4.94	5.00	99	3.98	5.00	80	70-130	22	30
Dibromochloromethane	ND	4.00	5.00	80	3.54	5.00	71	70-130	12	30
1,2-Dibromoethane (EDB)	ND	4.89	5.00	98	4.42	5.00	88	70-130	10	30
Chlorobenzene	ND	5.51	5.00	110	4.78	5.00	96	70-130	14	30
Ethylbenzene	ND	5.45	5.00	109	4.66	5.00	93	70-130	16	30
Styrene	ND	5.77	5.00	115	4.98	5.00	100	70-130	15	30
m,p-Xylenes	ND	11.5	10.0	115	9.84	10.0	98	70-130	16	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/29/2014

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2	**Extraction Lot:**	KWG1404851

		Batch QCMS KWG1404851-1 Matrix Spike			Batch QCDMS KWG1404851-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
o-Xylene	ND	5.60	5.00	112	4.85	5.00	97	70-130	14	30
Bromoform	ND	4.15	5.00	83	3.65	5.00	73	70-130	13	30
1,1,2,2-Tetrachloroethane	ND	4.17	5.00	83	3.74	5.00	75	70-130	11	30
1,1,1-Trichloroethane	ND	4.88	5.00	98	4.02	5.00	80	70-130	19	30
Isopropylbenzene	ND	5.78	5.00	116	4.87	5.00	97	70-130	17	30
1,1-Dichloropropene	ND	5.34	5.00	107	4.31	5.00	86	70-130	21	30
Bromobenzene	ND	4.31	5.00	86	3.81	5.00	76	70-130	12	30
n-Propylbenzene	ND	4.47	5.00	89	3.85	5.00	77	70-130	15	30
1,3,5-Trimethylbenzene	ND	4.76	5.00	95	4.13	5.00	83	70-130	14	30
2-Chlorotoluene	ND	4.50	5.00	90	3.95	5.00	79	70-130	13	30
4-Chlorotoluene	ND	4.85	5.00	97	4.20	5.00	84	70-130	14	30
tert-Butylbenzene	ND	5.17	5.00	103	4.39	5.00	88	70-130	16	30
1,2,4-Trimethylbenzene	ND	5.60	5.00	112	4.84	5.00	97	70-130	15	30
sec-Butylbenzene	ND	5.62	5.00	112	4.76	5.00	95	70-130	17	30
p-Isopropyltoluene	ND	5.89	5.00	118	4.96	5.00	99	70-130	17	30
1,3-Dichlorobenzene	ND	5.12	5.00	102	4.47	5.00	89	70-130	14	30
1,4-Dichlorobenzene	ND	5.13	5.00	103	4.49	5.00	90	70-130	13	30
n-Butylbenzene	ND	5.51	5.00	110	4.64	5.00	93	70-130	17	30
1,2-Dichlorobenzene	ND	5.32	5.00	106	4.74	5.00	95	70-130	12	30
1,2-Dibromo-3-chloropropane (DBCP)	ND	4.16	5.00	83	3.68	5.00	74	70-130	12	30
1,2,4-Trichlorobenzene	ND	4.48	5.00	90	3.98	5.00	80	70-130	12	30
Hexachlorobutadiene	ND	4.70	5.00	94	3.98	5.00	80	70-130	17	30
Naphthalene	ND	4.09	5.00	82	3.72	5.00	74	70-130	9	30
1,1,2-Trichloroethane	ND	5.03	5.00	101	4.53	5.00	91	70-130	10	30
1,1,1,2-Tetrachloroethane	ND	4.69	5.00	94	4.01	5.00	80	70-130	16	30
1,2,3-Trichloropropane	ND	4.81	5.00	96	4.41	5.00	88	70-130	9	30
1,2,3-Trichlorobenzene	ND	4.73	5.00	95	4.27	5.00	85	70-130	10	30

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/29/2014

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	524.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404851

Lab Control Sample
KWG1404851-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Dichlorodifluoromethane	5.94	5.00	119	70-130
Chloromethane	5.27	5.00	105	70-130
Vinyl Chloride	5.03	5.00	101	70-130
Bromomethane	4.33	5.00	87	70-130
Chloroethane	5.27	5.00	105	70-130
Trichlorofluoromethane	4.91	5.00	98	70-130
Methylene Chloride	5.02	5.00	100	70-130
trans-1,2-Dichloroethene	4.85	5.00	97	70-130
1,1-Dichloroethene	4.67	5.00	93	70-130
cis-1,2-Dichloroethene	4.85	5.00	97	70-130
Methyl tert-Butyl Ether	10.3	10.0	103	70-130
Chloroform	4.86	5.00	97	70-130
Bromochloromethane	4.84	5.00	97	70-130
Carbon Tetrachloride	4.56	5.00	91	70-130
Benzene	4.90	5.00	98	70-130
1,2-Dichloroethane	4.74	5.00	95	70-130
Trichloroethene	4.61	5.00	92	70-130
1,2-Dichloropropane	4.66	5.00	93	70-130
Bromodichloromethane	4.29	5.00	86	70-130
Dibromomethane	4.63	5.00	93	70-130
cis-1,3-Dichloropropene	4.07	5.00	81	70-130
1,1-Dichloroethane	4.84	5.00	97	70-130
Toluene	5.00	5.00	100	70-130
trans-1,3-Dichloropropene	3.67	5.00	73	70-130
Tetrachloroethene	4.98	5.00	100	70-130
2,2-Dichloropropane	4.48	5.00	90	70-130
1,3-Dichloropropane	5.26	5.00	105	70-130
Dibromochloromethane	4.01	5.00	80	70-130
1,2-Dibromoethane (EDB)	4.81	5.00	96	70-130
Chlorobenzene	5.04	5.00	101	70-130
Ethylbenzene	4.95	5.00	99	70-130
Styrene	5.16	5.00	103	70-130
m,p-Xylenes	10.4	10.0	104	70-130
o-Xylene	5.08	5.00	102	70-130
1,1,2,2-Tetrachloroethane	3.98	5.00	80	70-130

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Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/29/2014

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	524.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404851

Lab Control Sample
KWG1404851-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Bromoform	4.07	5.00	81	70-130
1,1,1-Trichloroethane	4.60	5.00	92	70-130
Isopropylbenzene	5.20	5.00	104	70-130
1,1-Dichloropropene	4.78	5.00	96	70-130
Bromobenzene	4.00	5.00	80	70-130
n-Propylbenzene	4.02	5.00	80	70-130
1,3,5-Trimethylbenzene	4.28	5.00	86	70-130
2-Chlorotoluene	4.11	5.00	82	70-130
4-Chlorotoluene	4.38	5.00	88	70-130
tert-Butylbenzene	4.65	5.00	93	70-130
1,2,4-Trimethylbenzene	5.02	5.00	100	70-130
sec-Butylbenzene	5.01	5.00	100	70-130
p-Isopropyltoluene	5.29	5.00	106	70-130
1,3-Dichlorobenzene	4.70	5.00	94	70-130
1,4-Dichlorobenzene	4.65	5.00	93	70-130
n-Butylbenzene	4.90	5.00	98	70-130
1,2-Dichlorobenzene	4.99	5.00	100	70-130
1,2-Dibromo-3-chloropropane (DBCP)	4.11	5.00	82	70-130
1,2,4-Trichlorobenzene	4.29	5.00	86	70-130
Hexachlorobutadiene	4.24	5.00	85	70-130
Naphthalene	4.02	5.00	80	70-130
1,1,2-Trichloroethane	4.88	5.00	98	70-130
1,1,1,2-Tetrachloroethane	4.56	5.00	91	70-130
1,2,3-Trichloropropane	4.98	5.00	100	70-130
1,2,3-Trichlorobenzene	4.51	5.00	90	70-130

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

Semivolatile Organics by EPA Method 525.2

Sample Name:	DW-9	**Units:**	ug/L
Lab Code:	K1405057-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	525.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Hexachlorocyclopentadiene	ND	U	0.097	1	05/29/14	06/09/14	KWG1404877	
Fluorene	ND	U	0.049	1	05/29/14	06/09/14	KWG1404877	
Propachlor	ND	U	0.097	1	05/29/14	06/09/14	KWG1404877	
Hexachlorobenzene	ND	U	0.097	1	05/29/14	06/09/14	KWG1404877	
Simazine	ND	U	0.049	1	05/29/14	06/09/14	KWG1404877	
Atrazine	ND	U	0.097	1	05/29/14	06/09/14	KWG1404877	
Metribuzin	ND	U	0.20	1	05/29/14	06/09/14	KWG1404877	
Alachlor	ND	U	0.070	1	05/29/14	06/09/14	KWG1404877	
Bromacil	ND	U	0.20	1	05/29/14	06/09/14	KWG1404877	
Metolachlor	ND	U	0.087	1	05/29/14	06/09/14	KWG1404877	
Butachlor	ND	U	0.097	1	05/29/14	06/09/14	KWG1404877	
Bis(2-ethylhexyl) Adipate	ND	U	0.58	1	05/29/14	06/09/14	KWG1404877	
Bis(2-ethylhexyl) Phthalate	ND	U	0.58	1	05/29/14	06/09/14	KWG1404877	
Benzo(a)pyrene	ND	U	0.020	1	05/29/14	06/09/14	KWG1404877	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,3-Dimethyl-2-nitrobenzene	119	70-130	06/09/14	Acceptable
Triphenyl Phosphate	91	70-130	06/09/14	Acceptable
Perylene-d12	99	70-130	06/09/14	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Ocean water	**Date Received:**	NA

Semivolatile Organics by EPA Method 525.2

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404877-4	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	525.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Hexachlorocyclopentadiene	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Fluorene	ND	U	0.050	1	05/29/14	06/09/14	KWG1404877	
Propachlor	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Hexachlorobenzene	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Simazine	ND	U	0.050	1	05/29/14	06/09/14	KWG1404877	
Atrazine	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Metribuzin	ND	U	0.20	1	05/29/14	06/09/14	KWG1404877	
Alachlor	ND	U	0.072	1	05/29/14	06/09/14	KWG1404877	
Bromacil	ND	U	0.20	1	05/29/14	06/09/14	KWG1404877	
Metolachlor	ND	U	0.090	1	05/29/14	06/09/14	KWG1404877	
Butachlor	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Bis(2-ethylhexyl) Adipate	ND	U	0.60	1	05/29/14	06/09/14	KWG1404877	
Bis(2-ethylhexyl) Phthalate	ND	U	0.60	1	05/29/14	06/09/14	KWG1404877	
Benzo(a)pyrene	ND	U	0.020	1	05/29/14	06/09/14	KWG1404877	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,3-Dimethyl-2-nitrobenzene	119	70-130	06/09/14	Acceptable
Triphenyl Phosphate	77	70-130	06/09/14	Acceptable
Perylene-d12	82	70-130	06/09/14	Acceptable

Comments:

Client: Longview, City of **Service Request:** K1405057
Project: MFWTP Sentinel Wells
Sample Matrix: Drinking water

Surrogate Recovery Summary
Semivolatile Organics by EPA Method 525.2

Extraction Method: METHOD **Units:** Percent
Analysis Method: 525.2 **Level:** Low

Sample Name	Lab Code	Sur1	Sur2	Sur3	
Batch QC	K1405054-001	126	96	77	
DW-9	K1405057-001	119	91	99	
Method Blank	KWG1404877-4	119	77	82	
Batch QCMS	KWG1404877-1	118	107	95	
Batch QCDMS	KWG1404877-2	120	101	66	*
Lab Control Sample	KWG1404877-3	116	106	95	

Surrogate Recovery Control Limits (%)

Sur1	=	1,3-Dimethyl-2-nitrobenzene	70-130
Sur2	=	Triphenyl Phosphate	70-130
Sur3	=	Perylene-d12	70-130

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/09/2014

Matrix Spike/Duplicate Matrix Spike Summary
Semivolatile Organics by EPA Method 525.2

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405054-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	525.2	**Extraction Lot:**	KWG1404877

		Batch QCMS KWG1404877-1 Matrix Spike			Batch QCDMS KWG1404877-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Hexachlorocyclopentadiene	ND	1.06	0.971	109	1.09	0.971	112	70-130	3	30
Fluorene	ND	1.04	0.971	107	1.06	0.971	110	70-130	2	30
Propachlor	ND	0.931	0.971	96	0.920	0.971	95	70-130	1	30
Hexachlorobenzene	ND	1.02	0.971	105	1.01	0.971	104	70-130	1	30
Simazine	ND	0.728	0.971	75	0.705	0.971	73	70-130	3	30
Atrazine	ND	0.774	0.971	80	0.703	0.971	72	70-130	10	30
Metribuzin	ND	1.02	0.971	105	0.993	0.971	102	70-130	3	30
Alachlor	ND	0.880	0.971	91	0.861	0.971	89	70-130	2	30
Bromacil	ND	1.04	0.971	108	0.994	0.971	102	70-130	5	30
Metolachlor	ND	0.888	0.971	91	0.863	0.971	89	70-130	3	30
Butachlor	ND	0.992	0.971	102	0.967	0.971	100	70-130	3	30
Bis(2-ethylhexyl) Adipate	ND	1.01	0.971	104	0.964	0.971	99	70-130	4	30
Bis(2-ethylhexyl) Phthalate	ND	1.05	0.971	108	1.05	0.971	108	70-130	0	30
Benzo(a)pyrene	ND	0.631	0.971	65 *	0.216	0.971	22 *	70-130	98 *	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Ocean water	**Date Analyzed:**	06/09/2014

Lab Control Spike Summary
Semivolatile Organics by EPA Method 525.2

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	525.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404877

	Lab Control Sample KWG1404877-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Hexachlorocyclopentadiene	1.04	1.00	104	70-130
Fluorene	1.08	1.00	108	70-130
Propachlor	0.930	1.00	93	70-130
Hexachlorobenzene	1.06	1.00	106	70-130
Simazine	0.903	1.00	90	70-130
Atrazine	0.865	1.00	87	70-130
Metribuzin	1.03	1.00	103	70-130
Alachlor	0.914	1.00	91	70-130
Bromacil	0.960	1.00	96	70-130
Metolachlor	0.944	1.00	94	70-130
Butachlor	1.08	1.00	108	70-130
Bis(2-ethylhexyl) Adipate	0.969	1.00	97	70-130
Bis(2-ethylhexyl) Phthalate	1.03	1.00	103	70-130
Benzo(a)pyrene	1.02	1.00	102	70-130

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

Endothall by EPA Method 548.1

Sample Name:	DW-9	**Units:**	ug/L
Lab Code:	K1405057-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	548.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Endothall	ND	U	5.0	1	05/21/14	05/27/14	KWG1404615	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Endothall by EPA Method 548.1

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404615-4	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	548.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Endothall	ND	U	5.0	1	05/21/14	05/27/14	KWG1404615	

Comments:

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/21/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/27/2014

Matrix Spike/Duplicate Matrix Spike Summary
Endothall by EPA Method 548.1

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	548.1	**Extraction Lot:**	KWG1404615

		Batch QCMS KWG1404615-1 Matrix Spike			Batch QCDMS KWG1404615-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Endothall	ND	113	100	113	128	100	128	30-142	12	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/21/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/27/2014

Lab Control Spike Summary
Endothall by EPA Method 548.1

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	548.1	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404615

	Lab Control Sample KWG1404615-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Endothall	140	100	140	30-142

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	05/20/2014
Sample Matrix:	Drinking water	**Date Received:**	05/20/2014

Diquat and Paraquat by EPA Method 549.2

Sample Name:	DW-9	**Units:**	ug/L
Lab Code:	K1405057-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	549.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diquat	ND	U	0.40	1	05/27/14	05/30/14	KWG1404738	
Paraquat	ND	U	0.80	1	05/27/14	05/30/14	KWG1404738	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Diquat and Paraquat by EPA Method 549.2

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404738-5	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	549.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diquat	ND	U	0.40	1	05/27/14	05/30/14	KWG1404738	
Paraquat	ND	U	0.80	1	05/27/14	05/30/14	KWG1404738	

Comments:

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/27/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/30/2014

Matrix Spike/Duplicate Matrix Spike Summary
Diquat and Paraquat by EPA Method 549.2

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405130-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	549.2	**Extraction Lot:**	KWG1404738

		Batch QCMS KWG1404738-1 Matrix Spike			Batch QCDMS KWG1404738-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Diquat	ND	12.0	12.0	100	11.9	12.0	100	70-130	0	30
Paraquat	ND	11.0	12.0	92	11.2	12.0	94	70-130	2	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405057
Project:	MFWTP Sentinel Wells	**Date Extracted:**	05/27/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/30/2014

Lab Control Spike Summary
Diquat and Paraquat by EPA Method 549.2

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	549.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404738

	Lab Control Sample KWG1404738-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Diquat	11.0	12.0	91	70-130
Paraquat	10.1	12.0	84	70-130

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.

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LABORATORY REPORT

May 31, 2014

Jeff Coleman
Longview, City of
W/S Operation Center
Longview, WA 98632

RE: MFWTP Sentinel Wells

Dear Jeff:

Enclosed are the results of the sample submitted to our laboratory on May 20, 2014. For your reference, this analysis has been assigned our service request number K1405057.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 10:03 am, May 31, 2014

For Kate Aguilera
Project Manager

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Simi Valley, CA 93065
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www.alsglobal.com

Client: Longview, City of
Project: MFWTP Sentinel Wells

Service Request No: K1405057

CASE NARRATIVE

The sample was received intact under chain of custody on May 20, 2014 and was stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the sample at the time of sample receipt.

Hydrogen Sulfide Analysis

The sample was analyzed for hydrogen sulfide using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

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ALS Environmental – Simi Valley

Certifications, Accreditations, and Registrations

Agency	Web Site	Number
AIHA	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
DoD ELAP	http://www.pjlabs.com/search-accredited-labs	L14-2
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2012039
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	643428
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	CA200007
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-13-4
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA016272013-3
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

Intra-Network Chain of Custody

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

ALS Contact: Chris Leaf

Project Name: MFWTP Sentinel Wells
Project Number:
Project Manager: Jeff Coleman
Company: Longview, City of

Lab Code	Client Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Date Received	Send To	Sulfur / Sulfur Liq
K1405057-001	DW-9	3	Drinking Water	5/20/14	0930	5/20/14	SIMIVALLEY	II

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

CL 5/21/14

pH Checked _____

Turnaround Requirements
____RUSH (Surcharges Apply)
PLEASE CIRCLE WORK DAYS
1 2 3 4 5
__✓__ **STANDARD**
Requested FAX Date: _____
Requested Report Date: 06/06/14

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

Invoice Information
CS 2K
4°C Wet Ice TB
PO# K1405057
Bill to

Relinquished By: JW 5/21/14 1210 Received By: 0930 Airbill Number: _____

ALS Environmental
Sample Acceptance Check Form

Client: Longview, City of Work order: K1405057

Project: MFWTP Sentinel Wells

Sample(s) received on: 5/22/14 Date opened: 5/22/14 by: MZAMORA

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Container(s) **supplied by ALS**?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: ° C Blank Temperature: 4° C **Gel Packs**			
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☒	☐	☐
	Location of seal(s)? Top of cooler, down the front. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☒	☐	☐
	Is there a client indication that the submitted samples are **pH** preserved?	☒	☐	☐
	Were **VOA vials** checked for presence/absence of air bubbles?	☒	☐	☐
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☒	☐	☐
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
K1405057-001.01	40mL VOA NP		7	1	A	MC 5/27/2014
K1405057-001.02	40mL VOA NP				A	
K1405057-001.03	40mL VOA NP				A	

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Longview, City of**
Client Project ID: **MFWTP Sentinel Wells** ALS Project ID: K1405057

Hydrogen Sulfide

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 7890A/GC22/SCD Date(s) Collected: 5/20/14
Analyst: Mike Conejo Date Received: 5/20/14
Sample Type: Drinking Water Date Analyzed: 5/27/14
Test Notes:

Client Sample ID	ALS Sample ID	Sample Amount ml(s)	Purge Volume Liter(s)	Injection Volume ml(s)	**Result µg/L**	MRL µg/L	Data Qualifier
DW-9	K1405057-001	10.0	0.30	1.00	ND	0.84	
Method Blank	P140527-MB	10.0	0.30	1.0	ND	0.84	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Longview, City of**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **MFWTP Sentinel Wells**

ALS Project ID: K1405057
ALS Sample ID: P140527-DLCS

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Mike Conejo
Sample Type: Drinking Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 5/27/14
Liquid Amount: 10.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume: 0.20 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result LCS ug/L	Result DLCS ug/L	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
7783-06-4	Hydrogen Sulfide	428	414	438	**97**	**102**	54-133	5	20	

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 421 , WV 343

May 30, 2014

Ms. Chris Leaf
ALS Environmental - Kelso
1317 S. 13th Avenue
Kelso, WA 98626

Certificate of Analysis

Project Name:	**SOCs**	Workorder:	**2008316**
Purchase Order:	**K1405057**	Workorder ID:	**K1405057**

Dear Ms. Leaf:

Enclosed are the analytical results for samples received by the laboratory on Thursday, May 22, 2014.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Mrs. Kelli L Wolfgang (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

This laboratory report may not be reproduced, except in full, without the written approval of ALS Environmental.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

Kelli Wolfgang

Mrs. Kelli L Wolfgang
Project Coordinator

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 421 , WV 343

SAMPLE SUMMARY

Workorder: 2008316 K1405057

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2008316001	K1405057-001	Drinking Water	5/20/2014 09:30	5/22/2014 09:00	Collected by Client

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 421 , WV 343

ANALYTICAL RESULTS

Workorder: 2008316 K1405057

Lab ID: **2008316001** Date Collected: 5/20/2014 09:30 Matrix: Drinking Water

Sample ID: **K1405057-001** Date Received: 5/22/2014 09:00

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
HERBICIDES										
Glyphosate	ND		ug/L	4.5	EPA 547	5/28/14	CGS	5/28/14 17:56	CGS	C
CARBAMATES										
Aldicarb	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 04:09	CGS	A
Aldicarb Sulfone	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 04:09	CGS	A
Aldicarb Sulfoxide	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 04:09	CGS	A
Carbaryl	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 04:09	CGS	A
Carbofuran	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 04:09	CGS	A
3-Hydroxycarbofuran	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 04:09	CGS	A
Methiocarb	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 04:09	CGS	A
Methomyl	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 04:09	CGS	A
Oxamyl	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 04:09	CGS	A
Propoxur	0.0		ug/L		EPA 531.1	5/30/14	CGS	5/30/14 04:09	CGS	A

Kelli Wolfgang

Mrs. Kelli L Wolfgang
Project Coordinator

KW

ALS Environmental Chain of Custody

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

ALS Contact: Chris Leaf

2008316

Project Number: K1405057
Project Manager: Chris Leaf

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	CARBAM 531.1	GLYPH 547
K1405057-001	DW-9	4	Drinking Water	5 20 14	0930	Middletown	X	X

	Y	N	Initials
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Lbls Complete			
Cont in Good Cond?			
Correct Containers?			
Correct Samp Vol?			
Correct Preservation?			
Headspace/Volatiles?			

Cooler Temp: ____ °C
Cooler #: ____
Therm ID: TH-09
Ship Carrier: FedEx UPS DHL
Tracking #: 5478 9733 6462

Test Comments
CARBAM - 531.1 K1405057-001 Full list for WA Regulations - no compliance report required.

KW 5/22/14 1740

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

5/21/14

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: 06/06/14

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

Invoice Information
PO# K1405057 ✓
Bill to

Relinquished By: 5/21/14
Received By: ALS 5-22-14 0900
Airbill Number:

✓ **Ship To: Middletown**
ALS Laboratory Group
34 Dogwood Lane
Middletown, PA 17057

PC _____ Date 5/21/14
SMO _____ Date 5/21/14

Instructions:
Ice ✓
Dry Ice _____
No Ice _____

Shipping:
Overnight ✓
2nd Day _____
Ground _____

Bill to Client Account _____

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

June 26, 2014 Analytical Report for Service Request No: K1405123

Jeff Coleman
Longview, City of
W/S Operation Center
P.O. Box 128
Longview, WA 98632

RE: Sentinel Wells

Dear Jeff:

Enclosed are the results of the samples submitted to our laboratory on May 21, 2014. For your reference, these analyses have been assigned our service request number K1405123.

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 call if you have any questions. My extension is 3275. You may also contact me via Email at Chris.Leaf@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Chris Leaf
Project Manager

CL/aj

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 DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	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	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
ISO 17025	http://www.pjlabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	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	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	4704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
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.

ALS ENVIRONMENTAL

Client:	Longview, City of	**Service Request No.:**	K1405123
Project:	MFWTP Sentinel Wells	**Date Received:**	05/21/14
Sample Matrix:	Drinking Water		

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

One drinking water sample was received for analysis at ALS Environmental on 05/21/14. The sample was received in good condition and consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4ºC upon receipt at the laboratory.

General Chemistry Parameters

Total Cyanide by EPA Method 335.4:
The matrix spike recovery for sample Batch QC was outside control criteria because of suspected matrix interference. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. No further corrective action was taken.

No other anomalies associated with the analysis of this sample were observed.

Total Metals

Matrix Spike Recovery Exceptions:
The control criteria for matrix spike recovery of Iron for the Batch QC2 sample were not applicable. The analyzed concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

No other anomalies associated with the analysis of this sample were observed.

Chlorinated Phenols by EPA Method 1653

No anomalies associated with the analysis of this sample were observed.

EDB and DBCP by EPA Method 504.1

No anomalies associated with the analysis of this sample were observed.

Approved by_____

Pesticides and Polychlorinated Biphenyls by EPA Method 508.1

Calibration Verification Exceptions:
The analysis of Chlorinated Pesticides and PCB Aroclors by EPA 508.1 requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for Endrin in CCV file 0603014. The results were reported from the column with an acceptable CCV. The data quality was not affected. No further corrective action was necessary.

No other anomalies associated with the analysis of this sample were observed.

Chlorinated Acides by EPA Method 515.4

No anomalies associated with the analysis of this sample were observed.

Volatile Organic Compounds by EPA Method 524.2

Matrix Spike Recovery Exceptions:
The matrix spike recovery of Dichlorodifluoromethane for sample Batch QCMS KWG1404851-1 and the duplicate matrix spike recovery of trans-1,3-Dichloropropene for sample Batch QCDMS KWG1404851-2 were outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential bias in this matrix. No further corrective action was appropriate.

No other anomalies associated with the analysis of this sample were observed.

Semivolatile Organic Compounds by EPA Method 525.2

Matrix Spike Recovery Exceptions:
The matrix spike recovery of Benz(a)pyrene and duplicate matrix spike recovery of Benz(a)pyrene and Perylene-d12 for sample DW-1 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outliers suggested a potential low bias in this matrix. No further corrective action was appropriate.

Relative Percent Difference Exceptions:
The Relative Percent Difference (RPD) for Benz(a)pyrene in the replicate matrix spike analyses of DW-1 was outside control criteria.

No other anomalies associated with the analysis of this sample were observed.

Endothall by EPA Method 548.1

No anomalies associated with the analysis of this sample were observed.

Diquat by High Performance Liquid Chromatography

Sample Notes and Discussion:
The recovery of Paraquat in the MRL-level Lab fortified Blank (LFB) KWG1404738-4 was below the ALS advisory criteria of 50-150%. The recovery met the MRL verification criteria specified in the EPA manual. Additionally, recovery was acceptable in the Lab Control Sample (LCS) which indicated the analytical batch was in control. The data quality was not significantly affected. No further corrective action was required.

No other anomalies associated with the analysis of these samples were observed.

Approved by_____

Sulfur

This analysis was performed at ALS Environmental, Simi Valley, CA. The data for this analysis is included in the corresponding section of this report.

Carbamates and Glyphosate

These analyses were performed at ALS Environmental, Middletown, PA. The data for these analyses is included in the corresponding section of this report.

Approved by_____

ALS Environmental

CHAIN OF CUSTODY
49246

001, 005

SR# K1403125

COC Set____of____

COC#_____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: Sentinel Wells | Project Number:
Project Manager: Jeff Coleman
Company: City of Longview
Address: PO Box 128 Longview WA 98632
Phone # | email
Sampler Signature: T Daly | Sampler Printed Name: T Daly

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	6H: SM 9223 B / Coli L (+/-)	48H: 180.1 / Turbidity	48H: 300.0 / NO2	48H: 300.0 / NO3	48H: SM 2120 B / Color	48H: SM 4500-P E / O Phos	7D: 548.1 / ENDO	7D: 549.2 / DIQ_PARAQ	7D: SM 2540 C / TDS	14D: 335.4 / CN T	14D: 504.1 / EDB DBCP 123TCP	14D: 508.1 / PEST_CL	14D: 515.4 / CL_ACID_HERB	14D: 524.2 / VOC	14D: 525.2 / SVO	14D: 547 / GLYPH	14D: SM 2320 B / Alkalinity Titr	14D: Sulfur Liq / Sulfur	28D: 300.0 / Chloride	28D: 300.0 / F	28D: 314.0 / ClO4	28D: 531.1 / CARBAM	28D: SM 2510 B / Conductivity	Remarks
1. DWS		5/21/14	0920		39																								
2. Temp Blanks					2																								
3.																													
4.																													
5.																													
6.																													
7.																													
8.																													
9.																													
10.																													

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. CLP Like Summary (no raw data)
___ IV. Data Validation Report
___ V. EDD

Invoice Information

P.O.# 36-4330
Bill To: City of Longview
PO Box 128
Longview WA 98632

Turnaround Requirements

___ 24 hr. ___ 48 hr.
___ 5 Day
___ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: David R. Matney	Signature: Karla Smith	Signature	Signature	Signature	Signature
Printed Name: DAVID MATNEY	Printed Name: KARLA SMITH	Printed Name	Printed Name	Printed Name	Printed Name
Firm: City of Longview	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 5/21/14 3:20	Date/Time: 5/21/14 1520	Date/Time	Date/Time	Date/Time	Date/Time

ALS Environmental

CHAIN OF CUSTODY
49246

001, 005

SR# K1405169

COC Set____of____

COC#_____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: Sentinel Wells | Project Number:

Project Manager: Jeff Coleman

Company: City of Longview

Address: PO Box 128 Longview WA 98632

Phone # | email

Sampler Signature: J Daly | Sampler Printed Name

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	28D: 245.1 / Hg T	28D: 300.0 / Br	28D: 300.0 / SO4	28D: 350.1 / Ammonia T	30D: 1653A / CHLOR_PHEN	180D: 1630 / Methyl Hg T	180D: 200.7 / Metals T	180D: 200.8 / Metals T	999D: Calculation / NO2 NO3 Calc	999D: SM 2340 B / Hardness Calc	1	2	3	4	5	Remarks
1. DW-5		5/21/14	0920			X									X						
2.																					
3.																					
4.																					
5.																					
6.																					
7.																					
8.																					
9.																					
10.																					

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. CLP Like Summary (no raw data)

___ IV. Data Validation Report

___ V. EDD

Invoice Information

P.O.# 36-4330

Bill To: City of Longview
PO Box 128
Longview WA 98632

Turnaround Requirements

___ 24 hr. ___ 48 hr.
___ 5 Day
___ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other_____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: D R. Matney	Signature: Karla Smith	Signature	Signature	Signature	Signature
Printed Name: DAVID MATNEY	Printed Name: Karla Smith	Printed Name	Printed Name	Printed Name	Printed Name
Firm: City of Longview	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 5/21/14 3:20	Date/Time: 5/21/14 1520	Date/Time	Date/Time	Date/Time	Date/Time

PC CL

Cooler Receipt and Preservation Form

Client / Project: City of LV Service Request *K14* 05123

Received: 5/21/14 Opened: 5/21/14 By: [signature] Unloaded: 5/21/14 By: [signature]

1. Samples were received via? *Mail* *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
9.3	9.1	13.4	13.2	0.2	345			

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. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
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

Notes, Discrepancies, & Resolutions: _____

Page ____ *of* ____

PC 01

Cooler Receipt and Preservation Form

Client / Project: City of LV Service Request K14 05123

Received: 5/21/14 Opened: 5/21/14 By: RV Unloaded: 5/21/14 By: JLC

1. Samples were received via? *Mail* *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
10.2	10.3	7.7	7.8	+0.1	340			
8.8	8.8	13.1	13.1	0	335			
8.7	8.7	9.0	9.0	0	333			
9.9	9.9	7.1	7.1	0	336			
10.6	10.5	9.9	9.8	-0.1	276			

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. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.*	NA	(Y)	N
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

SHORT HOLD TIME

Notes, Discrepancies, & Resolutions: No metals circled assigned by project profile. - CL 5/23/14.

*Page*____ *of*____

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	180.1	**Units:**	NTU
Prep Method:	None	**Basis:**	NA

Turbidity

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW5	K1405123-002	**0.93**	0.20	1	05/22/14 15:40	
Method Blank	K1405123-MB1	ND U	0.20	1	05/22/14 15:36	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW5	**Units:**	NTU
Lab Code:	K1405123-002	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405123-002DUP Result	Average	RPD	RPD Limit
Turbidity	180.1	0.20	0.93	0.92	0.924	<1	20

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Turbidity

Analysis Method:	180.1	**Units:**	NTU
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	394139

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405123-LCS1	5.83	5.80	101	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Bromide

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW5	K1405123-002	ND U	0.20	2	05/22/14 10:11	
Method Blank	K1405123-MB1	ND U	0.10	1	05/22/14 07:49	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary

General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405607-12DUP Result	Average	RPD	RPD Limit
Bromide	300.0	0.20	ND	ND	NC	NC	20

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

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

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/22/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Bromide

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405607-12MS			Duplicate Matrix Spike KQ1405607-12DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Bromide	ND U	3.96	4.00	99	3.97	4.00	99	90-110	<1	20

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Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Bromide

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393762

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405123-LCS1	2.32	2.50	93	90-110

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Chloride

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW5	K1405123-002	**31.2**	4.0	20	05/22/14 12:03	
Method Blank	K1405123-MB1	ND U	0.20	1	05/22/14 07:49	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405607-12DUP Result	Average	RPD	RPD Limit
Chloride	300.0	0.40	4.85	4.84	4.84	<1	20

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/22/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Chloride

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405607-12MS			Duplicate Matrix Spike KQ1405607-12DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Chloride	4.85	9.08	4.00	106	9.07	4.00	106	90-110	<1	20

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

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Chloride

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393762

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405123-LCS1	4.70	5.00	94	90-110

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Fluoride

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW5	K1405123-002	ND U	0.20	2	05/22/14 10:11	
Method Blank	K1405123-MB1	ND U	0.10	1	05/22/14 07:49	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary

General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405607-12DUP Result	Average	RPD	RPD Limit
Fluoride	300.0	0.20	ND	ND	NC	NC	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/22/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Fluoride

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405607-12MS			Duplicate Matrix Spike KQ1405607-12DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Fluoride	ND U	4.10	4.00	102	4.13	4.00	103	90-110	<1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Fluoride

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393762

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405123-LCS1	5.05	5.00	101	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Nitrite as Nitrogen

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW5	K1405123-002	ND U	0.10	2	05/22/14 10:11	
Method Blank	K1405123-MB1	ND U	0.050	1	05/22/14 07:49	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405607-12DUP Result	Average	RPD	RPD Limit
Nitrite as Nitrogen	300.0	0.10	ND	ND	NC	NC	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/22/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrite as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405607-12MS			Duplicate Matrix Spike KQ1405607-12DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrite as Nitrogen	ND U	4.13	4.00	103	4.14	4.00	103	90-110	<1	20

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Nitrite as Nitrogen

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393762

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405123-LCS1	2.43	2.50	97	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Nitrate as Nitrogen

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW5	K1405123-002	ND U	0.10	2	05/22/14 10:11	
Method Blank	K1405123-MB1	ND U	0.050	1	05/22/14 07:49	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405607-12DUP Result	Average	RPD	RPD Limit
Nitrate as Nitrogen	300.0	0.10	ND	ND	NC	NC	20

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

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/22/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrate as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405607-12MS			**Duplicate Matrix Spike** KQ1405607-12DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrate as Nitrogen	ND U	3.85	4.00	96	3.86	4.00	96	90-110	<1	20

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Results flagged with a pound (#) indicate the control criteria is not applicable.

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Nitrate as Nitrogen

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393762

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405123-LCS1	2.35	2.50	94	90-110

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	5/21/2014
Sample Matrix:	Drinking water	**Date Received:**	5/21/2014

Nitrite + Nitrate as Nitrogen

Prep Method:	NONE	Units:	mg/L
Analysis Method:	300.0/300.0	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
DW5	K1405123-002	0.10	2	NA	5/22/2014	ND	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Sulfate

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW5	K1405123-002	**0.60**	0.20	2	05/22/14 10:11	
Method Blank	K1405123-MB1	ND U	0.10	1	05/22/14 07:49	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405607-12DUP Result	Average	RPD	RPD Limit
Sulfate	300.0	0.20	2.28	2.30	2.29	<1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/22/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Sulfate

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405607-12MS			Duplicate Matrix Spike KQ1405607-12DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Sulfate	2.28	6.43	4.00	104	6.46	4.00	104	90-110	<1	20

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Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Sulfate

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393762

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405123-LCS1	4.82	5.00	96	90-110

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dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	314.0	**Units:**	ug/L
Prep Method:	None	**Basis:**	NA

Perchlorate

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW5	K1405123-002	ND U	1.0	1	05/22/14 12:26	
Method Blank	K1405123-MB1	ND U	1.0	1	05/22/14 09:12	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405052-001DUP Result	Average	RPD	RPD Limit
Perchlorate	314.0	1.0	ND	ND	NC	NC	20

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

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/22/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Perchlorate

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Analysis Method:	314.0		
Prep Method:	None		

		Matrix Spike			Duplicate Matrix Spike					
		K1405052-001MS			K1405052-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	ND U	11.9	10.0	119	10.4	10.0	104	80-120	13	20

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Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Perchlorate

Analysis Method:	314.0	**Units:**	ug/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393851

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405123-LCS1	16.3	16.8	97	85-115

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	335.4	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA

Cyanide, Total

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
DW5	K1405123-002	ND U	0.010	1	06/02/14 12:55	6/2/14	
Method Blank	K1405123-MB1	ND U	0.010	1	06/02/14 12:55	6/2/14	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	06/02/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405982-03	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405982-03DUP Result	Average	RPD	RPD Limit
Cyanide, Total	335.4	0.010	ND	ND	NC	NC	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	06/2/14
		Date Extracted:	06/2/14

Matrix Spike Summary
Cyanide, Total

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405982-03	**Basis:**	NA
Analysis Method:	335.4		
Prep Method:	Method		

Matrix Spike
KQ1405982-03MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Cyanide, Total	ND U	0.096	0.143	67 *	90-110

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

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Analyzed:**	06/02/14
Sample Matrix:	Drinking Water	**Date Extracted:**	06/02/14

Lab Control Sample Summary
Cyanide, Total

Analysis Method:	335.4	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	395190

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405123-LCS1	0.141	0.150	94	90-110

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	SM 2120 B	**Units:**	ColorUnits
Prep Method:	None	**Basis:**	NA

Color

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW5	K1405123-002	**5.0**	5.0	1	05/22/14 10:36	
Method Blank	K1405123-MB1	ND U	5.0	1	05/22/14 08:42	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	ColorUnits
Lab Code:	K1405057-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405057-001DUP Result	Average	RPD	RPD Limit
Color	SM 2120 B	5.0	15.0	15.0	15.0	<1	20

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Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Color

Analysis Method:	SM 2120 B	**Units:**	ColorUnits
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393796

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405123-LCS1	65.0	65.0	100	85-115

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	SM 2320 B	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Alkalinity as CaCO3, Total

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW5	K1405123-002	**106**	2.0	1	06/04/14 17:30	
Method Blank	K1405123-MB1	ND U	2.0	1	06/04/14 17:30	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
		Date Analyzed:	06/04/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW5	**Units:**	mg/L
Lab Code:	K1405123-002	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405123-002DUP Result	Average	RPD	RPD Limit
Alkalinity as CaCO3, Total	SM 2320 B	2.0	106	107	107	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Analyzed:**	06/04/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Alkalinity as CaCO3, Total

Analysis Method:	SM 2320 B	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	395646

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405123-LCS1	175	177	99	90-110

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	SM 2510 B	**Units:**	uMHOS/cm
Prep Method:	None	**Basis:**	NA

Conductivity at 25 Degrees Celsius

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW5	K1405123-002	**336**	2.0	1	06/03/14 13:30	
Method Blank	K1405123-MB1	ND U	2.0	1	06/03/14 13:30	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
Analysis Method:	SM 2510 B	**Units:**	uMHOS/cm
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Conductivity at 25 Degrees Celsius

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1405130-001DUP	2.0	313	315	314	<1	20	06/03/14
Batch QC	K1405431-009DUP	2.0	159	156	157	1	20	06/03/14

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Analyzed:**	06/03/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Conductivity at 25 Degrees Celsius

Analysis Method:	SM 2510 B	**Units:**	uMHOS/cm
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	395439

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405123-LCS1	337	330	102	86-113

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	SM 2540 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Solids, Total Dissolved

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW5	K1405123-002	**232**	10	1	05/28/14 20:00	
Method Blank	K1405123-MB1	ND U	10	1	05/28/14 20:00	
Method Blank	K1405123-MB2	ND U	10	1	05/28/14 20:00	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
Analysis Method:	SM 2540 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Solids, Total Dissolved

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1405127-001DUP	10	487	505	496	4	10	05/28/14
Batch QC	K1405171-001DUP	10	707	729	718	3	10	05/28/14

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Analyzed:**	05/28/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Solids, Total Dissolved

Analysis Method:	SM 2540 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	394546

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405123-LCS1	864	886	98	85-115

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	SM 4500-NH3 G	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA

Ammonia

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
DW5	K1405123-002	ND U	0.050	1	06/04/14 18:40	6/4/14	
Method Blank	K1405123-MB1	ND U	0.050	1	06/04/14 18:40	6/4/14	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	06/04/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1406157-09	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1406157-09DUP Result	Average	RPD	RPD Limit
Ammonia	SM 4500-NH3 G	0.050	2.58	2.56	2.57	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	06/4/14
		Date Extracted:	06/4/14

Duplicate Matrix Spike Summary
Ammonia

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1406157-09	**Basis:**	NA
Analysis Method:	SM 4500-NH3 G		
Prep Method:	Method		

		Matrix Spike KQ1406157-09MS			Duplicate Matrix Spike KQ1406157-09DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Ammonia	2.58	4.56	2.00	99	4.52	2.00	97	90-110	<1	20

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Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Analyzed:**	06/04/14
Sample Matrix:	Drinking Water	**Date Extracted:**	06/04/14

Lab Control Sample Summary
Ammonia

Analysis Method:	SM 4500-NH3 G	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	395732

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405123-LCS1	10.8	10.8	100	90-110

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	SM 4500-P E	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Orthophosphate as Phosphorus

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW5	K1405123-002	**0.452**	0.050	1	05/22/14 12:42	
Method Blank	K1405123-MB1	ND U	0.050	1	05/21/14 13:29	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/21/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405052-001DUP Result	Average	RPD	RPD Limit
Orthophosphate as Phosphorus	SM 4500-P E	0.050	0.483	0.485	0.484	<1	20

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Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Orthophosphate as Phosphorus

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA
Analysis Method:	SM 4500-P E		
Prep Method:	None		

		Matrix Spike K1405052-001MS			Duplicate Matrix Spike K1405052-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Orthophosphate as Phosphorus	0.483	0.91	0.40	107	0.85	0.40	92	75-125	15	20

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ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Orthophosphate as Phosphorus

Analysis Method:	SM 4500-P E	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393629

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405123-LCS1	3.86	3.94	98	85-115
Lab Control Sample	K1405123-LCS2	3.81	3.94	97	85-115
Lab Control Sample	K1405123-LCS3	3.83	3.94	97	85-115
Lab Control Sample	K1405123-LCS4	3.85	3.94	98	85-115

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	5/21/2014
Sample Matrix:	Drinking water	**Date Received:**	5/21/2014

Colilert, E. Coli

Prep Method: NONE
Analysis Method: SM 9223B
Basis: NA
Test Notes:

Sample Name	Lab Code	MRL	Date Analyzed	Time Test Started		Result	Result Notes
DW5	K1405123-002	-	5/22/2014	11:40	hrs	Absent	

SM *Standard Methods for the Examination of Water and Wastewater* , 20th Ed., 1998.

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	5/21/2014
Sample Matrix:	Drinking water	**Date Received:**	5/21/2014

Colilert, T. Coli

Prep Method: NONE
Analysis Method: SM 9223B
Basis: NA
Test Notes:

Sample Name	Lab Code	MRL	Date Analyzed	Time Test Started		Result	Result Notes
DW5	K1405123-002	-	5/22/2014	11:40	hrs	Absent	

SM *Standard Methods for the Examination of Water and Wastewater* , 20th Ed., 1998.

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking water	**Date Received:**	05/21/14

Hardness as CaCO3

Prep Method:	CLAA	Units:	mg/L (ppm)
Analysis Method:	200.7/SM 2340B	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
DW5	K1405123-002	0.07	1	05/28/14	05/29/14	125	
Method Blank	K1405123-MB	0.07	1	05/28/14	05/29/14	ND	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	05/28/14
		Date Analyzed:	05/29/14

Duplicate Summary
Metals

Sample Name:	Batch QC	Units:	mg/L (ppm)
Lab Code:	K1405061-001D	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Hardness as CaCO3	CLAA	200.7/SM 2340B	0.07	175	180	178	2	

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking water	**Date Received:**	05/21/14

Methyl Mercury

Prep Method:	Method	Units:	ng/L
Analysis Method:	1630	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
DW5	K1405123-002	0.1	1	06/08/14	06/09/14	ND	
Method Blank 1	K1405123-MB1	0.1	1	06/08/14	06/09/14	ND	
Method Blank 2	K1405123-MB2	0.1	1	06/08/14	06/09/14	ND	
Method Blank 3	K1405123-MB3	0.1	1	06/08/14	06/09/14	ND	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	06/08/14
		Date Analyzed:	06/09/14

Matrix Spike/Duplicate Matrix Spike Summary
Metals

Sample Name:	Batch QC	Units:	ng/L
Lab Code:	K1405054-001MS, K1405054-001MSD	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Spike Level MS	Spike Level DMS	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	CAS Acceptance Limits	Relative Percent Difference	Result Notes
Mercury, Methyl	Method	1630	0.1	2.22	2.22	ND	2.54	2.52	114	114	65-135	<1	

ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	06/08/14
		Date Analyzed:	06/09/14

Ongoing Precision and Recovery (OPR) Sample Summary
Metals

Sample Name: Ongoing Precision and Recovery (Initial)

Units: ng/L
Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Mercury, Methyl	Method	1630	2.22	2.54	114	67-133	

ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	06/08/14
		Date Analyzed:	06/09/14

Ongoing Precision and Recovery (OPR) Sample Summary
Metals

Sample Name: Ongoing Precision and Recovery (Final)

Units: ng/L
Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Mercury, Methyl	Method	1630	2.22	2.50	113	67-133	

ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	06/08/14
		Date Analyzed:	06/09/14

Quality Control Sample (QCS) Summary
Metals

Sample Name: Quality Control Sample

Units: pg
Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Mercury, Methyl	Method	1630	100	106	106	67-133	

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- Cover Page -
INORGANIC ANALYSIS DATA PACKAGE

Client: Longview, City of
Project Name: Sentinel Wells
Project No.:

Service Request: K1405123

Sample Name:	Lab Code:
Batch QC1D	K1405061-001D
Batch QC1S	K1405061-001S
DW5	K1405123-002
Method Blank	K1405123-MB
Batch QC2D	K1405161-001D
Batch QC2S	K1405161-001S
Batch QC3D	K1405296-001D
Batch QC3S	K1405296-001S

Comments:

Metals

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

Client: Longview, City of
Project No.: NA
Project Name: Sentinel Wells
Matrix: WATER

Service Request: K1405123
Date Collected: 05/21/14
Date Received: 05/21/14
Units: mg/L
Basis: NA

Sample Name: DW5
Lab Code: K1405123-002

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Antimony	200.8	0.00005	1.0	05/27/14	05/30/14	0.00005	U	
Arsenic	200.8	0.0005	1.0	05/27/14	05/30/14	0.0061		
Barium	200.7	0.0040	1.0	05/28/14	05/29/14	0.0137		
Beryllium	200.8	0.00002	1.0	05/27/14	05/30/14	0.00002	U	
Cadmium	200.8	0.00002	1.0	05/27/14	05/30/14	0.00002	U	
Chromium	200.8	0.0002	1.0	05/27/14	05/30/14	0.0002	U	
Copper	200.7	0.004	1.0	05/28/14	05/29/14	0.004	U	
Iron	200.7	0.020	1.0	05/28/14	05/29/14	0.294		
Lead	200.8	0.00002	1.0	05/27/14	05/30/14	0.00002	U	
Manganese	200.7	0.001	1.0	05/28/14	05/29/14	0.299		
Mercury	245.1	0.0002	1.0	06/02/14	06/03/14	0.0002	U	
Nickel	200.8	0.0002	1.0	05/27/14	05/30/14	0.0005		
Selenium	200.8	0.001	1.0	05/27/14	05/30/14	0.001	U	
Silver	200.8	0.00002	1.0	05/27/14	05/30/14	0.00002	U	
Sodium	200.7	0.20	1.0	05/28/14	05/29/14	12.4		
Thallium	200.8	0.00002	1.0	05/27/14	05/30/14	0.00002	U	
Zinc	200.7	0.004	1.0	05/28/14	05/29/14	0.004	U	

Comments:

Metals

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

Client: Longview, City of
Project No.: NA
Project Name: Sentinel Wells
Matrix: WATER

Service Request: K1405123
Date Collected:
Date Received:
Units: mg/L
Basis: NA

Sample Name: Method Blank
Lab Code: K1405123-MB

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Antimony	200.8	0.00005	1.0	05/27/14	05/30/14	0.00005	U	
Arsenic	200.8	0.0005	1.0	05/27/14	05/30/14	0.0005	U	
Barium	200.7	0.0040	1.0	05/28/14	05/29/14	0.0040	U	
Beryllium	200.8	0.00002	1.0	05/27/14	05/30/14	0.00002	U	
Cadmium	200.8	0.00002	1.0	05/27/14	05/30/14	0.00002	U	
Chromium	200.8	0.0002	1.0	05/27/14	05/30/14	0.0002	U	
Copper	200.7	0.004	1.0	05/28/14	05/29/14	0.004	U	
Iron	200.7	0.020	1.0	05/28/14	05/29/14	0.020	U	
Lead	200.8	0.00002	1.0	05/27/14	05/30/14	0.00002	U	
Manganese	200.7	0.001	1.0	05/28/14	05/29/14	0.001	U	
Mercury	245.1	0.0002	1.0	06/02/14	06/03/14	0.0002	U	
Nickel	200.8	0.0002	1.0	05/27/14	05/30/14	0.0002	U	
Selenium	200.8	0.001	1.0	05/27/14	05/30/14	0.001	U	
Silver	200.8	0.00002	1.0	05/27/14	05/30/14	0.00002	U	
Sodium	200.7	0.20	1.0	05/28/14	05/29/14	0.20	U	
Thallium	200.8	0.00002	1.0	05/27/14	05/30/14	0.00002	U	
Zinc	200.7	0.004	1.0	05/28/14	05/29/14	0.004	U	

Comments:

Metals
- 5A -
SPIKE SAMPLE RECOVERY

Client: Longview, City of
Service Request: K1405123
Project No.: NA
Units: MG/L
Project Name: Sentinel Wells
Basis: NA
Matrix: WATER

Sample Name: Batch QC1S
Lab Code: K1405061-001S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Barium	70 - 130	2.1		0.0136		2.00	104.3		200.7
Copper	70 - 130	0.258		0.005		0.25	101.2		200.7
Iron		10.8		9.63		1.00	117.0		200.7
Manganese	70 - 130	1.33		0.812		0.50	103.6		200.7
Sodium	70 - 130	25.5		15.2		10.00	103.0		200.7
Zinc	70 - 130	0.634		0.130		0.50	100.8		200.7

An empty field in the Control Limit column indicates the control limit is not applicable

Metals
- 5A -
SPIKE SAMPLE RECOVERY

Client: Longview, City of
Service Request: K1405123
Project No.: NA
Units: MG/L
Project Name: Sentinel Wells
Basis: NA
Matrix: WATER

Sample Name: Batch QC2S
Lab Code: K1405161-001S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Antimony	70 - 130	0.044645		0.000050	U	0.050000	89		200.8
Arsenic	70 - 130	0.04765		0.00050	U	0.05000	95		200.8
Beryllium	70 - 130	0.00266		0.00003		0.00250	105		200.8
Cadmium	70 - 130	0.02729		0.00002		0.025000	109		200.8
Chromium	70 - 130	0.0103		0.0006		0.01000	97		200.8
Lead	70 - 130	0.07716		0.02244		0.050000	109		200.8
Nickel	70 - 130	0.0256		0.0012		0.02500	98		200.8
Selenium	70 - 130	0.044		0.001	U	0.0500	88		200.8
Silver	70 - 130	0.01336		0.00002	U	0.012500	107		200.8
Thallium	70 - 130	0.05508		0.00002	U	0.050000	110		200.8

An empty field in the Control Limit column indicates the control limit is not applicable

Metals
- 5A -
SPIKE SAMPLE RECOVERY

Client: Longview, City of
Service Request: K1405123
Project No.: NA
Units: MG/L
Project Name: Sentinel Wells
Basis: NA
Matrix: WATER

Sample Name: Batch QC3S
Lab Code: K1405296-001S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Mercury	80 - 120	0.0009		0.0002	U	0.001	90		245.1

An empty field in the Control Limit column indicates the control limit is not applicable

Metals

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DUPLICATES

Client: Longview, City of **Service Request:** K1405123

Project No.: NA **Units:** MG/L

Project Name: Sentinel Wells **Basis:** NA

Matrix: WATER

Sample Name: Batch QC1D **Lab Code:** K1405061-001D

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Barium		0.0136		0.0141		3.6		200.7
Copper		0.005		0.005		0.0		200.7
Iron	20	9.63		9.90		2.8		200.7
Manganese	20	0.812		0.834		2.7		200.7
Sodium	20	15.2		15.5		2.0		200.7
Zinc	20	0.130		0.132		1.5		200.7

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals

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DUPLICATES

Client: Longview, City of **Service Request:** K1405123

Project No.: NA **Units:** MG/L

Project Name: Sentinel Wells **Basis:** NA

Matrix: WATER

Sample Name: Batch QC2D **Lab Code:** K1405161-001D

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Antimony		0.000050	U	0.000050	U			200.8
Arsenic		0.00050	U	0.00050	U			200.8
Beryllium		0.00003		0.00003		0.0		200.8
Cadmium		0.00002		0.00002	U	200.0		200.8
Chromium		0.0006		0.0005		18.2		200.8
Lead	20	0.02244		0.02253		0.4		200.8
Nickel	20	0.0012		0.0012		0.0		200.8
Selenium		0.001	U	0.001	U			200.8
Silver		0.00002	U	0.00002	U			200.8
Thallium		0.00002	U	0.00002	U			200.8

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals

- 6 -

DUPLICATES

Client: Longview, City of **Service Request:** K1405123

Project No.: NA **Units:** MG/L

Project Name: Sentinel Wells **Basis:** NA

Matrix: WATER

Sample Name: **Batch QC3D** **Lab Code:** **K1405296-001D**

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Mercury		0.0002	U	0.0002	U			245.1

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals

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LABORATORY CONTROL SAMPLE

Client: Longview, City of **Service Request:** K1405123

Project No.: NA

Project Name: Sentinel Wells

Aqueous LCS Source: **ALS MIXED** **Solid LCS Source:**

Analyte	Aqueous (ug/L)			Solid (mg/kg)				
	True	Found	%R	True	Found	C	Limits	%R
Antimony	0.050	0.0538	108					
Arsenic	0.050	0.053	106					
Barium	5	5.1	102					
Beryllium	0.003	0.0027	108					
Cadmium	0.025	0.0269	108					
Calcium	12.5	12.5	100					
Chromium	0.010	0.0108	108					
Copper	.625	0.627	100					
Iron	2.5	2.53	101					
Lead	0.050	0.0533	107					
Magnesium	12.5	12.6	101					
Manganese	1.25	1.25	100					
Mercury	.005	0.0049	98.0					
Nickel	0.025	0.0261	104					
Selenium	0.050	0.054	108					
Silver	0.013	0.0135	108					
Sodium	12.5	12.9	103					
Thallium	0.050	0.0543	109					
Zinc	1.25	1.28	102					

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Analytical Results

Client:	Longview, City of		**Service Request:**
Project:	Sentinel Wells		**Date Collected:**
Sample Matrix:	Drinking water		**Date Received:**

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	DW5		Units:
Lab Code:	K1405123-002		Basis:
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result
2,4,6-Trichlorophenol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
2,4,5-Trichlorophenol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND
Trichlorosyringol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
Pentachlorophenol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND
Tetrachloroguaiacol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND
Tetrachlorocatechol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND

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Analytical Results

Client:	Longview, City of		**Service Request:**
Project:	Sentinel Wells		**Date Collected:**
Sample Matrix:	Drinking water		**Date Received:**

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	Method Blank		Units:
Lab Code:	KWG1404755-3		Basis:
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result
2,4,6-Trichlorophenol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
2,4,5-Trichlorophenol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND
Trichlorosyringol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
Pentachlorophenol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND
Tetrachloroguaiacol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND
Tetrachlorocatechol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client: Longview, City of
Project: Sentinel Wells
Sample Matrix: Drinking water

Service Request: K1405123
Date Collected: NA
Date Received: NA
Date Extracted: 5/27/2014

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

Percent Recovery

Analyte	CAS Percent Recovery Acceptance Criteria	Sample Name:	DW5	Method Blank
		Lab Code:	K1405123-002	KWG1404755-3
		Date Analyzed:	5/29/2014	5/29/2014
3,4,5-Trichlorophenol	36-131		92	86
4,5,6-Trichloroguaiacol-13c6	25-134		75	72
Pentachlorophenol-13c6	22-117		65	53
Tetrachloroguaiacol-13c6	18-129		71	53
Tetrachlorocatechol-13c6	D-121		28	34

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client: Longview, City of
Project: Sentinel Wells
Sample Matrix: Drinking water

Service Request: K1405123
Date Collected: NA
Date Received: NA
Date Extracted: 5/27/2014
Date Analyzed: 5/29/2014

Duplicate Summary
Chlorinated Phenolic Organic Compounds

Sample Name: Batch QC
Lab Code: KWG1404755-1
Test Notes:

Units: ug/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	2.5	ND	ND	ND	-	
2,4,5-Trichlorophenol	METHOD	1653A	2.5	ND	ND	ND	-	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	ND	ND	ND	-	
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	ND	ND	ND	-	
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	ND	ND	ND	-	
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	ND	ND	ND	-	
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	ND	ND	ND	-	
Trichlorosyringol	METHOD	1653A	2.5	ND	ND	ND	-	
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	ND	ND	ND	-	
Pentachlorophenol	METHOD	1653A	5.0	ND	ND	ND	-	
Tetrachloroguaiacol	METHOD	1653A	5.0	ND	ND	ND	-	
Tetrachlorocatechol	METHOD	1653A	5.0	ND	ND	ND	-	

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Analytical Results

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	5/27/2014
		Date Analyzed:	5/29/2014

Ongoing Precision and Recovery Summary
Chlorinated Phenolic Organic Compounds

Sample Name:	Lab Control Sample	Units:	ug/L (ppb)
Lab Code:	KWG1404755-2	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	50	57.5	115	72-146	
2,4,5-Trichlorophenol	METHOD	1653A	50	57.3	115	82-128	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	50	47.6	95	82-132	
3,4,6-Trichloroguaiacol	METHOD	1653A	50	47.5	95	74-140	
3,4,5-Trichloroguaiacol	METHOD	1653A	50	45.0	90	80-134	
3,4,6-Trichlorocatechol	METHOD	1653A	100	90.8	91	64-149	
3,4,5-Trichlorocatechol	METHOD	1653A	100	82.2	82	72-128	
Trichlorosyringol	METHOD	1653A	50	35.9	72	66-174	
4,5,6-Trichloroguaiacol	METHOD	1653A	50	50.1	100	88-116	
Pentachlorophenol	METHOD	1653A	100	100	100	84-120	
Tetrachloroguaiacol	METHOD	1653A	100	106	106	81-126	
Tetrachlorocatechol	METHOD	1653A	100	120	120	81-132	

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

EPA Method 504.1

Sample Name:	DW5	**Units:**	ug/L
Lab Code:	K1405123-002	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	504.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	0.0097	1	05/28/14	05/28/14	KWG1404828	
1,2,3-Trichloropropane	ND	U	0.098	1	05/28/14	05/28/14	KWG1404828	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.0097	1	05/28/14	05/28/14	KWG1404828	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

EPA Method 504.1

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404828-4	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	504.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	0.0099	1	05/28/14	05/28/14	KWG1404828	
1,2,3-Trichloropropane	ND	U	0.10	1	05/28/14	05/28/14	KWG1404828	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.0099	1	05/28/14	05/28/14	KWG1404828	

Comments:

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Extracted:**	05/28/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/28/2014

Matrix Spike/Duplicate Matrix Spike Summary
EPA Method 504.1

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	504.1	**Extraction Lot:**	KWG1404828

		Batch QCMS KWG1404828-1 Matrix Spike			Batch QCDMS KWG1404828-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
1,2-Dibromoethane (EDB)	ND	0.244	0.242	101	0.259	0.243	107	65-135	6	30
1,2,3-Trichloropropane	ND	0.192	0.242	79	0.214	0.243	88	65-135	11	30
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.210	0.242	87	0.231	0.243	95	65-135	9	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Extracted:**	05/28/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/28/2014

Lab Control Spike Summary
EPA Method 504.1

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	504.1	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404828

	Lab Control Sample KWG1404828-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
1,2-Dibromoethane (EDB)	0.264	0.250	106	70-130
1,2,3-Trichloropropane	0.223	0.250	89	70-130
1,2-Dibromo-3-chloropropane (DBCP)	0.230	0.250	92	70-130

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

Pesticides/PCBs by EPA Method 508.1

Sample Name:	DW5	**Units:**	ug/L
Lab Code:	K1405123-002	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
gamma-BHC (Lindane)	ND	U	0.0097	1	05/29/14	06/02/14	KWG1404875	
Heptachlor	ND	U	0.0097	1	05/29/14	06/02/14	KWG1404875	
Aldrin	ND	U	0.0097	1	05/29/14	06/02/14	KWG1404875	
Heptachlor Epoxide	ND	U	0.0097	1	05/29/14	06/02/14	KWG1404875	
Heptachlor Epoxide (Isomer A)	ND	U	0.0097	1	05/29/14	06/02/14	KWG1404875	
4,4'-DDE	ND	U	0.0097	1	05/29/14	06/02/14	KWG1404875	
Dieldrin	ND	U	0.0097	1	05/29/14	06/02/14	KWG1404875	
Endrin	ND	U	0.0097	1	05/29/14	06/03/14	KWG1404875	
4,4'-DDD	ND	U	0.0097	1	05/29/14	06/02/14	KWG1404875	
4,4'-DDT	ND	U	0.0097	1	05/29/14	06/02/14	KWG1404875	
Methoxychlor	ND	U	0.0097	1	05/29/14	06/02/14	KWG1404875	
Toxaphene	ND	U	0.097	1	05/29/14	06/02/14	KWG1404875	
Chlordane	ND	U	0.097	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1016	ND	U	0.049	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1221	ND	U	0.097	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1232	ND	U	0.097	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1242	ND	U	0.097	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1248	ND	U	0.097	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1254	ND	U	0.097	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1260	ND	U	0.097	1	05/29/14	06/02/14	KWG1404875	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4,4'-Dibromooctafluorobiphenyl	93	70-130	06/02/14	Acceptable

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Pesticides/PCBs by EPA Method 508.1

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404875-7	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
gamma-BHC (Lindane)	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Heptachlor	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Aldrin	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Heptachlor Epoxide	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Heptachlor Epoxide (Isomer A)	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
4,4'-DDE	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Dieldrin	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Endrin	ND	U	0.010	1	05/29/14	06/04/14	KWG1404875	
4,4'-DDD	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
4,4'-DDT	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Methoxychlor	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Toxaphene	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Chlordane	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1016	ND	U	0.050	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1221	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1232	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1242	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1248	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1254	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1260	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4,4'-Dibromooctafluorobiphenyl	94	70-130	06/02/14	Acceptable

Comments:

Client: Longview, City of
Project: Sentinel Wells
Sample Matrix: Drinking water

Service Request: K1405123

Surrogate Recovery Summary
Pesticides/PCBs by EPA Method 508.1

Extraction Method: METHOD
Analysis Method: 508.1

Units: Percent
Level: Low

Sample Name	Lab Code	Sur1
Batch QC	K1405057-001	97
DW5	K1405123-002	93
Method Blank	KWG1404875-7	94
Batch QCMS	KWG1404875-1	88
Batch QCDMS	KWG1404875-2	88
Lab Control Sample	KWG1404875-3	87

Surrogate Recovery Control Limits (%)

Sur1	=	4,4'-Dibromooctafluorobiphenyl	70-130

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/02/2014 - 06/03/2014

Matrix Spike/Duplicate Matrix Spike Summary
Pesticides/PCBs by EPA Method 508.1

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405057-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1	**Extraction Lot:**	KWG1404875

		Batch QCMS KWG1404875-1 Matrix Spike			Batch QCDMS KWG1404875-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
gamma-BHC (Lindane)	ND	0.0984	0.0962	102	0.0982	0.0962	102	65-135	0	30
Heptachlor	ND	0.0739	0.0962	77	0.0681	0.0962	71	65-135	8	30
Aldrin	ND	0.0888	0.0962	92	0.0871	0.0962	91	65-135	2	30
Heptachlor Epoxide	ND	0.0836	0.0962	87	0.0782	0.0962	81	65-135	7	30
Heptachlor Epoxide (Isomer A)	ND	0.0893	0.0962	93	0.0848	0.0962	88	65-135	5	30
4,4'-DDE	ND	0.0954	0.0962	99	0.0955	0.0962	99	65-135	0	30
Dieldrin	ND	0.0918	0.0962	95	0.0905	0.0962	94	65-135	1	30
Endrin	ND	0.0807	0.0962	84	0.0791	0.0962	82	65-135	2	30
4,4'-DDD	ND	0.103	0.0962	107	0.103	0.0962	107	65-135	0	30
4,4'-DDT	ND	0.0995	0.0962	103	0.0998	0.0962	104	65-135	0	30
Methoxychlor	ND	0.0990	0.0962	103	0.0949	0.0962	99	65-135	4	30
Aroclor 1248	ND	0.373	0.481	78	0.368	0.481	76	65-135	1	30

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Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/02/2014 - 06/04/2014

Lab Control Spike Summary
Pesticides/PCBs by EPA Method 508.1

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	508.1	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404875

	Lab Control Sample KWG1404875-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
gamma-BHC (Lindane)	0.100	0.100	100	70-130
Heptachlor	0.0882	0.100	88	70-130
Aldrin	0.0916	0.100	92	70-130
Heptachlor Epoxide	0.0963	0.100	96	70-130
Heptachlor Epoxide (Isomer A)	0.102	0.100	102	70-130
4,4'-DDE	0.101	0.100	101	70-130
Dieldrin	0.0997	0.100	100	70-130
Endrin	0.104	0.100	104	70-130
4,4'-DDD	0.110	0.100	110	70-130
4,4'-DDT	0.102	0.100	102	70-130
Methoxychlor	0.0965	0.100	97	70-130
Aroclor 1248	0.420	0.500	84	70-130

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

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

Chlorinated Herbicides by EPA 515.4

Sample Name:	DW5	**Units:**	ug/L
Lab Code:	K1405123-002	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	515.4		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dalapon	ND	U	0.50	1	05/30/14	06/03/14	KWG1404919	
3,5-Dichlorobenzoic Acid	ND	U	0.25	1	05/30/14	06/03/14	KWG1404919	
Dicamba	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
Dichlorprop	ND	U	0.25	1	05/30/14	06/03/14	KWG1404919	
2,4-D	ND	U	0.089	1	05/30/14	06/03/14	KWG1404919	
Pentachlorophenol	ND	U	0.020	1	05/30/14	06/03/14	KWG1404919	
2,4,5-TP (Silvex)	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
Chloramben	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
2,4-DB	ND	U	0.50	1	05/30/14	06/03/14	KWG1404919	
Dinoseb	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
Dacthal Diacid	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
Picloram	ND	U	0.091	1	05/30/14	06/03/14	KWG1404919	
Acifluorfen	ND	U	1.0	1	05/30/14	06/03/14	KWG1404919	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2,4-Dichlorophenylacetic Acid	91	70-130	06/03/14	Acceptable

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Chlorinated Herbicides by EPA 515.4

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404919-4	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	515.4		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dalapon	ND	U	0.50	1	05/30/14	06/02/14	KWG1404919	
3,5-Dichlorobenzoic Acid	ND	U	0.25	1	05/30/14	06/02/14	KWG1404919	
Dicamba	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Dichlorprop	ND	U	0.25	1	05/30/14	06/02/14	KWG1404919	
2,4-D	ND	U	0.089	1	05/30/14	06/02/14	KWG1404919	
Pentachlorophenol	ND	U	0.020	1	05/30/14	06/02/14	KWG1404919	
2,4,5-TP (Silvex)	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Chloramben	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
2,4-DB	ND	U	0.50	1	05/30/14	06/02/14	KWG1404919	
Dinoseb	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Dacthal Diacid	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Picloram	ND	U	0.091	1	05/30/14	06/02/14	KWG1404919	
Acifluorfen	ND	U	1.0	1	05/30/14	06/02/14	KWG1404919	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2,4-Dichlorophenylacetic Acid	113	70-130	06/02/14	Acceptable

Comments:

Client: Longview, City of **Service Request:** K1405123
Project: Sentinel Wells
Sample Matrix: Drinking water

Surrogate Recovery Summary
Chlorinated Herbicides by EPA 515.4

Extraction Method: METHOD **Units:** Percent
Analysis Method: 515.4 **Level:** Low

Sample Name	Lab Code	Sur1
Batch QC	K1405052-001	75
DW5	K1405123-002	91
Method Blank	KWG1404919-4	113
Batch QCMS	KWG1404919-1	119
Batch QCDMS	KWG1404919-2	115
Lab Control Sample	KWG1404919-3	109

Surrogate Recovery Control Limits (%)

Sur1 = 2,4-Dichlorophenylacetic Acid 70-130

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Extracted:**	05/30/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/02/2014 - 06/03/2014

Matrix Spike/Duplicate Matrix Spike Summary
Chlorinated Herbicides by EPA 515.4

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	515.4	**Extraction Lot:**	KWG1404919

		Batch QCMS KWG1404919-1 Matrix Spike			Batch QCDMS KWG1404919-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dalapon	ND	2.44	2.49	98	2.48	2.49	99	70-130	1	30
3,5-Dichlorobenzoic Acid	ND	2.41	2.49	97	2.36	2.49	95	70-130	2	30
Dicamba	ND	2.43	2.49	98	2.42	2.49	97	70-130	1	30
Dichlorprop	ND	2.33	2.49	94	2.27	2.49	91	70-130	3	30
2,4-D	ND	2.33	2.49	94	2.31	2.49	93	70-130	1	30
Pentachlorophenol	ND	2.44	2.49	98	2.42	2.49	97	70-130	1	30
2,4,5-TP (Silvex)	ND	2.46	2.49	99	2.46	2.49	99	70-130	0	30
Chloramben	ND	2.54	2.49	102	2.55	2.49	102	70-130	0	30
2,4-DB	ND	2.44	2.49	98	2.41	2.49	97	70-130	1	30
Dinoseb	ND	2.28	2.49	92	2.33	2.49	93	70-130	2	30
Dacthal Diacid	ND	2.75	2.49	110	2.73	2.49	110	70-130	1	30
Picloram	ND	2.60	2.49	104	2.56	2.49	103	70-130	2	30
Acifluorfen	ND	2.41	2.49	97	2.40	2.49	96	70-130	0	30

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Results flagged with a pound (#) indicate the control criteria is not applicable.

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

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Extracted:**	05/30/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/02/2014

Lab Control Spike Summary
Chlorinated Herbicides by EPA 515.4

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	515.4	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404919

Lab Control Sample
KWG1404919-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Dalapon	2.39	2.50	95	70-130
3,5-Dichlorobenzoic Acid	2.34	2.50	94	70-130
Dicamba	2.37	2.50	95	70-130
Dichlorprop	2.30	2.50	92	70-130
2,4-D	2.29	2.50	91	70-130
Pentachlorophenol	2.31	2.50	92	70-130
2,4,5-TP (Silvex)	2.41	2.50	96	70-130
Chloramben	2.57	2.50	103	70-130
2,4-DB	2.38	2.50	95	70-130
Dinoseb	2.37	2.50	95	70-130
Dacthal Diacid	2.42	2.50	97	70-130
Picloram	2.32	2.50	93	70-130
Acifluorfen	2.41	2.50	96	70-130

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

Volatile Organic Compounds

Sample Name:	DW5	**Units:**	ug/L
Lab Code:	K1405123-002	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Vinyl Chloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromomethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Trichlorofluoromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Methylene Chloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
trans-1,2-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
cis-1,2-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Methyl tert-Butyl Ether	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloroform	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromochloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Carbon Tetrachloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Benzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Trichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromodichloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Dibromomethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
cis-1,3-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Toluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
trans-1,3-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Tetrachloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
2,2-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Dibromochloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Ethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Styrene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
m,p-Xylenes	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

Volatile Organic Compounds

Sample Name:	DW5	**Units:**	ug/L
Lab Code:	K1405123-002	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
o-Xylene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,1-Trichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromoform	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Isopropylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
n-Propylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3,5-Trimethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
2-Chlorotoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
4-Chlorotoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
tert-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,4-Trimethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
sec-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
p-Isopropyltoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,4-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
n-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,4-Trichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Hexachlorobutadiene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Naphthalene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,2-Trichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,3-Trichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,3-Trichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

Volatile Organic Compounds

Sample Name:	DW5	**Units:**	ug/L
Lab Code:	K1405123-002	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	99	70-130	05/29/14	Acceptable
Dibromofluoromethane	93	82-124	05/29/14	Acceptable
Toluene-d8	101	82-124	05/29/14	Acceptable

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404851-5	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Vinyl Chloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromomethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Trichlorofluoromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Methylene Chloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
trans-1,2-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
cis-1,2-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Methyl tert-Butyl Ether	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloroform	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromochloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Carbon Tetrachloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Benzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Trichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromodichloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Dibromomethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
cis-1,3-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Toluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
trans-1,3-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Tetrachloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
2,2-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Dibromochloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Ethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Styrene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
m,p-Xylenes	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404851-5	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
o-Xylene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,1-Trichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromoform	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Isopropylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
n-Propylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3,5-Trimethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
2-Chlorotoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
4-Chlorotoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
tert-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,4-Trimethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
sec-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
p-Isopropyltoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,4-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
n-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,4-Trichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Hexachlorobutadiene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Naphthalene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,2-Trichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,3-Trichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,3-Trichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404851-5	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	99	70-130	05/29/14	Acceptable
Dibromofluoromethane	93	82-124	05/29/14	Acceptable
Toluene-d8	101	82-124	05/29/14	Acceptable

Comments:

Client: Longview, City of **Service Request:** K1405123
Project: Sentinel Wells
Sample Matrix: Drinking water

Surrogate Recovery Summary
Volatile Organic Compounds

Extraction Method: METHOD **Units:** Percent
Analysis Method: 524.2 **Level:** Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
Batch QC	K1405052-001	98	93	101
DW5	K1405123-002	99	93	101
Method Blank	KWG1404851-5	99	93	101
Batch QCMS	KWG1404851-1	100	97	103
Batch QCDMS	KWG1404851-2	103	98	104
Lab Control Sample	KWG1404851-3	102	99	104

Surrogate Recovery Control Limits (%)

Sur1	=	4-Bromofluorobenzene	70-130
Sur2	=	Dibromofluoromethane	82-124
Sur3	=	Toluene-d8	82-124

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/29/2014

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2	**Extraction Lot:**	KWG1404851

		Batch QCMS KWG1404851-1 Matrix Spike			Batch QCDMS KWG1404851-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dichlorodifluoromethane	ND	6.83	5.00	137 *	5.31	5.00	106	70-130	25	30
Chloromethane	ND	5.99	5.00	120	4.99	5.00	100	70-130	18	30
Vinyl Chloride	ND	5.77	5.00	115	4.57	5.00	91	70-130	23	30
Bromomethane	ND	4.87	5.00	97	3.96	5.00	79	70-130	21	30
Chloroethane	ND	6.07	5.00	121	4.94	5.00	99	70-130	21	30
Trichlorofluoromethane	ND	5.48	5.00	110	4.33	5.00	87	70-130	23	30
Methylene Chloride	ND	5.27	5.00	105	4.57	5.00	91	70-130	14	30
trans-1,2-Dichloroethene	ND	5.41	5.00	108	4.49	5.00	90	70-130	19	30
1,1-Dichloroethene	ND	5.32	5.00	106	4.28	5.00	86	70-130	22	30
cis-1,2-Dichloroethene	ND	5.35	5.00	107	4.47	5.00	89	70-130	18	30
Methyl tert-Butyl Ether	ND	10.2	10.0	102	9.03	10.0	90	70-130	12	30
Chloroform	ND	5.21	5.00	104	4.41	5.00	88	70-130	17	30
Bromochloromethane	ND	5.24	5.00	105	4.44	5.00	89	70-130	17	30
Carbon Tetrachloride	ND	4.90	5.00	98	3.96	5.00	79	70-130	21	30
Benzene	ND	5.38	5.00	108	4.50	5.00	90	70-130	18	30
1,2-Dichloroethane	ND	4.99	5.00	100	4.37	5.00	87	70-130	13	30
Trichloroethene	ND	5.10	5.00	102	4.17	5.00	83	70-130	20	30
1,2-Dichloropropane	ND	5.04	5.00	101	4.26	5.00	85	70-130	17	30
Bromodichloromethane	ND	4.41	5.00	88	3.79	5.00	76	70-130	15	30
Dibromomethane	ND	4.80	5.00	96	4.25	5.00	85	70-130	12	30
cis-1,3-Dichloropropene	ND	4.13	5.00	83	3.49	5.00	70	70-130	17	30
Toluene	ND	5.54	5.00	111	4.61	5.00	92	70-130	18	30
1,1-Dichloroethane	ND	5.31	5.00	106	4.43	5.00	89	70-130	18	30
trans-1,3-Dichloropropene	ND	3.69	5.00	74	3.25	5.00	65 *	70-130	13	30
Tetrachloroethene	ND	5.52	5.00	110	4.65	5.00	93	70-130	17	30
1,3-Dichloropropane	ND	5.55	5.00	111	5.01	5.00	100	70-130	10	30
2,2-Dichloropropane	ND	4.94	5.00	99	3.98	5.00	80	70-130	22	30
Dibromochloromethane	ND	4.00	5.00	80	3.54	5.00	71	70-130	12	30
1,2-Dibromoethane (EDB)	ND	4.89	5.00	98	4.42	5.00	88	70-130	10	30
Chlorobenzene	ND	5.51	5.00	110	4.78	5.00	96	70-130	14	30
Ethylbenzene	ND	5.45	5.00	109	4.66	5.00	93	70-130	16	30
Styrene	ND	5.77	5.00	115	4.98	5.00	100	70-130	15	30
m,p-Xylenes	ND	11.5	10.0	115	9.84	10.0	98	70-130	16	30

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Results flagged with a pound (#) indicate the control criteria is not applicable.

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

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/29/2014

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2	**Extraction Lot:**	KWG1404851

		Batch QCMS KWG1404851-1 Matrix Spike			Batch QCDMS KWG1404851-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
o-Xylene	ND	5.60	5.00	112	4.85	5.00	97	70-130	14	30
Bromoform	ND	4.15	5.00	83	3.65	5.00	73	70-130	13	30
1,1,1-Trichloroethane	ND	4.88	5.00	98	4.02	5.00	80	70-130	19	30
1,1,2,2-Tetrachloroethane	ND	4.17	5.00	83	3.74	5.00	75	70-130	11	30
Isopropylbenzene	ND	5.78	5.00	116	4.87	5.00	97	70-130	17	30
1,1-Dichloropropene	ND	5.34	5.00	107	4.31	5.00	86	70-130	21	30
Bromobenzene	ND	4.31	5.00	86	3.81	5.00	76	70-130	12	30
n-Propylbenzene	ND	4.47	5.00	89	3.85	5.00	77	70-130	15	30
1,3,5-Trimethylbenzene	ND	4.76	5.00	95	4.13	5.00	83	70-130	14	30
2-Chlorotoluene	ND	4.50	5.00	90	3.95	5.00	79	70-130	13	30
4-Chlorotoluene	ND	4.85	5.00	97	4.20	5.00	84	70-130	14	30
tert-Butylbenzene	ND	5.17	5.00	103	4.39	5.00	88	70-130	16	30
1,2,4-Trimethylbenzene	ND	5.60	5.00	112	4.84	5.00	97	70-130	15	30
sec-Butylbenzene	ND	5.62	5.00	112	4.76	5.00	95	70-130	17	30
p-Isopropyltoluene	ND	5.89	5.00	118	4.96	5.00	99	70-130	17	30
1,3-Dichlorobenzene	ND	5.12	5.00	102	4.47	5.00	89	70-130	14	30
1,4-Dichlorobenzene	ND	5.13	5.00	103	4.49	5.00	90	70-130	13	30
n-Butylbenzene	ND	5.51	5.00	110	4.64	5.00	93	70-130	17	30
1,2-Dichlorobenzene	ND	5.32	5.00	106	4.74	5.00	95	70-130	12	30
1,2-Dibromo-3-chloropropane (DBCP)	ND	4.16	5.00	83	3.68	5.00	74	70-130	12	30
1,2,4-Trichlorobenzene	ND	4.48	5.00	90	3.98	5.00	80	70-130	12	30
Hexachlorobutadiene	ND	4.70	5.00	94	3.98	5.00	80	70-130	17	30
Naphthalene	ND	4.09	5.00	82	3.72	5.00	74	70-130	9	30
1,1,2-Trichloroethane	ND	5.03	5.00	101	4.53	5.00	91	70-130	10	30
1,1,1,2-Tetrachloroethane	ND	4.69	5.00	94	4.01	5.00	80	70-130	16	30
1,2,3-Trichloropropane	ND	4.81	5.00	96	4.41	5.00	88	70-130	9	30
1,2,3-Trichlorobenzene	ND	4.73	5.00	95	4.27	5.00	85	70-130	10	30

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Results flagged with a pound (#) indicate the control criteria is not applicable.

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

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/29/2014

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	524.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404851

Lab Control Sample
KWG1404851-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Dichlorodifluoromethane	5.94	5.00	119	70-130
Chloromethane	5.27	5.00	105	70-130
Vinyl Chloride	5.03	5.00	101	70-130
Bromomethane	4.33	5.00	87	70-130
Chloroethane	5.27	5.00	105	70-130
Trichlorofluoromethane	4.91	5.00	98	70-130
Methylene Chloride	5.02	5.00	100	70-130
trans-1,2-Dichloroethene	4.85	5.00	97	70-130
1,1-Dichloroethene	4.67	5.00	93	70-130
cis-1,2-Dichloroethene	4.85	5.00	97	70-130
Methyl tert-Butyl Ether	10.3	10.0	103	70-130
Chloroform	4.86	5.00	97	70-130
Bromochloromethane	4.84	5.00	97	70-130
Carbon Tetrachloride	4.56	5.00	91	70-130
Benzene	4.90	5.00	98	70-130
1,2-Dichloroethane	4.74	5.00	95	70-130
Trichloroethene	4.61	5.00	92	70-130
1,2-Dichloropropane	4.66	5.00	93	70-130
Bromodichloromethane	4.29	5.00	86	70-130
Dibromomethane	4.63	5.00	93	70-130
cis-1,3-Dichloropropene	4.07	5.00	81	70-130
1,1-Dichloroethane	4.84	5.00	97	70-130
Toluene	5.00	5.00	100	70-130
trans-1,3-Dichloropropene	3.67	5.00	73	70-130
Tetrachloroethene	4.98	5.00	100	70-130
2,2-Dichloropropane	4.48	5.00	90	70-130
1,3-Dichloropropane	5.26	5.00	105	70-130
Dibromochloromethane	4.01	5.00	80	70-130
1,2-Dibromoethane (EDB)	4.81	5.00	96	70-130
Chlorobenzene	5.04	5.00	101	70-130
Ethylbenzene	4.95	5.00	99	70-130
Styrene	5.16	5.00	103	70-130
m,p-Xylenes	10.4	10.0	104	70-130
o-Xylene	5.08	5.00	102	70-130
1,1,2,2-Tetrachloroethane	3.98	5.00	80	70-130

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.

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/29/2014

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	524.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404851

Lab Control Sample
KWG1404851-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Bromoform	4.07	5.00	81	70-130
1,1,1-Trichloroethane	4.60	5.00	92	70-130
Isopropylbenzene	5.20	5.00	104	70-130
1,1-Dichloropropene	4.78	5.00	96	70-130
Bromobenzene	4.00	5.00	80	70-130
n-Propylbenzene	4.02	5.00	80	70-130
1,3,5-Trimethylbenzene	4.28	5.00	86	70-130
2-Chlorotoluene	4.11	5.00	82	70-130
4-Chlorotoluene	4.38	5.00	88	70-130
tert-Butylbenzene	4.65	5.00	93	70-130
1,2,4-Trimethylbenzene	5.02	5.00	100	70-130
sec-Butylbenzene	5.01	5.00	100	70-130
p-Isopropyltoluene	5.29	5.00	106	70-130
1,3-Dichlorobenzene	4.70	5.00	94	70-130
1,4-Dichlorobenzene	4.65	5.00	93	70-130
n-Butylbenzene	4.90	5.00	98	70-130
1,2-Dichlorobenzene	4.99	5.00	100	70-130
1,2-Dibromo-3-chloropropane (DBCP)	4.11	5.00	82	70-130
1,2,4-Trichlorobenzene	4.29	5.00	86	70-130
Hexachlorobutadiene	4.24	5.00	85	70-130
Naphthalene	4.02	5.00	80	70-130
1,1,2-Trichloroethane	4.88	5.00	98	70-130
1,1,1,2-Tetrachloroethane	4.56	5.00	91	70-130
1,2,3-Trichloropropane	4.98	5.00	100	70-130
1,2,3-Trichlorobenzene	4.51	5.00	90	70-130

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

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

Semivolatile Organics by EPA Method 525.2

Sample Name:	DW5	**Units:**	ug/L
Lab Code:	K1405123-002	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	525.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Hexachlorocyclopentadiene	ND	U	0.097	1	05/29/14	06/09/14	KWG1404877	
Fluorene	ND	U	0.049	1	05/29/14	06/09/14	KWG1404877	
Propachlor	ND	U	0.097	1	05/29/14	06/09/14	KWG1404877	
Hexachlorobenzene	ND	U	0.097	1	05/29/14	06/09/14	KWG1404877	
Simazine	ND	U	0.049	1	05/29/14	06/09/14	KWG1404877	
Atrazine	ND	U	0.097	1	05/29/14	06/09/14	KWG1404877	
Metribuzin	ND	U	0.20	1	05/29/14	06/09/14	KWG1404877	
Alachlor	ND	U	0.070	1	05/29/14	06/09/14	KWG1404877	
Bromacil	ND	U	0.20	1	05/29/14	06/09/14	KWG1404877	
Metolachlor	ND	U	0.087	1	05/29/14	06/09/14	KWG1404877	
Butachlor	ND	U	0.097	1	05/29/14	06/09/14	KWG1404877	
Bis(2-ethylhexyl) Adipate	ND	U	0.58	1	05/29/14	06/09/14	KWG1404877	
Bis(2-ethylhexyl) Phthalate	ND	U	0.58	1	05/29/14	06/09/14	KWG1404877	
Benzo(a)pyrene	ND	U	0.020	1	05/29/14	06/09/14	KWG1404877	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,3-Dimethyl-2-nitrobenzene	120	70-130	06/09/14	Acceptable
Triphenyl Phosphate	87	70-130	06/09/14	Acceptable
Perylene-d12	95	70-130	06/09/14	Acceptable

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Ocean water	**Date Received:**	NA

Semivolatile Organics by EPA Method 525.2

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404877-4	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	525.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Hexachlorocyclopentadiene	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Fluorene	ND	U	0.050	1	05/29/14	06/09/14	KWG1404877	
Propachlor	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Hexachlorobenzene	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Simazine	ND	U	0.050	1	05/29/14	06/09/14	KWG1404877	
Atrazine	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Metribuzin	ND	U	0.20	1	05/29/14	06/09/14	KWG1404877	
Alachlor	ND	U	0.072	1	05/29/14	06/09/14	KWG1404877	
Bromacil	ND	U	0.20	1	05/29/14	06/09/14	KWG1404877	
Metolachlor	ND	U	0.090	1	05/29/14	06/09/14	KWG1404877	
Butachlor	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Bis(2-ethylhexyl) Adipate	ND	U	0.60	1	05/29/14	06/09/14	KWG1404877	
Bis(2-ethylhexyl) Phthalate	ND	U	0.60	1	05/29/14	06/09/14	KWG1404877	
Benzo(a)pyrene	ND	U	0.020	1	05/29/14	06/09/14	KWG1404877	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,3-Dimethyl-2-nitrobenzene	119	70-130	06/09/14	Acceptable
Triphenyl Phosphate	77	70-130	06/09/14	Acceptable
Perylene-d12	82	70-130	06/09/14	Acceptable

Comments:

Client: Longview, City of **Service Request:** K1405123
Project: Sentinel Wells
Sample Matrix: Drinking water

Surrogate Recovery Summary
Semivolatile Organics by EPA Method 525.2

Extraction Method: METHOD **Units:** Percent
Analysis Method: 525.2 **Level:** Low

Sample Name	Lab Code	Sur1	Sur2	Sur3	
Batch QC	K1405054-001	126	96	77	
DW5	K1405123-002	120	87	95	
Method Blank	KWG1404877-4	119	77	82	
Batch QCMS	KWG1404877-1	118	107	95	
Batch QCDMS	KWG1404877-2	120	101	66	*
Lab Control Sample	KWG1404877-3	116	106	95	

Surrogate Recovery Control Limits (%)

Sur1	=	1,3-Dimethyl-2-nitrobenzene	70-130
Sur2	=	Triphenyl Phosphate	70-130
Sur3	=	Perylene-d12	70-130

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/09/2014

Matrix Spike/Duplicate Matrix Spike Summary
Semivolatile Organics by EPA Method 525.2

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405054-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	525.2	**Extraction Lot:**	KWG1404877

		Batch QCMS KWG1404877-1 Matrix Spike			Batch QCDMS KWG1404877-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Hexachlorocyclopentadiene	ND	1.06	0.971	109	1.09	0.971	112	70-130	3	30
Fluorene	ND	1.04	0.971	107	1.06	0.971	110	70-130	2	30
Propachlor	ND	0.931	0.971	96	0.920	0.971	95	70-130	1	30
Hexachlorobenzene	ND	1.02	0.971	105	1.01	0.971	104	70-130	1	30
Simazine	ND	0.728	0.971	75	0.705	0.971	73	70-130	3	30
Atrazine	ND	0.774	0.971	80	0.703	0.971	72	70-130	10	30
Metribuzin	ND	1.02	0.971	105	0.993	0.971	102	70-130	3	30
Alachlor	ND	0.880	0.971	91	0.861	0.971	89	70-130	2	30
Bromacil	ND	1.04	0.971	108	0.994	0.971	102	70-130	5	30
Metolachlor	ND	0.888	0.971	91	0.863	0.971	89	70-130	3	30
Butachlor	ND	0.992	0.971	102	0.967	0.971	100	70-130	3	30
Bis(2-ethylhexyl) Adipate	ND	1.01	0.971	104	0.964	0.971	99	70-130	4	30
Bis(2-ethylhexyl) Phthalate	ND	1.05	0.971	108	1.05	0.971	108	70-130	0	30
Benzo(a)pyrene	ND	0.631	0.971	65 *	0.216	0.971	22 *	70-130	98 *	30

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

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Ocean water	**Date Analyzed:**	06/09/2014

Lab Control Spike Summary
Semivolatile Organics by EPA Method 525.2

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	525.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404877

	Lab Control Sample KWG1404877-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Hexachlorocyclopentadiene	1.04	1.00	104	70-130
Fluorene	1.08	1.00	108	70-130
Propachlor	0.930	1.00	93	70-130
Hexachlorobenzene	1.06	1.00	106	70-130
Simazine	0.903	1.00	90	70-130
Atrazine	0.865	1.00	87	70-130
Metribuzin	1.03	1.00	103	70-130
Alachlor	0.914	1.00	91	70-130
Bromacil	0.960	1.00	96	70-130
Metolachlor	0.944	1.00	94	70-130
Butachlor	1.08	1.00	108	70-130
Bis(2-ethylhexyl) Adipate	0.969	1.00	97	70-130
Bis(2-ethylhexyl) Phthalate	1.03	1.00	103	70-130
Benzo(a)pyrene	1.02	1.00	102	70-130

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

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

Endothall by EPA Method 548.1

Sample Name:	DW5	**Units:**	ug/L
Lab Code:	K1405123-002	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	548.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Endothall	ND	U	5.0	1	05/27/14	05/28/14	KWG1404759	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Endothall by EPA Method 548.1

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404759-4	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	548.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Endothall	ND	U	5.0	1	05/27/14	05/27/14	KWG1404759	

Comments:

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Extracted:**	05/27/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/28/2014 - 06/02/2014

Matrix Spike/Duplicate Matrix Spike Summary
Endothall by EPA Method 548.1

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405130-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	548.1	**Extraction Lot:**	KWG1404759

		Batch QCMS KWG1404759-1 Matrix Spike			Batch QCDMS KWG1404759-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Endothall	ND	111	100	111	123	100	123	30-142	10	30

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Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Extracted:**	05/27/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/28/2014

Lab Control Spike Summary
Endothall by EPA Method 548.1

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	548.1	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404759

	Lab Control Sample KWG1404759-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Endothall	128	100	128	30-142

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

Diquat and Paraquat by EPA Method 549.2

Sample Name:	DW5	**Units:**	ug/L
Lab Code:	K1405123-002	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	549.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diquat	ND	U	0.40	1	05/27/14	05/30/14	KWG1404738	
Paraquat	ND	U	0.80	1	05/27/14	05/30/14	KWG1404738	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Diquat and Paraquat by EPA Method 549.2

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404738-5	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	549.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diquat	ND	U	0.40	1	05/27/14	05/30/14	KWG1404738	
Paraquat	ND	U	0.80	1	05/27/14	05/30/14	KWG1404738	

Comments:

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Extracted:**	05/27/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/30/2014

Matrix Spike/Duplicate Matrix Spike Summary
Diquat and Paraquat by EPA Method 549.2

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405130-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	549.2	**Extraction Lot:**	KWG1404738

		Batch QCMS KWG1404738-1 Matrix Spike			Batch QCDMS KWG1404738-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Diquat	ND	12.0	12.0	100	11.9	12.0	100	70-130	0	30
Paraquat	ND	11.0	12.0	92	11.2	12.0	94	70-130	2	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405123
Project:	Sentinel Wells	**Date Extracted:**	05/27/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/30/2014

Lab Control Spike Summary
Diquat and Paraquat by EPA Method 549.2

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	549.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404738

	Lab Control Sample KWG1404738-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Diquat	11.0	12.0	91	70-130
Paraquat	10.1	12.0	84	70-130

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

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LABORATORY REPORT

May 30, 2014

Jeff Coleman
Longview, City of
W/S Operation Center
Longview, WA 98632

RE: Sentinel Wells

Dear Jeff:

Enclosed are the results of the sample submitted to our laboratory on May 21, 2014. For your reference, this analysis has been assigned our service request number K1405123.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

Kate Aguilera

By Kate Aguilera at 10:49 am, May 30, 2014

Kate Aguilera
Project Manager

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Client: Longview, City of
Project: Sentinel Wells

Service Request No: K1405123

CASE NARRATIVE

The sample was received intact under chain of custody on May 21, 2014 and was stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the sample(s) at the time of sample receipt.

Hydrogen Sulfide Analysis

The sample was analyzed for hydrogen sulfide using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

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Certifications, Accreditations, and Registrations

Agency	Web Site	Number
AIHA	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
DoD ELAP	http://www.pjlabs.com/search-accredited-labs	L14-2
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2012039
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	643428
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	CA200007
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-13-4
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA016272013-3
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

Intra-Network Chain of Custody

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

ALS Contact: Chris Leaf

Project Name: Sentinel Wells
Project Number:
Project Manager: Jeff Coleman
Company: Longview, City of

Lab DAT 6/3/14

Lab Code	Client Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Date Received	Send To	Sulfur Sulfur Liq
K1405123-002	DW5	3	Drinking Water	5/21/14	0920	5/21/14	SIMIVALLEY	II

H2S only

temp blank = 4°C
Frozen Blue ice

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

5/22/14

pH Checked _____

Turnaround Requirements
____ **RUSH** (Surcharges Apply)
PLEASE CIRCLE WORK DAYS
1 2 3 4 5
✓ **STANDARD**
Requested FAX Date: _____
Requested Report Date: 06/06/14

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

Invoice Information
PO# K1405123 ✓
Bill to

Relinquished By: 5/22/14 1140
Received By: Kelly Hmw 5/23/14 925am
Airbill Number: _____

133

ALS Environmental
Sample Acceptance Check Form

Client: Longview, City of Work order: K1405123

Project: Sentinel Wells

Sample(s) received on: 5/21/14 Date opened: 5/21/14 by: SWOLF

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Container(s) **supplied by ALS**?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: ° C Blank Temperature: 4° C **Gel Packs**			
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☒	☐	☐
	Location of seal(s)? across seam Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☒	☐	☐
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☒	☐
	Were **VOA vials** checked for presence/absence of air bubbles?	☒	☐	☐
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☒	☐	☐
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
K1405123-002.32	40mL VOA NP		7	1	A	MC 5/27/2014
K1405123-002.33	40mL VOA NP				A	
K1405123-002.34	40mL VOA NP				A	

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Longview, City of**
Client Project ID: **Sentinel Wells** ALS Project ID: K1405123

Hydrogen Sulfide

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 7890A/GC22/SCD Date(s) Collected: 5/21/14
Analyst: Mike Conejo Date Received: 5/21/14
Sample Type: Drinking Water Date Analyzed: 5/27/14
Test Notes:

Client Sample ID	ALS Sample ID	Sample Amount ml(s)	Purge Volume Liter(s)	Injection Volume ml(s)	**Result µg/L**	MRL µg/L	Data Qualifier
DW5	K1405123-002	10.0	0.30	1.00	ND	0.84	
Method Blank	P140527-MB	10.0	0.30	1.0	ND	0.84	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Longview, City of**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **Sentinel Wells**

ALS Project ID: K1405123
ALS Sample ID: P140527-DLCS

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Mike Conejo
Sample Type: Drinking Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 5/27/14
Liquid Amount: 10.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume: 0.20 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result LCS ug/L	Result DLCS ug/L	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
7783-06-4	Hydrogen Sulfide	428	414	438	**97**	**102**	54-133	5	20	

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 421 , WV 343

June 9, 2014

Ms. Chris Leaf
ALS Environmental - Kelso
1317 S. 13th Avenue
Kelso, WA 98626

Certificate of Analysis

Project Name:	**SOCs**	Workorder:	**2008655**
Purchase Order:		Workorder ID:	**K1405123**

Dear Ms. Leaf:

Enclosed are the analytical results for samples received by the laboratory on Friday, May 23, 2014.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Mrs. Kelli L Wolfgang (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

Kelli Wolfgang

Mrs. Kelli L Wolfgang
Project Coordinator

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 421 , WV 343

SAMPLE SUMMARY

Workorder: 2008655 K1405123

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2008655001	K1405123-002	Drinking Water	5/21/2014 09:20	5/23/2014 09:20	

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 421 , WV 343

ANALYTICAL RESULTS

Workorder: 2008655 K1405123

Lab ID: **2008655001** Date Collected: 5/21/2014 09:20 Matrix: Drinking Water

Sample ID: **K1405123-002** Date Received: 5/23/2014 09:20

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
HERBICIDES										
Glyphosate	ND		ug/L	4.5	EPA 547	5/28/14	CGS	5/28/14 20:17	CGS	A
CARBAMATES										
Aldicarb	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 17:30	CGS	C
Aldicarb Sulfone	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 17:30	CGS	C
Aldicarb Sulfoxide	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 17:30	CGS	C
Carbaryl	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 17:30	CGS	C
Carbofuran	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 17:30	CGS	C
3-Hydroxycarbofuran	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 17:30	CGS	C
Methiocarb	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 17:30	CGS	C
Methomyl	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 17:30	CGS	C
Oxamyl	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 17:30	CGS	C
Propoxur	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 17:30	CGS	C

Kelli Wolfgang

Mrs. Kelli L Wolfgang
Project Coordinator

ALS Environmental Chain of Custody

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

ALS Contact: Chris Leaf

2008655

Project Number: K1405123
Project Manager: Chris Leaf

KLW

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	CARBAM 531.1	GLYPH 547
K1405123-002	DW5	4 5	Drinking Water	5/21/14	0920	Middletown	X	X

MBB 5-23-14

	Y	N	Initials
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Lbls Complete			
Cont in Good Cond?			
Correct Containers?			
Correct Samp Vol?			
Correct Preservation?			
Headspace/Volatiles?			

Cooler Temp: 1 °C
Cooler #:
Therm ID: 291
Ship Carrier: FedEx UPS DHL
Tracking #: 547897330679

Test Comments
CARBAM - 531.1 K1405123-002 Full list for WA Regulations - no compliance report required.

Logged in: MBB 5-23-14 1628

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

5/22/14

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: 06/06/14

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

Invoice Information
PO# K1405123 ✓
Bill to

Relinquished By: 5/22/14 1140 Received By: Megan Kelly ALS 5-23-14 0920 Airbill Number:

K1405123

✓ **Ship To: Middletown**
ALS Laboratory Group
34 Dogwood Lane
Middletown, PA 17057

PC _____ Date 5/22/14
SMO _____ Date 5/22/14

Instructions:

Ice ✓
Dry Ice _____
No Ice _____

Shipping:

Overnight ✓
2nd Day _____
Ground _____

Bill to Client Account _____

Comments:

ALS

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

June 18, 2014 Analytical Report for Service Request No: K1405124

Jeff Coleman
Longview, City of
W/S Operation Center
P.O. Box 128
Longview, WA 98632

RE: Sentinel Wells

Dear Jeff:

Enclosed are the results of the sample submitted to our laboratory on May 21, 2014. For your reference, these analyses have been assigned our service request number K1405124.

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 call if you have any questions. My extension is 3275. You may also contact me via Email at Chris.Leaf@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Chris Leaf
Project Manager

CL/mj

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 DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	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	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
ISO 17025	http://www.pjlabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	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	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	4704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
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.

ALS Environmental

CHAIN OF CUSTODY
49247

001

SR# 1405124

COC Set____of____

COC#_____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: Sentinel Wells	Project Number:
Project Manager: Jeff Coleman	
Company: City of Longview	
Address: PO Box 128 Longview WA 98632	
Phone #	email
Sampler Signature:	Sampler Printed Name

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	7D 900.0 / Radioact	7D 903.1 / Radium 226	7D 904.0 / Radium 228	180D 200.8 / Metals T	1	2	3	4	5	Remarks
1. DW7		5/21/14	1335		9	/	—	—	/						
2.															
3.															
4.															
5.															
6.															
7.															
8.															
9.															
10.															

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. CLP Like Summary (no raw data)

___ IV. Data Validation Report

___ V. EDD

Invoice Information

P.O.# 36-4335

Bill To: City of Longview
PO Box 128
Longview WA 98632

Turnaround Requirements

____ 24 hr. ____ 48 hr.
____ 5 Day
____ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other_____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: David R. Martney	Signature: Karla Smith	Signature	Signature	Signature	Signature
Printed Name: DAVID R. MARTNEY	Printed Name: Karla Smith	Printed Name	Printed Name	Printed Name	Printed Name
Firm: City of Longview	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 5/21/14 8:20	Date/Time: 5/21/14 1520	Date/Time	Date/Time	Date/Time	Date/Time

PC CL

Cooler Receipt and Preservation Form

Client / Project: City of Longview Service Request K14 05124

Received: 5/21/14 Opened: 5/21/14 By: M Unloaded: 5/21/14 By: M

1. Samples were received via? *Mail* *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
15.5	15.5	18.2	18.2	0	339			
15.0	15.1	17.6	17.7	0.1	334			
18.7	18.5	19.9	19.6	-0.2	321			

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. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA (Y) N
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

Notes, Discrepancies, & Resolutions: _____

Page ____ *of* ____

ALS Group USA, Corp.
dba ALS Enviromental

- Cover Page -
INORGANIC ANALYSIS DATA PACKAGE

Client : Longview, City of
Project Name : Sentinel Wells
Project No. : NA

Service Request : K1405124

Sample Name :	Lab Code :
DW7	K1405124-001
Laboratory Control Sample	K1405124-LCS
Method Blank	K1405124-MB
Batch QC	K1405285-002D
Batch QC	K1405285-002S

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Longview, City of	**Service Request :**	K1405124
Project Name :	Sentinel Wells	**Date Collected :**	05/21/14
Project No. :	NA	**Date Received :**	05/21/14
Matrix :	Drinking Water	**Date Extracted :**	05/30/14

Total Metals

Sample Name :	DW7	**Units :**	ug/L (ppb)
Lab Code :	K1405124-001	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Uranium	200.8	0.02	06/02/14	ND	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Longview, City of	**Service Request :**	K1405124
Project Name :	Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	05/30/14

Total Metals

Sample Name :	Method Blank	**Units :**	ug/L (ppb)
Lab Code :	K1405124-MB	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Uranium	200.8	0.02	06/02/14	ND	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1405124
Project Name :	Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	05/30/14
		Date Analyzed :	06/02/14

Duplicate Summary
Total Metals

Sample Name :	Batch QC	**Units :**	ug/L (ppb)
Lab Code :	K1405285-002D	**Basis :**	NA

Analyte	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Uranium	200.8	0.02	ND	ND	ND	-	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1405124
Project Name :	Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	05/30/14
		Date Analyzed :	06/02/14

Matrix Spike Summary
Total Metals

Sample Name :	Batch QC	**Units :**	ug/L (ppb)
Lab Code :	K1405285-002S	**Basis :**	NA

Analyte	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Uranium	0.02	20.0	ND	20.1	101	70-130	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1405124
Project Name :	Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	05/30/14
		Date Analyzed :	06/02/14

Laboratory Control Sample Summary
Total Metals

Sample Name :	Laboratory Control Sample	**Units :**	ug/L (ppb)
Lab Code :	K1405124-LCS	**Basis :**	NA

Analyte	Analysis Method	True Value	Result	Percent	CAS Percent Recovery Acceptance Limits	Result Notes
Uranium	200.8	20.0	19.6	98	85-115	

Comments:

Tuesday, June 17, 2014

Ms. Chris Leaf
ALS Environmental
1317 South 13th Ave
Kelso, WA 98626

Re: ALS Workorder: 1405575
Project Name:
Project Number: K1405124

Dear Ms. Leaf:

One water sample was received from ALS Environmental, on 5/28/2014. The sample was scheduled for the following analyses:

Radium-226
Radium-228
Gross Alpha/Beta

The results for these analyses are contained in the enclosed reports.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Jeff R. Kujawa
Project Manager

JRK/mlc
Enclosure(s): Report

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Laboratory Certifications	
Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nebraska	NE-OS-24-13
Nevada (NV)	CO000782008A
New Jersey (NJ)	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO01099
Washington	C1280

Revised 8/15/2013

1405575

Gross Alpha/Beta:

The sample was analyzed for gross alpha and beta activity by gas flow proportional counting according to the current revision of SOP 724. Gross alpha results are referenced to ^{241}Am. Gross beta results are referenced to ^{90}Sr/Y.

All acceptance criteria were met.

Radium-228:

The sample was analyzed for the presence of ^{228}Ra by low background gas flow proportional counting of ^{228}Ac, which is the ingrown progeny of ^{228}Ra, according to the current revision of SOP 724.

All acceptance criteria were met.

Radium-226:

This sample was prepared and analyzed according to the current revision of SOP 783.

All acceptance criteria were met.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1405575
Client Name: ALS Environmental
Client Project Name:
Client Project Number: K1405124
Client PO Number: K1405124

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
DW7	1405575-1		WATER	21-May-14	13:35

ALS Environmental Chain of Custody

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

ALS Contact: Chris Leaf

Project Number: K1405124
Project Manager: Chris Leaf

1405575

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	Radioact 900.0	Radium 226 903.1	Radium 228 904.0
K1405124-001	DW7 (1)	6	Drinking Water	5/21/14	1335	Fort Collins	X	X	X

17

Special Instructions/Comments

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

CL 5/22/14

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: 06/18/14

Report Requirements

____ I. Results Only

__✓__ II. Results + QC Summaries

____ III. Results + QC and Calibration Summaries

____ IV. Data Validation Report with Raw Data

PQL/MDL/J N

EDD N

Invoice Information

PO# K1405124 ✓

Bill to

3 of 15

Relinquished By: 5/22/14 1140 Received By: 5/28/14 0950 Airbill Number: _____

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS Kelso Workorder No: 1405575

Project Manager: JRK Initials: JCR Date: 5/28/14

1.	Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2.	Are custody seals on shipping containers intact?	(NONE)	YES	NO
3.	Are Custody seals on sample containers intact?	(NONE)	YES	NO
4.	Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5.	Are the COC and bottle labels complete and legible?		(YES)	NO
6.	Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7.	Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8.	Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9.	Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10.	Is there sufficient sample for the requested analyses?		(YES)	NO
11.	Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12.	Are all samples within holding times for the requested analyses?		(YES)	NO
13.	Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14.	Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15.	Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16.	Were the samples shipped on ice?		YES	(NO)
17.	Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	(RAD ONLY)	YES	(NO)

Cooler #:	1							
Temperature (°C):	AMB							
No. of custody seals on cooler:	0							
DOT Survey/ Acceptance Information — External µR/hr reading:	12							
Background µR/hr reading:	12							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? **(YES) / NO / NA** (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? **YES / NO / (NA)** Contact: _____ Date/Time: _____

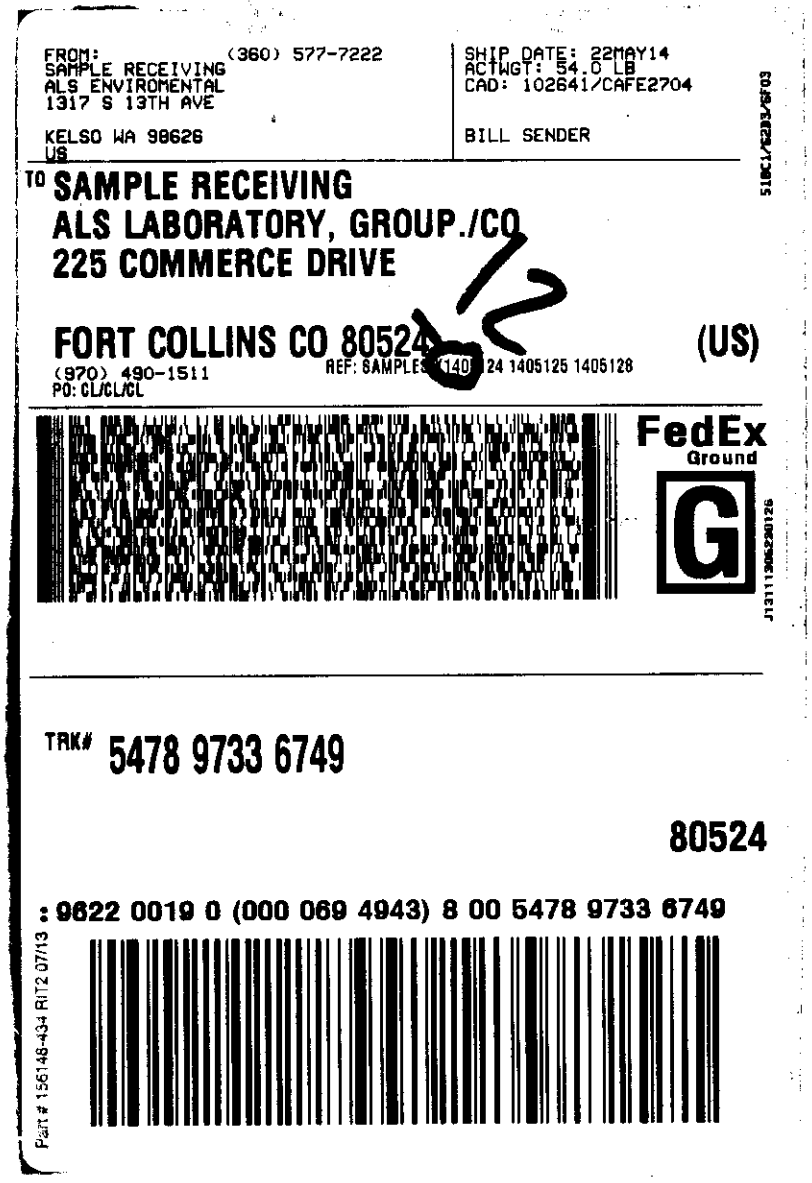
Project Manager Signature / Date: 5-28-14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

Page 1 of 1

1405575



FROM:
SAMPLE RECEIVING
ALS ENVIROMENTAL
1317 S 13TH AVE

KELSO WA 98626
US

(360) 577-7222

SHIP DATE: 22MAY14
ACTWGT: 54.0 LB
CAD: 102641/CAFE2704

BILL SENDER

TO SAMPLE RECEIVING
ALS LABORATORY, GROUP./CO
225 COMMERCE DRIVE

FORT COLLINS CO 80524 (US)

(970) 490-1511
PO: CL/CL/CL

REF: SAMPLES 1405124 1405125 1405128

FedEx Ground

TRK# 5478 9733 6749

80524

: 9622 0019 0 (000 069 4943) 8 00 5478 9733 6749

Part # 156148-434 RIT2 07/13

Client:	ALS Environmental	**Date:**	*17-Jun-14*
Project:	K1405124	**Work Order:**	1405575
Sample ID:	DW7	**Lab ID:**	1405575-1
Legal Location:		**Matrix:**	WATER
Collection Date:	5/21/2014 13:35	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GROSS ALPHA/BETA ANALYSIS BY GFPC			**PAI 724**		Prep Date: **6/5/2014**	PrepBy: **PJW**
GROSS ALPHA	ND (+/- 0.68)	U	1.26	pCi/l	NA	6/6/2014 16:28
GROSS BETA	**4.4 (+/- 1.1)**		**1.5**	**pCi/l**	NA	6/6/2014 16:28
RA-226 BY RADON EMANATION - METHOD 903.1			**PAI 783**		Prep Date: **6/2/2014**	PrepBy: **PJW**
Ra-226	ND (+/- 0.14)	U	0.21	pCi/l	NA	6/12/2014 14:00
Carr: BARIUM	*94.5*		*40-110*	*%REC*	NA	6/12/2014 14:00
RADIUM-228 ANALYSIS BY GFPC			**PAI 724**		Prep Date: **6/2/2014**	PrepBy: **TDE**
Ra-228	ND (+/- 0.22)	U	0.47	pCi/l	NA	6/6/2014 12:37
Carr: BARIUM	*94.5*		*40-110*	*%REC*	NA	6/6/2014 12:37

Client:	ALS Environmental	**Date:**	*17-Jun-14*
Project:	K1405124	**Work Order:**	1405575
Sample ID:	DW7	**Lab ID:**	1405575-1
Legal Location:		**Matrix:**	WATER
Collection Date:	5/21/2014 13:35	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed

Explanation of Qualifiers

Radiochemistry:

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

G - Sample density differs by more than 15% of LCS density.

D - DER is greater than Control Limit

M - Requested MDC not met.

LT - Result is less than requested MDC but greater than achieved MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

G - A pattern resembling gasoline was detected in this sample.

D - A pattern resembling diesel was detected in this sample.

M - A pattern resembling motor oil was detected in this sample.

C - A pattern resembling crude oil was detected in this sample.

4 - A pattern resembling JP-4 was detected in this sample.

5 - A pattern resembling JP-5 was detected in this sample.

H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.

L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.

Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
- gasoline
- JP-8
- diesel
- mineral spirits
- motor oil
- Stoddard solvent
- bunker C

QC BATCH REPORT

Batch ID: **RE140602-3-1** Instrument ID: **Alpha Scin** Method: **Ra-226 by Radon Emanation - Me**

DUP Sample ID: **1405575-1** Units: **pCi/l** Analysis Date: **6/12/2014 14:00**

Client ID: **DW7** Run ID: **RE140602-3A** Prep Date: **6/2/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.23					0	0.593	2.13	U
Carr: BARIUM	32300		32600		99.1	40-110	30800			

LCS Sample ID: **RE140602-3** Units: **pCi/l** Analysis Date: **6/12/2014 14:16**

Client ID: Run ID: **RE140602-3A** Prep Date: **6/2/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	23.4 (+/- 6)	0.5	30.2		77.6	67-120				P,Y1
Carr: BARIUM	33110		32580		102	40-110				Y1

MB Sample ID: **RE140602-3** Units: **pCi/l** Analysis Date: **6/12/2014 14:16**

Client ID: Run ID: **RE140602-3A** Prep Date: **6/2/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.38								U
Carr: BARIUM	32260		32580		99	40-110				

The following samples were analyzed in this batch: 1405575-1

QC BATCH REPORT

Batch ID: **AB140605-2-2** Instrument ID: **LB4100-A** Method: **Gross Alpha/Beta Analysis by G**

LCS Sample ID: **AB140605-2** Units: **pCi/l** Analysis Date: **6/9/2014 09:31**

Client ID: Run ID: **AB140605-2A** Prep Date: **6/5/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
GROSS ALPHA	166 (+/- 28)	2	206.8		80.2	70-130				P
GROSS BETA	205 (+/- 33)	5	215.8		95.2	70-130				P,M3

MB Sample ID: **AB140605-2** Units: **pCi/l** Analysis Date: **6/6/2014 16:42**

Client ID: Run ID: **AB140605-2A** Prep Date: **6/5/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
GROSS ALPHA	ND	0.55								U
GROSS BETA	ND	1								U

The following samples were analyzed in this batch: 1405575-1

Client: ALS Environmental
Work Order: 1405575
Project: K1405124

QC BATCH REPORT

Batch ID: **RA140602-2-2** Instrument ID: **LB4100-C** Method: **Radium-228 Analysis by GFPC**

DUP Sample ID: **1405575-1** Units: **pCi/l** Analysis Date: **6/6/2014 12:37**
Client ID: **DW7** Run ID: **RA140602-2A** Prep Date: **6/2/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	ND	0.44					0.15	0.536	2.13	U
Carr: BARIUM	32300		32600		99.1	40-110	30800			

LCS Sample ID: **RA140602-2** Units: **pCi/l** Analysis Date: **6/6/2014 12:37**
Client ID: Run ID: **RA140602-2A** Prep Date: **6/2/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	7.8 (+/- 1.8)	0.5	8.723		89	70-130				P,Y1
Carr: BARIUM	33110		32580		102	40-110				Y1

MB Sample ID: **RA140602-2** Units: **pCi/l** Analysis Date: **6/6/2014 12:37**
Client ID: Run ID: **RA140602-2A** Prep Date: **6/2/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	ND	0.57								U
Carr: BARIUM	32260		32580		99	40-110				

The following samples were analyzed in this batch: 1405575-1

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

June 18, 2014 Analytical Report for Service Request No: K1405125

Jeff Coleman
Longview, City of
W/S Operation Center
P.O. Box 128
Longview, WA 98632

RE: Sentinel Wells

Dear Jeff:

Enclosed are the results of the sample submitted to our laboratory on May 21, 2014. For your reference, these analyses have been assigned our service request number K1405125.

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 call if you have any questions. My extension is 3275. You may also contact me via Email at Chris.Leaf@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Chris Leaf
Project Manager

CL/mj

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 DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	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	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
ISO 17025	http://www.pjlabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	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	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	4704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
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.

ALS Environmental

CHAIN OF CUSTODY
49245

001

SR# 1405125

COC Set____of____

COC#_____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: Sentinel Wells	Project Number:
Project Manager: Jeff Coleman	
Company: City of Longview	
Address: PO Box 128 Longview WA 98632	
Phone #	email
Sampler Signature:	Sampler Printed Name

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	7D 900.0 / Radioact	7D 903.1 / Radium 226	7D 904.0 / Radium 228	180D 200.8 / Metals T	1	2	3	4	5	Remarks
1. DW5		5/21/14	0920		7	/	—	—	/						
2.															
3.															
4.															
5.															
6.															
7.															
8.															
9.															
10.															

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. CLP Like Summary (no raw data)

___ IV. Data Validation Report

___ V. EDD

Invoice Information

P.O.# 36-4331

Bill To: City of Longview
PO Box 128
Longview WA 98632

Turnaround Requirements

___ 24 hr. ___ 48 hr.
___ 5 Day
___ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: D R. Mathey	Signature: Karla Smith	Signature	Signature	Signature	Signature
Printed Name: DAVID MATHEY	Printed Name: ALS	Printed Name	Printed Name	Printed Name	Printed Name
Firm: City OF Longview	Firm: 5/21/14 1520	Firm	Firm	Firm	Firm
Date/Time: 5/21/14 8:20	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

PC CL

Cooler Receipt and Preservation Form

Client / Project: City of Longview Service Request K14 5125

Received: 5/21/14 Opened: 5/21/14 By: M Unloaded: 5/21/14 By: M

1. Samples were received via? *Mail* *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
15.5	15.5	18.2	18.2	0	339			
15.0	15.1	17.6	17.7	0.1	334			
18.7	18.5	19.9	19.6	-0.2	321			

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. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA (Y) N
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

Notes, Discrepancies, & Resolutions: _____

ALS Group USA, Corp.
dba ALS Enviromental

- Cover Page -
INORGANIC ANALYSIS DATA PACKAGE

Client : Longview, City of
Project Name : Sentinel Wells
Project No. : NA

Service Request : K1405125

Sample Name :	Lab Code :
DW 5	K1405125-001
Laboratory Control Sample	K1405125-LCS
Method Blank	K1405125-MB
Batch QC	K1405285-002D
Batch QC	K1405285-002S

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Longview, City of	**Service Request :**	K1405125
Project Name :	Sentinel Wells	**Date Collected :**	05/21/14
Project No. :	NA	**Date Received :**	05/21/14
Matrix :	Drinking Water	**Date Extracted :**	05/30/14

Total Metals

Sample Name :	DW 5	**Units :**	ug/L (ppb)
Lab Code :	K1405125-001	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Uranium	200.8	0.02	06/02/14	ND	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Longview, City of	**Service Request :**	K1405125
Project Name :	Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	05/30/14

Total Metals

Sample Name :	Method Blank	**Units :**	ug/L (ppb)
Lab Code :	K1405125-MB	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Uranium	200.8	0.02	06/02/14	ND	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1405125
Project Name :	Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	05/30/14
		Date Analyzed :	06/02/14

Duplicate Summary
Total Metals

Sample Name :	Batch QC	**Units :**	ug/L (ppb)
Lab Code :	K1405285-002D	**Basis :**	NA

Analyte	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Uranium	200.8	0.02	ND	ND	ND	-	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1405125
Project Name :	Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	05/30/14
		Date Analyzed :	06/02/14

Matrix Spike Summary
Total Metals

Sample Name :	Batch QC	**Units :**	ug/L (ppb)
Lab Code :	K1405285-002S	**Basis :**	NA

Analyte	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Uranium	0.02	20.0	ND	20.1	101	70-130	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1405125
Project Name :	Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	05/30/14
		Date Analyzed :	06/02/14

Laboratory Control Sample Summary
Total Metals

Sample Name :	Laboratory Control Sample	**Units :**	ug/L (ppb)
Lab Code :	K1405125-LCS	**Basis :**	NA

Analyte	Analysis Method	True Value	Result	Percent	CAS Percent Recovery Acceptance Limits	Result Notes
Uranium	200.8	20.0	19.6	98	85-115	

Comments:

Tuesday, June 17, 2014

Ms. Chris Leaf
ALS Environmental
1317 South 13th Ave
Kelso, WA 98626

Re: ALS Workorder: 1405574
Project Name:
Project Number: K1405125

Dear Ms. Leaf:

One water sample was received from ALS Environmental, on 5/28/2014. The sample was scheduled for the following analyses:

Radium-226
Radium-228
Gross Alpha/Beta

The results for these analyses are contained in the enclosed reports.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Jeff R. Kujawa
Project Manager

JRK/mlc
Enclosure(s): Report

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Laboratory Certifications	
Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nebraska	NE-OS-24-13
Nevada (NV)	CO000782008A
New Jersey (NJ)	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO01099
Washington	C1280

Revised 8/15/2013

1405574

Gross Alpha/Beta:

The sample was analyzed for gross alpha and beta activity by gas flow proportional counting according to the current revision of SOP 724. Gross alpha results are referenced to ^{241}Am. Gross beta results are referenced to ^{90}Sr/Y.

All acceptance criteria were met.

Radium-228:

The sample was analyzed for the presence of ^{228}Ra by low background gas flow proportional counting of ^{228}Ac, which is the ingrown progeny of ^{228}Ra, according to the current revision of SOP 724.

All acceptance criteria were met.

Radium-226:

This sample was prepared and analyzed according to the current revision of SOP 783.

All acceptance criteria were met.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1405574
Client Name: ALS Environmental
Client Project Name:
Client Project Number: K1405125
Client PO Number: K1405125

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
DW 5	1405574-1		WATER	21-May-14	9:20

ALS Environmental Chain of Custody

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

ALS Contact: Chris Leaf

Project Number: K1405125
Project Manager: Chris Leaf

1405574

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	Radioact 900.0	Radium 226 903.1	Radium 228 904.0
K1405125-001	DW 5 (1)	6	Drinking Water	5/21/14	0920	Fort Collins	X	X	X

17

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

5/22/14

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: 06/18/14

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

Invoice Information
PO# K1405125 ✓
Bill to

Relinquished By: 5/22/14 1140 Received By: 5/23/14 0850 Airbill Number: _____

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS Kelso Workorder No: 1405574

Project Manager: JRK Initials: JCR Date: 5/28/14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	(NONE)	YES	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16. Were the samples shipped on ice?		YES	(NO)
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	(RAD ONLY)	YES	(NO)

Cooler #:	1							
Temperature (°C):	AMB							
No. of custody seals on cooler:	0							
DOT Survey Acceptance Information — External µR/hr reading:	12							
Background µR/hr reading:	12							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / (NA) Contact: _____ Date/Time: _____

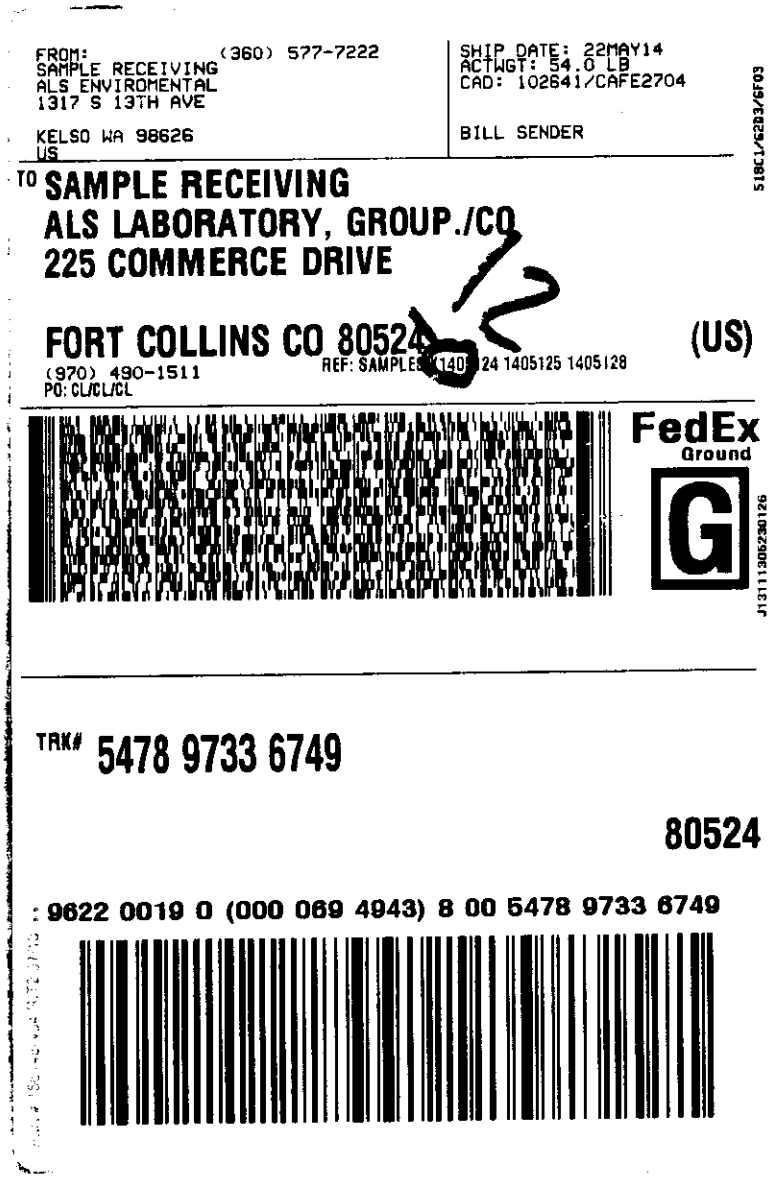
Project Manager Signature / Date: 5-28-14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

Page 1 of 1

1405574



FROM:
SAMPLE RECEIVING
ALS ENVIROMENTAL
1317 S 13TH AVE

KELSO WA 98626
US

(360) 577-7222

SHIP DATE: 22MAY14
ACTWGT: 54.0 LB
CAD: 102641/CAFE2704

BILL SENDER

518C1/6283/6F03

TO SAMPLE RECEIVING
ALS LABORATORY, GROUP./CO
225 COMMERCE DRIVE

FORT COLLINS CO 80524 (US)

(970) 490-1511
PO: CL/CL/CL

REF: SAMPLES 1405124 1405125 1405128

FedEx Ground

J1311130628G126

TRK# 5478 9733 6749

80524

9622 0019 0 (000 069 4943) 8 00 5478 9733 6749

Client:	ALS Environmental	**Date:**	*17-Jun-14*
Project:	K1405125	**Work Order:**	1405574
Sample ID:	DW 5	**Lab ID:**	1405574-1
Legal Location:		**Matrix:**	WATER
Collection Date:	5/21/2014 09:20	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GROSS ALPHA/BETA ANALYSIS BY GFPC			**PAI 724**		Prep Date: **6/5/2014**	PrepBy: **PJW**
GROSS ALPHA	ND (+/- 0.76)	U	1.56	pCi/l	NA	6/6/2014 16:28
GROSS BETA	**5.4 (+/- 1.3)**		**1.5**	**pCi/l**	NA	6/6/2014 16:28
RA-226 BY RADON EMANATION - METHOD 903.1			**PAI 783**		Prep Date: **6/2/2014**	PrepBy: **PJW**
Ra-226	0.14 (+/- 0.15)	Y1,LT	0.08	pCi/l	NA	6/12/2014 14:00
Carr: BARIUM	*100*	Y1	*40-110*	*%REC*	NA	6/12/2014 14:00
RADIUM-228 ANALYSIS BY GFPC			**PAI 724**		Prep Date: **6/2/2014**	PrepBy: **TDE**
Ra-228	ND (+/- 0.19)	Y1,U	0.43	pCi/l	NA	6/6/2014 12:37
Carr: BARIUM	*100*	Y1	*40-110*	*%REC*	NA	6/6/2014 12:37

Client:	ALS Environmental	**Date:**	*17-Jun-14*
Project:	K1405125	**Work Order:**	1405574
Sample ID:	DW 5	**Lab ID:**	1405574-1
Legal Location:		**Matrix:**	WATER
Collection Date:	5/21/2014 09:20	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed

Explanation of Qualifiers

Radiochemistry:

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

G - Sample density differs by more than 15% of LCS density.

D - DER is greater than Control Limit

M - Requested MDC not met.

LT - Result is less than requested MDC but greater than achieved MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

G - A pattern resembling gasoline was detected in this sample.

D - A pattern resembling diesel was detected in this sample.

M - A pattern resembling motor oil was detected in this sample.

C - A pattern resembling crude oil was detected in this sample.

4 - A pattern resembling JP-4 was detected in this sample.

5 - A pattern resembling JP-5 was detected in this sample.

H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.

L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.

Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
- gasoline
- JP-8
- diesel
- mineral spirits
- motor oil
- Stoddard solvent
- bunker C

Batch ID: **RE140602-3-1** Instrument ID: **Alpha Scin** Method: **Ra-226 by Radon Emanation - Me**

LCS Sample ID: **RE140602-3** Units: **pCi/l** Analysis Date: **6/12/2014 14:16**

Client ID: Run ID: **RE140602-3A** Prep Date: **6/2/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	23.4 (+/- 6)	0.5	30.2		77.6	67-120				P,Y1
Carr: BARIUM	33110		32580		102	40-110				Y1

MB Sample ID: **RE140602-3** Units: **pCi/l** Analysis Date: **6/12/2014 14:16**

Client ID: Run ID: **RE140602-3A** Prep Date: **6/2/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.38								U
Carr: BARIUM	32260		32580		99	40-110				

The following samples were analyzed in this batch: 1405574-1

QC BATCH REPORT

Batch ID: **AB140605-2-2** Instrument ID: **LB4100-A** Method: **Gross Alpha/Beta Analysis by G**

LCS Sample ID: **AB140605-2** Units: **pCi/l** Analysis Date: **6/9/2014 09:31**

Client ID: Run ID: **AB140605-2A** Prep Date: **6/5/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
GROSS ALPHA	166 (+/- 28)	2	206.8		80.2	70-130				P
GROSS BETA	205 (+/- 33)	5	215.8		95.2	70-130				P,M3

MB Sample ID: **AB140605-2** Units: **pCi/l** Analysis Date: **6/6/2014 16:42**

Client ID: Run ID: **AB140605-2A** Prep Date: **6/5/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
GROSS ALPHA	ND	0.55								U
GROSS BETA	ND	1								U

The following samples were analyzed in this batch: 1405574-1

Client: ALS Environmental
Work Order: 1405574
Project: K1405125

QC BATCH REPORT

Batch ID: **RA140602-2-2** Instrument ID: **LB4100-A** Method: **Radium-228 Analysis by GFPC**

LCS Sample ID: **RA140602-2** Units: **pCi/l** Analysis Date: **6/6/2014 12:37**

Client ID: Run ID: **RA140602-2A** Prep Date: **6/2/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	7.8 (+/- 1.8)	0.5	8.723		89	70-130				P,Y1
Carr: BARIUM	33110		32580		102	40-110				Y1

MB Sample ID: **RA140602-2** Units: **pCi/l** Analysis Date: **6/6/2014 12:37**

Client ID: Run ID: **RA140602-2A** Prep Date: **6/2/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	ND	0.57								U
Carr: BARIUM	32260		32580		99	40-110				

The following samples were analyzed in this batch: 1405574-1

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

June 26, 2014 Analytical Report for Service Request No: K1405127

Jeff Coleman
Longview, City of
W/S Operation Center
P.O. Box 128
Longview, WA 98632

RE: Sentinel Wells

Dear Jeff:

Enclosed are the results of the samples submitted to our laboratory on May 21, 2014. For your reference, these analyses have been assigned our service request number K1405127.

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 call if you have any questions. My extension is 3275. You may also contact me via Email at Chris.Leaf@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Chris Leaf
Project Manager

CL/aj

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 DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	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	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
ISO 17025	http://www.pjlabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	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	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	4704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
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.

ALS ENVIRONMENTAL

Client:	Longview, City of	**Service Request No.:**	K1405127
Project:	Sentinel Wells	**Date Received:**	05/21/14
Sample Matrix:	Drinking Water		

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

One drinking water sample was received for analysis at ALS Environmental on 05/21/14. The sample was received in good condition and consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4ºC upon receipt at the laboratory.

General Chemistry Parameters

Total Cyanide by EPA Method 335.4:
The matrix spike recovery for sample Batch QC was outside control criteria because of suspected matrix interference. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. No further corrective action was taken.

No other anomalies associated with the analysis of this sample were observed.

Total Metals

No anomalies associated with the analysis of this sample were observed.

Chlorinated Phenols by EPA Method 1653

No anomalies associated with the analysis of this sample were observed.

EDB and DBCP by EPA Method 504.1

No anomalies associated with the analysis of this sample were observed.

Pesticides and Polychlorinated Biphenyls by EPA Method 508.1

Calibration Verification Exceptions:
The analysis of Chlorinated Pesticides and PCB Aroclors by EPA 508.1 requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for Endrin in CCV file 0603014. The results were reported from the column with an acceptable CCV. The data quality was not affected. No further corrective action was necessary.

No other anomalies associated with the analysis of this sample were observed.

Approved by_____

Chlorinated Acides by EPA Method 515.4

No anomalies associated with the analysis of this sample were observed.

Volatile Organic Compounds by EPA Method 524.2

Matrix Spike Recovery Exceptions:
The matrix spike recovery of Dichlorodifluoromethane for sample Batch QCMS KWG1404851-1 and the duplicate matrix spike recovery of trans-1,3-Dichloropropene for sample Batch QCDMS KWG1404851-2 were outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential bias in this matrix. No further corrective action was appropriate.

No other anomalies associated with the analysis of this sample were observed.

Semivolatile Organic Compounds by EPA Method 525.2

Matrix Spike Recovery Exceptions:
The matrix spike recovery of Benz(a)pyrene and duplicate matrix spike recovery of Benz(a)pyrene and Perylene-d12 for sample Batch QC was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outliers suggested a potential low bias in this matrix. No further corrective action was appropriate.

Relative Percent Difference Exceptions:
The Relative Percent Difference (RPD) for Benz(a)pyrene in the replicate matrix spike analyses of Batch QC was outside control criteria.

Surrogate Exceptions:
The lower control criteria were exceeded for Perylene-d12 in sample DW 6 due to suspected matrix interference. Fine particulate matter accumulating on the solid phase extraction disk or total dissolved solids have historically produced results in lower Perylene-d12 recoveries with respect to the other two surrogate compounds. Recoveries of the other two surrogates, Triphenyl Phosphate and 1,3-Dimethyl-2-Nitrobenzene, were within control criteria. .

No other anomalies associated with the analysis of these samples were observed.

Endothall by EPA Method 548.1

No anomalies associated with the analysis of this sample were observed.

Diquat by High Performance Liquid Chromatography

Sample Notes and Discussion:
The recovery of Paraquat in the MRL-level Lab fortified Blank (LFB) KWG1404738-4 was below the ALS advisory criteria of 50-150%. The recovery met the MRL verification criteria specified in the EPA manual. Additionally, recovery was acceptable in the Lab Control Sample (LCS) which indicated the analytical batch was in control. The data quality was not significantly affected. No further corrective action was required.

No other anomalies associated with the analysis of these samples were observed.

Sulfur

This analysis was performed at ALS Environmental, Simi Valley, CA. The data for this analysis is included in the corresponding section of this report.

Approved by_____

Carbamates and Glyphosate

These analyses were performed at ALS Environmental, Middletown, PA. The data for these analyses is included in the corresponding section of this report.

Approved by_____

ALS Environmental

CHAIN OF CUSTODY
49252

001, 005

SR# 1405127

COC Set____of____

COC#_____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: Bentine Wells | Project Number:
Project Manager: Jeff Coleman
Company: City of Longview
Address: PO Box 128 Longview WA 98632
Phone # | email
Sampler Signature: T Daly | Sampler Printed Name

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	6H: SM 9223 B / Coli L (+/-)	48H: 180.1 / Turbidity	48H: 300.0 / NO2	48H: 300.0 / NO3	48H: SM 2120 B / Color	48H: SM 4500-P E / O Phos	7D: 548.1 / ENDO	7D: 549.2 / DIQ_PARAQ	7D: SM 2540 C / TDS	14D: 335.4 / CN T	14D: 504.1 / EDB DBCP 123TCP	14D: 508.1 / PEST_CL	14D: 515.4 / CL_ACID_HERB	14D: 524.2 / VOC	14D: 525.2 / SVO	14D: 547 / GLYPH	14D: SM 2320 B / Alkalinity Titr	14D: Sulfur Liq / Sulfur	28D: 245.1 / Hg T	28D: 300.0 / Br	28D: 300.0 / F	28D: 314.0 / ClO4	28D: 531.1 / CARBAM	Remarks
1. DW 6		5/21/14	1045		39																								
2. Temp Blank					2																								
3.																													
4.																													
5.																													
6.																													
7.																													
8.																													
9.																													
10.																													

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. CLP Like Summary (no raw data)
___ IV. Data Validation Report
___ V. EDD

Invoice Information

P.O.# 16-4332
Bill To: City of Longview
PO Box 128
Longview WA 98632

Turnaround Requirements

___ 24 hr. ___ 48 hr.
___ 5 Day
___ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other_____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: John R. Mathews	Signature: Karla Smith	Signature	Signature	Signature	Signature
Printed Name: DAVID MATHEWS	Printed Name: ALS	Printed Name	Printed Name	Printed Name	Printed Name
Firm: City of Longview	Firm: 5/21/14 1520	Firm	Firm	Firm	Firm
Date/Time: 5/21/14 3:20	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

ALS Environmental

CHAIN OF CUSTODY
49252

001, 005

SR# 1405127

COC Set____of____

COC#_____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: Sentinel Wells | Project Number:
Project Manager: Jeff Coleman
Company: City of Longview
Address: PO Box 128 Longview WA 98632
Phone # | email
Sampler Signature: | Sampler Printed Name:

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	28D: 300.0 / Chloride	28D: 300.0 / SO4	28D: 350.1 / Ammonia T	28D: SM 2510 B / Conductivity	30D: 1653A / CHLOR_PHEN	180D: 1630 / Methyl Hg T	180D: 200.7 / Metals T	180D: 200.8 / Metals T	999D: Calculation / NO2 NO3 Calc	999D: SM 2340 B / Hardness Calc	1	2	3	4	5	Remarks
1. DW 6		5/21/14	1045																		
2.																					
3.																					
4.																					
5.																					
6.																					
7.																					
8.																					
9.																					
10.																					

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. CLP Like Summary (no raw data)

___ IV. Data Validation Report

___ V. EDD

Invoice Information

P.O.# 36-4332

Bill To: City of Longview
PO Box 128
Longview WA 98632

Turnaround Requirements

____ 24 hr. ____ 48 hr.
____ 5 Day
____ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: David R Mathey	Signature: Karla Smith	Signature	Signature	Signature	Signature
Printed Name: DAVID MATHEY	Printed Name: KARLA SMITH	Printed Name	Printed Name	Printed Name	Printed Name
Firm: City of Longview	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 5/21/14 3:20	Date/Time: 5/21/14 1520	Date/Time	Date/Time	Date/Time	Date/Time

PC CV

Cooler Receipt and Preservation Form

Client / Project: City of LV Service Request K14 05121

Received: 5/21/14 Opened: 5/21/14 By: [illegible] Unloaded: 5/21/14 By: [illegible]

1. Samples were received via? *Mail* *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
10.8	10.3	7.7	7.8	+0.1	340			
8.8	8.8	13.1	13.1	0	335			
8.7	8.7	9.0	9.0	0	333			
9.9	8.9	7.1	7.1	0	336			
10.6	10.5	9.9	9.8	-0.1	276			

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. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
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

RT HOLD TIME

Notes, Discrepancies, & Resolutions: _____

Page _____ *of* _____

PC

Cooler Receipt and Preservation Form

Client / Project: City of LV Service Request *K14* 05127

Received: 5/21/14 Opened: 5/21/14 By: [illegible] Unloaded: 5/21/14 By: [illegible]

1. Samples were received via? *Mail* *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
9.3	9.1	13.4	13.2	0.2	345			

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. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
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

Notes, Discrepancies, & Resolutions: _____

Page ____ *of* ____

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	180.1	**Units:**	NTU
Prep Method:	None	**Basis:**	NA

Turbidity

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW 6	K1405127-001	**10.3**	0.20	1	05/22/14 15:42	
Method Blank	K1405127-MB1	ND U	0.20	1	05/22/14 15:36	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
Analysis Method:	180.1	**Units:**	NTU
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Turbidity

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1405123-002DUP	0.20	0.93	0.92	0.924	<1	20	05/22/14
Batch QC	K1405168-002DUP	0.20	0.70	0.71	0.707	2	20	05/23/14

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Turbidity

Analysis Method:	180.1	**Units:**	NTU
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	394139

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405127-LCS1	5.83	5.80	101	90-110

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Bromide

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW 6	K1405127-001	ND U	0.20	2	05/22/14 09:57	
Method Blank	K1405127-MB1	ND U	0.10	1	05/22/14 07:49	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary

General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405607-12DUP Result	Average	RPD	RPD Limit
Bromide	300.0	0.20	ND	ND	NC	NC	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/22/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Bromide

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405607-12MS			Duplicate Matrix Spike KQ1405607-12DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Bromide	ND U	3.96	4.00	99	3.97	4.00	99	90-110	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Bromide

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393762

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405127-LCS1	2.32	2.50	93	90-110

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Chloride

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW 6	K1405127-001	**137**	4.0	20	05/22/14 11:49	
Method Blank	K1405127-MB1	ND U	0.20	1	05/22/14 07:49	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary

General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405607-12DUP Result	Average	RPD	RPD Limit
Chloride	300.0	0.40	4.85	4.84	4.84	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/22/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Chloride

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405607-12MS			**Duplicate Matrix Spike** KQ1405607-12DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Chloride	4.85	9.08	4.00	106	9.07	4.00	106	90-110	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Chloride

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393762

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405127-LCS1	4.70	5.00	94	90-110

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Fluoride

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW 6	K1405127-001	ND U	0.20	2	05/22/14 09:57	
Method Blank	K1405127-MB1	ND U	0.10	1	05/22/14 07:49	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405607-12DUP Result	Average	RPD	RPD Limit
Fluoride	300.0	0.20	ND	ND	NC	NC	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/22/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Fluoride

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405607-12MS			Duplicate Matrix Spike KQ1405607-12DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Fluoride	ND U	4.10	4.00	102	4.13	4.00	103	90-110	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Fluoride

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393762

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405127-LCS1	5.05	5.00	101	90-110

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Nitrite as Nitrogen

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW 6	K1405127-001	ND U	0.10	2	05/22/14 09:57	
Method Blank	K1405127-MB1	ND U	0.050	1	05/22/14 07:49	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary

General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405607-12DUP Result	Average	RPD	RPD Limit
Nitrite as Nitrogen	300.0	0.10	ND	ND	NC	NC	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/22/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrite as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405607-12MS			Duplicate Matrix Spike KQ1405607-12DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrite as Nitrogen	ND U	4.13	4.00	103	4.14	4.00	103	90-110	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Nitrite as Nitrogen

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393762

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405127-LCS1	2.43	2.50	97	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Nitrate as Nitrogen

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW 6	K1405127-001	ND U	0.10	2	05/22/14 09:57	
Method Blank	K1405127-MB1	ND U	0.050	1	05/22/14 07:49	

ALS Group USA, Corp.

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405607-12DUP Result	Average	RPD	RPD Limit
Nitrate as Nitrogen	300.0	0.10	ND	ND	NC	NC	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/22/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrate as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405607-12MS			**Duplicate Matrix Spike** KQ1405607-12DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrate as Nitrogen	ND U	3.85	4.00	96	3.86	4.00	96	90-110	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Nitrate as Nitrogen

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393762

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405127-LCS1	2.35	2.50	94	90-110

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	5/21/2014
Sample Matrix:	Drinking water	**Date Received:**	5/21/2014

Nitrite + Nitrate as Nitrogen

Prep Method:	NONE	Units:	mg/L
Analysis Method:	300.0/300.0	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
DW 6	K1405127-001	0.10	2	NA	5/22/2014	ND	

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Sulfate

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW 6	K1405127-001	**0.55**	0.20	2	05/22/14 09:57	
Method Blank	K1405127-MB1	ND U	0.10	1	05/22/14 07:49	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary

General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405607-12DUP Result	Average	RPD	RPD Limit
Sulfate	300.0	0.20	2.28	2.30	2.29	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/22/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Sulfate

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405607-12MS			**Duplicate Matrix Spike** KQ1405607-12DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Sulfate	2.28	6.43	4.00	104	6.46	4.00	104	90-110	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Sulfate

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393762

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405127-LCS1	4.82	5.00	96	90-110

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	314.0	**Units:**	ug/L
Prep Method:	None	**Basis:**	NA

Perchlorate

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW 6	K1405127-001	ND U	1.0	1	05/22/14 12:40	
Method Blank	K1405127-MB1	ND U	1.0	1	05/22/14 09:12	

ALS Group USA, Corp.

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405052-001DUP Result	Average	RPD	RPD Limit
Perchlorate	314.0	1.0	ND	ND	NC	NC	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/22/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Perchlorate

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Analysis Method:	314.0		
Prep Method:	None		

		Matrix Spike K1405052-001MS			**Duplicate Matrix Spike** K1405052-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	ND U	11.9	10.0	119	10.4	10.0	104	80-120	13	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Perchlorate

Analysis Method:	314.0	**Units:**	ug/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393851

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405127-LCS1	16.3	16.8	97	85-115

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	335.4	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA

Cyanide, Total

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
DW 6	K1405127-001	ND U	0.010	1	06/02/14 12:55	6/2/14	
Method Blank	K1405127-MB1	ND U	0.010	1	06/02/14 12:55	6/2/14	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	06/02/14

Replicate Sample Summary

General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405982-03	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405982-03DUP Result	Average	RPD	RPD Limit
Cyanide, Total	335.4	0.010	ND	ND	NC	NC	20

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

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

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	06/2/14
		Date Extracted:	06/2/14

Matrix Spike Summary
Cyanide, Total

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405982-03	**Basis:**	NA
Analysis Method:	335.4		
Prep Method:	Method		

Matrix Spike
KQ1405982-03MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Cyanide, Total	ND U	0.096	0.143	67 *	90-110

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Analyzed:**	06/02/14
Sample Matrix:	Drinking Water	**Date Extracted:**	06/02/14

Lab Control Sample Summary
Cyanide, Total

Analysis Method:	335.4	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	395190

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405127-LCS1	0.141	0.150	94	90-110

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	SM 2120 B	**Units:**	ColorUnits
Prep Method:	None	**Basis:**	NA

Color

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW 6	K1405127-001	ND U	5.0	1	05/22/14 10:49	
Method Blank	K1405127-MB1	ND U	5.0	1	05/22/14 08:42	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary

General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	ColorUnits
Lab Code:	K1405057-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405057-001DUP Result	Average	RPD	RPD Limit
Color	SM 2120 B	5.0	15.0	15.0	15.0	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Color

Analysis Method:	SM 2120 B	**Units:**	ColorUnits
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393796

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405127-LCS1	65.0	65.0	100	85-115

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	SM 2320 B	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Alkalinity as CaCO3, Total

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW 6	K1405127-001	**94.0**	2.0	1	06/04/14 17:30	
Method Blank	K1405127-MB1	ND U	2.0	1	06/04/14 17:30	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	06/04/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405123-002	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405123-002DUP Result	Average	RPD	RPD Limit
Alkalinity as CaCO3, Total	SM 2320 B	2.0	106	107	107	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Analyzed:**	06/04/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Alkalinity as CaCO3, Total

Analysis Method:	SM 2320 B	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	395646

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405127-LCS1	175	177	99	90-110

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	SM 2510 B	**Units:**	uMHOS/cm
Prep Method:	None	**Basis:**	NA

Conductivity at 25 Degrees Celsius

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW 6	K1405127-001	**648**	2.0	1	06/03/14 13:30	
Method Blank	K1405127-MB1	ND U	2.0	1	06/03/14 13:30	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
Analysis Method:	SM 2510 B	**Units:**	uMHOS/cm
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Conductivity at 25 Degrees Celsius

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1405130-001DUP	2.0	313	315	314	<1	20	06/03/14
Batch QC	K1405431-009DUP	2.0	159	156	157	1	20	06/03/14

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Analyzed:**	06/03/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Conductivity at 25 Degrees Celsius

Analysis Method:	SM 2510 B	**Units:**	uMHOS/cm
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	395439

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405127-LCS1	337	330	102	86-113

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	SM 2540 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Solids, Total Dissolved

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW 6	K1405127-001	**487**	10	1	05/28/14 20:00	
Method Blank	K1405127-MB1	ND U	10	1	05/28/14 20:00	
Method Blank	K1405127-MB2	ND U	10	1	05/28/14 20:00	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
		Date Analyzed:	05/28/14

Replicate Sample Summary

General Chemistry Parameters

Sample Name:	DW 6	**Units:**	mg/L
Lab Code:	K1405127-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405127-001DUP Result	Average	RPD	RPD Limit
Solids, Total Dissolved	SM 2540 C	10	487	505	496	4	10

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Analyzed:**	05/28/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Solids, Total Dissolved

Analysis Method:	SM 2540 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	394546

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405127-LCS1	864	886	98	85-115

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	SM 4500-NH3 G	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA

Ammonia as Nitrogen

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
DW 6	K1405127-001	**0.136**	0.050	1	06/04/14 18:40	6/4/14	
Method Blank	K1405127-MB1	ND U	0.050	1	06/04/14 18:40	6/4/14	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
Analysis Method:	SM 4500-NH3 G	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA

Replicate Sample Summary
Ammonia as Nitrogen

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1405084-001DUP	0.050	ND U	ND U	NC	NC	20	06/04/14
Batch QC	K1405250-001DUP	0.050	2.58	2.56	2.57	<1	20	06/04/14

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	06/4/14
		Date Extracted:	06/4/14

Duplicate Matrix Spike Summary
Ammonia as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405084-001	**Basis:**	NA
Analysis Method:	SM 4500-NH3 G		
Prep Method:	Method		

		Matrix Spike			Duplicate Matrix Spike					
		K1405084-001MS			K1405084-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Ammonia as Nitrogen	ND U	2.05	2.00	103	2.04	2.00	102	90-110	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	06/4/14
		Date Extracted:	06/4/14

Duplicate Matrix Spike Summary
Ammonia as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405250-001	**Basis:**	NA
Analysis Method:	SM 4500-NH3 G		
Prep Method:	Method		

		Matrix Spike			Duplicate Matrix Spike					
		K1405250-001MS			K1405250-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Ammonia as Nitrogen	2.58	4.56	2.00	99	4.52	2.00	97	90-110	2	20

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ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Analyzed:**	06/04/14
Sample Matrix:	Drinking Water	**Date Extracted:**	06/04/14

Lab Control Sample Summary
Ammonia as Nitrogen

Analysis Method:	SM 4500-NH3 G	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	395732

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405127-LCS1	10.8	10.8	100	90-110

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	SM 4500-P E	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Orthophosphate as Phosphorus

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW 6	K1405127-001	**0.126**	0.050	1	05/22/14 12:42	
Method Blank	K1405127-MB1	ND U	0.050	1	05/21/14 13:29	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/21/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405052-001DUP Result	Average	RPD	RPD Limit
Orthophosphate as Phosphorus	SM 4500-P E	0.050	0.483	0.485	0.484	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Orthophosphate as Phosphorus

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA
Analysis Method:	SM 4500-P E		
Prep Method:	None		

		Matrix Spike K1405052-001MS			Duplicate Matrix Spike K1405052-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Orthophosphate as Phosphorus	0.483	0.91	0.40	107	0.85	0.40	92	75-125	15	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Orthophosphate as Phosphorus

Analysis Method:	SM 4500-P E	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393629

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405127-LCS1	3.86	3.94	98	85-115
Lab Control Sample	K1405127-LCS2	3.81	3.94	97	85-115
Lab Control Sample	K1405127-LCS3	3.83	3.94	97	85-115
Lab Control Sample	K1405127-LCS4	3.85	3.94	98	85-115

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	5/21/2014
Sample Matrix:	Drinking water	**Date Received:**	5/21/2014

Colilert, E. Coli

Prep Method: NONE
Analysis Method: SM 9223B
Basis: NA
Test Notes:

Sample Name	Lab Code	MRL	Date Analyzed	Time Test Started		Result	Result Notes
DW 6	K1405127-001	-	5/22/2014	11:40	hrs	Absent	

SM *Standard Methods for the Examination of Water and Wastewater* , 20th Ed., 1998.

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	5/21/2014
Sample Matrix:	Drinking water	**Date Received:**	5/21/2014

Colilert, T. Coli

Prep Method: NONE
Analysis Method: SM 9223B Basis: NA
Test Notes:

Sample Name	Lab Code	MRL	Date Analyzed	Time Test Started		Result	Result Notes
DW 6	K1405127-001	-	5/22/2014	11:40	hrs	Absent	

SM *Standard Methods for the Examination of Water and Wastewater* , 20th Ed., 1998.

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking water	**Date Received:**	05/21/14

Hardness as CaCO3

Prep Method:	CLAA	Units:	mg/L (ppm)
Analysis Method:	200.7/SM 2340B	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
DW 6	K1405127-001	0.07	1	05/29/14	05/30/14	249	
Method Blank	K1405127-MB	0.07	1	05/29/14	05/30/14	ND	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking water	**Date Received:**	05/21/14
		Date Extracted:	05/29/14
		Date Analyzed:	05/30/14

Duplicate Summary
Metals

Sample Name:	DW 6	Units:	mg/L (ppm)
Lab Code:	K1405127-001	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Hardness as CaCO3	CLAA	200.7/SM 2340B	0.07	249	247	248	<1	

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking water	**Date Received:**	05/21/14

Methyl Mercury

Prep Method:	Method	Units:	ng/L
Analysis Method:	1630	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
DW 6	K1405127-001	0.1	1	06/08/14	06/09/14	ND	
Method Blank 1	K1405127-MB1	0.1	1	06/08/14	06/09/14	ND	
Method Blank 2	K1405127-MB2	0.1	1	06/08/14	06/09/14	ND	
Method Blank 3	K1405127-MB3	0.1	1	06/08/14	06/09/14	ND	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	06/08/14
		Date Analyzed:	06/09/14

Matrix Spike/Duplicate Matrix Spike Summary
Metals

Sample Name:	Batch QC	Units:	ng/L
Lab Code:	K1405054-001MS, K1405054-001MSD	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Spike Level MS	Spike Level DMS	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	CAS Acceptance Limits	Relative Percent Difference	Result Notes
Mercury, Methyl	Method	1630	0.1	2.22	2.22	ND	2.54	2.52	114	114	65-135	<1	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	06/08/14
		Date Analyzed:	06/09/14

Ongoing Precision and Recovery (OPR) Sample Summary
Metals

Sample Name: Ongoing Precision and Recovery (Initial)

Units: ng/L
Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Mercury, Methyl	Method	1630	2.22	2.54	114	67-133	

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dba ALS Environmental
QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	06/08/14
		Date Analyzed:	06/09/14

Ongoing Precision and Recovery (OPR) Sample Summary
Metals

Sample Name: Ongoing Precision and Recovery (Final)

Units: ng/L
Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Mercury, Methyl	Method	1630	2.22	2.50	113	67-133	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	06/08/14
		Date Analyzed:	06/09/14

Quality Control Sample (QCS) Summary
Metals

Sample Name: Quality Control Sample

Units: pg
Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Mercury, Methyl	Method	1630	100	106	106	67-133	

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INORGANIC ANALYSIS DATA PACKAGE

Client: Longview, City of
Project Name: Sentinel Wells
Project No.:

Service Request: K1405127

Sample Name:	Lab Code:
Batch QC1D	K1405052-001D
Batch QC1S	K1405052-001S
DW 6	K1405127-001
DW 6D	K1405127-001D
DW 6S	K1405127-001S
Method Blank	K1405127-MB

Comments:

Metals

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

Client: Longview, City of
Project No.: NA
Project Name: Sentinel Wells
Matrix: WATER

Service Request: K1405127
Date Collected: 05/21/14
Date Received: 05/21/14
Units: mg/L
Basis: NA

Sample Name: DW 6
Lab Code: K1405127-001

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Antimony	200.8	0.00005	1.0	05/29/14	05/30/14	0.00005	U	
Arsenic	200.8	0.0005	1.0	05/29/14	05/30/14	0.0050		
Barium	200.7	0.0040	1.0	05/29/14	05/30/14	0.0310		
Beryllium	200.8	0.00002	1.0	05/29/14	05/30/14	0.00002	U	
Cadmium	200.8	0.00002	1.0	05/29/14	05/30/14	0.00002	U	
Chromium	200.8	0.0002	1.0	05/29/14	05/30/14	0.0002	U	
Copper	200.7	0.004	1.0	05/29/14	05/30/14	0.004	U	
Iron	200.7	0.020	1.0	05/29/14	05/30/14	1.06		
Lead	200.8	0.00002	1.0	05/29/14	05/30/14	0.00002	U	
Manganese	200.7	0.001	1.0	05/29/14	05/30/14	1.00		
Mercury	245.1	0.0002	1.0	05/29/14	05/29/14	0.0002	U	
Nickel	200.8	0.0002	1.0	05/29/14	05/30/14	0.0009		
Selenium	200.8	0.001	1.0	05/29/14	05/30/14	0.001	U	
Silver	200.8	0.00002	1.0	05/29/14	05/30/14	0.00002	U	
Sodium	200.7	0.20	1.0	05/29/14	05/30/14	16.4		
Thallium	200.8	0.00002	1.0	05/29/14	05/30/14	0.00002	U	
Zinc	200.7	0.004	1.0	05/29/14	05/30/14	0.004	U	

Comments:

Metals

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

Client: Longview, City of
Project No.: NA
Project Name: Sentinel Wells
Matrix: WATER

Service Request: K1405127
Date Collected:
Date Received:
Units: mg/L
Basis: NA

Sample Name: Method Blank
Lab Code: K1405127-MB

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Antimony	200.8	0.00005	1.0	05/29/14	05/30/14	0.00005	U	
Arsenic	200.8	0.0005	1.0	05/29/14	05/30/14	0.0005	U	
Barium	200.7	0.0040	1.0	05/29/14	05/30/14	0.0040	U	
Beryllium	200.8	0.00002	1.0	05/29/14	05/30/14	0.00002	U	
Cadmium	200.8	0.00002	1.0	05/29/14	05/30/14	0.00002	U	
Chromium	200.8	0.0002	1.0	05/29/14	05/30/14	0.0002	U	
Copper	200.7	0.004	1.0	05/29/14	05/30/14	0.004	U	
Iron	200.7	0.020	1.0	05/29/14	05/30/14	0.020	U	
Lead	200.8	0.00002	1.0	05/29/14	05/30/14	0.00002	U	
Manganese	200.7	0.001	1.0	05/29/14	05/30/14	0.001	U	
Mercury	245.1	0.0002	1.0	05/29/14	05/29/14	0.0002	U	
Nickel	200.8	0.0002	1.0	05/29/14	05/30/14	0.0002	U	
Selenium	200.8	0.001	1.0	05/29/14	05/30/14	0.001	U	
Silver	200.8	0.00002	1.0	05/29/14	05/30/14	0.00002	U	
Sodium	200.7	0.20	1.0	05/29/14	05/30/14	0.20	U	
Thallium	200.8	0.00002	1.0	05/29/14	05/30/14	0.00002	U	
Zinc	200.7	0.004	1.0	05/29/14	05/30/14	0.004	U	

Comments:

Metals
- 5A -
SPIKE SAMPLE RECOVERY

Client: Longview, City of
Service Request: K1405127
Project No.: NA
Units: MG/L
Project Name: Sentinel Wells
Basis: NA
Matrix: WATER

Sample Name: Batch QC1S
Lab Code: K1405052-001S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Mercury	80 - 120	0.0010		0.0002	U	0.001	100		245.1

An empty field in the Control Limit column indicates the control limit is not applicable

Metals
- 5A -
SPIKE SAMPLE RECOVERY

Client: Longview, City of
Service Request: K1405127
Project No.: NA
Units: MG/L
Project Name: Sentinel Wells
Basis: NA
Matrix: WATER

Sample Name: DW 6S
Lab Code: K1405127-001S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Antimony	70 - 130	0.056061		0.000050	U	0.050000	112		200.8
Arsenic	70 - 130	0.05995		0.00498		0.05000	110		200.8
Barium	70 - 130	2.1		0.0310		2.00	103.4		200.7
Beryllium	70 - 130	0.00266		0.00002	U	0.00250	106		200.8
Cadmium	70 - 130	0.02758		0.00002	U	0.025000	110		200.8
Chromium	70 - 130	0.0099		0.0002	U	0.01000	99		200.8
Copper	70 - 130	0.256		0.004	U	0.25	102.4		200.7
Iron	70 - 130	2.11		1.06		1.00	105.0		200.7
Lead	70 - 130	0.05416		0.00002	U	0.050000	108		200.8
Manganese	70 - 130	1.48		1.00		0.50	96.0		200.7
Nickel	70 - 130	0.0258		0.0009		0.02500	100		200.8
Selenium	70 - 130	0.055		0.001	U	0.0500	110		200.8
Silver	70 - 130	0.01351		0.00002	U	0.012500	108		200.8
Sodium	70 - 130	27.2		16.4		10.00	108.0		200.7
Thallium	70 - 130	0.05612		0.00002	U	0.050000	112		200.8
Zinc	70 - 130	0.503		0.004	U	0.50	100.6		200.7

An empty field in the Control Limit column indicates the control limit is not applicable

Metals

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DUPLICATES

Client: Longview, City of **Service Request:** K1405127

Project No.: NA **Units:** MG/L

Project Name: Sentinel Wells **Basis:** NA

Matrix: WATER

Sample Name: Batch QC1D **Lab Code:** K1405052-001D

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Mercury		0.0002	U	0.0002	U			245.1

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals

- 6 -

DUPLICATES

Client: Longview, City of **Service Request:** K1405127

Project No.: NA **Units:** MG/L

Project Name: Sentinel Wells **Basis:** NA

Matrix: WATER

Sample Name: DW 6D **Lab Code:** K1405127-001D

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Antimony		0.000050	U	0.000050	U			200.8
Arsenic	20	0.00498		0.00496		0.4		200.8
Barium	20	0.0310		0.0306		1.3		200.7
Beryllium		0.00002	U	0.00002	U			200.8
Cadmium		0.00002	U	0.00002	U			200.8
Chromium		0.0002	U	0.0002	U			200.8
Copper		0.004	U	0.004	U			200.7
Iron	20	1.06		1.07		0.9		200.7
Lead		0.00002	U	0.00002	U			200.8
Manganese	20	1.00		0.983		1.7		200.7
Nickel		0.0009		0.0008		11.8		200.8
Selenium		0.001	U	0.001	U			200.8
Silver		0.00002	U	0.00002	U			200.8
Sodium	20	16.4		16.8		2.4		200.7
Thallium		0.00002	U	0.00002	U			200.8
Zinc		0.004	U	0.004	U			200.7

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals

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LABORATORY CONTROL SAMPLE

Client: Longview, City of **Service Request:** K1405127

Project No.: NA

Project Name: Sentinel Wells

Aqueous LCS Source: **ALS MIXED** **Solid LCS Source:**

Analyte	Aqueous (ug/L)			Solid (mg/kg)				
	True	Found	%R	True	Found	C	Limits	%R
Antimony	0.050	0.0542	108					
Arsenic	0.050	0.053	106					
Barium	5	5.1	102.0					
Beryllium	0.003	0.0026	104					
Cadmium	0.025	0.0273	109					
Calcium	12.5	12.6	100.8					
Chromium	0.010	0.0106	106					
Copper	.625	0.635	101.6					
Iron	2.5	2.54	101.6					
Lead	0.050	0.0558	112					
Magnesium	12.5	12.8	102.4					
Manganese	1.25	1.25	100.0					
Mercury	.005	0.0051	102					
Nickel	0.025	0.0263	105					
Selenium	0.050	0.054	108					
Silver	0.013	0.0136	109					
Sodium	12.5	13.1	104.8					
Thallium	0.050	0.0568	114					
Zinc	1.25	1.26	100.8					

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Analytical Results

Client:	Longview, City of		**Service Request:**
Project:	Sentinel Wells		**Date Collected:**
Sample Matrix:	Drinking water		**Date Received:**

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	DW 6		Units:
Lab Code:	K1405127-001		Basis:
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result
2,4,6-Trichlorophenol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
2,4,5-Trichlorophenol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND
Trichlorosyringol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
Pentachlorophenol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND
Tetrachloroguaiacol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND
Tetrachlorocatechol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of		**Service Request:**
Project:	Sentinel Wells		**Date Collected:**
Sample Matrix:	Drinking water		**Date Received:**

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	Method Blank		Units:
Lab Code:	KWG1404755-3		Basis:
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result
2,4,6-Trichlorophenol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
2,4,5-Trichlorophenol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND
Trichlorosyringol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
Pentachlorophenol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND
Tetrachloroguaiacol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND
Tetrachlorocatechol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	5/27/2014

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

P e r c e n t R e c o v e r y

Analyte	**CAS Percent Recovery Acceptance Criteria**	Sample Name:	**DW 6**	**Method Blank**
		Lab Code:	K1405127-001	KWG1404755-3
		Date Analyzed:	5/29/2014	5/29/2014
3,4,5-Trichlorophenol	36-131		93	86
4,5,6-Trichloroguaiacol-13c6	25-134		78	72
Pentachlorophenol-13c6	22-117		60	53
Tetrachloroguaiacol-13c6	18-129		63	53
Tetrachlorocatechol-13c6	D-121		19	34

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client: Longview, City of
Project: Sentinel Wells
Sample Matrix: Drinking water

Service Request: K1405127
Date Collected: NA
Date Received: NA
Date Extracted: 5/27/2014
Date Analyzed: 5/29/2014

Duplicate Summary
Chlorinated Phenolic Organic Compounds

Sample Name: Batch QC
Lab Code: KWG1404755-1
Test Notes:

Units: ug/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	2.5	ND	ND	ND	-	
2,4,5-Trichlorophenol	METHOD	1653A	2.5	ND	ND	ND	-	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	ND	ND	ND	-	
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	ND	ND	ND	-	
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	ND	ND	ND	-	
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	ND	ND	ND	-	
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	ND	ND	ND	-	
Trichlorosyringol	METHOD	1653A	2.5	ND	ND	ND	-	
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	ND	ND	ND	-	
Pentachlorophenol	METHOD	1653A	5.0	ND	ND	ND	-	
Tetrachloroguaiacol	METHOD	1653A	5.0	ND	ND	ND	-	
Tetrachlorocatechol	METHOD	1653A	5.0	ND	ND	ND	-	

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	5/27/2014
		Date Analyzed:	5/29/2014

Ongoing Precision and Recovery Summary
Chlorinated Phenolic Organic Compounds

Sample Name:	Lab Control Sample	Units:	ug/L (ppb)
Lab Code:	KWG1404755-2	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	50	57.5	115	72-146	
2,4,5-Trichlorophenol	METHOD	1653A	50	57.3	115	82-128	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	50	47.6	95	82-132	
3,4,6-Trichloroguaiacol	METHOD	1653A	50	47.5	95	74-140	
3,4,5-Trichloroguaiacol	METHOD	1653A	50	45.0	90	80-134	
3,4,6-Trichlorocatechol	METHOD	1653A	100	90.8	91	64-149	
3,4,5-Trichlorocatechol	METHOD	1653A	100	82.2	82	72-128	
Trichlorosyringol	METHOD	1653A	50	35.9	72	66-174	
4,5,6-Trichloroguaiacol	METHOD	1653A	50	50.1	100	88-116	
Pentachlorophenol	METHOD	1653A	100	100	100	84-120	
Tetrachloroguaiacol	METHOD	1653A	100	106	106	81-126	
Tetrachlorocatechol	METHOD	1653A	100	120	120	81-132	

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

EPA Method 504.1

Sample Name:	DW 6	**Units:**	ug/L
Lab Code:	K1405127-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	504.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	0.0097	1	05/28/14	05/29/14	KWG1404828	
1,2,3-Trichloropropane	ND	U	0.098	1	05/28/14	05/29/14	KWG1404828	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.0097	1	05/28/14	05/29/14	KWG1404828	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

EPA Method 504.1

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404828-4	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	504.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	0.0099	1	05/28/14	05/28/14	KWG1404828	
1,2,3-Trichloropropane	ND	U	0.10	1	05/28/14	05/28/14	KWG1404828	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.0099	1	05/28/14	05/28/14	KWG1404828	

Comments:

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Extracted:**	05/28/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/28/2014

Matrix Spike/Duplicate Matrix Spike Summary
EPA Method 504.1

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	504.1	**Extraction Lot:**	KWG1404828

		Batch QCMS KWG1404828-1 Matrix Spike			Batch QCDMS KWG1404828-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
1,2-Dibromoethane (EDB)	ND	0.244	0.242	101	0.259	0.243	107	65-135	6	30
1,2,3-Trichloropropane	ND	0.192	0.242	79	0.214	0.243	88	65-135	11	30
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.210	0.242	87	0.231	0.243	95	65-135	9	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Extracted:**	05/28/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/28/2014

Lab Control Spike Summary
EPA Method 504.1

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	504.1	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404828

Lab Control Sample
KWG1404828-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
1,2-Dibromoethane (EDB)	0.264	0.250	106	70-130
1,2,3-Trichloropropane	0.223	0.250	89	70-130
1,2-Dibromo-3-chloropropane (DBCP)	0.230	0.250	92	70-130

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

Pesticides/PCBs by EPA Method 508.1

Sample Name:	DW 6	**Units:**	ug/L
Lab Code:	K1405127-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
gamma-BHC (Lindane)	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Heptachlor	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Aldrin	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Heptachlor Epoxide	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Heptachlor Epoxide (Isomer A)	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
4,4'-DDE	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Dieldrin	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Endrin	ND	U	0.0098	1	05/29/14	06/03/14	KWG1404875	
4,4'-DDD	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
4,4'-DDT	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Methoxychlor	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Toxaphene	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Chlordane	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1016	ND	U	0.049	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1221	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1232	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1242	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1248	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1254	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1260	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4,4'-Dibromooctafluorobiphenyl	92	70-130	06/02/14	Acceptable

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Pesticides/PCBs by EPA Method 508.1

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404875-7	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
gamma-BHC (Lindane)	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Heptachlor	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Aldrin	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Heptachlor Epoxide	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Heptachlor Epoxide (Isomer A)	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
4,4'-DDE	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Dieldrin	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Endrin	ND	U	0.010	1	05/29/14	06/04/14	KWG1404875	
4,4'-DDD	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
4,4'-DDT	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Methoxychlor	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Toxaphene	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Chlordane	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1016	ND	U	0.050	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1221	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1232	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1242	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1248	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1254	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1260	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4,4'-Dibromooctafluorobiphenyl	94	70-130	06/02/14	Acceptable

Comments:

Client: Longview, City of
Project: Sentinel Wells
Sample Matrix: Drinking water

Service Request: K1405127

Surrogate Recovery Summary
Pesticides/PCBs by EPA Method 508.1

Extraction Method: METHOD
Analysis Method: 508.1

Units: Percent
Level: Low

Sample Name	Lab Code	Sur1
Batch QC	K1405057-001	97
DW 6	K1405127-001	92
Method Blank	KWG1404875-7	94
Batch QCMS	KWG1404875-1	88
Batch QCDMS	KWG1404875-2	88
Lab Control Sample	KWG1404875-3	87

Surrogate Recovery Control Limits (%)

Sur1 = 4,4'-Dibromooctafluorobiphenyl 70-130

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/02/2014 - 06/03/2014

Matrix Spike/Duplicate Matrix Spike Summary
Pesticides/PCBs by EPA Method 508.1

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405057-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1	**Extraction Lot:**	KWG1404875

		Batch QCMS KWG1404875-1 Matrix Spike			Batch QCDMS KWG1404875-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
gamma-BHC (Lindane)	ND	0.0984	0.0962	102	0.0982	0.0962	102	65-135	0	30
Heptachlor	ND	0.0739	0.0962	77	0.0681	0.0962	71	65-135	8	30
Aldrin	ND	0.0888	0.0962	92	0.0871	0.0962	91	65-135	2	30
Heptachlor Epoxide	ND	0.0836	0.0962	87	0.0782	0.0962	81	65-135	7	30
Heptachlor Epoxide (Isomer A)	ND	0.0893	0.0962	93	0.0848	0.0962	88	65-135	5	30
4,4'-DDE	ND	0.0954	0.0962	99	0.0955	0.0962	99	65-135	0	30
Dieldrin	ND	0.0918	0.0962	95	0.0905	0.0962	94	65-135	1	30
Endrin	ND	0.0807	0.0962	84	0.0791	0.0962	82	65-135	2	30
4,4'-DDD	ND	0.103	0.0962	107	0.103	0.0962	107	65-135	0	30
4,4'-DDT	ND	0.0995	0.0962	103	0.0998	0.0962	104	65-135	0	30
Methoxychlor	ND	0.0990	0.0962	103	0.0949	0.0962	99	65-135	4	30
Aroclor 1248	ND	0.373	0.481	78	0.368	0.481	76	65-135	1	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client: Longview, City of
Project: Sentinel Wells
Sample Matrix: Drinking water

Service Request: K1405127
Date Extracted: 05/29/2014
Date Analyzed: 06/02/2014 - 06/04/2014

Lab Control Spike Summary
Pesticides/PCBs by EPA Method 508.1

Extraction Method: METHOD
Analysis Method: 508.1

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1404875

Lab Control Sample
KWG1404875-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
gamma-BHC (Lindane)	0.100	0.100	100	70-130
Heptachlor	0.0882	0.100	88	70-130
Aldrin	0.0916	0.100	92	70-130
Heptachlor Epoxide	0.0963	0.100	96	70-130
Heptachlor Epoxide (Isomer A)	0.102	0.100	102	70-130
4,4'-DDE	0.101	0.100	101	70-130
Dieldrin	0.0997	0.100	100	70-130
Endrin	0.104	0.100	104	70-130
4,4'-DDD	0.110	0.100	110	70-130
4,4'-DDT	0.102	0.100	102	70-130
Methoxychlor	0.0965	0.100	97	70-130
Aroclor 1248	0.420	0.500	84	70-130

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

Chlorinated Herbicides by EPA 515.4

Sample Name:	DW 6	**Units:**	ug/L
Lab Code:	K1405127-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	515.4		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dalapon	ND	U	0.50	1	05/30/14	06/03/14	KWG1404919	
3,5-Dichlorobenzoic Acid	ND	U	0.25	1	05/30/14	06/03/14	KWG1404919	
Dicamba	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
Dichlorprop	ND	U	0.25	1	05/30/14	06/03/14	KWG1404919	
2,4-D	ND	U	0.089	1	05/30/14	06/03/14	KWG1404919	
Pentachlorophenol	ND	U	0.020	1	05/30/14	06/03/14	KWG1404919	
2,4,5-TP (Silvex)	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
Chloramben	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
2,4-DB	ND	U	0.50	1	05/30/14	06/03/14	KWG1404919	
Dinoseb	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
Dacthal Diacid	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
Picloram	ND	U	0.091	1	05/30/14	06/03/14	KWG1404919	
Acifluorfen	ND	U	1.0	1	05/30/14	06/03/14	KWG1404919	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2,4-Dichlorophenylacetic Acid	83	70-130	06/03/14	Acceptable

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Chlorinated Herbicides by EPA 515.4

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404919-4	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	515.4		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dalapon	ND	U	0.50	1	05/30/14	06/02/14	KWG1404919	
3,5-Dichlorobenzoic Acid	ND	U	0.25	1	05/30/14	06/02/14	KWG1404919	
Dicamba	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Dichlorprop	ND	U	0.25	1	05/30/14	06/02/14	KWG1404919	
2,4-D	ND	U	0.089	1	05/30/14	06/02/14	KWG1404919	
Pentachlorophenol	ND	U	0.020	1	05/30/14	06/02/14	KWG1404919	
2,4,5-TP (Silvex)	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Chloramben	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
2,4-DB	ND	U	0.50	1	05/30/14	06/02/14	KWG1404919	
Dinoseb	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Dacthal Diacid	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Picloram	ND	U	0.091	1	05/30/14	06/02/14	KWG1404919	
Acifluorfen	ND	U	1.0	1	05/30/14	06/02/14	KWG1404919	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2,4-Dichlorophenylacetic Acid	113	70-130	06/02/14	Acceptable

Comments:

Client: Longview, City of
Project: Sentinel Wells
Sample Matrix: Drinking water

Service Request: K1405127

Surrogate Recovery Summary
Chlorinated Herbicides by EPA 515.4

Extraction Method: METHOD
Analysis Method: 515.4

Units: Percent
Level: Low

Sample Name	Lab Code	Sur1
Batch QC	K1405052-001	75
DW 6	K1405127-001	83
Method Blank	KWG1404919-4	113
Batch QCMS	KWG1404919-1	119
Batch QCDMS	KWG1404919-2	115
Lab Control Sample	KWG1404919-3	109

Surrogate Recovery Control Limits (%)

Sur1 = 2,4-Dichlorophenylacetic Acid 70-130

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Extracted:**	05/30/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/02/2014 - 06/03/2014

Matrix Spike/Duplicate Matrix Spike Summary
Chlorinated Herbicides by EPA 515.4

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	515.4	**Extraction Lot:**	KWG1404919

		Batch QCMS KWG1404919-1 Matrix Spike			Batch QCDMS KWG1404919-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dalapon	ND	2.44	2.49	98	2.48	2.49	99	70-130	1	30
3,5-Dichlorobenzoic Acid	ND	2.41	2.49	97	2.36	2.49	95	70-130	2	30
Dicamba	ND	2.43	2.49	98	2.42	2.49	97	70-130	1	30
Dichlorprop	ND	2.33	2.49	94	2.27	2.49	91	70-130	3	30
2,4-D	ND	2.33	2.49	94	2.31	2.49	93	70-130	1	30
Pentachlorophenol	ND	2.44	2.49	98	2.42	2.49	97	70-130	1	30
2,4,5-TP (Silvex)	ND	2.46	2.49	99	2.46	2.49	99	70-130	0	30
Chloramben	ND	2.54	2.49	102	2.55	2.49	102	70-130	0	30
2,4-DB	ND	2.44	2.49	98	2.41	2.49	97	70-130	1	30
Dinoseb	ND	2.28	2.49	92	2.33	2.49	93	70-130	2	30
Dacthal Diacid	ND	2.75	2.49	110	2.73	2.49	110	70-130	1	30
Picloram	ND	2.60	2.49	104	2.56	2.49	103	70-130	2	30
Acifluorfen	ND	2.41	2.49	97	2.40	2.49	96	70-130	0	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Extracted:**	05/30/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/02/2014

Lab Control Spike Summary
Chlorinated Herbicides by EPA 515.4

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	515.4	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404919

Lab Control Sample
KWG1404919-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Dalapon	2.39	2.50	95	70-130
3,5-Dichlorobenzoic Acid	2.34	2.50	94	70-130
Dicamba	2.37	2.50	95	70-130
Dichlorprop	2.30	2.50	92	70-130
2,4-D	2.29	2.50	91	70-130
Pentachlorophenol	2.31	2.50	92	70-130
2,4,5-TP (Silvex)	2.41	2.50	96	70-130
Chloramben	2.57	2.50	103	70-130
2,4-DB	2.38	2.50	95	70-130
Dinoseb	2.37	2.50	95	70-130
Dacthal Diacid	2.42	2.50	97	70-130
Picloram	2.32	2.50	93	70-130
Acifluorfen	2.41	2.50	96	70-130

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

Volatile Organic Compounds

Sample Name:	DW 6	**Units:**	ug/L
Lab Code:	K1405127-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Vinyl Chloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromomethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Trichlorofluoromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Methylene Chloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
trans-1,2-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
cis-1,2-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Methyl tert-Butyl Ether	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloroform	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromochloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Carbon Tetrachloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Benzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Trichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromodichloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Dibromomethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
cis-1,3-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Toluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
trans-1,3-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Tetrachloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
2,2-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Dibromochloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Ethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Styrene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
m,p-Xylenes	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

Volatile Organic Compounds

Sample Name:	DW 6	**Units:**	ug/L
Lab Code:	K1405127-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
o-Xylene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,1-Trichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromoform	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Isopropylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
n-Propylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3,5-Trimethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
2-Chlorotoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
4-Chlorotoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
tert-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,4-Trimethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
sec-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
p-Isopropyltoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,4-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
n-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,4-Trichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Hexachlorobutadiene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Naphthalene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,2-Trichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,3-Trichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,3-Trichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

Volatile Organic Compounds

Sample Name:	DW 6	**Units:**	ug/L
Lab Code:	K1405127-001	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	97	70-130	05/29/14	Acceptable
Dibromofluoromethane	93	82-124	05/29/14	Acceptable
Toluene-d8	101	82-124	05/29/14	Acceptable

Comments:

Analytical Results

Client: Longview, City of
Project: Sentinel Wells
Sample Matrix: Drinking water

Service Request: K1405127
Date Collected: NA
Date Received: NA

Volatile Organic Compounds

Sample Name: Method Blank
Lab Code: KWG1404851-5

Units: ug/L
Basis: NA

Extraction Method: METHOD
Analysis Method: 524.2

Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Vinyl Chloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromomethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Trichlorofluoromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Methylene Chloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
trans-1,2-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
cis-1,2-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Methyl tert-Butyl Ether	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloroform	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromochloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Carbon Tetrachloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Benzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Trichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromodichloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Dibromomethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
cis-1,3-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Toluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
trans-1,3-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Tetrachloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
2,2-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Dibromochloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Ethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Styrene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
m,p-Xylenes	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404851-5	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
o-Xylene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,1-Trichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromoform	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Isopropylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
n-Propylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3,5-Trimethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
2-Chlorotoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
4-Chlorotoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
tert-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,4-Trimethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
sec-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
p-Isopropyltoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,4-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
n-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,4-Trichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Hexachlorobutadiene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Naphthalene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,2-Trichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,3-Trichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,3-Trichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404851-5	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	99	70-130	05/29/14	Acceptable
Dibromofluoromethane	93	82-124	05/29/14	Acceptable
Toluene-d8	101	82-124	05/29/14	Acceptable

Comments:

Client: Longview, City of
Project: Sentinel Wells
Sample Matrix: Drinking water

Service Request: K1405127

Surrogate Recovery Summary
Volatile Organic Compounds

Extraction Method: METHOD
Analysis Method: 524.2

Units: Percent
Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
Batch QC	K1405052-001	98	93	101
DW 6	K1405127-001	97	93	101
Method Blank	KWG1404851-5	99	93	101
Batch QCMS	KWG1404851-1	100	97	103
Batch QCDMS	KWG1404851-2	103	98	104
Lab Control Sample	KWG1404851-3	102	99	104

Surrogate Recovery Control Limits (%)

Sur1	4-Bromofluorobenzene	70-130
Sur2	Dibromofluoromethane	82-124
Sur3	Toluene-d8	82-124

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Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/29/2014

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2	**Extraction Lot:**	KWG1404851

		Batch QCMS KWG1404851-1 Matrix Spike			Batch QCDMS KWG1404851-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dichlorodifluoromethane	ND	6.83	5.00	137 *	5.31	5.00	106	70-130	25	30
Chloromethane	ND	5.99	5.00	120	4.99	5.00	100	70-130	18	30
Vinyl Chloride	ND	5.77	5.00	115	4.57	5.00	91	70-130	23	30
Bromomethane	ND	4.87	5.00	97	3.96	5.00	79	70-130	21	30
Chloroethane	ND	6.07	5.00	121	4.94	5.00	99	70-130	21	30
Trichlorofluoromethane	ND	5.48	5.00	110	4.33	5.00	87	70-130	23	30
Methylene Chloride	ND	5.27	5.00	105	4.57	5.00	91	70-130	14	30
trans-1,2-Dichloroethene	ND	5.41	5.00	108	4.49	5.00	90	70-130	19	30
1,1-Dichloroethene	ND	5.32	5.00	106	4.28	5.00	86	70-130	22	30
cis-1,2-Dichloroethene	ND	5.35	5.00	107	4.47	5.00	89	70-130	18	30
Methyl tert-Butyl Ether	ND	10.2	10.0	102	9.03	10.0	90	70-130	12	30
Chloroform	ND	5.21	5.00	104	4.41	5.00	88	70-130	17	30
Bromochloromethane	ND	5.24	5.00	105	4.44	5.00	89	70-130	17	30
Carbon Tetrachloride	ND	4.90	5.00	98	3.96	5.00	79	70-130	21	30
Benzene	ND	5.38	5.00	108	4.50	5.00	90	70-130	18	30
1,2-Dichloroethane	ND	4.99	5.00	100	4.37	5.00	87	70-130	13	30
Trichloroethene	ND	5.10	5.00	102	4.17	5.00	83	70-130	20	30
1,2-Dichloropropane	ND	5.04	5.00	101	4.26	5.00	85	70-130	17	30
Bromodichloromethane	ND	4.41	5.00	88	3.79	5.00	76	70-130	15	30
Dibromomethane	ND	4.80	5.00	96	4.25	5.00	85	70-130	12	30
cis-1,3-Dichloropropene	ND	4.13	5.00	83	3.49	5.00	70	70-130	17	30
Toluene	ND	5.54	5.00	111	4.61	5.00	92	70-130	18	30
1,1-Dichloroethane	ND	5.31	5.00	106	4.43	5.00	89	70-130	18	30
trans-1,3-Dichloropropene	ND	3.69	5.00	74	3.25	5.00	65 *	70-130	13	30
Tetrachloroethene	ND	5.52	5.00	110	4.65	5.00	93	70-130	17	30
1,3-Dichloropropane	ND	5.55	5.00	111	5.01	5.00	100	70-130	10	30
2,2-Dichloropropane	ND	4.94	5.00	99	3.98	5.00	80	70-130	22	30
Dibromochloromethane	ND	4.00	5.00	80	3.54	5.00	71	70-130	12	30
1,2-Dibromoethane (EDB)	ND	4.89	5.00	98	4.42	5.00	88	70-130	10	30
Chlorobenzene	ND	5.51	5.00	110	4.78	5.00	96	70-130	14	30
Ethylbenzene	ND	5.45	5.00	109	4.66	5.00	93	70-130	16	30
Styrene	ND	5.77	5.00	115	4.98	5.00	100	70-130	15	30
m,p-Xylenes	ND	11.5	10.0	115	9.84	10.0	98	70-130	16	30

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

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/29/2014

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2	**Extraction Lot:**	KWG1404851

		Batch QCMS KWG1404851-1 Matrix Spike			Batch QCDMS KWG1404851-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
o-Xylene	ND	5.60	5.00	112	4.85	5.00	97	70-130	14	30
1,1,1-Trichloroethane	ND	4.88	5.00	98	4.02	5.00	80	70-130	19	30
Bromoform	ND	4.15	5.00	83	3.65	5.00	73	70-130	13	30
1,1,2,2-Tetrachloroethane	ND	4.17	5.00	83	3.74	5.00	75	70-130	11	30
Isopropylbenzene	ND	5.78	5.00	116	4.87	5.00	97	70-130	17	30
1,1-Dichloropropene	ND	5.34	5.00	107	4.31	5.00	86	70-130	21	30
Bromobenzene	ND	4.31	5.00	86	3.81	5.00	76	70-130	12	30
n-Propylbenzene	ND	4.47	5.00	89	3.85	5.00	77	70-130	15	30
1,3,5-Trimethylbenzene	ND	4.76	5.00	95	4.13	5.00	83	70-130	14	30
2-Chlorotoluene	ND	4.50	5.00	90	3.95	5.00	79	70-130	13	30
4-Chlorotoluene	ND	4.85	5.00	97	4.20	5.00	84	70-130	14	30
tert-Butylbenzene	ND	5.17	5.00	103	4.39	5.00	88	70-130	16	30
1,2,4-Trimethylbenzene	ND	5.60	5.00	112	4.84	5.00	97	70-130	15	30
sec-Butylbenzene	ND	5.62	5.00	112	4.76	5.00	95	70-130	17	30
p-Isopropyltoluene	ND	5.89	5.00	118	4.96	5.00	99	70-130	17	30
1,3-Dichlorobenzene	ND	5.12	5.00	102	4.47	5.00	89	70-130	14	30
1,4-Dichlorobenzene	ND	5.13	5.00	103	4.49	5.00	90	70-130	13	30
n-Butylbenzene	ND	5.51	5.00	110	4.64	5.00	93	70-130	17	30
1,2-Dichlorobenzene	ND	5.32	5.00	106	4.74	5.00	95	70-130	12	30
1,2-Dibromo-3-chloropropane (DBCP)	ND	4.16	5.00	83	3.68	5.00	74	70-130	12	30
1,2,4-Trichlorobenzene	ND	4.48	5.00	90	3.98	5.00	80	70-130	12	30
Hexachlorobutadiene	ND	4.70	5.00	94	3.98	5.00	80	70-130	17	30
Naphthalene	ND	4.09	5.00	82	3.72	5.00	74	70-130	9	30
1,1,2-Trichloroethane	ND	5.03	5.00	101	4.53	5.00	91	70-130	10	30
1,1,1,2-Tetrachloroethane	ND	4.69	5.00	94	4.01	5.00	80	70-130	16	30
1,2,3-Trichloropropane	ND	4.81	5.00	96	4.41	5.00	88	70-130	9	30
1,2,3-Trichlorobenzene	ND	4.73	5.00	95	4.27	5.00	85	70-130	10	30

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/29/2014

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	524.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404851

	Lab Control Sample KWG1404851-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Dichlorodifluoromethane	5.94	5.00	119	70-130
Chloromethane	5.27	5.00	105	70-130
Vinyl Chloride	5.03	5.00	101	70-130
Bromomethane	4.33	5.00	87	70-130
Chloroethane	5.27	5.00	105	70-130
Trichlorofluoromethane	4.91	5.00	98	70-130
Methylene Chloride	5.02	5.00	100	70-130
trans-1,2-Dichloroethene	4.85	5.00	97	70-130
cis-1,2-Dichloroethene	4.85	5.00	97	70-130
1,1-Dichloroethene	4.67	5.00	93	70-130
Methyl tert-Butyl Ether	10.3	10.0	103	70-130
Chloroform	4.86	5.00	97	70-130
Bromochloromethane	4.84	5.00	97	70-130
Carbon Tetrachloride	4.56	5.00	91	70-130
Benzene	4.90	5.00	98	70-130
1,2-Dichloroethane	4.74	5.00	95	70-130
Trichloroethene	4.61	5.00	92	70-130
1,2-Dichloropropane	4.66	5.00	93	70-130
Bromodichloromethane	4.29	5.00	86	70-130
Dibromomethane	4.63	5.00	93	70-130
cis-1,3-Dichloropropene	4.07	5.00	81	70-130
1,1-Dichloroethane	4.84	5.00	97	70-130
Toluene	5.00	5.00	100	70-130
trans-1,3-Dichloropropene	3.67	5.00	73	70-130
Tetrachloroethene	4.98	5.00	100	70-130
1,3-Dichloropropane	5.26	5.00	105	70-130
2,2-Dichloropropane	4.48	5.00	90	70-130
Dibromochloromethane	4.01	5.00	80	70-130
1,2-Dibromoethane (EDB)	4.81	5.00	96	70-130
Chlorobenzene	5.04	5.00	101	70-130
Ethylbenzene	4.95	5.00	99	70-130
Styrene	5.16	5.00	103	70-130
m,p-Xylenes	10.4	10.0	104	70-130
o-Xylene	5.08	5.00	102	70-130
1,1,2,2-Tetrachloroethane	3.98	5.00	80	70-130

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/29/2014

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	524.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404851

Lab Control Sample
KWG1404851-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
1,1,1-Trichloroethane	4.60	5.00	92	70-130
Bromoform	4.07	5.00	81	70-130
Isopropylbenzene	5.20	5.00	104	70-130
1,1-Dichloropropene	4.78	5.00	96	70-130
Bromobenzene	4.00	5.00	80	70-130
n-Propylbenzene	4.02	5.00	80	70-130
1,3,5-Trimethylbenzene	4.28	5.00	86	70-130
2-Chlorotoluene	4.11	5.00	82	70-130
4-Chlorotoluene	4.38	5.00	88	70-130
tert-Butylbenzene	4.65	5.00	93	70-130
1,2,4-Trimethylbenzene	5.02	5.00	100	70-130
sec-Butylbenzene	5.01	5.00	100	70-130
p-Isopropyltoluene	5.29	5.00	106	70-130
1,3-Dichlorobenzene	4.70	5.00	94	70-130
1,4-Dichlorobenzene	4.65	5.00	93	70-130
n-Butylbenzene	4.90	5.00	98	70-130
1,2-Dichlorobenzene	4.99	5.00	100	70-130
1,2-Dibromo-3-chloropropane (DBCP)	4.11	5.00	82	70-130
1,2,4-Trichlorobenzene	4.29	5.00	86	70-130
Hexachlorobutadiene	4.24	5.00	85	70-130
Naphthalene	4.02	5.00	80	70-130
1,1,2-Trichloroethane	4.88	5.00	98	70-130
1,1,1,2-Tetrachloroethane	4.56	5.00	91	70-130
1,2,3-Trichloropropane	4.98	5.00	100	70-130
1,2,3-Trichlorobenzene	4.51	5.00	90	70-130

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.

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

Semivolatile Organics by EPA Method 525.2

Sample Name:	DW 6	**Units:**	ug/L
Lab Code:	K1405127-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	525.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Hexachlorocyclopentadiene	ND	U	0.098	1	05/29/14	06/09/14	KWG1404877	
Fluorene	ND	U	0.049	1	05/29/14	06/09/14	KWG1404877	
Propachlor	ND	U	0.098	1	05/29/14	06/09/14	KWG1404877	
Hexachlorobenzene	ND	U	0.098	1	05/29/14	06/09/14	KWG1404877	
Simazine	ND	U	0.049	1	05/29/14	06/09/14	KWG1404877	
Atrazine	ND	U	0.098	1	05/29/14	06/09/14	KWG1404877	
Metribuzin	ND	U	0.20	1	05/29/14	06/09/14	KWG1404877	
Alachlor	ND	U	0.070	1	05/29/14	06/09/14	KWG1404877	
Bromacil	ND	U	0.20	1	05/29/14	06/09/14	KWG1404877	
Metolachlor	ND	U	0.088	1	05/29/14	06/09/14	KWG1404877	
Butachlor	ND	U	0.098	1	05/29/14	06/09/14	KWG1404877	
Bis(2-ethylhexyl) Adipate	ND	U	0.59	1	05/29/14	06/09/14	KWG1404877	
Bis(2-ethylhexyl) Phthalate	ND	U	0.59	1	05/29/14	06/09/14	KWG1404877	
Benzo(a)pyrene	ND	U	0.020	1	05/29/14	06/09/14	KWG1404877	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,3-Dimethyl-2-nitrobenzene	129	70-130	06/09/14	Acceptable
Triphenyl Phosphate	97	70-130	06/09/14	Acceptable
Perylene-d12	43	70-130	06/09/14	Outside Control Limits

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Ocean water	**Date Received:**	NA

Semivolatile Organics by EPA Method 525.2

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404877-4	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	525.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Hexachlorocyclopentadiene	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Fluorene	ND	U	0.050	1	05/29/14	06/09/14	KWG1404877	
Propachlor	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Hexachlorobenzene	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Simazine	ND	U	0.050	1	05/29/14	06/09/14	KWG1404877	
Atrazine	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Metribuzin	ND	U	0.20	1	05/29/14	06/09/14	KWG1404877	
Alachlor	ND	U	0.072	1	05/29/14	06/09/14	KWG1404877	
Bromacil	ND	U	0.20	1	05/29/14	06/09/14	KWG1404877	
Metolachlor	ND	U	0.090	1	05/29/14	06/09/14	KWG1404877	
Butachlor	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Bis(2-ethylhexyl) Adipate	ND	U	0.60	1	05/29/14	06/09/14	KWG1404877	
Bis(2-ethylhexyl) Phthalate	ND	U	0.60	1	05/29/14	06/09/14	KWG1404877	
Benzo(a)pyrene	ND	U	0.020	1	05/29/14	06/09/14	KWG1404877	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,3-Dimethyl-2-nitrobenzene	119	70-130	06/09/14	Acceptable
Triphenyl Phosphate	77	70-130	06/09/14	Acceptable
Perylene-d12	82	70-130	06/09/14	Acceptable

Comments:

Client: Longview, City of
Project: Sentinel Wells
Sample Matrix: Drinking water

Service Request: K1405127

Surrogate Recovery Summary
Semivolatile Organics by EPA Method 525.2

Extraction Method: METHOD
Analysis Method: 525.2

Units: Percent
Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3	
Batch QC	K1405054-001	126	96	77	
DW 6	K1405127-001	129	97	43	*
Method Blank	KWG1404877-4	119	77	82	
Batch QCMS	KWG1404877-1	118	107	95	
Batch QCDMS	KWG1404877-2	120	101	66	*
Lab Control Sample	KWG1404877-3	116	106	95	

Surrogate Recovery Control Limits (%)

Sur1	=	1,3-Dimethyl-2-nitrobenzene	70-130
Sur2	=	Triphenyl Phosphate	70-130
Sur3	=	Perylene-d12	70-130

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/09/2014

Matrix Spike/Duplicate Matrix Spike Summary
Semivolatile Organics by EPA Method 525.2

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405054-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	525.2	**Extraction Lot:**	KWG1404877

		Batch QCMS KWG1404877-1 Matrix Spike			Batch QCDMS KWG1404877-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Hexachlorocyclopentadiene	ND	1.06	0.971	109	1.09	0.971	112	70-130	3	30
Fluorene	ND	1.04	0.971	107	1.06	0.971	110	70-130	2	30
Propachlor	ND	0.931	0.971	96	0.920	0.971	95	70-130	1	30
Hexachlorobenzene	ND	1.02	0.971	105	1.01	0.971	104	70-130	1	30
Simazine	ND	0.728	0.971	75	0.705	0.971	73	70-130	3	30
Atrazine	ND	0.774	0.971	80	0.703	0.971	72	70-130	10	30
Metribuzin	ND	1.02	0.971	105	0.993	0.971	102	70-130	3	30
Alachlor	ND	0.880	0.971	91	0.861	0.971	89	70-130	2	30
Bromacil	ND	1.04	0.971	108	0.994	0.971	102	70-130	5	30
Metolachlor	ND	0.888	0.971	91	0.863	0.971	89	70-130	3	30
Butachlor	ND	0.992	0.971	102	0.967	0.971	100	70-130	3	30
Bis(2-ethylhexyl) Adipate	ND	1.01	0.971	104	0.964	0.971	99	70-130	4	30
Bis(2-ethylhexyl) Phthalate	ND	1.05	0.971	108	1.05	0.971	108	70-130	0	30
Benzo(a)pyrene	ND	0.631	0.971	65 *	0.216	0.971	22 *	70-130	98 *	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Ocean water	**Date Analyzed:**	06/09/2014

Lab Control Spike Summary
Semivolatile Organics by EPA Method 525.2

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	525.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404877

	Lab Control Sample KWG1404877-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Hexachlorocyclopentadiene	1.04	1.00	104	70-130
Fluorene	1.08	1.00	108	70-130
Propachlor	0.930	1.00	93	70-130
Hexachlorobenzene	1.06	1.00	106	70-130
Simazine	0.903	1.00	90	70-130
Atrazine	0.865	1.00	87	70-130
Metribuzin	1.03	1.00	103	70-130
Alachlor	0.914	1.00	91	70-130
Bromacil	0.960	1.00	96	70-130
Metolachlor	0.944	1.00	94	70-130
Butachlor	1.08	1.00	108	70-130
Bis(2-ethylhexyl) Adipate	0.969	1.00	97	70-130
Bis(2-ethylhexyl) Phthalate	1.03	1.00	103	70-130
Benzo(a)pyrene	1.02	1.00	102	70-130

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

Endothall by EPA Method 548.1

Sample Name:	DW 6	**Units:**	ug/L
Lab Code:	K1405127-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	548.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Endothall	ND	U	5.0	1	05/27/14	05/28/14	KWG1404759	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Endothall by EPA Method 548.1

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404759-4	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	548.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Endothall	ND	U	5.0	1	05/27/14	05/27/14	KWG1404759	

Comments:

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Extracted:**	05/27/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/28/2014 - 06/02/2014

Matrix Spike/Duplicate Matrix Spike Summary
Endothall by EPA Method 548.1

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405130-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	548.1	**Extraction Lot:**	KWG1404759

		Batch QCMS KWG1404759-1 Matrix Spike			Batch QCDMS KWG1404759-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Endothall	ND	111	100	111	123	100	123	30-142	10	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Extracted:**	05/27/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/28/2014

Lab Control Spike Summary
Endothall by EPA Method 548.1

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	548.1	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404759

	Lab Control Sample KWG1404759-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Endothall	128	100	128	30-142

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

Diquat and Paraquat by EPA Method 549.2

Sample Name:	DW 6	**Units:**	ug/L
Lab Code:	K1405127-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	549.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diquat	ND	U	0.40	1	05/27/14	05/30/14	KWG1404738	
Paraquat	ND	U	0.80	1	05/27/14	05/30/14	KWG1404738	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Diquat and Paraquat by EPA Method 549.2

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404738-5	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	549.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diquat	ND	U	0.40	1	05/27/14	05/30/14	KWG1404738	
Paraquat	ND	U	0.80	1	05/27/14	05/30/14	KWG1404738	

Comments:

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Extracted:**	05/27/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/30/2014

Matrix Spike/Duplicate Matrix Spike Summary
Diquat and Paraquat by EPA Method 549.2

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405130-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	549.2	**Extraction Lot:**	KWG1404738

		Batch QCMS KWG1404738-1 Matrix Spike			Batch QCDMS KWG1404738-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Diquat	ND	12.0	12.0	100	11.9	12.0	100	70-130	0	30
Paraquat	ND	11.0	12.0	92	11.2	12.0	94	70-130	2	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405127
Project:	Sentinel Wells	**Date Extracted:**	05/27/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/30/2014

Lab Control Spike Summary
Diquat and Paraquat by EPA Method 549.2

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	549.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404738

	Lab Control Sample KWG1404738-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Diquat	11.0	12.0	91	70-130
Paraquat	10.1	12.0	84	70-130

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.

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LABORATORY REPORT

May 30, 2014

Jeff Coleman
Longview, City of
W/S Operation Center
Longview, WA 98632

RE: Sentinel Wells

Dear Jeff:

Enclosed are the results of the sample submitted to our laboratory on May 21, 2014. For your reference, this analysis has been assigned our service request number K1405127.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

Kate Aguilera

By Kate Aguilera at 10:42 am, May 30, 2014

Kate Aguilera
Project Manager

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Client: Longview, City of
Project: Sentinel Wells

Service Request No: K1405127

CASE NARRATIVE

The sample was received intact under chain of custody on May 21, 2014 and was stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the sample(s) at the time of sample receipt.

Hydrogen Sulfide Analysis

The sample was analyzed for hydrogen sulfide using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

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ALS Environmental – Simi Valley

Certifications, Accreditations, and Registrations

Agency	Web Site	Number
AIHA	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
DoD ELAP	http://www.pjlabs.com/search-accredited-labs	L14-2
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2012039
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	643428
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	CA200007
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-13-4
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA016272013-3
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

Intra-Network Chain of Custody

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

ALS Contact: Chris Leaf

Project Name: Sentinel Wells
Project Number:
Project Manager: Jeff Coleman
Company: Longview, City of

Lab Code	Client Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Date Received	Send To	Sulfur Sulfur Liq
K1405127-001	DW 6	3	Drinking Water	5/21/14	1045	5/21/14	SIMIVALLEY	II

Hs only

132

temp Blank = 4°C
Frozen Blue ice

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

CC 5/22/14

pH Checked _____

Turnaround Requirements
____ **RUSH** (Surcharges Apply)
PLEASE CIRCLE WORK DAYS
1 2 3 4 5
✓ **STANDARD**
Requested FAX Date: _____
Requested Report Date: 06/06/14

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

Invoice Information
PO# K1405127 ✓
Bill to

Relinquished By: JW 5/22/14 1140 Received By: Kelly Hmw 5/23/14 0925am Airbill Number: _____

ALS Environmental
Sample Acceptance Check Form

Client: Longview, City of Work order: K1405127

Project: Sentinel Wells

Sample(s) received on: 5/21/14 Date opened: 5/21/14 by: SWOLF

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Container(s) **supplied by ALS**?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: ° C Blank Temperature: 4° C **Gel Packs**			
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☒	☐	☐
	Location of seal(s)? across seam Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☒	☐	☐
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☒	☐
	Were **VOA vials** checked for presence/absence of air bubbles?	☒	☐	☐
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☒	☐	☐
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
K1405127-001.01	40mL VOA NP		7	1	A	MC 5/27/2014
K1405127-001.02	40mL VOA NP				A	
K1405127-001.03	40mL VOA NP				A	

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Longview, City of**
Client Project ID: **Sentinel Wells** ALS Project ID: K1405127

Hydrogen Sulfide

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 7890A/GC22/SCD Date(s) Collected: 5/21/14
Analyst: Mike Conejo Date Received: 5/21/14
Sample Type: Drinking Water Date Analyzed: 5/27/14
Test Notes:

Client Sample ID	ALS Sample ID	Sample Amount ml(s)	Purge Volume Liter(s)	Injection Volume ml(s)	**Result µg/L**	MRL µg/L	Data Qualifier
DW 6	K1405127-001	10.0	0.30	1.0	ND	0.84	
Method Blank	P140527-MB	10.0	0.30	1.0	ND	0.84	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Longview, City of**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: K1405127
Client Project ID: **Sentinel Wells** ALS Sample ID: P140527-DLCS

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Mike Conejo
Sample Type: Drinking Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 5/27/14
Liquid Amount: 10.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume: 0.20 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result LCS ug/L	Result DLCS ug/L	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
7783-06-4	Hydrogen Sulfide	428	414	438	**97**	**102**	54-133	5	20	

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 421 , WV 343

June 9, 2014

Ms. Chris Leaf
ALS Environmental - Kelso
1317 S. 13th Avenue
Kelso, WA 98626

Certificate of Analysis

Project Name:	**SOCs**	Workorder:	**2008657**
Purchase Order:	**K1405127**	Workorder ID:	**K1405127**

Dear Ms. Leaf:

Enclosed are the analytical results for samples received by the laboratory on Friday, May 23, 2014.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Mrs. Kelli L Wolfgang (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

Kelli Wolfgang

Mrs. Kelli L Wolfgang
Project Coordinator

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

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SAMPLE SUMMARY

Workorder: 2008657 K1405127

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2008657001	K1405127-001	Drinking Water	5/21/2014 10:45	5/23/2014 09:20	Collected by Client

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit

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ANALYTICAL RESULTS

Workorder: 2008657 K1405127

Lab ID: **2008657001** Date Collected: 5/21/2014 10:45 Matrix: Drinking Water

Sample ID: **K1405127-001** Date Received: 5/23/2014 09:20

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
HERBICIDES										
Glyphosate	ND		ug/L	4.5	EPA 547	5/28/14	CGS	5/28/14 21:51	CGS	A
CARBAMATES										
Aldicarb	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 18:10	CGS	C
Aldicarb Sulfone	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 18:10	CGS	C
Aldicarb Sulfoxide	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 18:10	CGS	C
Carbaryl	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 18:10	CGS	C
Carbofuran	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 18:10	CGS	C
3-Hydroxycarbofuran	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 18:10	CGS	C
Methiocarb	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 18:10	CGS	C
Methomyl	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 18:10	CGS	C
Oxamyl	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 18:10	CGS	C
Propoxur	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 18:10	CGS	C

Kelli Wolfgang

Mrs. Kelli L Wolfgang
Project Coordinator

ALS Environmental

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 421 , WV 343

QUALITY CONTROL DATA

Workorder: 2008657 K1405127

QC Batch: HPLC/3697 **Analysis Method:** EPA 547

QC Batch Method: EPA 547

Associated Lab Samples: 2008657001

METHOD BLANK: 2022254

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Glyphosate	ND	ug/L	4.5	

LABORATORY CONTROL SAMPLE: 2022255

Parameter	Spike Conc.	Units	LCS Result	LCS % Rec	% Rec Limit	Qualifiers
Glyphosate	500	ug/L	481	96.1	80 - 120	

MATRIX SPIKE SAMPLE: 2022343 ORIGINAL:

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Glyphosate		ug/L	500	531	106	70 - 130	

SAMPLE DUPLICATE: 2022344 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Glyphosate		ug/L	ND		40	

MATRIX SPIKE SAMPLE: 2022345 ORIGINAL:

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Glyphosate		ug/L	500	509	102	70 - 130	

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QUALITY CONTROL DATA

Workorder: 2008657 K1405127

QC Batch: HPLC/3709 **Analysis Method:** EPA 531.1

QC Batch Method: EPA 531.1

Associated Lab Samples: 2008657001

METHOD BLANK: 2026536

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Aldicarb Sulfoxide	0.0	ug/L		
Aldicarb Sulfone	0.0	ug/L		
Oxamyl	0.0	ug/L		
Methomyl	0.0	ug/L		
3-Hydroxycarbofuran	0.0	ug/L		
Aldicarb	0.0	ug/L		
Propoxur	0.0	ug/L		
Carbofuran	0.0	ug/L		
Carbaryl	0.0	ug/L		
Methiocarb	0.0	ug/L		

LABORATORY CONTROL SAMPLE: 2026537

Parameter	Spike Conc.	Units	LCS Result	LCS % Rec	% Rec Limit	Qualifiers
Aldicarb Sulfoxide	10	ug/L	8.5	84.7	80 - 120	
Aldicarb Sulfone	10	ug/L	9.5	95.2	80 - 120	
Oxamyl	10	ug/L	10.6	106	80 - 120	
Methomyl	10	ug/L	10.1	101	80 - 120	
3-Hydroxycarbofuran	10	ug/L	10.8	108	80 - 120	
Aldicarb	10	ug/L	10.4	104	80 - 120	
Propoxur	10	ug/L	10.1	101	80 - 120	
Carbofuran	10	ug/L	11.6	116	80 - 120	
Carbaryl	10	ug/L	8.5	84.7	80 - 120	
Methiocarb	10	ug/L	8.7	86.6	80 - 120	

SAMPLE DUPLICATE: 2026538 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Aldicarb Sulfoxide		ug/L	0.0		20	
Aldicarb Sulfone		ug/L	0.0		20	
Oxamyl		ug/L	0.0		20	
Methomyl		ug/L	0.0		20	
3-Hydroxycarbofuran		ug/L	0.0		20	

QUALITY CONTROL DATA

Workorder: 2008657 K1405127

Aldicarb	ug/L	0.0	20
Propoxur	ug/L	0.0	20
Carbofuran	ug/L	0.0	20
Carbaryl	ug/L	0.0	20
Methiocarb	ug/L	0.0	20

MATRIX SPIKE SAMPLE: 2026539 ORIGINAL:

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Aldicarb Sulfoxide		ug/L	10	8.6	86	65 - 135	
Aldicarb Sulfone		ug/L	10	10	99.9	65 - 135	
Oxamyl		ug/L	10	11.1	111	65 - 135	
Methomyl		ug/L	10	10.4	104	65 - 135	
3-Hydroxycarbofuran		ug/L	10	10.8	108	65 - 135	
Aldicarb		ug/L	10	10.4	104	65 - 135	
Propoxur		ug/L	10	11.0	110	65 - 135	
Carbofuran		ug/L	10	11.7	117	65 - 135	
Carbaryl		ug/L	10	9.0	89.5	65 - 135	
Methiocarb		ug/L	10	9.3	93	65 - 135	

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2008657 K1405127

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2008657001	K1405127-001			EPA 547	HPLC/3697
2008657001	K1405127-001			EPA 531.1	HPLC/3709

ALS Environmental Chain of Custody

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

ALS Contact: Chris Leaf

KLW

Project Number: K1405127
Project Manager: Chris Leaf

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	CARBAM 531.1	GLYPH 547
K1405127-001	DW 6	4 5 mff/5-23-14	Drinking Water	5/21/14	1045	Middletown	X	X

	Y	N	Initials	Cooler Temp:
Custody Seals Present?				°C
(if present) Seals Intact?				Cooler #:
Received on Ice?				
COC/Lbls Complete				Therm ID: 291
Cont in Good Cond?				
Correct Containers?				Ship Carrier:
Correct Samp Vol?				FedEx UPS
Correct Preservation?				
Headspace/Volatiles?				DHL

Tracking #: 548973360079

Test Comments
CARBAM - 531.1 K1405127-001 Full list for WA Regulations - no compliance report required.

Logged in: ~~mff~~ 5-23-14 1030 KLW

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

CL 5/22/14

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: 06/06/14

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

Invoice Information
PO# K1405127 ✓
Bill to

Relinquished By: [signature] 5/22/14 1140
Received By: Megan Tailly ALS 5-23-14 0920
Airbill Number:

✓ **Ship To: Middletown**
ALS Laboratory Group
34 Dogwood Lane
Middletown, PA 17057

PC _____ Date 5/22/14
SMO _____ Date 5/22/14

Instructions:
Ice ✓
Dry Ice _____
No Ice _____

Shipping:
Overnight ✓
2nd Day _____
Ground _____

Bill to Client Account _____

Comments:

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June 18, 2014 Analytical Report for Service Request No: K1405128

Jeff Coleman
Longview, City of
W/S Operation Center
P.O. Box 128
Longview, WA 98632

RE: Sentinel Wells

Dear Jeff:

Enclosed are the results of the sample submitted to our laboratory on May 21, 2014. For your reference, these analyses have been assigned our service request number K1405128.

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 call if you have any questions. My extension is 3275. You may also contact me via Email at Chris.Leaf@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Chris Leaf
Project Manager

CL/mj

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 DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	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	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
ISO 17025	http://www.pjlabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	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	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	4704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
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.

ALS Environmental

CHAIN OF CUSTODY
49251

001

SR# L1463120

COC Set____of____

COC#_____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name	Sentinel Wells
Project Number:	
Project Manager	Jeff Coleman
Company	City of Longview
Address	PO Box 128 Longview WA 98632
Phone #	email
Sampler Signature	
Sampler Printed Name	

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	7D 900.0 / Radioact	7D 903.1 / Radium 226	7D 904.0 / Radium 228	180D 200.8 / Metals T	1	2	3	4	5	Remarks
1. DW10		5/20/14	1045		7										
2.															
3.															
4.															
5.															
6.															
7.															
8.															
9.															
10.															

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. CLP Like Summary (no raw data)

___ IV. Data Validation Report

___ V. EDD

Invoice Information

P.O.# 36-4333

Bill To: City of Longview

PO Box 128

Longview WA 98632

Turnaround Requirements

___ 24 hr. ___ 48 hr.

___ 5 Day

___ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature Karla Smith	Signature	Signature	Signature	Signature
Printed Name DAVID MATNEY	Printed Name ALS	Printed Name	Printed Name	Printed Name	Printed Name
Firm City of Longview	Firm 5/21/14 1520	Firm	Firm	Firm	Firm
Date/Time 5/21/14 @ 3:20	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

PC CL

Cooler Receipt and Preservation Form

Client / Project: City of Longview Service Request K14 5129

Received: 5/21/14 Opened: 5/21/14 By: [illegible] Unloaded: 5/21/14 By: [illegible]

1. Samples were received via? *Mail* *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
15.5	15.5	18.2	18.2	0	339			
15.0	15.1	17.6	17.7	0.1	334			
18.7	18.5	19.9	19.6	-0.2	321			

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. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA (Y) N
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

*Notes, Discrepancies, & Resolutions:*_____

*Page*____ *of*____

ALS Group USA, Corp.
dba ALS Enviromental

- Cover Page -
INORGANIC ANALYSIS DATA PACKAGE

Client : Longview, City of
Project Name : Sentinel Wells
Project No. : NA

Service Request : K1405128

Sample Name :	Lab Code :
DW 6	K1405128-001
Laboratory Control Sample	K1405128-LCS
Method Blank	K1405128-MB
Batch QC	K1405285-002D
Batch QC	K1405285-002S

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Longview, City of	**Service Request :**	K1405128
Project Name :	Sentinel Wells	**Date Collected :**	05/21/14
Project No. :	NA	**Date Received :**	05/21/14
Matrix :	Drinking Water	**Date Extracted :**	05/30/14

Total Metals

Sample Name :	DW 6	**Units :**	ug/L (ppb)
Lab Code :	K1405128-001	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Uranium	200.8	0.02	06/02/14	ND	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Longview, City of	**Service Request :**	K1405128
Project Name :	Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	05/30/14

Total Metals

Sample Name :	Method Blank	**Units :**	ug/L (ppb)
Lab Code :	K1405128-MB	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Uranium	200.8	0.02	06/02/14	ND	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1405128
Project Name :	Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	05/30/14
		Date Analyzed :	06/02/14

Duplicate Summary
Total Metals

Sample Name :	Batch QC	**Units :**	ug/L (ppb)
Lab Code :	K1405285-002D	**Basis :**	NA

Analyte	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Uranium	200.8	0.02	ND	ND	ND	-	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1405128
Project Name :	Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	05/30/14
		Date Analyzed :	06/02/14

Matrix Spike Summary
Total Metals

Sample Name :	Batch QC	**Units :**	ug/L (ppb)
Lab Code :	K1405285-002S	**Basis :**	NA

Analyte	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Uranium	0.02	20.0	ND	20.1	101	70-130	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1405128
Project Name :	Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	05/30/14
		Date Analyzed :	06/02/14

Laboratory Control Sample Summary
Total Metals

Sample Name :	Laboratory Control Sample	**Units :**	ug/L (ppb)
Lab Code :	K1405128-LCS	**Basis :**	NA

Analyte	Analysis Method	True Value	Result	Percent	CAS Percent Recovery Acceptance Limits	Result Notes
Uranium	200.8	20.0	19.6	98	85-115	

Comments:

Tuesday, June 17, 2014

Ms. Chris Leaf
ALS Environmental
1317 South 13th Ave
Kelso, WA 98626

Re: ALS Workorder: 1405576
Project Name:
Project Number: K1405128

Dear Ms. Leaf:

One water sample was received from ALS Environmental, on 5/28/2014. The sample was scheduled for the following analyses:

Radium-226
Radium-228
Gross Alpha/Beta

The results for these analyses are contained in the enclosed reports.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Jeff R. Kujawa
Project Manager

JRK/mlc
Enclosure(s): Report

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Laboratory Certifications	
Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nebraska	NE-OS-24-13
Nevada (NV)	CO000782008A
New Jersey (NJ)	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO01099
Washington	C1280

1405576

Gross Alpha/Beta:

The sample was analyzed for gross alpha and beta activity by gas flow proportional counting according to the current revision of SOP 724. Gross alpha results are referenced to ^{241}Am. Gross beta results are referenced to ^{90}Sr/Y.

All acceptance criteria were met.

Radium-228:

The sample was analyzed for the presence of ^{228}Ra by low background gas flow proportional counting of ^{228}Ac, which is the ingrown progeny of ^{228}Ra, according to the current revision of SOP 724.

All acceptance criteria were met.

Radium-226:

This sample was prepared and analyzed according to the current revision of SOP 783.

All acceptance criteria were met.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1405576
Client Name: ALS Environmental
Client Project Name:
Client Project Number: K1405128
Client PO Number: K1405128

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
DW 6	1405576-1		WATER	21-May-14	10:45

ALS Environmental Chain of Custody

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

ALS Contact: Chris Leaf

Project Number: K1405128
Project Manager: Chris Leaf

1405576

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	Radioact 900.0	Radium 226 903.1	Radium 228 904.0
K1405128-001	DW 6 (1)	6	Drinking Water	5/21/14	1045	Fort Collins	X	X	X

17

Special Instructions/Comments

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

CL 5/22/14

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: 06/18/14

Report Requirements

___ I. Results Only

✓ II. Results + QC Summaries

___ III. Results + QC and Calibration Summaries

___ IV. Data Validation Report with Raw Data

PQL/MDL/J N

EDD N ✓

Invoice Information

PO# K1405128 ✓

Bill to

3 of 16

Relinquished By: [signature] 5/22/14 1140

Received By: [signature] 5/23/14 0956

Airbill Number: _____

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS Kelso Workorder No: 1405576

Project Manager: JRK Initials: JRK Date: 5/28/14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	(NONE)	YES	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	(DROP OFF)	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15. Do any water samples contain sediment? Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16. Were the samples shipped on ice?		YES	(NO)
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	(RAD ONLY)	YES	(NO)

Cooler #:	1						
Temperature (°C):	AMB						
No. of custody seals on cooler:	0						
DOT Survey/ Acceptance Information: External µR/hr reading:	12						
Background µR/hr reading:	12						

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO (NA) Contact: _____ Date/Time: _____

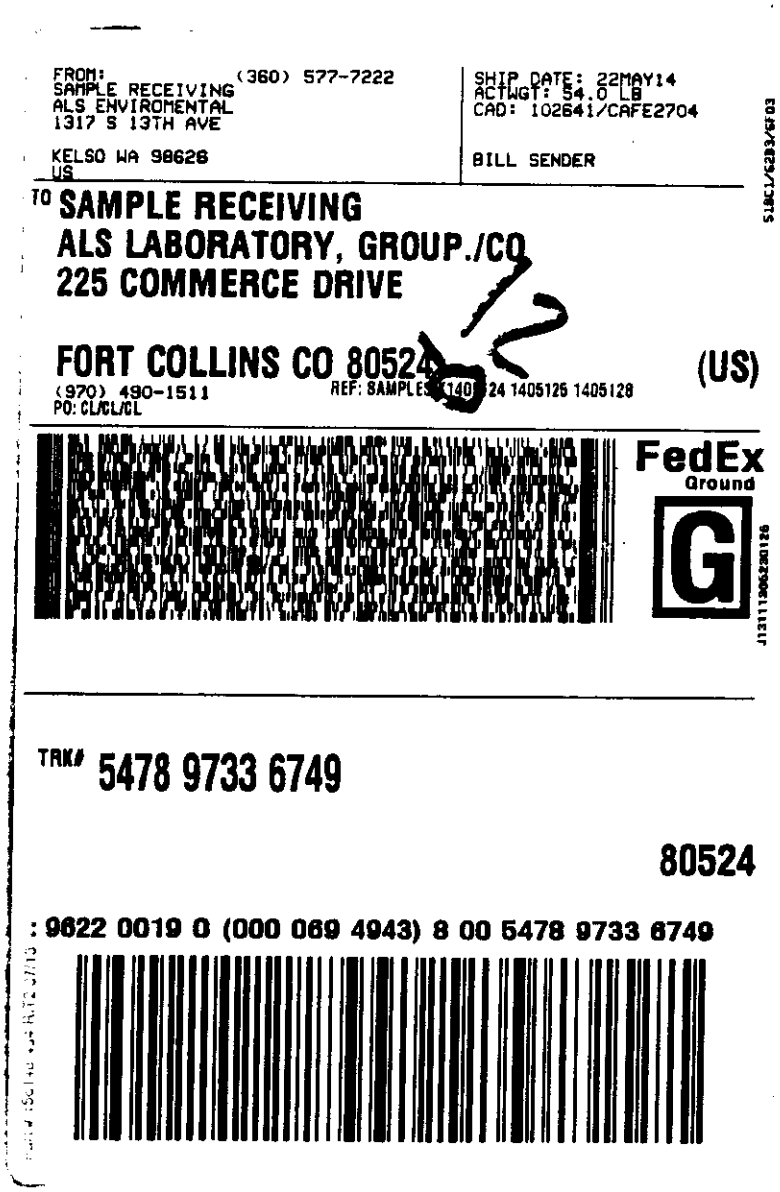
Project Manager Signature / Date: 5-28-14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

Page 1 of 1

1405576



FROM:
SAMPLE RECEIVING
ALS ENVIROMENTAL
1317 S 13TH AVE

KELSO WA 98626
US

(360) 577-7222

SHIP DATE: 22MAY14
ACTWGT: 54.0 LB
CAD: 102641/CAFE2704

BILL SENDER

TO SAMPLE RECEIVING
ALS LABORATORY, GROUP./CO
225 COMMERCE DRIVE

FORT COLLINS CO 80524

(US)

(970) 490-1511
PO: CL/CL/CL

REF: SAMPLES 1405124 1405125 1405128

FedEx Ground

TRK# 5478 9733 6749

80524

: 9622 0019 0 (000 069 4943) 8 00 5478 9733 6749

Client:	ALS Environmental	**Date:**	*17-Jun-14*
Project:	K1405128	**Work Order:**	1405576
Sample ID:	DW 6	**Lab ID:**	1405576-1
Legal Location:		**Matrix:**	WATER
Collection Date:	5/21/2014 10:45	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GROSS ALPHA/BETA ANALYSIS BY GFPC			**PAI 724**		Prep Date: **6/5/2014**	PrepBy: **PJW**
GROSS ALPHA	ND (+/- 0.69)	U	1.2	pCi/l	NA	6/6/2014 16:28
GROSS BETA	**5 (+/- 1.4)**		**1.9**	**pCi/l**	NA	6/6/2014 16:28
RA-226 BY RADON EMANATION - METHOD 903.1			**PAI 783**		Prep Date: **6/2/2014**	PrepBy: **PJW**
Ra-226	ND (+/- 0.24)	U	0.4	pCi/l	NA	6/12/2014 14:00
Carr: BARIUM	*92.6*		*40-110*	*%REC*	NA	6/12/2014 14:00
RADIUM-228 ANALYSIS BY GFPC			**PAI 724**		Prep Date: **6/2/2014**	PrepBy: **TDE**
Ra-228	ND (+/- 0.23)	U	0.48	pCi/l	NA	6/6/2014 12:37
Carr: BARIUM	*92.6*		*40-110*	*%REC*	NA	6/6/2014 12:37

Client:	ALS Environmental	**Date:**	*17-Jun-14*
Project:	K1405128	**Work Order:**	1405576
Sample ID:	DW 6	**Lab ID:**	1405576-1
Legal Location:		**Matrix:**	WATER
Collection Date:	5/21/2014 10:45	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed

Explanation of Qualifiers

Radiochemistry:

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

G - Sample density differs by more than 15% of LCS density.

D - DER is greater than Control Limit

M - Requested MDC not met.

LT - Result is less than requested MDC but greater than achieved MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

G - A pattern resembling gasoline was detected in this sample.

D - A pattern resembling diesel was detected in this sample.

M - A pattern resembling motor oil was detected in this sample.

C - A pattern resembling crude oil was detected in this sample.

4 - A pattern resembling JP-4 was detected in this sample.

5 - A pattern resembling JP-5 was detected in this sample.

H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.

L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.

Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
- gasoline
- JP-8
- diesel
- mineral spirits
- motor oil
- Stoddard solvent
- bunker C

Batch ID: **RE140602-3-1** Instrument ID: **Alpha Scin** Method: **Ra-226 by Radon Emanation - Me**

LCS Sample ID: **RE140602-3** Units: **pCi/l** Analysis Date: **6/12/2014 14:16**

Client ID: Run ID: **RE140602-3A** Prep Date: **6/2/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	23.4 (+/- 6)	0.5	30.2		77.6	67-120				P,Y1
Carr: BARIUM	33110		32580		102	40-110				Y1

MB Sample ID: **RE140602-3** Units: **pCi/l** Analysis Date: **6/12/2014 14:16**

Client ID: Run ID: **RE140602-3A** Prep Date: **6/2/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.38								U
Carr: BARIUM	32260		32580		99	40-110				

The following samples were analyzed in this batch: 1405576-1

QC BATCH REPORT

Batch ID: **AB140605-2-2** Instrument ID: **LB4100-A** Method: **Gross Alpha/Beta Analysis by G**

LCS Sample ID: **AB140605-2** Units: **pCi/l** Analysis Date: **6/9/2014 09:31**

Client ID: Run ID: **AB140605-2A** Prep Date: **6/5/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
GROSS ALPHA	166 (+/- 28)	2	206.8		80.2	70-130				P
GROSS BETA	205 (+/- 33)	5	215.8		95.2	70-130				P,M3

MB Sample ID: **AB140605-2** Units: **pCi/l** Analysis Date: **6/6/2014 16:42**

Client ID: Run ID: **AB140605-2A** Prep Date: **6/5/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
GROSS ALPHA	ND	0.55								U
GROSS BETA	ND	1								U

The following samples were analyzed in this batch: 1405576-1

QC BATCH REPORT

Batch ID: **RA140602-2-2** Instrument ID: **LB4100-A** Method: **Radium-228 Analysis by GFPC**

LCS Sample ID: **RA140602-2** Units: **pCi/l** Analysis Date: **6/6/2014 12:37**

Client ID: Run ID: **RA140602-2A** Prep Date: **6/2/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	7.8 (+/- 1.8)	0.5	8.723		89	70-130				P,Y1
Carr: BARIUM	33110		32580		102	40-110				Y1

MB Sample ID: **RA140602-2** Units: **pCi/l** Analysis Date: **6/6/2014 12:37**

Client ID: Run ID: **RA140602-2A** Prep Date: **6/2/2014** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	ND	0.57								U
Carr: BARIUM	32260		32580		99	40-110				

The following samples were analyzed in this batch: 1405576-1

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

June 26, 2014 Analytical Report for Service Request No: K1405130

Jeff Coleman
Longview, City of
W/S Operation Center
P.O. Box 128
Longview, WA 98632

RE: Sentinel Wells

Dear Jeff:

Enclosed are the results of the samples submitted to our laboratory on May 21, 2014. For your reference, these analyses have been assigned our service request number K1405130.

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 call if you have any questions. My extension is 3275. You may also contact me via Email at Chris.Leaf@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Chris Leaf
Project Manager

CL/aj

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 DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	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	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
ISO 17025	http://www.pjlabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	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	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	4704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
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.

ALS ENVIRONMENTAL

Client:	Longview, City of	**Service Request No.:**	K1405130
Project:	Sentinel Wells	**Date Received:**	05/21/14
Sample Matrix:	Drinking Water		

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

One drinking water sample was received for analysis at ALS Environmental on 05/21/14. The sample was received in good condition and consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4ºC upon receipt at the laboratory.

General Chemistry Parameters

Total Cyanide by EPA Method 335.4:
The matrix spike recovery for sample Batch QC was outside control criteria because of suspected matrix interference. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. No further corrective action was taken.

No other anomalies associated with the analysis of this sample were observed.

Total Metals

No anomalies associated with the analysis of this sample were observed.

Chlorinated Phenols by EPA Method 1653

No anomalies associated with the analysis of this sample were observed.

EDB and DBCP by EPA Method 504.1

No anomalies associated with the analysis of this sample were observed.

Pesticides and Polychlorinated Biphenyls by EPA Method 508.1

Calibration Verification Exceptions:
The analysis of Chlorinated Pesticides and PCB Aroclors by EPA 508.1 requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for Endrin in CCV file 0603014. The results were reported from the column with an acceptable CCV. The data quality was not affected. No further corrective action was necessary.

No other anomalies associated with the analysis of this sample were observed.

Approved by_____

Chlorinated Acides by EPA Method 515.4

No anomalies associated with the analysis of this sample were observed.

Volatile Organic Compounds by EPA Method 524.2

Matrix Spike Recovery Exceptions:
The matrix spike recovery of Dichlorodifluoromethane for sample Batch QCMS KWG1404851-1 and the duplicate matrix spike recovery of trans-1,3-Dichloropropene for sample Batch QCDMS KWG1404851-2 were outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential bias in this matrix. No further corrective action was appropriate.

No other anomalies associated with the analysis of this sample were observed.

Semivolatile Organic Compounds by EPA Method 525.2

Matrix Spike Recovery Exceptions:
The matrix spike recovery of Benz(a)pyrene and duplicate matrix spike recovery of Benz(a)pyrene and Perylene-d12 for sample Batch QC was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outliers suggested a potential low bias in this matrix. No further corrective action was appropriate.

Relative Percent Difference Exceptions:
The Relative Percent Difference (RPD) for Benz(a)pyrene in the replicate matrix spike analyses of Batch QC was outside control criteria.

Surrogate Exceptions:
The lower control criteria were exceeded for Perylene-d12 in sample DW-7 due to suspected matrix interference. Fine particulate matter accumulating on the solid phase extraction disk or total dissolved solids have historically produced results in lower Perylene-d12 recoveries with respect to the other two surrogate compounds. Recoveries of the other two surrogates, Triphenyl Phosphate and 1,3-Dimethyl-2-Nitrobenzene, were within control criteria. .

No other anomalies associated with the analysis of these samples were observed.

Endothall by EPA Method 548.1

No anomalies associated with the analysis of this sample were observed.

Diquat by High Performance Liquid Chromatography

Sample Notes and Discussion:
The recovery of Paraquat in the MRL-level Lab fortified Blank (LFB) KWG1404738-4 was below the ALS advisory criteria of 50-150%. The recovery met the MRL verification criteria specified in the EPA manual. Additionally, recovery was acceptable in the Lab Control Sample (LCS) which indicated the analytical batch was in control. The data quality was not significantly affected. No further corrective action was required.

No other anomalies associated with the analysis of these samples were observed.

Sulfur

This analysis was performed at ALS Environmental, Simi Valley, CA. The data for this analysis is included in the corresponding section of this report.

Approved by_____

Carbamates and Glyphosate

These analyses were performed at ALS Environmental, Middletown, PA. The data for these analyses is included in the corresponding section of this report.

Approved by_____

ALS Environmental

CHAIN OF CUSTODY
49248

001, 005

SR# K1405136

COC Set____of____

COC#_____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: Sentinel Wells | Project Number:

Project Manager: Jeff Coleman

Company: City of Longview

Address: PO Box 128 Longview 98632

Phone # | email

Sampler Signature: T Daly | Sampler Printed Name

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	6H: SM 9223 B / Coli L (+/-)	48H: 180.1 / Turbidity	48H: 300.0 / NO2	48H: 300.0 / NO3	48H: SM 2120 B / Color	48H: SM 4500-P E / O Phos	7D: 548.1 / ENDO	7D: 549.2 / DIQ_PARAQ	7D: SM 2540 C / TDS	14D: 335.4 / CN T	14D: 504.1 / EDB DBCP 123TCP	14D: 508.1 / PEST_CL	14D: 515.4 / CL_ACID_HERB	14D: 524.2 / VOC	14D: 525.2 / SVO	14D: 547 / GLYPH	14D: SM 2320 B / Alkalinity Titr	14D: Sulfur Liq / Sulfur	28D: 245.1 / Hg T	28D: 300.0 / Chloride	28D: 300.0 / F	28D: 314.0 / ClO4	28D: 531.1 / CARBAM	Remarks
1. DW-7		5/21/14	1335		42	✓																						✓	
2. Temp Blanks					2																								
3.																													
4.																													
5.																													
6.																													
7.																													
8.																													
9.																													
10.																													

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. CLP Like Summary (no raw data)

___ IV. Data Validation Report

___ V. EDD

Invoice Information

P.O.# 36-4334

Bill To: City of Longview
PO Box 128
Longview WA 98632

Turnaround Requirements

____ 24 hr. ____ 48 hr.
____ 5 Day
____ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other_____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: David R. Maltby	Signature: Karla Smith	Signature	Signature	Signature	Signature
Printed Name: DAVID MALTBY	Printed Name: Karla Smith	Printed Name	Printed Name	Printed Name	Printed Name
Firm: City of Longview	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 5/21/14 3:20	Date/Time: 5/21/14 1520	Date/Time	Date/Time	Date/Time	Date/Time

ALS Environmental

CHAIN OF CUSTODY
49248

001, 005

SR# K1405130

COC Set____of____

COC#_____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: Sentinel Wells | Project Number:
Project Manager: Jeff Coleman
Company: City of Longview
Address: PO Box 128 Longview WA 98632
Phone # | email
Sampler Signature: | Sampler Printed Name

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	28D: 300.0 / Br	28D: 300.0 / SO4	28D: 350.1 / Ammonia T	28D: SM 2510 B / Conductivity	30D: 1653A / CHLOR_PHEN	180D: 1630 / Methyl Hg T	180D: 200.7 / Metals T	180D: 200.8 / Metals T	999D: Calculation / NO2 NO3 Calc	999D: SM 2340 B / Hardness Calc	1	2	3	4	5	Remarks
1. DW7		5/21/14	1335			A									A						
2.																					
3.																					
4.																					
5.																					
6.																					
7.																					
8.																					
9.																					
10.																					

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. CLP Like Summary (no raw data)

___ IV. Data Validation Report

___ V. EDD

Invoice Information

P.O.# 36-4334

Bill To: City of Longview
PO Box 128
Longview WA 98632

Turnaround Requirements

___ 24 hr. ___ 48 hr.
___ 5 Day
___ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: David R. Mabrey	Signature: Karla Smith	Signature	Signature	Signature	Signature
Printed Name: DAVID MABREY	Printed Name: ALS	Printed Name	Printed Name	Printed Name	Printed Name
Firm: City of Longview	Firm: ~~ALS~~ 5/21/14 1520	Firm	Firm	Firm	Firm
Date/Time: 5/21/14 3:20	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

PC CL

Cooler Receipt and Preservation Form

Client / Project: City of LV Service Request *K14* 05130

Received: 5/21/14 Opened: 5/21/14 By: RW Unloaded: 5/21/14 By: JW

1. Samples were received via? *Mail* *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
10.3	10.3	7.7	7.8	+0.1	340			
8.8	8.8	13.1	13.1	0	335			
8.9	8.9	9.0	9.0	0	333			
9.9	8.9	7.1	7.1	0	336			
10.6	10.5	9.9	9.8	-0.1	276			

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. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA (Y) N
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

SHORT HOLD TIM

Notes, Discrepancies, & Resolutions:

Rec'd 3 unpres. vials for 504.1.

Page ____ *of* ____

PC CV

Cooler Receipt and Preservation Form

Client / Project: City of LV Service Request *K14* 05130

Received: 5/21/14 Opened: 5/21/14 By: [illegible] Unloaded: 5/21/14 By: [illegible]

1. Samples were received via? *Mail* *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
9.3	9.1	13.4	13.2	0.2	345			

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. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
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

Notes, Discrepancies, & Resolutions: _____

Page ____ *of* ____

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	180.1	**Units:**	NTU
Prep Method:	None	**Basis:**	NA

Turbidity

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-7	K1405130-001	**12.6**	0.20	1	05/22/14 15:43	
Method Blank	K1405130-MB1	ND U	0.20	1	05/22/14 15:36	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
Analysis Method:	180.1	**Units:**	NTU
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Turbidity

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1405123-002DUP	0.20	0.93	0.92	0.924	<1	20	05/22/14
Batch QC	K1405168-002DUP	0.20	0.70	0.71	0.707	2	20	05/23/14

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Turbidity

Analysis Method:	180.1	**Units:**	NTU
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	394139

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405130-LCS1	5.83	5.80	101	90-110

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Bromide

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-7	K1405130-001	ND U	0.20	2	05/22/14 10:25	
Method Blank	K1405130-MB1	ND U	0.10	1	05/22/14 07:49	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405607-12DUP Result	Average	RPD	RPD Limit
Bromide	300.0	0.20	ND	ND	NC	NC	20

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/22/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Bromide

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405607-12MS			Duplicate Matrix Spike KQ1405607-12DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Bromide	ND U	3.96	4.00	99	3.97	4.00	99	90-110	<1	20

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Bromide

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393762

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405130-LCS1	2.32	2.50	93	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Chloride

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-7	K1405130-001	**31.6**	4.0	20	05/22/14 12:17	
Method Blank	K1405130-MB1	ND U	0.20	1	05/22/14 07:49	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary

General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405607-12DUP Result	Average	RPD	RPD Limit
Chloride	300.0	0.40	4.85	4.84	4.84	<1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/22/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Chloride

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405607-12MS			Duplicate Matrix Spike KQ1405607-12DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Chloride	4.85	9.08	4.00	106	9.07	4.00	106	90-110	<1	20

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Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Chloride

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393762

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405130-LCS1	4.70	5.00	94	90-110

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Fluoride

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-7	K1405130-001	ND U	0.20	2	05/22/14 10:25	
Method Blank	K1405130-MB1	ND U	0.10	1	05/22/14 07:49	

ALS Group USA, Corp.

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405607-12DUP Result	Average	RPD	RPD Limit
Fluoride	300.0	0.20	ND	ND	NC	NC	20

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ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/22/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Fluoride

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405607-12MS			Duplicate Matrix Spike KQ1405607-12DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Fluoride	ND U	4.10	4.00	102	4.13	4.00	103	90-110	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Fluoride

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393762

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405130-LCS1	5.05	5.00	101	90-110

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Nitrite as Nitrogen

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-7	K1405130-001	ND U	0.10	2	05/22/14 10:25	
Method Blank	K1405130-MB1	ND U	0.050	1	05/22/14 07:49	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405607-12DUP Result	Average	RPD	RPD Limit
Nitrite as Nitrogen	300.0	0.10	ND	ND	NC	NC	20

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Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/22/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrite as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405607-12MS			Duplicate Matrix Spike KQ1405607-12DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrite as Nitrogen	ND U	4.13	4.00	103	4.14	4.00	103	90-110	<1	20

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ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Nitrite as Nitrogen

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393762

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405130-LCS1	2.43	2.50	97	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Nitrate as Nitrogen

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-7	K1405130-001	ND U	0.10	2	05/22/14 10:25	
Method Blank	K1405130-MB1	ND U	0.050	1	05/22/14 07:49	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405607-12DUP Result	Average	RPD	RPD Limit
Nitrate as Nitrogen	300.0	0.10	ND	ND	NC	NC	20

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Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/22/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrate as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405607-12MS			Duplicate Matrix Spike KQ1405607-12DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrate as Nitrogen	ND U	3.85	4.00	96	3.86	4.00	96	90-110	<1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Nitrate as Nitrogen

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393762

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405130-LCS1	2.35	2.50	94	90-110

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	5/21/2014
Sample Matrix:	Drinking water	**Date Received:**	5/21/2014

Nitrite + Nitrate as Nitrogen

Prep Method:	NONE	Units:	mg/L
Analysis Method:	300.0/300.0	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
DW-7	K1405130-001	0.10	2	NA	5/22/2014	ND	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Sulfate

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-7	K1405130-001	**2.44**	0.20	2	05/22/14 10:25	
Method Blank	K1405130-MB1	ND U	0.10	1	05/22/14 07:49	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405607-12DUP Result	Average	RPD	RPD Limit
Sulfate	300.0	0.20	2.28	2.30	2.29	<1	20

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Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/22/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Sulfate

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405607-12	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1405607-12MS			Duplicate Matrix Spike KQ1405607-12DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Sulfate	2.28	6.43	4.00	104	6.46	4.00	104	90-110	<1	20

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Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Sulfate

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393762

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405130-LCS1	4.82	5.00	96	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	314.0	**Units:**	ug/L
Prep Method:	None	**Basis:**	NA

Perchlorate

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-7	K1405130-001	ND U	1.0	1	05/22/14 12:53	
Method Blank	K1405130-MB1	ND U	1.0	1	05/22/14 09:12	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405052-001DUP Result	Average	RPD	RPD Limit
Perchlorate	314.0	1.0	ND	ND	NC	NC	20

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Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/22/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Perchlorate

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Analysis Method:	314.0		
Prep Method:	None		

		Matrix Spike K1405052-001MS			Duplicate Matrix Spike K1405052-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	ND U	11.9	10.0	119	10.4	10.0	104	80-120	13	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Perchlorate

Analysis Method:	314.0	**Units:**	ug/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393851

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405130-LCS1	16.3	16.8	97	85-115

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	335.4	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA

Cyanide, Total

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
DW-7	K1405130-001	ND U	0.010	1	06/02/14 12:55	6/2/14	
Method Blank	K1405130-MB1	ND U	0.010	1	06/02/14 12:55	6/2/14	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	06/02/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405982-03	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1405982-03DUP Result	Average	RPD	RPD Limit
Cyanide, Total	335.4	0.010	ND	ND	NC	NC	20

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ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	06/2/14
		Date Extracted:	06/2/14

Matrix Spike Summary
Cyanide, Total

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1405982-03	**Basis:**	NA
Analysis Method:	335.4		
Prep Method:	Method		

Matrix Spike
KQ1405982-03MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Cyanide, Total	ND U	0.096	0.143	67 *	90-110

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dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Analyzed:**	06/02/14
Sample Matrix:	Drinking Water	**Date Extracted:**	06/02/14

Lab Control Sample Summary
Cyanide, Total

Analysis Method:	335.4	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	395190

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405130-LCS1	0.141	0.150	94	90-110

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	SM 2120 B	**Units:**	ColorUnits
Prep Method:	None	**Basis:**	NA

Color

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-7	K1405130-001	ND U	5.0	1	05/22/14 10:43	
Method Blank	K1405130-MB1	ND U	5.0	1	05/22/14 08:42	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/22/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	ColorUnits
Lab Code:	K1405057-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405057-001DUP Result	Average	RPD	RPD Limit
Color	SM 2120 B	5.0	15.0	15.0	15.0	<1	20

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ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Analyzed:**	05/22/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Color

Analysis Method:	SM 2120 B	**Units:**	ColorUnits
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393796

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405130-LCS1	65.0	65.0	100	85-115

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	SM 2320 B	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Alkalinity as CaCO3, Total

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-7	K1405130-001	**92.3**	2.0	1	06/04/14 17:30	
Method Blank	K1405130-MB1	ND U	2.0	1	06/04/14 17:30	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	06/04/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405123-002	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405123-002DUP Result	Average	RPD	RPD Limit
Alkalinity as CaCO3, Total	SM 2320 B	2.0	106	107	107	<1	20

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dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Analyzed:**	06/04/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Alkalinity as CaCO3, Total

Analysis Method:	SM 2320 B	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	395646

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405130-LCS1	175	177	99	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	SM 2510 B	**Units:**	uMHOS/cm
Prep Method:	None	**Basis:**	NA

Conductivity at 25 Degrees Celsius

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-7	K1405130-001	**313**	2.0	1	06/03/14 13:30	
Method Blank	K1405130-MB1	ND U	2.0	1	06/03/14 13:30	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
		Date Analyzed:	06/03/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW-7	**Units:**	uMHOS/cm
Lab Code:	K1405130-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405130-001DUP Result	Average	RPD	RPD Limit
Conductivity at 25 Degrees Celsius	SM 2510 B	2.0	313	315	314	<1	20

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Analyzed:**	06/03/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Conductivity at 25 Degrees Celsius

Analysis Method:	SM 2510 B	**Units:**	uMHOS/cm
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	395439

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405130-LCS1	337	330	102	86-113

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	SM 2540 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Solids, Total Dissolved

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-7	K1405130-001	**225**	10	1	05/28/14 20:00	
Method Blank	K1405130-MB1	ND U	10	1	05/28/14 20:00	
Method Blank	K1405130-MB2	ND U	10	1	05/28/14 20:00	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
Analysis Method:	SM 2540 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Solids, Total Dissolved

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1405127-001DUP	10	487	505	496	4	10	05/28/14
Batch QC	K1405171-001DUP	10	707	729	718	3	10	05/28/14

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

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

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Analyzed:**	05/28/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Solids, Total Dissolved

Analysis Method:	SM 2540 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	394546

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405130-LCS1	864	886	98	85-115

Analytical Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	SM 4500-NH3 G	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA

Ammonia

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
DW-7	K1405130-001	**0.285**	0.050	1	06/04/14 18:40	6/4/14	
Method Blank	K1405130-MB1	ND U	0.050	1	06/04/14 18:40	6/4/14	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	06/04/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1406157-09	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1406157-09DUP Result	Average	RPD	RPD Limit
Ammonia	SM 4500-NH3 G	0.050	2.58	2.56	2.57	<1	20

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	06/4/14
		Date Extracted:	06/4/14

Duplicate Matrix Spike Summary
Ammonia

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1406157-09	**Basis:**	NA
Analysis Method:	SM 4500-NH3 G		
Prep Method:	Method		

		Matrix Spike KQ1406157-09MS			Duplicate Matrix Spike KQ1406157-09DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Ammonia	2.58	4.56	2.00	99	4.52	2.00	97	90-110	<1	20

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Analyzed:**	06/04/14
Sample Matrix:	Drinking Water	**Date Extracted:**	06/04/14

Lab Control Sample Summary
Ammonia

Analysis Method:	SM 4500-NH3 G	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	395732

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405130-LCS1	10.8	10.8	100	90-110

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking Water	**Date Received:**	05/21/14
Analysis Method:	SM 4500-P E	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Orthophosphate as Phosphorus

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-7	K1405130-001	**0.112**	0.050	1	05/22/14 12:42	
Method Blank	K1405130-MB1	ND U	0.050	1	05/21/14 13:29	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	05/21/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1405052-001DUP Result	Average	RPD	RPD Limit
Orthophosphate as Phosphorus	SM 4500-P E	0.050	0.483	0.485	0.484	<1	20

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

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	05/21/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Orthophosphate as Phosphorus

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1405052-001	**Basis:**	NA
Analysis Method:	SM 4500-P E		
Prep Method:	None		

		Matrix Spike K1405052-001MS			**Duplicate Matrix Spike** K1405052-001DMS				
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Orthophosphate as Phosphorus	0.483	0.91	0.40	107	0.85	0.40	92	75-125	15	20

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Analyzed:**	05/21/14
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Orthophosphate as Phosphorus

Analysis Method:	SM 4500-P E	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	393629

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1405130-LCS1	3.86	3.94	98	85-115
Lab Control Sample	K1405130-LCS2	3.81	3.94	97	85-115
Lab Control Sample	K1405130-LCS3	3.83	3.94	97	85-115
Lab Control Sample	K1405130-LCS4	3.85	3.94	98	85-115

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	5/21/2014
Sample Matrix:	Drinking water	**Date Received:**	5/21/2014

Colilert, E. Coli

Prep Method: NONE
Analysis Method: SM 9223B
Basis: NA
Test Notes:

Sample Name	Lab Code	MRL	Date Analyzed	Time Test Started		Result	Result Notes
DW-7	K1405130-001	-	5/22/2014	11:40	hrs	Absent	

SM *Standard Methods for the Examination of Water and Wastewater* , 20th Ed., 1998.

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	5/21/2014
Sample Matrix:	Drinking water	**Date Received:**	5/21/2014

Colilert, T. Coli

Prep Method: NONE
Analysis Method: SM 9223B
Basis: NA
Test Notes:

Sample Name	Lab Code	MRL	Date Analyzed	Time Test Started		Result	Result Notes
DW-7	K1405130-001	-	5/22/2014	11:40	hrs	Absent	

SM *Standard Methods for the Examination of Water and Wastewater* , 20th Ed., 1998.

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking water	**Date Received:**	05/21/14

Hardness as CaCO3

Prep Method:	CLAA	Units:	mg/L (ppm)
Analysis Method:	200.7/SM 2340B	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
DW-7	K1405130-001	0.07	1	05/29/14	05/30/14	117	
Method Blank	K1405130-MB	0.07	1	05/29/14	05/30/14	ND	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	05/29/14
		Date Analyzed:	05/30/14

Duplicate Summary
Metals

Sample Name:	Batch QC1D	Units:	mg/L (ppm)
Lab Code:	K1405127-001D	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Hardness as CaCO3	CLAA	200.7/SM 2340B	0.07	249	247	248	<1	

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/14
Sample Matrix:	Drinking water	**Date Received:**	05/21/14

Methyl Mercury

Prep Method:	Method	Units:	ng/L
Analysis Method:	1630	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
DW-7	K1405130-001	0.1	1	06/08/14	06/09/14	ND	
Method Blank 1	K1405130-MB1	0.1	1	06/08/14	06/09/14	ND	
Method Blank 2	K1405130-MB2	0.1	1	06/08/14	06/09/14	ND	
Method Blank 3	K1405130-MB3	0.1	1	06/08/14	06/09/14	ND	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	06/08/14
		Date Analyzed:	06/09/14

Matrix Spike/Duplicate Matrix Spike Summary
Metals

Sample Name:	Batch QC	Units:	ng/L
Lab Code:	K1405054-001MS, K1405054-001MSD	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Spike Level MS	Spike Level DMS	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	CAS Acceptance Limits	Relative Percent Difference	Result Notes
Mercury, Methyl	Method	1630	0.1	2.22	2.22	ND	2.54	2.52	114	114	65-135	<1	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	06/08/14
		Date Analyzed:	06/09/14

Ongoing Precision and Recovery (OPR) Sample Summary
Metals

Sample Name: Ongoing Precision and Recovery (Initial)

Units: ng/L
Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Mercury, Methyl	Method	1630	2.22	2.54	114	67-133	

ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	06/08/14
		Date Analyzed:	06/09/14

Ongoing Precision and Recovery (OPR) Sample Summary
Metals

Sample Name: Ongoing Precision and Recovery (Final)

Units: ng/L
Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Mercury, Methyl	Method	1630	2.22	2.50	113	67-133	

ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	06/08/14
		Date Analyzed:	06/09/14

Quality Control Sample (QCS) Summary
Metals

Sample Name: Quality Control Sample

Units: pg
Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Mercury, Methyl	Method	1630	100	106	106	67-133	

ALS Group USA, Corp.
dba ALS Environmental

- Cover Page -
INORGANIC ANALYSIS DATA PACKAGE

Client: Longview, City of
Project Name: Sentinel Wells
Project No.:

Service Request: K1405130

Sample Name:	Lab Code:
Batch QC2D	K1405052-001D
Batch QC2S	K1405052-001S
Batch QC1D	K1405127-001D
Batch QC1S	K1405127-001S
DW-7	K1405130-001
Method Blank	K1405130-MB

Comments:

Metals

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

Client: Longview, City of
Project No.: NA
Project Name: Sentinel Wells
Matrix: WATER

Service Request: K1405130
Date Collected: 05/21/14
Date Received: 05/21/14
Units: mg/L
Basis: NA

Sample Name: DW-7
Lab Code: K1405130-001

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Antimony	200.8	0.00005	1.0	05/29/14	05/30/14	0.00005	U	
Arsenic	200.8	0.0005	1.0	05/29/14	05/30/14	0.0041		
Barium	200.7	0.0040	1.0	05/29/14	05/30/14	0.0149		
Beryllium	200.8	0.00002	1.0	05/29/14	05/30/14	0.00002	U	
Cadmium	200.8	0.00002	1.0	05/29/14	05/30/14	0.00002	U	
Chromium	200.8	0.0002	1.0	05/29/14	05/30/14	0.0002	U	
Copper	200.7	0.004	1.0	05/29/14	05/30/14	0.004	U	
Iron	200.7	0.020	1.0	05/29/14	05/30/14	1.77		
Lead	200.8	0.00002	1.0	05/29/14	05/30/14	0.00002	U	
Manganese	200.7	0.001	1.0	05/29/14	05/30/14	1.02		
Mercury	245.1	0.0002	1.0	05/29/14	05/29/14	0.0002	U	
Nickel	200.8	0.0002	1.0	05/29/14	05/30/14	0.0005		
Selenium	200.8	0.001	1.0	05/29/14	05/30/14	0.001	U	
Silver	200.8	0.00002	1.0	05/29/14	05/30/14	0.00002	U	
Sodium	200.7	0.20	1.0	05/29/14	05/30/14	11.4		
Thallium	200.8	0.00002	1.0	05/29/14	05/30/14	0.00002	U	
Zinc	200.7	0.004	1.0	05/29/14	05/30/14	0.004	U	

Comments:

Metals

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

Client: Longview, City of
Service Request: K1405130
Project No.: NA
Date Collected:
Project Name: Sentinel Wells
Date Received:
Matrix: WATER
Units: mg/L
Basis: NA

Sample Name: Method Blank
Lab Code: K1405130-MB

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Antimony	200.8	0.00005	1.0	05/29/14	05/30/14	0.00005	U	
Arsenic	200.8	0.0005	1.0	05/29/14	05/30/14	0.0005	U	
Barium	200.7	0.0040	1.0	05/29/14	05/30/14	0.0040	U	
Beryllium	200.8	0.00002	1.0	05/29/14	05/30/14	0.00002	U	
Cadmium	200.8	0.00002	1.0	05/29/14	05/30/14	0.00002	U	
Chromium	200.8	0.0002	1.0	05/29/14	05/30/14	0.0002	U	
Copper	200.7	0.004	1.0	05/29/14	05/30/14	0.004	U	
Iron	200.7	0.020	1.0	05/29/14	05/30/14	0.020	U	
Lead	200.8	0.00002	1.0	05/29/14	05/30/14	0.00002	U	
Manganese	200.7	0.001	1.0	05/29/14	05/30/14	0.001	U	
Mercury	245.1	0.0002	1.0	05/29/14	05/29/14	0.0002	U	
Nickel	200.8	0.0002	1.0	05/29/14	05/30/14	0.0002	U	
Selenium	200.8	0.001	1.0	05/29/14	05/30/14	0.001	U	
Silver	200.8	0.00002	1.0	05/29/14	05/30/14	0.00002	U	
Sodium	200.7	0.20	1.0	05/29/14	05/30/14	0.20	U	
Thallium	200.8	0.00002	1.0	05/29/14	05/30/14	0.00002	U	
Zinc	200.7	0.004	1.0	05/29/14	05/30/14	0.004	U	

Comments:

Metals
- 5A -
SPIKE SAMPLE RECOVERY

Client: Longview, City of
Service Request: K1405130
Project No.: NA
Units: MG/L
Project Name: Sentinel Wells
Basis: NA
Matrix: WATER

Sample Name: Batch QC2S
Lab Code: K1405052-001S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Mercury	80 - 120	0.0010		0.0002	U	0.001	100		245.1

An empty field in the Control Limit column indicates the control limit is not applicable

Metals
- 5A -
SPIKE SAMPLE RECOVERY

Client: Longview, City of
Service Request: K1405130
Project No.: NA
Units: MG/L
Project Name: Sentinel Wells
Basis: NA
Matrix: WATER

Sample Name: Batch QC1S
Lab Code: K1405127-001S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Antimony	70 - 130	0.056061		0.000050	U	0.050000	112		200.8
Arsenic	70 - 130	0.05995		0.00498		0.05000	110		200.8
Barium	70 - 130	2.1		0.0310		2.00	103.4		200.7
Beryllium	70 - 130	0.00266		0.00002	U	0.00250	106		200.8
Cadmium	70 - 130	0.02758		0.00002	U	0.025000	110		200.8
Chromium	70 - 130	0.0099		0.0002	U	0.01000	99		200.8
Copper	70 - 130	0.256		0.004	U	0.25	102.4		200.7
Iron	70 - 130	2.11		1.06		1.00	105.0		200.7
Lead	70 - 130	0.05416		0.00002	U	0.050000	108		200.8
Manganese	70 - 130	1.48		1.00		0.50	96.0		200.7
Nickel	70 - 130	0.0258		0.0009		0.02500	100		200.8
Selenium	70 - 130	0.055		0.001	U	0.0500	110		200.8
Silver	70 - 130	0.01351		0.00002	U	0.012500	108		200.8
Sodium	70 - 130	27.2		16.4		10.00	108.0		200.7
Thallium	70 - 130	0.05612		0.00002	U	0.050000	112		200.8
Zinc	70 - 130	0.503		0.004	U	0.50	100.6		200.7

An empty field in the Control Limit column indicates the control limit is not applicable

Metals

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DUPLICATES

Client: Longview, City of **Service Request:** K1405130

Project No.: NA **Units:** MG/L

Project Name: Sentinel Wells **Basis:** NA

Matrix: WATER

Sample Name: Batch QC2D **Lab Code:** K1405052-001D

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Mercury		0.0002	U	0.0002	U			245.1

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals

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DUPLICATES

Client: Longview, City of
Service Request: K1405130
Project No.: NA
Units: MG/L
Project Name: Sentinel Wells
Basis: NA
Matrix: WATER

Sample Name: Batch QC1D
Lab Code: K1405127-001D

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Antimony		0.000050	U	0.000050	U			200.8
Arsenic	20	0.00498		0.00496		0.4		200.8
Barium	20	0.0310		0.0306		1.3		200.7
Beryllium		0.00002	U	0.00002	U			200.8
Cadmium		0.00002	U	0.00002	U			200.8
Chromium		0.0002	U	0.0002	U			200.8
Copper		0.004	U	0.004	U			200.7
Iron	20	1.06		1.07		0.9		200.7
Lead		0.00002	U	0.00002	U			200.8
Manganese	20	1.00		0.983		1.7		200.7
Nickel		0.0009		0.0008		11.8		200.8
Selenium		0.001	U	0.001	U			200.8
Silver		0.00002	U	0.00002	U			200.8
Sodium	20	16.4		16.8		2.4		200.7
Thallium		0.00002	U	0.00002	U			200.8
Zinc		0.004	U	0.004	U			200.7

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals

- 7 -

LABORATORY CONTROL SAMPLE

Client: Longview, City of **Service Request:** K1405130

Project No.: NA

Project Name: Sentinel Wells

Aqueous LCS Source: **ALS MIXED** **Solid LCS Source:**

Analyte	Aqueous (ug/L)			Solid (mg/kg)				
	True	Found	%R	True	Found	C	Limits	%R
Antimony	0.050	0.0542	108					
Arsenic	0.050	0.053	106					
Barium	5	5.1	102					
Beryllium	0.003	0.0026	104					
Cadmium	0.025	0.0273	109					
Calcium	12.5	12.6	101					
Chromium	0.010	0.0106	106					
Copper	.625	0.635	102					
Iron	2.5	2.54	102					
Lead	0.050	0.0558	112					
Magnesium	12.5	12.8	102					
Manganese	1.25	1.25	100					
Mercury	.005	0.0051	102					
Nickel	0.025	0.0263	105					
Selenium	0.050	0.054	108					
Silver	0.013	0.0136	109					
Sodium	12.5	13.1	105					
Thallium	0.050	0.0568	114					
Zinc	1.25	1.26	101					

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of		**Service Request:**
Project:	Sentinel Wells		**Date Collected:**
Sample Matrix:	Drinking water		**Date Received:**

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	DW-7		Units:
Lab Code:	K1405130-001		Basis:
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result
2,4,6-Trichlorophenol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
2,4,5-Trichlorophenol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND
Trichlorosyringol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
Pentachlorophenol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND
Tetrachloroguaiacol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND
Tetrachlorocatechol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of		**Service Request:**
Project:	Sentinel Wells		**Date Collected:**
Sample Matrix:	Drinking water		**Date Received:**

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	Method Blank		Units:
Lab Code:	KWG1404755-3		Basis:
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result
2,4,6-Trichlorophenol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
2,4,5-Trichlorophenol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND
Trichlorosyringol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	1	5/27/2014	5/29/2014	ND
Pentachlorophenol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND
Tetrachloroguaiacol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND
Tetrachlorocatechol	METHOD	1653A	5.0	1	5/27/2014	5/29/2014	ND

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	5/27/2014

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

Percent Recovery

Analyte	**CAS Percent Recovery Acceptance Criteria**	Sample Name:	**DW-7**	**Method Blank**
		Lab Code:	K1405130-001	KWG1404755-3
		Date Analyzed:	5/29/2014	5/29/2014
3,4,5-Trichlorophenol	36-131		88	86
4,5,6-Trichloroguaiacol-13c6	25-134		85	72
Pentachlorophenol-13c6	22-117		64	53
Tetrachloroguaiacol-13c6	18-129		70	53
Tetrachlorocatechol-13c6	D-121		23	34

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client: Longview, City of
Project: Sentinel Wells
Sample Matrix: Drinking water

Service Request: K1405130
Date Collected: NA
Date Received: NA
Date Extracted: 5/27/2014
Date Analyzed: 5/29/2014

Duplicate Summary
Chlorinated Phenolic Organic Compounds

Sample Name: Batch QC
Lab Code: KWG1404755-1
Test Notes:

Units: ug/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	2.5	ND	ND	ND	-	
2,4,5-Trichlorophenol	METHOD	1653A	2.5	ND	ND	ND	-	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	ND	ND	ND	-	
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	ND	ND	ND	-	
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	ND	ND	ND	-	
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	ND	ND	ND	-	
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	ND	ND	ND	-	
Trichlorosyringol	METHOD	1653A	2.5	ND	ND	ND	-	
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	ND	ND	ND	-	
Pentachlorophenol	METHOD	1653A	5.0	ND	ND	ND	-	
Tetrachloroguaiacol	METHOD	1653A	5.0	ND	ND	ND	-	
Tetrachlorocatechol	METHOD	1653A	5.0	ND	ND	ND	-	

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	5/27/2014
		Date Analyzed:	5/29/2014

Ongoing Precision and Recovery Summary
Chlorinated Phenolic Organic Compounds

Sample Name:	Lab Control Sample	Units:	ug/L (ppb)
Lab Code:	KWG1404755-2	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	50	57.5	115	72-146	
2,4,5-Trichlorophenol	METHOD	1653A	50	57.3	115	82-128	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	50	47.6	95	82-132	
3,4,6-Trichloroguaiacol	METHOD	1653A	50	47.5	95	74-140	
3,4,5-Trichloroguaiacol	METHOD	1653A	50	45.0	90	80-134	
3,4,6-Trichlorocatechol	METHOD	1653A	100	90.8	91	64-149	
3,4,5-Trichlorocatechol	METHOD	1653A	100	82.2	82	72-128	
Trichlorosyringol	METHOD	1653A	50	35.9	72	66-174	
4,5,6-Trichloroguaiacol	METHOD	1653A	50	50.1	100	88-116	
Pentachlorophenol	METHOD	1653A	100	100	100	84-120	
Tetrachloroguaiacol	METHOD	1653A	100	106	106	81-126	
Tetrachlorocatechol	METHOD	1653A	100	120	120	81-132	

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

EPA Method 504.1

Sample Name:	DW-7	**Units:**	ug/L
Lab Code:	K1405130-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	504.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	0.0096	1	05/28/14	05/29/14	KWG1404828	
1,2,3-Trichloropropane	ND	U	0.097	1	05/28/14	05/29/14	KWG1404828	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.0096	1	05/28/14	05/29/14	KWG1404828	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

EPA Method 504.1

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404828-4	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	504.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,2-Dibromoethane (EDB)	ND	U	0.0099	1	05/28/14	05/28/14	KWG1404828	
1,2,3-Trichloropropane	ND	U	0.10	1	05/28/14	05/28/14	KWG1404828	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.0099	1	05/28/14	05/28/14	KWG1404828	

Comments:

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Extracted:**	05/28/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/28/2014

Matrix Spike/Duplicate Matrix Spike Summary
EPA Method 504.1

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	504.1	**Extraction Lot:**	KWG1404828

		Batch QCMS KWG1404828-1 Matrix Spike			Batch QCDMS KWG1404828-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
1,2-Dibromoethane (EDB)	ND	0.244	0.242	101	0.259	0.243	107	65-135	6	30
1,2,3-Trichloropropane	ND	0.192	0.242	79	0.214	0.243	88	65-135	11	30
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.210	0.242	87	0.231	0.243	95	65-135	9	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Extracted:**	05/28/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/28/2014

Lab Control Spike Summary
EPA Method 504.1

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	504.1	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404828

Lab Control Sample
KWG1404828-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
1,2-Dibromoethane (EDB)	0.264	0.250	106	70-130
1,2,3-Trichloropropane	0.223	0.250	89	70-130
1,2-Dibromo-3-chloropropane (DBCP)	0.230	0.250	92	70-130

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.

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

Pesticides/PCBs by EPA Method 508.1

Sample Name:	DW-7	**Units:**	ug/L
Lab Code:	K1405130-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
gamma-BHC (Lindane)	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Heptachlor	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Aldrin	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Heptachlor Epoxide	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Heptachlor Epoxide (Isomer A)	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
4,4'-DDE	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Dieldrin	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Endrin	ND	U	0.0098	1	05/29/14	06/04/14	KWG1404875	
4,4'-DDD	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
4,4'-DDT	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Methoxychlor	ND	U	0.0098	1	05/29/14	06/02/14	KWG1404875	
Toxaphene	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Chlordane	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1016	ND	U	0.049	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1221	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1232	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1242	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1248	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1254	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1260	ND	U	0.098	1	05/29/14	06/02/14	KWG1404875	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4,4'-Dibromooctafluorobiphenyl	95	70-130	06/02/14	Acceptable

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Pesticides/PCBs by EPA Method 508.1

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404875-7	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
gamma-BHC (Lindane)	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Heptachlor	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Aldrin	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Heptachlor Epoxide	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Heptachlor Epoxide (Isomer A)	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
4,4'-DDE	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Dieldrin	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Endrin	ND	U	0.010	1	05/29/14	06/04/14	KWG1404875	
4,4'-DDD	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
4,4'-DDT	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Methoxychlor	ND	U	0.010	1	05/29/14	06/02/14	KWG1404875	
Toxaphene	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Chlordane	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1016	ND	U	0.050	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1221	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1232	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1242	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1248	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1254	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	
Aroclor 1260	ND	U	0.10	1	05/29/14	06/02/14	KWG1404875	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4,4'-Dibromooctafluorobiphenyl	94	70-130	06/02/14	Acceptable

Comments:

Client: Longview, City of
Project: Sentinel Wells
Sample Matrix: Drinking water

Service Request: K1405130

Surrogate Recovery Summary
Pesticides/PCBs by EPA Method 508.1

Extraction Method: METHOD
Analysis Method: 508.1

Units: Percent
Level: Low

Sample Name	Lab Code	Sur1
Batch QC	K1405057-001	97
DW-7	K1405130-001	95
Method Blank	KWG1404875-7	94
Batch QCMS	KWG1404875-1	88
Batch QCDMS	KWG1404875-2	88
Lab Control Sample	KWG1404875-3	87

Surrogate Recovery Control Limits (%)

Sur1	=	4,4'-Dibromooctafluorobiphenyl	70-130

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/02/2014 - 06/03/2014

Matrix Spike/Duplicate Matrix Spike Summary
Pesticides/PCBs by EPA Method 508.1

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405057-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1	**Extraction Lot:**	KWG1404875

		Batch QCMS KWG1404875-1 Matrix Spike			Batch QCDMS KWG1404875-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
gamma-BHC (Lindane)	ND	0.0984	0.0962	102	0.0982	0.0962	102	65-135	0	30
Heptachlor	ND	0.0739	0.0962	77	0.0681	0.0962	71	65-135	8	30
Aldrin	ND	0.0888	0.0962	92	0.0871	0.0962	91	65-135	2	30
Heptachlor Epoxide	ND	0.0836	0.0962	87	0.0782	0.0962	81	65-135	7	30
Heptachlor Epoxide (Isomer A)	ND	0.0893	0.0962	93	0.0848	0.0962	88	65-135	5	30
4,4'-DDE	ND	0.0954	0.0962	99	0.0955	0.0962	99	65-135	0	30
Dieldrin	ND	0.0918	0.0962	95	0.0905	0.0962	94	65-135	1	30
Endrin	ND	0.0807	0.0962	84	0.0791	0.0962	82	65-135	2	30
4,4'-DDD	ND	0.103	0.0962	107	0.103	0.0962	107	65-135	0	30
4,4'-DDT	ND	0.0995	0.0962	103	0.0998	0.0962	104	65-135	0	30
Methoxychlor	ND	0.0990	0.0962	103	0.0949	0.0962	99	65-135	4	30
Aroclor 1248	ND	0.373	0.481	78	0.368	0.481	76	65-135	1	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/02/2014 - 06/04/2014

Lab Control Spike Summary
Pesticides/PCBs by EPA Method 508.1

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	508.1	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404875

	Lab Control Sample KWG1404875-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
gamma-BHC (Lindane)	0.100	0.100	100	70-130
Heptachlor	0.0882	0.100	88	70-130
Aldrin	0.0916	0.100	92	70-130
Heptachlor Epoxide	0.0963	0.100	96	70-130
Heptachlor Epoxide (Isomer A)	0.102	0.100	102	70-130
4,4'-DDE	0.101	0.100	101	70-130
Dieldrin	0.0997	0.100	100	70-130
Endrin	0.104	0.100	104	70-130
4,4'-DDD	0.110	0.100	110	70-130
4,4'-DDT	0.102	0.100	102	70-130
Methoxychlor	0.0965	0.100	97	70-130
Aroclor 1248	0.420	0.500	84	70-130

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

Chlorinated Herbicides by EPA 515.4

Sample Name:	DW-7	**Units:**	ug/L
Lab Code:	K1405130-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	515.4		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dalapon	ND	U	0.50	1	05/30/14	06/03/14	KWG1404919	
3,5-Dichlorobenzoic Acid	ND	U	0.25	1	05/30/14	06/03/14	KWG1404919	
Dicamba	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
Dichlorprop	ND	U	0.25	1	05/30/14	06/03/14	KWG1404919	
2,4-D	ND	U	0.089	1	05/30/14	06/03/14	KWG1404919	
Pentachlorophenol	ND	U	0.020	1	05/30/14	06/03/14	KWG1404919	
2,4,5-TP (Silvex)	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
Chloramben	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
2,4-DB	ND	U	0.50	1	05/30/14	06/03/14	KWG1404919	
Dinoseb	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
Dacthal Diacid	ND	U	0.10	1	05/30/14	06/03/14	KWG1404919	
Picloram	ND	U	0.091	1	05/30/14	06/03/14	KWG1404919	
Acifluorfen	ND	U	1.0	1	05/30/14	06/03/14	KWG1404919	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2,4-Dichlorophenylacetic Acid	83	70-130	06/03/14	Acceptable

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Chlorinated Herbicides by EPA 515.4

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404919-4	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	515.4		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dalapon	ND	U	0.50	1	05/30/14	06/02/14	KWG1404919	
3,5-Dichlorobenzoic Acid	ND	U	0.25	1	05/30/14	06/02/14	KWG1404919	
Dicamba	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Dichlorprop	ND	U	0.25	1	05/30/14	06/02/14	KWG1404919	
2,4-D	ND	U	0.089	1	05/30/14	06/02/14	KWG1404919	
Pentachlorophenol	ND	U	0.020	1	05/30/14	06/02/14	KWG1404919	
2,4,5-TP (Silvex)	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Chloramben	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
2,4-DB	ND	U	0.50	1	05/30/14	06/02/14	KWG1404919	
Dinoseb	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Dacthal Diacid	ND	U	0.10	1	05/30/14	06/02/14	KWG1404919	
Picloram	ND	U	0.091	1	05/30/14	06/02/14	KWG1404919	
Acifluorfen	ND	U	1.0	1	05/30/14	06/02/14	KWG1404919	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2,4-Dichlorophenylacetic Acid	113	70-130	06/02/14	Acceptable

Comments:

Client: Longview, City of
Project: Sentinel Wells
Sample Matrix: Drinking water

Service Request: K1405130

Surrogate Recovery Summary
Chlorinated Herbicides by EPA 515.4

Extraction Method: METHOD
Analysis Method: 515.4

Units: Percent
Level: Low

Sample Name	Lab Code	Sur1
Batch QC	K1405052-001	75
DW-7	K1405130-001	83
Method Blank	KWG1404919-4	113
Batch QCMS	KWG1404919-1	119
Batch QCDMS	KWG1404919-2	115
Lab Control Sample	KWG1404919-3	109

Surrogate Recovery Control Limits (%)

Sur1 = 2,4-Dichlorophenylacetic Acid 70-130

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Extracted:**	05/30/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/02/2014 - 06/03/2014

Matrix Spike/Duplicate Matrix Spike Summary
Chlorinated Herbicides by EPA 515.4

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	515.4	**Extraction Lot:**	KWG1404919

		Batch QCMS KWG1404919-1 Matrix Spike			Batch QCDMS KWG1404919-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dalapon	ND	2.44	2.49	98	2.48	2.49	99	70-130	1	30
3,5-Dichlorobenzoic Acid	ND	2.41	2.49	97	2.36	2.49	95	70-130	2	30
Dicamba	ND	2.43	2.49	98	2.42	2.49	97	70-130	1	30
Dichlorprop	ND	2.33	2.49	94	2.27	2.49	91	70-130	3	30
2,4-D	ND	2.33	2.49	94	2.31	2.49	93	70-130	1	30
Pentachlorophenol	ND	2.44	2.49	98	2.42	2.49	97	70-130	1	30
2,4,5-TP (Silvex)	ND	2.46	2.49	99	2.46	2.49	99	70-130	0	30
Chloramben	ND	2.54	2.49	102	2.55	2.49	102	70-130	0	30
2,4-DB	ND	2.44	2.49	98	2.41	2.49	97	70-130	1	30
Dinoseb	ND	2.28	2.49	92	2.33	2.49	93	70-130	2	30
Dacthal Diacid	ND	2.75	2.49	110	2.73	2.49	110	70-130	1	30
Picloram	ND	2.60	2.49	104	2.56	2.49	103	70-130	2	30
Acifluorfen	ND	2.41	2.49	97	2.40	2.49	96	70-130	0	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Extracted:**	05/30/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/02/2014

Lab Control Spike Summary
Chlorinated Herbicides by EPA 515.4

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	515.4	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404919

Lab Control Sample
KWG1404919-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Dalapon	2.39	2.50	95	70-130
3,5-Dichlorobenzoic Acid	2.34	2.50	94	70-130
Dicamba	2.37	2.50	95	70-130
Dichlorprop	2.30	2.50	92	70-130
2,4-D	2.29	2.50	91	70-130
Pentachlorophenol	2.31	2.50	92	70-130
2,4,5-TP (Silvex)	2.41	2.50	96	70-130
Chloramben	2.57	2.50	103	70-130
2,4-DB	2.38	2.50	95	70-130
Dinoseb	2.37	2.50	95	70-130
Dacthal Diacid	2.42	2.50	97	70-130
Picloram	2.32	2.50	93	70-130
Acifluorfen	2.41	2.50	96	70-130

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

Volatile Organic Compounds

Sample Name:	DW-7	**Units:**	ug/L
Lab Code:	K1405130-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Vinyl Chloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromomethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Trichlorofluoromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Methylene Chloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
trans-1,2-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
cis-1,2-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Methyl tert-Butyl Ether	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloroform	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromochloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Carbon Tetrachloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Benzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Trichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromodichloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Dibromomethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
cis-1,3-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Toluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
trans-1,3-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Tetrachloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
2,2-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Dibromochloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Ethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Styrene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
m,p-Xylenes	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

Volatile Organic Compounds

Sample Name:	DW-7	**Units:**	ug/L
Lab Code:	K1405130-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
o-Xylene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,1-Trichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromoform	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Isopropylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
n-Propylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3,5-Trimethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
2-Chlorotoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
4-Chlorotoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
tert-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,4-Trimethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
sec-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
p-Isopropyltoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,4-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
n-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,4-Trichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Hexachlorobutadiene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Naphthalene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,2-Trichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,3-Trichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,3-Trichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

Volatile Organic Compounds

Sample Name:	DW-7	**Units:**	ug/L
Lab Code:	K1405130-001	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	97	70-130	05/29/14	Acceptable
Dibromofluoromethane	93	82-124	05/29/14	Acceptable
Toluene-d8	102	82-124	05/29/14	Acceptable

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404851-5	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Vinyl Chloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromomethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Trichlorofluoromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Methylene Chloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
trans-1,2-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
cis-1,2-Dichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Methyl tert-Butyl Ether	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chloroform	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromochloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Carbon Tetrachloride	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Benzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Trichloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromodichloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Dibromomethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
cis-1,3-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Toluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
trans-1,3-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Tetrachloroethene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
2,2-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3-Dichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Dibromochloromethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Chlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Ethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Styrene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
m,p-Xylenes	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404851-5	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
o-Xylene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,1-Trichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromoform	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Isopropylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1-Dichloropropene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Bromobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
n-Propylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3,5-Trimethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
2-Chlorotoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
4-Chlorotoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
tert-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,4-Trimethylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
sec-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
p-Isopropyltoluene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,3-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,4-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
n-Butylbenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,4-Trichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Hexachlorobutadiene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
Naphthalene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,2-Trichloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,3-Trichloropropane	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	
1,2,3-Trichlorobenzene	ND	U	0.50	1	05/29/14	05/29/14	KWG1404851	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404851-5	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	99	70-130	05/29/14	Acceptable
Dibromofluoromethane	93	82-124	05/29/14	Acceptable
Toluene-d8	101	82-124	05/29/14	Acceptable

Comments:

Client: Longview, City of **Service Request:** K1405130
Project: Sentinel Wells
Sample Matrix: Drinking water

Surrogate Recovery Summary
Volatile Organic Compounds

Extraction Method: METHOD **Units:** Percent
Analysis Method: 524.2 **Level:** Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
Batch QC	K1405052-001	98	93	101
DW-7	K1405130-001	97	93	102
Method Blank	KWG1404851-5	99	93	101
Batch QCMS	KWG1404851-1	100	97	103
Batch QCDMS	KWG1404851-2	103	98	104
Lab Control Sample	KWG1404851-3	102	99	104

Surrogate Recovery Control Limits (%)

Sur1	= 4-Bromofluorobenzene	70-130
Sur2	= Dibromofluoromethane	82-124
Sur3	= Toluene-d8	82-124

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Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/29/2014

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2	**Extraction Lot:**	KWG1404851

		Batch QCMS KWG1404851-1 Matrix Spike			Batch QCDMS KWG1404851-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dichlorodifluoromethane	ND	6.83	5.00	137 *	5.31	5.00	106	70-130	25	30
Chloromethane	ND	5.99	5.00	120	4.99	5.00	100	70-130	18	30
Vinyl Chloride	ND	5.77	5.00	115	4.57	5.00	91	70-130	23	30
Bromomethane	ND	4.87	5.00	97	3.96	5.00	79	70-130	21	30
Chloroethane	ND	6.07	5.00	121	4.94	5.00	99	70-130	21	30
Trichlorofluoromethane	ND	5.48	5.00	110	4.33	5.00	87	70-130	23	30
Methylene Chloride	ND	5.27	5.00	105	4.57	5.00	91	70-130	14	30
trans-1,2-Dichloroethene	ND	5.41	5.00	108	4.49	5.00	90	70-130	19	30
1,1-Dichloroethene	ND	5.32	5.00	106	4.28	5.00	86	70-130	22	30
cis-1,2-Dichloroethene	ND	5.35	5.00	107	4.47	5.00	89	70-130	18	30
Methyl tert-Butyl Ether	ND	10.2	10.0	102	9.03	10.0	90	70-130	12	30
Chloroform	ND	5.21	5.00	104	4.41	5.00	88	70-130	17	30
Bromochloromethane	ND	5.24	5.00	105	4.44	5.00	89	70-130	17	30
Carbon Tetrachloride	ND	4.90	5.00	98	3.96	5.00	79	70-130	21	30
Benzene	ND	5.38	5.00	108	4.50	5.00	90	70-130	18	30
1,2-Dichloroethane	ND	4.99	5.00	100	4.37	5.00	87	70-130	13	30
Trichloroethene	ND	5.10	5.00	102	4.17	5.00	83	70-130	20	30
1,2-Dichloropropane	ND	5.04	5.00	101	4.26	5.00	85	70-130	17	30
Bromodichloromethane	ND	4.41	5.00	88	3.79	5.00	76	70-130	15	30
Dibromomethane	ND	4.80	5.00	96	4.25	5.00	85	70-130	12	30
cis-1,3-Dichloropropene	ND	4.13	5.00	83	3.49	5.00	70	70-130	17	30
Toluene	ND	5.54	5.00	111	4.61	5.00	92	70-130	18	30
1,1-Dichloroethane	ND	5.31	5.00	106	4.43	5.00	89	70-130	18	30
trans-1,3-Dichloropropene	ND	3.69	5.00	74	3.25	5.00	65 *	70-130	13	30
Tetrachloroethene	ND	5.52	5.00	110	4.65	5.00	93	70-130	17	30
1,3-Dichloropropane	ND	5.55	5.00	111	5.01	5.00	100	70-130	10	30
2,2-Dichloropropane	ND	4.94	5.00	99	3.98	5.00	80	70-130	22	30
Dibromochloromethane	ND	4.00	5.00	80	3.54	5.00	71	70-130	12	30
1,2-Dibromoethane (EDB)	ND	4.89	5.00	98	4.42	5.00	88	70-130	10	30
Chlorobenzene	ND	5.51	5.00	110	4.78	5.00	96	70-130	14	30
Ethylbenzene	ND	5.45	5.00	109	4.66	5.00	93	70-130	16	30
Styrene	ND	5.77	5.00	115	4.98	5.00	100	70-130	15	30
m,p-Xylenes	ND	11.5	10.0	115	9.84	10.0	98	70-130	16	30

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

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/29/2014

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405052-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2	**Extraction Lot:**	KWG1404851

		Batch QCMS KWG1404851-1 Matrix Spike			Batch QCDMS KWG1404851-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
o-Xylene	ND	5.60	5.00	112	4.85	5.00	97	70-130	14	30
1,1,1-Trichloroethane	ND	4.88	5.00	98	4.02	5.00	80	70-130	19	30
Bromoform	ND	4.15	5.00	83	3.65	5.00	73	70-130	13	30
1,1,2,2-Tetrachloroethane	ND	4.17	5.00	83	3.74	5.00	75	70-130	11	30
Isopropylbenzene	ND	5.78	5.00	116	4.87	5.00	97	70-130	17	30
1,1-Dichloropropene	ND	5.34	5.00	107	4.31	5.00	86	70-130	21	30
Bromobenzene	ND	4.31	5.00	86	3.81	5.00	76	70-130	12	30
n-Propylbenzene	ND	4.47	5.00	89	3.85	5.00	77	70-130	15	30
1,3,5-Trimethylbenzene	ND	4.76	5.00	95	4.13	5.00	83	70-130	14	30
2-Chlorotoluene	ND	4.50	5.00	90	3.95	5.00	79	70-130	13	30
4-Chlorotoluene	ND	4.85	5.00	97	4.20	5.00	84	70-130	14	30
tert-Butylbenzene	ND	5.17	5.00	103	4.39	5.00	88	70-130	16	30
1,2,4-Trimethylbenzene	ND	5.60	5.00	112	4.84	5.00	97	70-130	15	30
sec-Butylbenzene	ND	5.62	5.00	112	4.76	5.00	95	70-130	17	30
p-Isopropyltoluene	ND	5.89	5.00	118	4.96	5.00	99	70-130	17	30
1,3-Dichlorobenzene	ND	5.12	5.00	102	4.47	5.00	89	70-130	14	30
1,4-Dichlorobenzene	ND	5.13	5.00	103	4.49	5.00	90	70-130	13	30
n-Butylbenzene	ND	5.51	5.00	110	4.64	5.00	93	70-130	17	30
1,2-Dichlorobenzene	ND	5.32	5.00	106	4.74	5.00	95	70-130	12	30
1,2-Dibromo-3-chloropropane (DBCP)	ND	4.16	5.00	83	3.68	5.00	74	70-130	12	30
1,2,4-Trichlorobenzene	ND	4.48	5.00	90	3.98	5.00	80	70-130	12	30
Hexachlorobutadiene	ND	4.70	5.00	94	3.98	5.00	80	70-130	17	30
Naphthalene	ND	4.09	5.00	82	3.72	5.00	74	70-130	9	30
1,1,2-Trichloroethane	ND	5.03	5.00	101	4.53	5.00	91	70-130	10	30
1,1,1,2-Tetrachloroethane	ND	4.69	5.00	94	4.01	5.00	80	70-130	16	30
1,2,3-Trichloropropane	ND	4.81	5.00	96	4.41	5.00	88	70-130	9	30
1,2,3-Trichlorobenzene	ND	4.73	5.00	95	4.27	5.00	85	70-130	10	30

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/29/2014

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	524.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404851

Lab Control Sample
KWG1404851-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Dichlorodifluoromethane	5.94	5.00	119	70-130
Chloromethane	5.27	5.00	105	70-130
Vinyl Chloride	5.03	5.00	101	70-130
Bromomethane	4.33	5.00	87	70-130
Chloroethane	5.27	5.00	105	70-130
Trichlorofluoromethane	4.91	5.00	98	70-130
Methylene Chloride	5.02	5.00	100	70-130
trans-1,2-Dichloroethene	4.85	5.00	97	70-130
cis-1,2-Dichloroethene	4.85	5.00	97	70-130
1,1-Dichloroethene	4.67	5.00	93	70-130
Methyl tert-Butyl Ether	10.3	10.0	103	70-130
Chloroform	4.86	5.00	97	70-130
Bromochloromethane	4.84	5.00	97	70-130
Carbon Tetrachloride	4.56	5.00	91	70-130
Benzene	4.90	5.00	98	70-130
1,2-Dichloroethane	4.74	5.00	95	70-130
Trichloroethene	4.61	5.00	92	70-130
1,2-Dichloropropane	4.66	5.00	93	70-130
Bromodichloromethane	4.29	5.00	86	70-130
Dibromomethane	4.63	5.00	93	70-130
cis-1,3-Dichloropropene	4.07	5.00	81	70-130
1,1-Dichloroethane	4.84	5.00	97	70-130
Toluene	5.00	5.00	100	70-130
trans-1,3-Dichloropropene	3.67	5.00	73	70-130
Tetrachloroethene	4.98	5.00	100	70-130
1,3-Dichloropropane	5.26	5.00	105	70-130
2,2-Dichloropropane	4.48	5.00	90	70-130
Dibromochloromethane	4.01	5.00	80	70-130
1,2-Dibromoethane (EDB)	4.81	5.00	96	70-130
Chlorobenzene	5.04	5.00	101	70-130
Ethylbenzene	4.95	5.00	99	70-130
Styrene	5.16	5.00	103	70-130
m,p-Xylenes	10.4	10.0	104	70-130
o-Xylene	5.08	5.00	102	70-130
1,1,1-Trichloroethane	4.60	5.00	92	70-130

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/29/2014

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	524.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404851

Lab Control Sample
KWG1404851-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
1,1,2,2-Tetrachloroethane	3.98	5.00	80	70-130
Bromoform	4.07	5.00	81	70-130
Isopropylbenzene	5.20	5.00	104	70-130
1,1-Dichloropropene	4.78	5.00	96	70-130
Bromobenzene	4.00	5.00	80	70-130
n-Propylbenzene	4.02	5.00	80	70-130
1,3,5-Trimethylbenzene	4.28	5.00	86	70-130
2-Chlorotoluene	4.11	5.00	82	70-130
4-Chlorotoluene	4.38	5.00	88	70-130
tert-Butylbenzene	4.65	5.00	93	70-130
1,2,4-Trimethylbenzene	5.02	5.00	100	70-130
sec-Butylbenzene	5.01	5.00	100	70-130
p-Isopropyltoluene	5.29	5.00	106	70-130
1,3-Dichlorobenzene	4.70	5.00	94	70-130
1,4-Dichlorobenzene	4.65	5.00	93	70-130
n-Butylbenzene	4.90	5.00	98	70-130
1,2-Dichlorobenzene	4.99	5.00	100	70-130
1,2-Dibromo-3-chloropropane (DBCP)	4.11	5.00	82	70-130
1,2,4-Trichlorobenzene	4.29	5.00	86	70-130
Hexachlorobutadiene	4.24	5.00	85	70-130
Naphthalene	4.02	5.00	80	70-130
1,1,2-Trichloroethane	4.88	5.00	98	70-130
1,1,1,2-Tetrachloroethane	4.56	5.00	91	70-130
1,2,3-Trichloropropane	4.98	5.00	100	70-130
1,2,3-Trichlorobenzene	4.51	5.00	90	70-130

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ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

Semivolatile Organics by EPA Method 525.2

Sample Name:	DW-7	**Units:**	ug/L
Lab Code:	K1405130-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	525.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Hexachlorocyclopentadiene	ND	U	0.098	1	05/29/14	06/09/14	KWG1404877	
Fluorene	ND	U	0.049	1	05/29/14	06/09/14	KWG1404877	
Propachlor	ND	U	0.098	1	05/29/14	06/09/14	KWG1404877	
Hexachlorobenzene	ND	U	0.098	1	05/29/14	06/09/14	KWG1404877	
Simazine	ND	U	0.049	1	05/29/14	06/09/14	KWG1404877	
Atrazine	ND	U	0.098	1	05/29/14	06/09/14	KWG1404877	
Metribuzin	ND	U	0.20	1	05/29/14	06/09/14	KWG1404877	
Alachlor	ND	U	0.070	1	05/29/14	06/09/14	KWG1404877	
Bromacil	ND	U	0.20	1	05/29/14	06/09/14	KWG1404877	
Metolachlor	ND	U	0.088	1	05/29/14	06/09/14	KWG1404877	
Butachlor	ND	U	0.098	1	05/29/14	06/09/14	KWG1404877	
Bis(2-ethylhexyl) Adipate	ND	U	0.59	1	05/29/14	06/09/14	KWG1404877	
Bis(2-ethylhexyl) Phthalate	ND	U	0.59	1	05/29/14	06/09/14	KWG1404877	
Benzo(a)pyrene	ND	U	0.020	1	05/29/14	06/09/14	KWG1404877	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,3-Dimethyl-2-nitrobenzene	125	70-130	06/09/14	Acceptable
Triphenyl Phosphate	89	70-130	06/09/14	Acceptable
Perylene-d12	47	70-130	06/09/14	Outside Control Limits

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Ocean water	**Date Received:**	NA

Semivolatile Organics by EPA Method 525.2

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404877-4	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	525.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Hexachlorocyclopentadiene	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Fluorene	ND	U	0.050	1	05/29/14	06/09/14	KWG1404877	
Propachlor	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Hexachlorobenzene	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Simazine	ND	U	0.050	1	05/29/14	06/09/14	KWG1404877	
Atrazine	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Metribuzin	ND	U	0.20	1	05/29/14	06/09/14	KWG1404877	
Alachlor	ND	U	0.072	1	05/29/14	06/09/14	KWG1404877	
Bromacil	ND	U	0.20	1	05/29/14	06/09/14	KWG1404877	
Metolachlor	ND	U	0.090	1	05/29/14	06/09/14	KWG1404877	
Butachlor	ND	U	0.10	1	05/29/14	06/09/14	KWG1404877	
Bis(2-ethylhexyl) Adipate	ND	U	0.60	1	05/29/14	06/09/14	KWG1404877	
Bis(2-ethylhexyl) Phthalate	ND	U	0.60	1	05/29/14	06/09/14	KWG1404877	
Benzo(a)pyrene	ND	U	0.020	1	05/29/14	06/09/14	KWG1404877	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,3-Dimethyl-2-nitrobenzene	119	70-130	06/09/14	Acceptable
Triphenyl Phosphate	77	70-130	06/09/14	Acceptable
Perylene-d12	82	70-130	06/09/14	Acceptable

Comments:

Client: Longview, City of
Project: Sentinel Wells
Sample Matrix: Drinking water

Service Request: K1405130

Surrogate Recovery Summary
Semivolatile Organics by EPA Method 525.2

Extraction Method: METHOD
Analysis Method: 525.2

Units: Percent
Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3	
Batch QC	K1405054-001	126	96	77	
DW-7	K1405130-001	125	89	47	*
Method Blank	KWG1404877-4	119	77	82	
Batch QCMS	KWG1404877-1	118	107	95	
Batch QCDMS	KWG1404877-2	120	101	66	*
Lab Control Sample	KWG1404877-3	116	106	95	

Surrogate Recovery Control Limits (%)

Sur1	=	1,3-Dimethyl-2-nitrobenzene	70-130
Sur2	=	Triphenyl Phosphate	70-130
Sur3	=	Perylene-d12	70-130

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Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	06/09/2014

Matrix Spike/Duplicate Matrix Spike Summary
Semivolatile Organics by EPA Method 525.2

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1405054-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	525.2	**Extraction Lot:**	KWG1404877

		Batch QCMS KWG1404877-1 Matrix Spike			Batch QCDMS KWG1404877-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Hexachlorocyclopentadiene	ND	1.06	0.971	109	1.09	0.971	112	70-130	3	30
Fluorene	ND	1.04	0.971	107	1.06	0.971	110	70-130	2	30
Propachlor	ND	0.931	0.971	96	0.920	0.971	95	70-130	1	30
Hexachlorobenzene	ND	1.02	0.971	105	1.01	0.971	104	70-130	1	30
Simazine	ND	0.728	0.971	75	0.705	0.971	73	70-130	3	30
Atrazine	ND	0.774	0.971	80	0.703	0.971	72	70-130	10	30
Metribuzin	ND	1.02	0.971	105	0.993	0.971	102	70-130	3	30
Alachlor	ND	0.880	0.971	91	0.861	0.971	89	70-130	2	30
Bromacil	ND	1.04	0.971	108	0.994	0.971	102	70-130	5	30
Metolachlor	ND	0.888	0.971	91	0.863	0.971	89	70-130	3	30
Butachlor	ND	0.992	0.971	102	0.967	0.971	100	70-130	3	30
Bis(2-ethylhexyl) Adipate	ND	1.01	0.971	104	0.964	0.971	99	70-130	4	30
Bis(2-ethylhexyl) Phthalate	ND	1.05	0.971	108	1.05	0.971	108	70-130	0	30
Benzo(a)pyrene	ND	0.631	0.971	65 *	0.216	0.971	22 *	70-130	98 *	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Extracted:**	05/29/2014
Sample Matrix:	Ocean water	**Date Analyzed:**	06/09/2014

Lab Control Spike Summary
Semivolatile Organics by EPA Method 525.2

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	525.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404877

	Lab Control Sample KWG1404877-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Hexachlorocyclopentadiene	1.04	1.00	104	70-130
Fluorene	1.08	1.00	108	70-130
Propachlor	0.930	1.00	93	70-130
Hexachlorobenzene	1.06	1.00	106	70-130
Simazine	0.903	1.00	90	70-130
Atrazine	0.865	1.00	87	70-130
Metribuzin	1.03	1.00	103	70-130
Alachlor	0.914	1.00	91	70-130
Bromacil	0.960	1.00	96	70-130
Metolachlor	0.944	1.00	94	70-130
Butachlor	1.08	1.00	108	70-130
Bis(2-ethylhexyl) Adipate	0.969	1.00	97	70-130
Bis(2-ethylhexyl) Phthalate	1.03	1.00	103	70-130
Benzo(a)pyrene	1.02	1.00	102	70-130

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

Endothall by EPA Method 548.1

Sample Name:	DW-7	**Units:**	ug/L
Lab Code:	K1405130-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	548.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Endothall	ND	U	5.0	1	05/27/14	05/28/14	KWG1404759	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Endothall by EPA Method 548.1

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404759-4	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	548.1		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Endothall	ND	U	5.0	1	05/27/14	05/27/14	KWG1404759	

Comments:

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Extracted:**	05/27/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/28/2014 - 06/02/2014

Matrix Spike/Duplicate Matrix Spike Summary
Endothall by EPA Method 548.1

Sample Name:	DW-7	**Units:**	ug/L
Lab Code:	K1405130-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	548.1	**Extraction Lot:**	KWG1404759

		DW-7MS KWG1404759-1 Matrix Spike			DW-7DMS KWG1404759-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Endothall	ND	111	100	111	123	100	123	30-142	10	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Extracted:**	05/27/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/28/2014

Lab Control Spike Summary
Endothall by EPA Method 548.1

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	548.1	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404759

	Lab Control Sample KWG1404759-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Endothall	128	100	128	30-142

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.

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	05/21/2014
Sample Matrix:	Drinking water	**Date Received:**	05/21/2014

Diquat and Paraquat by EPA Method 549.2

Sample Name:	DW-7	**Units:**	ug/L
Lab Code:	K1405130-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	549.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diquat	ND	U	0.40	1	05/27/14	05/30/14	KWG1404738	
Paraquat	ND	U	0.80	1	05/27/14	05/30/14	KWG1404738	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Diquat and Paraquat by EPA Method 549.2

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1404738-5	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	549.2		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diquat	ND	U	0.40	1	05/27/14	05/30/14	KWG1404738	
Paraquat	ND	U	0.80	1	05/27/14	05/30/14	KWG1404738	

Comments:

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Extracted:**	05/27/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/30/2014

Matrix Spike/Duplicate Matrix Spike Summary
Diquat and Paraquat by EPA Method 549.2

Sample Name:	DW-7	**Units:**	ug/L
Lab Code:	K1405130-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	549.2	**Extraction Lot:**	KWG1404738

		DW-7MS KWG1404738-1 Matrix Spike			DW-7DMS KWG1404738-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Diquat	ND	12.0	12.0	100	11.9	12.0	100	70-130	0	30
Paraquat	ND	11.0	12.0	92	11.2	12.0	94	70-130	2	30

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

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Client:	Longview, City of	**Service Request:**	K1405130
Project:	Sentinel Wells	**Date Extracted:**	05/27/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	05/30/2014

Lab Control Spike Summary
Diquat and Paraquat by EPA Method 549.2

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	549.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1404738

	Lab Control Sample KWG1404738-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Diquat	11.0	12.0	91	70-130
Paraquat	10.1	12.0	84	70-130

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

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www.alsglobal.com

LABORATORY REPORT

May 30, 2014

Jeff Coleman
Longview, City of
W/S Operation Center
Longview, WA 98632

RE: Sentinel Wells

Dear Jeff:

Enclosed are the results of the sample submitted to our laboratory on May 21, 2014. For your reference, this analysis has been assigned our service request number K1405130.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

Kate Aguilera

By Kate Aguilera at 10:38 am, May 30, 2014

Kate Aguilera
Project Manager

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F: +1 805 526 7270
www.alsglobal.com

Client: Longview, City of
Project: Sentinel Wells

Service Request No: K1405130

CASE NARRATIVE

The sample was received intact under chain of custody on May 21, 2014 and was stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the sample at the time of sample receipt.

Hydrogen Sulfide Analysis

The sample was analyzed for hydrogen sulfide using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

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ALS Environmental – Simi Valley

Certifications, Accreditations, and Registrations

Agency	Web Site	Number
AIHA	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
DoD ELAP	http://www.pjlabs.com/search-accredited-labs	L14-2
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2012039
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	643428
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	CA200007
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-13-4
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA016272013-3
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

Intra-Network Chain of Custody

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

ALS Contact: Chris Leaf

Project Name: Sentinel Wells
Project Number:
Project Manager: Jeff Coleman
Company: Longview, City of

Lab Code	Client Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Date Received	Send To	Sulfur Sulfur Liq
K1405130-001	DW-7	3	Drinking Water	5/21/14	1335	5/21/14	SIMIVALLEY	II

H_2S only

131

temp blank = 4°C
Frozen Blue ice

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

CL 5/22/14

pH Checked _____

Turnaround Requirements
____ **RUSH** (Surcharges Apply)
PLEASE CIRCLE WORK DAYS
1 2 3 4 5
✓ **STANDARD**
Requested FAX Date: _____
Requested Report Date: 06/06/14

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

Invoice Information
PO# K1405130 ✓
Bill to

Relinquished By: [signature] 5/22/14 1140
Received By: Kelly Hines 5/23/14 925 am
Airbill Number: _____

ALS Environmental
Sample Acceptance Check Form

Client: Longview, City of Work order: K1405130

Project: Sentinel Wells

Sample(s) received on: 5/21/14 Date opened: 5/21/14 by: SWOLF

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Container(s) **supplied by ALS**?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: ° C Blank Temperature: 4° C **Gel Packs**			
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☒	☐	☐
	Location of seal(s)? across seam Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☒	☐	☐
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☒	☐
	Were **VOA vials** checked for presence/absence of air bubbles?	☒	☐	☐
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☒	☐	☐
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
K1405130-001.01	40mL VOA NP		7	1	A	MC 5/27/2014
K1405130-001.02	40mL VOA NP				A	
K1405130-001.03	40mL VOA NP				A	

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Longview, City of**
Client Project ID: **Sentinel Wells** ALS Project ID: K1405130

Hydrogen Sulfide

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 7890A/GC22/SCD Date(s) Collected: 5/21/14
Analyst: Mike Conejo Date Received: 5/21/14
Sample Type: Drinking Water Date Analyzed: 5/27/14
Test Notes:

Client Sample ID	ALS Sample ID	Sample Amount ml(s)	Purge Volume Liter(s)	Injection Volume ml(s)	**Result µg/L**	MRL µg/L	Data Qualifier
DW-7	K1405130-001	10.0	0.30	1.0	ND	0.84	
Method Blank	P140527-MB	10.0	0.30	1.0	ND	0.84	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Longview, City of**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: K1405130
Client Project ID: **Sentinel Wells** ALS Sample ID: P140527-DLCS

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Mike Conejo
Sample Type: Drinking Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 5/27/14
Liquid Amount: 10.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume: 0.20 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result LCS ug/L	Result DLCS ug/L	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
7783-06-4	Hydrogen Sulfide	428	414	438	**97**	**102**	54-133	5	20	

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 421 , WV 343

June 9, 2014

Ms. Chris Leaf
ALS Environmental - Kelso
1317 S. 13th Avenue
Kelso, WA 98626

Certificate of Analysis

Project Name:	**SOCs**	Workorder:	**2008658**
Purchase Order:	**K1405130**	Workorder ID:	**K1405130**

Dear Ms. Leaf:

Enclosed are the analytical results for samples received by the laboratory on Friday, May 23, 2014.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Mrs. Kelli L Wolfgang (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

Kelli Wolfgang

Mrs. Kelli L Wolfgang
Project Coordinator

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 421 , WV 343

SAMPLE SUMMARY

Workorder: 2008658 K1405130

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2008658001	K1405130-001	Drinking Water	5/21/2014 13:35	5/23/2014 09:20	Collected by Client

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 421 , WV 343

ANALYTICAL RESULTS

Workorder: 2008658 K1405130

Lab ID: **2008658001** Date Collected: 5/21/2014 13:35 Matrix: Drinking Water

Sample ID: **K1405130-001** Date Received: 5/23/2014 09:20

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
HERBICIDES										
Glyphosate	ND		ug/L	4.5	EPA 547	5/28/14	CGS	5/28/14 22:22	CGS	A
CARBAMATES										
Aldicarb	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 18:50	CGS	C
Aldicarb Sulfone	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 18:50	CGS	C
Aldicarb Sulfoxide	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 18:50	CGS	C
Carbaryl	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 18:50	CGS	C
Carbofuran	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 18:50	CGS	C
3-Hydroxycarbofuran	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 18:50	CGS	C
Methiocarb	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 18:50	CGS	C
Methomyl	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 18:50	CGS	C
Oxamyl	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 18:50	CGS	C
Propoxur	0.0		ug/L		EPA 531.1	6/5/14	CGS	6/5/14 18:50	CGS	C

Kelli Wolfgang

Mrs. Kelli L Wolfgang
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 421 , WV 343

QUALITY CONTROL DATA

Workorder: 2008658 K1405130

QC Batch: HPLC/3697 **Analysis Method:** EPA 547

QC Batch Method: EPA 547

Associated Lab Samples: 2008658001

METHOD BLANK: 2022254

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Glyphosate	ND	ug/L	4.5	

LABORATORY CONTROL SAMPLE: 2022255

Parameter	Spike Conc.	Units	LCS Result	LCS % Rec	% Rec Limit	Qualifiers
Glyphosate	500	ug/L	481	96.1	80 - 120	

MATRIX SPIKE SAMPLE: 2022343 ORIGINAL:

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Glyphosate		ug/L	500	531	106	70 - 130	

SAMPLE DUPLICATE: 2022344 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Glyphosate		ug/L	ND		40	

MATRIX SPIKE SAMPLE: 2022345 ORIGINAL:

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Glyphosate		ug/L	500	509	102	70 - 130	

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QUALITY CONTROL DATA

Workorder: 2008658 K1405130

QC Batch: HPLC/3709 **Analysis Method:** EPA 531.1

QC Batch Method: EPA 531.1

Associated Lab Samples: 2008658001

METHOD BLANK: 2026536

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Aldicarb Sulfoxide	0.0	ug/L		
Aldicarb Sulfone	0.0	ug/L		
Oxamyl	0.0	ug/L		
Methomyl	0.0	ug/L		
3-Hydroxycarbofuran	0.0	ug/L		
Aldicarb	0.0	ug/L		
Propoxur	0.0	ug/L		
Carbofuran	0.0	ug/L		
Carbaryl	0.0	ug/L		
Methiocarb	0.0	ug/L		

LABORATORY CONTROL SAMPLE: 2026537

Parameter	Spike Conc.	Units	LCS Result	LCS % Rec	% Rec Limit	Qualifiers
Aldicarb Sulfoxide	10	ug/L	8.5	84.7	80 - 120	
Aldicarb Sulfone	10	ug/L	9.5	95.2	80 - 120	
Oxamyl	10	ug/L	10.6	106	80 - 120	
Methomyl	10	ug/L	10.1	101	80 - 120	
3-Hydroxycarbofuran	10	ug/L	10.8	108	80 - 120	
Aldicarb	10	ug/L	10.4	104	80 - 120	
Propoxur	10	ug/L	10.1	101	80 - 120	
Carbofuran	10	ug/L	11.6	116	80 - 120	
Carbaryl	10	ug/L	8.5	84.7	80 - 120	
Methiocarb	10	ug/L	8.7	86.6	80 - 120	

SAMPLE DUPLICATE: 2026538 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Aldicarb Sulfoxide		ug/L	0.0		20	
Aldicarb Sulfone		ug/L	0.0		20	
Oxamyl		ug/L	0.0		20	
Methomyl		ug/L	0.0		20	
3-Hydroxycarbofuran		ug/L	0.0		20	

QUALITY CONTROL DATA

Workorder: 2008658 K1405130

Aldicarb	ug/L	0.0	20
Propoxur	ug/L	0.0	20
Carbofuran	ug/L	0.0	20
Carbaryl	ug/L	0.0	20
Methiocarb	ug/L	0.0	20

MATRIX SPIKE SAMPLE: 2026539 ORIGINAL:

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Aldicarb Sulfoxide		ug/L	10	8.6	86	65 - 135	
Aldicarb Sulfone		ug/L	10	10	99.9	65 - 135	
Oxamyl		ug/L	10	11.1	111	65 - 135	
Methomyl		ug/L	10	10.4	104	65 - 135	
3-Hydroxycarbofuran		ug/L	10	10.8	108	65 - 135	
Aldicarb		ug/L	10	10.4	104	65 - 135	
Propoxur		ug/L	10	11.0	110	65 - 135	
Carbofuran		ug/L	10	11.7	117	65 - 135	
Carbaryl		ug/L	10	9.0	89.5	65 - 135	
Methiocarb		ug/L	10	9.3	93	65 - 135	

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2008658 K1405130

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2008658001	K1405130-001			EPA 547	HPLC/3697
2008658001	K1405130-001			EPA 531.1	HPLC/3709

ALS Environmental Chain of Custody

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

ALS Contact: Chris Leaf

Project Number: K1405130
Project Manager: Chris Leaf

KLW

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	CARBAM 531.1	GLYPH 547
K1405130-001	DW-7	4	Drinking Water	5/21/14	1335	Middletown	X	X

5 MM 5-23-14

	Y	N	Initials	
Custody Seals Present?			MM	Cooler Temp: 1 °C
(if present) Seals Intact?				Cooler #:
Received on Ice?				
COC/Labls Complete				Therm ID: 291
Cont in Good Cond?				
Correct Containers?				Ship Carrier:
Correct Samp Vol?				FedEx UPS
Correct Preservation?				DHL
Headspace/Volatiles?				

Tracking #: 5478 9733 0679

Test Comments
CARBAM - 531.1 K1405130-001 Full list for WA Regulations - no compliance report required.

logged in: MM 5-23-14 1631

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

CC 5/22/14

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: 06/06/14

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

Invoice Information
PO# K1405130 ✓
Bill to

Relinquished By: [signature] 5/22/14 1140
Received By: Megan Foley ALS 5-23-14 0920
Airbill Number:

✓ **Ship To: Middletown**
ALS Laboratory Group
34 Dogwood Lane
Middletown, PA 17057

PC _____ Date 5/22/14
SMO _____ Date 5/22/14

Instructions:

Ice	✓
Dry Ice	
No Ice	

Shipping:

Overnight	✓
2nd Day	
Ground	

Bill to Client Account _____

Comments: