Technical Memorandum
Groundwater Quality Sampling, November 2013 Event

Date: April 16, 2014

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

Subject: Groundwater Quality Sampling Results, November 2013 Monitoring Event

This memorandum summarizes the results of the groundwater monitoring and sampling event conducted in November 2013 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 normally 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. Due to accessibility restrictions encountered during this event, DW-2 could not be sampled until February 2014. And, for continuity purposes, DW-8 was also sampled for comparison to the July 2013 sampling event.

ACTIVITIES CONDUCTED DURING THE NOVEMBER 2013 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-6, DW-8 and DW-9 on November 12, 2013. Collecting groundwater samples from deep sentinel wells DW-1, DW-5 and DW-7 on December 17, 2013. Collecting groundwater samples from DW-2 on February 25, 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.

RESULTS OF GROUNDWATER MONITORING

The laboratory analytical reports for the groundwater samples collected during the November 2013 sampling event are included on compact disc in Attachment A.

Iron and manganese 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 exceeding 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 but will be downloaded periodically 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.

December 12, 2013 Analytical Report for Service Request No: K1312327

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

RE: Sentinel Well

Dear Jeff:

Enclosed are the results of the samples submitted to our laboratory on November 13, 2013. For your reference, these analyses have been assigned our service request number K1312327.

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

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626 USA | PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp. Part of the ALS Group An ALS Limited Company

Environmental www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

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	-
Indiana DOH	http://www.in.gov/isdh/24859.htm	C-WA-01
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	053-999-368
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.caslab.com or at the accreditation bodies web site

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

CHAIN OF CUSTODY

44631

001

SR# N131524

COC Set____of____

COC#_____

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

Project Name: Sentinel Well	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: Thomas Daly

CLIENT SAMPLE ID	LABID	SAMPLING Date 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. DW9		11/12/13 0855		7										
2. DW8		11/12/13 1055		7										
3. DW6		11/12/13 1330		7										
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.# 36-4131

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]	Signature: KSmith	Signature	Signature	Signature	Signature
Printed Name: Todd Douglas	Printed Name: ALS	Printed Name	Printed Name	Printed Name	Printed Name
Firm: CoLV	Firm: 11/12/13 1610	Firm	Firm	Firm	Firm
Date/Time: 11/12/13	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

PC ___

Cooler Receipt and Preservation Form

Client / Project: City of Longview Service Request *K13* 13377

Received: 11/12/13 Opened: 11/12/13 By: KD Unloaded: 11/12/13 By: KD

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
5.4	5.6	6.5	6.7	+.2	276			
8.1	8.3	10.5	10.7	+.2	331			

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 2 *of* 2

PC CV

Cooler Receipt and Preservation Form

Client / Project: City of Longview Service Request *K13* 12327

Received: 11/12/13 Opened: 11/12/13 By: KO Unloaded: 11/12/13 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
1.2	1.5	7.4	7.7	+.3	341			
5.7	5.8	3.1	3.2	+.1	340			
7.2	7.2	6.7	6.7	0	334			
7.5	7.4	9.7	9.6	-.1	298		SHORT HOLD TIME	
9.7	9.8	10.7	10.8	+1	307			

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 Well
Project No. : NA

Service Request : K1312327

Sample Name :	Lab Code :
DW 9	K1312327-001
DW 8	K1312327-002
DW 6	K1312327-003
Method Blank	K1312327-MB

Comments:

ALS Group USA, Corp.
dba ALS Enviromental
Analytical Report

Client :	Longview, City of	**Service Request :**	K1312327
Project Name :	Sentinel Well	**Date Collected :**	11/12/13
Project No. :	NA	**Date Received :**	11/13/13
Matrix :	Drinking Water	**Date Extracted :**	

Total Metals
Units: ug/L (ppb)

Analyte:	Uranium
Analysis Method:	200.8
Method Reporting Limit:	0.02
Date Analyzed:	11/25/13

Sample Name	**Lab Code**	
DW 9	K1312327-001	ND
DW 8	K1312327-002	ND
DW 6	K1312327-003	ND
Method Blank	K1312327-MB	ND

Comments:

Thursday, December 12, 2013

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

Re: ALS Workorder: 1311339
Project Name:
Project Number: K1312327

Dear Ms. Leaf:

Three water samples were received from ALS Environmental, on 11/19/2013. The samples were 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

1311339 Case Narrative

Gross Alpha/Beta:
The samples were 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 samples were 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:
The samples were analyzed for the presence of ^{226}Ra according to the current revision of SOP 724.

All acceptance criteria were met.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1311339
Client Name: ALS Environmental
Client Project Name:
Client Project Number: K1312327
Client PO Number: K1312327

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
DW 9	1311339-1		WATER	12-Nov-13	8:55
DW 8	1311339-2		WATER	12-Nov-13	10:55
DW 6	1311339-3		WATER	12-Nov-13	13:30

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

1311339

Project Number: K1312327
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
K1312327-001	DW 9 (1)	6	Drinking Water	11/12/13	0855	Fort Collins	X	X	X
K1312327-002	DW 8 (2)	6	Drinking Water	11/12/13	1055	Fort Collins	X	X	X
K1312327-003	DW 6 (3)	6	Drinking Water	11/12/13	1330	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.

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: 12/11/13

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# K1312327

Bill to

Relinquished By: Fran Blair ALS 11/14/13

Received By: [illegible] 11/14/13 1010

Airbill Number:

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS Kelso, WA. Workorder No: 1311339

Project Manager: JRK Initials: JRK Date: 11/19/13

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	2						
Temperature (°C):	AMB	AMB						
No. of custody seals on cooler:	1	1						
DOT Survey/ Acceptance Information — External µR/hr reading:	11	12						
Background µR/hr reading:	10							

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: [signature] 11-19-13

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

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

1311339

FROM: (360) 577-7222
SHIPPING DEPARTMENT
ALS ENVIRONMENTAL
1317 S 13TH AVE

KELSO WA 98626
US

SHIP DATE: 14NOV13
ACTWGT: 31.9 LB
CAD: 102641/CAFE2704

BILL SENDER

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

FORT COLLINS CO 80524 (US)
(970) 490-1511 REF: SAMPLES
PO: CL

FedEx Ground

12

2 of 2
MPS# 5478 9728 8261
Mstr# 5478 9728 8250

1010

80524

: 9622 0019 0 (000 069 4943) 8 00 5478 9728 8261

Cooler #2

1311339

FROM:
SHIPPING DEPARTMENT (360) 577-7222
ALS ENVIROMENTAL
1317 S 13TH AVE

KELSO WA 98626
US

SHIP DATE: 14NOV13
ACTWGT: 32.1 LB
CAD: 102841/CAFE2704

BILL SENDER

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

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

(US)

FedEx Ground

1 of 2

TRK# 5478 9728 8250
MASTER

80524

9622 0019 0 (000 069 4943) 8 00 5478 9728 8250

Cooler #1

Client: ALS Environmental **Date:** *11-Dec-13*
Project: K1312327 **Work Order:** 1311339
Sample ID: DW 9 **Lab ID:** 1311339-1
Legal Location: **Matrix:** WATER
Collection Date: 11/12/2013 08:55 **Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GROSS ALPHA/BETA ANALYSIS BY GFPC			**PAI 724**		Prep Date: **12/2/2013**	PrepBy: **PJW**
GROSS ALPHA	ND (+/- 1.2)	U	2.6	pCi/l	NA	12/4/2013 13:33
GROSS BETA	3.5 (+/- 1.7)	LT	3.1	pCi/l	NA	12/4/2013 13:33
RA-226 BY RADON EMANATION - METHOD 903.1			**PAI 783**		Prep Date: **11/25/2013**	PrepBy: **PJW**
Ra-226	ND (+/- 0.21)	U	0.37	pCi/l	NA	12/3/2013 12:56
Carr: BARIUM	*95.7*		*40-110*	*%REC*	NA	12/3/2013 12:56
RADIUM-228 ANALYSIS BY GFPC			**PAI 724**		Prep Date: **11/23/2013**	PrepBy: **JTL**
Ra-228	ND (+/- 0.21)	U	0.48	pCi/l	NA	11/26/2013 09:31
Carr: BARIUM	*95.7*		*40-110*	*%REC*	NA	11/26/2013 09:31

Client: ALS Environmental **Date:** *11-Dec-13*
Project: K1312327 **Work Order:** 1311339
Sample ID: DW 8 **Lab ID:** 1311339-2
Legal Location: **Matrix:** WATER
Collection Date: 11/12/2013 10:55 **Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GROSS ALPHA/BETA ANALYSIS BY GFPC			**PAI 724**		Prep Date: **12/2/2013**	PrepBy: **PJW**
GROSS ALPHA	ND (+/- 0.96)	U	2.42	pCi/l	NA	12/10/2013 14:03
GROSS BETA	3.5 (+/- 1.4)	LT	2.5	pCi/l	NA	12/10/2013 14:03
RA-226 BY RADON EMANATION - METHOD 903.1			**PAI 783**		Prep Date: **11/25/2013**	PrepBy: **PJW**
Ra-226	ND (+/- 0.19)	U	0.23	pCi/l	NA	12/3/2013 13:32
Carr: BARIUM	*88.9*		*40-110*	*%REC*	NA	12/3/2013 13:32
RADIUM-228 ANALYSIS BY GFPC			**PAI 724**		Prep Date: **11/23/2013**	PrepBy: **JTL**
Ra-228	ND (+/- 0.23)	U	0.53	pCi/l	NA	11/26/2013 09:31
Carr: BARIUM	*88.9*		*40-110*	*%REC*	NA	11/26/2013 09:31

Client: ALS Environmental **Date:** *11-Dec-13*
Project: K1312327 **Work Order:** 1311339
Sample ID: DW 6 **Lab ID:** 1311339-3
Legal Location: **Matrix:** WATER
Collection Date: 11/12/2013 13:30 **Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GROSS ALPHA/BETA ANALYSIS BY GFPC			**PAI 724**		Prep Date: **12/2/2013**	PrepBy: **PJW**
GROSS ALPHA	ND (+/- 0.87)	U	2.18	pCi/l	NA	12/10/2013 14:03
GROSS BETA	**6.5 (+/- 1.8)**		**2.5**	**pCi/l**	NA	12/10/2013 14:03
RA-226 BY RADON EMANATION - METHOD 903.1			**PAI 783**		Prep Date: **11/25/2013**	PrepBy: **PJW**
Ra-226	ND (+/- 0.18)	U	0.36	pCi/l	NA	12/3/2013 13:32
Carr: BARIUM	*91.4*		*40-110*	*%REC*	NA	12/3/2013 13:32
RADIUM-228 ANALYSIS BY GFPC			**PAI 724**		Prep Date: **11/23/2013**	PrepBy: **JTL**
Ra-228	ND (+/- 0.22)	U	0.52	pCi/l	NA	11/26/2013 09:31
Carr: BARIUM	*91.4*		*40-110*	*%REC*	NA	11/26/2013 09:31

Client:	ALS Environmental	**Date:**	*11-Dec-13*
Project:	K1312327	**Work Order:**	1311339
Sample ID:	DW 6	**Lab ID:**	1311339-3
Legal Location:		**Matrix:**	WATER
Collection Date:	11/12/2013 13:30	**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.

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: **RE131125-1-1** Instrument ID **Alpha Scin** Method: **Ra-226 by Radon Emanation - Me**

LCS Sample ID: **RE131125-1** Units: **pCi/l** Analysis Date: **12/3/2013 13:32**

Client ID: Run ID: **RE131125-1A** Prep Date: **11/25/2013** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	29.8 (+/- 7.5)	0.2	30.2		98.7	67-120				P
Carr: BARIUM	33310		33680		98.9	40-110				

LCSD Sample ID: **RE131125-1** Units: **pCi/l** Analysis Date: **12/3/2013 13:32**

Client ID: Run ID: **RE131125-1A** Prep Date: **11/25/2013** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	27.5 (+/- 7)	0.4	30.2		91	67-120	29.8	0.225	2.13	P
Carr: BARIUM	31640		33680		93.9	40-110	33310			

MB Sample ID: **RE131125-1** Units: **pCi/l** Analysis Date: **12/3/2013 13:32**

Client ID: Run ID: **RE131125-1A** Prep Date: **11/25/2013** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.28								U
Carr: BARIUM	31840		33680		94.5	40-110				

The following samples were analyzed in this batch: 1311339-1 1311339-2 1311339-3

Client: ALS Environmental
Work Order: 1311339
Project: K1312327

QC BATCH REPORT

Batch ID: **AB131202-5-2** Instrument ID **LB4100-C** Method: **Gross Alpha/Beta Analysis by G**

LCS Sample ID: **AB131202-5** Units: **pCi/l** Analysis Date: **12/4/2013 13:33**

Client ID: Run ID: **AB131202-5B** Prep Date: **12/2/2013** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
GROSS ALPHA	272 (+/- 45)	3	220.3		123	70-130				P
GROSS BETA	223 (+/- 36)	6	218.4		102	70-130				P,M3

MB Sample ID: **AB131202-5** Units: **pCi/l** Analysis Date: **12/6/2013 16:14**

Client ID: Run ID: **AB131202-5B** Prep Date: **12/2/2013** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
GROSS ALPHA	ND	0.64								U
GROSS BETA	ND	1.02								U

The following samples were analyzed in this batch: 1311339-1 1311339-2 1311339-3

Client: ALS Environmental
Work Order: 1311339
Project: K1312327

QC BATCH REPORT

Batch ID: **RA131122-1-2** Instrument ID **LB4100-B** Method: **Radium-228 Analysis by GFPC**

LCS Sample ID: **RA131122-1** Units: **pCi/l** Analysis Date: **11/26/2013 09:35**

Client ID: Run ID: **RA131122-1A** Prep Date: **11/23/2013** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	11.9 (+/- 2.9)	0.7	9.294		128	70-130				P
Carr: BARIUM	33310		33680		98.9	40-110				

MB Sample ID: **RA131122-1** Units: **pCi/l** Analysis Date: **11/26/2013 09:31**

Client ID: Run ID: **RA131122-1A** Prep Date: **11/23/2013** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	ND	0.48								U
Carr: BARIUM	31840		33680		94.5	40-110				

The following samples were analyzed in this batch: 1311339-1 1311339-2 1311339-3

December 11, 2013 Analytical Report for Service Request No: K1312328

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 November 12, 2013. For your reference, these analyses have been assigned our service request number K1312328.

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

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626 USA | PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp. Part of the ALS Group An ALS Limited Company

Environmental www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

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	-
Indiana DOH	http://www.in.gov/isdh/24859.htm	C-WA-01
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	053-999-368
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.caslab.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.:**	K1312328
Project:	Sentinel Wells	**Date Received:**	11/13/13
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

Six drinking water samples were received for analysis at ALS Environmental on 11/13/13. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4ºC upon receipt at the laboratory.

General Chemistry Parameters

Total Cyanide by EPA Method 335.4:
The matrix spike recovery for sample DW 9 was outside control criteria because of suspected matrix interference. As a result of the interference, the results for this analyte contained a potential low bias. No further corrective action was taken.

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

Total Metals

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

Chlorinated Phenols by EPA Method 1653

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

EDB and DBCP by EPA Method 504.1

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

Pesticides and Polychlorinated Biphenyls by EPA Method 508.1

Lab Control Sample Exceptions:
The upper control criterion was exceeded for Methoxychlor in Laboratory Control Sample (LCS) KWG1313098-1. The analyte in question was not detected in the associated field samples. The error associated with elevated recovery indicated a high bias. The sample data was not significantly affected. No further corrective action was appropriate.

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

Approved by_____

Chlorinated Acides by EPA Method 515.4

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

Volatile Organic Compounds by EPA Method 524.2

Sample Notes and Discussion:
The field samples had pHs of 3.

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

Semivolatile Organic Compounds by EPA Method 525.2

Matrix Spike Recovery Exceptions:
The Duplicate Matrix Spike (DMS) recovery of Hexachlorobenzene for sample DW 9 was outside control criteria. Recovery in the Matrix Spike (MS) and Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential low bias in this matrix. No further corrective action was appropriate.

Surrogate Exceptions:
The control criteria were exceeded for Perylene-d12 in sample DW 6 and DW 8 due to suspected matrix interference. During the extraction process there was sample interferences on the solid phase extraction disk which has historically caused low recoveries for this surrogate. All other surrogates and Lab Control Sample were within control. No further corrective action was appropriate.

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 these samples were observed.

Diquat and Paraquat by EPA Method 549.2

Matrix Spike Recovery Exceptions:
The recovery of Diquat for duplicate matrix spike KWG1312898-2 was outside the ALS control criteria because of suspected matrix interference. The associated QA/QC results (i.e. LCS, CCV, etc.) indicated the analysis was in control. The low recovery suggested a similar low bias in the unspiked sample as well. No further corrective action was appropriate.

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

Carbamates by EPA Method 531.1

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

Glyphosate by EPA Method 547

This analysis was performed at ALS Environmental, Middletown, PA. The data for this analysis is included in the corresponding section of this report. Please note that Sample ID DW6 arrived broken. No analysis was possible. Re-sampling is required.

Approved by_____

ALS

CHAIN OF CUSTODY

44638

001, 005

SR# K1312328

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: Thomas Daly

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	48H: 180.1 / Turbidity	48H: 300.0 / NO2	48H: 300.0 / NO3	48H: SM 2120 B / Color	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: 300.0 / SO4	28D: 314.0 / ClO4	28D: 350.1 / Ammonia T	28D: 531.1 / CARBAM	28D: SM 2510 B / Conductivity	30D: 1653A / CHLOR_PHEN	180D: 1630 / Methyl Hg T	180D: 200.7 / Metals T	180D: 200.8 / Metals T	000D: Calculation / NO2 NO3 Calc
1. DW6		11/12/13	1330		2L																														
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.# 36-4131
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:
	K Smith				
Signature: [signature]	Signature: K Smith	Signature	Signature	Signature	Signature
Printed Name: TODD DOUGLAS	Printed Name: ALS	Printed Name	Printed Name	Printed Name	Printed Name
Firm: C.O.-LV	Firm: 11/12/13 1610	Firm	Firm	Firm	Firm
Date/Time: 11/12/13 1610	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

CHAIN OF CUSTODY

44638

001. 005

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

SR#_____

COC Set_____of_____

COC#_____

SM 2340 B / Hardness Calc	1	2	3	4	5	Remarks

CHAIN OF CUSTODY

44640

001, 005

SR# K1312328

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: P.O. BOX 128 LONGVIEW WA
Phone #: 360 442 5681
email:
Sampler Signature: Jeff Coleman
Sampler Printed Name: TODD DOUGLAS

CLIENT SAMPLE ID	LABID	SAMPLING Date Time	Matrix	NUMBER OF CONTAINERS	48H				7D			14D								28D								30D	180D			
					180.1 / Turbidity	300.0 / NO2	300.0 / NO3	SM 2120 B / Color	548.1 / ENDO	549.2 / DIQ_PARAQ	SM 2540 C / TDS	335.4 / CN T	504.1 / EDB DBCP 123TCP	508.1 / PEST_CL	515.4 / CL_ACID_HERB	524.2 / VOC	525.2 / SVO	547 / GLYPH	SM 2320 B / Alkalinity Titr	Sulfur Liq / Sulfur	245.1 / Hg T	300.0 / Br	300.0 / Chloride	300.0 / F	300.0 / SO4	314.0 / ClO4	350.1 / Ammonia T	531.1 / CARBAM	SM 2510 B / Conductivity	1653A / CHLOR_PHEN	1630 / Methyl Hg T	200.7 / Metals T	200.8 / Metals T	Calculation / NO2 NO3 Calc
1. D.W.8		11/12/13 10:55		26																												
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.#_____

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: Jeff Coleman	Signature: K Smith	Signature	Signature	Signature	Signature
Printed Name: TODD DOUGLAS	Printed Name: ALS	Printed Name	Printed Name	Printed Name	Printed Name
Firm: C.O.LV	Firm: 11/12/13 1610	Firm	Firm	Firm	Firm
Date/Time: 11/12/13 1610	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

CHAIN OF CUSTODY

44640

001, 005

SR# K1312328

COC Set____of____

COC#_____

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www.alsglobal.com

SM 2340 B / Hardness Calc	1	2	3	4	5	Remarks
X						

ALS

CHAIN OF CUSTODY

44629

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: SENTINEL WELLS	Project Number:
Project Manager: JEFF COLEMAN	
Company: CITY OF LONGVIEW	
Address: P.O. BOX 128 LONGVIEW WA	
Phone #: 360-442-5700	email:
Sampler Signature:	Sampler Printed Name: TODD DOUGLAS

CLIENT SAMPLE ID	LABID	SAMPLING Date Time	Matrix	NUMBER OF CONTAINERS	48H: 180.1 / Turbidity	48H: 300.0 / NO2	48H: 300.0 / NO3	48H: SM 2120 B / Color	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: 300.0 / SO4	28D: 314.0 / ClO4	28D: 350.1 / Ammonia T	28D: 531.1 / CARBAM	28D: SM 2510 B / Conductivity	30D: 1653A / CHLOR_PHEN	180D: 1630 / Methyl Hg T	180D: 200.7 / Metals T	180D: 200.8 / Metals T	000D: Calculation / NO2 NO3 Calc
1. D.W. 9		11/12/13 8:55		39																														
2.																																		
3.				26																														
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.# 36-4131

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	Signature	Signature	Signature	Signature
Printed Name: TODD DOUGLAS	Printed Name: ALS	Printed Name	Printed Name	Printed Name	Printed Name
Firm: C.O.L.V	Firm: 11/12/13 1610	Firm	Firm	Firm	Firm
Date/Time: 11/12/13 1610	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

CHAIN OF CUSTODY

44629

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

SM 2340 B / Hardness Calc	1	2	3	4	5	Remarks

PC CV

Cooler Receipt and Preservation Form

Client / Project: City of Longview Service Request K13 12328

Received: 11/12/13 Opened: 11/12/13 By: KO Unloaded: 11/12/13 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
1.2	1.5	1.4	1.7	+.3	341			
5.7	5.8	3.1	3.2	+.1	340			
7.2	7.2	6.7	6.7	0	334			
7.5	7.4	9.7	9.6	-.1	298		SHORT HOLD TIME	
9.7	9.8	10.7	10.8	+.1	304			

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: Metals processed per SOG & WA DOH Regulated list / CL 11/13/13

Page 1 *of* 2

PC CV

Cooler Receipt and Preservation Form

Client / Project: City of Longview Service Request K13 12328

Received: 11/12/13 Opened: 11/12/13 By: KD Unloaded: 11/12/13 By: KD

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
54	56	6.5	6.7	+.2	276			
8.1	8.3	10.5	10.7	+.2	331			

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: Metals assigned per SOG + WA DOH regulated list.

Page 2 *of* 2

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
Analysis Method:	180.1	**Units:**	NTU
Prep Method:	None	**Basis:**	NA

Turbidity

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW 6	K1312328-001	**5.88**	0.20	1	11/13/13 10:45	
DW 8	K1312328-003	**7.20**	0.20	1	11/13/13 10:45	
DW 9	K1312328-005	**1.18**	0.20	1	11/13/13 10:45	
Method Blank	K1312328-MB1	ND U	0.20	1	11/13/13 10:45	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
		Date Analyzed:	11/13/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW 9	**Units:**	NTU
Lab Code:	K1312328-005	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1312328-005DUP Result	Average	RPD	RPD Limit
Turbidity	180.1	0.20	1.18	1.16	1.17	2	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:**	K1312328
Project:	Sentinel Wells	**Date Analyzed:**	11/13/13
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:	368215

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1312328-LCS1	5.39	5.80	93	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
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	K1312328-001	ND U	0.20	2	11/13/13 11:12	
DW 8	K1312328-003	ND U	0.20	2	11/13/13 11:22	
DW 9	K1312328-005	ND U	0.20	2	11/13/13 11:03	
Method Blank	K1312328-MB1	ND U	0.10	1	11/13/13 09:12	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
		Date Analyzed:	11/13/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW 9	**Units:**	mg/L
Lab Code:	K1312328-005	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1312328-005DUP 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:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
		Date Analyzed:	11/13/13
		Date Extracted:	NA

Matrix Spike Summary
Bromide

Sample Name:	DW 9	**Units:**	mg/L
Lab Code:	K1312328-005	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

Matrix Spike
K1312328-005MS

Analyte Name	Sample Result		Result	Spike Amount	% Rec	% Rec Limits	RPD Limit
Bromide	ND	U	10.5	10.0	105	90-110	

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:**	K1312328
Project:	Sentinel Wells	**Date Analyzed:**	11/13/13
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:	368111

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1312328-LCS1	3.95	4.00	99	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
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	K1312328-001	**118**	4.0	20	11/13/13 11:52	
DW 8	K1312328-003	**12.9**	0.40	2	11/13/13 11:22	
DW 9	K1312328-005	**5.22**	0.40	2	11/13/13 11:03	
Method Blank	K1312328-MB1	ND U	0.20	1	11/13/13 09:12	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
		Date Analyzed:	11/13/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW 9	**Units:**	mg/L
Lab Code:	K1312328-005	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1312328-005DUP Result	Average	RPD	RPD Limit
Chloride	300.0	0.40	5.22	5.20	5.21	<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:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
		Date Analyzed:	11/13/13
		Date Extracted:	NA

Matrix Spike Summary
Chloride

Sample Name:	DW 9	**Units:**	mg/L
Lab Code:	K1312328-005	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

Matrix Spike
K1312328-005MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits	RPD Limit
Chloride	5.22	15.6	10.0	104	90-110	

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:**	K1312328
Project:	Sentinel Wells	**Date Analyzed:**	11/13/13
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:	368111

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1312328-LCS1	4.93	5.00	99	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
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	K1312328-001	ND U	0.20	2	11/13/13 11:12	
DW 8	K1312328-003	ND U	0.20	2	11/13/13 11:22	
DW 9	K1312328-005	**0.20**	0.20	2	11/13/13 11:03	
Method Blank	K1312328-MB1	ND U	0.10	1	11/13/13 09:12	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
		Date Analyzed:	11/13/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW 9	**Units:**	mg/L
Lab Code:	K1312328-005	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1312328-005DUP Result	Average	RPD	RPD Limit
Fluoride	300.0	0.20	0.20	0.21	0.205	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:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
		Date Analyzed:	11/13/13
		Date Extracted:	NA

Matrix Spike Summary
Fluoride

Sample Name:	DW 9	**Units:**	mg/L
Lab Code:	K1312328-005	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

Matrix Spike
K1312328-005MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits	RPD Limit
Fluoride	0.20	10.8	10.0	106	90-110	

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:**	K1312328
Project:	Sentinel Wells	**Date Analyzed:**	11/13/13
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:	368111

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1312328-LCS1	9.58	9.83	97	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
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	K1312328-001	ND U	0.10	2	11/13/13 11:12	
DW 8	K1312328-003	ND U	0.10	2	11/13/13 11:22	
DW 9	K1312328-005	ND U	0.10	2	11/13/13 11:03	
Method Blank	K1312328-MB1	ND U	0.050	1	11/13/13 09:12	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
		Date Analyzed:	11/13/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW 9	**Units:**	mg/L
Lab Code:	K1312328-005	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1312328-005DUP 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:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
		Date Analyzed:	11/13/13
		Date Extracted:	NA

Matrix Spike Summary
Nitrite as Nitrogen

Sample Name:	DW 9	**Units:**	mg/L
Lab Code:	K1312328-005	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

Matrix Spike
K1312328-005MS

Analyte Name	Sample Result		Result	Spike Amount	% Rec	% Rec Limits	RPD Limit
Nitrite as Nitrogen	ND	U	10.3	10.0	103	90-110	

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Analyzed:**	11/13/13
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:	368111

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1312328-LCS1	101	100	101	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
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	K1312328-001	ND U	0.10	2	11/13/13 11:12	
DW 8	K1312328-003	ND U	0.10	2	11/13/13 11:22	
DW 9	K1312328-005	ND U	0.10	2	11/13/13 11:03	
Method Blank	K1312328-MB1	ND U	0.050	1	11/13/13 09:12	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
		Date Analyzed:	11/13/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW 9	**Units:**	mg/L
Lab Code:	K1312328-005	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1312328-005DUP 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:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
		Date Analyzed:	11/13/13
		Date Extracted:	NA

Matrix Spike Summary
Nitrate as Nitrogen

Sample Name:	DW 9	**Units:**	mg/L
Lab Code:	K1312328-005	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

Matrix Spike
K1312328-005MS

Analyte Name	Sample Result		Result	Spike Amount	% Rec	% Rec Limits	RPD Limit
Nitrate as Nitrogen	ND	U	10.2	10.0	102	90-110	

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ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Analyzed:**	11/13/13
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:	368111

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1312328-LCS1	15.4	14.5	106	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
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	K1312328-001	**0.51**	0.20	2	11/13/13 11:12	
DW 8	K1312328-003	ND U	0.20	2	11/13/13 11:22	
DW 9	K1312328-005	**1.02**	0.20	2	11/13/13 11:03	
Method Blank	K1312328-MB1	ND U	0.10	1	11/13/13 09:12	

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dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
		Date Analyzed:	11/13/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW 9	**Units:**	mg/L
Lab Code:	K1312328-005	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1312328-005DUP Result	Average	RPD	RPD Limit
Sulfate	300.0	0.20	1.02	1.00	1.01	1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
		Date Analyzed:	11/13/13
		Date Extracted:	NA

Matrix Spike Summary
Sulfate

Sample Name:	DW 9	**Units:**	mg/L
Lab Code:	K1312328-005	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

Matrix Spike
K1312328-005MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits	RPD Limit
Sulfate	1.02	11.7	10.0	107	90-110	

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Analyzed:**	11/13/13
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:	368111

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1312328-LCS1	5.08	5.00	102	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
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	K1312328-001	ND U	1.0	1	11/26/13 13:02	
DW 8	K1312328-003	ND U	1.0	1	11/26/13 13:16	
DW 9	K1312328-005	ND U	1.0	1	11/26/13 12:06	
Method Blank	K1312328-MB1	ND U	1.0	1	11/26/13 11:39	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
		Date Analyzed:	11/26/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW 9	**Units:**	ug/L
Lab Code:	K1312328-005	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1312328-005DUP 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:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
		Date Analyzed:	11/26/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Perchlorate

Sample Name:	DW 9	**Units:**	ug/L
Lab Code:	K1312328-005	**Basis:**	NA
Analysis Method:	314.0		
Prep Method:	None		

			Matrix Spike K1312328-005MS			**Duplicate Matrix Spike** K1312328-005DMS					
Analyte Name	**Sample Result**		**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	ND	U	8.9	10.0	89	8.7	10.0	87	80-120	2	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Analyzed:**	11/26/13
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:	370401

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1312328-LCS1	15.7	16.8	94	85-115

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
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	K1312328-001	ND	U	0.010	1	11/16/13 09:00	11/14/13	
DW 8	K1312328-003	ND	U	0.010	1	11/16/13 09:00	11/14/13	
DW 9	K1312328-005	ND	U	0.010	1	11/16/13 09:00	11/14/13	
Method Blank	K1312328-MB1	ND	U	0.0047	1	11/16/13 09:00	11/14/13	

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dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
		Date Analyzed:	11/16/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW 9	**Units:**	mg/L
Lab Code:	K1312328-005	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1312328-005DUP Result	Average	RPD	RPD Limit
Cyanide, Total	335.4	0.010	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:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
		Date Analyzed:	11/16/13
		Date Extracted:	11/14/13

Duplicate Matrix Spike Summary
Cyanide, Total

Sample Name:	DW 9	**Units:**	mg/L
Lab Code:	K1312328-005	**Basis:**	NA
Analysis Method:	335.4		
Prep Method:	Method		

			Matrix Spike K1312328-005MS			Duplicate Matrix Spike K1312328-005DMS					
Analyte Name	**Sample Result**		**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Cyanide, Total	ND	U	0.083	0.100	82 *	0.093	0.100	92	90-110	11	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Analyzed:**	11/16/13
Sample Matrix:	Drinking Water	**Date Extracted:**	11/14/13

Lab Control Sample Summary
Cyanide, Total

Analysis Method:	335.4	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	368794

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1312328-LCS1	0.151	0.150	101	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
Analysis Method:	350.1	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Ammonia as Nitrogen

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW 6	K1312328-001	**0.126**	0.050	1	11/15/13 11:09	
DW 8	K1312328-003	**0.345**	0.050	1	11/15/13 11:09	
DW 9	K1312328-005	**0.146**	0.050	1	11/15/13 11:09	
Method Blank	K1312328-MB1	ND U	0.050	1	11/15/13 11:09	
Method Blank	K1312328-MB2	ND U	0.050	1	11/15/13 11:09	
Method Blank	K1312328-MB3	ND U	0.050	1	11/15/13 11:09	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
		Date Analyzed:	11/15/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW 9	**Units:**	mg/L
Lab Code:	K1312328-005	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1312328-005DUP Result	Average	RPD	RPD Limit
Ammonia as Nitrogen	350.1	0.050	0.146	0.143	0.145	2	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
		Date Analyzed:	11/15/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Ammonia as Nitrogen

Sample Name:	DW 9	**Units:**	mg/L
Lab Code:	K1312328-005	**Basis:**	NA
Analysis Method:	350.1		
Prep Method:	None		

		Matrix Spike K1312328-005MS			Duplicate Matrix Spike K1312328-005DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Ammonia as Nitrogen	0.146	2.12	2.00	99	2.14	2.00	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:**	K1312328
Project:	Sentinel Wells	**Date Analyzed:**	11/15/13
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Ammonia as Nitrogen

Analysis Method:	350.1	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	368701

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1312328-LCS1	10.2	10.9	93	90-110
Lab Control Sample	K1312328-LCS2	10.6	10.9	97	90-110
Lab Control Sample	K1312328-LCS3	10.2	10.9	94	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
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	K1312328-001	**10.0**	5.0	1	11/13/13 15:46	
DW 8	K1312328-003	**10.0**	5.0	1	11/13/13 15:54	
DW 9	K1312328-005	ND U	5.0	1	11/13/13 15:56	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	11/13/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	ColorUnits
Lab Code:	K1312262-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1312262-001DUP Result	Average	RPD	RPD Limit
Color	SM 2120 B	5.0	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:**	K1312328
Project:	Sentinel Wells	**Date Analyzed:**	11/13/13
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:	368085

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1312328-LCS1	65.0	65.0	100	85-115

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

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	K1312328-001	0.10	2	NA	11/13/2013	ND	
DW 8	K1312328-003	0.10	2	NA	11/13/2013	ND	
DW 9	K1312328-005	0.10	2	NA	11/13/2013	ND	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
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	K1312328-001	**98**	15	1	11/21/13 11:00	
DW 8	K1312328-003	**122**	15	1	11/21/13 11:00	
DW 9	K1312328-005	**97**	15	1	11/21/13 11:00	
Method Blank	K1312328-MB1	ND U	15	1	11/21/13 11:00	
Method Blank	K1312328-MB2	ND U	15	1	11/21/13 11:00	

ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
		Date Analyzed:	11/21/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW 9	**Units:**	mg/L
Lab Code:	K1312328-005	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1312328-005DUP Result	Average	RPD	RPD Limit
Alkalinity as CaCO3, Total	SM 2320 B	15	97	99	97.8	2	20

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ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Analyzed:**	11/21/13
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:	369764

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1312328-LCS1	170	164	104	90-110
Lab Control Sample	K1312328-LCS2	172	164	105	90-110

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
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	K1312328-001	**569**	2.0	1	11/18/13 15:30	
DW 8	K1312328-003	**272**	2.0	1	11/18/13 15:30	
DW 9	K1312328-005	**199**	2.0	1	11/18/13 15:30	
Method Blank	K1312328-MB1	ND U	2.0	1	11/18/13 15:30	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
		Date Analyzed:	11/18/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW 9	**Units:**	uMHOS/cm
Lab Code:	K1312328-005	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1312328-005DUP Result	Average	RPD	RPD Limit
Conductivity at 25 Degrees Celsius	SM 2510 B	2.0	199	200	200	<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.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Analyzed:**	11/18/13
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:	368984

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1312328-LCS1	333	330	101	86-113

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
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	K1312328-001	**349**	10	1	11/19/13 20:15	
DW 8	K1312328-003	**179**	10	1	11/19/13 20:15	
DW 9	K1312328-005	**148**	10	1	11/19/13 20:15	
Method Blank	K1312328-MB1	ND U	10	1	11/19/13 20:15	
Method Blank	K1312328-MB2	ND U	5.0	1	11/19/13 20:15	
Method Blank	K1312328-MB3	ND U	5.0	1	11/19/13 20:15	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking Water	**Date Received:**	11/13/13
		Date Analyzed:	11/19/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW 9	**Units:**	mg/L
Lab Code:	K1312328-005	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1312328-005DUP Result	Average	RPD	RPD Limit
Solids, Total Dissolved	SM 2540 C	10	148	154	151	4	10

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:**	K1312328
Project:	Sentinel Wells	**Date Analyzed:**	11/19/13
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:	369274

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1312328-LCS1	1100	1120	98	85-115
Lab Control Sample	K1312328-LCS2	1090	1120	98	85-115

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking water	**Date Received:**	11/13/13

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	K1312328-001	0.07	1	NA	11/26/13	214	
DW 8	K1312328-003	0.07	1	NA	11/26/13	104	
DW 9	K1312328-005	0.07	1	NA	11/26/13	77.3	
Method Blank	K1312328-MB	0.07	1	NA	11/26/13	ND	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking water	**Date Received:**	11/13/13
		Date Extracted:	NA
		Date Analyzed:	11/26/13

Duplicate Summary
Metals

Sample Name:	DW 9	Units:	mg/L (ppm)
Lab Code:	K1312328-005D	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	77.3	77.5	77.4	<1	

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking water	**Date Received:**	11/13/13

Mercury, Methyl

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	K1312328-001	0.1	1	11/24/13	11/25/13	ND	
DW 8	K1312328-003	0.1	1	11/24/13	11/25/13	ND	
DW 9	K1312328-005	0.1	1	11/24/13	11/25/13	ND	
Method Blank 1	K1312328-MB1	0.1	1	11/24/13	11/25/13	ND	
Method Blank 2	K1312328-MB2	0.1	1	11/24/13	11/25/13	ND	
Method Blank 3	K1312328-MB3	0.1	1	11/24/13	11/25/13	ND	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/13
Sample Matrix:	Drinking water	**Date Received:**	11/13/13
		Date Extracted:	11/24/13
		Date Analyzed:	11/25/13

Matrix Spike/Duplicate Matrix Spike Summary
Metals

Sample Name:	DW 9		Units:	ng/L
Lab Code:	K1312328-005MS,	K1312328-005MSD	Basis:	NA
Test Notes:				

				Spike Level		Sample	Spike Result		Percent Recovery		CAS Acceptance	Relative Percent	Result
Analyte	**Prep Method**	**Analysis Method**	**MRL**	**MS**	**DMS**	**Result**	**MS**	**DMS**	**MS**	**DMS**	**Limits**	**Difference**	**Notes**
Mercury, Methyl	Method	1630	0.1	2.22	2.22	ND	2.00	1.80	90	81	65-135	11	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	11/24/13
		Date Analyzed:	11/25/13

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	1.96	88	67-133	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	11/24/13
		Date Analyzed:	11/25/13

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	2.00	90	67-133	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	11/24/13
		Date Analyzed:	11/25/13

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	83.5	84	67-133	

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- Cover Page -
INORGANIC ANALYSIS DATA PACKAGE

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

Service Request : K1312328

Sample Name :	Lab Code :
DW 6	K1312328-001
DW 8	K1312328-003
DW 9	K1312328-005
DW 9	K1312328-005D
DW 9	K1312328-005S
Laboratory Control Sample	K1312328-LCS
Method Blank	K1312328-MB

Comments:

ALS Group USA, Corp.
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Analytical Report

Client :	Longview, City of	**Service Request :**	K1312328
Project Name :	Sentinel Wells	**Date Collected :**	11/12/13
Project No. :	NA	**Date Received :**	11/13/13
Matrix :	Drinking Water	**Date Extracted :**	11/14/13

Total Metals

Sample Name :	DW 6	**Units :**	mg/L (ppm)
Lab Code :	K1312328-001	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Antimony	200.8	0.00005	11/25/13	ND	
Arsenic	200.8	0.0005	11/25/13	0.0051	
Barium	200.7	0.0044	11/26/13	0.0280	
Beryllium	200.8	0.00002	11/25/13	ND	
Cadmium	200.8	0.00002	11/25/13	ND	
Chromium	200.8	0.0002	11/25/13	ND	
Copper	200.7	0.0044	11/26/13	ND	
Iron	200.7	0.022	11/26/13	0.950	
Lead	200.8	0.00002	11/25/13	ND	
Manganese	200.7	0.0011	11/26/13	0.864	
Mercury	245.1	0.0002	11/15/13	ND	
Nickel	200.8	0.0002	11/25/13	0.0007	
Selenium	200.8	0.001	11/25/13	ND	
Silver	200.8	0.00002	11/25/13	ND	
Sodium	200.7	0.22	11/26/13	15.2	
Thallium	200.8	0.00002	11/25/13	ND	
Zinc	200.7	0.0044	11/26/13	ND	

Comments:

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Analytical Report

Client :	Longview, City of	**Service Request :**	K1312328
Project Name :	Sentinel Wells	**Date Collected :**	11/12/13
Project No. :	NA	**Date Received :**	11/13/13
Matrix :	Drinking Water	**Date Extracted :**	11/14/13

Total Metals

Sample Name :	DW 8	**Units :**	mg/L (ppm)
Lab Code :	K1312328-003	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Antimony	200.8	0.00005	11/25/13	ND	
Arsenic	200.8	0.0005	11/25/13	0.0113	
Barium	200.7	0.0044	11/26/13	0.0269	
Beryllium	200.8	0.00002	11/25/13	ND	
Cadmium	200.8	0.00002	11/25/13	ND	
Chromium	200.8	0.0002	11/25/13	0.0004	
Copper	200.7	0.0044	11/26/13	ND	
Iron	200.7	0.022	11/26/13	1.88	
Lead	200.8	0.00002	11/25/13	ND	
Manganese	200.7	0.0011	11/26/13	0.628	
Mercury	245.1	0.0002	11/15/13	ND	
Nickel	200.8	0.0002	11/25/13	0.0005	
Selenium	200.8	0.001	11/25/13	ND	
Silver	200.8	0.00002	11/25/13	ND	
Sodium	200.7	0.22	11/26/13	12.4	
Thallium	200.8	0.00002	11/25/13	ND	
Zinc	200.7	0.0044	11/26/13	ND	

Comments:

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Analytical Report

Client :	Longview, City of	**Service Request :**	K1312328
Project Name :	Sentinel Wells	**Date Collected :**	11/12/13
Project No. :	NA	**Date Received :**	11/13/13
Matrix :	Drinking Water	**Date Extracted :**	11/14/13

Total Metals

Sample Name :	DW 9	**Units :**	mg/L (ppm)
Lab Code :	K1312328-005	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Antimony	200.8	0.00005	11/25/13	ND	
Arsenic	200.8	0.0005	11/25/13	0.0044	
Barium	200.7	0.0044	11/26/13	0.0104	
Beryllium	200.8	0.00002	11/25/13	ND	
Cadmium	200.8	0.00002	11/25/13	ND	
Chromium	200.8	0.0002	11/25/13	ND	
Copper	200.7	0.0044	11/26/13	ND	
Iron	200.7	0.022	11/26/13	0.623	
Lead	200.8	0.00002	11/25/13	ND	
Manganese	200.7	0.0011	11/26/13	0.528	
Mercury	245.1	0.0002	11/15/13	ND	
Nickel	200.8	0.0002	11/25/13	0.0004	
Selenium	200.8	0.001	11/25/13	ND	
Silver	200.8	0.00002	11/25/13	ND	
Sodium	200.7	0.22	11/26/13	8.92	
Thallium	200.8	0.00002	11/25/13	ND	
Zinc	200.7	0.0044	11/26/13	ND	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Longview, City of	**Service Request :**	K1312328
Project Name :	Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	11/14/13

Total Metals

Sample Name :	Method Blank	**Units :**	mg/L (ppm)
Lab Code :	K1312328-MB	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Antimony	200.8	0.00005	11/25/13	ND	
Arsenic	200.8	0.0005	11/25/13	ND	
Barium	200.7	0.0044	11/26/13	ND	
Beryllium	200.8	0.00002	11/25/13	ND	
Cadmium	200.8	0.00002	11/25/13	ND	
Chromium	200.8	0.0002	11/25/13	ND	
Copper	200.7	0.0044	11/26/13	ND	
Iron	200.7	0.022	11/26/13	ND	
Lead	200.8	0.00002	11/25/13	ND	
Manganese	200.7	0.0011	11/26/13	ND	
Mercury	245.1	0.0002	11/15/13	ND	
Nickel	200.8	0.0002	11/25/13	ND	
Selenium	200.8	0.001	11/25/13	ND	
Silver	200.8	0.00002	11/25/13	ND	
Sodium	200.7	0.22	11/26/13	ND	
Thallium	200.8	0.00002	11/25/13	ND	
Zinc	200.7	0.0044	11/26/13	ND	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1312328
Project Name :	Sentinel Wells	**Date Collected :**	11/12/13
Project No. :	NA	**Date Received :**	11/13/13
Matrix :	Drinking Water	**Date Extracted :**	11/14/13
		Date Analyzed :	11/15-26/13

Duplicate Summary
Total Metals

Sample Name :	DW 9	**Units :**	mg/L (ppm)
Lab Code :	K1312328-005D	**Basis :**	NA

Analyte	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Antimony	200.8	0.00005	ND	ND	ND	-	
Arsenic	200.8	0.0005	0.0044	0.0045	0.0045	2	
Barium	200.7	0.0044	0.0104	0.0102	0.0103	2	
Beryllium	200.8	0.00002	ND	ND	ND	-	
Cadmium	200.8	0.00002	ND	ND	ND	-	
Chromium	200.8	0.0002	ND	ND	ND	-	
Copper	200.7	0.0044	ND	ND	ND	-	
Iron	200.7	0.022	0.623	0.623	0.623	<1	
Lead	200.8	0.00002	ND	ND	ND	-	
Manganese	200.7	0.0011	0.528	0.533	0.531	<1	
Mercury	245.1	0.0002	ND	ND	ND	-	
Nickel	200.8	0.0002	0.0004	0.0004	0.0004	<1	
Selenium	200.8	0.001	ND	ND	ND	-	
Silver	200.8	0.00002	ND	ND	ND	-	
Sodium	200.7	0.22	8.92	8.92	8.92	<1	
Thallium	200.8	0.00002	ND	ND	ND	-	
Zinc	200.7	0.0044	ND	ND	ND	-	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1312328
Project Name :	Sentinel Wells	**Date Collected :**	11/12/13
Project No. :	NA	**Date Received :**	11/13/13
Matrix :	Drinking Water	**Date Extracted :**	11/14/13
		Date Analyzed :	11/15-26/13

Matrix Spike Summary
Total Metals

Sample Name :	DW 9	**Units :**	mg/L (ppm)
Lab Code :	K1312328-005S	**Basis :**	NA

Analyte	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Antimony	0.00005	0.020	ND	0.0202	101	70-130	
Arsenic	0.0005	0.020	0.0044	0.0255	106	70-130	
Barium	0.0044	5.56	0.0104	5.73	103	70-130	
Beryllium	0.00002	0.020	ND	0.0203	102	70-130	
Cadmium	0.00002	0.020	ND	0.0202	101	70-130	
Chromium	0.0002	0.020	ND	0.0187	94	70-130	
Copper	0.0044	0.69	ND	0.698	101	70-130	
Iron	0.022	2.78	0.623	3.39	100	70-130	
Lead	0.00002	0.020	ND	0.0195	98	70-130	
Manganese	0.0011	1.36	0.528	1.90	101	70-130	
Mercury	0.0002	0.0010	ND	0.0010	100	70-130	
Nickel	0.0002	0.020	0.0004	0.0191	94	70-130	
Selenium	0.001	0.020	ND	0.022	110	70-130	
Silver	0.00002	0.020	ND	0.0187	94	70-130	
Sodium	0.22	13.9	8.92	23.0	101	70-130	
Thallium	0.00002	0.020	ND	0.0196	98	70-130	
Zinc	0.0044	1.36	ND	1.40	103	70-130	

Comments:

ALS Group USA, Corp.
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QA/QC Report

Client :	Longview, City of	**Service Request :**	K1312328
Project Name :	Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	11/14/13
		Date Analyzed :	11/15-26/13

Laboratory Control Sample Summary
Total Metals

Sample Name :	Laboratory Control Sample	**Units :**	mg/L (ppm)
Lab Code :	K1312328-LCS	**Basis :**	NA

Analyte	Analysis Method	True Value	Result	Percent	CAS Percent Recovery Acceptance Limits	Result Notes
Antimony	200.8	0.025	0.0252	101	85-115	
Arsenic	200.8	0.025	0.0259	103	85-115	
Barium	200.7	5.00	5.15	103	85-115	
Beryllium	200.8	0.0025	0.00251	100	85-115	
Cadmium	200.8	0.013	0.0127	101	85-115	
Chromium	200.8	0.010	0.0101	101	85-115	
Copper	200.7	0.63	0.619	99	85-115	
Iron	200.7	2.50	2.53	101	85-115	
Lead	200.8	0.025	0.0248	99	85-115	
Manganese	200.7	1.25	1.24	99	85-115	
Mercury	245.1	0.0050	0.00496	99	85-115	
Nickel	200.8	0.025	0.0254	101	85-115	
Selenium	200.8	0.025	0.026	105	85-115	
Silver	200.8	0.013	0.0128	102	85-115	
Sodium	200.7	12.5	12.4	99	85-115	
Thallium	200.8	0.025	0.0252	101	85-115	
Zinc	200.7	1.25	1.25	100	85-115	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
Analytical Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	DW 6	Units:	ug/L (ppb)
Lab Code:	K1312328-001	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
2,4,5-Trichlorophenol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	1	11/15/2013	11/18/2013	ND	
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	1	11/15/2013	11/18/2013	ND	
Trichlorosyringol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
Pentachlorophenol	METHOD	1653A	5.0	1	11/15/2013	11/18/2013	ND	
Tetrachloroguaiacol	METHOD	1653A	5.0	1	11/15/2013	11/18/2013	ND	
Tetrachlorocatechol	METHOD	1653A	5.0	1	11/15/2013	11/18/2013	ND	

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
Analytical Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	DW 8	Units:	ug/L (ppb)
Lab Code:	K1312328-003	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
2,4,5-Trichlorophenol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	1	11/15/2013	11/18/2013	ND	
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	1	11/15/2013	11/18/2013	ND	
Trichlorosyringol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
Pentachlorophenol	METHOD	1653A	5.0	1	11/15/2013	11/18/2013	ND	
Tetrachloroguaiacol	METHOD	1653A	5.0	1	11/15/2013	11/18/2013	ND	
Tetrachlorocatechol	METHOD	1653A	5.0	1	11/15/2013	11/18/2013	ND	

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
Analytical Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	DW 9	Units:	ug/L (ppb)
Lab Code:	K1312328-005	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
2,4,5-Trichlorophenol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	1	11/15/2013	11/18/2013	ND	
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	1	11/15/2013	11/18/2013	ND	
Trichlorosyringol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
Pentachlorophenol	METHOD	1653A	5.0	1	11/15/2013	11/18/2013	ND	
Tetrachloroguaiacol	METHOD	1653A	5.0	1	11/15/2013	11/18/2013	ND	
Tetrachlorocatechol	METHOD	1653A	5.0	1	11/15/2013	11/18/2013	ND	

COLUMBIA ANALYTICAL SERVICES, INC.

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	11/15/2013

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

			Percent Recovery		
	CAS	Sample Name:	**DW 6**	**DW 8**	**DW 9**
	Percent	Lab Code:	K1312328-001	K1312328-003	K1312328-005
	Recovery	Date Analyzed:	11/18/2013	11/18/2013	11/18/2013
Analyte	**Acceptance Criteria**				
3,4,5-Trichlorophenol	36-131		100	94	90
4,5,6-Trichloroguaiacol-13c6	25-134		108	101	29
Pentachlorophenol-13c6	22-117		100	93	88
Tetrachloroguaiacol-13c6	18-129		112	106	92
Tetrachlorocatechol-13c6	D-121		41	28	9

COLUMBIA ANALYTICAL SERVICES, INC.

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	11/15/2013

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

Percent Recovery

	CAS	Sample Name:	**Method Blank**
	Percent	Lab Code:	KWG1312808-3
	Recovery	Date Analyzed:	11/18/2013
Analyte	**Acceptance Criteria**		
3,4,5-Trichlorophenol	36-131		91
4,5,6-Trichloroguaiacol-13c6	25-134		100
Pentachlorophenol-13c6	22-117		85
Tetrachloroguaiacol-13c6	18-129		98
Tetrachlorocatechol-13c6	D-121		81

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
Analytical Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	Method Blank	Units:	ug/L (ppb)
Lab Code:	KWG1312808-3	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
2,4,5-Trichlorophenol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	1	11/15/2013	11/18/2013	ND	
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	1	11/15/2013	11/18/2013	ND	
Trichlorosyringol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	1	11/15/2013	11/18/2013	ND	
Pentachlorophenol	METHOD	1653A	5.0	1	11/15/2013	11/18/2013	ND	
Tetrachloroguaiacol	METHOD	1653A	5.0	1	11/15/2013	11/18/2013	ND	
Tetrachlorocatechol	METHOD	1653A	5.0	1	11/15/2013	11/18/2013	ND	

COLUMBIA ANALYTICAL SERVICES, INC.
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QA/QC Report

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

Service Request: K1312328
Date Collected: NA
Date Received: NA
Date Extracted: 11/15/2013
Date Analyzed: 11/18/2013

Duplicate Summary
Chlorinated Phenolic Organic Compounds

Sample Name: Batch QC
Lab Code: KWG1312808-1
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	-	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	11/15/2013
		Date Analyzed:	11/18/2013

Ongoing Precision and Recovery Summary
Chlorinated Phenolic Organic Compounds

Sample Name:	Lab Control Sample	Units:	ug/L (ppb)
Lab Code:	KWG1312808-2	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	43.3	87	72-146	
2,4,5-Trichlorophenol	METHOD	1653A	50	46.2	92	82-128	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	50	45.4	91	82-132	
3,4,6-Trichloroguaiacol	METHOD	1653A	50	46.8	94	74-140	
3,4,5-Trichloroguaiacol	METHOD	1653A	50	49.2	98	80-134	
3,4,6-Trichlorocatechol	METHOD	1653A	100	104	104	64-149	
3,4,5-Trichlorocatechol	METHOD	1653A	100	101	101	72-128	
Trichlorosyringol	METHOD	1653A	50	51.3	103	66-174	
4,5,6-Trichloroguaiacol	METHOD	1653A	50	47.7	95	88-116	
Pentachlorophenol	METHOD	1653A	100	87.4	87	84-120	
Tetrachloroguaiacol	METHOD	1653A	100	90.0	90	81-126	
Tetrachlorocatechol	METHOD	1653A	100	94.9	95	81-132	

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

EPA Method 504.1

Sample Name:	DW 6	**Units:**	ug/L
Lab Code:	K1312328-001	**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	11/21/13	11/21/13	KWG1313042	
1,2,3-Trichloropropane	ND	U	0.097	1	11/21/13	11/21/13	KWG1313042	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.0096	1	11/21/13	11/21/13	KWG1313042	

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

EPA Method 504.1

Sample Name:	DW 8	**Units:**	ug/L
Lab Code:	K1312328-003	**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	11/21/13	11/22/13	KWG1313042	
1,2,3-Trichloropropane	ND	U	0.097	1	11/21/13	11/22/13	KWG1313042	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.0096	1	11/21/13	11/22/13	KWG1313042	

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

EPA Method 504.1

Sample Name:	DW 9	**Units:**	ug/L
Lab Code:	K1312328-005	**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	11/21/13	11/22/13	KWG1313042	
1,2,3-Trichloropropane	ND	U	0.098	1	11/21/13	11/22/13	KWG1313042	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.0097	1	11/21/13	11/22/13	KWG1313042	

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

EPA Method 504.1

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1313042-5	**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	11/21/13	11/21/13	KWG1313042	
1,2,3-Trichloropropane	ND	U	0.10	1	11/21/13	11/21/13	KWG1313042	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.0099	1	11/21/13	11/21/13	KWG1313042	

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Extracted:**	11/21/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	11/22/2013

Matrix Spike/Duplicate Matrix Spike Summary
EPA Method 504.1

Sample Name:	DW 9	**Units:**	ug/L
Lab Code:	K1312328-005	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	504.1	**Extraction Lot:**	KWG1313042

		DW 9MS KWG1313042-1 Matrix Spike			DW 9DMS KWG1313042-2 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	0.221	0.240	92	0.231	0.240	96	65-135	4	30
1,2,3-Trichloropropane	ND	0.212	0.240	88	0.226	0.240	94	65-135	6	30
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.207	0.240	86	0.218	0.240	91	65-135	5	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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Extracted:**	11/21/2013
Sample Matrix:	Water	**Date Analyzed:**	11/21/2013

Lab Control Spike Summary
EPA Method 504.1

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	504.1	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1313042

	Lab Control Sample KWG1313042-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
1,2-Dibromoethane (EDB)	0.234	0.250	94	70-130
1,2,3-Trichloropropane	0.228	0.250	91	70-130
1,2-Dibromo-3-chloropropane (DBCP)	0.222	0.250	89	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

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Extracted:**	11/21/2013
Sample Matrix:	Water	**Date Analyzed:**	11/21/2013

Lab Control Spike Summary
EPA Method 504.1

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	504.1	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1313042

	Lab Control Sample KWG1313042-4 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
1,2-Dibromoethane (EDB)	0.256	0.250	103	70-130
1,2,3-Trichloropropane	0.248	0.250	99	70-130
1,2-Dibromo-3-chloropropane (DBCP)	0.243	0.250	97	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:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

Pesticides/PCBs by EPA Method 508.1

Sample Name:	DW 6	**Units:**	ug/L
Lab Code:	K1312328-001	**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	2	11/19/13	11/25/13	KWG1312931	
Heptachlor	ND	U	0.0098	2	11/19/13	11/25/13	KWG1312931	
Aldrin	ND	U	0.0098	2	11/19/13	11/25/13	KWG1312931	
Heptachlor Epoxide	ND	U	0.0098	2	11/19/13	11/25/13	KWG1312931	
Heptachlor Epoxide (Isomer A)	ND	U	0.0098	2	11/19/13	11/25/13	KWG1312931	
4,4'-DDE	ND	U	0.0098	2	11/19/13	11/25/13	KWG1312931	
Dieldrin	ND	U	0.0098	2	11/19/13	11/25/13	KWG1312931	
Endrin	ND	U	0.0098	2	11/19/13	11/25/13	KWG1312931	
4,4'-DDD	ND	U	0.0098	2	11/19/13	11/25/13	KWG1312931	
4,4'-DDT	ND	U	0.0098	2	11/19/13	11/25/13	KWG1312931	
Methoxychlor	ND	U	0.0098	2	11/19/13	11/25/13	KWG1312931	*
Toxaphene	ND	U	0.20	2	11/19/13	11/25/13	KWG1312931	
Chlordane	ND	U	0.20	2	11/19/13	11/25/13	KWG1312931	
Aroclor 1016	ND	U	0.098	2	11/19/13	11/25/13	KWG1312931	
Aroclor 1221	ND	U	0.20	2	11/19/13	11/25/13	KWG1312931	
Aroclor 1232	ND	U	0.20	2	11/19/13	11/25/13	KWG1312931	
Aroclor 1242	ND	U	0.20	2	11/19/13	11/25/13	KWG1312931	
Aroclor 1248	ND	U	0.20	2	11/19/13	11/25/13	KWG1312931	
Aroclor 1254	ND	U	0.20	2	11/19/13	11/25/13	KWG1312931	
Aroclor 1260	ND	U	0.098	2	11/19/13	11/25/13	KWG1312931	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4,4'-Dibromooctafluorobiphenyl	128	70-130	11/25/13	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

Pesticides/PCBs by EPA Method 508.1

Sample Name:	DW 8	**Units:**	ug/L
Lab Code:	K1312328-003	**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	11/19/13	11/25/13	KWG1312931	
Heptachlor	ND	U	0.0098	1	11/19/13	11/25/13	KWG1312931	
Aldrin	ND	U	0.0098	1	11/19/13	11/25/13	KWG1312931	
Heptachlor Epoxide	ND	U	0.0098	1	11/19/13	11/25/13	KWG1312931	
Heptachlor Epoxide (Isomer A)	ND	U	0.0098	1	11/19/13	11/25/13	KWG1312931	
4,4'-DDE	ND	U	0.0098	1	11/19/13	11/25/13	KWG1312931	
Dieldrin	ND	U	0.0098	1	11/19/13	11/25/13	KWG1312931	
Endrin	ND	U	0.0098	1	11/19/13	11/25/13	KWG1312931	
4,4'-DDD	ND	U	0.0098	1	11/19/13	11/25/13	KWG1312931	
4,4'-DDT	ND	U	0.0098	1	11/19/13	11/25/13	KWG1312931	
Methoxychlor	ND	U	0.0098	1	11/19/13	11/25/13	KWG1312931	*
Toxaphene	ND	U	0.098	1	11/19/13	11/25/13	KWG1312931	
Chlordane	ND	U	0.098	1	11/19/13	11/25/13	KWG1312931	
Aroclor 1016	ND	U	0.049	1	11/19/13	11/25/13	KWG1312931	
Aroclor 1221	ND	U	0.098	1	11/19/13	11/25/13	KWG1312931	
Aroclor 1232	ND	U	0.098	1	11/19/13	11/25/13	KWG1312931	
Aroclor 1242	ND	U	0.098	1	11/19/13	11/25/13	KWG1312931	
Aroclor 1248	ND	U	0.098	1	11/19/13	11/25/13	KWG1312931	
Aroclor 1254	ND	U	0.098	1	11/19/13	11/25/13	KWG1312931	
Aroclor 1260	ND	U	0.098	1	11/19/13	11/25/13	KWG1312931	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4,4'-Dibromooctafluorobiphenyl	97	70-130	11/25/13	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

Pesticides/PCBs by EPA Method 508.1

Sample Name:	DW 9	**Units:**	ug/L
Lab Code:	K1312328-005	**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	0.0099	1	11/19/13	11/26/13	KWG1312931	
Heptachlor	ND	U	0.0099	1	11/19/13	11/26/13	KWG1312931	
Aldrin	ND	U	0.0099	1	11/19/13	11/26/13	KWG1312931	
Heptachlor Epoxide	ND	U	0.0099	1	11/19/13	11/26/13	KWG1312931	
Heptachlor Epoxide (Isomer A)	ND	U	0.0099	1	11/19/13	11/26/13	KWG1312931	
4,4'-DDE	ND	U	0.0099	1	11/19/13	11/26/13	KWG1312931	
Dieldrin	ND	U	0.0099	1	11/19/13	11/26/13	KWG1312931	
Endrin	ND	U	0.0099	1	11/19/13	11/26/13	KWG1312931	
4,4'-DDD	ND	U	0.0099	1	11/19/13	11/26/13	KWG1312931	
4,4'-DDT	ND	U	0.0099	1	11/19/13	11/26/13	KWG1312931	
Methoxychlor	ND	U	0.0099	1	11/19/13	11/26/13	KWG1312931	*
Toxaphene	ND	U	0.099	1	11/19/13	11/26/13	KWG1312931	
Chlordane	ND	U	0.099	1	11/19/13	11/26/13	KWG1312931	
Aroclor 1016	ND	U	0.050	1	11/19/13	11/26/13	KWG1312931	
Aroclor 1221	ND	U	0.099	1	11/19/13	11/26/13	KWG1312931	
Aroclor 1232	ND	U	0.099	1	11/19/13	11/26/13	KWG1312931	
Aroclor 1242	ND	U	0.099	1	11/19/13	11/26/13	KWG1312931	
Aroclor 1248	ND	U	0.099	1	11/19/13	11/26/13	KWG1312931	
Aroclor 1254	ND	U	0.099	1	11/19/13	11/26/13	KWG1312931	
Aroclor 1260	ND	U	0.099	1	11/19/13	11/26/13	KWG1312931	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4,4'-Dibromooctafluorobiphenyl	93	70-130	11/26/13	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
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:	KWG1312931-4	**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	11/19/13	11/25/13	KWG1312931	
Heptachlor	ND	U	0.010	1	11/19/13	11/25/13	KWG1312931	
Aldrin	ND	U	0.010	1	11/19/13	11/25/13	KWG1312931	
Heptachlor Epoxide	ND	U	0.010	1	11/19/13	11/25/13	KWG1312931	
Heptachlor Epoxide (Isomer A)	ND	U	0.010	1	11/19/13	11/25/13	KWG1312931	
4,4'-DDE	ND	U	0.010	1	11/19/13	11/25/13	KWG1312931	
Dieldrin	ND	U	0.010	1	11/19/13	11/25/13	KWG1312931	
Endrin	ND	U	0.010	1	11/19/13	11/25/13	KWG1312931	
4,4'-DDD	ND	U	0.010	1	11/19/13	11/25/13	KWG1312931	
4,4'-DDT	ND	U	0.010	1	11/19/13	11/25/13	KWG1312931	
Methoxychlor	ND	U	0.010	1	11/19/13	11/25/13	KWG1312931	*
Toxaphene	ND	U	0.10	1	11/19/13	11/25/13	KWG1312931	
Chlordane	ND	U	0.10	1	11/19/13	11/25/13	KWG1312931	
Aroclor 1016	ND	U	0.050	1	11/19/13	11/25/13	KWG1312931	
Aroclor 1221	ND	U	0.10	1	11/19/13	11/25/13	KWG1312931	
Aroclor 1232	ND	U	0.10	1	11/19/13	11/25/13	KWG1312931	
Aroclor 1242	ND	U	0.10	1	11/19/13	11/25/13	KWG1312931	
Aroclor 1248	ND	U	0.10	1	11/19/13	11/25/13	KWG1312931	
Aroclor 1254	ND	U	0.10	1	11/19/13	11/25/13	KWG1312931	
Aroclor 1260	ND	U	0.10	1	11/19/13	11/25/13	KWG1312931	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4,4'-Dibromooctafluorobiphenyl	93	70-130	11/25/13	Acceptable

Comments:

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

Service Request: K1312328

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 6	K1312328-001	128 D
DW 8	K1312328-003	97
DW 9	K1312328-005	93
Method Blank	KWG1312931-4	93
DW 9MS	KWG1312931-1	83
DW 9DMS	KWG1312931-2	82
Lab Control Sample	KWG1312931-3	86

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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Extracted:**	11/19/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	11/26/2013

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

Sample Name:	DW 9	**Units:**	ug/L
Lab Code:	K1312328-005	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1	**Extraction Lot:**	KWG1312931

		DW 9MS KWG1312931-1 Matrix Spike			DW 9DMS KWG1312931-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
gamma-BHC (Lindane)	ND	0.0898	0.0980	92	0.0887	0.0980	90	65-135	1	30
Heptachlor	ND	0.0895	0.0980	91	0.0829	0.0980	85	65-135	8	30
Aldrin	ND	0.0912	0.0980	93	0.0897	0.0980	92	65-135	2	30
Heptachlor Epoxide	ND	0.0904	0.0980	92	0.0893	0.0980	91	65-135	1	30
Heptachlor Epoxide (Isomer A)	ND	0.0753	0.0980	77	0.0678	0.0980	69	65-135	10	30
4,4'-DDE	ND	0.102	0.0980	104	0.103	0.0980	105	65-135	1	30
Dieldrin	ND	0.0915	0.0980	93	0.0921	0.0980	94	65-135	1	30
Endrin	ND	0.0734	0.0980	75	0.0798	0.0980	81	65-135	8	30
4,4'-DDD	ND	0.0993	0.0980	101	0.102	0.0980	104	65-135	3	30
4,4'-DDT	ND	0.109	0.0980	111	0.110	0.0980	112	65-135	1	30
Methoxychlor	ND	0.131	0.0980	133	0.132	0.0980	135	65-135	1	30
Aroclor 1248	ND	0.444	0.490	91	0.434	0.490	89	65-135	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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Extracted:**	11/19/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	11/25/2013

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:	KWG1312931

	Lab Control Sample KWG1312931-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
gamma-BHC (Lindane)	0.0956	0.100	96	70-130
Heptachlor	0.0952	0.100	95	70-130
Aldrin	0.0916	0.100	92	70-130
Heptachlor Epoxide	0.104	0.100	104	70-130
Heptachlor Epoxide (Isomer A)	0.0880	0.100	88	70-130
4,4'-DDE	0.107	0.100	107	70-130
Dieldrin	0.101	0.100	101	70-130
Endrin	0.106	0.100	106	70-130
4,4'-DDD	0.106	0.100	106	70-130
4,4'-DDT	0.111	0.100	111	70-130
Methoxychlor	0.131	0.100	131 *	70-130
Aroclor 1248	0.465	0.500	93	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:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

Chlorinated Herbicides by EPA 515.4

Sample Name:	DW 6	**Units:**	ug/L
Lab Code:	K1312328-001	**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	2.0	1	11/20/13	11/23/13	KWG1312991	
3,5-Dichlorobenzoic Acid	ND	U	0.50	1	11/20/13	11/23/13	KWG1312991	
Dicamba	ND	U	0.20	1	11/20/13	11/23/13	KWG1312991	
Dichlorprop	ND	U	0.50	1	11/20/13	11/23/13	KWG1312991	
2,4-D	ND	U	0.20	1	11/20/13	11/23/13	KWG1312991	
Pentachlorophenol	ND	U	0.080	1	11/20/13	11/23/13	KWG1312991	
2,4,5-TP (Silvex)	ND	U	0.40	1	11/20/13	11/23/13	KWG1312991	
2,4,5-T	ND	U	0.40	1	11/20/13	11/23/13	KWG1312991	
Chloramben	ND	U	0.30	1	11/20/13	11/23/13	KWG1312991	
2,4-DB	ND	U	1.0	1	11/20/13	11/23/13	KWG1312991	
Dinoseb	ND	U	0.40	1	11/20/13	11/23/13	KWG1312991	
Bentazon	ND	U	0.50	1	11/20/13	11/23/13	KWG1312991	
Dacthal Diacid	ND	U	0.10	1	11/20/13	11/23/13	KWG1312991	
Picloram	ND	U	0.20	1	11/20/13	11/23/13	KWG1312991	
Acifluorfen	ND	U	2.0	1	11/20/13	11/23/13	KWG1312991	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2,4-Dichlorophenylacetic Acid	106	70-130	11/23/13	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

Chlorinated Herbicides by EPA 515.4

Sample Name:	DW 8	**Units:**	ug/L
Lab Code:	K1312328-003	**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	2.0	1	11/20/13	11/23/13	KWG1312991	
3,5-Dichlorobenzoic Acid	ND	U	0.50	1	11/20/13	11/23/13	KWG1312991	
Dicamba	ND	U	0.20	1	11/20/13	11/23/13	KWG1312991	
Dichlorprop	ND	U	0.50	1	11/20/13	11/23/13	KWG1312991	
2,4-D	ND	U	0.20	1	11/20/13	11/23/13	KWG1312991	
Pentachlorophenol	ND	U	0.080	1	11/20/13	11/23/13	KWG1312991	
2,4,5-TP (Silvex)	ND	U	0.40	1	11/20/13	11/23/13	KWG1312991	
2,4,5-T	ND	U	0.40	1	11/20/13	11/23/13	KWG1312991	
Chloramben	ND	U	0.30	1	11/20/13	11/23/13	KWG1312991	
2,4-DB	ND	U	1.0	1	11/20/13	11/23/13	KWG1312991	
Dinoseb	ND	U	0.40	1	11/20/13	11/23/13	KWG1312991	
Bentazon	ND	U	0.50	1	11/20/13	11/23/13	KWG1312991	
Dacthal Diacid	ND	U	0.10	1	11/20/13	11/23/13	KWG1312991	
Picloram	ND	U	0.20	1	11/20/13	11/23/13	KWG1312991	
Acifluorfen	ND	U	2.0	1	11/20/13	11/23/13	KWG1312991	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2,4-Dichlorophenylacetic Acid	102	70-130	11/23/13	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

Chlorinated Herbicides by EPA 515.4

Sample Name:	DW 9	**Units:**	ug/L
Lab Code:	K1312328-005	**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	2.0	1	11/20/13	11/23/13	KWG1312991	
3,5-Dichlorobenzoic Acid	ND	U	0.50	1	11/20/13	11/23/13	KWG1312991	
Dicamba	ND	U	0.20	1	11/20/13	11/23/13	KWG1312991	
Dichlorprop	ND	U	0.50	1	11/20/13	11/23/13	KWG1312991	
2,4-D	ND	U	0.20	1	11/20/13	11/23/13	KWG1312991	
Pentachlorophenol	ND	U	0.080	1	11/20/13	11/23/13	KWG1312991	
2,4,5-TP (Silvex)	ND	U	0.40	1	11/20/13	11/23/13	KWG1312991	
2,4,5-T	ND	U	0.40	1	11/20/13	11/23/13	KWG1312991	
Chloramben	ND	U	0.30	1	11/20/13	11/23/13	KWG1312991	
2,4-DB	ND	U	1.0	1	11/20/13	11/23/13	KWG1312991	
Dinoseb	ND	U	0.40	1	11/20/13	11/23/13	KWG1312991	
Bentazon	ND	U	0.50	1	11/20/13	11/23/13	KWG1312991	
Dacthal Diacid	ND	U	0.10	1	11/20/13	11/23/13	KWG1312991	
Picloram	ND	U	0.20	1	11/20/13	11/23/13	KWG1312991	
Acifluorfen	ND	U	2.0	1	11/20/13	11/23/13	KWG1312991	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2,4-Dichlorophenylacetic Acid	109	70-130	11/23/13	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
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:	KWG1312991-4	**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	2.0	1	11/20/13	11/23/13	KWG1312991	
3,5-Dichlorobenzoic Acid	ND	U	0.50	1	11/20/13	11/23/13	KWG1312991	
Dicamba	ND	U	0.20	1	11/20/13	11/23/13	KWG1312991	
Dichlorprop	ND	U	0.50	1	11/20/13	11/23/13	KWG1312991	
2,4-D	ND	U	0.20	1	11/20/13	11/23/13	KWG1312991	
Pentachlorophenol	ND	U	0.080	1	11/20/13	11/23/13	KWG1312991	
2,4,5-TP (Silvex)	ND	U	0.40	1	11/20/13	11/23/13	KWG1312991	
2,4,5-T	ND	U	0.40	1	11/20/13	11/23/13	KWG1312991	
Chloramben	ND	U	0.30	1	11/20/13	11/23/13	KWG1312991	
2,4-DB	ND	U	1.0	1	11/20/13	11/23/13	KWG1312991	
Dinoseb	ND	U	0.40	1	11/20/13	11/23/13	KWG1312991	
Bentazon	ND	U	0.50	1	11/20/13	11/23/13	KWG1312991	
Dacthal Diacid	ND	U	0.10	1	11/20/13	11/23/13	KWG1312991	
Picloram	ND	U	0.20	1	11/20/13	11/23/13	KWG1312991	
Acifluorfen	ND	U	2.0	1	11/20/13	11/23/13	KWG1312991	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2,4-Dichlorophenylacetic Acid	110	70-130	11/23/13	Acceptable

Comments:

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

Service Request: K1312328

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 6	K1312328-001	106
DW 8	K1312328-003	102
DW 9	K1312328-005	109
Method Blank	KWG1312991-4	110
DW 9MS	KWG1312991-1	115
DW 9DMS	KWG1312991-2	113
Lab Control Sample	KWG1312991-3	102

Surrogate Recovery Control Limits (%)

Sur1 = 2,4-Dichlorophenylacetic Acid 70-130

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:**	K1312328
Project:	Sentinel Wells	**Date Extracted:**	11/20/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	11/23/2013

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

Sample Name:	DW 9	**Units:**	ug/L
Lab Code:	K1312328-005	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	515.4	**Extraction Lot:**	KWG1312991

		DW 9MS KWG1312991-1 Matrix Spike			DW 9DMS KWG1312991-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dalapon	ND	5.23	4.98	105	5.28	4.96	106	70-130	1	30
3,5-Dichlorobenzoic Acid	ND	4.88	4.98	98	4.81	4.96	97	70-130	1	30
Dicamba	ND	4.77	4.98	96	4.68	4.96	94	70-130	2	30
Dichlorprop	ND	4.80	4.98	97	4.72	4.96	95	70-130	2	30
2,4-D	ND	4.87	4.98	98	4.78	4.96	96	70-130	2	30
Pentachlorophenol	ND	5.02	4.98	101	4.98	4.96	100	70-130	1	30
2,4,5-TP (Silvex)	ND	4.63	4.98	93	4.57	4.96	92	70-130	1	30
2,4,5-T	ND	5.05	4.98	101	4.99	4.96	101	70-130	1	30
Chloramben	ND	4.05	4.98	81	4.02	4.96	81	70-130	1	30
2,4-DB	ND	5.20	4.98	105	5.18	4.96	104	70-130	0	30
Dinoseb	ND	4.73	4.98	95	4.70	4.96	95	70-130	1	30
Bentazon	ND	4.89	4.98	98	4.87	4.96	98	70-130	0	30
Dacthal Diacid	ND	5.26	4.98	106	5.33	4.96	107	70-130	1	30
Picloram	ND	5.65	4.98	113	5.65	4.96	114	70-130	0	30
Acifluorfen	ND	4.77	4.98	96	4.76	4.96	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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Extracted:**	11/20/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	11/22/2013

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:	KWG1312991

	Lab Control Sample KWG1312991-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Dalapon	4.90	5.00	98	70-130
3,5-Dichlorobenzoic Acid	4.73	5.00	95	70-130
Dicamba	4.74	5.00	95	70-130
Dichlorprop	4.73	5.00	95	70-130
2,4-D	4.76	5.00	95	70-130
Pentachlorophenol	4.39	5.00	88	70-130
2,4,5-TP (Silvex)	4.56	5.00	91	70-130
2,4,5-T	4.85	5.00	97	70-130
Chloramben	5.06	5.00	101	70-130
2,4-DB	5.06	5.00	101	70-130
Dinoseb	4.72	5.00	94	70-130
Bentazon	4.94	5.00	99	70-130
Dacthal Diacid	4.99	5.00	100	70-130
Picloram	5.33	5.00	107	70-130
Acifluorfen	4.73	5.00	95	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:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

Volatile Organic Compounds

Sample Name:	DW 6	**Units:**	ug/L
Lab Code:	K1312328-001	**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	11/14/13	11/14/13	KWG1312727	
Chloromethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Vinyl Chloride	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Bromomethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Chloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Trichlorofluoromethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Methylene Chloride	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
trans-1,2-Dichloroethene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
cis-1,2-Dichloroethene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,1-Dichloroethene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Methyl tert-Butyl Ether	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Chloroform	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Bromochloromethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Carbon Tetrachloride	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Benzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2-Dichloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Trichloroethene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2-Dichloropropane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Bromodichloromethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Dibromomethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
cis-1,3-Dichloropropene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,1-Dichloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Toluene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
trans-1,3-Dichloropropene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Tetrachloroethene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
2,2-Dichloropropane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,3-Dichloropropane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Dibromochloromethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Chlorobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Ethylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Styrene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
m,p-Xylenes	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

Volatile Organic Compounds

Sample Name:	DW 6	**Units:**	ug/L
Lab Code:	K1312328-001	**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	11/14/13	11/14/13	KWG1312727	
1,1,1-Trichloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Bromoform	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Isopropylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,1-Dichloropropene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Bromobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
n-Propylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,3,5-Trimethylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
2-Chlorotoluene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
4-Chlorotoluene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
tert-Butylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2,4-Trimethylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
sec-Butylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
p-Isopropyltoluene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,3-Dichlorobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,4-Dichlorobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
n-Butylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2-Dichlorobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2,4-Trichlorobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Hexachlorobutadiene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Naphthalene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,1,2-Trichloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2,3-Trichloropropane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2,3-Trichlorobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

Volatile Organic Compounds

Sample Name:	DW 6	**Units:**	ug/L
Lab Code:	K1312328-001	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	86	70-130	11/14/13	Acceptable
Dibromofluoromethane	100	82-124	11/14/13	Acceptable
Toluene-d8	92	82-124	11/14/13	Acceptable

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

Volatile Organic Compounds

Sample Name:	DW 8	**Units:**	ug/L
Lab Code:	K1312328-003	**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	11/14/13	11/14/13	KWG1312727	
Chloromethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Vinyl Chloride	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Bromomethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Chloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Trichlorofluoromethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Methylene Chloride	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
trans-1,2-Dichloroethene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,1-Dichloroethene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
cis-1,2-Dichloroethene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Methyl tert-Butyl Ether	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Chloroform	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Bromochloromethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Carbon Tetrachloride	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Benzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2-Dichloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Trichloroethene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2-Dichloropropane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Bromodichloromethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Dibromomethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
cis-1,3-Dichloropropene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,1-Dichloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Toluene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
trans-1,3-Dichloropropene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Tetrachloroethene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
2,2-Dichloropropane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,3-Dichloropropane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Dibromochloromethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Chlorobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Ethylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Styrene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
m,p-Xylenes	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

Volatile Organic Compounds

Sample Name:	DW 8	**Units:**	ug/L
Lab Code:	K1312328-003	**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	11/14/13	11/14/13	KWG1312727	
1,1,1-Trichloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Bromoform	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Isopropylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,1-Dichloropropene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Bromobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
n-Propylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,3,5-Trimethylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
2-Chlorotoluene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
4-Chlorotoluene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
tert-Butylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2,4-Trimethylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
sec-Butylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
p-Isopropyltoluene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,3-Dichlorobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,4-Dichlorobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
n-Butylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2-Dichlorobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2,4-Trichlorobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Hexachlorobutadiene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Naphthalene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,1,2-Trichloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2,3-Trichloropropane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2,3-Trichlorobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

Volatile Organic Compounds

Sample Name:	DW 8	**Units:**	ug/L
Lab Code:	K1312328-003	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	87	70-130	11/14/13	Acceptable
Dibromofluoromethane	109	82-124	11/14/13	Acceptable
Toluene-d8	92	82-124	11/14/13	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

Volatile Organic Compounds

Sample Name:	DW 9	**Units:**	ug/L
Lab Code:	K1312328-005	**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	11/14/13	11/14/13	KWG1312727	
Chloromethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Vinyl Chloride	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Bromomethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Chloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Trichlorofluoromethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Methylene Chloride	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
trans-1,2-Dichloroethene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,1-Dichloroethene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
cis-1,2-Dichloroethene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Methyl tert-Butyl Ether	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Chloroform	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Bromochloromethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Carbon Tetrachloride	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Benzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2-Dichloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Trichloroethene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2-Dichloropropane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Bromodichloromethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Dibromomethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
cis-1,3-Dichloropropene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,1-Dichloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Toluene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
trans-1,3-Dichloropropene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Tetrachloroethene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
2,2-Dichloropropane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,3-Dichloropropane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Dibromochloromethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Chlorobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Ethylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Styrene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
m,p-Xylenes	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

Volatile Organic Compounds

Sample Name:	DW 9	**Units:**	ug/L
Lab Code:	K1312328-005	**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	11/14/13	11/14/13	KWG1312727	
1,1,1-Trichloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Bromoform	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Isopropylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,1-Dichloropropene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Bromobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
n-Propylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,3,5-Trimethylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
2-Chlorotoluene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
4-Chlorotoluene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
tert-Butylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2,4-Trimethylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
sec-Butylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
p-Isopropyltoluene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,3-Dichlorobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,4-Dichlorobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
n-Butylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2-Dichlorobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2,4-Trichlorobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Hexachlorobutadiene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Naphthalene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,1,2-Trichloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2,3-Trichloropropane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2,3-Trichlorobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

Volatile Organic Compounds

Sample Name:	DW 9	**Units:**	ug/L
Lab Code:	K1312328-005	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	86	70-130	11/14/13	Acceptable
Dibromofluoromethane	102	82-124	11/14/13	Acceptable
Toluene-d8	92	82-124	11/14/13	Acceptable

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
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:	KWG1312727-4	**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	11/14/13	11/14/13	KWG1312727	
Chloromethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Vinyl Chloride	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Bromomethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Chloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Trichlorofluoromethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Methylene Chloride	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
trans-1,2-Dichloroethene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,1-Dichloroethene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
cis-1,2-Dichloroethene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Methyl tert-Butyl Ether	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Chloroform	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Bromochloromethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Carbon Tetrachloride	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Benzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2-Dichloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Trichloroethene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2-Dichloropropane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Bromodichloromethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Dibromomethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
cis-1,3-Dichloropropene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,1-Dichloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Toluene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
trans-1,3-Dichloropropene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Tetrachloroethene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
2,2-Dichloropropane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,3-Dichloropropane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Dibromochloromethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Chlorobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Ethylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Styrene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
m,p-Xylenes	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
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:	KWG1312727-4	**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	11/14/13	11/14/13	KWG1312727	
1,1,1-Trichloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Bromoform	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Isopropylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,1-Dichloropropene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Bromobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
n-Propylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,3,5-Trimethylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
2-Chlorotoluene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
4-Chlorotoluene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
tert-Butylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2,4-Trimethylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
sec-Butylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
p-Isopropyltoluene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,3-Dichlorobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,4-Dichlorobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
n-Butylbenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2-Dichlorobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2,4-Trichlorobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Hexachlorobutadiene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
Naphthalene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,1,2-Trichloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2,3-Trichloropropane	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	
1,2,3-Trichlorobenzene	ND	U	0.50	1	11/14/13	11/14/13	KWG1312727	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
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:	KWG1312727-4	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	89	70-130	11/14/13	Acceptable
Dibromofluoromethane	101	82-124	11/14/13	Acceptable
Toluene-d8	92	82-124	11/14/13	Acceptable

Comments:

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

Service Request: K1312328

Surrogate Recovery Summary
Volatile Organic Compounds

Extraction Method: METHOD
Analysis Method: 524.2

Units: Percent
Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
DW 6	K1312328-001	86	100	92
DW 8	K1312328-003	87	109	92
DW 9	K1312328-005	86	102	92
Method Blank	KWG1312727-4	89	101	92
DW 9MS	KWG1312727-1	107	102	103
DW 9DMS	KWG1312727-2	105	102	104
Lab Control Sample	KWG1312727-3	107	103	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:**	K1312328
Project:	Sentinel Wells	**Date Extracted:**	11/14/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	11/14/2013

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	DW 9	**Units:**	ug/L
Lab Code:	K1312328-005	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2	**Extraction Lot:**	KWG1312727

		DW 9MS KWG1312727-1 Matrix Spike			DW 9DMS KWG1312727-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dichlorodifluoromethane	ND	5.17	5.00	103	4.50	5.00	90	70-130	14	30
Chloromethane	ND	4.34	5.00	87	4.14	5.00	83	70-130	5	30
Vinyl Chloride	ND	4.62	5.00	92	4.12	5.00	82	70-130	11	30
Bromomethane	ND	5.49	5.00	110	5.14	5.00	103	70-130	7	30
Chloroethane	ND	4.30	5.00	86	4.01	5.00	80	70-130	7	30
Trichlorofluoromethane	ND	4.76	5.00	95	4.24	5.00	85	70-130	12	30
Methylene Chloride	ND	4.51	5.00	90	4.33	5.00	87	70-130	4	30
trans-1,2-Dichloroethene	ND	4.44	5.00	89	4.13	5.00	83	70-130	7	30
1,1-Dichloroethene	ND	4.46	5.00	89	4.12	5.00	82	70-130	8	30
cis-1,2-Dichloroethene	ND	4.48	5.00	90	4.28	5.00	86	70-130	5	30
Methyl tert-Butyl Ether	ND	8.84	10.0	88	8.71	10.0	87	70-130	1	30
Chloroform	ND	4.43	5.00	89	4.25	5.00	85	70-130	4	30
Bromochloromethane	ND	4.87	5.00	97	4.69	5.00	94	70-130	4	30
Carbon Tetrachloride	ND	4.46	5.00	89	4.02	5.00	80	70-130	10	30
Benzene	ND	4.37	5.00	87	4.06	5.00	81	70-130	7	30
1,2-Dichloroethane	ND	4.17	5.00	83	4.03	5.00	81	70-130	3	30
Trichloroethene	ND	4.52	5.00	90	4.19	5.00	84	70-130	8	30
1,2-Dichloropropane	ND	4.26	5.00	85	4.10	5.00	82	70-130	4	30
Bromodichloromethane	ND	4.54	5.00	91	4.33	5.00	87	70-130	5	30
Dibromomethane	ND	4.77	5.00	95	4.58	5.00	92	70-130	4	30
cis-1,3-Dichloropropene	ND	4.12	5.00	82	3.93	5.00	79	70-130	5	30
Toluene	ND	4.71	5.00	94	4.44	5.00	89	70-130	6	30
1,1-Dichloroethane	ND	4.12	5.00	82	3.87	5.00	77	70-130	6	30
trans-1,3-Dichloropropene	ND	4.22	5.00	84	4.02	5.00	80	70-130	5	30
Tetrachloroethene	ND	5.12	5.00	102	4.67	5.00	93	70-130	9	30
1,3-Dichloropropane	ND	4.45	5.00	89	4.24	5.00	85	70-130	5	30
2,2-Dichloropropane	ND	4.31	5.00	86	3.97	5.00	79	70-130	8	30
Dibromochloromethane	ND	4.67	5.00	93	4.40	5.00	88	70-130	6	30
1,2-Dibromoethane (EDB)	ND	4.85	5.00	97	4.62	5.00	92	70-130	5	30
Chlorobenzene	ND	4.81	5.00	96	4.51	5.00	90	70-130	6	30
Ethylbenzene	ND	5.03	5.00	101	4.63	5.00	93	70-130	8	30
Styrene	ND	5.26	5.00	105	4.94	5.00	99	70-130	6	30
m,p-Xylenes	ND	11.0	10.0	110	10.2	10.0	102	70-130	8	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:**	K1312328
Project:	Sentinel Wells	**Date Extracted:**	11/14/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	11/14/2013

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	DW 9	**Units:**	ug/L
Lab Code:	K1312328-005	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2	**Extraction Lot:**	KWG1312727

		DW 9MS KWG1312727-1 Matrix Spike			DW 9DMS KWG1312727-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
o-Xylene	ND	5.14	5.00	103	4.76	5.00	95	70-130	8	30
1,1,1-Trichloroethane	ND	4.43	5.00	89	4.05	5.00	81	70-130	9	30
Bromoform	ND	4.62	5.00	92	4.38	5.00	88	70-130	5	30
1,1,2,2-Tetrachloroethane	ND	4.15	5.00	83	4.01	5.00	80	70-130	3	30
Isopropylbenzene	ND	5.48	5.00	110	5.05	5.00	101	70-130	8	30
1,1-Dichloropropene	ND	4.59	5.00	92	4.23	5.00	85	70-130	8	30
Bromobenzene	ND	4.49	5.00	90	4.27	5.00	85	70-130	5	30
n-Propylbenzene	ND	4.63	5.00	93	4.28	5.00	86	70-130	8	30
1,3,5-Trimethylbenzene	ND	4.96	5.00	99	4.64	5.00	93	70-130	7	30
2-Chlorotoluene	ND	4.51	5.00	90	4.27	5.00	85	70-130	5	30
4-Chlorotoluene	ND	4.66	5.00	93	4.42	5.00	88	70-130	5	30
tert-Butylbenzene	ND	4.94	5.00	99	4.58	5.00	92	70-130	8	30
1,2,4-Trimethylbenzene	ND	5.00	5.00	100	4.64	5.00	93	70-130	7	30
sec-Butylbenzene	ND	4.94	5.00	99	4.56	5.00	91	70-130	8	30
p-Isopropyltoluene	ND	5.07	5.00	101	4.70	5.00	94	70-130	8	30
1,3-Dichlorobenzene	ND	4.73	5.00	95	4.46	5.00	89	70-130	6	30
1,4-Dichlorobenzene	ND	4.55	5.00	91	4.31	5.00	86	70-130	5	30
n-Butylbenzene	ND	4.73	5.00	95	4.38	5.00	88	70-130	8	30
1,2-Dichlorobenzene	ND	4.66	5.00	93	4.43	5.00	89	70-130	5	30
1,2-Dibromo-3-chloropropane (DBCP)	ND	4.15	5.00	83	4.04	5.00	81	70-130	3	30
1,2,4-Trichlorobenzene	ND	4.59	5.00	92	4.42	5.00	88	70-130	4	30
Hexachlorobutadiene	ND	4.90	5.00	98	4.39	5.00	88	70-130	11	30
Naphthalene	ND	4.43	5.00	89	4.30	5.00	86	70-130	3	30
1,1,2-Trichloroethane	ND	4.54	5.00	91	4.35	5.00	87	70-130	4	30
1,1,1,2-Tetrachloroethane	ND	4.67	5.00	93	4.30	5.00	86	70-130	8	30
1,2,3-Trichloropropane	ND	4.38	5.00	88	4.29	5.00	86	70-130	2	30
1,2,3-Trichlorobenzene	ND	4.89	5.00	98	4.69	5.00	94	70-130	4	30

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Extracted:**	11/14/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	11/14/2013

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	524.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1312727

	Lab Control Sample KWG1312727-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Dichlorodifluoromethane	5.54	5.00	111	70-130
Chloromethane	4.69	5.00	94	70-130
Vinyl Chloride	5.04	5.00	101	70-130
Bromomethane	5.66	5.00	113	70-130
Chloroethane	4.59	5.00	92	70-130
Trichlorofluoromethane	5.15	5.00	103	70-130
Methylene Chloride	4.59	5.00	92	70-130
trans-1,2-Dichloroethene	4.71	5.00	94	70-130
cis-1,2-Dichloroethene	4.70	5.00	94	70-130
1,1-Dichloroethene	4.78	5.00	96	70-130
Methyl tert-Butyl Ether	9.04	10.0	90	70-130
Chloroform	4.57	5.00	91	70-130
Bromochloromethane	4.90	5.00	98	70-130
Carbon Tetrachloride	4.93	5.00	99	70-130
Benzene	4.50	5.00	90	70-130
1,2-Dichloroethane	4.25	5.00	85	70-130
Trichloroethene	4.74	5.00	95	70-130
1,2-Dichloropropane	4.40	5.00	88	70-130
Bromodichloromethane	4.63	5.00	93	70-130
Dibromomethane	4.84	5.00	97	70-130
cis-1,3-Dichloropropene	4.25	5.00	85	70-130
Toluene	4.94	5.00	99	70-130
1,1-Dichloroethane	4.28	5.00	86	70-130
trans-1,3-Dichloropropene	4.32	5.00	86	70-130
Tetrachloroethene	5.30	5.00	106	70-130
1,3-Dichloropropane	4.57	5.00	91	70-130
2,2-Dichloropropane	4.67	5.00	93	70-130
Dibromochloromethane	4.75	5.00	95	70-130
1,2-Dibromoethane (EDB)	4.82	5.00	96	70-130
Chlorobenzene	4.95	5.00	99	70-130
Ethylbenzene	5.19	5.00	104	70-130
Styrene	5.44	5.00	109	70-130
m,p-Xylenes	11.3	10.0	113	70-130
o-Xylene	5.24	5.00	105	70-130
1,1,1-Trichloroethane	4.78	5.00	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.

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Extracted:**	11/14/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	11/14/2013

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	524.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1312727

	Lab Control Sample KWG1312727-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
1,1,2,2-Tetrachloroethane	4.18	5.00	84	70-130
Bromoform	4.91	5.00	98	70-130
Isopropylbenzene	5.76	5.00	115	70-130
1,1-Dichloropropene	4.95	5.00	99	70-130
Bromobenzene	4.58	5.00	92	70-130
n-Propylbenzene	4.89	5.00	98	70-130
1,3,5-Trimethylbenzene	5.16	5.00	103	70-130
2-Chlorotoluene	4.70	5.00	94	70-130
4-Chlorotoluene	4.82	5.00	96	70-130
tert-Butylbenzene	5.22	5.00	104	70-130
1,2,4-Trimethylbenzene	5.11	5.00	102	70-130
sec-Butylbenzene	5.19	5.00	104	70-130
p-Isopropyltoluene	5.33	5.00	107	70-130
1,3-Dichlorobenzene	4.83	5.00	97	70-130
1,4-Dichlorobenzene	4.59	5.00	92	70-130
n-Butylbenzene	5.00	5.00	100	70-130
1,2-Dichlorobenzene	4.71	5.00	94	70-130
1,2-Dibromo-3-chloropropane (DBCP)	4.33	5.00	87	70-130
1,2,4-Trichlorobenzene	4.68	5.00	94	70-130
Hexachlorobutadiene	5.09	5.00	102	70-130
Naphthalene	4.67	5.00	93	70-130
1,1,2-Trichloroethane	4.59	5.00	92	70-130
1,1,1,2-Tetrachloroethane	4.90	5.00	98	70-130
1,2,3-Trichloropropane	4.60	5.00	92	70-130
1,2,3-Trichlorobenzene	4.93	5.00	99	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:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

Semivolatile Organics by EPA Method 525.2

Sample Name:	DW 6	**Units:**	ug/L
Lab Code:	K1312328-001	**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	11/19/13	11/21/13	KWG1312927	
Fluorene	ND	U	0.049	1	11/19/13	11/21/13	KWG1312927	
Propachlor	ND	U	0.098	1	11/19/13	11/21/13	KWG1312927	
Hexachlorobenzene	ND	U	0.098	1	11/19/13	11/21/13	KWG1312927	
Simazine	ND	U	0.049	1	11/19/13	11/21/13	KWG1312927	
Atrazine	ND	U	0.098	1	11/19/13	11/21/13	KWG1312927	
Metribuzin	ND	U	0.20	1	11/19/13	11/21/13	KWG1312927	
Alachlor	ND	U	0.070	1	11/19/13	11/21/13	KWG1312927	
Bromacil	ND	U	0.20	1	11/19/13	11/21/13	KWG1312927	
Metolachlor	ND	U	0.088	1	11/19/13	11/21/13	KWG1312927	
Butachlor	ND	U	0.098	1	11/19/13	11/21/13	KWG1312927	
Bis(2-ethylhexyl) Adipate	ND	U	0.59	1	11/19/13	11/21/13	KWG1312927	
Bis(2-ethylhexyl) Phthalate	ND	U	0.59	1	11/19/13	11/21/13	KWG1312927	
Benzo(a)pyrene	ND	U	0.020	1	11/19/13	11/21/13	KWG1312927	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,3-Dimethyl-2-nitrobenzene	87	70-130	11/21/13	Acceptable
Triphenyl Phosphate	78	70-130	11/21/13	Acceptable
Perylene-d12	59	70-130	11/21/13	Outside Control Limits

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

Semivolatile Organics by EPA Method 525.2

Sample Name:	DW 8	**Units:**	ug/L
Lab Code:	K1312328-003	**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	11/19/13	11/21/13	KWG1312927	
Fluorene	ND	U	0.049	1	11/19/13	11/21/13	KWG1312927	
Propachlor	ND	U	0.098	1	11/19/13	11/21/13	KWG1312927	
Hexachlorobenzene	ND	U	0.098	1	11/19/13	11/21/13	KWG1312927	
Simazine	ND	U	0.049	1	11/19/13	11/21/13	KWG1312927	
Atrazine	ND	U	0.098	1	11/19/13	11/21/13	KWG1312927	
Metribuzin	ND	U	0.20	1	11/19/13	11/21/13	KWG1312927	
Alachlor	ND	U	0.070	1	11/19/13	11/21/13	KWG1312927	
Bromacil	ND	U	0.20	1	11/19/13	11/21/13	KWG1312927	
Metolachlor	ND	U	0.088	1	11/19/13	11/21/13	KWG1312927	
Butachlor	ND	U	0.098	1	11/19/13	11/21/13	KWG1312927	
Bis(2-ethylhexyl) Adipate	ND	U	0.59	1	11/19/13	11/21/13	KWG1312927	
Bis(2-ethylhexyl) Phthalate	ND	U	0.59	1	11/19/13	11/21/13	KWG1312927	
Benzo(a)pyrene	ND	U	0.020	1	11/19/13	11/21/13	KWG1312927	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,3-Dimethyl-2-nitrobenzene	84	70-130	11/21/13	Acceptable
Triphenyl Phosphate	81	70-130	11/21/13	Acceptable
Perylene-d12	46	70-130	11/21/13	Outside Control Limits

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

Semivolatile Organics by EPA Method 525.2

Sample Name:	DW 9	**Units:**	ug/L
Lab Code:	K1312328-005	**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	0.099	1	11/19/13	11/20/13	KWG1312927	
Fluorene	ND	U	0.050	1	11/19/13	11/20/13	KWG1312927	
Propachlor	ND	U	0.099	1	11/19/13	11/20/13	KWG1312927	
Hexachlorobenzene	ND	U	0.099	1	11/19/13	11/20/13	KWG1312927	
Simazine	ND	U	0.050	1	11/19/13	11/20/13	KWG1312927	
Atrazine	ND	U	0.099	1	11/19/13	11/20/13	KWG1312927	
Metribuzin	ND	U	0.20	1	11/19/13	11/20/13	KWG1312927	
Alachlor	ND	U	0.071	1	11/19/13	11/20/13	KWG1312927	
Bromacil	ND	U	0.20	1	11/19/13	11/20/13	KWG1312927	
Metolachlor	ND	U	0.089	1	11/19/13	11/20/13	KWG1312927	
Butachlor	ND	U	0.099	1	11/19/13	11/20/13	KWG1312927	
Bis(2-ethylhexyl) Adipate	ND	U	0.59	1	11/19/13	11/20/13	KWG1312927	
Bis(2-ethylhexyl) Phthalate	ND	U	0.59	1	11/19/13	11/20/13	KWG1312927	
Benzo(a)pyrene	ND	U	0.020	1	11/19/13	11/20/13	KWG1312927	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,3-Dimethyl-2-nitrobenzene	85	70-130	11/20/13	Acceptable
Triphenyl Phosphate	78	70-130	11/20/13	Acceptable
Perylene-d12	76	70-130	11/20/13	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Semivolatile Organics by EPA Method 525.2

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1312927-4	**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	11/19/13	11/20/13	KWG1312927	
Fluorene	ND	U	0.050	1	11/19/13	11/20/13	KWG1312927	
Propachlor	ND	U	0.10	1	11/19/13	11/20/13	KWG1312927	
Hexachlorobenzene	ND	U	0.10	1	11/19/13	11/20/13	KWG1312927	
Simazine	ND	U	0.050	1	11/19/13	11/20/13	KWG1312927	
Atrazine	ND	U	0.10	1	11/19/13	11/20/13	KWG1312927	
Metribuzin	ND	U	0.20	1	11/19/13	11/20/13	KWG1312927	
Alachlor	ND	U	0.072	1	11/19/13	11/20/13	KWG1312927	
Bromacil	ND	U	0.20	1	11/19/13	11/20/13	KWG1312927	
Metolachlor	ND	U	0.090	1	11/19/13	11/20/13	KWG1312927	
Butachlor	ND	U	0.10	1	11/19/13	11/20/13	KWG1312927	
Bis(2-ethylhexyl) Adipate	ND	U	0.60	1	11/19/13	11/20/13	KWG1312927	
Bis(2-ethylhexyl) Phthalate	ND	U	0.60	1	11/19/13	11/20/13	KWG1312927	
Benzo(a)pyrene	ND	U	0.020	1	11/19/13	11/20/13	KWG1312927	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,3-Dimethyl-2-nitrobenzene	73	70-130	11/20/13	Acceptable
Triphenyl Phosphate	75	70-130	11/20/13	Acceptable
Perylene-d12	71	70-130	11/20/13	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

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

Service Request: K1312328

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	
DW 6	K1312328-001	87	78	59	*
DW 8	K1312328-003	84	81	46	*
DW 9	K1312328-005	85	78	76	
Method Blank	KWG1312927-4	73	75	71	
DW 9MS	KWG1312927-1	87	83	82	
DW 9DMS	KWG1312927-2	83	82	79	
Lab Control Sample	KWG1312927-3	84	77	78	

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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Extracted:**	11/19/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	11/20/2013

Matrix Spike/Duplicate Matrix Spike Summary
Semivolatile Organics by EPA Method 525.2

Sample Name:	DW 9	**Units:**	ug/L
Lab Code:	K1312328-005	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	525.2	**Extraction Lot:**	KWG1312927

		DW 9MS KWG1312927-1 Matrix Spike			DW 9DMS KWG1312927-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Hexachlorocyclopentadiene	ND	0.735	0.980	75	0.727	0.980	74	70-130	1	30
Fluorene	ND	0.791	0.980	81	0.797	0.980	81	70-130	1	30
Propachlor	ND	0.755	0.980	77	0.748	0.980	76	70-130	1	30
Hexachlorobenzene	ND	0.695	0.980	71	0.663	0.980	68 *	70-130	5	30
Simazine	ND	0.774	0.980	79	0.744	0.980	76	70-130	4	30
Atrazine	ND	0.837	0.980	85	0.839	0.980	86	70-130	0	30
Metribuzin	ND	1.02	0.980	104	0.962	0.980	98	70-130	6	30
Alachlor	ND	0.851	0.980	87	0.826	0.980	84	70-130	3	30
Bromacil	ND	1.01	0.980	103	1.03	0.980	105	70-130	1	30
Metolachlor	ND	0.930	0.980	95	0.921	0.980	94	70-130	1	30
Butachlor	ND	0.807	0.980	82	0.795	0.980	81	70-130	1	30
Bis(2-ethylhexyl) Adipate	ND	0.956	0.980	97	0.964	0.980	98	70-130	1	30
Bis(2-ethylhexyl) Phthalate	ND	1.07	0.980	109	1.11	0.980	113	70-130	3	30
Benzo(a)pyrene	ND	0.819	0.980	84	0.817	0.980	83	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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Extracted:**	11/19/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	11/20/2013

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:	KWG1312927

	Lab Control Sample KWG1312927-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Hexachlorocyclopentadiene	0.694	0.800	87	70-130
Fluorene	0.786	0.800	98	70-130
Propachlor	0.779	0.800	97	70-130
Hexachlorobenzene	0.658	0.800	82	70-130
Simazine	0.850	0.800	106	70-130
Atrazine	0.832	0.800	104	70-130
Metribuzin	0.952	0.800	119	70-130
Alachlor	0.876	0.800	109	70-130
Bromacil	0.997	0.800	125	70-130
Metolachlor	0.894	0.800	112	70-130
Butachlor	0.788	0.800	99	70-130
Bis(2-ethylhexyl) Adipate	0.897	0.800	112	70-130
Bis(2-ethylhexyl) Phthalate	0.927	0.800	116	70-130
Benzo(a)pyrene	0.862	0.800	108	70-130

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ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

Endothall by EPA Method 548.1

Sample Name:	DW 6	**Units:**	ug/L
Lab Code:	K1312328-001	**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	11/14/13	11/15/13	KWG1312756	

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

Endothall by EPA Method 548.1

Sample Name:	DW 8	**Units:**	ug/L
Lab Code:	K1312328-003	**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	11/14/13	11/15/13	KWG1312756	

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

Endothall by EPA Method 548.1

Sample Name:	DW 9	**Units:**	ug/L
Lab Code:	K1312328-005	**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	11/14/13	11/15/13	KWG1312756	

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
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:	KWG1312756-4	**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	11/14/13	11/16/13	KWG1312756	

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Extracted:**	11/14/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	11/15/2013

Matrix Spike/Duplicate Matrix Spike Summary
Endothall by EPA Method 548.1

Sample Name:	DW 9	**Units:**	ug/L
Lab Code:	K1312328-005	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	548.1	**Extraction Lot:**	KWG1312756

		DW 9MS KWG1312756-1 Matrix Spike			DW 9DMS KWG1312756-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Endothall	ND	97.0	100	97	95.0	100	95	30-142	2	30

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Extracted:**	11/14/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	11/15/2013

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:	KWG1312756

	Lab Control Sample KWG1312756-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Endothall	96.8	100	97	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.

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

Diquat and Paraquat by EPA Method 549.2

Sample Name:	DW 6	**Units:**	ug/L
Lab Code:	K1312328-001	**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	11/19/13	11/19/13	KWG1312898	
Paraquat	ND	U	0.80	1	11/19/13	11/19/13	KWG1312898	

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

Diquat and Paraquat by EPA Method 549.2

Sample Name:	DW 8	**Units:**	ug/L
Lab Code:	K1312328-003	**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	**0.65**		0.40	1	11/19/13	11/19/13	KWG1312898	
Paraquat	**1.4**		0.80	1	11/19/13	11/19/13	KWG1312898	

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Collected:**	11/12/2013
Sample Matrix:	Drinking water	**Date Received:**	11/13/2013

Diquat and Paraquat by EPA Method 549.2

Sample Name:	DW 9	**Units:**	ug/L
Lab Code:	K1312328-005	**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	11/19/13	11/19/13	KWG1312898	
Paraquat	ND	U	0.80	1	11/19/13	11/19/13	KWG1312898	

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1312328
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:	KWG1312898-4	**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	11/19/13	11/19/13	KWG1312898	
Paraquat	ND	U	0.80	1	11/19/13	11/19/13	KWG1312898	

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Extracted:**	11/19/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	11/19/2013

Matrix Spike/Duplicate Matrix Spike Summary
Diquat and Paraquat by EPA Method 549.2

Sample Name:	DW 9	**Units:**	ug/L
Lab Code:	K1312328-005	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	549.2	**Extraction Lot:**	KWG1312898

		DW 9MS KWG1312898-1 Matrix Spike			DW 9DMS KWG1312898-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Diquat	ND	12.7	12.0	106	9.38	12.0	78	70-130	30	30
Paraquat	ND	10.5	12.0	88	8.19	12.0	68 *	70-130	25	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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1312328
Project:	Sentinel Wells	**Date Extracted:**	11/19/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	11/19/2013

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:	KWG1312898

	Lab Control Sample KWG1312898-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Diquat	11.1	12.0	92	70-130
Paraquat	9.54	12.0	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.

ALS Environmental

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State Certifications: CT PH-0224 , DE ID 11 , GA 914 , MA PA0102 , MD 128 , LA 04162 , VA 421 , WY EPA Region 8 , WV 343

December 2, 2013

Ms. Chris Leaf
ALS Environmental - Kelso
1317 S. 13th Avenue
Kelso, WA 98626

Certificate of Analysis

Project Name:	**SOCs**	Workorder:	**1058822**
Purchase Order:	**K1312328**	Workorder ID:	**K1312328**

Dear Ms. Leaf,

Enclosed are the analytical results for samples received by the laboratory on Friday, November 15, 2013.

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 Kelli 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.

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ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Kelli Wolfgang
Project Coordinator

ALS Environmental

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SAMPLE SUMMARY

Workorder: 1058822 K1312328 Discard Date: 12/16/2013

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
1058822001	K1312328-001	Drinking Water	11/12/13 13:30	11/15/13 08:55	Customer
1058822002	K1312328-003	Drinking Water	11/12/13 10:55	11/15/13 08:55	Customer
1058822003	K1312328-005	Drinking Water	11/12/13 08:55	11/15/13 08:55	Customer

Workorder Comments:

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 performed 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, B	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

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ANALYTICAL RESULTS

Workorder: 1058822 K1312328

Lab ID: **1058822001** Date Collected: 11/12/2013 13:30 Matrix: Drinking Water

Sample ID: **K1312328-001** Date Received: 11/15/2013 08:55

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
CARBAMATES										
Aldicarb	ND		ug/L	1.0	EPA 531.1			11/27/13 08:54	AJL	A
Aldicarb Sulfone	ND		ug/L	1.0	EPA 531.1			11/27/13 08:54	AJL	A
Aldicarb Sulfoxide	ND		ug/L	1.0	EPA 531.1			11/27/13 08:54	AJL	A
Carbaryl	ND		ug/L	1.0	EPA 531.1			11/27/13 08:54	AJL	A
Carbofuran	ND		ug/L	1.0	EPA 531.1			11/27/13 08:54	AJL	A
3-Hydroxycarbofuran	ND		ug/L	1.0	EPA 531.1			11/27/13 08:54	AJL	A
Methiocarb	ND		ug/L	1.0	EPA 531.1			11/27/13 08:54	AJL	A
Methomyl	ND		ug/L	1.0	EPA 531.1			11/27/13 08:54	AJL	A
Oxamyl	ND		ug/L	1.0	EPA 531.1			11/27/13 08:54	AJL	A
Propoxur	ND		ug/L	1.0	EPA 531.1			11/27/13 08:54	AJL	A

Sample Comments:

Kelli Wolfgang
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 1058822 K1312328

Lab ID: **1058822002** Date Collected: 11/12/2013 10:55 Matrix: Drinking Water

Sample ID: **K1312328-003** Date Received: 11/15/2013 08:55

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
HERBICIDES										
Glyphosate	ND		ug/L	25.0	EPA 547			11/22/13 09:50	AJL	C
CARBAMATES										
Aldicarb	ND		ug/L	1.0	EPA 531.1			11/27/13 00:44	AJL	A
Aldicarb Sulfone	ND		ug/L	1.0	EPA 531.1			11/27/13 00:44	AJL	A
Aldicarb Sulfoxide	ND		ug/L	1.0	EPA 531.1			11/27/13 00:44	AJL	A
Carbaryl	ND		ug/L	1.0	EPA 531.1			11/27/13 00:44	AJL	A
Carbofuran	ND		ug/L	1.0	EPA 531.1			11/27/13 00:44	AJL	A
3-Hydroxycarbofuran	ND		ug/L	1.0	EPA 531.1			11/27/13 00:44	AJL	A
Methiocarb	ND		ug/L	1.0	EPA 531.1			11/27/13 00:44	AJL	A
Methomyl	ND		ug/L	1.0	EPA 531.1			11/27/13 00:44	AJL	A
Oxamyl	ND		ug/L	1.0	EPA 531.1			11/27/13 00:44	AJL	A
Propoxur	ND		ug/L	1.0	EPA 531.1			11/27/13 00:44	AJL	A

Sample Comments:

Kelli Wolfgang
Project Coordinator

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34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

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ANALYTICAL RESULTS

Workorder: 1058822 K1312328

Lab ID: **1058822003** Date Collected: 11/12/2013 08:55 Matrix: Drinking Water

Sample ID: **K1312328-005** Date Received: 11/15/2013 08:55

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
HERBICIDES										
Glyphosate	ND		ug/L	25.0	EPA 547			11/22/13 10:23	CGS	D
CARBAMATES										
Aldicarb	ND		ug/L	1.0	EPA 531.1			11/27/13 01:24	AJL	A
Aldicarb Sulfone	ND		ug/L	1.0	EPA 531.1			11/27/13 01:24	AJL	A
Aldicarb Sulfoxide	ND		ug/L	1.0	EPA 531.1			11/27/13 01:24	AJL	A
Carbaryl	ND		ug/L	1.0	EPA 531.1			11/27/13 01:24	AJL	A
Carbofuran	ND		ug/L	1.0	EPA 531.1			11/27/13 01:24	AJL	A
3-Hydroxycarbofuran	ND		ug/L	1.0	EPA 531.1			11/27/13 01:24	AJL	A
Methiocarb	ND		ug/L	1.0	EPA 531.1			11/27/13 01:24	AJL	A
Methomyl	ND		ug/L	1.0	EPA 531.1			11/27/13 01:24	AJL	A
Oxamyl	ND		ug/L	1.0	EPA 531.1			11/27/13 01:24	AJL	A
Propoxur	ND		ug/L	1.0	EPA 531.1			11/27/13 01:24	AJL	A

Sample Comments:

Kelli Wolfgang
Project Coordinator

ALS Environmental

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December 2, 2013

Ms. Chris Leaf
ALS Environmental - Kelso
1317 S. 13th Avenue
Kelso, WA 98626

Certificate of Analysis

Project Name:	**SOCs**	Workorder:	**1058822**
Purchase Order:	**K1312328**	Workorder ID:	**K1312328**

Dear Ms. Leaf,

Enclosed are the analytical results for samples received by the laboratory on Friday, November 15, 2013.

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Kelli Wolfgang
Project Coordinator

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SAMPLE SUMMARY

Workorder: 1058822 K1312328 Discard Date: 12/16/2013

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
1058822001	K1312328-001	Drinking Water	11/12/13 13:30	11/15/13 08:55	Customer
1058822002	K1312328-003	Drinking Water	11/12/13 10:55	11/15/13 08:55	Customer
1058822003	K1312328-005	Drinking Water	11/12/13 08:55	11/15/13 08:55	Customer

Workorder Comments:

This certificate of analyiss was modified to include the Chain of Custody as part of the analytical report. KLW 12/02/13

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.
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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

ALS Environmental

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ANALYTICAL RESULTS

Workorder: 1058822 K1312328

Lab ID: **1058822001** Date Collected: 11/12/2013 13:30 Matrix: Drinking Water

Sample ID: **K1312328-001** Date Received: 11/15/2013 08:55

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
CARBAMATES										
Aldicarb	ND		ug/L	1.0	EPA 531.1			11/27/13 08:54	AJL	A
Aldicarb Sulfone	ND		ug/L	1.0	EPA 531.1			11/27/13 08:54	AJL	A
Aldicarb Sulfoxide	ND		ug/L	1.0	EPA 531.1			11/27/13 08:54	AJL	A
Carbaryl	ND		ug/L	1.0	EPA 531.1			11/27/13 08:54	AJL	A
Carbofuran	ND		ug/L	1.0	EPA 531.1			11/27/13 08:54	AJL	A
3-Hydroxycarbofuran	ND		ug/L	1.0	EPA 531.1			11/27/13 08:54	AJL	A
Methiocarb	ND		ug/L	1.0	EPA 531.1			11/27/13 08:54	AJL	A
Methomyl	ND		ug/L	1.0	EPA 531.1			11/27/13 08:54	AJL	A
Oxamyl	ND		ug/L	1.0	EPA 531.1			11/27/13 08:54	AJL	A
Propoxur	ND		ug/L	1.0	EPA 531.1			11/27/13 08:54	AJL	A

Sample Comments:

Kelli Wolfgang

Kelli Wolfgang
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 1058822 K1312328

Lab ID: **1058822002** Date Collected: 11/12/2013 10:55 Matrix: Drinking Water

Sample ID: **K1312328-003** Date Received: 11/15/2013 08:55

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
HERBICIDES										
Glyphosate	ND		ug/L	25.0	EPA 547			11/22/13 09:50	AJL	C
CARBAMATES										
Aldicarb	ND		ug/L	1.0	EPA 531.1			11/27/13 00:44	AJL	A
Aldicarb Sulfone	ND		ug/L	1.0	EPA 531.1			11/27/13 00:44	AJL	A
Aldicarb Sulfoxide	ND		ug/L	1.0	EPA 531.1			11/27/13 00:44	AJL	A
Carbaryl	ND		ug/L	1.0	EPA 531.1			11/27/13 00:44	AJL	A
Carbofuran	ND		ug/L	1.0	EPA 531.1			11/27/13 00:44	AJL	A
3-Hydroxycarbofuran	ND		ug/L	1.0	EPA 531.1			11/27/13 00:44	AJL	A
Methiocarb	ND		ug/L	1.0	EPA 531.1			11/27/13 00:44	AJL	A
Methomyl	ND		ug/L	1.0	EPA 531.1			11/27/13 00:44	AJL	A
Oxamyl	ND		ug/L	1.0	EPA 531.1			11/27/13 00:44	AJL	A
Propoxur	ND		ug/L	1.0	EPA 531.1			11/27/13 00:44	AJL	A

Sample Comments:

Kelli Wolfgang
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 1058822 K1312328

Lab ID: **1058822003** Date Collected: 11/12/2013 08:55 Matrix: Drinking Water

Sample ID: **K1312328-005** Date Received: 11/15/2013 08:55

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
HERBICIDES										
Glyphosate	ND		ug/L	25.0	EPA 547			11/22/13 10:23	CGS	D
CARBAMATES										
Aldicarb	ND		ug/L	1.0	EPA 531.1			11/27/13 01:24	AJL	A
Aldicarb Sulfone	ND		ug/L	1.0	EPA 531.1			11/27/13 01:24	AJL	A
Aldicarb Sulfoxide	ND		ug/L	1.0	EPA 531.1			11/27/13 01:24	AJL	A
Carbaryl	ND		ug/L	1.0	EPA 531.1			11/27/13 01:24	AJL	A
Carbofuran	ND		ug/L	1.0	EPA 531.1			11/27/13 01:24	AJL	A
3-Hydroxycarbofuran	ND		ug/L	1.0	EPA 531.1			11/27/13 01:24	AJL	A
Methiocarb	ND		ug/L	1.0	EPA 531.1			11/27/13 01:24	AJL	A
Methomyl	ND		ug/L	1.0	EPA 531.1			11/27/13 01:24	AJL	A
Oxamyl	ND		ug/L	1.0	EPA 531.1			11/27/13 01:24	AJL	A
Propoxur	ND		ug/L	1.0	EPA 531.1			11/27/13 01:24	AJL	A

Sample Comments:

Kelli Wolfgang
Project Coordinator

ALS Environmental
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ALS Environmental Chain of Custody

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AL

1058822

Project Number: K1312328
Project Manager: Chris Leaf

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	CARBAM 531.1	GLYPH 547
K1312328-001	DW 6	2 ~~3~~	Drinking Water	11/12/13	1330	Middletown	X	X
K1312328-003	DW 8	2	Drinking Water	11/12/13	1055	Middletown	X	X
K1312328-005	DW 9	~~6~~	Drinking Water	11/12/13	0855	Middletown	X	X

The 547 AG broke in transit 11/15 LDW 11/15/13

one 547 AG broke in transit LDS 11/15 LDW 11/15/13

Test Comments

CARBAM - 531.1	K1312328-001,3,5	INSECT1 TEST PANEL
GLYPH - 547	K1312328-001,3,5	GLYPH TEST PANEL

Run QC on sample K1312328-005 for

Folder Comments:
EXTRA VOLUME RECEIVED FOR -005!!!!

11/15/13 1728

	Y	N	Initials	Cooler Temp
Custody Seals Present?	✓		BKS	10
(if present) Seals Intact?	✓			Cooler #:
Received on Ice?	✓			
COC/Labels Complete/Accurate	✓			Therm ID: TH-215
Cont in Good Cond?	✓			
Correct Containers?	✓			Ship Carrier:
Correct Sample Volumes?	✓			FedEx UPS
Correct Preservation?	✓			DHL
Headspace/Volatiles?	✓			
Tracking #:				Other:

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

CL 11/13/13

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: 11/29/13

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# K1312328 ✓
Bill to

Relinquished By: Fran Flair ALS 11/14/13 Received By: B Schaeffer 11/15/13 8:55AM Airbill Number: 5478 9728 8310 Fed Ex

Page 1

K1312328

✓ Ship To: Middletown
ALS Laboratory Group
34 Dogwood Lane
Middletown, PA 17057

PC ✓ Date 11/13/13
SMO [illegible] Date 11/14/13

Instructions:
Ice ✓
Dry Ice ___
No Ice ___
Bill to Client Account ___

Shipping:
Overnight ✓
2nd Day ___
Ground ___

Comments:

ALS Group USA. Corp.
www.alsglobal.com
An ALS Limited Company

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

LABORATORY REPORT

November 26, 2013

Jeff Coleman
Longview, City of
W/S Operation Center
Longview, WA 98632

RE: Sentinel Wells

Dear Jeff:

Enclosed are the results of the samples submitted to our laboratory on November 12, 2013. For your reference, these analyses have been assigned our service request number K1312328.

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 Kate Aguilera at 4:39 pm, Nov 26, 2013

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: Sentinel Wells

Service Request No: K1312328

CASE NARRATIVE

The samples were received intact under chain of custody on November 12, 2013 and were 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 samples at the time of sample receipt.

Sulfur Analysis

The samples were analyzed for twenty sulfur compounds using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

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

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

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

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	L11-203
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	581572
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.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: Longview, City of
Project ID: Sentinel Wells

Service Request: K1312328

Date Received: 11/13/2013
Time Received: 16:10

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Sulfur Liq - Sulfur	SM 2320 B - Alkalinity Titr	300.0 - Br	300.0 - Chloride	SM 2120 B - Color	SM 2510 B - Conductivity	300.0 - F
DW 6	K1312328-001	inking Wa	11/12/2013	13:30	X	X	X	X	X	X	X
DW 8	K1312328-003	inking Wa	11/12/2013	10:55	X	X	X	X	X	X	X
DW 9	K1312328-005	inking Wa	11/12/2013	08:55	X	X	X	X	X	X	X

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
K1312328-001	DW 6	3	Drinking Water	11/12/13	1330	11/13/13	SIMIVALLEY	II
K1312328-003	DW 8	3	Drinking Water	11/12/13	1055	11/13/13	SIMIVALLEY	II
K1312328-005	DW 9	3	Drinking Water	11/12/13	0855	11/13/13	SIMIVALLEY	II

Test Comments

Sulfur - Sulfur Liq K1312328-001,3,5 Sulfur

Run QC on sample K1312328-005 for

Folder Comments:

EXTRA VOLUME RECEIVED FOR -005!!!!

Special Instructions/Comments

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

Turnaround Requirements

____**RUSH** (Surcharges Apply)

PLEASE CIRCLE WORK DAYS

1 2 3 4 5

____ **STANDARD**

Requested FAX Date: _____

Requested Report Date: 11/29/13

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 Ok

30% Inc. TD

PO# K1312328

Bill to

Relinquished By: [signature] ALS 11/14/13 Received By: [signature] 11/14/13 0415 Airbill Number:

ALS Environmental
Sample Acceptance Check Form

Client: Longview, City of Work order: K1312328
Project: Sentinel Wells
Sample(s) received on: 11/15/13 Date opened: 11/15/13 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: 3° 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
K1312328-001.01	40mL VOA NP		7	1	A	MC 11/22/2013
K1312328-001.02	40mL VOA NP				A	
K1312328-001.03	40mL VOA NP				A	
K1312328-003.01	40mL VOA NP		7	1	A	MC 11/22/2013
K1312328-003.02	40mL VOA NP				A	
K1312328-003.03	40mL VOA NP				A	
K1312328-005.01	40mL VOA NP		7	1	A	MC 11/22/2013
K1312328-005.02	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
Sample Acceptance Check Form

Client: Longview, City of Work order: K1312328

Project: Sentinel Wells

Sample(s) received on: 11/15/13 Date opened: 11/15/13 by: MZAMORA

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
K1312328-005.03	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 Sample ID: **DW 6**
Client Project ID: **Sentinel Wells**

ALS Project ID: K1312328
ALS Sample ID: K1312328-001

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: Drinking Water
Test Notes:

Date Collected: 11/12/13
Date Received: 11/13/13
Date Analyzed: 11/22/13
Liquid Amount: 10.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	**1.5**	0.21	
463-58-1	Carbonyl Sulfide	ND	0.37	
74-93-1	Methyl Mercaptan	ND	0.30	
75-08-1	Ethyl Mercaptan	ND	0.38	
75-18-3	Dimethyl Sulfide	ND	0.38	
75-15-0	Carbon Disulfide	ND	0.23	
75-33-2	Isopropyl Mercaptan	ND	0.47	
75-66-1	tert-Butyl Mercaptan	ND	0.55	
107-03-9	n-Propyl Mercaptan	ND	0.47	
624-89-5	Ethyl Methyl Sulfide	ND	0.47	
110-02-1	Thiophene	ND	0.52	
513-44-0	Isobutyl Mercaptan	ND	0.55	
352-93-2	Diethyl Sulfide	ND	0.55	
109-79-5	n-Butyl Mercaptan	ND	0.55	
624-92-0	Dimethyl Disulfide	ND	0.29	
616-44-4	3-Methylthiophene	ND	0.60	
110-01-0	Tetrahydrothiophene	ND	0.54	
638-02-8	2,5-Dimethylthiophene	ND	0.69	
872-55-9	2-Ethylthiophene	ND	0.69	
110-81-6	Diethyl Disulfide	ND	0.37	

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

RESULTS OF ANALYSIS

Client: **Longview, City of**
Client Sample ID: **DW 8**
Client Project ID: **Sentinel Wells**

ALS Project ID: K1312328
ALS Sample ID: K1312328-003

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: Drinking Water
Test Notes:

Date Collected: 11/12/13
Date Received: 11/13/13
Date Analyzed: 11/22/13
Liquid Amount: 10.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	0.21	
463-58-1	Carbonyl Sulfide	ND	0.37	
74-93-1	Methyl Mercaptan	ND	0.30	
75-08-1	Ethyl Mercaptan	ND	0.38	
75-18-3	Dimethyl Sulfide	ND	0.38	
75-15-0	Carbon Disulfide	ND	0.23	
75-33-2	Isopropyl Mercaptan	ND	0.47	
75-66-1	tert-Butyl Mercaptan	ND	0.55	
107-03-9	n-Propyl Mercaptan	ND	0.47	
624-89-5	Ethyl Methyl Sulfide	ND	0.47	
110-02-1	Thiophene	ND	0.52	
513-44-0	Isobutyl Mercaptan	ND	0.55	
352-93-2	Diethyl Sulfide	ND	0.55	
109-79-5	n-Butyl Mercaptan	ND	0.55	
624-92-0	Dimethyl Disulfide	ND	0.29	
616-44-4	3-Methylthiophene	ND	0.60	
110-01-0	Tetrahydrothiophene	ND	0.54	
638-02-8	2,5-Dimethylthiophene	ND	0.69	
872-55-9	2-Ethylthiophene	ND	0.69	
110-81-6	Diethyl Disulfide	ND	0.37	

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

RESULTS OF ANALYSIS

Client: **Longview, City of**
Client Sample ID: **DW 9**
Client Project ID: **Sentinel Wells**

ALS Project ID: K1312328
ALS Sample ID: K1312328-005

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: Drinking Water
Test Notes:

Date Collected: 11/12/13
Date Received: 11/13/13
Date Analyzed: 11/22/13
Liquid Amount: 10.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	0.21	
463-58-1	Carbonyl Sulfide	ND	0.37	
74-93-1	Methyl Mercaptan	ND	0.30	
75-08-1	Ethyl Mercaptan	ND	0.38	
75-18-3	Dimethyl Sulfide	ND	0.38	
75-15-0	Carbon Disulfide	ND	0.23	
75-33-2	Isopropyl Mercaptan	ND	0.47	
75-66-1	tert-Butyl Mercaptan	ND	0.55	
107-03-9	n-Propyl Mercaptan	ND	0.47	
624-89-5	Ethyl Methyl Sulfide	ND	0.47	
110-02-1	Thiophene	ND	0.52	
513-44-0	Isobutyl Mercaptan	ND	0.55	
352-93-2	Diethyl Sulfide	ND	0.55	
109-79-5	n-Butyl Mercaptan	ND	0.55	
624-92-0	Dimethyl Disulfide	ND	0.29	
616-44-4	3-Methylthiophene	ND	0.60	
110-01-0	Tetrahydrothiophene	ND	0.54	
638-02-8	2,5-Dimethylthiophene	ND	0.69	
872-55-9	2-Ethylthiophene	ND	0.69	
110-81-6	Diethyl Disulfide	ND	0.37	

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

RESULTS OF ANALYSIS

Client: **Longview, City of**
Client Sample ID: **Method Blank**
Client Project ID: **Sentinel Wells**

ALS Project ID: K1312328
ALS Sample ID: P131122-MB

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: Drinking Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 11/22/13
Liquid Amount: 10.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	0.21	
463-58-1	Carbonyl Sulfide	ND	0.37	
74-93-1	Methyl Mercaptan	ND	0.30	
75-08-1	Ethyl Mercaptan	ND	0.38	
75-18-3	Dimethyl Sulfide	ND	0.38	
75-15-0	Carbon Disulfide	ND	0.23	
75-33-2	Isopropyl Mercaptan	ND	0.47	
75-66-1	tert-Butyl Mercaptan	ND	0.55	
107-03-9	n-Propyl Mercaptan	ND	0.47	
624-89-5	Ethyl Methyl Sulfide	ND	0.47	
110-02-1	Thiophene	ND	0.52	
513-44-0	Isobutyl Mercaptan	ND	0.55	
352-93-2	Diethyl Sulfide	ND	0.55	
109-79-5	n-Butyl Mercaptan	ND	0.55	
624-92-0	Dimethyl Disulfide	ND	0.29	
616-44-4	3-Methylthiophene	ND	0.60	
110-01-0	Tetrahydrothiophene	ND	0.54	
638-02-8	2,5-Dimethylthiophene	ND	0.69	
872-55-9	2-Ethylthiophene	ND	0.69	
110-81-6	Diethyl Disulfide	ND	0.37	

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: K1312328
ALS Sample ID: P131122-DLCS

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: Drinking Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 11/22/13
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	303	304	**71**	**71**	56-130	0	24	
463-58-1	Carbonyl Sulfide	743	522	526	**70**	**71**	61-141	1	15	
74-93-1	Methyl Mercaptan	557	403	410	**72**	**74**	50-133	3	29	

January 14, 2014 Analytical Report for Service Request No: K1313631

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 December 17, 2013. For your reference, these analyses have been assigned our service request number K1313631.

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

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626 USA | PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp. Part of the ALS Group An ALS Limited Company

Environmental www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

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	-
Indiana DOH	http://www.in.gov/isdh/24859.htm	C-WA-01
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	053-999-368
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.caslab.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.:**	K1313631
Project:	Sentinel Wells	**Date Received:**	12/17/13
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 and one Trip Blank were received for analysis at ALS Environmental on 12/17/13. The samples were received in good condition and consistent with the accompanying chain of custody form, except where noted on the cooler receipt and preservation form included in this report. The samples were stored in a refrigerator at 4ºC upon receipt at the laboratory.

General Chemistry Parameters

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

Total Metals

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

Chlorinated Phenols by EPA Method 1653

Calibration Verification Exceptions:
The control criteria were exceeded for the following System Monitoring Compounds in Ongoing Precision and Recovery (OPR) KWG1313872-2: 3,4,5-Trichlorophenol, 4,5,6-Trichloroguaiacol-13C6. As per section 9.6.2.2 of EPA Method 1653A, the midpoint of the initial calibration was analyzed and indicates the ICAL and method performance were acceptable. No further corrective action was required.

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

EDB and DBCP by EPA Method 504.1

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

Pesticides and Polychlorinated Biphenyls by EPA Method 508.1

Matrix Spike Recovery Exceptions:
The duplicate matrix spike recovery of Aldrin 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 duplicate matrix spike outlier suggested a potential low bias in this matrix. No further corrective action was appropriate.

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

Approved by_____

Chlorinated Acides by EPA Method 515.4

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

Volatile Organic Compounds by EPA Method 524.2

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

Semivolatile Organic Compounds by EPA Method 525.2

Surrogate Exceptions:
The control criteria were exceeded for Perylene-d12 in sample DW-5 due to suspected matrix interference. The sample contained particulate matter that collected on the extraction disk during sample elution. Historical results have shown that particulate matter can cause low recoveries for this surrogate. No further corrective action was appropriate.

The lower control criterion was exceeded for Triphenyl Phosphate in method blank KWG1314092-4. No target analytes were detected in the Method Blank. The problem indicated a potential negative bias to the Method Blank results. Target analytes detected in the field samples could contain a high bias. The surrogate in the field samples was within control criteria and the samples were non-detect. No further corrective action necessary.

Matrix Spike Recovery Exceptions:
The matrix spike recovery of a couple of analytes for sample DW-5 was 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 these samples were observed.

Endothall by EPA Method 548.1

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

Diquat by High Performance Liquid Chromatography

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

Carbamates by EPA Method 531.1

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

Glyphosate by EPA Method 547

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

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_____

ALS

CHAIN OF CUSTODY

44649

001, 005

SR# 1313631

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 Program
Project Number	
Project Manager	Jeff Coleman
Company	City of Longview
Address	PO Box 128 City of Longview WA 98632
Phone #	
email	
Sampler Signature	
Sampler Printed Name	Todd Douglas

CLIENT SAMPLE ID	LABID	SAMPLING Date Time	Matrix	NUMBER OF CONTAINERS	48H: 180.1 / Turbidity	48H: 300.0 / NO2	48H: 300.0 / NO3	48H: SM 2120 B / Color	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: 300.0 / SO4	28D: 314.0 / ClO4	28D: 350.1 / Ammonia T	28D: 531.1 / CARBAM	28D: SM 2510 B / Conductivity	30D: 1653A / CHLOR_PHEN	180D: 1630 / Methyl Hg T	180D: 200.7 / Metals T	180D: 200.8 / Metals T	Calculation / NO2 NO3 Calc
1. DW-5		12/17/13 1500		26																														
2. Trip Blank				2																														
3. Temp Blank				1																														
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.# 36-4184

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	Signature	Signature	Signature	Signature
TODD DOUGLAS	A Ryneich				
Printed Name	Printed Name	Printed Name	Printed Name	Printed Name	Printed Name
C.O.LV	ALS				
Firm	Firm	Firm	Firm	Firm	Firm
12/17/13 16:20	12/17/13 1620				
Date/Time	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

CHAIN OF CUSTODY

44649

001, 005

SR# 61313631

COC Set_____of_____

COC#_____

1317 South 13th Ave. Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
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9990						
SM 2340 B / Hardness Calc	1	2	3	4	5	Remarks

PC CC

Cooler Receipt and Preservation Form

Client / Project: CITY OF LV Service Request *K13* 13631

Received: 12/17/13 Opened: 12/17/13 By: AL Unloaded: 12/17/13 By: AL

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
12.5	12.4	10.7	10.6	-0.1	345	44649		

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
ALL		X							AL	

Notes, Discrepancies, & Resolutions: _____

Page _____ *of* _____

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
Analysis Method:	180.1	**Units:**	NTU
Prep Method:	None	**Basis:**	NA

Turbidity

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-5	K1313631-001	**0.64**	0.20	1	12/18/13 09:18	
Method Blank	K1313631-MB1	ND U	0.20	1	12/18/13 09:18	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
Analysis Method:	180.1	**Units:**	NTU
Prep Method:	None	**Basis:**	NA

Duplicate Sample Summary
Turbidity

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1313640-001DUP	0.20	0.19	ND U	NC	NC	20	12/18/13
Batch QC	K1313641-008DUP	0.20	4.46	4.26	4.36	5	20	12/18/13

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:**	K1313631
Project:	Sentinel Wells	**Date Analyzed:**	12/18/13
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:	373948

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313631-LCS	6.07	5.80	105	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Bromide

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-5	K1313631-001	ND U	0.20	2	12/17/13 17:37	
Method Blank	K1313631-MB1	ND U	0.10	1	12/17/13 08:12	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/17/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1314954-11DUP Result	Average	RPD	RPD Limit
Bromide	300.0	0.20	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.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/17/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Bromide

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1314954-11MS			**Duplicate Matrix Spike** KQ1314954-11DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Bromide	ND U	9.45	10.0	95	9.72	10.0	97	90-110	3	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:**	K1313631
Project:	Sentinel Wells	**Date Analyzed:**	12/17/13
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:	373226

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313631-LCS	3.70	4.00	93	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Chloride

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-5	K1313631-001	**38.5**	4.0	20	12/17/13 19:34	
Method Blank	K1313631-MB1	ND U	0.20	1	12/17/13 08:12	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/17/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1314954-11DUP Result	Average	RPD	RPD Limit
Chloride	300.0	0.40	5.96	5.88	5.92	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.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/17/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Chloride

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1314954-11MS			Duplicate Matrix Spike KQ1314954-11DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Chloride	5.96	15.6	10.0	96	15.7	10.0	98	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:**	K1313631
Project:	Sentinel Wells	**Date Analyzed:**	12/17/13
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:	373226

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313631-LCS	4.64	5.00	93	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Fluoride

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-5	K1313631-001	ND U	0.20	2	12/17/13 17:37	
Method Blank	K1313631-MB1	ND U	0.10	1	12/17/13 08:12	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/17/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1314954-11DUP Result	Average	RPD	RPD Limit
Fluoride	300.0	0.20	0.32	0.31	0.312	4	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/17/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Fluoride

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1314954-11MS			Duplicate Matrix Spike KQ1314954-11DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Fluoride	0.32	10.9	10.0	105	11.1	10.0	108	90-110	2	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:**	K1313631
Project:	Sentinel Wells	**Date Analyzed:**	12/17/13
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:	373226

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313631-LCS	9.79	9.83	100	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
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-5	K1313631-001	ND U	0.10	2	12/17/13 17:37	
Method Blank	K1313631-MB1	ND U	0.050	1	12/17/13 08:12	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/17/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1314954-11DUP 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.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/17/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrite as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1314954-11MS			Duplicate Matrix Spike KQ1314954-11DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrite as Nitrogen	ND U	10.2	10.0	102	10.4	10.0	104	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:**	K1313631
Project:	Sentinel Wells	**Date Analyzed:**	12/17/13
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:	373226

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313631-LCS	98.2	100	98	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
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-5	K1313631-001	ND U	0.10	2	12/17/13 17:37	
Method Blank	K1313631-MB1	ND U	0.050	1	12/17/13 08:12	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/17/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1314954-11DUP Result	Average	RPD	RPD Limit
Nitrate as Nitrogen	300.0	0.10	0.76	0.74	0.752	2	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/17/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrate as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1314954-11MS				Duplicate Matrix Spike KQ1314954-11DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrate as Nitrogen	0.76	10.8	10.0	100	11.0	10.0	102	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:**	K1313631
Project:	Sentinel Wells	**Date Analyzed:**	12/17/13
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:	373226

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313631-LCS	15.2	14.5	105	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Sulfate

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-5	K1313631-001	**0.41**	0.20	2	12/17/13 17:37	
Method Blank	K1313631-MB1	ND U	0.10	1	12/17/13 08:12	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/17/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1314954-11DUP Result	Average	RPD	RPD Limit
Sulfate	300.0	0.20	1.83	1.81	1.82	1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/17/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Sulfate

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1314954-11MS			Duplicate Matrix Spike KQ1314954-11DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Sulfate	1.83	12.0	10.0	102	12.2	10.0	104	90-110	1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Analyzed:**	12/17/13
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:	373226

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313631-LCS	4.80	5.00	96	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
Analysis Method:	314.0	**Units:**	ug/L
Prep Method:	None	**Basis:**	NA

Perchlorate

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-5	K1313631-001	ND U	1.0	1	12/31/13 12:31	
Method Blank	K1313631-MB1	ND U	1.0	1	12/31/13 10:08	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/31/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1313633-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1313633-001DUP 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:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/31/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Perchlorate

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1313633-001	**Basis:**	NA
Analysis Method:	314.0		
Prep Method:	None		

		Matrix Spike K1313633-001MS			Duplicate Matrix Spike K1313633-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	ND U	8.9	10.0	89	9.7	10.0	97	80-120	9	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Analyzed:**	12/31/13
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:	374957

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313631-LCS	15.6	16.8	93	85-115

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
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-5	K1313631-001	ND U	0.010	1	12/23/13 10:00	12/23/13	
Method Blank	K1313631-MB1	ND U	0.0047	1	12/23/13 10:00	12/23/13	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project	Sentinel Wells	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
		Date Analyzed:	12/23/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW-5	**Units:**	mg/L
Lab Code:	K1313631-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1313631-001DUP Result	Average	RPD	RPD Limit
Cyanide, Total	335.4	0.010	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:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
		Date Analyzed:	12/23/13
		Date Extracted:	12/23/13

Duplicate Matrix Spike Summary
Cyanide, Total

Sample Name:	DW-5	**Units:**	mg/L
Lab Code:	K1313631-001	**Basis:**	NA
Analysis Method:	335.4		
Prep Method:	Method		

		Matrix Spike K1313631-001MS			Duplicate Matrix Spike K1313631-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Cyanide, Total	ND U	0.104	0.100	104	0.103	0.100	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:**	K1313631
Project:	Sentinel Wells	**Date Analyzed:**	12/23/13
Sample Matrix:	Drinking Water	**Date Extracted:**	12/23/13

Lab Control Sample Summary
Cyanide, Total

Analysis Method:	335.4	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	374131

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313631-LCS	0.139	0.150	93	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
Analysis Method:	350.1	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Ammonia as Nitrogen

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-5	K1313631-001	ND U	0.050	1	12/19/13 11:10	
Method Blank	K1313631-MB1	ND U	0.050	1	12/19/13 11:10	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/19/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1315026-24	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1315026-24DUP Result	Average	RPD	RPD Limit
Ammonia as Nitrogen	350.1	0.050	1.57	1.54	1.56	2	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/19/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Ammonia as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1315026-24	**Basis:**	NA
Analysis Method:	350.1		
Prep Method:	None		

		Matrix Spike KQ1315026-24MS			**Duplicate Matrix Spike** KQ1315026-24DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Ammonia as Nitrogen	1.57	3.52	2.00	98	3.54	2.00	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:**	K1313631
Project:	Sentinel Wells	**Date Analyzed:**	12/19/13
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Ammonia as Nitrogen

Analysis Method:	350.1	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	373714

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313631-LCS	11.0	10.9	101	90-110

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

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-5	K1313631-001	0.10	2	12/17/2013	ND	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
Analysis Method:	SM 2120 B	**Units:**	ColorUnits
Prep Method:	None	**Basis:**	NA

Color

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-5	K1313631-001	**10.0**	5.0	1	12/18/13 09:01	
Method Blank	K1313631-MB1	ND U	5.0	1	12/18/13 08:56	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project	Sentinel Wells	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
		Date Analyzed:	12/18/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW-5	**Units:**	ColorUnits
Lab Code:	K1313631-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1313631-001DUP Result	Average	RPD	RPD Limit
Color	SM 2120 B	5.0	10.0	10.0	10.0	<1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Analyzed:**	12/18/13
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:	373451

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313631-LCS	65.0	65.0	100	85-115

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
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-5	K1313631-001	**107**	15	1	12/19/13 11:50	
Method Blank	K1313631-MB1	ND U	15	1	12/19/13 11:50	

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dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
Analysis Method:	SM 2320 B	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Duplicate Sample Summary
Alkalinity as CaCO3, Total

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1313468-001DUP	15	74	75	74.9	1	20	12/19/13
Batch QC	K1313633-001DUP	15	90	93	91.6	3	20	12/19/13

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Analyzed:**	12/19/13
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:	373719

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313631-LCS	166	164	101	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
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-5	K1313631-001	**359**	2.0	1	12/19/13 10:40	
Method Blank	K1313631-MB1	ND U	2.0	1	12/19/13 10:40	

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dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/19/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	uMHOS/cm
Lab Code:	KQ1315030-08	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1315030-08DUP Result	Average	RPD	RPD Limit
Conductivity at 25 Degrees Celsius	SM 2510 B	2.0	770	772	771	<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:**	K1313631
Project:	Sentinel Wells	**Date Analyzed:**	12/19/13
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:	373717

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313631-LCS	332	330	101	86-113

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
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-5	K1313631-001	**193**	10	1	12/18/13 16:00	
Method Blank	K1313631-MB1	ND U	10	1	12/18/13 16:00	
Method Blank	K1313631-MB2	ND U	10	1	12/18/13 16:00	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
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

Duplicate Sample Summary
Solids, Total Dissolved

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1313275-010DUP	200	270000	275000	272000	2	10	12/18/13
Batch QC	K1313498-002DUP	10	536	531	534	<1	10	12/18/13
Batch QC	K1313641-007DUP	10	596	595	596	<1	10	12/18/13

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:**	K1313631
Project:	Sentinel Wells	**Date Analyzed:**	12/18/13
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:	373597

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313631-LCS	1120	1120	100	85-115

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/13
Sample Matrix:	Drinking water	**Date Received:**	12/17/13

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-5	K1313631-001	0.07	1	12/27/13	12/30/13	138	
Method Blank	K1313631-MB	0.07	1	12/27/13	12/30/13	ND	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/13
Sample Matrix:	Drinking water	**Date Received:**	12/17/13
		Date Extracted:	12/27/13
		Date Analyzed:	12/30/13

Duplicate Summary
Metals

Sample Name:	DW-5	Units:	mg/L (ppm)
Lab Code:	K1313631-001D	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	138	138	138	<1	

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/13
Sample Matrix:	Drinking water	**Date Received:**	12/17/13

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-5	K1313631-001	0.1	1	12/26/13	12/27/13	ND	
Method Blank 1	K1313631-MB1	0.1	1	12/26/13	12/27/13	ND	
Method Blank 2	K1313631-MB2	0.1	1	12/26/13	12/27/13	ND	
Method Blank 3	K1313631-MB3	0.1	1	12/26/13	12/27/13	ND	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	12/26/13
		Date Analyzed:	12/27/13

Matrix Spike/Duplicate Matrix Spike Summary
Metals

Sample Name:		Units:	ng/L
Lab Code:	K1313707-001MSD,	Basis:	NA
Test Notes:			

									Percent Recovery				
				Spike Level			Spike Result				CAS	Relative	
Analyte	**Prep Method**	**Analysis Method**	**MRL**	**MS**	**DMS**	**Sample Result**	**MS**	**DMS**	**MS**	**DMS**	**Acceptance Limits**	**Percent Difference**	**Result Notes**
Mercury, Methyl	Method	1630	0.1	2.22	2.22	0.5	2.70	2.65	99	97	65-135	2	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	12/26/13
		Date Analyzed:	12/27/13

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	1.83	82	67-133	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	12/26/13
		Date Analyzed:	12/27/13

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	1.78	80	67-133	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	12/26/13
		Date Analyzed:	12/27/13

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	104	104	67-133	

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- Cover Page -
INORGANIC ANALYSIS DATA PACKAGE

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

Service Request : K1313631

Sample Name :	Lab Code :
DW-5	K1313631-001
DW-5	K1313631-001D
DW-5	K1313631-001S
Laboratory Control Sample	K1313631-LCS
Method Blank	K1313631-MB
Batch QC	K1313634-001D
Batch QC	K1313634-001S

Comments:

ALS Group USA, Corp.
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Analytical Report

Client :	Longview, City of	**Service Request :**	K1313631
Project Name :	Sentinel Wells	**Date Collected :**	12/17/13
Project No. :	NA	**Date Received :**	12/17/13
Matrix :	Drinking Water	**Date Extracted :**	12/20-27/13

Total Metals

Sample Name :	DW-5	**Units :**	mg/L (ppm)
Lab Code :	K1313631-001	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Antimony	200.8	0.00005	12/30/13	ND	
Arsenic	200.8	0.0005	12/30/13	0.0067	
Barium	200.7	0.004	12/30/13	0.015	
Beryllium	200.8	0.00002	12/30/13	ND	
Cadmium	200.8	0.00002	12/30/13	ND	
Chromium	200.8	0.0002	12/30/13	0.0006	
Copper	200.7	0.004	12/30/13	ND	
Iron	200.7	0.02	12/30/13	0.32	
Lead	200.8	0.00002	12/30/13	ND	
Manganese	200.7	0.001	12/30/13	0.308	
Mercury	245.1	0.0002	12/20/13	ND	
Nickel	200.8	0.0002	12/30/13	0.0003	
Selenium	200.8	0.001	12/30/13	ND	
Silver	200.8	0.00002	12/30/13	ND	
Sodium	200.7	0.2	12/30/13	13.0	
Thallium	200.8	0.00002	12/30/13	ND	
Zinc	200.7	0.004	12/30/13	ND	

Comments:

ALS Group USA, Corp.
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Analytical Report

Client :	Longview, City of	**Service Request :**	K1313631
Project Name :	Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	12/20-27/13

Total Metals

Sample Name :	Method Blank	**Units :**	mg/L (ppm)
Lab Code :	K1313631-MB	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Antimony	200.8	0.00005	12/30/13	ND	
Arsenic	200.8	0.0005	12/30/13	ND	
Barium	200.7	0.004	12/30/13	ND	
Beryllium	200.8	0.00002	12/30/13	ND	
Cadmium	200.8	0.00002	12/30/13	ND	
Chromium	200.8	0.0002	12/30/13	ND	
Copper	200.7	0.004	12/30/13	ND	
Iron	200.7	0.02	12/30/13	ND	
Lead	200.8	0.00002	12/30/13	ND	
Manganese	200.7	0.001	12/30/13	ND	
Mercury	245.1	0.0002	12/20/13	ND	
Nickel	200.8	0.0002	12/30/13	ND	
Selenium	200.8	0.001	12/30/13	ND	
Silver	200.8	0.00002	12/30/13	ND	
Sodium	200.7	0.2	12/30/13	ND	
Thallium	200.8	0.00002	12/30/13	ND	
Zinc	200.7	0.004	12/30/13	ND	

Comments:

ALS Group USA, Corp.
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QA/QC Report

Client :	Longview, City of	**Service Request :**	K1313631
Project Name :	Sentinel Wells	**Date Collected :**	12/17/13
Project No. :	NA	**Date Received :**	12/17/13
Matrix :	Drinking Water	**Date Extracted :**	12/27/13
		Date Analyzed :	12/30/13

Duplicate Summary
Total Metals

Sample Name :	DW-5	**Units :**	mg/L (ppm)
Lab Code :	K1313631-001D	**Basis :**	NA

Analyte	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Antimony	200.8	0.00005	ND	ND	ND	-	
Arsenic	200.8	0.0005	0.0067	0.0068	0.0068	1	
Barium	200.7	0.004	0.015	0.016	0.016	6	
Beryllium	200.8	0.00002	ND	ND	ND	-	
Cadmium	200.8	0.00002	ND	ND	ND	-	
Chromium	200.8	0.0002	0.0006	0.0005	0.0005	18	
Copper	200.7	0.004	ND	ND	ND	-	
Iron	200.7	0.02	0.32	0.32	0.32	<1	
Lead	200.8	0.00002	ND	ND	ND	-	
Manganese	200.7	0.001	0.308	0.313	0.311	2	
Nickel	200.8	0.0002	0.0003	0.0003	0.0003	<1	
Selenium	200.8	0.001	ND	ND	ND	-	
Silver	200.8	0.00002	ND	ND	ND	-	
Sodium	200.7	0.2	13.0	13.1	13.0	<1	
Thallium	200.8	0.00002	ND	ND	ND	-	
Zinc	200.7	0.004	ND	ND	ND	-	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1313631
Project Name :	Sentinel Wells	**Date Collected :**	12/17/13
Project No. :	NA	**Date Received :**	12/17/13
Matrix :	Drinking Water	**Date Extracted :**	12/27/13
		Date Analyzed :	12/30/13

Matrix Spike Summary
Total Metals

Sample Name :	DW-5	**Units :**	mg/L (ppm)
Lab Code :	K1313631-001S	**Basis :**	NA

Analyte	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Antimony	0.00005	0.050	ND	0.0544	109	70-130	
Arsenic	0.0005	0.050	0.0067	0.0618	110	70-130	
Barium	0.004	2.00	0.015	2.13	106	70-130	
Beryllium	0.00002	0.0025	ND	0.0025	100	70-130	
Cadmium	0.00002	0.025	ND	0.0268	107	70-130	
Chromium	0.0002	0.010	0.0006	0.0109	103	70-130	
Copper	0.004	0.25	ND	0.249	100	70-130	
Iron	0.02	1.00	0.32	1.33	101	70-130	
Lead	0.00002	0.050	ND	0.0475	95	70-130	
Manganese	0.001	0.50	0.308	0.824	103	70-130	
Nickel	0.0002	0.025	0.0003	0.0260	103	70-130	
Selenium	0.001	0.050	ND	0.055	110	70-130	
Silver	0.00002	0.013	ND	0.0129	103	70-130	
Sodium	0.2	10.0	13.0	23.8	108	70-130	
Thallium	0.00002	0.050	ND	0.0490	98	70-130	
Zinc	0.004	0.50	ND	0.486	97	70-130	

Comments:

ALS Group USA, Corp.
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QA/QC Report

Client :	Longview, City of	**Service Request :**	K1313631
Project Name :	Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	12/20/13
		Date Analyzed :	12/20/13

Duplicate Summary
Total Metals

Sample Name :	Batch QC	**Units :**	mg/L (ppm)
Lab Code :	K1313634-001D	**Basis :**	NA

Analyte	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Mercury	245.1	0.0002	ND	ND	ND	-	

Comments:

ALS Group USA, Corp.
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QA/QC Report

Client :	Longview, City of	**Service Request :**	K1313631
Project Name :	Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	12/20/13
		Date Analyzed :	12/20/13

Matrix Spike Summary
Total Metals

Sample Name :	Batch QC	**Units :**	mg/L (ppm)
Lab Code :	K1313634-001S	**Basis :**	NA

Analyte	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Mercury	0.0002	0.0010	ND	0.0010	100	70-130	

Comments:

ALS Group USA, Corp.
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QA/QC Report

Client :	Longview, City of	**Service Request :**	K1313631
Project Name :	Sentinel Wells	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	12/20-27/13
		Date Analyzed :	12/20-30/13

Laboratory Control Sample Summary
Total Metals

Sample Name :	Laboratory Control Sample	**Units :**	mg/L (ppm)
Lab Code :	K1313631-LCS	**Basis :**	NA

Analyte	Analysis Method	True Value	Result	Percent	CAS Percent Recovery Acceptance Limits	Result Notes
Antimony	200.8	0.050	0.051	102	85-115	
Arsenic	200.8	0.050	0.050	101	85-115	
Barium	200.7	5.00	5.21	104	85-115	
Beryllium	200.8	0.0025	0.0025	102	85-115	
Cadmium	200.8	0.025	0.025	101	85-115	
Chromium	200.8	0.010	0.010	103	85-115	
Copper	200.7	0.010	0.011	105	85-115	
Iron	200.7	2.50	2.51	100	85-115	
Lead	200.8	0.050	0.048	96	85-115	
Manganese	200.7	1.25	1.26	101	85-115	
Mercury	245.1	0.0050	0.0050	99	85-115	
Nickel	200.8	0.025	0.025	102	85-115	
Selenium	200.8	0.050	0.051	102	85-115	
Silver	200.8	0.013	0.013	101	85-115	
Sodium	200.7	12.5	12.8	102	85-115	
Thallium	200.8	0.050	0.048	97	85-115	
Zinc	200.7	1.25	1.24	99	85-115	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
Analytical Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	DW-5	Units:	ug/L (ppb)
Lab Code:	K1313631-001	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
2,4,5-Trichlorophenol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	1	12/18/2013	12/23/201	ND	
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	1	12/18/2013	12/23/201	ND	
Trichlorosyringol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
Pentachlorophenol	METHOD	1653A	5.0	1	12/18/2013	12/23/201	ND	
Tetrachloroguaiacol	METHOD	1653A	5.0	1	12/18/2013	12/23/201	ND	
Tetrachlorocatechol	METHOD	1653A	5.0	1	12/18/2013	12/23/201	ND	

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
Analytical Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	Method Blank	Units:	ug/L (ppb)
Lab Code:	KWG1313873-3	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
2,4,5-Trichlorophenol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	1	12/18/2013	12/23/201	ND	
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	1	12/18/2013	12/23/201	ND	
Trichlorosyringol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
Pentachlorophenol	METHOD	1653A	5.0	1	12/18/2013	12/23/201	ND	
Tetrachloroguaiacol	METHOD	1653A	5.0	1	12/18/2013	12/23/201	ND	
Tetrachlorocatechol	METHOD	1653A	5.0	1	12/18/2013	12/23/201	ND	

COLUMBIA ANALYTICAL SERVICES, INC.

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	12/18/2013

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

			Percent Recovery	
	CAS Percent Recovery Acceptance Criteria	Sample Name:	**DW-5**	**Method Blank**
		Lab Code:	K1313631-001	KWG1313873-3
		Date Analyzed:	12/23/201	12/23/201
Analyte				
3,4,5-Trichlorophenol	36-131		67	63
4,5,6-Trichloroguaiacol-13c6	25-134		68	71
Pentachlorophenol-13c6	22-117		70	65
Tetrachloroguaiacol-13c6	18-129		78	74
Tetrachlorocatechol-13c6	D-121		41	66

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Analytical Results

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

EPA Method 504.1

Sample Name:	DW-5	**Units:**	ug/L
Lab Code:	K1313631-001	**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	12/30/13	12/30/13	KWG1314108	
1,2,3-Trichloropropane	ND	U	0.39	1	12/30/13	12/30/13	KWG1314108	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.0096	1	12/30/13	12/30/13	KWG1314108	

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

EPA Method 504.1

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1314108-4	**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	12/30/13	12/30/13	KWG1314108	
1,2,3-Trichloropropane	ND	U	0.40	1	12/30/13	12/30/13	KWG1314108	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.0099	1	12/30/13	12/30/13	KWG1314108	

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Extracted:**	12/30/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	12/30/2013

Matrix Spike/Duplicate Matrix Spike Summary
EPA Method 504.1

Sample Name:	DW-5	**Units:**	ug/L
Lab Code:	K1313631-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	504.1	**Extraction Lot:**	KWG1314108

		DW-5MS KWG1314108-1 Matrix Spike			DW-5DMS KWG1314108-2 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	0.212	0.242	87	0.206	0.243	85	65-135	3	30
1,2,3-Trichloropropane	ND	0.219	0.242	90	0.219	0.243	90	65-135	0	30
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.214	0.242	88	0.221	0.243	91	65-135	3	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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Extracted:**	12/30/2013
Sample Matrix:	Water	**Date Analyzed:**	12/30/2013

Lab Control Spike Summary
EPA Method 504.1

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	504.1	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1314108

	Lab Control Sample KWG1314108-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
1,2-Dibromoethane (EDB)	0.225	0.250	90	70-130
1,2,3-Trichloropropane	0.230	0.250	92	70-130
1,2-Dibromo-3-chloropropane (DBCP)	0.228	0.250	91	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.

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Pesticides/PCBs by EPA Method 508.1

Sample Name:	DW-5	**Units:**	ug/L
Lab Code:	K1313631-001	**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	12/27/13	01/03/14	KWG1314093	
Heptachlor	ND	U	0.0098	1	12/27/13	01/03/14	KWG1314093	
Aldrin	ND	U	0.0098	1	12/27/13	01/03/14	KWG1314093	
Heptachlor Epoxide	ND	U	0.0098	1	12/27/13	01/03/14	KWG1314093	
Heptachlor Epoxide (Isomer A)	ND	U	0.0098	1	12/27/13	01/03/14	KWG1314093	
4,4'-DDE	ND	U	0.0098	1	12/27/13	01/03/14	KWG1314093	
Dieldrin	ND	U	0.0098	1	12/27/13	01/03/14	KWG1314093	
Endrin	ND	U	0.0098	1	12/27/13	01/03/14	KWG1314093	
4,4'-DDD	ND	U	0.0098	1	12/27/13	01/03/14	KWG1314093	
4,4'-DDT	ND	U	0.0098	1	12/27/13	01/03/14	KWG1314093	
Methoxychlor	ND	U	0.0098	1	12/27/13	01/03/14	KWG1314093	
Toxaphene	ND	U	0.098	1	12/27/13	01/03/14	KWG1314093	
Chlordane	ND	U	0.098	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1016	ND	U	0.049	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1221	ND	U	0.098	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1232	ND	U	0.098	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1242	ND	U	0.098	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1248	ND	U	0.098	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1254	ND	U	0.098	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1260	ND	U	0.098	1	12/27/13	01/03/14	KWG1314093	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4,4'-Dibromooctafluorobiphenyl	93	70-130	01/03/14	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313631
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:	KWG1314093-7	**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	12/27/13	01/03/14	KWG1314093	
Heptachlor	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
Aldrin	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
Heptachlor Epoxide	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
Heptachlor Epoxide (Isomer A)	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
4,4'-DDE	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
Dieldrin	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
Endrin	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
4,4'-DDD	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
4,4'-DDT	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
Methoxychlor	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
Toxaphene	ND	U	0.10	1	12/27/13	01/03/14	KWG1314093	
Chlordane	ND	U	0.10	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1016	ND	U	0.050	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1221	ND	U	0.10	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1232	ND	U	0.10	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1242	ND	U	0.10	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1248	ND	U	0.10	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1254	ND	U	0.10	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1260	ND	U	0.10	1	12/27/13	01/03/14	KWG1314093	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4,4'-Dibromooctafluorobiphenyl	92	70-130	01/03/14	Acceptable

Comments:

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

Service Request: K1313631

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-5	K1313631-001	93
Batch QC	K1313633-001	96
Batch QC	K1313635-001	81
Method Blank	KWG1314093-7	92
Batch QCMS	KWG1314093-1	77
Batch QCDMS	KWG1314093-2	75
Batch QCMS	KWG1314093-3	85
Batch QCDMS	KWG1314093-4	86
Lab Control Sample	KWG1314093-5	83

Surrogate Recovery Control Limits (%)

Sur1 = 4,4'-Dibromooctafluorobiphenyl 70-130

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Extracted:**	12/27/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/04/2014

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

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1313633-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1	**Extraction Lot:**	KWG1314093

		Batch QCMS KWG1314093-1 Matrix Spike			Batch QCDMS KWG1314093-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
gamma-BHC (Lindane)	ND	0.0847	0.0971	87	0.0814	0.0971	84	65-135	4	30
Heptachlor	ND	0.0695	0.0971	72	0.0656	0.0971	68	65-135	6	30
Aldrin	ND	0.0864	0.0971	89	0.00673	0.0971	7 *	65-135	171 *	30
Heptachlor Epoxide	ND	0.0870	0.0971	90	0.0872	0.0971	90	65-135	0	30
Heptachlor Epoxide (Isomer A)	ND	0.0704	0.0971	73	0.0701	0.0971	72	65-135	0	30
4,4'-DDE	ND	0.0943	0.0971	97	0.0924	0.0971	95	65-135	2	30
Dieldrin	ND	0.0771	0.0971	79	0.0839	0.0971	86	65-135	8	30
Endrin	ND	0.0690	0.0971	71	0.0758	0.0971	78	65-135	9	30
4,4'-DDD	ND	0.0952	0.0971	98	0.0925	0.0971	95	65-135	3	30
4,4'-DDT	ND	0.0966	0.0971	99	0.0933	0.0971	96	65-135	3	30
Methoxychlor	ND	0.116	0.0971	120	0.114	0.0971	117	65-135	2	30

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Extracted:**	12/27/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/04/2014

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

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1313635-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1	**Extraction Lot:**	KWG1314093

		Batch QCMS KWG1314093-3 Matrix Spike			Batch QCDMS KWG1314093-4 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Aroclor 1248	ND	0.422	0.485	87	0.415	0.485	85	65-135	2	30

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Extracted:**	12/27/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/03/2014

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:	KWG1314093

	Lab Control Sample KWG1314093-5 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
gamma-BHC (Lindane)	0.0958	0.100	96	70-130
Heptachlor	0.0862	0.100	86	70-130
Aldrin	0.0995	0.100	100	70-130
Heptachlor Epoxide	0.103	0.100	103	70-130
Heptachlor Epoxide (Isomer A)	0.0784	0.100	78	70-130
4,4'-DDE	0.105	0.100	105	70-130
Dieldrin	0.101	0.100	101	70-130
Endrin	0.104	0.100	104	70-130
4,4'-DDD	0.106	0.100	106	70-130
4,4'-DDT	0.107	0.100	107	70-130
Methoxychlor	0.126	0.100	126	70-130
Aroclor 1248	0.432	0.500	86	70-130

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ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Chlorinated Herbicides by EPA 515.4

Sample Name:	DW-5	**Units:**	ug/L
Lab Code:	K1313631-001	**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	2.0	1	12/31/13	01/10/14	KWG1314150	
3,5-Dichlorobenzoic Acid	ND	U	0.50	1	12/31/13	01/10/14	KWG1314150	
Dicamba	ND	U	0.20	1	12/31/13	01/10/14	KWG1314150	
Dichlorprop	ND	U	0.50	1	12/31/13	01/10/14	KWG1314150	
2,4-D	ND	U	0.20	1	12/31/13	01/10/14	KWG1314150	
Pentachlorophenol	ND	U	0.080	1	12/31/13	01/10/14	KWG1314150	
2,4,5-TP (Silvex)	ND	U	0.40	1	12/31/13	01/10/14	KWG1314150	
2,4,5-T	ND	U	0.40	1	12/31/13	01/10/14	KWG1314150	
Chloramben	ND	U	0.30	1	12/31/13	01/10/14	KWG1314150	
2,4-DB	ND	U	1.0	1	12/31/13	01/10/14	KWG1314150	
Dinoseb	ND	U	0.40	1	12/31/13	01/10/14	KWG1314150	
Bentazon	ND	U	0.50	1	12/31/13	01/10/14	KWG1314150	
Dacthal Diacid	ND	U	0.10	1	12/31/13	01/10/14	KWG1314150	
Picloram	ND	U	0.20	1	12/31/13	01/10/14	KWG1314150	
Acifluorfen	ND	U	2.0	1	12/31/13	01/10/14	KWG1314150	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2,4-Dichlorophenylacetic Acid	124	70-130	01/10/14	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313631
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:	KWG1314150-4	**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	2.0	1	12/31/13	01/10/14	KWG1314150	
3,5-Dichlorobenzoic Acid	ND	U	0.50	1	12/31/13	01/10/14	KWG1314150	
Dicamba	ND	U	0.20	1	12/31/13	01/10/14	KWG1314150	
Dichlorprop	ND	U	0.50	1	12/31/13	01/10/14	KWG1314150	
2,4-D	ND	U	0.20	1	12/31/13	01/10/14	KWG1314150	
Pentachlorophenol	ND	U	0.080	1	12/31/13	01/10/14	KWG1314150	
2,4,5-TP (Silvex)	ND	U	0.40	1	12/31/13	01/10/14	KWG1314150	
2,4,5-T	ND	U	0.40	1	12/31/13	01/10/14	KWG1314150	
Chloramben	ND	U	0.30	1	12/31/13	01/10/14	KWG1314150	
2,4-DB	ND	U	1.0	1	12/31/13	01/10/14	KWG1314150	
Dinoseb	ND	U	0.40	1	12/31/13	01/10/14	KWG1314150	
Bentazon	ND	U	0.50	1	12/31/13	01/10/14	KWG1314150	
Dacthal Diacid	ND	U	0.10	1	12/31/13	01/10/14	KWG1314150	
Picloram	ND	U	0.20	1	12/31/13	01/10/14	KWG1314150	
Acifluorfen	ND	U	2.0	1	12/31/13	01/10/14	KWG1314150	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2,4-Dichlorophenylacetic Acid	98	70-130	01/10/14	Acceptable

Comments:

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

Service Request: K1313631

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-5	K1313631-001	124
Batch QC	K1313633-001	119
Method Blank	KWG1314150-4	98
Batch QCMS	KWG1314150-1	99
Batch QCDMS	KWG1314150-2	100
Lab Control Sample	KWG1314150-3	98

Surrogate Recovery Control Limits (%)

Sur1 = 2,4-Dichlorophenylacetic Acid 70-130

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Extracted:**	12/31/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/10/2014

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

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1313633-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	515.4	**Extraction Lot:**	KWG1314150

		Batch QCMS KWG1314150-1 Matrix Spike			Batch QCDMS KWG1314150-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dalapon	ND	4.97	4.95	100	5.46	4.95	110	70-130	10	30
3,5-Dichlorobenzoic Acid	ND	5.17	4.95	104	5.14	4.95	104	70-130	1	30
Dicamba	ND	4.80	4.95	97	4.73	4.95	96	70-130	1	30
Dichlorprop	ND	4.86	4.95	98	4.76	4.95	96	70-130	2	30
2,4-D	ND	5.11	4.95	103	5.07	4.95	102	70-130	1	30
Pentachlorophenol	ND	4.64	4.95	94	4.69	4.95	95	70-130	1	30
2,4,5-TP (Silvex)	ND	4.63	4.95	93	4.56	4.95	92	70-130	1	30
2,4,5-T	ND	5.09	4.95	103	5.03	4.95	102	70-130	1	30
Chloramben	ND	5.66	4.95	114	5.55	4.95	112	70-130	2	30
2,4-DB	ND	5.56	4.95	112	5.52	4.95	111	70-130	1	30
Dinoseb	ND	4.90	4.95	99	4.97	4.95	101	70-130	1	30
Bentazon	ND	5.37	4.95	108	5.18	4.95	105	70-130	4	30
Dacthal Diacid	ND	5.48	4.95	111	5.53	4.95	112	70-130	1	30
Picloram	ND	5.53	4.95	112	5.46	4.95	110	70-130	1	30
Acifluorfen	ND	5.05	4.95	102	5.06	4.95	102	70-130	0	30

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Extracted:**	12/31/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/10/2014

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:	KWG1314150

	Lab Control Sample KWG1314150-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Dalapon	5.45	5.00	109	70-130
3,5-Dichlorobenzoic Acid	5.08	5.00	102	70-130
Dicamba	4.73	5.00	95	70-130
Dichlorprop	4.88	5.00	98	70-130
2,4-D	5.11	5.00	102	70-130
Pentachlorophenol	4.81	5.00	96	70-130
2,4,5-TP (Silvex)	4.67	5.00	93	70-130
2,4,5-T	5.08	5.00	102	70-130
Chloramben	5.89	5.00	118	70-130
2,4-DB	5.46	5.00	109	70-130
Dinoseb	4.99	5.00	100	70-130
Bentazon	5.27	5.00	105	70-130
Dacthal Diacid	5.02	5.00	100	70-130
Picloram	4.99	5.00	100	70-130
Acifluorfen	4.98	5.00	100	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:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Volatile Organic Compounds

Sample Name:	DW-5	**Units:**	ug/L
Lab Code:	K1313631-001	**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	12/26/13	12/26/13	KWG1314049	
Chloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Vinyl Chloride	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromomethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Chloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Trichlorofluoromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Methylene Chloride	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
trans-1,2-Dichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1-Dichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
cis-1,2-Dichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Methyl tert-Butyl Ether	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Chloroform	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromochloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Carbon Tetrachloride	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Benzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Trichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromodichloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Dibromomethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
cis-1,3-Dichloropropene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1-Dichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Toluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
trans-1,3-Dichloropropene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Tetrachloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
2,2-Dichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,3-Dichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Dibromochloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Chlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Ethylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Styrene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
m,p-Xylenes	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Volatile Organic Compounds

Sample Name:	DW-5	**Units:**	ug/L
Lab Code:	K1313631-001	**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	12/26/13	12/26/13	KWG1314049	
1,1,1-Trichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromoform	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Isopropylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1-Dichloropropene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
n-Propylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,3,5-Trimethylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
2-Chlorotoluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
4-Chlorotoluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
tert-Butylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,4-Trimethylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
sec-Butylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
p-Isopropyltoluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,3-Dichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,4-Dichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
n-Butylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,4-Trichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Hexachlorobutadiene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Naphthalene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1,2-Trichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,3-Trichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,3-Trichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Volatile Organic Compounds

Sample Name:	DW-5	**Units:**	ug/L
Lab Code:	K1313631-001	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	96	70-130	12/26/13	Acceptable
Dibromofluoromethane	105	82-124	12/26/13	Acceptable
Toluene-d8	104	82-124	12/26/13	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313631
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:	KWG1314049-4	**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	12/26/13	12/26/13	KWG1314049	
Chloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Vinyl Chloride	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromomethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Chloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Trichlorofluoromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Methylene Chloride	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
trans-1,2-Dichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1-Dichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
cis-1,2-Dichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Methyl tert-Butyl Ether	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Chloroform	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromochloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Carbon Tetrachloride	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Benzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Trichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromodichloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Dibromomethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
cis-1,3-Dichloropropene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1-Dichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Toluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
trans-1,3-Dichloropropene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Tetrachloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
2,2-Dichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,3-Dichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Dibromochloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Chlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Ethylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Styrene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
m,p-Xylenes	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313631
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:	KWG1314049-4	**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	12/26/13	12/26/13	KWG1314049	
1,1,1-Trichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromoform	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Isopropylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1-Dichloropropene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
n-Propylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,3,5-Trimethylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
2-Chlorotoluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
4-Chlorotoluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
tert-Butylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,4-Trimethylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
sec-Butylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
p-Isopropyltoluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,3-Dichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,4-Dichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
n-Butylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,4-Trichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Hexachlorobutadiene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Naphthalene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1,2-Trichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,3-Trichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,3-Trichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313631
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:	KWG1314049-4	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	94	70-130	12/26/13	Acceptable
Dibromofluoromethane	105	82-124	12/26/13	Acceptable
Toluene-d8	107	82-124	12/26/13	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

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

Service Request: K1313631

Surrogate Recovery Summary
Volatile Organic Compounds

Extraction Method: METHOD
Analysis Method: 524.2

Units: Percent
Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
DW-5	K1313631-001	96	105	104
Batch QC	K1313633-001	93	105	105
Method Blank	KWG1314049-4	94	105	107
Batch QCMS	KWG1314049-1	116	105	113
Batch QCDMS	KWG1314049-2	114	107	116
Lab Control Sample	KWG1314049-3	116	107	116

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:**	K1313631
Project:	Sentinel Wells	**Date Extracted:**	12/26/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	12/26/2013

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1313633-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2	**Extraction Lot:**	KWG1314049

		Batch QCMS KWG1314049-1 Matrix Spike			Batch QCDMS KWG1314049-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dichlorodifluoromethane	ND	5.95	5.00	119	5.44	5.00	109	70-130	9	30
Chloromethane	ND	4.55	5.00	91	4.20	5.00	84	70-130	8	30
Vinyl Chloride	ND	4.94	5.00	99	4.72	5.00	94	70-130	5	30
Bromomethane	ND	5.82	5.00	116	5.79	5.00	116	70-130	1	30
Chloroethane	ND	4.61	5.00	92	4.54	5.00	91	70-130	2	30
Trichlorofluoromethane	ND	5.55	5.00	111	5.15	5.00	103	70-130	7	30
Methylene Chloride	ND	4.88	5.00	98	4.89	5.00	98	70-130	0	30
trans-1,2-Dichloroethene	ND	5.00	5.00	100	4.89	5.00	98	70-130	2	30
cis-1,2-Dichloroethene	ND	4.87	5.00	97	4.82	5.00	96	70-130	1	30
1,1-Dichloroethene	ND	5.53	5.00	111	5.35	5.00	107	70-130	3	30
Methyl tert-Butyl Ether	ND	8.74	10.0	87	9.02	10.0	90	70-130	3	30
Chloroform	ND	4.90	5.00	98	4.88	5.00	98	70-130	0	30
Bromochloromethane	ND	5.18	5.00	104	5.15	5.00	103	70-130	1	30
Carbon Tetrachloride	ND	5.59	5.00	112	5.30	5.00	106	70-130	5	30
Benzene	ND	4.70	5.00	94	4.61	5.00	92	70-130	2	30
1,2-Dichloroethane	ND	4.70	5.00	94	4.82	5.00	96	70-130	3	30
Trichloroethene	ND	5.05	5.00	101	4.96	5.00	99	70-130	2	30
1,2-Dichloropropane	ND	4.37	5.00	87	4.44	5.00	89	70-130	2	30
Bromodichloromethane	ND	4.99	5.00	100	4.89	5.00	98	70-130	2	30
Dibromomethane	ND	4.83	5.00	97	5.00	5.00	100	70-130	3	30
cis-1,3-Dichloropropene	ND	4.77	5.00	95	4.78	5.00	96	70-130	0	30
Toluene	ND	5.11	5.00	102	5.14	5.00	103	70-130	1	30
1,1-Dichloroethane	ND	4.57	5.00	91	4.50	5.00	90	70-130	2	30
trans-1,3-Dichloropropene	ND	4.27	5.00	85	4.22	5.00	84	70-130	1	30
Tetrachloroethene	ND	5.57	5.00	111	5.28	5.00	106	70-130	5	30
2,2-Dichloropropane	ND	5.13	5.00	103	4.90	5.00	98	70-130	5	30
1,3-Dichloropropane	ND	4.51	5.00	90	4.55	5.00	91	70-130	1	30
Dibromochloromethane	ND	4.78	5.00	96	4.74	5.00	95	70-130	1	30
1,2-Dibromoethane (EDB)	ND	4.85	5.00	97	5.04	5.00	101	70-130	4	30
Chlorobenzene	ND	4.99	5.00	100	4.85	5.00	97	70-130	3	30
Ethylbenzene	ND	5.24	5.00	105	5.14	5.00	103	70-130	2	30
Styrene	ND	5.50	5.00	110	5.40	5.00	108	70-130	2	30
m,p-Xylenes	ND	11.6	10.0	116	11.3	10.0	113	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:**	K1313631
Project:	Sentinel Wells	**Date Extracted:**	12/26/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	12/26/2013

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1313633-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2	**Extraction Lot:**	KWG1314049

		Batch QCMS KWG1314049-1 Matrix Spike			Batch QCDMS KWG1314049-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
o-Xylene	ND	5.30	5.00	106	5.16	5.00	103	70-130	3	30
1,1,2,2-Tetrachloroethane	ND	3.82	5.00	76	3.97	5.00	79	70-130	4	30
Bromoform	ND	4.80	5.00	96	4.82	5.00	96	70-130	0	30
1,1,1-Trichloroethane	ND	5.25	5.00	105	5.07	5.00	101	70-130	3	30
Isopropylbenzene	ND	5.85	5.00	117	5.63	5.00	113	70-130	4	30
1,1-Dichloropropene	ND	5.30	5.00	106	5.08	5.00	102	70-130	4	30
Bromobenzene	ND	4.26	5.00	85	4.30	5.00	86	70-130	1	30
n-Propylbenzene	ND	4.54	5.00	91	4.50	5.00	90	70-130	1	30
1,3,5-Trimethylbenzene	ND	4.89	5.00	98	4.90	5.00	98	70-130	0	30
2-Chlorotoluene	ND	4.46	5.00	89	4.43	5.00	89	70-130	1	30
4-Chlorotoluene	ND	4.61	5.00	92	4.57	5.00	91	70-130	1	30
tert-Butylbenzene	ND	4.88	5.00	98	4.83	5.00	97	70-130	1	30
1,2,4-Trimethylbenzene	ND	4.87	5.00	97	4.88	5.00	98	70-130	0	30
sec-Butylbenzene	ND	4.90	5.00	98	4.84	5.00	97	70-130	1	30
p-Isopropyltoluene	ND	4.98	5.00	100	4.94	5.00	99	70-130	1	30
1,3-Dichlorobenzene	ND	4.54	5.00	91	4.63	5.00	93	70-130	2	30
1,4-Dichlorobenzene	ND	4.47	5.00	89	4.44	5.00	89	70-130	1	30
n-Butylbenzene	ND	4.68	5.00	94	4.60	5.00	92	70-130	2	30
1,2-Dichlorobenzene	ND	4.56	5.00	91	4.55	5.00	91	70-130	0	30
1,2-Dibromo-3-chloropropane (DBCP)	ND	3.76	5.00	75	4.01	5.00	80	70-130	6	30
1,2,4-Trichlorobenzene	ND	4.25	5.00	85	4.34	5.00	87	70-130	2	30
Hexachlorobutadiene	ND	4.76	5.00	95	4.68	5.00	94	70-130	2	30
Naphthalene	ND	4.11	5.00	82	4.21	5.00	84	70-130	2	30
1,1,2-Trichloroethane	ND	4.47	5.00	89	4.56	5.00	91	70-130	2	30
1,1,1,2-Tetrachloroethane	ND	5.12	5.00	102	5.05	5.00	101	70-130	1	30
1,2,3-Trichloropropane	ND	4.10	5.00	82	4.45	5.00	89	70-130	8	30
1,2,3-Trichlorobenzene	ND	4.60	5.00	92	4.69	5.00	94	70-130	2	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:**	K1313631
Project:	Sentinel Wells	**Date Extracted:**	12/26/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	12/26/2013

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	524.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1314049

	Lab Control Sample KWG1314049-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Dichlorodifluoromethane	5.77	5.00	115	70-130
Chloromethane	4.46	5.00	89	70-130
Vinyl Chloride	4.97	5.00	99	70-130
Bromomethane	5.80	5.00	116	70-130
Chloroethane	4.61	5.00	92	70-130
Trichlorofluoromethane	5.61	5.00	112	70-130
Methylene Chloride	4.80	5.00	96	70-130
trans-1,2-Dichloroethene	5.11	5.00	102	70-130
1,1-Dichloroethene	5.58	5.00	112	70-130
cis-1,2-Dichloroethene	4.89	5.00	98	70-130
Methyl tert-Butyl Ether	8.75	10.0	88	70-130
Chloroform	5.04	5.00	101	70-130
Bromochloromethane	5.11	5.00	102	70-130
Carbon Tetrachloride	5.65	5.00	113	70-130
Benzene	4.69	5.00	94	70-130
1,2-Dichloroethane	4.75	5.00	95	70-130
Trichloroethene	5.00	5.00	100	70-130
1,2-Dichloropropane	4.38	5.00	88	70-130
Bromodichloromethane	4.90	5.00	98	70-130
Dibromomethane	4.89	5.00	98	70-130
cis-1,3-Dichloropropene	4.88	5.00	98	70-130
Toluene	5.13	5.00	103	70-130
1,1-Dichloroethane	4.52	5.00	90	70-130
trans-1,3-Dichloropropene	4.12	5.00	82	70-130
Tetrachloroethene	5.50	5.00	110	70-130
2,2-Dichloropropane	5.09	5.00	102	70-130
1,3-Dichloropropane	4.51	5.00	90	70-130
Dibromochloromethane	4.78	5.00	96	70-130
1,2-Dibromoethane (EDB)	4.87	5.00	97	70-130
Chlorobenzene	4.98	5.00	100	70-130
Ethylbenzene	5.16	5.00	103	70-130
Styrene	5.43	5.00	109	70-130
m,p-Xylenes	11.5	10.0	115	70-130
o-Xylene	5.18	5.00	104	70-130
1,1,2,2-Tetrachloroethane	3.92	5.00	78	70-130

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Extracted:**	12/26/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	12/26/2013

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	524.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1314049

	Lab Control Sample KWG1314049-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
1,1,1-Trichloroethane	5.23	5.00	105	70-130
Bromoform	4.77	5.00	95	70-130
Isopropylbenzene	5.78	5.00	116	70-130
1,1-Dichloropropene	5.28	5.00	106	70-130
Bromobenzene	4.35	5.00	87	70-130
n-Propylbenzene	4.59	5.00	92	70-130
1,3,5-Trimethylbenzene	4.91	5.00	98	70-130
2-Chlorotoluene	4.44	5.00	89	70-130
4-Chlorotoluene	4.64	5.00	93	70-130
tert-Butylbenzene	4.89	5.00	98	70-130
1,2,4-Trimethylbenzene	4.92	5.00	98	70-130
sec-Butylbenzene	4.93	5.00	99	70-130
p-Isopropyltoluene	5.05	5.00	101	70-130
1,3-Dichlorobenzene	4.54	5.00	91	70-130
1,4-Dichlorobenzene	4.40	5.00	88	70-130
n-Butylbenzene	4.70	5.00	94	70-130
1,2-Dichlorobenzene	4.62	5.00	92	70-130
1,2-Dibromo-3-chloropropane (DBCP)	3.99	5.00	80	70-130
1,2,4-Trichlorobenzene	4.24	5.00	85	70-130
Hexachlorobutadiene	4.83	5.00	97	70-130
Naphthalene	4.21	5.00	84	70-130
1,1,2-Trichloroethane	4.53	5.00	91	70-130
1,1,1,2-Tetrachloroethane	5.09	5.00	102	70-130
1,2,3-Trichloropropane	4.33	5.00	87	70-130
1,2,3-Trichlorobenzene	4.73	5.00	95	70-130

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ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Semivolatile Organics by EPA Method 525.2

Sample Name:	DW-5	**Units:**	ug/L
Lab Code:	K1313631-001	**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	12/27/13	01/07/14	KWG1314092	
Fluorene	ND	U	0.049	1	12/27/13	01/07/14	KWG1314092	
Propachlor	ND	U	0.098	1	12/27/13	01/07/14	KWG1314092	
Hexachlorobenzene	ND	U	0.098	1	12/27/13	01/07/14	KWG1314092	
Simazine	ND	U	0.049	1	12/27/13	01/07/14	KWG1314092	
Atrazine	ND	U	0.098	1	12/27/13	01/07/14	KWG1314092	
Metribuzin	ND	U	0.20	1	12/27/13	01/07/14	KWG1314092	
Alachlor	ND	U	0.070	1	12/27/13	01/07/14	KWG1314092	
Bromacil	ND	U	0.20	1	12/27/13	01/07/14	KWG1314092	
Metolachlor	ND	U	0.088	1	12/27/13	01/07/14	KWG1314092	
Butachlor	ND	U	0.098	1	12/27/13	01/07/14	KWG1314092	
Bis(2-ethylhexyl) Adipate	ND	U	0.59	1	12/27/13	01/07/14	KWG1314092	
Bis(2-ethylhexyl) Phthalate	ND	U	0.59	1	12/27/13	01/07/14	KWG1314092	
Benzo(a)pyrene	ND	U	0.020	1	12/27/13	01/07/14	KWG1314092	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,3-Dimethyl-2-nitrobenzene	80	70-130	01/07/14	Acceptable
Triphenyl Phosphate	75	70-130	01/07/14	Acceptable
Perylene-d12	69	70-130	01/07/14	Outside Control Limits

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Semivolatile Organics by EPA Method 525.2

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1314092-4	**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	12/27/13	01/07/14	KWG1314092	
Fluorene	ND	U	0.050	1	12/27/13	01/07/14	KWG1314092	
Propachlor	ND	U	0.10	1	12/27/13	01/07/14	KWG1314092	
Hexachlorobenzene	ND	U	0.10	1	12/27/13	01/07/14	KWG1314092	
Simazine	ND	U	0.050	1	12/27/13	01/07/14	KWG1314092	
Atrazine	ND	U	0.10	1	12/27/13	01/07/14	KWG1314092	
Metribuzin	ND	U	0.20	1	12/27/13	01/07/14	KWG1314092	
Alachlor	ND	U	0.072	1	12/27/13	01/07/14	KWG1314092	
Bromacil	ND	U	0.20	1	12/27/13	01/07/14	KWG1314092	
Metolachlor	ND	U	0.090	1	12/27/13	01/07/14	KWG1314092	
Butachlor	ND	U	0.10	1	12/27/13	01/07/14	KWG1314092	
Bis(2-ethylhexyl) Adipate	ND	U	0.60	1	12/27/13	01/07/14	KWG1314092	
Bis(2-ethylhexyl) Phthalate	ND	U	0.60	1	12/27/13	01/07/14	KWG1314092	
Benzo(a)pyrene	ND	U	0.020	1	12/27/13	01/07/14	KWG1314092	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,3-Dimethyl-2-nitrobenzene	80	70-130	01/07/14	Acceptable
Triphenyl Phosphate	69	70-130	01/07/14	Outside Control Limits
Perylene-d12	75	70-130	01/07/14	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

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

Service Request: K1313631

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
DW-5	K1313631-001	80	75	69 *
Method Blank	KWG1314092-4	80	69 *	75
DW-5MS	KWG1314092-1	76	72	77
DW-5DMS	KWG1314092-2	78	74	80
Lab Control Sample	KWG1314092-3	79	76	79

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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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Extracted:**	12/27/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/07/2014

Matrix Spike/Duplicate Matrix Spike Summary
Semivolatile Organics by EPA Method 525.2

Sample Name:	DW-5	**Units:**	ug/L
Lab Code:	K1313631-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	525.2	**Extraction Lot:**	KWG1314092

		DW-5MS KWG1314092-1 Matrix Spike				DW-5DMS KWG1314092-2 Duplicate Matrix Spike						
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**		**Result**	**Spike Amount**	**%Rec**		**%Rec Limits**	**RPD**	**RPD Limit**
Hexachlorocyclopentadiene	ND	0.828	0.971	85		0.876	0.971	90		70-130	6	30
Fluorene	ND	0.792	0.971	82		0.778	0.971	80		70-130	2	30
Propachlor	ND	0.772	0.971	80		0.811	0.971	84		70-130	5	30
Hexachlorobenzene	ND	0.721	0.971	74		0.721	0.971	74		70-130	0	30
Simazine	ND	0.635	0.971	65	*	0.618	0.971	64	*	70-130	3	30
Atrazine	ND	0.709	0.971	73		0.715	0.971	74		70-130	1	30
Metribuzin	ND	0.789	0.971	81		0.788	0.971	81		70-130	0	30
Alachlor	ND	0.716	0.971	74		0.736	0.971	76		70-130	3	30
Bromacil	ND	0.882	0.971	91		0.915	0.971	94		70-130	4	30
Metolachlor	ND	0.745	0.971	77		0.757	0.971	78		70-130	2	30
Butachlor	ND	0.751	0.971	77		0.775	0.971	80		70-130	3	30
Bis(2-ethylhexyl) Adipate	ND	0.830	0.971	85		0.865	0.971	89		70-130	4	30
Bis(2-ethylhexyl) Phthalate	ND	0.880	0.971	91		0.929	0.971	96		70-130	5	30
Benzo(a)pyrene	ND	0.702	0.971	72		0.613	0.971	63	*	70-130	14	30

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Extracted:**	12/27/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/07/2014

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:	KWG1314092

	Lab Control Sample KWG1314092-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Hexachlorocyclopentadiene	0.839	1.00	84	70-130
Fluorene	0.814	1.00	81	70-130
Propachlor	0.803	1.00	80	70-130
Hexachlorobenzene	0.750	1.00	75	70-130
Simazine	0.741	1.00	74	70-130
Atrazine	0.763	1.00	76	70-130
Metribuzin	0.839	1.00	84	70-130
Alachlor	0.765	1.00	77	70-130
Bromacil	0.940	1.00	94	70-130
Metolachlor	0.812	1.00	81	70-130
Butachlor	0.791	1.00	79	70-130
Bis(2-ethylhexyl) Adipate	0.824	1.00	82	70-130
Bis(2-ethylhexyl) Phthalate	0.851	1.00	85	70-130
Benzo(a)pyrene	0.848	1.00	85	70-130

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ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Endothall by EPA Method 548.1

Sample Name:	DW-5	**Units:**	ug/L
Lab Code:	K1313631-001	**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	12/19/13	01/07/14	KWG1313919	

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313631
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:	KWG1313919-4	**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	12/19/13	01/07/14	KWG1313919	

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Extracted:**	12/19/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/07/2014 - 01/08/2014

Matrix Spike/Duplicate Matrix Spike Summary
Endothall by EPA Method 548.1

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1313635-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	548.1	**Extraction Lot:**	KWG1313919

		Batch QCMS KWG1313919-1 Matrix Spike			Batch QCDMS KWG1313919-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Endothall	ND	115	100	115	118	100	118	30-142	3	30

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Extracted:**	12/19/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/07/2014

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:	KWG1313919

	Lab Control Sample KWG1313919-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Endothall	117	100	117	30-142

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ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Diquat and Paraquat by EPA Method 549.2

Sample Name:	DW-5	**Units:**	ug/L
Lab Code:	K1313631-001	**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	12/23/13	01/08/14	KWG1314030	
Paraquat	ND	U	0.80	1	12/23/13	01/08/14	KWG1314030	

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313631
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:	KWG1314030-5	**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	12/23/13	01/08/14	KWG1314030	
Paraquat	ND	U	0.80	1	12/23/13	01/08/14	KWG1314030	

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Extracted:**	12/23/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/08/2014

Matrix Spike/Duplicate Matrix Spike Summary
Diquat and Paraquat by EPA Method 549.2

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1313633-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	549.2	**Extraction Lot:**	KWG1314030

		Batch QCMS KWG1314030-1 Matrix Spike			Batch QCDMS KWG1314030-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Diquat	ND	12.3	12.0	103	12.2	12.0	102	70-130	1	30
Paraquat	ND	11.2	12.0	93	10.1	12.0	84	70-130	11	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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313631
Project:	Sentinel Wells	**Date Extracted:**	12/23/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/08/2014

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:	KWG1314030

	Lab Control Sample KWG1314030-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Diquat	11.6	12.0	96	70-130
Paraquat	10.3	12.0	86	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 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: CT PH-0224 , DE ID 11 , GA 914 , MA PA0102 , MD 128 , LA 04162 , VA 421 , WY EPA Region 8 , WV 343

January 3, 2014

Ms. Chris Leaf
ALS Environmental - Kelso
1317 S. 13th Avenue
Kelso, WA 98626

Certificate of Analysis

Project Name:	**SOCs**	Workorder:	**1064425**
Purchase Order:	**K1313631**	Workorder ID:	**K1313631**

Dear Ms. Leaf,

Enclosed are the analytical results for samples received by the laboratory on Friday, December 20, 2013.

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 Kelli 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

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Kelli Wolfgang
Project Coordinator

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: CT PH-0224 , DE ID 11 , GA 914 , MA PA0102 , MD 128 , LA 04162 , VA 421 , WY EPA Region 8 , WV 343

SAMPLE SUMMARY

Workorder: 1064425 K1313631 Discard Date: 01/17/2014

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
1064425001	K1313631-001	Drinking Water	12/17/13 15:00	12/20/13 10:40	Customer

Workorder Comments:

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 performed 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, B	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

ALS Environmental
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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: CT PH-0224 , DE ID 11 , GA 914 , MA PA0102 , MD 128 , LA 04162 , VA 421 , WY EPA Region 8 , WV 343

ANALYTICAL RESULTS

Workorder: 1064425 K1313631

Lab ID: **1064425001** Date Collected: 12/17/2013 15:00 Matrix: Drinking Water

Sample ID: **K1313631-001** Date Received: 12/20/2013 10:40

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
HERBICIDES										
Glyphosate	ND		ug/L	25.0	EPA 547			12/30/13 16:10	AJL	B
CARBAMATES										
Aldicarb	ND		ug/L	1.0	EPA 531.1			1/2/14 13:50	CGS	A
Aldicarb Sulfone	ND		ug/L	1.0	EPA 531.1			1/2/14 13:50	CGS	A
Aldicarb Sulfoxide	ND		ug/L	1.0	EPA 531.1			1/2/14 13:50	CGS	A
Carbaryl	ND		ug/L	1.0	EPA 531.1			1/2/14 13:50	CGS	A
Carbofuran	ND		ug/L	1.0	EPA 531.1			1/2/14 13:50	CGS	A
3-Hydroxycarbofuran	ND		ug/L	1.0	EPA 531.1			1/2/14 13:50	CGS	A
Methiocarb	ND		ug/L	1.0	EPA 531.1			1/2/14 13:50	CGS	A
Methomyl	ND		ug/L	1.0	EPA 531.1			1/2/14 13:50	CGS	A
Oxamyl	ND		ug/L	1.0	EPA 531.1			1/2/14 13:50	CGS	A
Propoxur	ND		ug/L	1.0	EPA 531.1			1/2/14 13:50	CGS	A

Sample Comments:

Kelli 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: CT PH-0224 , DE ID 11 , GA 914 , MA PA0102 , MD 128 , LA 04162 , VA 421 , WY EPA Region 8 , WV 343

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

1064425

'roject Number: K1313631
'roject Manager: Chris Leaf

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	CARBAM 531.1	GLYPH 547
K1313631-001	DW-5	2	Drinking Water	12/17/13	1500	Middletown	X	X

'est Comments

:ARBAM - 531.1	K1313631-001	INSECTI TEST PANEL
iLYPH - 547	K1313631-001	GLYPH TEST PANEL

12/20/13 1647

	Y	N	Initials
Custody Seals Present?	✓		BKS
(if present) Seals Intact?	✓		
Received on Ice?	✓		
COC/Labels Complete/Accurate	✓		
Cont in Good Cond?	✓		
Correct Containers?	✓		
Correct Sample Volumes?	✓		
Correct Preservation?	✓		
Headspace/Volatiles?	✓		

Cooler Temp: 1
Cooler #:
Therm ID: TH-21S
Ship Carrier: FedEx UPS DHL Other:
Tracking #:

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

CL 12/18/13

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: 01/03/14

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# K1313631 ✓
Bill to

:elinquished By: 12/19/13 Received By: B. Schaeffer 12/20/13 10:40 Airbill Number: 5478 9729 6101

Page 1

K1313631

✓ **Ship To: Middletown**
ALS Laboratory Group
34 Dogwood Lane
Middletown, PA 17057

PC ✓ Date 12/18/13
SMO ✓ Date 12/19/13

Instructions:
Ice ✓
Dry Ice ___
No Ice ___
Bill to Client Account ___

Shipping:
Overnight ✓
2nd Day ___
Ground ___

Comments:

ALS Group USA, Corp.
www.alsglobal.com
An ALS Limited Company

LABORATORY REPORT

January 2, 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 December 17, 2013. For your reference, this analysis has been assigned our service request number K1313631.

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

Samantha Henningsen

By Samantha Henningsen at 11:49 am, Jan 02, 2014

For Kate Aguilera
Project Manager

Client: Longview, City of
Project: Sentinel Wells

Service Request No: K1313631

CASE NARRATIVE

The sample was received intact under chain of custody on December 17, 2013 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.

Sulfur Analysis

The sample was analyzed for twenty sulfur compounds using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

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

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

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	L11-203
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	581572
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.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: Longview, City of
Project ID: Sentinel Wells

Service Request: K1313631

Date Received: 12/17/2013
Time Received: 16:20

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Sulfur Liq - Sulfur	300.0 - Br	300.0 - Chloride	314.0 - ClO4	SM 2120 B - Color	SM 2510 B - Conductivity	300.0 - F
DW-5	K1313631-001	inking Wa	12/17/2013	15:00	X	X	X	X	X	X	X

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
K1313631-001	DW-5	3	Drinking Water	12/17/13	1500	12/17/13	SIMIVALLEY	I

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

CL 12/18/13

Turnaround Requirements
____ **RUSH** (Surcharges Apply)
PLEASE CIRCLE WORK DAYS
1 2 3 4 5
✓ **STANDARD**
Requested FAX Date: _____
Requested Report Date: 01/03/14

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# K1313631
Bill to

Relinquished By: Sam 12/19/13
Received By: Kelly Horiuchi 12/21/13 1140am
Airbill Number:
temp Blank 3°C frozen Blue ice

ALS Environmental
Sample Acceptance Check Form

Client: Longview, City of Work order: K1313631
Project: Sentinel Wells
Sample(s) received on: 12/21/13 Date opened: 12/21/13 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: 3° C			
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☒	☐	☐
	Location of seal(s)? Front of cooler, covering opening. 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
K1313631-001.01	40mL VOA NP		7	1	A	12/30/13
K1313631-001.02	40mL VOA NP				A	
K1313631-001.03	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 Sample ID: **DW-5**
Client Project ID: **Sentinel Wells**

ALS Project ID: K1313631
ALS Sample ID: K1313631-001

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: Drinking Water
Test Notes:

Date Collected: 12/17/13
Date Received: 12/17/13
Date Analyzed: 12/30/13
Liquid Amount: 10.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	0.21	
463-58-1	Carbonyl Sulfide	ND	0.37	
74-93-1	Methyl Mercaptan	ND	0.30	
75-08-1	Ethyl Mercaptan	ND	0.38	
75-18-3	Dimethyl Sulfide	ND	0.38	
75-15-0	Carbon Disulfide	ND	0.23	
75-33-2	Isopropyl Mercaptan	ND	0.47	
75-66-1	tert-Butyl Mercaptan	ND	0.55	
107-03-9	n-Propyl Mercaptan	ND	0.47	
624-89-5	Ethyl Methyl Sulfide	ND	0.47	
110-02-1	Thiophene	ND	0.52	
513-44-0	Isobutyl Mercaptan	ND	0.55	
352-93-2	Diethyl Sulfide	ND	0.55	
109-79-5	n-Butyl Mercaptan	ND	0.55	
624-92-0	Dimethyl Disulfide	ND	0.29	
616-44-4	3-Methylthiophene	ND	0.60	
110-01-0	Tetrahydrothiophene	ND	0.54	
638-02-8	2,5-Dimethylthiophene	ND	0.69	
872-55-9	2-Ethylthiophene	ND	0.69	
110-81-6	Diethyl Disulfide	ND	0.37	

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

RESULTS OF ANALYSIS

Client: **Longview, City of**
Client Sample ID: **Method Blank**
Client Project ID: **Sentinel Wells**

ALS Project ID: K1313631
ALS Sample ID: P131230-MB

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: Drinking Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/30/13
Liquid Amount: 10.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	0.21	
463-58-1	Carbonyl Sulfide	ND	0.37	
74-93-1	Methyl Mercaptan	ND	0.30	
75-08-1	Ethyl Mercaptan	ND	0.38	
75-18-3	Dimethyl Sulfide	ND	0.38	
75-15-0	Carbon Disulfide	ND	0.23	
75-33-2	Isopropyl Mercaptan	ND	0.47	
75-66-1	tert-Butyl Mercaptan	ND	0.55	
107-03-9	n-Propyl Mercaptan	ND	0.47	
624-89-5	Ethyl Methyl Sulfide	ND	0.47	
110-02-1	Thiophene	ND	0.52	
513-44-0	Isobutyl Mercaptan	ND	0.55	
352-93-2	Diethyl Sulfide	ND	0.55	
109-79-5	n-Butyl Mercaptan	ND	0.55	
624-92-0	Dimethyl Disulfide	ND	0.29	
616-44-4	3-Methylthiophene	ND	0.60	
110-01-0	Tetrahydrothiophene	ND	0.54	
638-02-8	2,5-Dimethylthiophene	ND	0.69	
872-55-9	2-Ethylthiophene	ND	0.69	
110-81-6	Diethyl Disulfide	ND	0.37	

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.

January 9, 2014 Analytical Report for Service Request No: K1313632

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

RE: Sentinel Well

Dear Jeff:

Enclosed are the results of the samples submitted to our laboratory on December 17, 2013. For your reference, these analyses have been assigned our service request number K1313632.

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

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626 USA | PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp. Part of the ALS Group An ALS Limited Company

Environmental www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

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	-
Indiana DOH	http://www.in.gov/isdh/24859.htm	C-WA-01
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	053-999-368
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.caslab.com or at the accreditation bodies web site

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

CHAIN OF CUSTODY

44737

001

SR# K1313632

COC Set____of____

COC#_____

ALS

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:	
Company: CITY OF LONGVIEW	
Address: P.O. BOX 128 LV, WA	
Phone #: 360 442 6700	email:
Sampler Signature:	Sampler Printed Name: TODD DOUGLAS

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. D.W.5		12/17	1500		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.# 36-4184

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:	Signature:	Signature	Signature	Signature	Signature
Printed Name: TODD DOUGLAS	Printed Name: Ann Rennick	Printed Name	Printed Name	Printed Name	Printed Name
Firm: C.O.LU	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 12/17/13 16:20	Date/Time: 12/17/13 1620	Date/Time	Date/Time	Date/Time	Date/Time

CHAIN OF CUSTODY

44737

001

SR# K1313632

COC Set_____of_____

COC#_____

ALS

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

www.alsglobal.com

Project Name: SENTINEL WELL 7	Project Number:
Project Manager:	
Company: CITY OF LONGVIEW	
Address: P.O. Box 128 LV. WA	
Phone #: 360-442-5700	email:
Sampler Signature:	Sampler Printed Name: TODD DOUGLAS

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. D.W. 7		12/17	~~1500~~ 2:30		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.# 36-4184

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	Signature	Signature	Signature	Signature	Signature
Printed Name: TODD DOUGLAS	Printed Name: A Ryman	Printed Name	Printed Name	Printed Name	Printed Name
Firm: C.O.L.V	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 12/17/13 16:20	Date/Time: 12/17/13 1620	Date/Time	Date/Time	Date/Time	Date/Time

CHAIN OF CUSTODY

44635

001

SR# K1313632

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 Well Program ~~CITY OF LONGVIEW~~
Project Number:
Project Manager: ~~SENTINEL WELL TESTING~~ Jeff Coleman
Company: City of Longview
Address: P.O. 128 Longview WA 98632
Phone #: 360 442 5700
email:
Sampler Signature:
Sampler Printed Name: TODD DOUGLAS

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. DEEP WELL 1		12/17	11:00		7										
2. TEMP BLANK		12/17	11:00		1										
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.# 36-4184
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	Signature	Signature	Signature	Signature
Printed Name: TODD DOUGLAS	Printed Name: ANNA RYNEARSON	Printed Name	Printed Name	Printed Name	Printed Name
Firm: C.O.L.U	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 12/17/13 16:20	Date/Time: 12/17/13 16:20	Date/Time	Date/Time	Date/Time	Date/Time

PC CL

Cooler Receipt and Preservation Form

Client / Project: City of LV Service Request *K13* 13632

Received: 12/17/13 Opened: 12/17/13 By: [illegible] Unloaded: 12/17/13 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
11.4	11.5	10.8	10.9	0.1	308	44737		
9.1	9.1	6.9	6.9	0.0	316	44737		

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 CC

Cooler Receipt and Preservation Form

Client / Project: City of LV Service Request K13 13652

Received: 12/17/13 Opened: 12/17/13 By: AM Unloaded: 12/17/13 By: A

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
4.5	4.5	8.1	8.1	0.0	328	44635		

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 Well
Project No. : NA

Service Request : K1313632

Sample Name :	Lab Code :
D.W.5	K1313632-001
D.W.5	K1313632-001D
D.W.5	K1313632-001S
D.W.7	K1313632-002
Deep Well 1	K1313632-003
Laboratory Control Sample	K1313632-LCS
Method Blank	K1313632-MB

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Longview, City of	**Service Request :**	K1313632
Project Name :	Sentinel Well	**Date Collected :**	12/17/13
Project No. :	NA	**Date Received :**	12/17/13
Matrix :	Drinking Water	**Date Extracted :**	12/30/13

Total Metals

Sample Name :	D.W.5	**Units :**	ug/L (ppb)
Lab Code :	K1313632-001	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Uranium	200.8	0.02	12/31/13	ND	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Longview, City of	**Service Request :**	K1313632
Project Name :	Sentinel Well	**Date Collected :**	12/17/13
Project No. :	NA	**Date Received :**	12/17/13
Matrix :	Drinking Water	**Date Extracted :**	12/30/13

Total Metals

Sample Name :	D.W.7	**Units :**	ug/L (ppb)
Lab Code :	K1313632-002	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Uranium	200.8	0.02	12/31/13	ND	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Longview, City of	**Service Request :**	K1313632
Project Name :	Sentinel Well	**Date Collected :**	12/17/13
Project No. :	NA	**Date Received :**	12/17/13
Matrix :	Drinking Water	**Date Extracted :**	12/30/13

Total Metals

Sample Name :	Deep Well 1	**Units :**	ug/L (ppb)
Lab Code :	K1313632-003	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Uranium	200.8	0.02	12/31/13	ND	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Longview, City of	**Service Request :**	K1313632
Project Name :	Sentinel Well	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	12/30/13

Total Metals

Sample Name :	Method Blank	**Units :**	ug/L (ppb)
Lab Code :	K1313632-MB	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Uranium	200.8	0.02	12/31/13	ND	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1313632
Project Name :	Sentinel Well	**Date Collected :**	12/17/13
Project No. :	NA	**Date Received :**	12/17/13
Matrix :	Drinking Water	**Date Extracted :**	12/30/13
		Date Analyzed :	12/31/13

Duplicate Summary
Total Metals

Sample Name :	D.W.5	**Units :**	ug/L (ppb)
Lab Code :	K1313632-001D	**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 :**	K1313632
Project Name :	Sentinel Well	**Date Collected :**	12/17/13
Project No. :	NA	**Date Received :**	12/17/13
Matrix :	Drinking Water	**Date Extracted :**	12/30/13
		Date Analyzed :	12/31/13

Matrix Spike Summary
Total Metals

Sample Name :	D.W.5	**Units :**	ug/L (ppb)
Lab Code :	K1313632-001S	**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	21.2	106	70-130	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1313632
Project Name :	Sentinel Well	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	12/30/13
		Date Analyzed :	12/31/13

Laboratory Control Sample Summary
Total Metals

Sample Name :	Laboratory Control Sample	**Units :**	ug/L (ppb)
Lab Code :	K1313632-LCS	**Basis :**	NA

Analyte	Analysis Method	True Value	Result	Percent	CAS Percent Recovery Acceptance Limits	Result Notes
Uranium	200.8	20.0	21.1	105	85-115	

Comments:

Friday, January 03, 2014

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

Re: ALS Workorder: 1312311
Project Name:
Project Number: K1313632

Dear Ms. Leaf:

Three water samples were received from ALS Environmental, on 12/21/2013. The samples were 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

1312311 Case Narrative

Gross Alpha/Beta:
The samples were 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 samples were 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:
These samples were 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: 1312311
Client Name: ALS Environmental
Client Project Name:
Client Project Number: K1313632
Client PO Number: K1313632

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
D.W.5	1312311-1		WATER	17-Dec-13	15:00
D.W.7	1312311-2		WATER	17-Dec-13	14:30
Deep Well 1	1312311-3		WATER	17-Dec-13	11:00

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

1312311

Project Number: K1313632
Project Manager: Chris Leaf

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	Radionuclides 900.0	Radium 226 903.1	Radium 228 904.0
K1313632-001	D.W.5 (1)	6	Drinking Water	12/17/13	1500	Fort Collins	X	X	X
K1313632-002	D.W.7 (2)	↓	Drinking Water	12/17/13	1430	Fort Collins	X	X	X
K1313632-003	Deep Well 1 (3)		Drinking Water	12/17/13	1100	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.

CL 12/18/13

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: 01/14/14

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# K1313632 ✓

Bill to

Relinquished By: [signature] 12/19/13

Received By: [signature] 12/21/13 @ 1140

Airbill Number:

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS Kelso Workorder No: 1312311

Project Manager: JRK Initials: LAS Date: 12/21/13

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	2						
Temperature (°C):	0.8	0.2						
No. of custody seals on cooler:	1	1						
DOT Survey/ Acceptance Information — External µR/hr reading:	12	11						
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: [signature] 12/21/13

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

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

Page 1 of 1

1312311

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

KELSO, WA 98626
UNITED STATES US

SHIP DATE: 19DEC13
ACTWGT: 59.2 LB
CAD: 102641/CAFE2704
DIMS: 26x16x14 IN

BILL SENDER

12
1-

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

FORT COLLINS CO 80524
(970) 490-1511
PO: CL
REF: SAMPLES
DEPT: K1313632

FedEx Express

1 of 2
TRK# 0201 5478 9729 6178
MASTER

FRI - 20 DEC 10:30A
PRIORITY OVERNIGHT

XH FTCA 0.8

80524
CO-US DEN

Part # 158148-434 RIT2 07/13 ##

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

KELSO, WA 98626
UNITED STATES US

SHIP DATE: 19DEC13
ACTWGT: 49.7 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
REF: SAMPLES
DEPT: K1313632

FedEx Express

2 of 2
MPS# 0263 5478 9729 6189
Mstr# 5478 9729 6178 0201

FRI - 20 DEC 10:30A
PRIORITY OVERNIGHT

XH FTCA 0.2

80524
CO-US DEN

Part # 158148-434 RIT2 07/13 ##

Client: ALS Environmental **Date:** *03-Jan-14*
Project: K1313632 **Work Order:** 1312311
Sample ID: D.W.5 **Lab ID:** 1312311-1
Legal Location: **Matrix:** WATER
Collection Date: 12/17/2013 15:00 **Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GROSS ALPHA/BETA ANALYSIS BY GFPC			**PAI 724**		Prep Date: **12/27/2013**	PrepBy: **JKB**
GROSS ALPHA	ND (+/- 0.63)	U	1.9	pCi/l	NA	12/30/2013 15:45
GROSS BETA	3.8 (+/- 1.5)	LT	2.5	pCi/l	NA	12/30/2013 15:45
RA-226 BY RADON EMANATION - METHOD 903.1			**PAI 783**		Prep Date: **12/23/2013**	PrepBy: **PJW**
Ra-226	ND (+/- 0.18)	U	0.24	pCi/l	NA	1/2/2014 13:30
Carr: BARIUM	*94.1*		*40-110*	*%REC*	NA	1/2/2014 13:30
RADIUM-228 ANALYSIS BY GFPC			**PAI 724**		Prep Date: **12/23/2013**	PrepBy: **JTL**
Ra-228	ND (+/- 0.23)	U	0.51	pCi/l	NA	12/30/2013 10:28
Carr: BARIUM	*94.5*		*40-110*	*%REC*	NA	12/30/2013 10:28

Client: ALS Environmental **Date:** *03-Jan-14*
Project: K1313632 **Work Order:** 1312311
Sample ID: D.W.7 **Lab ID:** 1312311-2
Legal Location: **Matrix:** WATER
Collection Date: 12/17/2013 14:30 **Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GROSS ALPHA/BETA ANALYSIS BY GFPC			**PAI 724**		Prep Date: **12/27/2013**	PrepBy: **JKB**
GROSS ALPHA	ND (+/- 1.1)	U	2.5	pCi/l	NA	12/30/2013 15:45
GROSS BETA	3.8 (+/- 1.5)	LT	2.5	pCi/l	NA	12/30/2013 15:45
RA-226 BY RADON EMANATION - METHOD 903.1			**PAI 783**		Prep Date: **12/23/2013**	PrepBy: **PJW**
Ra-226	ND (+/- 0.16)	U	0.29	pCi/l	NA	1/2/2014 13:30
Carr: BARIUM	*94.8*		*40-110*	*%REC*	NA	1/2/2014 13:30
RADIUM-228 ANALYSIS BY GFPC			**PAI 724**		Prep Date: **12/23/2013**	PrepBy: **JTL**
Ra-228	ND (+/- 0.27)	U	0.58	pCi/l	NA	12/30/2013 10:28
Carr: BARIUM	*96.4*		*40-110*	*%REC*	NA	12/30/2013 10:28

Client: ALS Environmental **Date:** *03-Jan-14*
Project: K1313632 **Work Order:** 1312311
Sample ID: Deep Well 1 **Lab ID:** 1312311-3
Legal Location: **Matrix:** WATER
Collection Date: 12/17/2013 11:00 **Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GROSS ALPHA/BETA ANALYSIS BY GFPC			**PAI 724**		Prep Date: **12/27/2013**	PrepBy: **JKB**
GROSS ALPHA	ND (+/- 0.83)	U	2.16	pCi/l	NA	12/30/2013 15:45
GROSS BETA	2.7 (+/- 1.4)	LT	2.6	pCi/l	NA	12/30/2013 15:45
RA-226 BY RADON EMANATION - METHOD 903.1			**PAI 783**		Prep Date: **12/23/2013**	PrepBy: **PJW**
Ra-226	ND (+/- 0.15)	U	0.22	pCi/l	NA	1/2/2014 13:30
Carr: BARIUM	*88.5*		*40-110*	*%REC*	NA	1/2/2014 13:30
RADIUM-228 ANALYSIS BY GFPC			**PAI 724**		Prep Date: **12/23/2013**	PrepBy: **JTL**
Ra-228	ND (+/- 0.21)	U	0.48	pCi/l	NA	12/30/2013 10:28
Carr: BARIUM	*97.2*		*40-110*	*%REC*	NA	12/30/2013 10:28

Client:	ALS Environmental	**Date:**	*03-Jan-14*
Project:	K1313632	**Work Order:**	1312311
Sample ID:	Deep Well 1	**Lab ID:**	1312311-3
Legal Location:		**Matrix:**	WATER
Collection Date:	12/17/2013 11:00	**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.

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: **RE131223-1-1** Instrument ID **Alpha Scin** Method: **Ra-226 by Radon Emanation - Me**

LCS Sample ID: **RE131223-1** Units: **pCi/l** Analysis Date: **1/2/2014 13:55**

Client ID: Run ID: **RE131223-1A** Prep Date: **12/23/2013** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	46 (+/- 11)	1	45.3		101	67-120				P
Carr: BARIUM	13940		15870		87.9	40-110				

LCSD Sample ID: **RE131223-1** Units: **pCi/l** Analysis Date: **1/2/2014 13:55**

Client ID: Run ID: **RE131223-1A** Prep Date: **12/23/2013** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	41 (+/- 10)	1	45.3		90.3	67-120	46	0.313	2.13	P
Carr: BARIUM	15140		15870		95.4	40-110	13940			

MB Sample ID: **RE131223-1** Units: **pCi/l** Analysis Date: **1/2/2014 13:55**

Client ID: Run ID: **RE131223-1A** Prep Date: **12/23/2013** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.43								U
Carr: BARIUM	14970		15870		94.3	40-110				

The following samples were analyzed in this batch: 1312311-1 1312311-2 1312311-3

Client: ALS Environmental
Work Order: 1312311
Project: K1313632

QC BATCH REPORT

Batch ID: **AB131227-1-3** Instrument ID **LB4100-A** Method: **Gross Alpha/Beta Analysis by G**

LCS Sample ID: **AB131227-1** Units: **pCi/l** Analysis Date: **12/30/2013 15:31**

Client ID: Run ID: **AB131227-1A** Prep Date: **12/27/2013** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
GROSS ALPHA	226 (+/- 37)	2	220.3		102	70-130				P
GROSS BETA	217 (+/- 35)	6	218.1		99.7	70-130				P,M3

MB Sample ID: **AB131227-1** Units: **pCi/l** Analysis Date: **12/30/2013 15:29**

Client ID: Run ID: **AB131227-1A** Prep Date: **12/27/2013** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
GROSS ALPHA	ND	0.68								U
GROSS BETA	ND	1.1								U

The following samples were analyzed in this batch: 1312311-1 1312311-2 1312311-3

Client: ALS Environmental
Work Order: 1312311
Project: K1313632

QC BATCH REPORT

Batch ID: **RA131223-1-2** Instrument ID **LB4100-C** Method: **Radium-228 Analysis by GFPC**

LCS Sample ID: **RA131223-1** Units: **pCi/l** Analysis Date: **12/30/2013 10:31**

Client ID: Run ID: **RA131223-1A** Prep Date: **12/23/2013** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	10 (+/- 2.4)	0.6	9.19		108	70-130				P
Carr: BARIUM	34660		35350		98.1	40-110				

MB Sample ID: **RA131223-1** Units: **pCi/l** Analysis Date: **12/30/2013 11:24**

Client ID: Run ID: **RA131223-1A** Prep Date: **12/23/2013** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	ND	0.49								U
Carr: BARIUM	34570		35350		97.8	40-110				

The following samples were analyzed in this batch: 1312311-1 1312311-2 1312311-3

January 14, 2014 Analytical Report for Service Request No: K1313633

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

RE: Sentinel Well Program

Dear Jeff:

Enclosed are the results of the samples submitted to our laboratory on December 17, 2013. For your reference, these analyses have been assigned our service request number K1313633.

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

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626 USA | PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp. Part of the ALS Group An ALS Limited Company

Environmental www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

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	-
Indiana DOH	http://www.in.gov/isdh/24859.htm	C-WA-01
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	053-999-368
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.caslab.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.:**	K1313633
Project:	Sentinel Well Program	**Date Received:**	12/17/13
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 and one Trip Blank were received for analysis at ALS Environmental on 12/17/13. The samples were received in good condition and consistent with the accompanying chain of custody form, except where noted on the cooler receipt and preservation form included in this report. The samples were stored in a refrigerator at 4ºC upon receipt at the laboratory.

General Chemistry Parameters

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

Total Metals

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

Chlorinated Phenols by EPA Method 1653

Calibration Verification Exceptions:
The control criteria were exceeded for the following System Monitoring Compounds in Ongoing Precision and Recovery (OPR) KWG1313872-2: 3,4,5-Trichlorophenol, 4,5,6-Trichloroguaiacol-13C6. As per section 9.6.2.2 of EPA Method 1653A, the midpoint of the initial calibration was analyzed and indicates the ICAL and method performance were acceptable. No further corrective action was required.

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

EDB and DBCP by EPA Method 504.1

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

Pesticides and Polychlorinated Biphenyls by EPA Method 508.1

Matrix Spike Recovery Exceptions:
The duplicate matrix spike recovery of Aldrin 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 duplicate matrix spike outlier suggested a potential low bias in this matrix. No further corrective action was appropriate.

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

Approved by_____

Chlorinated Acides by EPA Method 515.4

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

Volatile Organic Compounds by EPA Method 524.2

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

Semivolatile Organic Compounds by EPA Method 525.2

Surrogate Exceptions:
The control criteria were exceeded for Perylene-d12 in sample DW-1 due to suspected matrix interference. The sample contained particulate matter that collected on the extraction disk during sample elution. Historical results have shown that particulate matter can cause low recoveries for this surrogate. No further corrective action was appropriate.

The lower control criterion was exceeded for Triphenyl Phosphate in method blank KWG1314092-4. No target analytes were detected in the Method Blank. The problem indicated a potential negative bias to the Method Blank results. Target analytes detected in the field samples could contain a high bias. The surrogate in the field samples was within control criteria and the samples were non-detect. No further corrective action necessary.
Triphenyl Phosphate failed in MB

Matrix Spike Recovery Exceptions:
The matrix spike recovery of a couple of analytes for sample DW-5 was 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 these samples were observed.

Endothall by EPA Method 548.1

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

Diquat by High Performance Liquid Chromatography

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

Carbamates by EPA Method 531.1

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

Glyphosate by EPA Method 547

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

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_____

CHAIN OF CUSTODY

001, 005

44648

SR# [illegible]

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 Well Program	Project Number:
Project Manager: Jeff Coleman	
Company: City of Longview	
Address: PO Box 128 Longview WA 98632	
Phone #	email
Sampler Signature	Sampler Printed Name: Todd Douglas

CLIENT SAMPLE ID	LABID	SAMPLING Date Time	Matrix	NUMBER OF CONTAINERS	48H: 180.1 / Turbidity	48H: 300.0 / NO2	48H: 300.0 / NO3	48H: SM 2120 B / Color	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 Thr	14D: Sulfur Liq / Sulfur	28D: 245.1 / Hg T	28D: 300.0 / Br	28D: 300.0 / Chloride	28D: 300.0 / F	28D: 300.0 / SO4	28D: 314.0 / ClO4	28D: 350.1 / Ammonia T	28D: 531.1 / CARBAM	28D: SM 2510 B / Conductivity	30D: 1653A / CHLOR_PHEN	180D: 1630 / Methyl Hg T	180D: 200.7 / Metals T	180D: 200.8 / Metals T	90D: Calculation / NO2 NO3 Calc
1. DW-1		12/17/13 1100		3																														
2. Temp Blank				2																														
3. Trip Blank				1																														
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.# 36-4184

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	Signature	Signature	Signature	Signature
Printed Name: TODD DOUGLAS	Printed Name: [illegible]	Printed Name	Printed Name	Printed Name	Printed Name
Firm: C.O.L.V	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 12/17/13 16:20	Date/Time: 12/17/13 1620	Date/Time	Date/Time	Date/Time	Date/Time

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44648

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SR#_____

COC Set_____of_____

COC#_____

SM 2340 B / Hardness Calc	1	2	3	4	5	Remarks

PC CL

Cooler Receipt and Preservation Form

Client / Project: City of Bonney Lake Service Request K13 [illegible]

Received: 12/17/13 Opened: 12/17/13 By: [illegible] Unloaded: 12/17/13 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
8.4	8.5	1.6	1.1	0.1	[illegible]			
7.5	7.6	4.2	4.3	0.1	308			

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: [illegible]

Page _____ *of* _____

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
Analysis Method:	180.1	**Units:**	NTU
Prep Method:	None	**Basis:**	NA

Turbidity

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-1	K1313633-001	**6.70**	0.20	1	12/18/13 09:18	
Method Blank	K1313633-MB1	ND U	0.20	1	12/18/13 09:18	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
Analysis Method:	180.1	**Units:**	NTU
Prep Method:	None	**Basis:**	NA

Duplicate Sample Summary
Turbidity

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1313640-001DUP	0.20	0.19	ND U	NC	NC	20	12/18/13
Batch QC	K1313641-008DUP	0.20	4.46	4.26	4.36	5	20	12/18/13

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:**	K1313633
Project:	Sentinel Well Program	**Date Analyzed:**	12/18/13
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:	373948

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313633-LCS	6.07	5.80	105	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
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	K1313633-001	ND U	0.20	2	12/17/13 17:51	
Method Blank	K1313633-MB1	ND U	0.10	1	12/17/13 08:12	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/17/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1314954-11DUP Result	Average	RPD	RPD Limit
Bromide	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:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/17/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Bromide

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1314954-11MS			**Duplicate Matrix Spike** KQ1314954-11DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Bromide	ND U	9.45	10.0	95	9.72	10.0	97	90-110	3	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Analyzed:**	12/17/13
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:	373226

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313633-LCS	3.70	4.00	93	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
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	K1313633-001	**4.13**	0.40	2	12/17/13 17:51	
Method Blank	K1313633-MB1	ND U	0.20	1	12/17/13 08:12	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/17/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1314954-11DUP Result	Average	RPD	RPD Limit
Chloride	300.0	0.40	5.96	5.88	5.92	1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/17/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Chloride

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1314954-11MS			Duplicate Matrix Spike KQ1314954-11DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Chloride	5.96	15.6	10.0	96	15.7	10.0	98	90-110	<1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Analyzed:**	12/17/13
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:	373226

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313633-LCS	4.64	5.00	93	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
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	K1313633-001	ND U	0.20	2	12/17/13 17:51	
Method Blank	K1313633-MB1	ND U	0.10	1	12/17/13 08:12	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/17/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1314954-11DUP Result	Average	RPD	RPD Limit
Fluoride	300.0	0.20	0.32	0.31	0.312	4	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/17/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Fluoride

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1314954-11MS			Duplicate Matrix Spike KQ1314954-11DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Fluoride	0.32	10.9	10.0	105	11.1	10.0	108	90-110	2	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Analyzed:**	12/17/13
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:	373226

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313633-LCS	9.79	9.83	100	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
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	K1313633-001	ND U	0.10	2	12/17/13 17:51	
Method Blank	K1313633-MB1	ND U	0.050	1	12/17/13 08:12	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/17/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1314954-11DUP 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:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/17/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrite as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1314954-11MS			Duplicate Matrix Spike KQ1314954-11DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrite as Nitrogen	ND U	10.2	10.0	102	10.4	10.0	104	90-110	2	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Analyzed:**	12/17/13
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:	373226

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313633-LCS	98.2	100	98	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
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	K1313633-001	ND U	0.10	2	12/17/13 17:51	
Method Blank	K1313633-MB1	ND U	0.050	1	12/17/13 08:12	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/17/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1314954-11DUP Result	Average	RPD	RPD Limit
Nitrate as Nitrogen	300.0	0.10	0.76	0.74	0.752	2	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/17/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrate as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1314954-11MS			Duplicate Matrix Spike KQ1314954-11DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrate as Nitrogen	0.76	10.8	10.0	100	11.0	10.0	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:**	K1313633
Project:	Sentinel Well Program	**Date Analyzed:**	12/17/13
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:	373226

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313633-LCS	15.2	14.5	105	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
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	K1313633-001	**1.66**	0.20	2	12/17/13 17:51	
Method Blank	K1313633-MB1	ND U	0.10	1	12/17/13 08:12	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/17/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1314954-11DUP Result	Average	RPD	RPD Limit
Sulfate	300.0	0.20	1.83	1.81	1.82	1	20

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ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/17/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Sulfate

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1314954-11MS			Duplicate Matrix Spike KQ1314954-11DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Sulfate	1.83	12.0	10.0	102	12.2	10.0	104	90-110	1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Analyzed:**	12/17/13
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:	373226

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313633-LCS	4.80	5.00	96	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
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	K1313633-001	ND U	1.0	1	12/31/13 11:35	
Method Blank	K1313633-MB1	ND U	1.0	1	12/31/13 10:08	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
		Date Analyzed:	12/31/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1313633-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1313633-001DUP Result	Average	RPD	RPD Limit
Perchlorate	314.0	1.0	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:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
		Date Analyzed:	12/31/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Perchlorate

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1313633-001	**Basis:**	NA
Analysis Method:	314.0		
Prep Method:	None		

		Matrix Spike K1313633-001MS			Duplicate Matrix Spike K1313633-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	ND U	8.9	10.0	89	9.7	10.0	97	80-120	9	20

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ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Analyzed:**	12/31/13
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:	374957

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313633-LCS	15.6	16.8	93	85-115

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
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	K1313633-001	ND U	0.010	1	12/23/13 10:00	12/23/13	
Method Blank	K1313633-MB1	ND U	0.0047	1	12/23/13 10:00	12/23/13	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/23/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1315113-06	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1315113-06DUP 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:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/23/13
		Date Extracted:	12/23/13

Duplicate Matrix Spike Summary
Cyanide, Total

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1315113-06	**Basis:**	NA
Analysis Method:	335.4		
Prep Method:	Method		

		Matrix Spike KQ1315113-06MS			**Duplicate Matrix Spike** KQ1315113-06DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Cyanide, Total	ND U	0.104	0.100	104	0.103	0.100	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:**	K1313633
Project:	Sentinel Well Program	**Date Analyzed:**	12/23/13
Sample Matrix:	Drinking Water	**Date Extracted:**	12/23/13

Lab Control Sample Summary
Cyanide, Total

Analysis Method:	335.4	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	374131

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313633-LCS	0.139	0.150	93	90-110

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
Analysis Method:	350.1	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Ammonia as Nitrogen

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-1	K1313633-001	**0.352**	0.050	1	12/19/13 11:10	
Method Blank	K1313633-MB1	ND U	0.050	1	12/19/13 11:10	

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dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/19/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1315026-24	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1315026-24DUP Result	Average	RPD	RPD Limit
Ammonia as Nitrogen	350.1	0.050	1.57	1.54	1.56	2	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/19/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Ammonia as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1315026-24	**Basis:**	NA
Analysis Method:	350.1		
Prep Method:	None		

		Matrix Spike KQ1315026-24MS			**Duplicate Matrix Spike** KQ1315026-24DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Ammonia as Nitrogen	1.57	3.52	2.00	98	3.54	2.00	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:**	K1313633
Project:	Sentinel Well Program	**Date Analyzed:**	12/19/13
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Ammonia as Nitrogen

Analysis Method:	350.1	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	373714

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313633-LCS	11.0	10.9	101	90-110

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

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	K1313633-001	0.10	2	12/17/2013	ND	

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dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
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	K1313633-001	**10.0**	5.0	1	12/18/13 09:09	
Method Blank	K1313633-MB1	ND U	5.0	1	12/18/13 08:56	

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dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/18/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	ColorUnits
Lab Code:	K1313631-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1313631-001DUP Result	Average	RPD	RPD Limit
Color	SM 2120 B	5.0	10.0	10.0	10.0	<1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Analyzed:**	12/18/13
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:	373451

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313633-LCS	65.0	65.0	100	85-115

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
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	K1313633-001	**90**	15	1	12/19/13 11:50	
Method Blank	K1313633-MB1	ND U	15	1	12/19/13 11:50	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
		Date Analyzed:	12/19/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW-1	**Units:**	mg/L
Lab Code:	K1313633-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1313633-001DUP Result	Average	RPD	RPD Limit
Alkalinity as CaCO3, Total	SM 2320 B	15	90	93	91.6	3	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Analyzed:**	12/19/13
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:	373719

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313633-LCS	166	164	101	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
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	K1313633-001	**185**	2.0	1	12/19/13 10:40	
Method Blank	K1313633-MB1	ND U	2.0	1	12/19/13 10:40	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/19/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	uMHOS/cm
Lab Code:	KQ1315030-08	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1315030-08DUP Result	Average	RPD	RPD Limit
Conductivity at 25 Degrees Celsius	SM 2510 B	2.0	770	772	771	<1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Analyzed:**	12/19/13
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:	373717

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313633-LCS	332	330	101	86-113

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
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	K1313633-001	**151**	10	1	12/18/13 16:00	
Method Blank	K1313633-MB1	ND U	10	1	12/18/13 16:00	
Method Blank	K1313633-MB2	ND U	10	1	12/18/13 16:00	

ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
Analysis Method:	SM 2540 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Duplicate Sample Summary
Solids, Total Dissolved

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1313275-010DUP	200	270000	275000	272000	2	10	12/18/13
Batch QC	K1313498-002DUP	10	536	531	534	<1	10	12/18/13
Batch QC	K1313641-007DUP	10	596	595	596	<1	10	12/18/13

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Analyzed:**	12/18/13
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:	373597

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313633-LCS	1120	1120	100	85-115

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking water	**Date Received:**	12/17/13

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	K1313633-001	0.07	1	12/27/13	12/30/13	72.7	
Method Blank	K1313633-MB	0.07	1	12/27/13	12/30/13	ND	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	12/27/13
		Date Analyzed:	12/30/13

Duplicate Summary
Metals

Sample Name:	Batch QC	Units:	mg/L (ppm)
Lab Code:	K1313631-001D	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	138	138	138	<1	

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking water	**Date Received:**	12/17/13

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	K1313633-001	0.1	1	12/26/13	12/27/13	ND	
Method Blank 1	K1313633-MB1	0.1	1	12/26/13	12/27/13	ND	
Method Blank 2	K1313633-MB2	0.1	1	12/26/13	12/27/13	ND	
Method Blank 3	K1313633-MB3	0.1	1	12/26/13	12/27/13	ND	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	12/26/13
		Date Analyzed:	12/27/13

Matrix Spike/Duplicate Matrix Spike Summary
Metals

Sample Name:	Batch QC		Units:	ng/L
Lab Code:	K1313707-001MS,	K1313707-001MSD	Basis:	NA
Test Notes:				

									Percent Recovery				
				Spike Level			Spike Result				CAS	Relative	
Analyte	**Prep Method**	**Analysis Method**	**MRL**	**MS**	**DMS**	**Sample Result**	**MS**	**DMS**	**MS**	**DMS**	**Acceptance Limits**	**Percent Difference**	**Result Notes**
Mercury, Methyl	Method	1630	0.1	2.22	2.22	0.5	2.70	2.65	99	97	65-135	2	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	12/26/13
		Date Analyzed:	12/27/13

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	1.83	82	67-133	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	12/26/13
		Date Analyzed:	12/27/13

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	1.78	80	67-133	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	12/26/13
		Date Analyzed:	12/27/13

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	104	104	67-133	

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- Cover Page -
INORGANIC ANALYSIS DATA PACKAGE

Client : Longview, City of
Project Name : Sentinel Well Program
Project No. : NA

Service Request : K1313633

Sample Name :	Lab Code :
Batch QC	K1313631-001D
Batch QC	K1313631-001S
DW-1	K1313633-001
Laboratory Control Sample	K1313633-LCS
Method Blank	K1313633-MB
Batch QC	K1313634-001D
Batch QC	K1313634-001S

Comments:

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Analytical Report

Client :	Longview, City of	**Service Request :**	K1313633
Project Name :	Sentinel Well Program	**Date Collected :**	12/17/13
Project No. :	NA	**Date Received :**	12/17/13
Matrix :	Drinking Water	**Date Extracted :**	12/20-27/13

Total Metals

Sample Name :	DW-1	**Units :**	mg/L (ppm)
Lab Code :	K1313633-001	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Antimony	200.8	0.00005	12/30/13	ND	
Arsenic	200.8	0.0005	12/30/13	0.0041	
Barium	200.7	0.004	12/30/13	0.011	
Beryllium	200.8	0.00002	12/30/13	ND	
Cadmium	200.8	0.00002	12/30/13	ND	
Chromium	200.8	0.0002	12/30/13	0.0004	
Copper	200.7	0.004	12/30/13	ND	
Iron	200.7	0.02	12/30/13	2.28	
Lead	200.8	0.00002	12/30/13	ND	
Manganese	200.7	0.001	12/30/13	0.564	
Mercury	245.1	0.0002	12/20/13	ND	
Nickel	200.8	0.0002	12/30/13	ND	
Selenium	200.8	0.001	12/30/13	ND	
Silver	200.8	0.00002	12/30/13	ND	
Sodium	200.7	0.2	12/30/13	8.9	
Thallium	200.8	0.00002	12/30/13	ND	
Zinc	200.7	0.004	12/30/13	ND	

Comments:

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Analytical Report

Client :	Longview, City of	**Service Request :**	K1313633
Project Name :	Sentinel Well Program	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	12/20-27/13

Total Metals

Sample Name :	Method Blank	**Units :**	mg/L (ppm)
Lab Code :	K1313633-MB	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Antimony	200.8	0.00005	12/30/13	ND	
Arsenic	200.8	0.0005	12/30/13	ND	
Barium	200.7	0.004	12/30/13	ND	
Beryllium	200.8	0.00002	12/30/13	ND	
Cadmium	200.8	0.00002	12/30/13	ND	
Chromium	200.8	0.0002	12/30/13	ND	
Copper	200.7	0.004	12/30/13	ND	
Iron	200.7	0.02	12/30/13	ND	
Lead	200.8	0.00002	12/30/13	ND	
Manganese	200.7	0.001	12/30/13	ND	
Mercury	245.1	0.0002	12/20/13	ND	
Nickel	200.8	0.0002	12/30/13	ND	
Selenium	200.8	0.001	12/30/13	ND	
Silver	200.8	0.00002	12/30/13	ND	
Sodium	200.7	0.2	12/30/13	ND	
Thallium	200.8	0.00002	12/30/13	ND	
Zinc	200.7	0.004	12/30/13	ND	

Comments:

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QA/QC Report

Client :	Longview, City of	**Service Request :**	K1313633
Project Name :	Sentinel Well Program	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	12/20/13
		Date Analyzed :	12/20/13

Duplicate Summary
Total Metals

Sample Name :	Batch QC	**Units :**	mg/L (ppm)
Lab Code :	K1313634-001D	**Basis :**	NA

Analyte	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Mercury	245.1	0.0002	ND	ND	ND	-	

Comments:

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QA/QC Report

Client :	Longview, City of	**Service Request :**	K1313633
Project Name :	Sentinel Well Program	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	12/20/13
		Date Analyzed :	12/20/13

Matrix Spike Summary
Total Metals

Sample Name :	Batch QC	**Units :**	mg/L (ppm)
Lab Code :	K1313634-001S	**Basis :**	NA

Analyte	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Mercury	0.0002	0.0010	ND	0.001	100	70-130	

Comments:

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QA/QC Report

Client :	Longview, City of	**Service Request :**	K1313633
Project Name :	Sentinel Well Program	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	12/27/13
		Date Analyzed :	12/30/13

Duplicate Summary
Total Metals

Sample Name :	Batch QC	**Units :**	mg/L (ppm)
Lab Code :	K1313631-001D	**Basis :**	NA

Analyte	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Antimony	200.8	0.00005	ND	ND	ND	-	
Arsenic	200.8	0.0005	0.007	0.0068	0.0068	3	
Barium	200.7	0.004	0.02	0.016	0.016	22	
Beryllium	200.8	0.00002	ND	ND	ND	-	
Cadmium	200.8	0.00002	ND	ND	ND	-	
Chromium	200.8	0.0002	0.0006	0.0005	0.0005	18	
Copper	200.7	0.004	ND	ND	ND	-	
Iron	200.7	0.02	0.32	0.32	0.32	<1	
Lead	200.8	0.00002	ND	ND	ND	-	
Manganese	200.7	0.001	0.308	0.313	0.311	2	
Nickel	200.8	0.0002	0.0003	0.0003	0.0003	<1	
Selenium	200.8	0.001	ND	ND	ND	-	
Silver	200.8	0.00002	ND	ND	ND	-	
Sodium	200.7	0.2	13.0	13.1	13.0	<1	
Thallium	200.8	0.00002	ND	ND	ND	-	
Zinc	200.7	0.004	ND	ND	ND	-	

Comments:

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QA/QC Report

Client :	Longview, City of	**Service Request :**	K1313633
Project Name :	Sentinel Well Program	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	12/27/13
		Date Analyzed :	12/30/13

Matrix Spike Summary
Total Metals

Sample Name :	Batch QC	**Units :**	mg/L (ppm)
Lab Code :	K1313631-001S	**Basis :**	NA

Analyte	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Antimony	0.00005	0.050	ND	0.054	108	70-130	
Arsenic	0.0005	0.050	0.007	0.062	110	70-130	
Barium	0.004	2.00	0.02	2.13	106	70-130	
Beryllium	0.00002	0.0025	ND	0.0025	100	70-130	
Cadmium	0.00002	0.025	ND	0.027	108	70-130	
Chromium	0.0002	0.010	0.0006	0.011	104	70-130	
Copper	0.004	0.25	ND	0.25	100	70-130	
Iron	0.02	1.00	0.32	1.33	101	70-130	
Lead	0.00002	0.050	ND	0.047	94	70-130	
Manganese	0.001	0.50	0.308	0.82	102	70-130	
Nickel	0.0002	0.025	0.0003	0.026	103	70-130	
Selenium	0.001	0.050	ND	0.055	110	70-130	
Silver	0.00002	0.013	ND	0.013	104	70-130	
Sodium	0.2	10.0	13.0	23.8	108	70-130	
Thallium	0.00002	0.050	ND	0.049	98	70-130	
Zinc	0.004	0.50	ND	0.49	98	70-130	

Comments:

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QA/QC Report

Client :	Longview, City of	**Service Request :**	K1313633
Project Name :	Sentinel Well Program	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	12/20-27/13
		Date Analyzed :	12/20-30/13

Laboratory Control Sample Summary
Total Metals

Sample Name :	Laboratory Control Sample	**Units :**	mg/L (ppm)
Lab Code :	K1313633-LCS	**Basis :**	NA

Analyte	Analysis Method	True Value	Result	Percent	CAS Percent Recovery Acceptance Limits	Result Notes
Antimony	200.8	0.050	0.051	102	85-115	
Arsenic	200.8	0.050	0.050	101	85-115	
Barium	200.7	5.00	5.21	104	85-115	
Beryllium	200.8	0.0025	0.0025	102	85-115	
Cadmium	200.8	0.025	0.025	101	85-115	
Chromium	200.8	0.010	0.010	103	85-115	
Copper	200.7	0.63	0.63	100	85-115	
Iron	200.7	2.50	2.51	101	85-115	
Lead	200.8	0.050	0.048	96	85-115	
Manganese	200.7	1.25	1.26	101	85-115	
Mercury	245.1	0.0050	0.0050	99	85-115	
Nickel	200.8	0.025	0.025	102	85-115	
Selenium	200.8	0.050	0.051	102	85-115	
Silver	200.8	0.013	0.013	101	85-115	
Sodium	200.7	12.5	12.8	102	85-115	
Thallium	200.8	0.050	0.048	97	85-115	
Zinc	200.7	1.25	1.24	100	85-115	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
Analytical Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	DW-1	Units:	ug/L (ppb)
Lab Code:	K1313633-001	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
2,4,5-Trichlorophenol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	1	12/18/2013	12/23/201	ND	
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	1	12/18/2013	12/23/201	ND	
Trichlorosyringol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
Pentachlorophenol	METHOD	1653A	5.0	1	12/18/2013	12/23/201	ND	
Tetrachloroguaiacol	METHOD	1653A	5.0	1	12/18/2013	12/23/201	ND	
Tetrachlorocatechol	METHOD	1653A	5.0	1	12/18/2013	12/23/201	ND	

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
Analytical Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	Method Blank	Units:	ug/L (ppb)
Lab Code:	KWG1313873-3	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
2,4,5-Trichlorophenol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	1	12/18/2013	12/23/201	ND	
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	1	12/18/2013	12/23/201	ND	
Trichlorosyringol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	1	12/18/2013	12/23/201	ND	
Pentachlorophenol	METHOD	1653A	5.0	1	12/18/2013	12/23/201	ND	
Tetrachloroguaiacol	METHOD	1653A	5.0	1	12/18/2013	12/23/201	ND	
Tetrachlorocatechol	METHOD	1653A	5.0	1	12/18/2013	12/23/201	ND	

COLUMBIA ANALYTICAL SERVICES, INC.

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	12/18/2013

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

			Percent Recovery	
	CAS Percent Recovery Acceptance Criteria	Sample Name:	**DW-1**	**Method Blank**
		Lab Code:	K1313633-001	KWG1313873-3
		Date Analyzed:	12/23/201	12/23/201
Analyte				
3,4,5-Trichlorophenol	36-131		69	63
4,5,6-Trichloroguaiacol-13c6	25-134		73	71
Pentachlorophenol-13c6	22-117		73	65
Tetrachloroguaiacol-13c6	18-129		81	74
Tetrachlorocatechol-13c6	D-121		26	66

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Analytical Results

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

EPA Method 504.1

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1313633-001	**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	12/30/13	12/30/13	KWG1314108	
1,2,3-Trichloropropane	ND	U	0.39	1	12/30/13	12/30/13	KWG1314108	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.0096	1	12/30/13	12/30/13	KWG1314108	

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

EPA Method 504.1

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1314108-4	**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	12/30/13	12/30/13	KWG1314108	
1,2,3-Trichloropropane	ND	U	0.40	1	12/30/13	12/30/13	KWG1314108	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.0099	1	12/30/13	12/30/13	KWG1314108	

Comments:

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Extracted:**	12/30/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	12/30/2013

Matrix Spike/Duplicate Matrix Spike Summary
EPA Method 504.1

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1313631-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	504.1	**Extraction Lot:**	KWG1314108

		Batch QCMS KWG1314108-1 Matrix Spike			Batch QCDMS KWG1314108-2 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	0.212	0.242	87	0.206	0.243	85	65-135	3	30
1,2,3-Trichloropropane	ND	0.219	0.242	90	0.219	0.243	90	65-135	0	30
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.214	0.242	88	0.221	0.243	91	65-135	3	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.

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Extracted:**	12/30/2013
Sample Matrix:	Water	**Date Analyzed:**	12/30/2013

Lab Control Spike Summary
EPA Method 504.1

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	504.1	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1314108

	Lab Control Sample KWG1314108-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
1,2-Dibromoethane (EDB)	0.225	0.250	90	70-130
1,2,3-Trichloropropane	0.230	0.250	92	70-130
1,2-Dibromo-3-chloropropane (DBCP)	0.228	0.250	91	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:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Pesticides/PCBs by EPA Method 508.1

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1313633-001	**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	12/27/13	01/03/14	KWG1314093	
Heptachlor	ND	U	0.0098	1	12/27/13	01/03/14	KWG1314093	
Aldrin	ND	U	0.0098	1	12/27/13	01/03/14	KWG1314093	
Heptachlor Epoxide	ND	U	0.0098	1	12/27/13	01/03/14	KWG1314093	
Heptachlor Epoxide (Isomer A)	ND	U	0.0098	1	12/27/13	01/03/14	KWG1314093	
4,4'-DDE	ND	U	0.0098	1	12/27/13	01/03/14	KWG1314093	
Dieldrin	ND	U	0.0098	1	12/27/13	01/03/14	KWG1314093	
Endrin	ND	U	0.0098	1	12/27/13	01/03/14	KWG1314093	
4,4'-DDD	ND	U	0.0098	1	12/27/13	01/03/14	KWG1314093	
4,4'-DDT	ND	U	0.0098	1	12/27/13	01/03/14	KWG1314093	
Methoxychlor	ND	U	0.0098	1	12/27/13	01/03/14	KWG1314093	
Toxaphene	ND	U	0.098	1	12/27/13	01/03/14	KWG1314093	
Chlordane	ND	U	0.098	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1016	ND	U	0.049	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1221	ND	U	0.098	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1232	ND	U	0.098	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1242	ND	U	0.098	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1248	ND	U	0.098	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1254	ND	U	0.098	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1260	ND	U	0.098	1	12/27/13	01/03/14	KWG1314093	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4,4'-Dibromooctafluorobiphenyl	96	70-130	01/03/14	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**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:	KWG1314093-7	**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	12/27/13	01/03/14	KWG1314093	
Heptachlor	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
Aldrin	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
Heptachlor Epoxide	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
Heptachlor Epoxide (Isomer A)	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
4,4'-DDE	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
Dieldrin	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
Endrin	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
4,4'-DDD	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
4,4'-DDT	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
Methoxychlor	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
Toxaphene	ND	U	0.10	1	12/27/13	01/03/14	KWG1314093	
Chlordane	ND	U	0.10	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1016	ND	U	0.050	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1221	ND	U	0.10	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1232	ND	U	0.10	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1242	ND	U	0.10	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1248	ND	U	0.10	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1254	ND	U	0.10	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1260	ND	U	0.10	1	12/27/13	01/03/14	KWG1314093	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4,4'-Dibromooctafluorobiphenyl	92	70-130	01/03/14	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Longview, City of
Project: Sentinel Well Program
Sample Matrix: Drinking water

Service Request: K1313633

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	K1313633-001	96
Batch QC	K1313635-001	81
Method Blank	KWG1314093-7	92
DW-1MS	KWG1314093-1	77
DW-1DMS	KWG1314093-2	75
Batch QCMS	KWG1314093-3	85
Batch QCDMS	KWG1314093-4	86
Lab Control Sample	KWG1314093-5	83

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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Extracted:**	12/27/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/04/2014

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

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1313633-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1	**Extraction Lot:**	KWG1314093

		DW-1MS KWG1314093-1 Matrix Spike			DW-1DMS KWG1314093-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
gamma-BHC (Lindane)	ND	0.0847	0.0971	87	0.0814	0.0971	84	65-135	4	30
Heptachlor	ND	0.0695	0.0971	72	0.0656	0.0971	68	65-135	6	30
Aldrin	ND	0.0864	0.0971	89	0.00673	0.0971	7 *	65-135	171 *	30
Heptachlor Epoxide	ND	0.0870	0.0971	90	0.0872	0.0971	90	65-135	0	30
Heptachlor Epoxide (Isomer A)	ND	0.0704	0.0971	73	0.0701	0.0971	72	65-135	0	30
4,4'-DDE	ND	0.0943	0.0971	97	0.0924	0.0971	95	65-135	2	30
Dieldrin	ND	0.0771	0.0971	79	0.0839	0.0971	86	65-135	8	30
Endrin	ND	0.0690	0.0971	71	0.0758	0.0971	78	65-135	9	30
4,4'-DDD	ND	0.0952	0.0971	98	0.0925	0.0971	95	65-135	3	30
4,4'-DDT	ND	0.0966	0.0971	99	0.0933	0.0971	96	65-135	3	30
Methoxychlor	ND	0.116	0.0971	120	0.114	0.0971	117	65-135	2	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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Extracted:**	12/27/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/04/2014

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

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1313635-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1	**Extraction Lot:**	KWG1314093

		Batch QCMS KWG1314093-3 Matrix Spike			Batch QCDMS KWG1314093-4 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Aroclor 1248	ND	0.422	0.485	87	0.415	0.485	85	65-135	2	30

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Extracted:**	12/27/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/03/2014

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:	KWG1314093

	Lab Control Sample KWG1314093-5 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
gamma-BHC (Lindane)	0.0958	0.100	96	70-130
Heptachlor	0.0862	0.100	86	70-130
Aldrin	0.0995	0.100	100	70-130
Heptachlor Epoxide	0.103	0.100	103	70-130
Heptachlor Epoxide (Isomer A)	0.0784	0.100	78	70-130
4,4'-DDE	0.105	0.100	105	70-130
Dieldrin	0.101	0.100	101	70-130
Endrin	0.104	0.100	104	70-130
4,4'-DDD	0.106	0.100	106	70-130
4,4'-DDT	0.107	0.100	107	70-130
Methoxychlor	0.126	0.100	126	70-130
Aroclor 1248	0.432	0.500	86	70-130

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ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Chlorinated Herbicides by EPA 515.4

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1313633-001	**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	2.0	1	12/31/13	01/10/14	KWG1314150	
3,5-Dichlorobenzoic Acid	ND	U	0.50	1	12/31/13	01/10/14	KWG1314150	
Dicamba	ND	U	0.20	1	12/31/13	01/10/14	KWG1314150	
Dichlorprop	ND	U	0.50	1	12/31/13	01/10/14	KWG1314150	
2,4-D	ND	U	0.20	1	12/31/13	01/10/14	KWG1314150	
Pentachlorophenol	ND	U	0.080	1	12/31/13	01/10/14	KWG1314150	
2,4,5-TP (Silvex)	ND	U	0.40	1	12/31/13	01/10/14	KWG1314150	
2,4,5-T	ND	U	0.40	1	12/31/13	01/10/14	KWG1314150	
Chloramben	ND	U	0.30	1	12/31/13	01/10/14	KWG1314150	
2,4-DB	ND	U	1.0	1	12/31/13	01/10/14	KWG1314150	
Dinoseb	ND	U	0.40	1	12/31/13	01/10/14	KWG1314150	
Bentazon	ND	U	0.50	1	12/31/13	01/10/14	KWG1314150	
Dacthal Diacid	ND	U	0.10	1	12/31/13	01/10/14	KWG1314150	
Picloram	ND	U	0.20	1	12/31/13	01/10/14	KWG1314150	
Acifluorfen	ND	U	2.0	1	12/31/13	01/10/14	KWG1314150	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2,4-Dichlorophenylacetic Acid	119	70-130	01/10/14	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**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:	KWG1314150-4	**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	2.0	1	12/31/13	01/10/14	KWG1314150	
3,5-Dichlorobenzoic Acid	ND	U	0.50	1	12/31/13	01/10/14	KWG1314150	
Dicamba	ND	U	0.20	1	12/31/13	01/10/14	KWG1314150	
Dichlorprop	ND	U	0.50	1	12/31/13	01/10/14	KWG1314150	
2,4-D	ND	U	0.20	1	12/31/13	01/10/14	KWG1314150	
Pentachlorophenol	ND	U	0.080	1	12/31/13	01/10/14	KWG1314150	
2,4,5-TP (Silvex)	ND	U	0.40	1	12/31/13	01/10/14	KWG1314150	
2,4,5-T	ND	U	0.40	1	12/31/13	01/10/14	KWG1314150	
Chloramben	ND	U	0.30	1	12/31/13	01/10/14	KWG1314150	
2,4-DB	ND	U	1.0	1	12/31/13	01/10/14	KWG1314150	
Dinoseb	ND	U	0.40	1	12/31/13	01/10/14	KWG1314150	
Bentazon	ND	U	0.50	1	12/31/13	01/10/14	KWG1314150	
Dacthal Diacid	ND	U	0.10	1	12/31/13	01/10/14	KWG1314150	
Picloram	ND	U	0.20	1	12/31/13	01/10/14	KWG1314150	
Acifluorfen	ND	U	2.0	1	12/31/13	01/10/14	KWG1314150	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2,4-Dichlorophenylacetic Acid	98	70-130	01/10/14	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Longview, City of
Project: Sentinel Well Program
Sample Matrix: Drinking water

Service Request: K1313633

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-1	K1313633-001	119
Method Blank	KWG1314150-4	98
DW-1MS	KWG1314150-1	99
DW-1DMS	KWG1314150-2	100
Lab Control Sample	KWG1314150-3	98

Surrogate Recovery Control Limits (%)

Sur1 = 2,4-Dichlorophenylacetic Acid 70-130

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:**	K1313633
Project:	Sentinel Well Program	**Date Extracted:**	12/31/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/10/2014

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

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1313633-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	515.4	**Extraction Lot:**	KWG1314150

		DW-1MS KWG1314150-1 Matrix Spike			DW-1DMS KWG1314150-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dalapon	ND	4.97	4.95	100	5.46	4.95	110	70-130	10	30
3,5-Dichlorobenzoic Acid	ND	5.17	4.95	104	5.14	4.95	104	70-130	1	30
Dicamba	ND	4.80	4.95	97	4.73	4.95	96	70-130	1	30
Dichlorprop	ND	4.86	4.95	98	4.76	4.95	96	70-130	2	30
2,4-D	ND	5.11	4.95	103	5.07	4.95	102	70-130	1	30
Pentachlorophenol	ND	4.64	4.95	94	4.69	4.95	95	70-130	1	30
2,4,5-TP (Silvex)	ND	4.63	4.95	93	4.56	4.95	92	70-130	1	30
2,4,5-T	ND	5.09	4.95	103	5.03	4.95	102	70-130	1	30
Chloramben	ND	5.66	4.95	114	5.55	4.95	112	70-130	2	30
2,4-DB	ND	5.56	4.95	112	5.52	4.95	111	70-130	1	30
Dinoseb	ND	4.90	4.95	99	4.97	4.95	101	70-130	1	30
Bentazon	ND	5.37	4.95	108	5.18	4.95	105	70-130	4	30
Dacthal Diacid	ND	5.48	4.95	111	5.53	4.95	112	70-130	1	30
Picloram	ND	5.53	4.95	112	5.46	4.95	110	70-130	1	30
Acifluorfen	ND	5.05	4.95	102	5.06	4.95	102	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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Extracted:**	12/31/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/10/2014

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:	KWG1314150

	Lab Control Sample KWG1314150-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Dalapon	5.45	5.00	109	70-130
3,5-Dichlorobenzoic Acid	5.08	5.00	102	70-130
Dicamba	4.73	5.00	95	70-130
Dichlorprop	4.88	5.00	98	70-130
2,4-D	5.11	5.00	102	70-130
Pentachlorophenol	4.81	5.00	96	70-130
2,4,5-TP (Silvex)	4.67	5.00	93	70-130
2,4,5-T	5.08	5.00	102	70-130
Chloramben	5.89	5.00	118	70-130
2,4-DB	5.46	5.00	109	70-130
Dinoseb	4.99	5.00	100	70-130
Bentazon	5.27	5.00	105	70-130
Dacthal Diacid	5.02	5.00	100	70-130
Picloram	4.99	5.00	100	70-130
Acifluorfen	4.98	5.00	100	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.

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Volatile Organic Compounds

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1313633-001	**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	12/26/13	12/26/13	KWG1314049	
Chloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Vinyl Chloride	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromomethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Chloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Trichlorofluoromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Methylene Chloride	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
trans-1,2-Dichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
cis-1,2-Dichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1-Dichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Methyl tert-Butyl Ether	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Chloroform	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromochloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Carbon Tetrachloride	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Benzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Trichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromodichloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Dibromomethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
cis-1,3-Dichloropropene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Toluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1-Dichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
trans-1,3-Dichloropropene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Tetrachloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,3-Dichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
2,2-Dichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Dibromochloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Chlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Ethylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Styrene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
m,p-Xylenes	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	

Comments:

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Volatile Organic Compounds

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1313633-001	**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	12/26/13	12/26/13	KWG1314049	
1,1,1-Trichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromoform	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Isopropylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1-Dichloropropene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
n-Propylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,3,5-Trimethylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
2-Chlorotoluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
4-Chlorotoluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
tert-Butylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,4-Trimethylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
sec-Butylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
p-Isopropyltoluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,3-Dichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,4-Dichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
n-Butylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,4-Trichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Hexachlorobutadiene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Naphthalene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1,2-Trichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,3-Trichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,3-Trichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Volatile Organic Compounds

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1313633-001	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	93	70-130	12/26/13	Acceptable
Dibromofluoromethane	105	82-124	12/26/13	Acceptable
Toluene-d8	105	82-124	12/26/13	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Volatile Organic Compounds

Sample Name:	Trip Blank	**Units:**	ug/L
Lab Code:	K1313633-002	**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	12/26/13	12/26/13	KWG1314049	
Chloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Vinyl Chloride	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromomethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Chloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Trichlorofluoromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Methylene Chloride	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
trans-1,2-Dichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
cis-1,2-Dichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1-Dichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Methyl tert-Butyl Ether	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Chloroform	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromochloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Carbon Tetrachloride	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Benzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Trichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromodichloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Dibromomethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
cis-1,3-Dichloropropene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Toluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1-Dichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
trans-1,3-Dichloropropene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Tetrachloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,3-Dichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
2,2-Dichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Dibromochloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Chlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Ethylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Styrene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
m,p-Xylenes	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	

Comments:

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Volatile Organic Compounds

Sample Name:	Trip Blank	**Units:**	ug/L
Lab Code:	K1313633-002	**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	12/26/13	12/26/13	KWG1314049	
1,1,1-Trichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromoform	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Isopropylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1-Dichloropropene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
n-Propylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,3,5-Trimethylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
2-Chlorotoluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
4-Chlorotoluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
tert-Butylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,4-Trimethylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
sec-Butylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
p-Isopropyltoluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,3-Dichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,4-Dichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
n-Butylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,4-Trichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Hexachlorobutadiene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Naphthalene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1,2-Trichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,3-Trichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,3-Trichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Volatile Organic Compounds

Sample Name:	Trip Blank	**Units:**	ug/L
Lab Code:	K1313633-002	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	98	70-130	12/26/13	Acceptable
Dibromofluoromethane	104	82-124	12/26/13	Acceptable
Toluene-d8	106	82-124	12/26/13	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1314049-4	**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	12/26/13	12/26/13	KWG1314049	
Chloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Vinyl Chloride	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromomethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Chloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Trichlorofluoromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Methylene Chloride	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
trans-1,2-Dichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
cis-1,2-Dichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1-Dichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Methyl tert-Butyl Ether	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Chloroform	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromochloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Carbon Tetrachloride	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Benzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Trichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromodichloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Dibromomethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
cis-1,3-Dichloropropene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Toluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1-Dichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
trans-1,3-Dichloropropene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Tetrachloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,3-Dichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
2,2-Dichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Dibromochloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Chlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Ethylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Styrene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
m,p-Xylenes	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	

Comments:

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1314049-4	**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	12/26/13	12/26/13	KWG1314049	
1,1,1-Trichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromoform	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Isopropylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1-Dichloropropene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
n-Propylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,3,5-Trimethylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
2-Chlorotoluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
4-Chlorotoluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
tert-Butylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,4-Trimethylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
sec-Butylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
p-Isopropyltoluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,3-Dichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,4-Dichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
n-Butylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,4-Trichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Hexachlorobutadiene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Naphthalene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1,2-Trichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,3-Trichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,3-Trichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1314049-4	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	94	70-130	12/26/13	Acceptable
Dibromofluoromethane	105	82-124	12/26/13	Acceptable
Toluene-d8	107	82-124	12/26/13	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Longview, City of
Project: Sentinel Well Program
Sample Matrix: Drinking water

Service Request: K1313633

Surrogate Recovery Summary
Volatile Organic Compounds

Extraction Method: METHOD
Analysis Method: 524.2

Units: Percent
Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
DW-1	K1313633-001	93	105	105
Trip Blank	K1313633-002	98	104	106
Method Blank	KWG1314049-4	94	105	107
DW-1MS	KWG1314049-1	116	105	113
DW-1DMS	KWG1314049-2	114	107	116
Lab Control Sample	KWG1314049-3	116	107	116

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:**	K1313633
Project:	Sentinel Well Program	**Date Extracted:**	12/26/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	12/26/2013

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1313633-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2	**Extraction Lot:**	KWG1314049

		DW-1MS KWG1314049-1 Matrix Spike			DW-1DMS KWG1314049-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dichlorodifluoromethane	ND	5.95	5.00	119	5.44	5.00	109	70-130	9	30
Chloromethane	ND	4.55	5.00	91	4.20	5.00	84	70-130	8	30
Vinyl Chloride	ND	4.94	5.00	99	4.72	5.00	94	70-130	5	30
Bromomethane	ND	5.82	5.00	116	5.79	5.00	116	70-130	1	30
Chloroethane	ND	4.61	5.00	92	4.54	5.00	91	70-130	2	30
Trichlorofluoromethane	ND	5.55	5.00	111	5.15	5.00	103	70-130	7	30
Methylene Chloride	ND	4.88	5.00	98	4.89	5.00	98	70-130	0	30
trans-1,2-Dichloroethene	ND	5.00	5.00	100	4.89	5.00	98	70-130	2	30
cis-1,2-Dichloroethene	ND	4.87	5.00	97	4.82	5.00	96	70-130	1	30
1,1-Dichloroethene	ND	5.53	5.00	111	5.35	5.00	107	70-130	3	30
Methyl tert-Butyl Ether	ND	8.74	10.0	87	9.02	10.0	90	70-130	3	30
Chloroform	ND	4.90	5.00	98	4.88	5.00	98	70-130	0	30
Bromochloromethane	ND	5.18	5.00	104	5.15	5.00	103	70-130	1	30
Carbon Tetrachloride	ND	5.59	5.00	112	5.30	5.00	106	70-130	5	30
Benzene	ND	4.70	5.00	94	4.61	5.00	92	70-130	2	30
1,2-Dichloroethane	ND	4.70	5.00	94	4.82	5.00	96	70-130	3	30
Trichloroethene	ND	5.05	5.00	101	4.96	5.00	99	70-130	2	30
1,2-Dichloropropane	ND	4.37	5.00	87	4.44	5.00	89	70-130	2	30
Bromodichloromethane	ND	4.99	5.00	100	4.89	5.00	98	70-130	2	30
Dibromomethane	ND	4.83	5.00	97	5.00	5.00	100	70-130	3	30
cis-1,3-Dichloropropene	ND	4.77	5.00	95	4.78	5.00	96	70-130	0	30
Toluene	ND	5.11	5.00	102	5.14	5.00	103	70-130	1	30
1,1-Dichloroethane	ND	4.57	5.00	91	4.50	5.00	90	70-130	2	30
trans-1,3-Dichloropropene	ND	4.27	5.00	85	4.22	5.00	84	70-130	1	30
Tetrachloroethene	ND	5.57	5.00	111	5.28	5.00	106	70-130	5	30
2,2-Dichloropropane	ND	5.13	5.00	103	4.90	5.00	98	70-130	5	30
1,3-Dichloropropane	ND	4.51	5.00	90	4.55	5.00	91	70-130	1	30
Dibromochloromethane	ND	4.78	5.00	96	4.74	5.00	95	70-130	1	30
1,2-Dibromoethane (EDB)	ND	4.85	5.00	97	5.04	5.00	101	70-130	4	30
Chlorobenzene	ND	4.99	5.00	100	4.85	5.00	97	70-130	3	30
Ethylbenzene	ND	5.24	5.00	105	5.14	5.00	103	70-130	2	30
Styrene	ND	5.50	5.00	110	5.40	5.00	108	70-130	2	30
m,p-Xylenes	ND	11.6	10.0	116	11.3	10.0	113	70-130	2	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:**	K1313633
Project:	Sentinel Well Program	**Date Extracted:**	12/26/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	12/26/2013

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1313633-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2	**Extraction Lot:**	KWG1314049

		DW-1MS KWG1314049-1 Matrix Spike			DW-1DMS KWG1314049-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
o-Xylene	ND	5.30	5.00	106	5.16	5.00	103	70-130	3	30
1,1,1-Trichloroethane	ND	5.25	5.00	105	5.07	5.00	101	70-130	3	30
1,1,2,2-Tetrachloroethane	ND	3.82	5.00	76	3.97	5.00	79	70-130	4	30
Bromoform	ND	4.80	5.00	96	4.82	5.00	96	70-130	0	30
Isopropylbenzene	ND	5.85	5.00	117	5.63	5.00	113	70-130	4	30
1,1-Dichloropropene	ND	5.30	5.00	106	5.08	5.00	102	70-130	4	30
Bromobenzene	ND	4.26	5.00	85	4.30	5.00	86	70-130	1	30
n-Propylbenzene	ND	4.54	5.00	91	4.50	5.00	90	70-130	1	30
1,3,5-Trimethylbenzene	ND	4.89	5.00	98	4.90	5.00	98	70-130	0	30
2-Chlorotoluene	ND	4.46	5.00	89	4.43	5.00	89	70-130	1	30
4-Chlorotoluene	ND	4.61	5.00	92	4.57	5.00	91	70-130	1	30
tert-Butylbenzene	ND	4.88	5.00	98	4.83	5.00	97	70-130	1	30
1,2,4-Trimethylbenzene	ND	4.87	5.00	97	4.88	5.00	98	70-130	0	30
sec-Butylbenzene	ND	4.90	5.00	98	4.84	5.00	97	70-130	1	30
p-Isopropyltoluene	ND	4.98	5.00	100	4.94	5.00	99	70-130	1	30
1,3-Dichlorobenzene	ND	4.54	5.00	91	4.63	5.00	93	70-130	2	30
1,4-Dichlorobenzene	ND	4.47	5.00	89	4.44	5.00	89	70-130	1	30
n-Butylbenzene	ND	4.68	5.00	94	4.60	5.00	92	70-130	2	30
1,2-Dichlorobenzene	ND	4.56	5.00	91	4.55	5.00	91	70-130	0	30
1,2-Dibromo-3-chloropropane (DBCP)	ND	3.76	5.00	75	4.01	5.00	80	70-130	6	30
1,2,4-Trichlorobenzene	ND	4.25	5.00	85	4.34	5.00	87	70-130	2	30
Hexachlorobutadiene	ND	4.76	5.00	95	4.68	5.00	94	70-130	2	30
Naphthalene	ND	4.11	5.00	82	4.21	5.00	84	70-130	2	30
1,1,2-Trichloroethane	ND	4.47	5.00	89	4.56	5.00	91	70-130	2	30
1,1,1,2-Tetrachloroethane	ND	5.12	5.00	102	5.05	5.00	101	70-130	1	30
1,2,3-Trichloropropane	ND	4.10	5.00	82	4.45	5.00	89	70-130	8	30
1,2,3-Trichlorobenzene	ND	4.60	5.00	92	4.69	5.00	94	70-130	2	30

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Extracted:**	12/26/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	12/26/2013

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	524.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1314049

	Lab Control Sample KWG1314049-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Dichlorodifluoromethane	5.77	5.00	115	70-130
Chloromethane	4.46	5.00	89	70-130
Vinyl Chloride	4.97	5.00	99	70-130
Bromomethane	5.80	5.00	116	70-130
Chloroethane	4.61	5.00	92	70-130
Trichlorofluoromethane	5.61	5.00	112	70-130
Methylene Chloride	4.80	5.00	96	70-130
trans-1,2-Dichloroethene	5.11	5.00	102	70-130
cis-1,2-Dichloroethene	4.89	5.00	98	70-130
1,1-Dichloroethene	5.58	5.00	112	70-130
Methyl tert-Butyl Ether	8.75	10.0	88	70-130
Chloroform	5.04	5.00	101	70-130
Bromochloromethane	5.11	5.00	102	70-130
Carbon Tetrachloride	5.65	5.00	113	70-130
Benzene	4.69	5.00	94	70-130
1,2-Dichloroethane	4.75	5.00	95	70-130
Trichloroethene	5.00	5.00	100	70-130
1,2-Dichloropropane	4.38	5.00	88	70-130
Bromodichloromethane	4.90	5.00	98	70-130
Dibromomethane	4.89	5.00	98	70-130
cis-1,3-Dichloropropene	4.88	5.00	98	70-130
Toluene	5.13	5.00	103	70-130
1,1-Dichloroethane	4.52	5.00	90	70-130
trans-1,3-Dichloropropene	4.12	5.00	82	70-130
Tetrachloroethene	5.50	5.00	110	70-130
2,2-Dichloropropane	5.09	5.00	102	70-130
1,3-Dichloropropane	4.51	5.00	90	70-130
Dibromochloromethane	4.78	5.00	96	70-130
1,2-Dibromoethane (EDB)	4.87	5.00	97	70-130
Chlorobenzene	4.98	5.00	100	70-130
Ethylbenzene	5.16	5.00	103	70-130
Styrene	5.43	5.00	109	70-130
m,p-Xylenes	11.5	10.0	115	70-130
o-Xylene	5.18	5.00	104	70-130
1,1,1-Trichloroethane	5.23	5.00	105	70-130

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Extracted:**	12/26/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	12/26/2013

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	524.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1314049

	Lab Control Sample KWG1314049-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
1,1,2,2-Tetrachloroethane	3.92	5.00	78	70-130
Bromoform	4.77	5.00	95	70-130
Isopropylbenzene	5.78	5.00	116	70-130
1,1-Dichloropropene	5.28	5.00	106	70-130
Bromobenzene	4.35	5.00	87	70-130
n-Propylbenzene	4.59	5.00	92	70-130
1,3,5-Trimethylbenzene	4.91	5.00	98	70-130
2-Chlorotoluene	4.44	5.00	89	70-130
4-Chlorotoluene	4.64	5.00	93	70-130
tert-Butylbenzene	4.89	5.00	98	70-130
1,2,4-Trimethylbenzene	4.92	5.00	98	70-130
sec-Butylbenzene	4.93	5.00	99	70-130
p-Isopropyltoluene	5.05	5.00	101	70-130
1,3-Dichlorobenzene	4.54	5.00	91	70-130
1,4-Dichlorobenzene	4.40	5.00	88	70-130
n-Butylbenzene	4.70	5.00	94	70-130
1,2-Dichlorobenzene	4.62	5.00	92	70-130
1,2-Dibromo-3-chloropropane (DBCP)	3.99	5.00	80	70-130
1,2,4-Trichlorobenzene	4.24	5.00	85	70-130
Hexachlorobutadiene	4.83	5.00	97	70-130
Naphthalene	4.21	5.00	84	70-130
1,1,2-Trichloroethane	4.53	5.00	91	70-130
1,1,1,2-Tetrachloroethane	5.09	5.00	102	70-130
1,2,3-Trichloropropane	4.33	5.00	87	70-130
1,2,3-Trichlorobenzene	4.73	5.00	95	70-130

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ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Semivolatile Organics by EPA Method 525.2

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1313633-001	**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	12/27/13	01/07/14	KWG1314092	
Fluorene	ND	U	0.049	1	12/27/13	01/07/14	KWG1314092	
Propachlor	ND	U	0.098	1	12/27/13	01/07/14	KWG1314092	
Hexachlorobenzene	ND	U	0.098	1	12/27/13	01/07/14	KWG1314092	
Simazine	ND	U	0.049	1	12/27/13	01/07/14	KWG1314092	
Atrazine	ND	U	0.098	1	12/27/13	01/07/14	KWG1314092	
Metribuzin	ND	U	0.20	1	12/27/13	01/07/14	KWG1314092	
Alachlor	ND	U	0.070	1	12/27/13	01/07/14	KWG1314092	
Bromacil	ND	U	0.20	1	12/27/13	01/07/14	KWG1314092	
Metolachlor	ND	U	0.088	1	12/27/13	01/07/14	KWG1314092	
Butachlor	ND	U	0.098	1	12/27/13	01/07/14	KWG1314092	
Bis(2-ethylhexyl) Adipate	ND	U	0.59	1	12/27/13	01/07/14	KWG1314092	
Bis(2-ethylhexyl) Phthalate	ND	U	0.59	1	12/27/13	01/07/14	KWG1314092	
Benzo(a)pyrene	ND	U	0.020	1	12/27/13	01/07/14	KWG1314092	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,3-Dimethyl-2-nitrobenzene	81	70-130	01/07/14	Acceptable
Triphenyl Phosphate	71	70-130	01/07/14	Acceptable
Perylene-d12	39	70-130	01/07/14	Outside Control Limits

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Semivolatile Organics by EPA Method 525.2

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1314092-4	**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	12/27/13	01/07/14	KWG1314092	
Fluorene	ND	U	0.050	1	12/27/13	01/07/14	KWG1314092	
Propachlor	ND	U	0.10	1	12/27/13	01/07/14	KWG1314092	
Hexachlorobenzene	ND	U	0.10	1	12/27/13	01/07/14	KWG1314092	
Simazine	ND	U	0.050	1	12/27/13	01/07/14	KWG1314092	
Atrazine	ND	U	0.10	1	12/27/13	01/07/14	KWG1314092	
Metribuzin	ND	U	0.20	1	12/27/13	01/07/14	KWG1314092	
Alachlor	ND	U	0.072	1	12/27/13	01/07/14	KWG1314092	
Bromacil	ND	U	0.20	1	12/27/13	01/07/14	KWG1314092	
Metolachlor	ND	U	0.090	1	12/27/13	01/07/14	KWG1314092	
Butachlor	ND	U	0.10	1	12/27/13	01/07/14	KWG1314092	
Bis(2-ethylhexyl) Adipate	ND	U	0.60	1	12/27/13	01/07/14	KWG1314092	
Bis(2-ethylhexyl) Phthalate	ND	U	0.60	1	12/27/13	01/07/14	KWG1314092	
Benzo(a)pyrene	ND	U	0.020	1	12/27/13	01/07/14	KWG1314092	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,3-Dimethyl-2-nitrobenzene	80	70-130	01/07/14	Acceptable
Triphenyl Phosphate	69	70-130	01/07/14	Outside Control Limits
Perylene-d12	75	70-130	01/07/14	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Longview, City of
Project: Sentinel Well Program
Sample Matrix: Drinking water

Service Request: K1313633

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	K1313631-001	80	75	69 *
DW-1	K1313633-001	81	71	39 *
Method Blank	KWG1314092-4	80	69 *	75
Batch QCMS	KWG1314092-1	76	72	77
Batch QCDMS	KWG1314092-2	78	74	80
Lab Control Sample	KWG1314092-3	79	76	79

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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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Extracted:**	12/27/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/07/2014

Matrix Spike/Duplicate Matrix Spike Summary
Semivolatile Organics by EPA Method 525.2

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1313631-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	525.2	**Extraction Lot:**	KWG1314092

		Batch QCMS KWG1314092-1 Matrix Spike				Batch QCDMS KWG1314092-2 Duplicate Matrix Spike						
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**		**Result**	**Spike Amount**	**%Rec**		**%Rec Limits**	**RPD**	**RPD Limit**
Hexachlorocyclopentadiene	ND	0.828	0.971	85		0.876	0.971	90		70-130	6	30
Fluorene	ND	0.792	0.971	82		0.778	0.971	80		70-130	2	30
Propachlor	ND	0.772	0.971	80		0.811	0.971	84		70-130	5	30
Hexachlorobenzene	ND	0.721	0.971	74		0.721	0.971	74		70-130	0	30
Simazine	ND	0.635	0.971	65	*	0.618	0.971	64	*	70-130	3	30
Atrazine	ND	0.709	0.971	73		0.715	0.971	74		70-130	1	30
Metribuzin	ND	0.789	0.971	81		0.788	0.971	81		70-130	0	30
Alachlor	ND	0.716	0.971	74		0.736	0.971	76		70-130	3	30
Bromacil	ND	0.882	0.971	91		0.915	0.971	94		70-130	4	30
Metolachlor	ND	0.745	0.971	77		0.757	0.971	78		70-130	2	30
Butachlor	ND	0.751	0.971	77		0.775	0.971	80		70-130	3	30
Bis(2-ethylhexyl) Adipate	ND	0.830	0.971	85		0.865	0.971	89		70-130	4	30
Bis(2-ethylhexyl) Phthalate	ND	0.880	0.971	91		0.929	0.971	96		70-130	5	30
Benzo(a)pyrene	ND	0.702	0.971	72		0.613	0.971	63	*	70-130	14	30

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Extracted:**	12/27/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/07/2014

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:	KWG1314092

	Lab Control Sample KWG1314092-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Hexachlorocyclopentadiene	0.839	1.00	84	70-130
Fluorene	0.814	1.00	81	70-130
Propachlor	0.803	1.00	80	70-130
Hexachlorobenzene	0.750	1.00	75	70-130
Simazine	0.741	1.00	74	70-130
Atrazine	0.763	1.00	76	70-130
Metribuzin	0.839	1.00	84	70-130
Alachlor	0.765	1.00	77	70-130
Bromacil	0.940	1.00	94	70-130
Metolachlor	0.812	1.00	81	70-130
Butachlor	0.791	1.00	79	70-130
Bis(2-ethylhexyl) Adipate	0.824	1.00	82	70-130
Bis(2-ethylhexyl) Phthalate	0.851	1.00	85	70-130
Benzo(a)pyrene	0.848	1.00	85	70-130

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ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Endothall by EPA Method 548.1

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1313633-001	**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	12/19/13	01/07/14	KWG1313919	

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**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:	KWG1313919-4	**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	12/19/13	01/07/14	KWG1313919	

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Extracted:**	12/19/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/07/2014 - 01/08/2014

Matrix Spike/Duplicate Matrix Spike Summary
Endothall by EPA Method 548.1

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1313635-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	548.1	**Extraction Lot:**	KWG1313919

		Batch QCMS KWG1313919-1 Matrix Spike			Batch QCDMS KWG1313919-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Endothall	ND	115	100	115	118	100	118	30-142	3	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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Extracted:**	12/19/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/07/2014

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:	KWG1313919

	Lab Control Sample KWG1313919-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Endothall	117	100	117	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.

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Diquat and Paraquat by EPA Method 549.2

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1313633-001	**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	12/23/13	01/08/14	KWG1314030	
Paraquat	ND	U	0.80	1	12/23/13	01/08/14	KWG1314030	

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**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:	KWG1314030-5	**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	12/23/13	01/08/14	KWG1314030	
Paraquat	ND	U	0.80	1	12/23/13	01/08/14	KWG1314030	

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Extracted:**	12/23/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/08/2014

Matrix Spike/Duplicate Matrix Spike Summary
Diquat and Paraquat by EPA Method 549.2

Sample Name:	DW-1	**Units:**	ug/L
Lab Code:	K1313633-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	549.2	**Extraction Lot:**	KWG1314030

		DW-1MS KWG1314030-1 Matrix Spike			DW-1DMS KWG1314030-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Diquat	ND	12.3	12.0	103	12.2	12.0	102	70-130	1	30
Paraquat	ND	11.2	12.0	93	10.1	12.0	84	70-130	11	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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313633
Project:	Sentinel Well Program	**Date Extracted:**	12/23/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/08/2014

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:	KWG1314030

	Lab Control Sample KWG1314030-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Diquat	11.6	12.0	96	70-130
Paraquat	10.3	12.0	86	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 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: CT PH-0224 , DE ID 11 , GA 914 , MA PA0102 , MD 128 , LA 04162 , VA 421 , WY EPA Region 8 , WV 343

January 3, 2014

Ms. Chris Leaf
ALS Environmental - Kelso
1317 S. 13th Avenue
Kelso, WA 98626

Certificate of Analysis

Project Name:	**SOCs**	Workorder:	**1064427**
Purchase Order:	**K1313633**	Workorder ID:	**K1313633**

Dear Ms. Leaf,

Enclosed are the analytical results for samples received by the laboratory on Friday, December 20, 2013.

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 Kelli 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

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Kelli Wolfgang
Project Coordinator

ALS Environmental

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SAMPLE SUMMARY

Workorder: 1064427 K1313633 Discard Date: 01/17/2014

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
1064427001	K1313633-001	Drinking Water	12/17/13 11:00	12/20/13 10:40	Customer

Workorder Comments:

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 performed 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, B	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

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ANALYTICAL RESULTS

Workorder: 1064427 K1313633

Lab ID: **1064427001** Date Collected: 12/17/2013 11:00 Matrix: Drinking Water

Sample ID: **K1313633-001** Date Received: 12/20/2013 10:40

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
HERBICIDES										
Glyphosate	ND	1	ug/L	25.0	EPA 547			12/30/13 15:07	AJL	D
CARBAMATES										
Aldicarb	ND		ug/L	1.0	EPA 531.1			1/3/14 07:34	CGS	A
Aldicarb Sulfone	ND		ug/L	1.0	EPA 531.1			1/3/14 07:34	CGS	A
Aldicarb Sulfoxide	ND		ug/L	1.0	EPA 531.1			1/3/14 07:34	CGS	A
Carbaryl	ND		ug/L	1.0	EPA 531.1			1/3/14 07:34	CGS	A
Carbofuran	ND		ug/L	1.0	EPA 531.1			1/3/14 07:34	CGS	A
3-Hydroxycarbofuran	ND		ug/L	1.0	EPA 531.1			1/3/14 07:34	CGS	A
Methiocarb	ND		ug/L	1.0	EPA 531.1			1/3/14 07:34	CGS	A
Methomyl	ND		ug/L	1.0	EPA 531.1			1/3/14 07:34	CGS	A
Oxamyl	ND		ug/L	1.0	EPA 531.1			1/3/14 07:34	CGS	A
Propoxur	ND		ug/L	1.0	EPA 531.1			1/3/14 07:34	CGS	A

Sample Comments:

Kelli Wolfgang
Project Coordinator

ALS Environmental
34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

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ANALYTICAL RESULTS QUALIFIERS\FLAGS

Workorder: 1064427 K1313633

PARAMETER QUALIFIERS\FLAGS

[1] The QC sample type MS for method EPA 547 was outside the control limits for the analyte Glyphosate. The % Recovery was reported as 138 and the control limits were 70 to 130.

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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

1064427

Project Number: K1313633
Project Manager: Chris Leaf

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	CARBAM 531.1	GLYPH 547
K1313633-001	DW-1	6	Drinking Water	12/17/13	1100	Middletown	X	X

Test Comments

CARBAM - 531.1	K1313633-001	INSECT1 TEST PANEL
GLYPH - 547	K1313633-001	GLYPH TEST PANEL

12/20/13 1650

	Y	N	Initials
Custody Seals Present?	✓		BLS
(if present) Seals Intact?	✓		
Received on Ice?	✓		
COC/Labels Complete/Accurate	✓		
Cont in Good Cond?	✓		
Correct Containers?	✓		
Correct Sample Volumes?	✓		
Correct Preservation?	✓		
Headspace/Volatiles?	✓		

Tracking #:

Cooler Temp: 1
Cooler #:
Therm ID: TH-21S
Ship Carrier: FedEx UPS DHL Other:

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

CL 12/18/13

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: 01/03/14

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# K1313633 ✓
Bill to

Relinquished By: 12/19/13 Received By: B. Schaeffer 12/20/13 10:40 Airbill Number: 5478 9729 6101

Page 1

K1313633

Ship To: Middletown
ALS Laboratory Group
34 Dogwood Lane
Middletown, PA 17057

PC Date 12/18/13
SMO Date 12/19/13

Instructions:
Ice ✓
Dry Ice
No Ice
Bill to Client Account

Shipping:
Overnight ✓
2nd Day
Ground

Comments:

ALS Group USA, Corp.
www.alsglobal.com
An ALS Limited Company

LABORATORY REPORT

January 2, 2014

Jeff Coleman
Longview, City of
W/S Operation Center
Longview, WA 98632

RE: Sentinel Well Program

Dear Jeff:

Enclosed are the results of the sample submitted to our laboratory on December 17, 2013. For your reference, this analysis has been assigned our service request number K1313633.

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, Jan 02, 2014

For Kate Aguilera
Project Manager

Client: Longview, City of
Project: Sentinel Well Program

Service Request No: K1313633

CASE NARRATIVE

The sample was received intact under chain of custody on December 17, 2013 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.

Sulfur Analysis

The sample was analyzed for twenty sulfur compounds using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

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

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

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	L11-203
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	581572
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.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: Longview, City of

Project ID: Sentinel Well Program

Service Request: K1313633

Date Received: 12/17/2013

Time Received: 16:20

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Sulfur Liq - Sulfur	300.0 - Br	300.0 - Chloride	314.0 - ClO4	SM 2120 B - Color	SM 2510 B - Conductivity	300.0 - F
DW-1	K1313633-001	inking Wa	12/17/2013	11:00	X	X	X	X	X	X	X
Trip Blank	K1313633-002	inking Wa	12/17/2013	11:00							

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
K1313633-001	DW-1	CL ~~4~~ 3	Drinking Water	12/17/13	1100	12/17/13	SIMIVALLEY	I

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

CL 12/18/13

Turnaround Requirements
____**RUSH** (Surcharges Apply)
PLEASE CIRCLE WORK DAYS
1 2 3 4 5
✓ **STANDARD**
Requested FAX Date: _____
Requested Report Date: 01/03/14

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# K1313633 ✓
Bill to

Relinquished By: [illegible] 12/19/13
Received By: Kelly Hmm 12/21/13 1140am
temp Blank 3°C frozen Blue ice
Airbill Number:

ALS Environmental
Sample Acceptance Check Form

Client: Longview, City of Work order: K1313633
Project: Sentinel Well Program
Sample(s) received on: 12/21/13 Date opened: 12/21/13 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: 3° C **Gel Packs**			
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☒	☐	☐
	Location of seal(s)? Front of cooler, covering opening. 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
K1313633-001.01	40mL VOA NP		7	1	A	MC 12/30/2013
K1313633-001.02	40mL VOA NP				A	
K1313633-001.03	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 Sample ID: **DW-1**
Client Project ID: **Sentinel Well Program**

ALS Project ID: K1313633
ALS Sample ID: K1313633-001

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: Drinking Water
Test Notes:

Date Collected: 12/17/13
Date Received: 12/17/13
Date Analyzed: 12/30/13
Liquid Amount: 10.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	0.21	
463-58-1	Carbonyl Sulfide	ND	0.37	
74-93-1	Methyl Mercaptan	ND	0.30	
75-08-1	Ethyl Mercaptan	ND	0.38	
75-18-3	Dimethyl Sulfide	ND	0.38	
75-15-0	Carbon Disulfide	ND	0.23	
75-33-2	Isopropyl Mercaptan	ND	0.47	
75-66-1	tert-Butyl Mercaptan	ND	0.55	
107-03-9	n-Propyl Mercaptan	ND	0.47	
624-89-5	Ethyl Methyl Sulfide	ND	0.47	
110-02-1	Thiophene	ND	0.52	
513-44-0	Isobutyl Mercaptan	ND	0.55	
352-93-2	Diethyl Sulfide	ND	0.55	
109-79-5	n-Butyl Mercaptan	ND	0.55	
624-92-0	Dimethyl Disulfide	ND	0.29	
616-44-4	3-Methylthiophene	ND	0.60	
110-01-0	Tetrahydrothiophene	ND	0.54	
638-02-8	2,5-Dimethylthiophene	ND	0.69	
872-55-9	2-Ethylthiophene	ND	0.69	
110-81-6	Diethyl Disulfide	ND	0.37	

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

RESULTS OF ANALYSIS

Client: **Longview, City of**
Client Sample ID: **Method Blank**
Client Project ID: **Sentinel Well Program**

ALS Project ID: K1313633
ALS Sample ID: P131230-MB

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: Drinking Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/30/13
Liquid Amount: 10.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	0.21	
463-58-1	Carbonyl Sulfide	ND	0.37	
74-93-1	Methyl Mercaptan	ND	0.30	
75-08-1	Ethyl Mercaptan	ND	0.38	
75-18-3	Dimethyl Sulfide	ND	0.38	
75-15-0	Carbon Disulfide	ND	0.23	
75-33-2	Isopropyl Mercaptan	ND	0.47	
75-66-1	tert-Butyl Mercaptan	ND	0.55	
107-03-9	n-Propyl Mercaptan	ND	0.47	
624-89-5	Ethyl Methyl Sulfide	ND	0.47	
110-02-1	Thiophene	ND	0.52	
513-44-0	Isobutyl Mercaptan	ND	0.55	
352-93-2	Diethyl Sulfide	ND	0.55	
109-79-5	n-Butyl Mercaptan	ND	0.55	
624-92-0	Dimethyl Disulfide	ND	0.29	
616-44-4	3-Methylthiophene	ND	0.60	
110-01-0	Tetrahydrothiophene	ND	0.54	
638-02-8	2,5-Dimethylthiophene	ND	0.69	
872-55-9	2-Ethylthiophene	ND	0.69	
110-81-6	Diethyl Disulfide	ND	0.37	

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.

January 14, 2014 Analytical Report for Service Request No: K1313635

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

RE: Sentinel Well Program

Dear Jeff:

Enclosed are the results of the samples submitted to our laboratory on December 17, 2013. For your reference, these analyses have been assigned our service request number K1313635.

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

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626 USA | PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp. Part of the ALS Group An ALS Limited Company

Environmental www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

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	-
Indiana DOH	http://www.in.gov/isdh/24859.htm	C-WA-01
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	053-999-368
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.caslab.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.:**	K1313635
Project:	Sentinel Well Program	**Date Received:**	12/17/13
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 and one Trip Blank were received for analysis at ALS Environmental on 12/17/13. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4ºC upon receipt at the laboratory.

General Chemistry Parameters

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

Total Metals

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

Chlorinated Phenols by EPA Method 1653

Sample Notes and Discussion:
Insufficient sample volume was received to perform a duplicate field sample analysis. A duplicate OPR was analyzed and reported in lieu of the duplicate filed sample for this sample.

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

EDB and DBCP by EPA Method 504.1

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

Pesticides and Polychlorinated Biphenyls by EPA Method 508.1

Matrix Spike Recovery Exceptions:
The duplicate matrix spike recovery of Aldrin 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 duplicate matrix spike outlier suggested a potential low bias in this matrix. No further corrective action was appropriate.

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

Approved by_____

Chlorinated Acides by EPA Method 515.4

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

Volatile Organic Compounds by EPA Method 524.2

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

Semivolatile Organic Compounds by EPA Method 525.2

Surrogate Exceptions:
The control criteria were exceeded for Perylene-d12 in sample K1313635-001 due to suspected matrix interference. The sample contained particulate matter that collected on the extraction disk during sample elution. Historical results have shown that particulate matter can cause low recoveries for this surrogate. No further corrective action was appropriate.

The lower control criterion was exceeded for Triphenyl Phosphate in method blank KWG1314092-4. No target analytes were detected in the Method Blank. The problem indicated a potential negative bias to the Method Blank results. Target analytes detected in the field samples could contain a high bias. The surrogate in the field samples was within control criteria and the samples were non-detect. No further corrective action necessary.

Matrix Spike Recovery Exceptions:
The matrix spike recovery of a couple of analytes 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 outlier suggested a potential bias in this matrix. No further corrective action was appropriate.

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 these samples were observed.

Diquat by High Performance Liquid Chromatography

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

Carbamates by EPA Method 531.1

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

Glyphosate by EPA Method 547

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

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_____

CHAIN OF CUSTODY

001, 005

44650

SR# K1313635

COC Set_____of_____

COC#_____

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

Project Name: Sentinel Well Program
Project Number:
Project Manager: Jeff Coleman
Company: City of Longview
Address: Po Box 128 LV WA 98632
Phone #: (360) 442-5681
email:
Sampler Signature:
Sampler Printed Name: Todd Douglas

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	48H: 180.1 / Turbidity	48H: 300.0 / NO2	48H: 300.0 / NO3	48H: SM 2120 B / Color	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: 300.0 / SO4	28D: 314.0 / ClO4	28D: 350.1 / Ammonia T	28D: 531.1 / CARBAM	28D: SM 2510 B / Conductivity	30D: 1653A / CHLOR_PHEN	180D: 1630 / Methyl Hg T	180D: 200.7 / Metals T	180D: 200.8 / Metals T	90D: Calculation / NO2 NO3 Calc
1. D.W. 7		12/17/13	1430		26																														
2. Trip Blank					2																														
3. Temp Blank					1																														
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.# 36-4184
Bill To: City of Longview
Po Box 128
LV 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]	Signature: [signature]	Signature	Signature	Signature	Signature
Printed Name: Todd Douglas	Printed Name: A Pynnevich	Printed Name	Printed Name	Printed Name	Printed Name
Firm: City of Longview	Firm: CAS	Firm	Firm	Firm	Firm
Date/Time: 12/17/13	Date/Time: 12/17/13 1620	Date/Time	Date/Time	Date/Time	Date/Time

CHAIN OF CUSTODY

44650

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

SM 2340 B / Hardness Calc						Remarks
✓	1	2	3	4	5	

PC CL

Cooler Receipt and Preservation Form

Client / Project: City of Portland Service Request K13 13635

Received: 12/17/13 Opened: 12/17/13 By: KB Unloaded: 12/17/13 By: KB

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
16.4	16.5	11.0	16.4	7.3	245			

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:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
Analysis Method:	180.1	**Units:**	NTU
Prep Method:	None	**Basis:**	NA

Turbidity

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
D.W.7	K1313635-001	**7.52**	0.20	1	12/18/13 09:18	
Method Blank	K1313635-MB1	ND U	0.20	1	12/18/13 09:18	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
Analysis Method:	180.1	**Units:**	NTU
Prep Method:	None	**Basis:**	NA

Duplicate Sample Summary
Turbidity

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1313640-001DUP	0.20	0.19	ND U	NC	NC	20	12/18/13
Batch QC	K1313641-008DUP	0.20	4.46	4.26	4.36	5	20	12/18/13

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:**	K1313635
Project:	Sentinel Well Program	**Date Analyzed:**	12/18/13
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:	373948

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313635-LCS	6.07	5.80	105	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Bromide

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
D.W.7	K1313635-001	ND U	0.20	2	12/17/13 18:50	
Method Blank	K1313635-MB1	ND U	0.10	1	12/17/13 08:12	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/17/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1314954-11DUP 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:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/17/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Bromide

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1314954-11MS			**Duplicate Matrix Spike** KQ1314954-11DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Bromide	ND U	9.45	10.0	95	9.72	10.0	97	90-110	3	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:**	K1313635
Project:	Sentinel Well Program	**Date Analyzed:**	12/17/13
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:	373226

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313635-LCS	3.70	4.00	93	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Chloride

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
D.W.7	K1313635-001	**23.0**	2.0	10	12/18/13 10:14	
Method Blank	K1313635-MB1	ND U	0.20	1	12/18/13 06:41	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/18/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314998-19	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1314998-19DUP Result	Average	RPD	RPD Limit
Chloride	300.0	0.40	2.86	2.78	2.82	3	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/18/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Chloride

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314998-19	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1314998-19MS			Duplicate Matrix Spike KQ1314998-19DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Chloride	2.86	12.6	10.0	98	12.5	10.0	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:**	K1313635
Project:	Sentinel Well Program	**Date Analyzed:**	12/18/13
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:	373440

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313635-LCS	4.56	5.00	91	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Fluoride

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
D.W.7	K1313635-001	ND U	0.20	2	12/17/13 18:50	
Method Blank	K1313635-MB1	ND U	0.10	1	12/17/13 08:12	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/17/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1314954-11DUP Result	Average	RPD	RPD Limit
Fluoride	300.0	0.20	0.32	0.31	0.312	4	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/17/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Fluoride

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1314954-11MS			Duplicate Matrix Spike KQ1314954-11DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Fluoride	0.32	10.9	10.0	105	11.1	10.0	108	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:**	K1313635
Project:	Sentinel Well Program	**Date Analyzed:**	12/17/13
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:	373226

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313635-LCS	9.79	9.83	100	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
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
D.W.7	K1313635-001	ND U	0.10	2	12/17/13 18:50	
Method Blank	K1313635-MB1	ND U	0.050	1	12/17/13 08:12	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/17/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1314954-11DUP Result	Average	RPD	RPD Limit
Nitrite as Nitrogen	300.0	0.10	ND	ND	NC	NC	20

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dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/17/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrite as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1314954-11MS			Duplicate Matrix Spike KQ1314954-11DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrite as Nitrogen	ND U	10.2	10.0	102	10.4	10.0	104	90-110	2	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Analyzed:**	12/17/13
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:	373226

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313635-LCS	98.2	100	98	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
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
D.W.7	K1313635-001	ND U	0.10	2	12/17/13 18:50	
Method Blank	K1313635-MB1	ND U	0.050	1	12/17/13 08:12	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/17/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1314954-11DUP Result	Average	RPD	RPD Limit
Nitrate as Nitrogen	300.0	0.10	0.76	0.74	0.752	2	20

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dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/17/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrate as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1314954-11MS			Duplicate Matrix Spike KQ1314954-11DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrate as Nitrogen	0.76	10.8	10.0	100	11.0	10.0	102	90-110	1	20

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dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Analyzed:**	12/17/13
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:	373226

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313635-LCS	15.2	14.5	105	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Sulfate

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
D.W.7	K1313635-001	**2.55**	0.20	2	12/17/13 18:50	
Method Blank	K1313635-MB1	ND U	0.10	1	12/17/13 08:12	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/17/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1314954-11DUP Result	Average	RPD	RPD Limit
Sulfate	300.0	0.20	1.83	1.81	1.82	1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/17/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Sulfate

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1314954-11	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike KQ1314954-11MS			Duplicate Matrix Spike KQ1314954-11DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Sulfate	1.83	12.0	10.0	102	12.2	10.0	104	90-110	1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Analyzed:**	12/17/13
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:	373226

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313635-LCS	4.80	5.00	96	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
Analysis Method:	314.0	**Units:**	ug/L
Prep Method:	None	**Basis:**	NA

Perchlorate

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
D.W.7	K1313635-001	ND U	1.0	1	12/31/13 12:45	
Method Blank	K1313635-MB1	ND U	1.0	1	12/31/13 10:08	

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dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/31/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1313633-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1313633-001DUP 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:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/31/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Perchlorate

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1313633-001	**Basis:**	NA
Analysis Method:	314.0		
Prep Method:	None		

		Matrix Spike K1313633-001MS			Duplicate Matrix Spike K1313633-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	ND U	8.9	10.0	89	9.7	10.0	97	80-120	9	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Analyzed:**	12/31/13
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:	374957

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313635-LCS	15.6	16.8	93	85-115

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
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
D.W.7	K1313635-001	ND U	0.010	1	12/23/13 10:00	12/23/13	
Method Blank	K1313635-MB1	ND U	0.0047	1	12/23/13 10:00	12/23/13	

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dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/23/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1315113-06	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1315113-06DUP Result	Average	RPD	RPD Limit
Cyanide, Total	335.4	0.010	ND	ND	NC	NC	20

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dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/23/13
		Date Extracted:	12/23/13

Duplicate Matrix Spike Summary
Cyanide, Total

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1315113-06	**Basis:**	NA
Analysis Method:	335.4		
Prep Method:	Method		

		Matrix Spike KQ1315113-06MS			**Duplicate Matrix Spike** KQ1315113-06DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Cyanide, Total	ND U	0.104	0.100	104	0.103	0.100	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:**	K1313635
Project:	Sentinel Well Program	**Date Analyzed:**	12/23/13
Sample Matrix:	Drinking Water	**Date Extracted:**	12/23/13

Lab Control Sample Summary
Cyanide, Total

Analysis Method:	335.4	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	374131

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313635-LCS	0.139	0.150	93	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
Analysis Method:	350.1	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Ammonia as Nitrogen

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
D.W.7	K1313635-001	**0.277**	0.050	1	12/19/13 12:59	
Method Blank	K1313635-MB1	ND U	0.050	1	12/19/13 12:59	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/19/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1313663-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1313663-001DUP Result	Average	RPD	RPD Limit
Ammonia as Nitrogen	350.1	0.050	1.33	1.32	1.32	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	12/19/13
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Ammonia as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1313663-001	**Basis:**	NA
Analysis Method:	350.1		
Prep Method:	None		

		Matrix Spike K1313663-001MS				Duplicate Matrix Spike K1313663-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Ammonia as Nitrogen	1.33	3.35	2.00	101	3.37	2.00	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:**	K1313635
Project:	Sentinel Well Program	**Date Analyzed:**	12/19/13
Sample Matrix:	Drinking Water	**Date Extracted:**	NA

Lab Control Sample Summary
Ammonia as Nitrogen

Analysis Method:	350.1	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	373757

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313635-LCS	2.19	2.18	100	90-110

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

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
D.W.7	K1313635-001	0.10	2	12/17/2013	ND	

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
Analysis Method:	SM 2120 B	**Units:**	ColorUnits
Prep Method:	None	**Basis:**	NA

Color

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
D.W.7	K1313635-001	**5.0**	5.0	1	12/18/13 09:05	
Method Blank	K1313635-MB1	ND U	5.0	1	12/18/13 08:56	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/18/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	ColorUnits
Lab Code:	K1313631-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1313631-001DUP Result	Average	RPD	RPD Limit
Color	SM 2120 B	5.0	10.0	10.0	10.0	<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.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Analyzed:**	12/18/13
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:	373451

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313635-LCS	65.0	65.0	100	85-115

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
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
D.W.7	K1313635-001	**96**	15	1	12/19/13 19:05	
Method Blank	K1313635-MB1	ND U	15	1	12/19/13 19:05	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/19/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1313521-007	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1313521-007DUP Result	Average	RPD	RPD Limit
Alkalinity as CaCO3, Total	SM 2320 B	150	820	920	871	12	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Analyzed:**	12/19/13
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:	373947

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313635-LCS	166	164	101	90-110

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
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
D.W.7	K1313635-001	**275**	2.0	1	12/19/13 10:40	
Method Blank	K1313635-MB1	ND U	2.0	1	12/19/13 10:40	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	12/19/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	uMHOS/cm
Lab Code:	KQ1315030-08	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1315030-08DUP Result	Average	RPD	RPD Limit
Conductivity at 25 Degrees Celsius	SM 2510 B	2.0	770	772	771	<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:**	K1313635
Project:	Sentinel Well Program	**Date Analyzed:**	12/19/13
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:	373717

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313635-LCS	332	330	101	86-113

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
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
D.W.7	K1313635-001	**190**	10	1	12/19/13 14:00	
Method Blank	K1313635-MB1	ND U	5.0	1	12/19/13 14:00	
Method Blank	K1313635-MB2	ND U	5.0	1	12/19/13 14:00	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking Water	**Date Received:**	12/17/13
		Date Analyzed:	12/19/13

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	D.W.7	**Units:**	mg/L
Lab Code:	K1313635-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1313635-001DUP Result	Average	RPD	RPD Limit
Solids, Total Dissolved	SM 2540 C	10	190	194	192	2	10

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.

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Analyzed:**	12/19/13
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:	373742

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1313635-LCS	1100	1120	98	85-115

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Wells	**Date Collected:**	12/17/13
Sample Matrix:	Drinking water	**Date Received:**	12/17/13

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
D.W.7	K1313635-001	0.07	1	12/27/13	12/30/13	103	
Method Blank	K1313635-MB	0.07	1	12/27/13	12/30/13	ND	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Wells	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	12/27/13
		Date Analyzed:	12/30/13

Duplicate Summary
Metals

Sample Name:	Batch QC	Units:	mg/L (ppm)
Lab Code:	K1313634-001D	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	34.9	34.8	34.8	<1	

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/13
Sample Matrix:	Drinking water	**Date Received:**	12/17/13

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
D.W.7	K1313635-001	0.1	1	12/26/13	12/27/13	ND	
Method Blank 1	K1313635-MB1	0.1	1	12/26/13	12/27/13	ND	
Method Blank 2	K1313635-MB2	0.1	1	12/26/13	12/27/13	ND	
Method Blank 3	K1313635-MB3	0.1	1	12/26/13	12/27/13	ND	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	12/26/13
		Date Analyzed:	12/27/13

Matrix Spike/Duplicate Matrix Spike Summary
Metals

Sample Name:	Batch QC		Units:	ng/L
Lab Code:	K1313707-001MS,	K1313707-001MSD	Basis:	NA
Test Notes:				

				Spike Level		Sample	Spike Result		Percent Recovery		CAS Acceptance	Relative Percent	Result
Analyte	**Prep Method**	**Analysis Method**	**MRL**	**MS**	**DMS**	**Result**	**MS**	**DMS**	**MS**	**DMS**	**Limits**	**Difference**	**Notes**
Mercury, Methyl	Method	1630	0.1	2.22	2.22	0.5	2.70	2.65	99	97	65-135	2	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	12/26/13
		Date Analyzed:	12/27/13

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	1.83	82	67-133	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	12/26/13
		Date Analyzed:	12/27/13

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	1.78	80	67-133	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	12/26/13
		Date Analyzed:	12/27/13

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	104	104	67-133	

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- Cover Page -
INORGANIC ANALYSIS DATA PACKAGE

Client : Longview, City of
Project Name : Sentinel Well Program
Project No. : NA

Service Request : K1313635

Sample Name :	Lab Code :
Batch QC	K1313634-001D
Batch QC	K1313634-001S
D.W.7	K1313635-001
Laboratory Control Sample	K1313635-LCS
Method Blank	K1313635-MB

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Longview, City of	**Service Request :**	K1313635
Project Name :	Sentinel Well Program	**Date Collected :**	12/17/13
Project No. :	NA	**Date Received :**	12/17/13
Matrix :	Drinking Water	**Date Extracted :**	12/20-27/13

Total Metals

Sample Name :	D.W.7	**Units :**	mg/L (ppm)
Lab Code :	K1313635-001	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Antimony	200.8	0.00005	12/30/13	ND	
Arsenic	200.8	0.0005	12/30/13	0.005	
Barium	200.7	0.004	12/30/13	0.01	
Beryllium	200.8	0.00002	12/30/13	ND	
Cadmium	200.8	0.00002	12/30/13	ND	
Chromium	200.8	0.0002	12/30/13	0.0004	
Copper	200.7	0.004	12/30/13	ND	
Iron	200.7	0.02	12/30/13	1.54	
Lead	200.8	0.00002	12/30/13	ND	
Manganese	200.7	0.001	12/30/13	0.911	
Mercury	245.1	0.0002	12/20/13	ND	
Nickel	200.8	0.0002	12/30/13	0.0002	
Selenium	200.8	0.001	12/30/13	ND	
Silver	200.8	0.00002	12/30/13	ND	
Thallium	200.8	0.00002	12/30/13	ND	
Zinc	200.7	0.004	12/30/13	ND	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Longview, City of	**Service Request :**	K1313635
Project Name :	Sentinel Well Program	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	12/20-27/13

Total Metals

Sample Name :	Method Blank	**Units :**	mg/L (ppm)
Lab Code :	K1313635-MB	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Antimony	200.8	0.00005	12/30/13	ND	
Arsenic	200.8	0.0005	12/30/13	ND	
Barium	200.7	0.004	12/30/13	ND	
Beryllium	200.8	0.00002	12/30/13	ND	
Cadmium	200.8	0.00002	12/30/13	ND	
Chromium	200.8	0.0002	12/30/13	ND	
Copper	200.7	0.004	12/30/13	ND	
Iron	200.7	0.02	12/30/13	ND	
Lead	200.8	0.00002	12/30/13	ND	
Manganese	200.7	0.001	12/30/13	ND	
Mercury	245.1	0.0002	12/20/13	ND	
Nickel	200.8	0.0002	12/30/13	ND	
Selenium	200.8	0.001	12/30/13	ND	
Silver	200.8	0.00002	12/30/13	ND	
Sodium	200.7	0.2	12/30/13	ND	
Thallium	200.8	0.00002	12/30/13	ND	
Zinc	200.7	0.004	12/30/13	ND	

Comments:

ALS Group USA, Corp.
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QA/QC Report

Client :	Longview, City of	**Service Request :**	K1313635
Project Name :	Sentinel Well Program	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	12/20-27/13
		Date Analyzed :	12/20-30/13

Duplicate Summary
Total Metals

Sample Name :	Batch QC	**Units :**	mg/L (ppm)
Lab Code :	K1313634-001D	**Basis :**	NA

Analyte	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Antimony	200.8	0.00005	ND	ND	ND	-	
Arsenic	200.8	0.0005	ND	ND	ND	-	
Barium	200.7	0.004	ND	ND	ND	-	
Beryllium	200.8	0.00002	ND	ND	ND	-	
Cadmium	200.8	0.00002	ND	ND	ND	-	
Chromium	200.8	0.0002	0.0003	0.0003	0.0003	<1	
Copper	200.7	0.004	ND	ND	ND	-	
Iron	200.7	0.02	0.45	0.44	0.44	2	
Lead	200.8	0.00002	ND	ND	ND	-	
Manganese	200.7	0.001	0.07	0.065	0.065	7	
Mercury	245.1	0.0002	ND	ND	ND	-	
Nickel	200.8	0.0002	ND	ND	ND	-	
Selenium	200.8	0.001	ND	ND	ND	-	
Silver	200.8	0.00002	ND	ND	ND	-	
Thallium	200.8	0.00002	ND	ND	ND	-	
Zinc	200.7	0.004	ND	ND	ND	-	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1313635
Project Name :	Sentinel Well Program	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	12/20-27/13
		Date Analyzed :	12/20-30/13

Matrix Spike Summary
Total Metals

Sample Name :	Batch QC	**Units :**	mg/L (ppm)
Lab Code :	K1313634-001S	**Basis :**	NA

Analyte	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Antimony	0.00005	0.050	ND	0.0525	105	70-130	
Arsenic	0.0005	0.050	ND	0.0533	107	70-130	
Barium	0.004	2.00	ND	2.11	106	70-130	
Beryllium	0.00002	0.0025	ND	0.00249	100	70-130	
Cadmium	0.00002	0.025	ND	0.0263	105	70-130	
Chromium	0.0002	0.010	0.0003	0.0104	101	70-130	
Copper	0.004	0.25	ND	0.253	101	70-130	
Iron	0.02	1.00	0.45	1.48	103	70-130	
Lead	0.00002	0.050	ND	0.0491	98	70-130	
Manganese	0.001	0.50	0.07	0.568	100	70-130	
Mercury	0.0002	0.0010	ND	0.00102	102	70-130	
Nickel	0.0002	0.025	ND	0.0259	104	70-130	
Selenium	0.001	0.050	ND	0.0533	107	70-130	
Silver	0.00002	0.013	ND	0.0128	102	70-130	
Thallium	0.00002	0.050	ND	0.0503	101	70-130	
Zinc	0.004	0.50	ND	0.498	100	70-130	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1313635
Project Name :	Sentinel Well Program	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	12/20-27/13
		Date Analyzed :	12/20-30/13

Laboratory Control Sample Summary
Total Metals

Sample Name :	Laboratory Control Sample	**Units :**	mg/L (ppm)
Lab Code :	K1313635-LCS	**Basis :**	NA

Analyte	Analysis Method	True Value	Result	Percent	CAS Percent Recovery Acceptance Limits	Result Notes
Antimony	200.8	0.050	0.0509	102	85-115	
Arsenic	200.8	0.050	0.0503	101	85-115	
Barium	200.7	5.00	5.21	104	85-115	
Beryllium	200.8	0.0025	0.00254	102	85-115	
Cadmium	200.8	0.025	0.0253	101	85-115	
Chromium	200.8	0.010	0.0103	103	85-115	
Copper	200.7	0.63	0.626	100	85-115	
Iron	200.7	2.50	2.51	101	85-115	
Lead	200.8	0.050	0.0479	96	85-115	
Manganese	200.7	1.25	1.26	101	85-115	
Mercury	245.1	0.0050	0.0050	99	85-115	
Nickel	200.8	0.025	0.0254	102	85-115	
Selenium	200.8	0.050	0.0509	102	85-115	
Silver	200.8	0.013	0.0126	101	85-115	
Sodium	200.7	12.5	12.8	102	85-115	
Thallium	200.8	0.050	0.0484	97	85-115	
Zinc	200.7	1.25	1.24	100	85-115	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	D.W.7	Units:	ug/L (ppb)
Lab Code:	K1313635-001	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	2.5	1	1/3/2014	1/8/2014	ND	
2,4,5-Trichlorophenol	METHOD	1653A	2.5	1	1/3/2014	1/8/2014	ND	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	1	1/3/2014	1/8/2014	ND	
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	1	1/3/2014	1/8/2014	ND	
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	1	1/3/2014	1/8/2014	ND	
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	1	1/3/2014	1/8/2014	ND	
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	1	1/3/2014	1/8/2014	ND	
Trichlorosyringol	METHOD	1653A	2.5	1	1/3/2014	1/8/2014	ND	
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	1	1/3/2014	1/8/2014	ND	
Pentachlorophenol	METHOD	1653A	5.0	1	1/3/2014	1/8/2014	ND	
Tetrachloroguaiacol	METHOD	1653A	5.0	1	1/3/2014	1/8/2014	ND	
Tetrachlorocatechol	METHOD	1653A	5.0	1	1/3/2014	1/8/2014	ND	

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
Analytical Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	Method Blank	Units:	ug/L (ppb)
Lab Code:	KWG1400158-3	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	2.5	1	1/3/2014	1/8/2014	ND	
2,4,5-Trichlorophenol	METHOD	1653A	2.5	1	1/3/2014	1/8/2014	ND	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	2.5	1	1/3/2014	1/8/2014	ND	
3,4,6-Trichloroguaiacol	METHOD	1653A	2.5	1	1/3/2014	1/8/2014	ND	
3,4,5-Trichloroguaiacol	METHOD	1653A	2.5	1	1/3/2014	1/8/2014	ND	
3,4,6-Trichlorocatechol	METHOD	1653A	5.0	1	1/3/2014	1/8/2014	ND	
3,4,5-Trichlorocatechol	METHOD	1653A	5.0	1	1/3/2014	1/8/2014	ND	
Trichlorosyringol	METHOD	1653A	2.5	1	1/3/2014	1/8/2014	ND	
4,5,6-Trichloroguaiacol	METHOD	1653A	2.5	1	1/3/2014	1/8/2014	ND	
Pentachlorophenol	METHOD	1653A	5.0	1	1/3/2014	1/8/2014	ND	
Tetrachloroguaiacol	METHOD	1653A	5.0	1	1/3/2014	1/8/2014	ND	
Tetrachlorocatechol	METHOD	1653A	5.0	1	1/3/2014	1/8/2014	ND	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	1/3/2014

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

			Percent Recovery	
	CAS Percent Recovery Acceptance Criteria	Sample Name:	**D.W.7**	**Method Blank**
		Lab Code:	K1313635-001	KWG1400158-3
		Date Analyzed:	1/8/2014	1/8/2014
Analyte				
3,4,5-Trichlorophenol	36-131		103	95
4,5,6-Trichloroguaiacol-13c6	25-134		112	104
Pentachlorophenol-13c6	22-117		108	98
Tetrachloroguaiacol-13c6	18-129		119	111
Tetrachlorocatechol-13c6	D-121		31	90

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

EPA Method 504.1

Sample Name:	D.W.7	**Units:**	ug/L
Lab Code:	K1313635-001	**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	12/30/13	12/30/13	KWG1314108	
1,2,3-Trichloropropane	ND	U	0.39	1	12/30/13	12/30/13	KWG1314108	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.0097	1	12/30/13	12/30/13	KWG1314108	

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

EPA Method 504.1

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1314108-4	**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	12/30/13	12/30/13	KWG1314108	
1,2,3-Trichloropropane	ND	U	0.40	1	12/30/13	12/30/13	KWG1314108	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.0099	1	12/30/13	12/30/13	KWG1314108	

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Extracted:**	12/30/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	12/30/2013

Matrix Spike/Duplicate Matrix Spike Summary
EPA Method 504.1

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1313631-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	504.1	**Extraction Lot:**	KWG1314108

		Batch QCMS KWG1314108-1 Matrix Spike			Batch QCDMS KWG1314108-2 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	0.212	0.242	87	0.206	0.243	85	65-135	3	30
1,2,3-Trichloropropane	ND	0.219	0.242	90	0.219	0.243	90	65-135	0	30
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.214	0.242	88	0.221	0.243	91	65-135	3	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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Extracted:**	12/30/2013
Sample Matrix:	Water	**Date Analyzed:**	12/30/2013

Lab Control Spike Summary
EPA Method 504.1

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	504.1	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1314108

	Lab Control Sample KWG1314108-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
1,2-Dibromoethane (EDB)	0.225	0.250	90	70-130
1,2,3-Trichloropropane	0.230	0.250	92	70-130
1,2-Dibromo-3-chloropropane (DBCP)	0.228	0.250	91	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.

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Pesticides/PCBs by EPA Method 508.1

Sample Name:	D.W.7	**Units:**	ug/L
Lab Code:	K1313635-001	**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	12/27/13	01/04/14	KWG1314093	
Heptachlor	ND	U	0.0098	1	12/27/13	01/04/14	KWG1314093	
Aldrin	ND	U	0.0098	1	12/27/13	01/04/14	KWG1314093	
Heptachlor Epoxide	ND	U	0.0098	1	12/27/13	01/04/14	KWG1314093	
Heptachlor Epoxide (Isomer A)	ND	U	0.0098	1	12/27/13	01/04/14	KWG1314093	
4,4'-DDE	ND	U	0.0098	1	12/27/13	01/04/14	KWG1314093	
Dieldrin	ND	U	0.0098	1	12/27/13	01/04/14	KWG1314093	
Endrin	ND	U	0.0098	1	12/27/13	01/04/14	KWG1314093	
4,4'-DDD	ND	U	0.0098	1	12/27/13	01/04/14	KWG1314093	
4,4'-DDT	ND	U	0.0098	1	12/27/13	01/04/14	KWG1314093	
Methoxychlor	ND	U	0.0098	1	12/27/13	01/04/14	KWG1314093	
Toxaphene	ND	U	0.098	1	12/27/13	01/04/14	KWG1314093	
Chlordane	ND	U	0.098	1	12/27/13	01/04/14	KWG1314093	
Aroclor 1016	ND	U	0.049	1	12/27/13	01/04/14	KWG1314093	
Aroclor 1221	ND	U	0.098	1	12/27/13	01/04/14	KWG1314093	
Aroclor 1232	ND	U	0.098	1	12/27/13	01/04/14	KWG1314093	
Aroclor 1242	ND	U	0.098	1	12/27/13	01/04/14	KWG1314093	
Aroclor 1248	ND	U	0.098	1	12/27/13	01/04/14	KWG1314093	
Aroclor 1254	ND	U	0.098	1	12/27/13	01/04/14	KWG1314093	
Aroclor 1260	ND	U	0.098	1	12/27/13	01/04/14	KWG1314093	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4,4'-Dibromooctafluorobiphenyl	81	70-130	01/04/14	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**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:	KWG1314093-7	**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	12/27/13	01/03/14	KWG1314093	
Heptachlor	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
Aldrin	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
Heptachlor Epoxide	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
Heptachlor Epoxide (Isomer A)	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
4,4'-DDE	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
Dieldrin	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
Endrin	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
4,4'-DDD	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
4,4'-DDT	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
Methoxychlor	ND	U	0.010	1	12/27/13	01/03/14	KWG1314093	
Toxaphene	ND	U	0.10	1	12/27/13	01/03/14	KWG1314093	
Chlordane	ND	U	0.10	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1016	ND	U	0.050	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1221	ND	U	0.10	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1232	ND	U	0.10	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1242	ND	U	0.10	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1248	ND	U	0.10	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1254	ND	U	0.10	1	12/27/13	01/03/14	KWG1314093	
Aroclor 1260	ND	U	0.10	1	12/27/13	01/03/14	KWG1314093	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4,4'-Dibromooctafluorobiphenyl	92	70-130	01/03/14	Acceptable

Comments:

Client: Longview, City of
Project: Sentinel Well Program
Sample Matrix: Drinking water

Service Request: K1313635

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	K1313633-001	96
D.W.7	K1313635-001	81
Method Blank	KWG1314093-7	92
Batch QCMS	KWG1314093-1	77
Batch QCDMS	KWG1314093-2	75
D.W.7MS	KWG1314093-3	85
D.W.7DMS	KWG1314093-4	86
Lab Control Sample	KWG1314093-5	83

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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Extracted:**	12/27/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/04/2014

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

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1313633-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1	**Extraction Lot:**	KWG1314093

		Batch QCMS KWG1314093-1 Matrix Spike			Batch QCDMS KWG1314093-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
gamma-BHC (Lindane)	ND	0.0847	0.0971	87	0.0814	0.0971	84	65-135	4	30
Heptachlor	ND	0.0695	0.0971	72	0.0656	0.0971	68	65-135	6	30
Aldrin	ND	0.0864	0.0971	89	0.00673	0.0971	7 *	65-135	171 *	30
Heptachlor Epoxide	ND	0.0870	0.0971	90	0.0872	0.0971	90	65-135	0	30
Heptachlor Epoxide (Isomer A)	ND	0.0704	0.0971	73	0.0701	0.0971	72	65-135	0	30
4,4'-DDE	ND	0.0943	0.0971	97	0.0924	0.0971	95	65-135	2	30
Dieldrin	ND	0.0771	0.0971	79	0.0839	0.0971	86	65-135	8	30
Endrin	ND	0.0690	0.0971	71	0.0758	0.0971	78	65-135	9	30
4,4'-DDD	ND	0.0952	0.0971	98	0.0925	0.0971	95	65-135	3	30
4,4'-DDT	ND	0.0966	0.0971	99	0.0933	0.0971	96	65-135	3	30
Methoxychlor	ND	0.116	0.0971	120	0.114	0.0971	117	65-135	2	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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Extracted:**	12/27/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/04/2014

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

Sample Name:	D.W.7	**Units:**	ug/L
Lab Code:	K1313635-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1	**Extraction Lot:**	KWG1314093

		D.W.7MS KWG1314093-3 Matrix Spike			D.W.7DMS KWG1314093-4 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Aroclor 1248	ND	0.422	0.485	87	0.415	0.485	85	65-135	2	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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Extracted:**	12/27/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/03/2014

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:	KWG1314093

	Lab Control Sample KWG1314093-5 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
gamma-BHC (Lindane)	0.0958	0.100	96	70-130
Heptachlor	0.0862	0.100	86	70-130
Aldrin	0.0995	0.100	100	70-130
Heptachlor Epoxide	0.103	0.100	103	70-130
Heptachlor Epoxide (Isomer A)	0.0784	0.100	78	70-130
4,4'-DDE	0.105	0.100	105	70-130
Dieldrin	0.101	0.100	101	70-130
Endrin	0.104	0.100	104	70-130
4,4'-DDD	0.106	0.100	106	70-130
4,4'-DDT	0.107	0.100	107	70-130
Methoxychlor	0.126	0.100	126	70-130
Aroclor 1248	0.432	0.500	86	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.

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Chlorinated Herbicides by EPA 515.4

Sample Name:	D.W.7	**Units:**	ug/L
Lab Code:	K1313635-001	**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	2.0	1	12/31/13	01/10/14	KWG1314150	
3,5-Dichlorobenzoic Acid	ND	U	0.50	1	12/31/13	01/10/14	KWG1314150	
Dicamba	ND	U	0.20	1	12/31/13	01/10/14	KWG1314150	
Dichlorprop	ND	U	0.50	1	12/31/13	01/10/14	KWG1314150	
2,4-D	ND	U	0.20	1	12/31/13	01/10/14	KWG1314150	
Pentachlorophenol	ND	U	0.080	1	12/31/13	01/10/14	KWG1314150	
2,4,5-TP (Silvex)	ND	U	0.40	1	12/31/13	01/10/14	KWG1314150	
2,4,5-T	ND	U	0.40	1	12/31/13	01/10/14	KWG1314150	
Chloramben	ND	U	0.30	1	12/31/13	01/10/14	KWG1314150	
2,4-DB	ND	U	1.0	1	12/31/13	01/10/14	KWG1314150	
Dinoseb	ND	U	0.40	1	12/31/13	01/10/14	KWG1314150	
Bentazon	ND	U	0.50	1	12/31/13	01/10/14	KWG1314150	
Dacthal Diacid	ND	U	0.10	1	12/31/13	01/10/14	KWG1314150	
Picloram	ND	U	0.20	1	12/31/13	01/10/14	KWG1314150	
Acifluorfen	ND	U	2.0	1	12/31/13	01/10/14	KWG1314150	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2,4-Dichlorophenylacetic Acid	123	70-130	01/10/14	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**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:	KWG1314150-4	**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	2.0	1	12/31/13	01/10/14	KWG1314150	
3,5-Dichlorobenzoic Acid	ND	U	0.50	1	12/31/13	01/10/14	KWG1314150	
Dicamba	ND	U	0.20	1	12/31/13	01/10/14	KWG1314150	
Dichlorprop	ND	U	0.50	1	12/31/13	01/10/14	KWG1314150	
2,4-D	ND	U	0.20	1	12/31/13	01/10/14	KWG1314150	
Pentachlorophenol	ND	U	0.080	1	12/31/13	01/10/14	KWG1314150	
2,4,5-TP (Silvex)	ND	U	0.40	1	12/31/13	01/10/14	KWG1314150	
2,4,5-T	ND	U	0.40	1	12/31/13	01/10/14	KWG1314150	
Chloramben	ND	U	0.30	1	12/31/13	01/10/14	KWG1314150	
2,4-DB	ND	U	1.0	1	12/31/13	01/10/14	KWG1314150	
Dinoseb	ND	U	0.40	1	12/31/13	01/10/14	KWG1314150	
Bentazon	ND	U	0.50	1	12/31/13	01/10/14	KWG1314150	
Dacthal Diacid	ND	U	0.10	1	12/31/13	01/10/14	KWG1314150	
Picloram	ND	U	0.20	1	12/31/13	01/10/14	KWG1314150	
Acifluorfen	ND	U	2.0	1	12/31/13	01/10/14	KWG1314150	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2,4-Dichlorophenylacetic Acid	98	70-130	01/10/14	Acceptable

Comments:

Client: Longview, City of
Project: Sentinel Well Program
Sample Matrix: Drinking water

Service Request: K1313635

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	K1313633-001	119
D.W.7	K1313635-001	123
Method Blank	KWG1314150-4	98
Batch QCMS	KWG1314150-1	99
Batch QCDMS	KWG1314150-2	100
Lab Control Sample	KWG1314150-3	98

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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Extracted:**	12/31/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/10/2014

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

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1313633-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	515.4	**Extraction Lot:**	KWG1314150

		Batch QCMS KWG1314150-1 Matrix Spike			Batch QCDMS KWG1314150-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dalapon	ND	4.97	4.95	100	5.46	4.95	110	70-130	10	30
3,5-Dichlorobenzoic Acid	ND	5.17	4.95	104	5.14	4.95	104	70-130	1	30
Dicamba	ND	4.80	4.95	97	4.73	4.95	96	70-130	1	30
Dichlorprop	ND	4.86	4.95	98	4.76	4.95	96	70-130	2	30
2,4-D	ND	5.11	4.95	103	5.07	4.95	102	70-130	1	30
Pentachlorophenol	ND	4.64	4.95	94	4.69	4.95	95	70-130	1	30
2,4,5-TP (Silvex)	ND	4.63	4.95	93	4.56	4.95	92	70-130	1	30
2,4,5-T	ND	5.09	4.95	103	5.03	4.95	102	70-130	1	30
Chloramben	ND	5.66	4.95	114	5.55	4.95	112	70-130	2	30
2,4-DB	ND	5.56	4.95	112	5.52	4.95	111	70-130	1	30
Dinoseb	ND	4.90	4.95	99	4.97	4.95	101	70-130	1	30
Bentazon	ND	5.37	4.95	108	5.18	4.95	105	70-130	4	30
Dacthal Diacid	ND	5.48	4.95	111	5.53	4.95	112	70-130	1	30
Picloram	ND	5.53	4.95	112	5.46	4.95	110	70-130	1	30
Acifluorfen	ND	5.05	4.95	102	5.06	4.95	102	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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Extracted:**	12/31/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/10/2014

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:	KWG1314150

	Lab Control Sample KWG1314150-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Dalapon	5.45	5.00	109	70-130
3,5-Dichlorobenzoic Acid	5.08	5.00	102	70-130
Dicamba	4.73	5.00	95	70-130
Dichlorprop	4.88	5.00	98	70-130
2,4-D	5.11	5.00	102	70-130
Pentachlorophenol	4.81	5.00	96	70-130
2,4,5-TP (Silvex)	4.67	5.00	93	70-130
2,4,5-T	5.08	5.00	102	70-130
Chloramben	5.89	5.00	118	70-130
2,4-DB	5.46	5.00	109	70-130
Dinoseb	4.99	5.00	100	70-130
Bentazon	5.27	5.00	105	70-130
Dacthal Diacid	5.02	5.00	100	70-130
Picloram	4.99	5.00	100	70-130
Acifluorfen	4.98	5.00	100	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:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Volatile Organic Compounds

Sample Name:	D.W.7	**Units:**	ug/L
Lab Code:	K1313635-001	**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	12/26/13	12/26/13	KWG1314049	
Chloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Vinyl Chloride	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromomethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Chloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Trichlorofluoromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Methylene Chloride	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
trans-1,2-Dichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1-Dichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
cis-1,2-Dichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Methyl tert-Butyl Ether	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Chloroform	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromochloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Carbon Tetrachloride	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Benzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Trichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromodichloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Dibromomethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
cis-1,3-Dichloropropene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1-Dichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Toluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
trans-1,3-Dichloropropene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Tetrachloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
2,2-Dichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,3-Dichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Dibromochloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Chlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Ethylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Styrene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
m,p-Xylenes	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	

Comments:

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Volatile Organic Compounds

Sample Name:	D.W.7	**Units:**	ug/L
Lab Code:	K1313635-001	**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	12/26/13	12/26/13	KWG1314049	
1,1,1-Trichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromoform	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Isopropylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1-Dichloropropene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
n-Propylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,3,5-Trimethylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
2-Chlorotoluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
4-Chlorotoluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
tert-Butylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,4-Trimethylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
sec-Butylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
p-Isopropyltoluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,3-Dichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,4-Dichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
n-Butylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,4-Trichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Hexachlorobutadiene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Naphthalene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1,2-Trichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,3-Trichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,3-Trichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Volatile Organic Compounds

Sample Name:	D.W.7	**Units:**	ug/L
Lab Code:	K1313635-001	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	92	70-130	12/26/13	Acceptable
Dibromofluoromethane	103	82-124	12/26/13	Acceptable
Toluene-d8	106	82-124	12/26/13	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1314049-4	**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	12/26/13	12/26/13	KWG1314049	
Chloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Vinyl Chloride	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromomethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Chloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Trichlorofluoromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Methylene Chloride	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
trans-1,2-Dichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1-Dichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
cis-1,2-Dichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Methyl tert-Butyl Ether	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Chloroform	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromochloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Carbon Tetrachloride	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Benzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Trichloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromodichloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Dibromomethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
cis-1,3-Dichloropropene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Toluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1-Dichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
trans-1,3-Dichloropropene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Tetrachloroethene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
2,2-Dichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,3-Dichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Dibromochloromethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Chlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Ethylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Styrene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
m,p-Xylenes	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	

Comments:

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1314049-4	**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	12/26/13	12/26/13	KWG1314049	
1,1,1-Trichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromoform	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Isopropylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1-Dichloropropene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Bromobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
n-Propylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,3,5-Trimethylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
2-Chlorotoluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
4-Chlorotoluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
tert-Butylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,4-Trimethylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
sec-Butylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
p-Isopropyltoluene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,3-Dichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,4-Dichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
n-Butylbenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,4-Trichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Hexachlorobutadiene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
Naphthalene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1,2-Trichloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,3-Trichloropropane	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	
1,2,3-Trichlorobenzene	ND	U	0.50	1	12/26/13	12/26/13	KWG1314049	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1314049-4	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	94	70-130	12/26/13	Acceptable
Dibromofluoromethane	105	82-124	12/26/13	Acceptable
Toluene-d8	107	82-124	12/26/13	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Longview, City of
Project: Sentinel Well Program
Sample Matrix: Drinking water

Service Request: K1313635

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	K1313633-001	93	105	105
D.W.7	K1313635-001	92	103	106
Method Blank	KWG1314049-4	94	105	107
Batch QCMS	KWG1314049-1	116	105	113
Batch QCDMS	KWG1314049-2	114	107	116
Lab Control Sample	KWG1314049-3	116	107	116

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:**	K1313635
Project:	Sentinel Well Program	**Date Extracted:**	12/26/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	12/26/2013

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1313633-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2	**Extraction Lot:**	KWG1314049

		Batch QCMS KWG1314049-1 Matrix Spike			Batch QCDMS KWG1314049-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dichlorodifluoromethane	ND	5.95	5.00	119	5.44	5.00	109	70-130	9	30
Chloromethane	ND	4.55	5.00	91	4.20	5.00	84	70-130	8	30
Vinyl Chloride	ND	4.94	5.00	99	4.72	5.00	94	70-130	5	30
Bromomethane	ND	5.82	5.00	116	5.79	5.00	116	70-130	1	30
Chloroethane	ND	4.61	5.00	92	4.54	5.00	91	70-130	2	30
Trichlorofluoromethane	ND	5.55	5.00	111	5.15	5.00	103	70-130	7	30
Methylene Chloride	ND	4.88	5.00	98	4.89	5.00	98	70-130	0	30
trans-1,2-Dichloroethene	ND	5.00	5.00	100	4.89	5.00	98	70-130	2	30
1,1-Dichloroethene	ND	5.53	5.00	111	5.35	5.00	107	70-130	3	30
cis-1,2-Dichloroethene	ND	4.87	5.00	97	4.82	5.00	96	70-130	1	30
Methyl tert-Butyl Ether	ND	8.74	10.0	87	9.02	10.0	90	70-130	3	30
Chloroform	ND	4.90	5.00	98	4.88	5.00	98	70-130	0	30
Bromochloromethane	ND	5.18	5.00	104	5.15	5.00	103	70-130	1	30
Carbon Tetrachloride	ND	5.59	5.00	112	5.30	5.00	106	70-130	5	30
Benzene	ND	4.70	5.00	94	4.61	5.00	92	70-130	2	30
1,2-Dichloroethane	ND	4.70	5.00	94	4.82	5.00	96	70-130	3	30
Trichloroethene	ND	5.05	5.00	101	4.96	5.00	99	70-130	2	30
1,2-Dichloropropane	ND	4.37	5.00	87	4.44	5.00	89	70-130	2	30
Bromodichloromethane	ND	4.99	5.00	100	4.89	5.00	98	70-130	2	30
Dibromomethane	ND	4.83	5.00	97	5.00	5.00	100	70-130	3	30
cis-1,3-Dichloropropene	ND	4.77	5.00	95	4.78	5.00	96	70-130	0	30
Toluene	ND	5.11	5.00	102	5.14	5.00	103	70-130	1	30
1,1-Dichloroethane	ND	4.57	5.00	91	4.50	5.00	90	70-130	2	30
trans-1,3-Dichloropropene	ND	4.27	5.00	85	4.22	5.00	84	70-130	1	30
Tetrachloroethene	ND	5.57	5.00	111	5.28	5.00	106	70-130	5	30
1,3-Dichloropropane	ND	4.51	5.00	90	4.55	5.00	91	70-130	1	30
2,2-Dichloropropane	ND	5.13	5.00	103	4.90	5.00	98	70-130	5	30
Dibromochloromethane	ND	4.78	5.00	96	4.74	5.00	95	70-130	1	30
1,2-Dibromoethane (EDB)	ND	4.85	5.00	97	5.04	5.00	101	70-130	4	30
Chlorobenzene	ND	4.99	5.00	100	4.85	5.00	97	70-130	3	30
Ethylbenzene	ND	5.24	5.00	105	5.14	5.00	103	70-130	2	30
Styrene	ND	5.50	5.00	110	5.40	5.00	108	70-130	2	30
m,p-Xylenes	ND	11.6	10.0	116	11.3	10.0	113	70-130	2	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:**	K1313635
Project:	Sentinel Well Program	**Date Extracted:**	12/26/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	12/26/2013

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1313633-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2	**Extraction Lot:**	KWG1314049

		Batch QCMS KWG1314049-1 Matrix Spike			Batch QCDMS KWG1314049-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
o-Xylene	ND	5.30	5.00	106	5.16	5.00	103	70-130	3	30
1,1,1-Trichloroethane	ND	5.25	5.00	105	5.07	5.00	101	70-130	3	30
Bromoform	ND	4.80	5.00	96	4.82	5.00	96	70-130	0	30
1,1,2,2-Tetrachloroethane	ND	3.82	5.00	76	3.97	5.00	79	70-130	4	30
Isopropylbenzene	ND	5.85	5.00	117	5.63	5.00	113	70-130	4	30
1,1-Dichloropropene	ND	5.30	5.00	106	5.08	5.00	102	70-130	4	30
Bromobenzene	ND	4.26	5.00	85	4.30	5.00	86	70-130	1	30
n-Propylbenzene	ND	4.54	5.00	91	4.50	5.00	90	70-130	1	30
1,3,5-Trimethylbenzene	ND	4.89	5.00	98	4.90	5.00	98	70-130	0	30
2-Chlorotoluene	ND	4.46	5.00	89	4.43	5.00	89	70-130	1	30
4-Chlorotoluene	ND	4.61	5.00	92	4.57	5.00	91	70-130	1	30
tert-Butylbenzene	ND	4.88	5.00	98	4.83	5.00	97	70-130	1	30
1,2,4-Trimethylbenzene	ND	4.87	5.00	97	4.88	5.00	98	70-130	0	30
sec-Butylbenzene	ND	4.90	5.00	98	4.84	5.00	97	70-130	1	30
p-Isopropyltoluene	ND	4.98	5.00	100	4.94	5.00	99	70-130	1	30
1,3-Dichlorobenzene	ND	4.54	5.00	91	4.63	5.00	93	70-130	2	30
1,4-Dichlorobenzene	ND	4.47	5.00	89	4.44	5.00	89	70-130	1	30
n-Butylbenzene	ND	4.68	5.00	94	4.60	5.00	92	70-130	2	30
1,2-Dichlorobenzene	ND	4.56	5.00	91	4.55	5.00	91	70-130	0	30
1,2-Dibromo-3-chloropropane (DBCP)	ND	3.76	5.00	75	4.01	5.00	80	70-130	6	30
1,2,4-Trichlorobenzene	ND	4.25	5.00	85	4.34	5.00	87	70-130	2	30
Hexachlorobutadiene	ND	4.76	5.00	95	4.68	5.00	94	70-130	2	30
Naphthalene	ND	4.11	5.00	82	4.21	5.00	84	70-130	2	30
1,1,2-Trichloroethane	ND	4.47	5.00	89	4.56	5.00	91	70-130	2	30
1,1,1,2-Tetrachloroethane	ND	5.12	5.00	102	5.05	5.00	101	70-130	1	30
1,2,3-Trichloropropane	ND	4.10	5.00	82	4.45	5.00	89	70-130	8	30
1,2,3-Trichlorobenzene	ND	4.60	5.00	92	4.69	5.00	94	70-130	2	30

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Extracted:**	12/26/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	12/26/2013

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	524.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1314049

	Lab Control Sample KWG1314049-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Dichlorodifluoromethane	5.77	5.00	115	70-130
Chloromethane	4.46	5.00	89	70-130
Vinyl Chloride	4.97	5.00	99	70-130
Bromomethane	5.80	5.00	116	70-130
Chloroethane	4.61	5.00	92	70-130
Trichlorofluoromethane	5.61	5.00	112	70-130
Methylene Chloride	4.80	5.00	96	70-130
trans-1,2-Dichloroethene	5.11	5.00	102	70-130
cis-1,2-Dichloroethene	4.89	5.00	98	70-130
1,1-Dichloroethene	5.58	5.00	112	70-130
Methyl tert-Butyl Ether	8.75	10.0	88	70-130
Chloroform	5.04	5.00	101	70-130
Bromochloromethane	5.11	5.00	102	70-130
Carbon Tetrachloride	5.65	5.00	113	70-130
Benzene	4.69	5.00	94	70-130
1,2-Dichloroethane	4.75	5.00	95	70-130
Trichloroethene	5.00	5.00	100	70-130
1,2-Dichloropropane	4.38	5.00	88	70-130
Bromodichloromethane	4.90	5.00	98	70-130
Dibromomethane	4.89	5.00	98	70-130
cis-1,3-Dichloropropene	4.88	5.00	98	70-130
1,1-Dichloroethane	4.52	5.00	90	70-130
Toluene	5.13	5.00	103	70-130
trans-1,3-Dichloropropene	4.12	5.00	82	70-130
Tetrachloroethene	5.50	5.00	110	70-130
1,3-Dichloropropane	4.51	5.00	90	70-130
2,2-Dichloropropane	5.09	5.00	102	70-130
Dibromochloromethane	4.78	5.00	96	70-130
1,2-Dibromoethane (EDB)	4.87	5.00	97	70-130
Chlorobenzene	4.98	5.00	100	70-130
Ethylbenzene	5.16	5.00	103	70-130
Styrene	5.43	5.00	109	70-130
m,p-Xylenes	11.5	10.0	115	70-130
o-Xylene	5.18	5.00	104	70-130
Bromoform	4.77	5.00	95	70-130

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Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Extracted:**	12/26/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	12/26/2013

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	524.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1314049

	Lab Control Sample KWG1314049-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
1,1,1-Trichloroethane	5.23	5.00	105	70-130
1,1,2,2-Tetrachloroethane	3.92	5.00	78	70-130
Isopropylbenzene	5.78	5.00	116	70-130
1,1-Dichloropropene	5.28	5.00	106	70-130
Bromobenzene	4.35	5.00	87	70-130
n-Propylbenzene	4.59	5.00	92	70-130
1,3,5-Trimethylbenzene	4.91	5.00	98	70-130
2-Chlorotoluene	4.44	5.00	89	70-130
4-Chlorotoluene	4.64	5.00	93	70-130
tert-Butylbenzene	4.89	5.00	98	70-130
1,2,4-Trimethylbenzene	4.92	5.00	98	70-130
sec-Butylbenzene	4.93	5.00	99	70-130
p-Isopropyltoluene	5.05	5.00	101	70-130
1,3-Dichlorobenzene	4.54	5.00	91	70-130
1,4-Dichlorobenzene	4.40	5.00	88	70-130
n-Butylbenzene	4.70	5.00	94	70-130
1,2-Dichlorobenzene	4.62	5.00	92	70-130
1,2-Dibromo-3-chloropropane (DBCP)	3.99	5.00	80	70-130
1,2,4-Trichlorobenzene	4.24	5.00	85	70-130
Hexachlorobutadiene	4.83	5.00	97	70-130
Naphthalene	4.21	5.00	84	70-130
1,1,2-Trichloroethane	4.53	5.00	91	70-130
1,1,1,2-Tetrachloroethane	5.09	5.00	102	70-130
1,2,3-Trichloropropane	4.33	5.00	87	70-130
1,2,3-Trichlorobenzene	4.73	5.00	95	70-130

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ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Semivolatile Organics by EPA Method 525.2

Sample Name:	D.W.7	**Units:**	ug/L
Lab Code:	K1313635-001	**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	12/27/13	01/07/14	KWG1314092	
Fluorene	ND	U	0.049	1	12/27/13	01/07/14	KWG1314092	
Propachlor	ND	U	0.098	1	12/27/13	01/07/14	KWG1314092	
Hexachlorobenzene	ND	U	0.098	1	12/27/13	01/07/14	KWG1314092	
Simazine	ND	U	0.049	1	12/27/13	01/07/14	KWG1314092	
Atrazine	ND	U	0.098	1	12/27/13	01/07/14	KWG1314092	
Metribuzin	ND	U	0.20	1	12/27/13	01/07/14	KWG1314092	
Alachlor	ND	U	0.070	1	12/27/13	01/07/14	KWG1314092	
Bromacil	ND	U	0.20	1	12/27/13	01/07/14	KWG1314092	
Metolachlor	ND	U	0.088	1	12/27/13	01/07/14	KWG1314092	
Butachlor	ND	U	0.098	1	12/27/13	01/07/14	KWG1314092	
Bis(2-ethylhexyl) Adipate	ND	U	0.59	1	12/27/13	01/07/14	KWG1314092	
Bis(2-ethylhexyl) Phthalate	ND	U	0.59	1	12/27/13	01/07/14	KWG1314092	
Benzo(a)pyrene	ND	U	0.020	1	12/27/13	01/07/14	KWG1314092	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,3-Dimethyl-2-nitrobenzene	82	70-130	01/07/14	Acceptable
Triphenyl Phosphate	73	70-130	01/07/14	Acceptable
Perylene-d12	28	70-130	01/07/14	Outside Control Limits

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

Semivolatile Organics by EPA Method 525.2

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1314092-4	**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	12/27/13	01/07/14	KWG1314092	
Fluorene	ND	U	0.050	1	12/27/13	01/07/14	KWG1314092	
Propachlor	ND	U	0.10	1	12/27/13	01/07/14	KWG1314092	
Hexachlorobenzene	ND	U	0.10	1	12/27/13	01/07/14	KWG1314092	
Simazine	ND	U	0.050	1	12/27/13	01/07/14	KWG1314092	
Atrazine	ND	U	0.10	1	12/27/13	01/07/14	KWG1314092	
Metribuzin	ND	U	0.20	1	12/27/13	01/07/14	KWG1314092	
Alachlor	ND	U	0.072	1	12/27/13	01/07/14	KWG1314092	
Bromacil	ND	U	0.20	1	12/27/13	01/07/14	KWG1314092	
Metolachlor	ND	U	0.090	1	12/27/13	01/07/14	KWG1314092	
Butachlor	ND	U	0.10	1	12/27/13	01/07/14	KWG1314092	
Bis(2-ethylhexyl) Adipate	ND	U	0.60	1	12/27/13	01/07/14	KWG1314092	
Bis(2-ethylhexyl) Phthalate	ND	U	0.60	1	12/27/13	01/07/14	KWG1314092	
Benzo(a)pyrene	ND	U	0.020	1	12/27/13	01/07/14	KWG1314092	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,3-Dimethyl-2-nitrobenzene	80	70-130	01/07/14	Acceptable
Triphenyl Phosphate	69	70-130	01/07/14	Outside Control Limits
Perylene-d12	75	70-130	01/07/14	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Longview, City of
Project: Sentinel Well Program
Sample Matrix: Drinking water

Service Request: K1313635

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	K1313631-001	80	75	69 *
D.W.7	K1313635-001	82	73	28 *
Method Blank	KWG1314092-4	80	69 *	75
Batch QCMS	KWG1314092-1	76	72	77
Batch QCDMS	KWG1314092-2	78	74	80
Lab Control Sample	KWG1314092-3	79	76	79

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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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Extracted:**	12/27/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/07/2014

Matrix Spike/Duplicate Matrix Spike Summary
Semivolatile Organics by EPA Method 525.2

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1313631-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	525.2	**Extraction Lot:**	KWG1314092

		Batch QCMS KWG1314092-1 Matrix Spike				Batch QCDMS KWG1314092-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**		**Result**	**Spike Amount**	**%Rec**		**%Rec Limits**	**RPD**	**RPD Limit**
Hexachlorocyclopentadiene	ND	0.828	0.971	85		0.876	0.971	90		70-130	6	30
Fluorene	ND	0.792	0.971	82		0.778	0.971	80		70-130	2	30
Propachlor	ND	0.772	0.971	80		0.811	0.971	84		70-130	5	30
Hexachlorobenzene	ND	0.721	0.971	74		0.721	0.971	74		70-130	0	30
Simazine	ND	0.635	0.971	65	*	0.618	0.971	64	*	70-130	3	30
Atrazine	ND	0.709	0.971	73		0.715	0.971	74		70-130	1	30
Metribuzin	ND	0.789	0.971	81		0.788	0.971	81		70-130	0	30
Alachlor	ND	0.716	0.971	74		0.736	0.971	76		70-130	3	30
Bromacil	ND	0.882	0.971	91		0.915	0.971	94		70-130	4	30
Metolachlor	ND	0.745	0.971	77		0.757	0.971	78		70-130	2	30
Butachlor	ND	0.751	0.971	77		0.775	0.971	80		70-130	3	30
Bis(2-ethylhexyl) Adipate	ND	0.830	0.971	85		0.865	0.971	89		70-130	4	30
Bis(2-ethylhexyl) Phthalate	ND	0.880	0.971	91		0.929	0.971	96		70-130	5	30
Benzo(a)pyrene	ND	0.702	0.971	72		0.613	0.971	63	*	70-130	14	30

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Extracted:**	12/27/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/07/2014

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:	KWG1314092

	Lab Control Sample KWG1314092-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Hexachlorocyclopentadiene	0.839	1.00	84	70-130
Fluorene	0.814	1.00	81	70-130
Propachlor	0.803	1.00	80	70-130
Hexachlorobenzene	0.750	1.00	75	70-130
Simazine	0.741	1.00	74	70-130
Atrazine	0.763	1.00	76	70-130
Metribuzin	0.839	1.00	84	70-130
Alachlor	0.765	1.00	77	70-130
Bromacil	0.940	1.00	94	70-130
Metolachlor	0.812	1.00	81	70-130
Butachlor	0.791	1.00	79	70-130
Bis(2-ethylhexyl) Adipate	0.824	1.00	82	70-130
Bis(2-ethylhexyl) Phthalate	0.851	1.00	85	70-130
Benzo(a)pyrene	0.848	1.00	85	70-130

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ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Endothall by EPA Method 548.1

Sample Name:	D.W.7	**Units:**	ug/L
Lab Code:	K1313635-001	**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	12/19/13	01/07/14	KWG1313919	

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**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:	KWG1313919-4	**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	12/19/13	01/07/14	KWG1313919	

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Extracted:**	12/19/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/07/2014 - 01/08/2014

Matrix Spike/Duplicate Matrix Spike Summary
Endothall by EPA Method 548.1

Sample Name:	D.W.7	**Units:**	ug/L
Lab Code:	K1313635-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	548.1	**Extraction Lot:**	KWG1313919

		D.W.7MS KWG1313919-1 Matrix Spike			D.W.7DMS KWG1313919-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Endothall	ND	115	100	115	118	100	118	30-142	3	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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Extracted:**	12/19/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/07/2014

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:	KWG1313919

	Lab Control Sample KWG1313919-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Endothall	117	100	117	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.

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Collected:**	12/17/2013
Sample Matrix:	Drinking water	**Date Received:**	12/17/2013

Diquat and Paraquat by EPA Method 549.2

Sample Name:	D.W.7	**Units:**	ug/L
Lab Code:	K1313635-001	**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	12/23/13	01/08/14	KWG1314030	
Paraquat	ND	U	0.80	1	12/23/13	01/08/14	KWG1314030	

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**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:	KWG1314030-5	**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	12/23/13	01/08/14	KWG1314030	
Paraquat	ND	U	0.80	1	12/23/13	01/08/14	KWG1314030	

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Extracted:**	12/23/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/08/2014

Matrix Spike/Duplicate Matrix Spike Summary
Diquat and Paraquat by EPA Method 549.2

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1313633-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	549.2	**Extraction Lot:**	KWG1314030

		Batch QCMS KWG1314030-1 Matrix Spike			Batch QCDMS KWG1314030-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Diquat	ND	12.3	12.0	103	12.2	12.0	102	70-130	1	30
Paraquat	ND	11.2	12.0	93	10.1	12.0	84	70-130	11	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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1313635
Project:	Sentinel Well Program	**Date Extracted:**	12/23/2013
Sample Matrix:	Drinking water	**Date Analyzed:**	01/08/2014

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:	KWG1314030

	Lab Control Sample KWG1314030-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Diquat	11.6	12.0	96	70-130
Paraquat	10.3	12.0	86	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 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: CT PH-0224 , DE ID 11 , GA 914 , MA PA0102 , MD 128 , LA 04162 , VA 421 , WY EPA Region 8 , WV 343

January 3, 2014

Ms. Chris Leaf
ALS Environmental - Kelso
1317 S. 13th Avenue
Kelso, WA 98626

Certificate of Analysis

Project Name:	**SOCs**	Workorder:	**1064426**
Purchase Order:	**K1313635**	Workorder ID:	**K1313635**

Dear Ms. Leaf,

Enclosed are the analytical results for samples received by the laboratory on Friday, December 20, 2013.

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 Kelli 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

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Kelli Wolfgang
Project Coordinator

ALS Environmental

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State Certifications: CT PH-0224 , DE ID 11 , GA 914 , MA PA0102 , MD 128 , LA 04162 , VA 421 , WY EPA Region 8 , WV 343

SAMPLE SUMMARY

Workorder: 1064426 K1313635 Discard Date: 01/17/2014

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
1064426001	K1313635-001	Drinking Water	12/17/13 14:30	12/20/13 10:40	Customer

Workorder Comments:

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 performed 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, B	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

ALS Environmental
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ANALYTICAL RESULTS

Workorder: 1064426 K1313635

Lab ID: **1064426001** Date Collected: 12/17/2013 14:30 Matrix: Drinking Water

Sample ID: **K1313635-001** Date Received: 12/20/2013 10:40

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
HERBICIDES										
Glyphosate	ND		ug/L	25.0	EPA 547			12/30/13 15:54	AJL	B
CARBAMATES										
Aldicarb	ND		ug/L	1.0	EPA 531.1			1/2/14 15:10	CGS	A
Aldicarb Sulfone	ND		ug/L	1.0	EPA 531.1			1/2/14 15:10	CGS	A
Aldicarb Sulfoxide	ND		ug/L	1.0	EPA 531.1			1/2/14 15:10	CGS	A
Carbaryl	ND		ug/L	1.0	EPA 531.1			1/2/14 15:10	CGS	A
Carbofuran	ND		ug/L	1.0	EPA 531.1			1/2/14 15:10	CGS	A
3-Hydroxycarbofuran	ND		ug/L	1.0	EPA 531.1			1/2/14 15:10	CGS	A
Methiocarb	ND		ug/L	1.0	EPA 531.1			1/2/14 15:10	CGS	A
Methomyl	ND		ug/L	1.0	EPA 531.1			1/2/14 15:10	CGS	A
Oxamyl	ND		ug/L	1.0	EPA 531.1			1/2/14 15:10	CGS	A
Propoxur	ND		ug/L	1.0	EPA 531.1			1/2/14 15:10	CGS	A

Sample Comments:

Kelli Wolfgang
Project Coordinator

ALS Environmental
34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

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ALS Environmental Chain of Custody

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

1064426

Project Number: K1313635
Project Manager: Chris Leaf

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	CARBAM 531.1	GLYPH 547
K1313635-001	D.W.7	2	Drinking Water	12/17/13	1430	Middletown	X	X

Test Comments

CARBAM - 531.1	K1313635-001	INSECT1 TEST PANEL
GLYPH - 547	K1313635-001	GLYPH TEST PANEL

12/20/13
1649

	Y	N	Initials	
Custody Seals Present?	✓		BKS	Cooler Temp 1
(if present) Seals Intact?	✓			Cooler #:
Received on Ice?	✓			Therm ID: IR-215
COC/Lbls Complete/Accurate	✓			
Cont in Good Cond?	✓			
Correct Containers?	✓			Ship Carrier
Correct Sample Volumes?	✓			FedEx UPS
Correct Preservation?	✓			
Headspace/Volatiles?	✓			DHL
Tracking #:				Other:

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

CL 12/18/13

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: 01/03/14

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# K1313635 ✓
Bill to

Relinquished By: 12/19/13 Received By: B. Schaeffer 12/20/13 10:40 Airbill Number: 5478 9729 6101

Page 1

K1313635

Ship To: Middletown
ALS Laboratory Group
34 Dogwood Lane
Middletown, PA 17057

PC Date 12/18/13
SMO Date 12/19/13

Instructions:
Ice ✓
Dry Ice ___
No Ice ___
Bill to Client Account ___

Shipping:
Overnight ✓
2nd Day ___
Ground ___

Comments:

ALS Group USA, Corp.
www.alsglobal.com
An ALS Limited Company

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

LABORATORY REPORT

December 31, 2013

Jeff Coleman
Longview, City of
W/S Operation Center
Longview, WA 98632

RE: Sentinel Well Program

Dear Jeff:

Enclosed are the results of the sample submitted to our laboratory on December 17, 2013. For your reference, this analysis has been assigned our service request number K1313635.

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 5:01 pm, Dec 31, 2013

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: Sentinel Well Program

Service Request No: K1313635

CASE NARRATIVE

The sample was received intact under chain of custody on December 17, 2013 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.

Sulfur Analysis

The sample was analyzed for twenty sulfur compounds using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

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

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

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T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

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	L11-203
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	581572
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
K1313635-001	D.W.7	3	Drinking Water	12/17/13	1430	12/17/13	SIMIVALLEY	I

Special Instructions/Comments

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

CL 12/18/13

Turnaround Requirements

____ RUSH (Surcharges Apply)

PLEASE CIRCLE WORK DAYS

1 2 3 4 5

✓ STANDARD

Requested FAX Date: _____

Requested Report Date: 01/03/14

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# K1313635 ✓

Bill to

Relinquished By: 12/19/13

Received By: Kelley Horiuchi 12/21/13 1140am

temp Blank 3°C frozen blue ice

Airbill Number:

ALS Environmental
Sample Acceptance Check Form

Client: Longview, City of Work order: K1313635

Project: Sentinel Well Program

Sample(s) received on: 12/21/13 Date opened: 12/21/13 by: MZAMORA

Note: This form is used forall 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: 3° C			
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☒	☐	☐
	Location of seal(s)? Front of cooler, covering opening. 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
K1313635-001.01	40mL VOA NP		7	1	A	MC 12/30/2013
K1313635-001.02	40mL VOA NP				A	
K1313635-001.03	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 Sample ID: **D.W.7**
Client Project ID: **Sentinel Well Program**

ALS Project ID: K1313635
ALS Sample ID: K1313635-001

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: Drinking Water
Test Notes:

Date Collected: 12/17/13
Date Received: 12/17/13
Date Analyzed: 12/30/13
Liquid Amount: 10.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	0.21	
463-58-1	Carbonyl Sulfide	ND	0.37	
74-93-1	Methyl Mercaptan	ND	0.30	
75-08-1	Ethyl Mercaptan	ND	0.38	
75-18-3	Dimethyl Sulfide	ND	0.38	
75-15-0	Carbon Disulfide	ND	0.23	
75-33-2	Isopropyl Mercaptan	ND	0.47	
75-66-1	tert-Butyl Mercaptan	ND	0.55	
107-03-9	n-Propyl Mercaptan	ND	0.47	
624-89-5	Ethyl Methyl Sulfide	ND	0.47	
110-02-1	Thiophene	ND	0.52	
513-44-0	Isobutyl Mercaptan	ND	0.55	
352-93-2	Diethyl Sulfide	ND	0.55	
109-79-5	n-Butyl Mercaptan	ND	0.55	
624-92-0	Dimethyl Disulfide	ND	0.29	
616-44-4	3-Methylthiophene	ND	0.60	
110-01-0	Tetrahydrothiophene	ND	0.54	
638-02-8	2,5-Dimethylthiophene	ND	0.69	
872-55-9	2-Ethylthiophene	ND	0.69	
110-81-6	Diethyl Disulfide	ND	0.37	

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

RESULTS OF ANALYSIS

Client: **Longview, City of**
Client Sample ID: **Method Blank**
Client Project ID: **Sentinel Well Program**

ALS Project ID: K1313635
ALS Sample ID: P131230-MB

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: Drinking Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/30/13
Liquid Amount: 10.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	0.21	
463-58-1	Carbonyl Sulfide	ND	0.37	
74-93-1	Methyl Mercaptan	ND	0.30	
75-08-1	Ethyl Mercaptan	ND	0.38	
75-18-3	Dimethyl Sulfide	ND	0.38	
75-15-0	Carbon Disulfide	ND	0.23	
75-33-2	Isopropyl Mercaptan	ND	0.47	
75-66-1	tert-Butyl Mercaptan	ND	0.55	
107-03-9	n-Propyl Mercaptan	ND	0.47	
624-89-5	Ethyl Methyl Sulfide	ND	0.47	
110-02-1	Thiophene	ND	0.52	
513-44-0	Isobutyl Mercaptan	ND	0.55	
352-93-2	Diethyl Sulfide	ND	0.55	
109-79-5	n-Butyl Mercaptan	ND	0.55	
624-92-0	Dimethyl Disulfide	ND	0.29	
616-44-4	3-Methylthiophene	ND	0.60	
110-01-0	Tetrahydrothiophene	ND	0.54	
638-02-8	2,5-Dimethylthiophene	ND	0.69	
872-55-9	2-Ethylthiophene	ND	0.69	
110-81-6	Diethyl Disulfide	ND	0.37	

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.

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March 26, 2014 Analytical Report for Service Request No: K1401849

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

RE: Sentinel Wells Program

Dear Jeff:

Enclosed are the results of the samples submitted to our laboratory on February 25, 2014. For your reference, these analyses have been assigned our service request number K1401849.

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

RIGHT SOLUTIONS | RIGHT PARTNER

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	-
Indiana DOH	http://www.in.gov/isdh/24859.htm	C-WA-01
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	053-999-368
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.caslab.com or at the accreditation bodies web site

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
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ALS ENVIRONMENTAL

Client:	Longview, City of	**Service Request No.:**	K1401849
Project:	Sentinel Wells Program	**Date Received:**	02/25/14
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

Three drinking water samples were received for analysis at ALS Environmental on 02/25/14. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4ºC upon receipt at the laboratory.

General Chemistry Parameters

Chloride by EPA Method 300.0:
The control criteria for matrix spike recoveries for sample DW-2 were not applicable. The analyte 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 these samples were observed.

Total Metals

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

EDB and DBCP by EPA Method 504.1

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

Pesticides and Polychlorinated Biphenyls by EPA Method 508.1

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

Chlorinated Acides by EPA Method 515.4

Calibration Verification Exceptions:
The analysis of Chlorinated Herbicides EPA 515.4 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 Dinoseb. 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 these samples were observed.

Approved by_____

Volatile Organic Compounds by EPA Method 524.2

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

Semivolatile Organic Compounds by EPA Method 525.2

Matrix Spike Recovery Exceptions:
The matrix spike recovery of Benzo(a)pyrene for sample DW-2 was 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.

Relative Percent Difference Exceptions:
The Relative Percent Difference (RPD) for Benzo(a)pyrene in the replicate matrix spike analyses of DW-2 was outside control criteria. All spike recoveries in associated Laboratory Control Sample (LCS) were within acceptance limits, indicating the analytical batch was in control. No further corrective action was appropriate.

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 these samples were observed.

Diquat by High Performance Liquid Chromatography

Sample Notes and Discussion:
The lower control criterion was exceeded for Diquat in the MRL-level laboratory fortified blank KWG1401704-4. The advisory criterion is 50-150%. Recovery in the Laboratory Control Sample (LCS) was acceptable. The sample data was not significantly affected. No further corrective action was appropriate.

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

Chlorinated Phenols by EPA Method 1653

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

Glyphosate and Carbamates

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

Approved by_____

Chain of Custody

ALS Environmental—Kelso Laboratory
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Phone (360)577-7222 Fax (360)636-1068
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ALS Environmental

CHAIN OF CUSTODY

46813

001, 005

SR# V1401849

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 Program
Project Number:
Project Manager: Jeff Coleman
Company: City of Longview
Address: PO Box 128 Longview WA 98632
Phone #
email
Sampler Signature: [signature]
Sampler Printed Name: TODD DOUGLAS

CLIENT SAMPLE ID	LABID	SAMPLING Date	Time	Matrix	NUMBER OF CONTAINERS	48H				7D			14D									28D									30D	180D			90D
						180.1 / Turbidity	300.0 / NO2	300.0 / NO3	SM 2120 B / Color	548.1 / ENDO	549.2 / DIQ_PARAQ	SM 2540 C / TDS	335.4 / CN T	504.1 / EDB DBCP 123TCP	508.1 / PEST_CL	515.4 / CL_ACID_HERB	524.2 / VOC	525.2 / SVO	547 / GLYPH	SM 2320 B / Alkalinity Titr	Sulfur Liq / Sulfur	245.1 / Hg T	300.0 / Br	300.0 / Chloride	300.0 / F	300.0 / SO4	314.0 / ClO4	350.1 / Ammonia T	531.1 / CARBAM	SM 2510 B / Conductivity	1653A / CHLOR_PHEN	1630 / Methyl Hg T	200.7 / Metals T	200.8 / Metals T	Calculation / NO2 NO3 Calc
1. DW-6		2/25/14	1350		40	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2. Trip Blank					2																														
3. Temp Blank					1																														
4. Temp Blank					1																														
5. DW-2		2/25/14	1420		2														✓																
6. Temp Blank																																			
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.# 36-4269
Bill To: City of Longview
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:
Do Not Report

*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]	Signature Karla Smith	Signature	Signature	Signature	Signature
Printed Name TODD DOUGLAS	Printed Name ALS	Printed Name	Printed Name	Printed Name	Printed Name
Firm C.O.L.V	Firm 2/25/14 1459	Firm	Firm	Firm	Firm
Date/Time 2/25/14 1500	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

ALS Environmental

CHAIN OF CUSTODY

46813

001, 005

SR#_____

COC Set_____of_____

COC#_____

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SM 2340 B / Hardness Calc	1	2	3	4	5	Remarks
✓						

PC CL

Cooler Receipt and Preservation Form

Client / Project: City of Longview Service Request *K14* 01849

Received: 2/25/14 Opened: 2/25/14 By: TD Unloaded: 2/25/14 By: TD

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
5.8	5.6	6.8	6.6	-.2	333			
8.1	8.0	11.1	11.0	-.1	307			
10.6	10.4	10.8	10.6	-.2	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: * Amount of bottles between the 2 sets are switched or the ids are switched; logged per ID on the bottles.

Page ____ *of* ____

General Chemistry

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

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
Analysis Method:	180.1	**Units:**	NTU
Prep Method:	None	**Basis:**	NA

Turbidity

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
DW-2	K1401849-001	**1.08**	0.20	1	02/26/14 09:05	
Method Blank	K1401849-MB1	ND U	0.20	1	02/26/14 09:05	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project	Sentinel Wells Program	**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	K1401847-001DUP	0.20	8.02	8.07	8.05	<1	20	02/26/14
Batch QC	K1401902-001DUP	0.20	0.08 J	ND U	NC	NC	20	02/26/14

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.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Analyzed:**	02/26/14
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:	381627

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1401849-LCS	5.74	5.80	99	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
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	K1401849-001	ND U	0.20	2	02/26/14 07:16	
Method Blank	K1401849-MB1	ND U	0.10	1	02/26/14 07:01	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
		Date Analyzed:	02/26/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1401849-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1401849-001DUP 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.

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:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
		Date Analyzed:	02/26/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Bromide

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1401849-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike K1401849-001MS			Duplicate Matrix Spike K1401849-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Bromide	ND U	3.90	4.00	98	3.90	4.00	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.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Analyzed:**	02/26/14
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:	381533

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1401849-LCS	2.37	2.50	95	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
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	K1401849-001	**9.93**	0.40	2	02/26/14 07:16	
Method Blank	K1401849-MB1	ND U	0.20	1	02/26/14 07:01	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
		Date Analyzed:	02/26/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1401849-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1401849-001DUP Result	Average	RPD	RPD Limit
Chloride	300.0	0.40	9.93	9.81	9.87	1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
		Date Analyzed:	02/26/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Chloride

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1401849-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike K1401849-001MS			Duplicate Matrix Spike K1401849-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Chloride	9.93	14.5	4.00	115 *	14.5	4.00	114 *	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:**	K1401849
Project:	Sentinel Wells Program	**Date Analyzed:**	02/26/14
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:	381533

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1401849-LCS	4.87	5.00	97	90-110

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
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	K1401849-001	ND U	0.20	2	02/26/14 07:16	
Method Blank	K1401849-MB1	ND U	0.10	1	02/26/14 07:01	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
		Date Analyzed:	02/26/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1401849-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1401849-001DUP Result	Average	RPD	RPD Limit
Fluoride	300.0	0.20	ND	0.21	NC	NC	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
		Date Analyzed:	02/26/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Fluoride

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1401849-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike K1401849-001MS			Duplicate Matrix Spike K1401849-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Fluoride	ND U	4.31	4.00	108	4.35	4.00	109	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:**	K1401849
Project:	Sentinel Wells Program	**Date Analyzed:**	02/26/14
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:	381533

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1401849-LCS	5.12	5.00	102	90-110

ALS Group USA, Corp.
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Analytical Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
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	K1401849-001	ND U	0.10	2	02/26/14 07:16	
Method Blank	K1401849-MB1	ND U	0.050	1	02/26/14 07:01	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
		Date Analyzed:	02/26/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1401849-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1401849-001DUP 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.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
		Date Analyzed:	02/26/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrite as Nitrogen

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1401849-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike K1401849-001MS			Duplicate Matrix Spike K1401849-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrite as Nitrogen	ND U	4.16	4.00	104	4.18	4.00	104	90-110	<1	20

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dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Analyzed:**	02/26/14
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:	381533

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1401849-LCS	2.59	2.50	104	90-110

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
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	K1401849-001	ND U	0.10	2	02/26/14 07:16	
Method Blank	K1401849-MB1	ND U	0.050	1	02/26/14 07:01	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
		Date Analyzed:	02/26/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1401849-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1401849-001DUP 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:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
		Date Analyzed:	02/26/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Nitrate as Nitrogen

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1401849-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike K1401849-001MS			Duplicate Matrix Spike K1401849-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrate as Nitrogen	ND U	3.74	4.00	94	3.76	4.00	94	90-110	<1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Analyzed:**	02/26/14
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:	381533

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1401849-LCS	2.35	2.50	94	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
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	K1401849-001	ND U	0.20	2	02/26/14 07:16	
Method Blank	K1401849-MB1	ND U	0.10	1	02/26/14 07:01	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
		Date Analyzed:	02/26/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1401849-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1401849-001DUP Result	Average	RPD	RPD Limit
Sulfate	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:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
		Date Analyzed:	02/26/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Sulfate

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1401849-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	None		

		Matrix Spike K1401849-001MS			Duplicate Matrix Spike K1401849-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Sulfate	ND U	3.92	4.00	98	3.93	4.00	98	90-110	<1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Analyzed:**	02/26/14
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:	381533

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1401849-LCS	4.90	5.00	98	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
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	K1401849-001	ND U	1.0	1	02/25/14 16:17	
Method Blank	K1401849-MB1	ND U	1.0	1	02/25/14 14:39	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project	Sentinel Wells Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	02/25/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1400809-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1400809-001DUP Result	Average	RPD	RPD Limit
Perchlorate	314.0	2.0	12.6	12.2	12.4	3	20

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ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	02/25/14
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Perchlorate

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1400809-001	**Basis:**	NA
Analysis Method:	314.0		
Prep Method:	None		

		Matrix Spike K1400809-001MS			Duplicate Matrix Spike K1400809-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	12.6	64.8	50.0	104	65.7	50.0	106	80-120	1	20

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ALS Group USA, Corp.
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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Analyzed:**	02/25/14
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:	381450

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1401849-LCS	15.9	16.8	94	85-115

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
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	K1401849-001	ND U	0.010	1	02/28/14 13:41	2/28/14	
Method Blank	K1401849-MB1	ND U	0.010	1	02/28/14 13:41	2/28/14	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project	Sentinel Wells Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	02/28/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1401998-03	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1401998-03DUP 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:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	02/28/14
		Date Extracted:	02/28/14

Duplicate Matrix Spike Summary
Cyanide, Total

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	KQ1401998-03	**Basis:**	NA
Analysis Method:	335.4		
Prep Method:	Method		

		Matrix Spike KQ1401998-03MS			Duplicate Matrix Spike KQ1401998-03DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Cyanide, Total	ND U	0.093	0.100	92	0.093	0.100	92	90-110	<1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Analyzed:**	02/28/14
Sample Matrix:	Drinking Water	**Date Extracted:**	02/28/14

Lab Control Sample Summary
Cyanide, Total

Analysis Method:	335.4	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	381919

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1401849-LCS	0.153	0.150	102	90-110

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
Analysis Method:	350.1	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA

Ammonia as Nitrogen

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
DW-2	K1401849-001	**0.064**	0.050	1	03/14/14 14:55	3/14/14	
Method Blank	K1401849-MB1	ND U	0.050	1	03/14/14 14:55	3/14/14	

ALS Group USA, Corp.

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project	Sentinel Wells Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	03/14/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1401875-007	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1401875-007DUP Result	Average	RPD	RPD Limit
Ammonia as Nitrogen	350.1	0.50	16.2	17.5	16.9	8	20

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dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	N/A
Sample Matrix:	Drinking Water	**Date Received:**	N/A
		Date Analyzed:	03/14/14
		Date Extracted:	03/14/14

Duplicate Matrix Spike Summary
Ammonia as Nitrogen

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1401875-007	**Basis:**	NA
Analysis Method:	350.1		
Prep Method:	Method		

		Matrix Spike K1401875-007MS			**Duplicate Matrix Spike** K1401875-007DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Ammonia as Nitrogen	16.2	36.2	20.0	100	35.7	20.0	98	90-110	1	20

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Analyzed:**	03/14/14
Sample Matrix:	Drinking Water	**Date Extracted:**	03/14/14

Lab Control Sample Summary
Ammonia as Nitrogen

Analysis Method:	350.1	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	383836

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1401849-LCS	10.5	10.9	96	90-110

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	2/25/2014
Sample Matrix:	Drinking water	**Date Received:**	2/25/2014

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	K1401849-001	0.10	2	2/26/2014	ND	

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
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	K1401849-001	**15.0**	5.0	1	02/27/14 13:35	
Method Blank	K1401849-MB1	ND U	5.0	1	02/27/14 13:35	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
		Date Analyzed:	02/27/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW-2	**Units:**	ColorUnits
Lab Code:	K1401849-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1401849-001DUP Result	Average	RPD	RPD Limit
Color	SM 2120 B	5.0	15.0	15.0	15.0	<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.

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Analyzed:**	02/27/14
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:	381779

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1401849-LCS	65.0	65.0	100	85-115

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
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	K1401849-001	**141**	2.0	1	03/06/14 14:30	
Method Blank	K1401849-MB1	ND U	2.0	1	03/06/14 14:30	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
		Date Analyzed:	03/06/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	DW-2	**Units:**	mg/L
Lab Code:	K1401849-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1401849-001DUP Result	Average	RPD	RPD Limit
Alkalinity as CaCO3, Total	SM 2320 B	2.0	141	141	141	<1	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Analyzed:**	03/06/14
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:	382703

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1401849-LCS	156	158	99	90-110

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
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	K1401849-001	**301**	2.0	1	03/06/14 12:00	
Method Blank	K1401849-MB1	ND U	2.0	1	03/06/14 12:00	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project	Sentinel Wells Program	**Date Collected:**	NA
Sample Matrix:	Drinking Water	**Date Received:**	NA
		Date Analyzed:	03/06/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	uMHOS/cm
Lab Code:	K1401851-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1401851-001DUP Result	Average	RPD	RPD Limit
Conductivity at 25 Degrees Celsius	SM 2510 B	2.0	1870	1940	1900	4	20

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Analyzed:**	03/06/14
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:	382720

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1401849-LCS	339	330	103	86-113

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking Water	**Date Received:**	02/25/14
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	K1401849-001	**187**	10	1	02/28/14 12:10	
Method Blank	K1401849-MB1	ND U	5.0	1	02/28/14 12:10	
Method Blank	K1401849-MB2	ND U	10	1	02/28/14 12:10	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project	Sentinel Wells Program	**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	K1401859-001DUP	10	407	401	404	1	10	02/28/14
Batch QC	K1401866-001DUP	20	2350	2410	2380	2	10	02/28/14

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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.

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Analyzed:**	02/28/14
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:	381992

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1401849-LCS	1120	1120	100	85-115

Methyl Mercury

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking water	**Date Received:**	02/25/14

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	K1401849-001	0.1	1	02/26/14	02/27/14	ND	
Method Blank 1	K1401849-MB1	0.1	1	02/26/14	02/27/14	ND	
Method Blank 2	K1401849-MB2	0.1	1	02/26/14	02/27/14	ND	
Method Blank 3	K1401849-MB3	0.1	1	02/26/14	02/27/14	ND	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	02/26/14
		Date Analyzed:	02/27/14

Matrix Spike/Duplicate Matrix Spike Summary
Metals

Sample Name:	Batch QC		Units:	ng/L
Lab Code:	K1401758-001MS,	K1401758-001MSD	Basis:	NA
Test Notes:				

				Spike Level		Sample	Spike Result		Percent Recovery				
Analyte	**Prep Method**	**Analysis Method**	**MRL**	**MS**	**DMS**	**Result**	**MS**	**DMS**	**MS**	**DMS**	**CAS Acceptance Limits**	**Relative Percent Difference**	**Result Notes**
Mercury, Methyl	Method	1630	0.1	2.22	2.22	0.6	2.86	2.75	102	97	65-135	4	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	02/26/14
		Date Analyzed:	02/27/14

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	2.35	106	67-133	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	02/26/14
		Date Analyzed:	02/27/14

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	2.24	108	67-133	

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	02/26/14
		Date Analyzed:	02/27/14

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	108	108	67-133	

Hardness as CaCO3

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking water	**Date Received:**	02/25/14
		Date Extracted:	02/27/14
		Date Analyzed:	02/28/14

Hardness, as CaCO3
EPA Method 200.7 / SM Method 2340B
Units: mg/L (ppm)

Sample Name	Lab Code	MRL	Result
DW-2	K1401849-001	0.1	114
Method Blank	K1401849-MB	0.1	ND

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/14
Sample Matrix:	Drinking water	**Date Received:**	02/25/14
		Date Extracted:	02/27/14
		Date Analyzed:	02/28/14

Duplicate Summary
Metals
Units: mg/L (ppm)

Sample Name: Batch QC
Lab Code: K1401689-009D

Analyte	Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference
Hardness, as CaCO3	200.7/SM 2340B	0.07	24.8	24.8	24.8	<1

Metals

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- Cover Page -
INORGANIC ANALYSIS DATA PACKAGE

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

Service Request : K1401849

Sample Name :	Lab Code :
Batch QC	K1401593-001D
Batch QC	K1401593-001S
Batch QC2	K1401689-009D
Batch QC2	K1401689-009S
Batch QC3	K1401833-001D
Batch QC3	K1401833-001S
DW-2	K1401849-001
Laboratory Control Sample	K1401849-LCS
Method Blank	K1401849-MB

Comments:

ALS Group USA, Corp.
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Analytical Report

Client :	Longview, City of	**Service Request :**	K1401849
Project Name :	Sentinel Wells Program	**Date Collected :**	02/25/14
Project No. :	NA	**Date Received :**	02/25/14
Matrix :	Drinking Water	**Date Extracted :**	02/26,27/14

Total Metals

Sample Name :	DW-2	**Units :**	mg/L (ppm)
Lab Code :	K1401849-001	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Antimony	200.8	0.00005	03/01/14	ND	
Arsenic	200.8	0.0005	03/01/14	0.0098	
Barium	200.7	0.004	02/28/14	0.021	
Beryllium	200.8	0.00002	03/01/14	ND	
Cadmium	200.8	0.00002	03/01/14	ND	
Chromium	200.8	0.0002	03/01/14	ND	
Copper	200.7	0.004	02/28/14	ND	
Iron	200.7	0.02	02/28/14	0.52	
Lead	200.8	0.00002	03/01/14	ND	
Manganese	200.7	0.001	02/28/14	0.290	
Mercury	245.1	0.0002	02/26/14	ND	
Nickel	200.8	0.0002	03/01/14	0.0004	
Selenium	200.8	0.001	03/01/14	ND	
Silver	200.8	0.00002	03/01/14	ND	
Sodium	200.7	0.2	02/28/14	14.3	
Thallium	200.8	0.00002	03/01/14	ND	
Zinc	200.7	0.004	02/28/14	ND	

Comments:

ALS Group USA, Corp.
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Analytical Report

Client :	Longview, City of	**Service Request :**	K1401849
Project Name :	Sentinel Wells Program	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	02/26,27/14

Total Metals

Sample Name :	Method Blank	**Units :**	mg/L (ppm)
Lab Code :	K1401849-MB	**Basis :**	NA

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Antimony	200.8	0.00005	03/01/14	ND	
Arsenic	200.8	0.0005	03/01/14	ND	
Barium	200.7	0.004	02/28/14	ND	
Beryllium	200.8	0.00002	03/01/14	ND	
Cadmium	200.8	0.00002	03/01/14	ND	
Chromium	200.8	0.0002	03/01/14	ND	
Copper	200.7	0.004	02/28/14	ND	
Iron	200.7	0.02	02/28/14	ND	
Lead	200.8	0.00002	03/01/14	ND	
Manganese	200.7	0.001	02/28/14	ND	
Mercury	245.1	0.0002	02/26/14	ND	
Nickel	200.8	0.0002	03/01/14	ND	
Selenium	200.8	0.001	03/01/14	ND	
Silver	200.8	0.00002	03/01/14	ND	
Sodium	200.7	0.2	02/28/14	ND	
Thallium	200.8	0.00002	03/01/14	ND	
Zinc	200.7	0.004	02/28/14	ND	

Comments:

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QA/QC Report

Client :	Longview, City of	**Service Request :**	K1401849
Project Name :	Sentinel Wells Program	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	02/27/14
		Date Analyzed :	03/01/14

Duplicate Summary
Total Metals

Sample Name :	Batch QC	**Units :**	mg/L (ppm)
Lab Code :	K1401593-001D	**Basis :**	NA

Analyte	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Antimony	200.8	0.00005	ND	ND	ND	-	
Arsenic	200.8	0.0005	ND	ND	ND	-	
Beryllium	200.8	0.00002	ND	ND	ND	-	
Cadmium	200.8	0.00002	ND	ND	ND	-	
Chromium	200.8	0.0002	ND	ND	ND	-	
Lead	200.8	0.00002	0.00002	ND	NC	NC	
Nickel	200.8	0.0002	ND	ND	ND	-	
Selenium	200.8	0.001	ND	ND	ND	-	
Silver	200.8	0.00002	ND	ND	ND	-	
Thallium	200.8	0.00002	ND	ND	ND	-	

Comments:

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QA/QC Report

Client :	Longview, City of	**Service Request :**	K1401849
Project Name :	Sentinel Wells Program	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	02/27/14
		Date Analyzed :	02/28/14

Duplicate Summary
Total Metals

Sample Name :	Batch QC2	**Units :**	mg/L (ppm)
Lab Code :	K1401689-009D	**Basis :**	NA

Analyte	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Barium	200.7	0.004	0.016	0.016	0.016	<1	
Copper	200.7	0.004	0.006	0.005	0.005	18	
Iron	200.7	0.02	1.45	1.44	1.44	<1	
Manganese	200.7	0.001	0.020	0.020	0.020	<1	
Sodium	200.7	0.2	13.8	13.9	13.8	<1	
Zinc	200.7	0.004	0.005	0.004	0.004	22	

Comments:

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QA/QC Report

Client :	Longview, City of	**Service Request :**	K1401849
Project Name :	Sentinel Wells Program	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	02/26/14
		Date Analyzed :	02/26/14

Duplicate Summary
Total Metals

Sample Name :	Batch QC3	**Units :**	mg/L (ppm)
Lab Code :	K1401833-001D	**Basis :**	NA

Analyte	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Mercury	245.1	0.0002	ND	ND	ND	-	

Comments:

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QA/QC Report

Client :	Longview, City of	**Service Request :**	K1401849
Project Name :	Sentinel Wells Program	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	02/27/14
		Date Analyzed :	03/01/14

Matrix Spike Summary
Total Metals

Sample Name :	Batch QC	**Units :**	mg/L (ppm)
Lab Code :	K1401593-001S	**Basis :**	NA

Analyte	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Antimony	0.00005	0.050	ND	0.0513	103	70-130	
Arsenic	0.0005	0.050	ND	0.0494	99	70-130	
Beryllium	0.00002	0.0025	ND	0.00257	103	70-130	
Cadmium	0.00002	0.025	ND	0.0254	102	70-130	
Chromium	0.0002	0.010	ND	0.0093	93	70-130	
Lead	0.00002	0.050	0.00002	0.0484	97	70-130	
Nickel	0.0002	0.025	ND	0.0239	96	70-130	
Selenium	0.001	0.050	ND	0.051	102	70-130	
Silver	0.00002	0.013	ND	0.0124	99	70-130	
Thallium	0.00002	0.050	ND	0.0497	99	70-130	

Comments:

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QA/QC Report

Client :	Longview, City of	**Service Request :**	K1401849
Project Name :	Sentinel Wells Program	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	02/27/14
		Date Analyzed :	02/28/14

Matrix Spike Summary
Total Metals

Sample Name :	Batch QC2	**Units :**	mg/L (ppm)
Lab Code :	K1401689-009S	**Basis :**	NA

Analyte	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Barium	0.004	2.00	0.016	2.07	103	70-130	
Copper	0.004	0.25	0.006	0.244	95	70-130	
Iron	0.02	1.00	1.45	2.33	88	70-130	
Manganese	0.001	0.50	0.020	0.508	98	70-130	
Sodium	0.2	10.0	13.8	23.1	93	70-130	
Zinc	0.004	0.50	0.005	0.477	94	70-130	

Comments:

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QA/QC Report

Client :	Longview, City of	**Service Request :**	K1401849
Project Name :	Sentinel Wells Program	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	02/26/14
		Date Analyzed :	02/26/14

Matrix Spike Summary
Total Metals

Sample Name :	Batch QC3	**Units :**	mg/L (ppm)
Lab Code :	K1401833-001S	**Basis :**	NA

Analyte	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Mercury	0.0002	0.0010	ND	0.0010	100	70-130	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Longview, City of	**Service Request :**	K1401849
Project Name :	Sentinel Wells Program	**Date Collected :**	NA
Project No. :	NA	**Date Received :**	NA
Matrix :	Drinking Water	**Date Extracted :**	02/26,27/14
		Date Analyzed :	02/26-03/01/14

Laboratory Control Sample Summary
Total Metals

Sample Name :	Laboratory Control Sample	**Units :**	mg/L (ppm)
Lab Code :	K1401849-LCS	**Basis :**	NA

Analyte	Analysis Method	True Value	Result	Percent	CAS Percent Recovery Acceptance Limits	Result Notes
Antimony	200.8	0.050	0.0513	103	85-115	
Arsenic	200.8	0.050	0.0492	98	85-115	
Barium	200.7	5.00	5.07	101	85-115	
Beryllium	200.8	0.0025	0.00259	104	85-115	
Cadmium	200.8	0.025	0.0254	102	85-115	
Chromium	200.8	0.010	0.0101	101	85-115	
Copper	200.7	0.63	0.612	98	85-115	
Iron	200.7	2.50	2.47	99	85-115	
Lead	200.8	0.050	0.049	98	85-115	
Manganese	200.7	1.25	1.23	98	85-115	
Mercury	245.1	0.0050	0.005	100	85-115	
Nickel	200.8	0.025	0.0252	101	85-115	
Selenium	200.8	0.050	0.0511	102	85-115	
Silver	200.8	0.013	0.0127	102	85-115	
Sodium	200.7	12.5	12.3	98	85-115	
Thallium	200.8	0.050	0.0504	101	85-115	
Zinc	200.7	1.25	1.20	96	85-115	

Comments:

EPA Method 504.1

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Analytical Results

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/2014
Sample Matrix:	Drinking water	**Date Received:**	02/25/2014

EPA Method 504.1

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1401849-001	**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	03/10/14	03/11/14	KWG1401910	
1,2,3-Trichloropropane	ND	U	0.098	1	03/10/14	03/11/14	KWG1401910	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.0097	1	03/10/14	03/11/14	KWG1401910	

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

EPA Method 504.1

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1401910-4	**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	03/10/14	03/11/14	KWG1401910	
1,2,3-Trichloropropane	ND	U	0.10	1	03/10/14	03/11/14	KWG1401910	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.0099	1	03/10/14	03/11/14	KWG1401910	

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Extracted:**	03/10/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	03/11/2014

Matrix Spike/Duplicate Matrix Spike Summary
EPA Method 504.1

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1401849-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	504.1	**Extraction Lot:**	KWG1401910

		DW-2MS KWG1401910-1 Matrix Spike			DW-2DMS KWG1401910-2 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	0.224	0.242	93	0.223	0.243	92	65-135	0	30
1,2,3-Trichloropropane	ND	0.229	0.242	95	0.223	0.243	92	65-135	3	30
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.218	0.242	90	0.208	0.243	86	65-135	5	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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Extracted:**	03/10/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	03/10/2014

Lab Control Spike Summary
EPA Method 504.1

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	504.1	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1401910

	Lab Control Sample KWG1401910-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
1,2-Dibromoethane (EDB)	0.256	0.250	103	70-130
1,2,3-Trichloropropane	0.254	0.250	102	70-130
1,2-Dibromo-3-chloropropane (DBCP)	0.238	0.250	95	70-130

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Pesticides - PCBs

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Analytical Results

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/2014
Sample Matrix:	Drinking water	**Date Received:**	02/25/2014

Pesticides/PCBs by EPA Method 508.1

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1401849-001	**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	03/03/14	03/11/14	KWG1401692	
Heptachlor	ND	U	0.0097	1	03/03/14	03/11/14	KWG1401692	
Aldrin	ND	U	0.0097	1	03/03/14	03/11/14	KWG1401692	
Heptachlor Epoxide	ND	U	0.0097	1	03/03/14	03/11/14	KWG1401692	
Heptachlor Epoxide (Isomer A)	ND	U	0.0097	1	03/03/14	03/11/14	KWG1401692	
4,4'-DDE	ND	U	0.0097	1	03/03/14	03/11/14	KWG1401692	
Dieldrin	ND	U	0.0097	1	03/03/14	03/11/14	KWG1401692	
Endrin	ND	U	0.0097	1	03/03/14	03/11/14	KWG1401692	
4,4'-DDD	ND	U	0.0097	1	03/03/14	03/11/14	KWG1401692	
4,4'-DDT	ND	U	0.0097	1	03/03/14	03/11/14	KWG1401692	
Methoxychlor	ND	U	0.0097	1	03/03/14	03/11/14	KWG1401692	
Toxaphene	ND	U	0.097	1	03/03/14	03/11/14	KWG1401692	
Chlordane	ND	U	0.097	1	03/03/14	03/11/14	KWG1401692	
Aroclor 1016	ND	U	0.049	1	03/03/14	03/11/14	KWG1401692	
Aroclor 1221	ND	U	0.097	1	03/03/14	03/11/14	KWG1401692	
Aroclor 1232	ND	U	0.097	1	03/03/14	03/11/14	KWG1401692	
Aroclor 1242	ND	U	0.097	1	03/03/14	03/11/14	KWG1401692	
Aroclor 1248	ND	U	0.097	1	03/03/14	03/11/14	KWG1401692	
Aroclor 1254	ND	U	0.097	1	03/03/14	03/11/14	KWG1401692	
Aroclor 1260	ND	U	0.097	1	03/03/14	03/11/14	KWG1401692	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4,4'-Dibromooctafluorobiphenyl	100	70-130	03/11/14	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**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:	KWG1401692-7	**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	03/03/14	03/11/14	KWG1401692	
Heptachlor	ND	U	0.010	1	03/03/14	03/11/14	KWG1401692	
Aldrin	ND	U	0.010	1	03/03/14	03/11/14	KWG1401692	
Heptachlor Epoxide	ND	U	0.010	1	03/03/14	03/11/14	KWG1401692	
Heptachlor Epoxide (Isomer A)	ND	U	0.010	1	03/03/14	03/11/14	KWG1401692	
4,4'-DDE	ND	U	0.010	1	03/03/14	03/11/14	KWG1401692	
Dieldrin	ND	U	0.010	1	03/03/14	03/11/14	KWG1401692	
Endrin	ND	U	0.010	1	03/03/14	03/11/14	KWG1401692	
4,4'-DDD	ND	U	0.010	1	03/03/14	03/11/14	KWG1401692	
4,4'-DDT	ND	U	0.010	1	03/03/14	03/11/14	KWG1401692	
Methoxychlor	ND	U	0.010	1	03/03/14	03/11/14	KWG1401692	
Toxaphene	ND	U	0.10	1	03/03/14	03/11/14	KWG1401692	
Chlordane	ND	U	0.10	1	03/03/14	03/11/14	KWG1401692	
Aroclor 1016	ND	U	0.050	1	03/03/14	03/11/14	KWG1401692	
Aroclor 1221	ND	U	0.10	1	03/03/14	03/11/14	KWG1401692	
Aroclor 1232	ND	U	0.10	1	03/03/14	03/11/14	KWG1401692	
Aroclor 1242	ND	U	0.10	1	03/03/14	03/11/14	KWG1401692	
Aroclor 1248	ND	U	0.10	1	03/03/14	03/11/14	KWG1401692	
Aroclor 1254	ND	U	0.10	1	03/03/14	03/11/14	KWG1401692	
Aroclor 1260	ND	U	0.10	1	03/03/14	03/11/14	KWG1401692	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4,4'-Dibromooctafluorobiphenyl	97	70-130	03/11/14	Acceptable

Comments:

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

Service Request: K1401849

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	K1401849-001	100
Method Blank	KWG1401692-7	97
DW-2MS	KWG1401692-1	88
DW-2DMS	KWG1401692-2	89
Lab Control Sample	KWG1401692-3	85

Surrogate Recovery Control Limits (%)

Sur1 = 4,4'-Dibromooctafluorobiphenyl 70-130

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Extracted:**	03/03/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	03/11/2014

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

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1401849-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	508.1	**Extraction Lot:**	KWG1401692

		DW-2MS KWG1401692-1 Matrix Spike			DW-2DMS KWG1401692-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
gamma-BHC (Lindane)	ND	0.113	0.0962	117	0.113	0.0962	117	65-135	0	30
Heptachlor	ND	0.0806	0.0962	84	0.0784	0.0962	82	65-135	3	30
Aldrin	ND	0.104	0.0962	108	0.103	0.0962	108	65-135	0	30
Heptachlor Epoxide	ND	0.0917	0.0962	95	0.0872	0.0962	91	65-135	5	30
Heptachlor Epoxide (Isomer A)	ND	0.0797	0.0962	83	0.0812	0.0962	84	65-135	2	30
4,4'-DDE	ND	0.116	0.0962	121	0.117	0.0962	121	65-135	0	30
Dieldrin	ND	0.0982	0.0962	102	0.0965	0.0962	100	65-135	2	30
Endrin	ND	0.0762	0.0962	79	0.0693	0.0962	72	65-135	9	30
4,4'-DDD	ND	0.123	0.0962	128	0.121	0.0962	126	65-135	1	30
4,4'-DDT	ND	0.123	0.0962	128	0.123	0.0962	127	65-135	1	30
Methoxychlor	ND	0.119	0.0962	123	0.117	0.0962	122	65-135	1	30
Aroclor 1248	ND	0.359	0.481	75	0.362	0.481	75	65-135	1	30

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Extracted:**	03/03/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	03/11/2014

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:	KWG1401692

	Lab Control Sample KWG1401692-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
gamma-BHC (Lindane)	0.119	0.100	119	70-130
Heptachlor	0.0955	0.100	96	70-130
Aldrin	0.103	0.100	103	70-130
Heptachlor Epoxide	0.0966	0.100	97	70-130
Heptachlor Epoxide (Isomer A)	0.0930	0.100	93	70-130
4,4'-DDE	0.108	0.100	108	70-130
Dieldrin	0.111	0.100	111	70-130
Endrin	0.119	0.100	119	70-130
4,4'-DDD	0.114	0.100	114	70-130
4,4'-DDT	0.114	0.100	114	70-130
Methoxychlor	0.116	0.100	116	70-130
Aroclor 1248	0.433	0.500	87	70-130

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Chlorinated Herbicides

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Analytical Results

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/2014
Sample Matrix:	Drinking water	**Date Received:**	02/25/2014

Chlorinated Herbicides by EPA 515.4

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1401849-001	**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	2.0	1	03/04/14	03/12/14	KWG1401736	
3,5-Dichlorobenzoic Acid	ND	U	0.50	1	03/04/14	03/12/14	KWG1401736	
Dicamba	ND	U	0.20	1	03/04/14	03/12/14	KWG1401736	
Dichlorprop	ND	U	0.50	1	03/04/14	03/12/14	KWG1401736	
2,4-D	ND	U	0.20	1	03/04/14	03/12/14	KWG1401736	
Pentachlorophenol	ND	U	0.080	1	03/04/14	03/12/14	KWG1401736	
2,4,5-TP (Silvex)	ND	U	0.40	1	03/04/14	03/12/14	KWG1401736	
2,4,5-T	ND	U	0.40	1	03/04/14	03/12/14	KWG1401736	
Chloramben	ND	U	0.30	1	03/04/14	03/12/14	KWG1401736	
2,4-DB	ND	U	1.0	1	03/04/14	03/12/14	KWG1401736	
Dinoseb	ND	U	0.40	1	03/04/14	03/12/14	KWG1401736	
Bentazon	ND	U	0.50	1	03/04/14	03/12/14	KWG1401736	
Dacthal Diacid	ND	U	0.10	1	03/04/14	03/12/14	KWG1401736	
Picloram	ND	U	0.20	1	03/04/14	03/12/14	KWG1401736	
Acifluorfen	ND	U	2.0	1	03/04/14	03/12/14	KWG1401736	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2,4-Dichlorophenylacetic Acid	123	70-130	03/12/14	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**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:	KWG1401736-4	**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	2.0	1	03/04/14	03/11/14	KWG1401736	
3,5-Dichlorobenzoic Acid	ND	U	0.50	1	03/04/14	03/11/14	KWG1401736	
Dicamba	ND	U	0.20	1	03/04/14	03/11/14	KWG1401736	
Dichlorprop	ND	U	0.50	1	03/04/14	03/11/14	KWG1401736	
2,4-D	ND	U	0.20	1	03/04/14	03/11/14	KWG1401736	
Pentachlorophenol	ND	U	0.080	1	03/04/14	03/11/14	KWG1401736	
2,4,5-TP (Silvex)	ND	U	0.40	1	03/04/14	03/11/14	KWG1401736	
2,4,5-T	ND	U	0.40	1	03/04/14	03/11/14	KWG1401736	
Chloramben	ND	U	0.30	1	03/04/14	03/11/14	KWG1401736	
2,4-DB	ND	U	1.0	1	03/04/14	03/11/14	KWG1401736	
Dinoseb	ND	U	0.40	1	03/04/14	03/11/14	KWG1401736	
Bentazon	ND	U	0.50	1	03/04/14	03/11/14	KWG1401736	
Dacthal Diacid	ND	U	0.10	1	03/04/14	03/11/14	KWG1401736	
Picloram	ND	U	0.20	1	03/04/14	03/11/14	KWG1401736	
Acifluorfen	ND	U	2.0	1	03/04/14	03/11/14	KWG1401736	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2,4-Dichlorophenylacetic Acid	118	70-130	03/11/14	Acceptable

Comments:

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

Service Request: K1401849

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	K1401849-001	123
Batch QC	K1401984-001	129
Method Blank	KWG1401736-4	118
Batch QCMS	KWG1401736-1	101
Batch QCDMS	KWG1401736-2	114
Lab Control Sample	KWG1401736-3	107

Surrogate Recovery Control Limits (%)

Sur1 = 2,4-Dichlorophenylacetic Acid 70-130

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Extracted:**	03/04/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	03/12/2014

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

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1401984-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	515.4	**Extraction Lot:**	KWG1401736

		Batch QCMS KWG1401736-1 Matrix Spike			Batch QCDMS KWG1401736-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dalapon	ND	4.81	4.97	97	5.04	4.97	101	70-130	5	30
3,5-Dichlorobenzoic Acid	ND	4.15	4.97	83	4.76	4.97	96	70-130	14	30
Dicamba	ND	4.23	4.97	85	4.75	4.97	96	70-130	11	30
Dichlorprop	ND	4.16	4.97	84	4.76	4.97	96	70-130	13	30
2,4-D	ND	5.12	4.97	103	5.74	4.97	116	70-130	11	30
Pentachlorophenol	ND	4.23	4.97	85	4.86	4.97	98	70-130	14	30
2,4,5-TP (Silvex)	ND	4.16	4.97	84	4.72	4.97	95	70-130	13	30
2,4,5-T	ND	4.57	4.97	92	5.17	4.97	104	70-130	12	30
Chloramben	ND	4.87	4.97	98	5.22	4.97	105	70-130	7	30
2,4-DB	ND	4.35	4.97	88	4.92	4.97	99	70-130	12	30
Dinoseb	ND	4.30	4.97	86	4.85	4.97	98	70-130	12	30
Bentazon	ND	4.42	4.97	89	4.96	4.97	100	70-130	12	30
Dacthal Diacid	ND	5.19	4.97	104	5.60	4.97	113	70-130	8	30
Picloram	ND	5.23	4.97	105	5.31	4.97	107	70-130	1	30
Acifluorfen	ND	4.16	4.97	84	4.71	4.97	95	70-130	13	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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Extracted:**	03/04/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	03/11/2014

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:	KWG1401736

	Lab Control Sample KWG1401736-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Dalapon	4.83	5.00	97	70-130
3,5-Dichlorobenzoic Acid	4.57	5.00	91	70-130
Dicamba	4.56	5.00	91	70-130
Dichlorprop	4.59	5.00	92	70-130
2,4-D	5.38	5.00	108	70-130
Pentachlorophenol	4.87	5.00	97	70-130
2,4,5-TP (Silvex)	4.61	5.00	92	70-130
2,4,5-T	4.95	5.00	99	70-130
Chloramben	4.83	5.00	97	70-130
2,4-DB	4.78	5.00	96	70-130
Dinoseb	5.03	5.00	101	70-130
Bentazon	5.06	5.00	101	70-130
Dacthal Diacid	5.21	5.00	104	70-130
Picloram	4.77	5.00	95	70-130
Acifluorfen	4.73	5.00	95	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.

Volatile Organic Compounds

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

Analytical Results

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/2014
Sample Matrix:	Drinking water	**Date Received:**	02/25/2014

Volatile Organic Compounds

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1401849-001	**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	02/26/14	02/26/14	KWG1401506	
Chloromethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Vinyl Chloride	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Bromomethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Chloroethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Trichlorofluoromethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Methylene Chloride	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
trans-1,2-Dichloroethene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,1-Dichloroethene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
cis-1,2-Dichloroethene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Methyl tert-Butyl Ether	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Chloroform	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Bromochloromethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Carbon Tetrachloride	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Benzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,2-Dichloroethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Trichloroethene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,2-Dichloropropane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Bromodichloromethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Dibromomethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
cis-1,3-Dichloropropene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,1-Dichloroethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Toluene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
trans-1,3-Dichloropropene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Tetrachloroethene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
2,2-Dichloropropane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,3-Dichloropropane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Dibromochloromethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Chlorobenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Ethylbenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Styrene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
m,p-Xylenes	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/2014
Sample Matrix:	Drinking water	**Date Received:**	02/25/2014

Volatile Organic Compounds

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1401849-001	**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	02/26/14	02/26/14	KWG1401506	
1,1,1-Trichloroethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Bromoform	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Isopropylbenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,1-Dichloropropene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Bromobenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
n-Propylbenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,3,5-Trimethylbenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
2-Chlorotoluene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
4-Chlorotoluene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
tert-Butylbenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,2,4-Trimethylbenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
sec-Butylbenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
p-Isopropyltoluene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,3-Dichlorobenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,4-Dichlorobenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
n-Butylbenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,2-Dichlorobenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,2,4-Trichlorobenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Hexachlorobutadiene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Naphthalene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,1,2-Trichloroethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,2,3-Trichloropropane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,2,3-Trichlorobenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/2014
Sample Matrix:	Drinking water	**Date Received:**	02/25/2014

Volatile Organic Compounds

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1401849-001	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	73	70-130	02/26/14	Acceptable
Dibromofluoromethane	93	82-124	02/26/14	Acceptable
Toluene-d8	104	82-124	02/26/14	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1401506-3	**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	02/26/14	02/26/14	KWG1401506	
Chloromethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Vinyl Chloride	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Bromomethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Chloroethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Trichlorofluoromethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Methylene Chloride	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
trans-1,2-Dichloroethene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,1-Dichloroethene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
cis-1,2-Dichloroethene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Methyl tert-Butyl Ether	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Chloroform	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Bromochloromethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Carbon Tetrachloride	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Benzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,2-Dichloroethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Trichloroethene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,2-Dichloropropane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Bromodichloromethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Dibromomethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
cis-1,3-Dichloropropene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,1-Dichloroethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Toluene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
trans-1,3-Dichloropropene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Tetrachloroethene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
2,2-Dichloropropane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,3-Dichloropropane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Dibromochloromethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,2-Dibromoethane (EDB)	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Chlorobenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Ethylbenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Styrene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
m,p-Xylenes	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1401506-3	**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	02/26/14	02/26/14	KWG1401506	
1,1,1-Trichloroethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Bromoform	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Isopropylbenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,1-Dichloropropene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Bromobenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
n-Propylbenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,3,5-Trimethylbenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
2-Chlorotoluene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
4-Chlorotoluene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
tert-Butylbenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,2,4-Trimethylbenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
sec-Butylbenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
p-Isopropyltoluene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,3-Dichlorobenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,4-Dichlorobenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
n-Butylbenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,2-Dichlorobenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,2-Dibromo-3-chloropropane (DBCP	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,2,4-Trichlorobenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Hexachlorobutadiene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
Naphthalene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,1,2-Trichloroethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,2,3-Trichloropropane	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	
1,2,3-Trichlorobenzene	ND	U	0.50	1	02/26/14	02/26/14	KWG1401506	

Comments:

Analytical Results

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1401506-3	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	76	70-130	02/26/14	Acceptable
Dibromofluoromethane	92	82-124	02/26/14	Acceptable
Toluene-d8	103	82-124	02/26/14	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Longview, City of
Project: Sentinel Wells Program
Sample Matrix: Surface water

Service Request: K1401849

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	K1401762-004	71	94	103
DW-2	K1401849-001	73	93	104
Method Blank	KWG1401506-3	76	92	103
Batch QCMS	KWG1401506-4	101	96	109
Batch QCDMS	KWG1401506-5	101	96	106
Lab Control Sample	KWG1401506-1	104	96	106

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:**	K1401849
Project:	Sentinel Wells Program	**Date Extracted:**	02/26/2014
Sample Matrix:	Surface water	**Date Analyzed:**	02/26/2014

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1401762-004	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2	**Extraction Lot:**	KWG1401506

		Batch QCMS KWG1401506-4 Matrix Spike			Batch QCDMS KWG1401506-5 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dichlorodifluoromethane	ND	6.00	5.00	120	5.43	5.00	109	70-130	10	30
Chloromethane	ND	5.30	5.00	106	4.87	5.00	97	70-130	8	30
Vinyl Chloride	ND	5.86	5.00	117	5.51	5.00	110	70-130	6	30
Bromomethane	ND	6.38	5.00	128	6.22	5.00	124	70-130	3	30
Chloroethane	ND	5.65	5.00	113	5.37	5.00	107	70-130	5	30
Trichlorofluoromethane	ND	5.99	5.00	120	5.49	5.00	110	70-130	9	30
Methylene Chloride	ND	5.42	5.00	108	5.29	5.00	106	70-130	2	30
trans-1,2-Dichloroethene	ND	5.89	5.00	118	5.72	5.00	114	70-130	3	30
1,1-Dichloroethene	ND	6.47	5.00	129	6.14	5.00	123	70-130	5	30
cis-1,2-Dichloroethene	ND	5.42	5.00	108	5.33	5.00	107	70-130	2	30
Methyl tert-Butyl Ether	ND	8.81	10.0	88	9.06	10.0	91	70-130	3	30
Chloroform	13	17.8	5.00	105	17.4	5.00	97	70-130	2	30
Bromochloromethane	ND	5.16	5.00	103	5.09	5.00	102	70-130	1	30
Carbon Tetrachloride	ND	5.69	5.00	114	5.37	5.00	107	70-130	6	30
Benzene	ND	5.65	5.00	113	5.46	5.00	109	70-130	3	30
1,2-Dichloroethane	ND	5.22	5.00	104	5.24	5.00	105	70-130	0	30
Trichloroethene	ND	5.67	5.00	113	5.51	5.00	110	70-130	3	30
1,2-Dichloropropane	ND	5.02	5.00	100	4.99	5.00	100	70-130	1	30
Bromodichloromethane	7.2	12.6	5.00	108	12.6	5.00	108	70-130	0	30
Dibromomethane	ND	4.90	5.00	98	5.05	5.00	101	70-130	3	30
cis-1,3-Dichloropropene	ND	5.15	5.00	103	5.04	5.00	101	70-130	2	30
Toluene	ND	5.75	5.00	115	5.73	5.00	115	70-130	0	30
1,1-Dichloroethane	ND	5.58	5.00	112	5.45	5.00	109	70-130	2	30
trans-1,3-Dichloropropene	ND	4.14	5.00	83	4.09	5.00	82	70-130	1	30
Tetrachloroethene	ND	5.37	5.00	107	5.22	5.00	104	70-130	3	30
1,3-Dichloropropane	ND	4.47	5.00	89	4.51	5.00	90	70-130	1	30
2,2-Dichloropropane	ND	5.94	5.00	119	5.76	5.00	115	70-130	3	30
Dibromochloromethane	1.9	6.18	5.00	85	6.08	5.00	83	70-130	2	30
1,2-Dibromoethane (EDB)	ND	4.61	5.00	92	4.57	5.00	91	70-130	1	30
Chlorobenzene	ND	4.90	5.00	98	4.72	5.00	94	70-130	4	30
Ethylbenzene	ND	5.42	5.00	108	5.09	5.00	102	70-130	6	30
Styrene	ND	5.38	5.00	108	5.21	5.00	104	70-130	3	30
m,p-Xylenes	ND	11.8	10.0	118	11.3	10.0	113	70-130	4	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:**	K1401849
Project:	Sentinel Wells Program	**Date Extracted:**	02/26/2014
Sample Matrix:	Surface water	**Date Analyzed:**	02/26/2014

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1401762-004	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	524.2	**Extraction Lot:**	KWG1401506

		Batch QCMS KWG1401506-4 Matrix Spike			Batch QCDMS KWG1401506-5 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
o-Xylene	ND	4.99	5.00	100	4.85	5.00	97	70-130	3	30
1,1,1-Trichloroethane	ND	5.55	5.00	111	5.25	5.00	105	70-130	6	30
Bromoform	ND	3.85	5.00	77	3.77	5.00	75	70-130	2	30
1,1,2,2-Tetrachloroethane	ND	4.12	5.00	82	4.12	5.00	82	70-130	0	30
Isopropylbenzene	ND	4.62	5.00	92	4.45	5.00	89	70-130	4	30
1,1-Dichloropropene	ND	6.04	5.00	121	5.71	5.00	114	70-130	6	30
Bromobenzene	ND	4.64	5.00	93	4.53	5.00	91	70-130	2	30
n-Propylbenzene	ND	5.71	5.00	114	5.47	5.00	109	70-130	4	30
1,3,5-Trimethylbenzene	ND	5.47	5.00	109	5.27	5.00	105	70-130	4	30
2-Chlorotoluene	ND	5.29	5.00	106	5.12	5.00	102	70-130	3	30
4-Chlorotoluene	ND	5.51	5.00	110	5.37	5.00	107	70-130	3	30
tert-Butylbenzene	ND	5.24	5.00	105	5.01	5.00	100	70-130	4	30
1,2,4-Trimethylbenzene	ND	5.43	5.00	109	5.19	5.00	104	70-130	5	30
sec-Butylbenzene	ND	5.65	5.00	113	5.37	5.00	107	70-130	5	30
p-Isopropyltoluene	ND	5.88	5.00	118	5.62	5.00	112	70-130	5	30
1,3-Dichlorobenzene	ND	4.72	5.00	94	4.69	5.00	94	70-130	1	30
1,4-Dichlorobenzene	ND	4.68	5.00	94	4.56	5.00	91	70-130	3	30
n-Butylbenzene	ND	5.56	5.00	111	5.25	5.00	105	70-130	6	30
1,2-Dichlorobenzene	ND	4.65	5.00	93	4.61	5.00	92	70-130	1	30
1,2-Dibromo-3-chloropropane (DBCP)	ND	3.74	5.00	75	3.61	5.00	72	70-130	4	30
1,2,4-Trichlorobenzene	ND	4.17	5.00	83	4.18	5.00	84	70-130	0	30
Hexachlorobutadiene	ND	4.95	5.00	99	4.69	5.00	94	70-130	5	30
Naphthalene	ND	3.76	5.00	75	3.76	5.00	75	70-130	0	30
1,1,2-Trichloroethane	ND	4.63	5.00	93	4.65	5.00	93	70-130	0	30
1,1,1,2-Tetrachloroethane	ND	4.23	5.00	85	4.17	5.00	83	70-130	1	30
1,2,3-Trichloropropane	ND	4.26	5.00	85	4.33	5.00	87	70-130	2	30
1,2,3-Trichlorobenzene	ND	4.61	5.00	92	4.70	5.00	94	70-130	2	30

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Extracted:**	02/26/2014
Sample Matrix:	Water	**Date Analyzed:**	02/26/2014

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	524.2	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1401506

	Lab Control Sample KWG1401506-1 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Dichlorodifluoromethane	5.43	5.00	109	70-130
Chloromethane	4.85	5.00	97	70-130
Vinyl Chloride	5.37	5.00	107	70-130
Bromomethane	6.37	5.00	127	70-130
Chloroethane	5.32	5.00	106	70-130
Trichlorofluoromethane	5.37	5.00	107	70-130
Methylene Chloride	5.62	5.00	112	70-130
trans-1,2-Dichloroethene	5.74	5.00	115	70-130
cis-1,2-Dichloroethene	5.37	5.00	107	70-130
1,1-Dichloroethene	6.09	5.00	122	70-130
Methyl tert-Butyl Ether	9.39	10.0	94	70-130
Chloroform	5.40	5.00	108	70-130
Bromochloromethane	5.36	5.00	107	70-130
Carbon Tetrachloride	5.27	5.00	105	70-130
Benzene	5.47	5.00	109	70-130
1,2-Dichloroethane	5.46	5.00	109	70-130
Trichloroethene	5.45	5.00	109	70-130
1,2-Dichloropropane	5.19	5.00	104	70-130
Bromodichloromethane	4.98	5.00	100	70-130
Dibromomethane	5.31	5.00	106	70-130
cis-1,3-Dichloropropene	5.37	5.00	107	70-130
1,1-Dichloroethane	5.53	5.00	111	70-130
Toluene	5.68	5.00	114	70-130
trans-1,3-Dichloropropene	4.41	5.00	88	70-130
Tetrachloroethene	5.01	5.00	100	70-130
1,3-Dichloropropane	4.83	5.00	97	70-130
2,2-Dichloropropane	5.61	5.00	112	70-130
Dibromochloromethane	4.10	5.00	82	70-130
1,2-Dibromoethane (EDB)	4.80	5.00	96	70-130
Chlorobenzene	4.90	5.00	98	70-130
Ethylbenzene	5.12	5.00	102	70-130
Styrene	5.46	5.00	109	70-130
m,p-Xylenes	11.4	10.0	114	70-130
o-Xylene	4.91	5.00	98	70-130
1,1,1-Trichloroethane	5.12	5.00	102	70-130

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Client: Longview, City of
Project: Sentinel Wells Program
Sample Matrix: Water

Service Request: K1401849
Date Extracted: 02/26/2014
Date Analyzed: 02/26/2014

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method: METHOD
Analysis Method: 524.2

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1401506

	Lab Control Sample KWG1401506-1 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
1,1,2,2-Tetrachloroethane	4.43	5.00	89	70-130
Bromoform	3.98	5.00	80	70-130
Isopropylbenzene	4.32	5.00	86	70-130
1,1-Dichloropropene	5.58	5.00	112	70-130
Bromobenzene	4.69	5.00	94	70-130
n-Propylbenzene	5.25	5.00	105	70-130
1,3,5-Trimethylbenzene	5.14	5.00	103	70-130
2-Chlorotoluene	5.10	5.00	102	70-130
4-Chlorotoluene	5.29	5.00	106	70-130
tert-Butylbenzene	4.76	5.00	95	70-130
1,2,4-Trimethylbenzene	5.17	5.00	103	70-130
sec-Butylbenzene	5.08	5.00	102	70-130
p-Isopropyltoluene	5.32	5.00	106	70-130
1,3-Dichlorobenzene	4.70	5.00	94	70-130
1,4-Dichlorobenzene	4.64	5.00	93	70-130
n-Butylbenzene	4.97	5.00	99	70-130
1,2-Dichlorobenzene	4.72	5.00	94	70-130
1,2-Dibromo-3-chloropropane (DBCP)	3.96	5.00	79	70-130
1,2,4-Trichlorobenzene	4.21	5.00	84	70-130
Hexachlorobutadiene	4.46	5.00	89	70-130
Naphthalene	3.92	5.00	78	70-130
1,1,2-Trichloroethane	4.93	5.00	99	70-130
1,1,1,2-Tetrachloroethane	4.43	5.00	89	70-130
1,2,3-Trichloropropane	4.61	5.00	92	70-130
1,2,3-Trichlorobenzene	4.76	5.00	95	70-130

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Semi-Volatile Organic Compounds

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

Analytical Results

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/2014
Sample Matrix:	Drinking water	**Date Received:**	02/25/2014

Semivolatile Organics by EPA Method 525.2

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1401849-001	**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	03/03/14	03/04/14	KWG1401708	
Fluorene	ND	U	0.049	1	03/03/14	03/04/14	KWG1401708	
Propachlor	ND	U	0.097	1	03/03/14	03/04/14	KWG1401708	
Hexachlorobenzene	ND	U	0.097	1	03/03/14	03/04/14	KWG1401708	
Simazine	ND	U	0.049	1	03/03/14	03/04/14	KWG1401708	
Atrazine	ND	U	0.097	1	03/03/14	03/04/14	KWG1401708	
Metribuzin	ND	U	0.20	1	03/03/14	03/04/14	KWG1401708	
Alachlor	ND	U	0.070	1	03/03/14	03/04/14	KWG1401708	
Bromacil	ND	U	0.20	1	03/03/14	03/04/14	KWG1401708	
Metolachlor	ND	U	0.087	1	03/03/14	03/04/14	KWG1401708	
Butachlor	ND	U	0.097	1	03/03/14	03/04/14	KWG1401708	
Bis(2-ethylhexyl) Adipate	ND	U	0.58	1	03/03/14	03/04/14	KWG1401708	
Bis(2-ethylhexyl) Phthalate	ND	U	0.58	1	03/03/14	03/04/14	KWG1401708	
Benzo(a)pyrene	ND	U	0.020	1	03/03/14	03/04/14	KWG1401708	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,3-Dimethyl-2-nitrobenzene	95	70-130	03/04/14	Acceptable
Triphenyl Phosphate	95	70-130	03/04/14	Acceptable
Perylene-d12	100	70-130	03/04/14	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Semivolatile Organics by EPA Method 525.2

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1401708-4	**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	03/03/14	03/04/14	KWG1401708	
Fluorene	ND	U	0.050	1	03/03/14	03/04/14	KWG1401708	
Propachlor	ND	U	0.10	1	03/03/14	03/04/14	KWG1401708	
Hexachlorobenzene	ND	U	0.10	1	03/03/14	03/04/14	KWG1401708	
Simazine	ND	U	0.050	1	03/03/14	03/04/14	KWG1401708	
Atrazine	ND	U	0.10	1	03/03/14	03/04/14	KWG1401708	
Metribuzin	ND	U	0.20	1	03/03/14	03/04/14	KWG1401708	
Alachlor	ND	U	0.072	1	03/03/14	03/04/14	KWG1401708	
Bromacil	ND	U	0.20	1	03/03/14	03/04/14	KWG1401708	
Metolachlor	ND	U	0.090	1	03/03/14	03/04/14	KWG1401708	
Butachlor	ND	U	0.10	1	03/03/14	03/04/14	KWG1401708	
Bis(2-ethylhexyl) Adipate	ND	U	0.60	1	03/03/14	03/04/14	KWG1401708	
Bis(2-ethylhexyl) Phthalate	ND	U	0.60	1	03/03/14	03/04/14	KWG1401708	
Benzo(a)pyrene	ND	U	0.020	1	03/03/14	03/04/14	KWG1401708	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,3-Dimethyl-2-nitrobenzene	91	70-130	03/04/14	Acceptable
Triphenyl Phosphate	85	70-130	03/04/14	Acceptable
Perylene-d12	87	70-130	03/04/14	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

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

Service Request: K1401849

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
DW-2	K1401849-001	95	95	100
Method Blank	KWG1401708-4	91	85	87
DW-2MS	KWG1401708-1	90	94	101
DW-2DMS	KWG1401708-2	97	94	77
Lab Control Sample	KWG1401708-3	90	96	96

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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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Extracted:**	03/03/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	03/05/2014

Matrix Spike/Duplicate Matrix Spike Summary
Semivolatile Organics by EPA Method 525.2

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1401849-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	525.2	**Extraction Lot:**	KWG1401708

		DW-2MS KWG1401708-1 Matrix Spike			DW-2DMS KWG1401708-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Hexachlorocyclopentadiene	ND	1.01	0.962	105	1.15	0.962	119	70-130	12	30
Fluorene	ND	1.05	0.962	110	1.14	0.962	118	70-130	8	30
Propachlor	ND	0.858	0.962	89	0.926	0.962	96	70-130	8	30
Hexachlorobenzene	ND	0.906	0.962	94	0.927	0.962	96	70-130	2	30
Simazine	ND	0.753	0.962	78	0.805	0.962	84	70-130	7	30
Atrazine	ND	0.832	0.962	87	0.795	0.962	83	70-130	5	30
Metribuzin	ND	0.860	0.962	89	0.902	0.962	94	70-130	5	30
Alachlor	ND	0.862	0.962	90	0.858	0.962	89	70-130	0	30
Bromacil	ND	0.815	0.962	85	0.819	0.962	85	70-130	0	30
Metolachlor	ND	0.875	0.962	91	0.897	0.962	93	70-130	2	30
Butachlor	ND	0.983	0.962	102	0.941	0.962	98	70-130	4	30
Bis(2-ethylhexyl) Adipate	ND	1.03	0.962	108	1.08	0.962	112	70-130	4	30
Bis(2-ethylhexyl) Phthalate	ND	1.15	0.962	119	1.18	0.962	123	70-130	3	30
Benzo(a)pyrene	ND	1.03	0.962	107	0.313	0.962	33 *	70-130	106 *	30

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Extracted:**	03/03/2014
Sample Matrix:	Water	**Date Analyzed:**	03/04/2014

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:	KWG1401708

	Lab Control Sample KWG1401708-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Hexachlorocyclopentadiene	1.06	1.00	106	70-130
Fluorene	0.990	1.00	99	70-130
Propachlor	0.865	1.00	86	70-130
Hexachlorobenzene	1.01	1.00	101	70-130
Simazine	0.879	1.00	88	70-130
Atrazine	0.957	1.00	96	70-130
Metribuzin	0.912	1.00	91	70-130
Alachlor	0.896	1.00	90	70-130
Bromacil	0.832	1.00	83	70-130
Metolachlor	0.925	1.00	92	70-130
Butachlor	0.974	1.00	97	70-130
Bis(2-ethylhexyl) Adipate	0.984	1.00	98	70-130
Bis(2-ethylhexyl) Phthalate	0.980	1.00	98	70-130
Benzo(a)pyrene	1.10	1.00	110	70-130

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Endothall

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Analytical Results

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/2014
Sample Matrix:	Drinking water	**Date Received:**	02/25/2014

Endothall by EPA Method 548.1

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1401849-001	**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	02/28/14	03/03/14	KWG1401631	

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**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:	KWG1401631-4	**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	02/28/14	03/03/14	KWG1401631	

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Extracted:**	02/28/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	03/03/2014

Matrix Spike/Duplicate Matrix Spike Summary
Endothall by EPA Method 548.1

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1401849-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	548.1	**Extraction Lot:**	KWG1401631

		DW-2MS KWG1401631-1 Matrix Spike			DW-2DMS KWG1401631-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Endothall	ND	82.6	100	83	80.0	100	80	30-142	3	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.

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Extracted:**	02/28/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	03/03/2014

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:	KWG1401631

	Lab Control Sample KWG1401631-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Endothall	78.2	100	78	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.

Diquat and Paraquat

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Analytical Results

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	02/25/2014
Sample Matrix:	Drinking water	**Date Received:**	02/25/2014

Diquat and Paraquat by EPA Method 549.2

Sample Name:	DW-2	**Units:**	ug/L
Lab Code:	K1401849-001	**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	03/04/14	03/04/14	KWG1401704	
Paraquat	ND	U	0.80	1	03/04/14	03/04/14	KWG1401704	

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**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:	KWG1401704-5	**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	03/04/14	03/04/14	KWG1401704	
Paraquat	ND	U	0.80	1	03/04/14	03/04/14	KWG1401704	

Comments:

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Extracted:**	03/04/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	03/04/2014

Matrix Spike/Duplicate Matrix Spike Summary
Diquat and Paraquat by EPA Method 549.2

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1401984-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	549.2	**Extraction Lot:**	KWG1401704

		Batch QCMS KWG1401704-1 Matrix Spike			Batch QCDMS KWG1401704-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Diquat	0.67	13.2	12.0	105	12.8	12.0	101	70-130	4	30
Paraquat	2.1	12.6	12.0	88	11.0	12.0	74	70-130	14	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.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Extracted:**	03/04/2014
Sample Matrix:	Drinking water	**Date Analyzed:**	03/04/2014

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:	KWG1401704

	Lab Control Sample KWG1401704-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Diquat	12.4	12.0	103	70-130
Paraquat	10.5	12.0	88	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.

Chlorinated Phenolic Organic Compounds

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	2/25/2014
Sample Matrix:	Drinking water	**Date Received:**	2/25/2014

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	DW-2	Units:	ug/L (ppb)
Lab Code:	K1401849-001	Basis:	NA
Test Notes:			

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

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Analytical Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA

EPA Method 1653A
Chlorinated Phenolic Organic Compounds

Sample Name:	Method Blank	Units:	ug/L (ppb)
Lab Code:	KWG1401796-3	Basis:	NA
Test Notes:			

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

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	3/5/2014

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

			Percent Recovery	
	CAS Percent Recovery Acceptance Criteria	Sample Name:	**DW-2**	**Method Blank**
		Lab Code:	K1401849-001	KWG1401796-3
		Date Analyzed:	3/6/2014	3/6/2014
Analyte				
3,4,5-Trichlorophenol	36-131		104	117
4,5,6-Trichloroguaiacol-13c6	25-134		30	115
Pentachlorophenol-13c6	22-117		84	103
Tetrachloroguaiacol-13c6	18-129		90	114
Tetrachlorocatechol-13c6	D-121		7	98

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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	NA
Sample Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	3/5/2014
		Date Analyzed:	3/6/2014

Duplicate Summary
Chlorinated Phenolic Organic Compounds

Sample Name:	Batch QC	Units:	ug/L (ppb)
Lab Code:	KWG1401796-1	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
2,4,6-Trichlorophenol	METHOD	1653A	2.5	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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QA/QC Report

Client:	Longview, City of	**Service Request:**	K1401849
Project:	Sentinel Wells Program	**Date Collected:**	NA
LCS Matrix:	Drinking water	**Date Received:**	NA
		Date Extracted:	3/5/2014
		Date Analyzed:	3/6/2014

Ongoing Precision and Recovery Summary
Chlorinated Phenolic Organic Compounds

Sample Name:	Lab Control Sample	Units:	ug/L (ppb)
Lab Code:	KWG1401796-2	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	46.6	93	72-146	
2,4,5-Trichlorophenol	METHOD	1653A	50	48.9	98	82-128	
2,3,4,6-Tetrachlorophenol	METHOD	1653A	50	48.5	97	82-132	
3,4,6-Trichloroguaiacol	METHOD	1653A	50	47.6	95	74-140	
3,4,5-Trichloroguaiacol	METHOD	1653A	50	49.3	99	80-134	
3,4,6-Trichlorocatechol	METHOD	1653A	100	104	104	64-149	
3,4,5-Trichlorocatechol	METHOD	1653A	100	106	106	72-128	
Trichlorosyringol	METHOD	1653A	50	49.5	99	66-174	
4,5,6-Trichloroguaiacol	METHOD	1653A	50	50.5	101	88-116	
Pentachlorophenol	METHOD	1653A	100	93.0	93	84-120	
Tetrachloroguaiacol	METHOD	1653A	100	93.4	93	81-126	
Tetrachlorocatechol	METHOD	1653A	100	95.1	95	81-132	

Carbam-Glyph

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State Certifications: CT PH-0224 , DE ID 11 , GA 914 , MA PA0102 , MD 128 , LA 04162 , VA 421 , WY EPA Region 8 , WV 343

March 10, 2014

Ms. Chris Leaf
ALS Environmental - Kelso
1317 S. 13th Avenue
Kelso, WA 98626

Certificate of Analysis

Project Name:	**SOCs**	Workorder:	**1073573**
Purchase Order:	**K1401849**	Workorder ID:	**K1401849**

Dear Ms. Leaf,

Enclosed are the analytical results for samples received by the laboratory on Thursday, February 27, 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 Kelli 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

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Kelli Wolfgang
Project Coordinator

ALS Environmental

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SAMPLE SUMMARY

Workorder: 1073573 K1401849 Discard Date: 03/24/2014

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
1073573001	K1401849-001	Drinking Water	2/25/14 14:20	2/27/14 09:00	Customer
1073573002	K1401849-002	Drinking Water	2/25/14 13:50	2/27/14 09:00	Customer

Workorder Comments:

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 performed 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, B	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

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ANALYTICAL RESULTS

Workorder: 1073573 K1401849

Lab ID: **1073573001** Date Collected: 2/25/2014 14:20 Matrix: Drinking Water

Sample ID: **K1401849-001** Date Received: 2/27/2014 09:00

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
HERBICIDES										
Glyphosate	ND		ug/L	25.0	EPA 547			3/4/14 09:46	CGS	D
CARBAMATES										
Aldicarb	ND		ug/L	1.0	EPA 531.1			3/6/14 19:26	CGS	A
Aldicarb Sulfone	ND		ug/L	1.0	EPA 531.1			3/6/14 19:26	CGS	A
Aldicarb Sulfoxide	ND		ug/L	1.0	EPA 531.1			3/6/14 19:26	CGS	A
Carbaryl	ND		ug/L	1.0	EPA 531.1			3/6/14 19:26	CGS	A
Carbofuran	ND		ug/L	1.0	EPA 531.1			3/6/14 19:26	CGS	A
3-Hydroxycarbofuran	ND		ug/L	1.0	EPA 531.1			3/6/14 19:26	CGS	A
Methiocarb	ND		ug/L	1.0	EPA 531.1			3/6/14 19:26	CGS	A
Methomyl	ND		ug/L	1.0	EPA 531.1			3/6/14 19:26	CGS	A
Oxamyl	ND		ug/L	1.0	EPA 531.1			3/6/14 19:26	CGS	A
Propoxur	ND		ug/L	1.0	EPA 531.1			3/6/14 19:26	CGS	A

Sample Comments:

Kelli Wolfgang
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 1073573 K1401849

Lab ID: **1073573002** Date Collected: 2/25/2014 13:50 Matrix: Drinking Water

Sample ID: **K1401849-002** Date Received: 2/27/2014 09:00

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
HERBICIDES										
Glyphosate	ND		ug/L	25.0	EPA 547			3/4/14 09:30	CGS	A

Sample Comments:

Kelli Wolfgang
Project Coordinator

ALS Environmental Chain of Custody

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

Project Number: K1401849
Project Manager: Chris Leaf

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	CARBAM 531.1	GLYPH 547
K1401849-001	DW-2	5	Drinking Water	2/25/14	1420	Middletown	X	X
K1401849-002	DW-6	2	Drinking Water	2/25/14	1350	Middletown		X

Test Comments
CARBAM - 531.1 K1401849-001 Full list for WA Regulations - no compliance report required.

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

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: 03/14/14

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# K1401849
Bill to

Relinquished By: 2/26/14 1300 Received By: 2/27 0800 Airbill Number:

Page 1

Custody Seals Present? Y N Initials
(if present) Seals Intact?
Received on Ice?
COC/Lbls Complete/Accurate
Cont in Good Cond?
Correct Containers?
Correct Sample Volumes?
Correct Preservation?
Headspace/Volatiles?

K1401849

Ship To: Middletown
ALS Laboratory Group
34 Dogwood Lane
Middletown, PA 17057

PC _____ Date 2/25/14
SMO _____ Date 2/26/14

Instructions:
Ice ✓
Dry Ice ___
No Ice ___
Bill to Client Account _____

Shipping:
Overnight ✓
2nd Day ___
Ground ___

Comments:

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Sulfur Liq

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LABORATORY REPORT

March 14, 2014

Jeff Coleman
Longview, City of
W/S Operation Center
Longview, WA 98632

RE: Sentinel Wells Program

Dear Jeff:

Enclosed are the results of the sample submitted to our laboratory on February 25, 2014. For your reference, this analysis has been assigned our service request number K1401849.

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 2:37 pm, Mar 14, 2014

Kate Aguilera
Project Manager

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Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

Client: Longview, City of
Project: Sentinel Wells Program

Service Request No: K1401849

CASE NARRATIVE

The sample was received intact under chain of custody on February 25, 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.

Sulfur Analysis

The sample was analyzed for twenty sulfur compounds using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

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

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

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www.alsglobal.com

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 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
K1401849-001	DW-2	3	Drinking Water	2/25/14	1420	2/25/14	SIMIVALLEY	II

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

Turnaround Requirements
_____RUSH (Surcharges Apply)
PLEASE CIRCLE WORK DAYS
1 2 3 4 5
____ STANDARD
Requested FAX Date: _____
Requested Report Date: 03/14/14

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# K1401849
Bill to

Relinquished By: 2/26/14 1300 Received By: 2/27/14 0940 Airbill Number: _____

ALS Environmental
Sample Acceptance Check Form

Client: Longview, City of Work order: K1401849

Project: Sentinel Wells Program

Sample(s) received on: 2/27/14 Date opened: 2/27/14 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			
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
K1401849-001.35	40mL VOA NP		7	1	A	MC 3/06/2014
K1401849-001.36	40mL VOA NP				A	
K1401849-001.37	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 Sample ID: **DW-2**
Client Project ID: **Sentinel Wells Program**

ALS Project ID: K1401849
ALS Sample ID: K1401849-001

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: Water
Test Notes:

Date Collected: 2/25/14
Date Received: 2/25/14
Date Analyzed: 3/6/14
Liquid Amount: 10.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/Kg	MRL µg/Kg	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	0.84	
463-58-1	Carbonyl Sulfide	ND	1.5	
74-93-1	Methyl Mercaptan	ND	1.2	
75-08-1	Ethyl Mercaptan	ND	1.5	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
75-33-2	Isopropyl Mercaptan	ND	1.9	
75-66-1	tert-Butyl Mercaptan	ND	2.2	
107-03-9	n-Propyl Mercaptan	ND	1.9	
624-89-5	Ethyl Methyl Sulfide	ND	1.9	
110-02-1	Thiophene	ND	2.1	
513-44-0	Isobutyl Mercaptan	ND	2.2	
352-93-2	Diethyl Sulfide	ND	2.2	
109-79-5	n-Butyl Mercaptan	ND	2.2	
624-92-0	Dimethyl Disulfide	ND	1.2	
616-44-4	3-Methylthiophene	ND	2.4	
110-01-0	Tetrahydrothiophene	ND	2.2	
638-02-8	2,5-Dimethylthiophene	ND	2.8	
872-55-9	2-Ethylthiophene	ND	2.8	
110-81-6	Diethyl Disulfide	ND	1.5	

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

RESULTS OF ANALYSIS

Client: **Longview, City of**
Client Sample ID: **Method Blank**
Client Project ID: **Sentinel Wells Program**

ALS Project ID: K1401849
ALS Sample ID: P140306-MB

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 3/06/14
Liquid Amount: 10.0 ml(s)
Purge Volume: 0.30 Liter(s)
Injection Volume(s): 1.0 ml(s)

CAS #	Compound	Result µg/Kg	MRL µg/Kg	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	0.84	
463-58-1	Carbonyl Sulfide	ND	1.5	
74-93-1	Methyl Mercaptan	ND	1.2	
75-08-1	Ethyl Mercaptan	ND	1.5	
75-18-3	Dimethyl Sulfide	ND	1.5	
75-15-0	Carbon Disulfide	ND	0.93	
75-33-2	Isopropyl Mercaptan	ND	1.9	
75-66-1	tert-Butyl Mercaptan	ND	2.2	
107-03-9	n-Propyl Mercaptan	ND	1.9	
624-89-5	Ethyl Methyl Sulfide	ND	1.9	
110-02-1	Thiophene	ND	2.1	
513-44-0	Isobutyl Mercaptan	ND	2.2	
352-93-2	Diethyl Sulfide	ND	2.2	
109-79-5	n-Butyl Mercaptan	ND	2.2	
624-92-0	Dimethyl Disulfide	ND	1.2	
616-44-4	3-Methylthiophene	ND	2.4	
110-01-0	Tetrahydrothiophene	ND	2.2	
638-02-8	2,5-Dimethylthiophene	ND	2.8	
872-55-9	2-Ethylthiophene	ND	2.8	
110-81-6	Diethyl Disulfide	ND	1.5	

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 Program**

ALS Project ID: K1401849
ALS Sample ID: P140306-DLCS

Test Code: GC/SCD Reduced Sulfur Analysis
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 3/06/14
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/Kg	Result LCS ug/Kg	Result DLCS ug/Kg	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
7783-06-4	Hydrogen Sulfide	428	395	378	**92**	**88**	56-130	4	24	
463-58-1	Carbonyl Sulfide	743	776	729	**104**	**98**	61-141	6	15	
74-93-1	Methyl Mercaptan	557	624	604	**112**	**108**	50-133	4	29	