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February 19, 2013

Mr. Guy Barrett
Washington State Department of Ecology
Southwest Regional Office
300 Desmond Drive
Lacey, WA 98503

SUBJECT: FIRST QUARTER GROUNDWATER MONITORING DATA REPORT
PROJECT NUMBER: CL-COO

Dear Mr. Barrett:

This quarterly Groundwater Monitoring Data Report (GMDR) has been prepared by Floyd|Snider on behalf of the City of Olympia (City). This GMDR describes field activities conducted and analytical results for the groundwater monitoring of benzene at the Downtown Safeway/City Hall Site (Site). The City and the Washington State Department of Ecology (Ecology) entered into an Agreed Order (AO; No. DE 9465) on October 12, 2012 (Ecology 2012). Following finalization of the Remedial Investigation/Feasibility Study (RI/FS) and Cleanup Action Plan (CAP) for the Site, the AO required the City to decommission MW-4, install a replacement monitoring well, and conduct four quarters of compliance groundwater monitoring for benzene. The procedures for the compliance monitoring work as required by the AO are described in the Focused Compliance Monitoring Work Plan (FCMWP; Floyd|Snider 2012).

MW-4 DECOMMISIONING

On January 10, 2013, MW-4 was decommissioned by Cascade Drilling Inc. of Woodinville, Washington in accordance with state well construction standards provided in Washington Administrative Code (WAC) 173-160-460. The well was abandoned by filling the well with bentonite chips and then sealing the surface with concrete. These decommissioning procedures differed from what was described in the FCMWP. The FCMWP stated that a construction log was not available for the well and required that the well be decommissioned by over-drilling to break the well casing, filling the abandoned well with bentonite, and sealing the surface with concrete. Although a well construction log typically completed and used by environmental professionals was missing, a well card was found in the well and the well was found to be registered with Ecology at the time of installation. Because the drill log was on file at Ecology, the well could be chipped out instead of being drilled out; this was a more timely and cost effective option.

INSTALLATION OF MW-4A REPLACEMENT WELL

On January 10, 2013, one 2-inch diameter monitoring well (designated MW-4A) was installed at the Site by Cascade Drilling Inc. (Figure 1). The well was installed approximately 5 feet south of MW-4, as close to the MW-4 as possible. Prior to drilling, Washington Utility Notification Center was contacted so that public utilities could be located. Applied Professional Services, Inc. was retained to locate and mark private utilities prior to drilling. Drilling and well installation was

performed in accordance with procedures defined in the FCPWP and followed the "Minimum Standards for Construction of Maintenance Wells" from WAC 173-160; using a limited access, hollow-stem auger drill rig. Soil was collected using a split-spoon sampler for logging purposes approximately every 2.5 feet to a total depth of 17.5 feet below ground surface (bgs) under the direction of qualified field personnel. The soil was classified according to the United Soil Classification System. The first 5 feet of the soil boring was vacuumed out using a vacuum truck and air knife to ensure no utilities were hit by the drill. Consistent with depth-to-water observations during the Supplemental Remedial Investigation (RI) field event, groundwater was encountered between 11 and 12 feet bgs at the time of drilling. Generally, the subsurface soil encountered in the boring was compacted fill material consisting of brown gravel with sand. The well log is included as Attachment A.

For most of the split spoon soil samples there was little recovery and the subsurface was determined to be dense. At 12.5 feet bgs, there was a transition from dense compacted fill material to compacted pea gravel. At 14 feet bgs, there was a transition back to sand and a small sheen, approximately 1 inch in diameter, was observed on the soil core. There was also a slight hydrocarbon odor. Below 15 feet bgs the soil transitioned to sandy silts that appeared representative of hydraulic dredge fill. No other indications of contamination were observed.

The well was installed to 14 feet bgs and was screened from 4 to 14 feet bgs. The screen location was set in the site backfill material to provide a monitoring location that will provide reliable compliance monitoring data representative of post-remedial actions and current site conditions. The 4-inch end cap on the well, located below the well screen, extended below 14 feet bgs to approximately 14 feet 4 inches bgs. The surface of the well was completed with a flush-mounted steel monument, and the well was secured by a gasket cap.

Prior to sampling, the well was developed using the procedures described in the FCMWP. A total of approximately 78 gallons of groundwater was purged from the newly installed well during development. A hydrocarbon odor was observed during purging, and there were black particulate particles in the water for the first half of the purge water.

COMPLIANCE MONITORING

Compliance Monitoring Field Activities

The first quarterly groundwater monitoring event, as described in the FCMWP, was conducted on January 15, 2013. Except where noted below, the compliance monitoring field methods were conducted in accordance with the FCMWP. Field activities are summarized below.

Groundwater Sampling

On January 15, 2013, a groundwater sample was collected from MW-4A consistent with the procedures in the FCMWP, except as described below. No indications of contamination were observed in the purge water or during groundwater sample collection. The groundwater sample collection form is provided in Attachment B.

Laboratory Analysis

A total of two groundwater samples (a parent and a duplicate sample) and one trip blank were collected on January 15, 2013 and submitted to Analytical Resources, Inc. (ARI) in Tukwila, Washington (ARI) for chemical analyses by U.S. Environmental Protection Agency (USEPA) Method 8260C. The laboratory data report is provided in Attachment C.

Benzene was analyzed with USEPA Method 8260C, rather than USEPA Method 8021, as described in the FCMWP at the recommendation of ARI because the USEPA Method 8260C provides a more accurate analysis at the same cost. Method 8260C was used because the analysis is run on a mass spectrometer and results in fewer false positives.

Data Quality Review

A Compliance Screening, Tier I data quality review was performed on the benzene data resulting from laboratory analysis. The analytical data were validated in accordance with the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review (1999 and 2008).

The analytical holding times were met and the method blanks had no detections. The laboratory control sample (LCS), laboratory control sample duplicate (LCSD), and surrogate recoveries all met USEPA data quality requirements demonstrating acceptable accuracy. Precision was acceptable as demonstrated by the LCS/LCSD relative percent difference.

No qualifiers were added to the analytical results based on the data quality review. Data are determined to be of acceptable quality for use as reported by the lab.

Compliance Monitoring Results

Analytical results for the groundwater sample from MW-4A are presented in Table 1 and on Figure 1. Benzene was detected at concentrations just greater than the reporting limit in the parent sample (0.81 µg/L) and the duplicate sample (0.82 µg/L), and less than the Model Toxics Control Act (MTCA) Method A cleanup level of 5 µg/l. The benzene data are also shown below in Figure 2, which compares the previous MW-4 data to the current quarter compliance data collected in MW-4A.

Investigation-derived Waste

Investigation-derived waste (IDW) including drill cuttings, decontamination water, and well development water was collected in 55-gallon drums. Drill cuttings, decontamination water, and purge water were characterized by previous analytical soil and groundwater results at the Site. On January 28, 2013, two drums containing soil IDW and two drums containing water generated during the January 2013 sampling event were transported by Cascade Drilling Inc. for disposal.

Sincerely yours,
FLOYD | SNIDER

Encl.: Table 1: MW-4A Benzene Compliance Monitoring Results
Figure 1: Compliance Well Location and Sampling Data
Figure 2: Detected Concentrations of Benzene in Monitoring Wells MW-4 and MW-4A by Monitoring Event
Attachment 1: MW-4A Well Log
Attachment 2: Groundwater Sample Collection Form
Attachment 3: January 2013 Laboratory Data Report
Copies: Tom Morrill, City of Olympia

REFERENCES

Floyd|Snider. 2012. *City of Olympia Former Downtown Safeway/City Hall Site Focused Compliance Monitoring Work Plan*. Prepared for City of Olympia, Olympia, Washington. November.

U.S. Environmental Protection Agency (USEPA). 1999. *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, OSWER 9240.1-05A-P, PB99-963506, EPA540/R-99/008*. Office of Emergency and Remedial Response. October.

———. 2008. *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, OSWER 9240.1-58, USEPA-540-R-08-01*. Office of Superfund Remediation and Technology Innovation (OSRTI). June.

Washington State Department of Ecology (Ecology) 2012. *Agreed Order No. DE 9465*. 12 October.

Tables

Table 1
MW-4A Benzene Compliance Monitoring Results[1]
(µg/L)

Compliance Monitoring Quarter	First Quarter—January 2013	
Sample ID	**MW-4A-011513**	**MW-4A-011513-D**
Sample Date	**1/15/2013**	**1/15/2013**
Sample Result	0.81	0.82

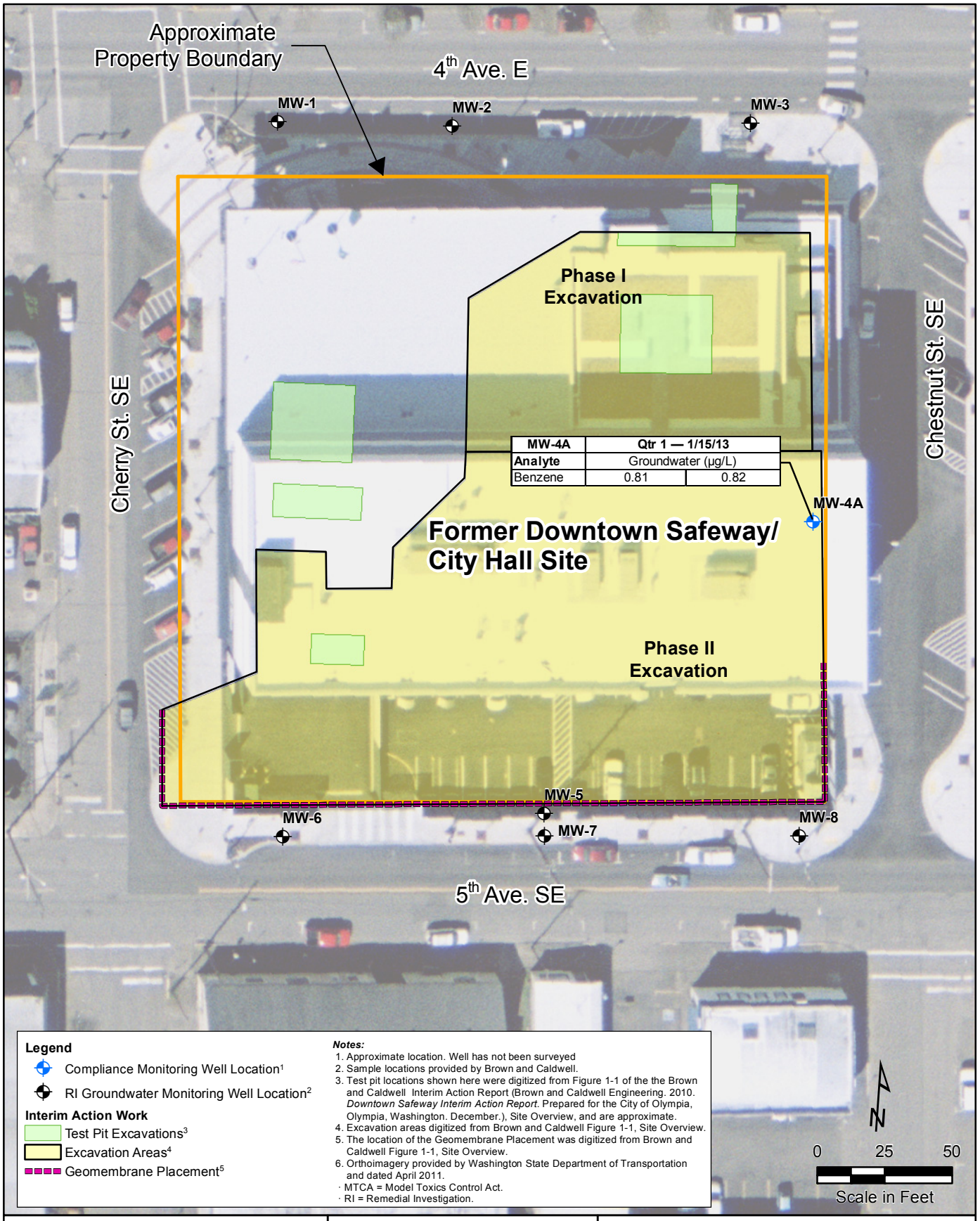
Note:

1 The Model Toxics Contol Act (MTCA) cleanup level for benzene is 5 µg/L.

Abbreviation:

µg/L Micrograms per liter

Figures



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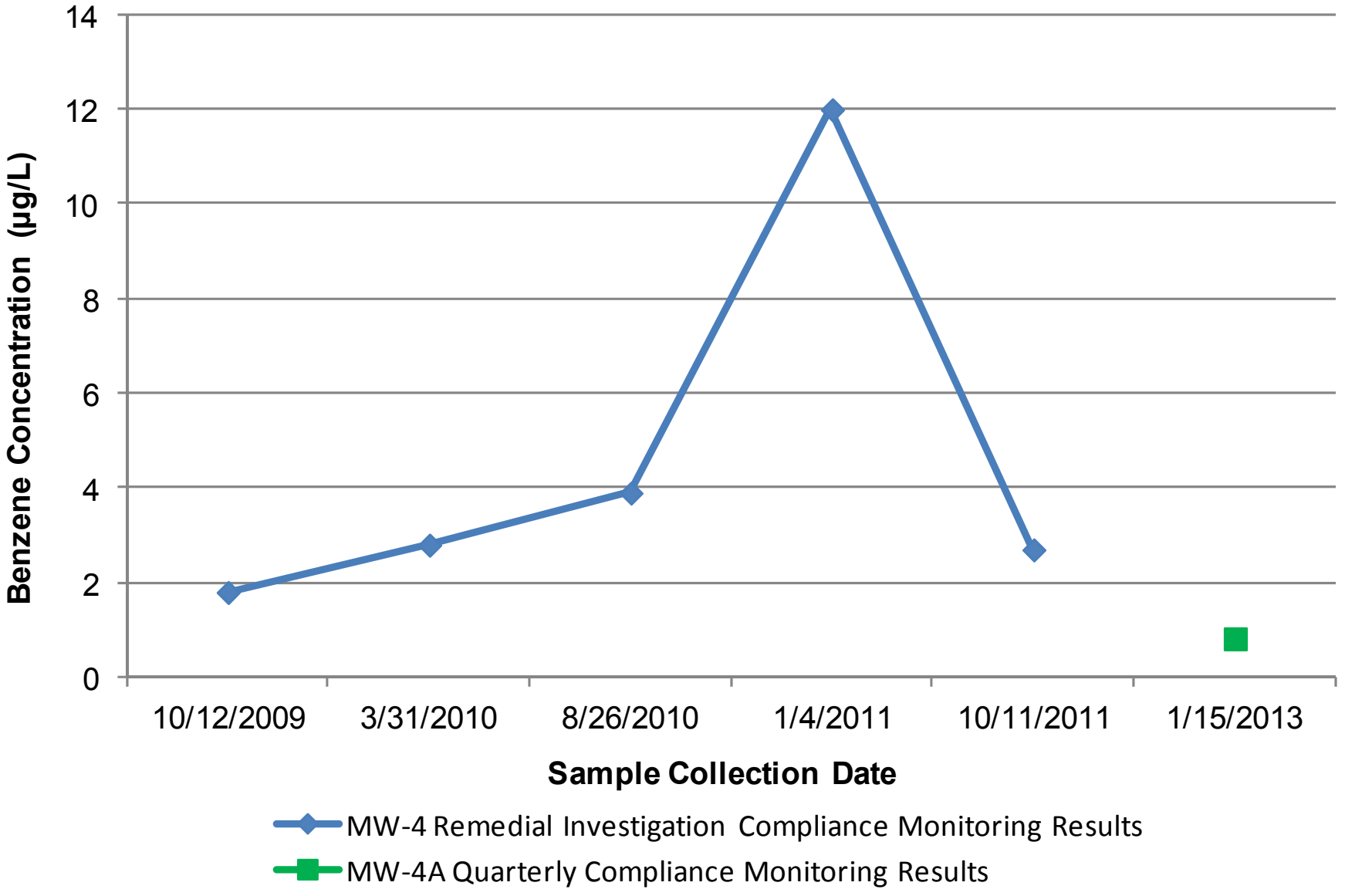
**First Quarter Groundwater Monitoring Data Report
Former Downtown Safeway/
City Hall Site
Olympia, Washington**

Figure 1
MW-4A Location and Compliance Monitoring Results

F:\projects\CL-COO\GIS\MXD\Task 6000\Figure 1 (MW4-A Location and Compliance Monitoring Results).mxd
2/13/2013



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First Quarter Groundwater Monitoring Data Report
Former Downtown Safeway/City Hall Site
Olympia, Washington

Figure 2
Detected Concentrations of Benzene in Monitoring Wells MW-4 and MW-4A by Monitoring Event

Attachment 1
MW-4A Well Log

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Monitoring Well ID: MW-4A

Drill Date: January 10, 2013
Drill Type: 8"-dia Hollow Stem Auger
Boring Diameter: 8-inch
Boring Depth (ft bgs): 17.5 feet
Sample Method: 3"x18" D&M Split Spoon w/140lb Hammer
Groundwater ATD (ft bgs): 11.5

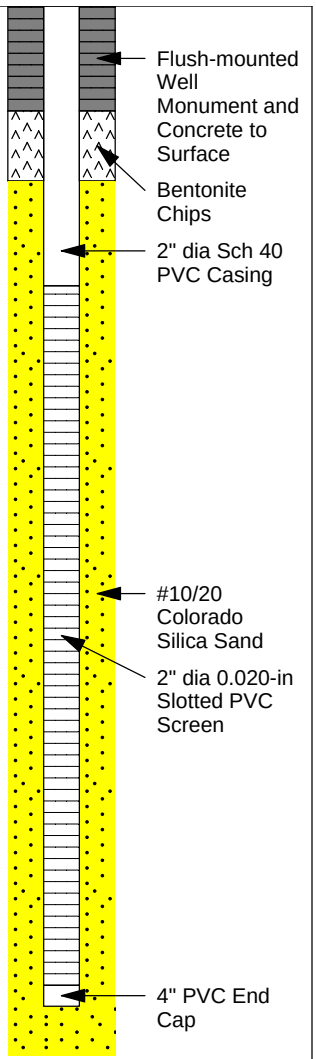
Logged By: T.Stevens/C.Gardner
Drilled By: Cascade Drilling
Client: City of Olympia
Project: CL-COO
Task Number: T. 6000
Site Location: City Hall
Olympia, WA

Ground Surf Elev. & Datum:
Coordinate System: NAD 83 WA SP S
Latitude/Northing: 633230.073 ft
Longitude/Easting: 1043581.548 ft
Casing Elevation:

Remarks: Weather cold, dry, cloudy.
Easting and northing approximate pending final survey.

Sample ID	DRIVE / RECOVERY	BLOW COUNT	DEPTH FT BGS	USCS SYMBOL	SOIL DESCRIPTION AND OBSERVATIONS: (color, texture, moisture, MAJOR CONSTITUENT, odor, staining, sheen, debris, etc.)
			0	GW	Asphalt.
			1		Brown, moist, well-graded (up to 5" dia) GRAVEL with SAND (fill). Removed to 5.3 ft with vacuum truck.
			2		
			3		
			4		
			5		
S-1		50/6"	6	GP	Brown, moist, poorly-graded, very dense GRAVEL with trace well-graded sand (fill). No sheen. Rig chatter due to gravel.
S-2		32 50/6"	7		
			8		
			9		
S-3		50/3"	10		
S-4		50/6"	11		
			12		
S-5		50/3"	13	GW	Brown, gray and red, wet, well-graded, very dense, rounded pea GRAVEL with trace well-graded fine to coarse sand (fill). Rig chatter stops at 12.75 ft.
S-6		8 21	14		6" lense of brown-gray, wet, poorly-graded SAND at 14ft. Small area (~1" wide) of sheen and slight hydrocarbon odor. Slight sheen and small black particles visible in water and sampler. Becomes medium dense at 14.5 ft.
S-7		22 50/6"	15		
S-8		15 33 40	16	CL	Blue-gray, moist medium plasticity LEAN CLAN with SAND and trace peaty striations.
			17		

MONITORING WELL DETAIL



Notes:
FT BGS = feet below ground surface
USCS = Unified Soil Classification System
▼ = denotes groundwater table ATD

Attachment 2
Groundwater Sample Collection Form

GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project Name: Downtown Safeway / City Hall Site Date of Collection: 1/15/13

Project Number: CL-000 Field Personnel: T. Stevens

Purge Data

Well ID: MW-4A Secure: ☒ Yes ☐ No Well Condition/Damage Description: New well - good condition

Depth Sounder decontaminated Prior to Placement in Well: ☒ Yes ☐ No One Casing Volume (gal): 2.4 gal

Depth of water (from top of well casing): 9.25' Well Casing Type/Diameter/Screened Interval: 2" PVC screened 4-14'

After 5 minutes of purging (from top of casing): 9.31

Begin purge (time): 0910

End purge (time): 1035

Gallons purged: 4.5 gallons

Purge water disposal method: Drum - IDW Disposal

Volume of Schedule 40 PVC Pipe

Diameter	O.D.	I.D.	Volume (Gal/Linear Ft.)	Weight of Water (Lbs/Lineal Ft.)
1 ¼"	1.660"	1.380"	0.08	0.64
2"	2.375"	2.067"	0.17	1.45
3"	3.500"	3.068"	0.38	3.2
4"	4.500"	4.026"	0.66	5.51
6"	6.625"	6.065"	1.5	12.5

Time	Depth to Water	Vol. Purged	pH	DO mg/L	Conductivity mS/cm	Turbidity NTU	Temp °C	ORP	Comments
1005	9.04'	8L	6.17	3.10	0.237	15.8	8.87	209	
1010	9.04	9L	6.81	3.10	0.190	12.5	9.63	140	
1015	9.05	10.5L	6.91	2.88	0.184	8.1	9.90	103	
1020	9.06	12L	6.95	2.70	0.183	5.5	10.01	87	
1025	9.06	13.5L	6.98	3.83	0.181	4.5	10.04	80	
1030	9.05	15L	6.98	2.85	0.181	3.5	10.06	83	
1035	9.10	16.5	7.00	3.10	0.180	2.4	10.07	72	

Sampling Data

Sample No: MW4A-011513 Location and Depth: 11.5' sample depth - screen from 4-14'

Date Collected (mo/dy/yr): 1/15/13 Time Collected: 1040 ☒ AM ☐ PM Weather: Cold and overcast

Type: ☒ Ground Water ☐ Surface Water Other: Sample: ☐ Filtered ☒ Unfiltered Other:

Sample Collected with: ☐ Bailer ☒ Pump Other: Type: Peristaltic

Water Quality Instrument Data Collected with: Type: ☐ Horiba U-22 ☒ Horiba U-50 Other:

Sample Decon Procedure: Sample collected with (circle one): decontaminated all tubing/disposable and/or dedicated silicon and poly tubing Other:

Sample Description (Color, Turbidity, Odor, Other): Clear, No odor, tinge or sheen

Sample Analyses

TPH-D	(HCl) ☐	Chlor / Fluor	(unpres) ☐	COD / TOC	(H2SO4) ☐	Orthophos	(FILTER) ☐	Diss. Metals	(HNO3) ☐
TPH-G	(HCl) ☐	BTEX Benzene only 8260	(HCl) ☒	Total Metals	(HNO3) ☐	TKN/Phos	(N2SO4) ☐	VOCs	(HCl) ☐

Additional Information

Types of Sample Containers: Quantity:	Duplicate Sample Numbers:	Comments:
VOA - Benzene 8260 3	MW-4A-011513-D → collected duplicate sample at 1100. 3 VOAs for T dup	3 VOAs for sample

Signature: Tucker Stevens Date: 1/15/13

Attachment 3
January 2013 Laboratory Data Report

Analytical Resources, Incorporated
Analytical Chemists and Consultants

January 28, 2012

Jessi Massingale
Floyd Snider
601 Union Street, Suite 600
Seattle, WA 98101-2341

RE: Project: CL-COO
ARI Job No: VZ82

Dear Jessi:

Please find enclosed analytical results and chain of custody documentation (COC) for the project referenced above. Analytical Resources, Incorporated (ARI) accepted two water samples on January 15, 2013. The samples were in good condition with no discrepancies in paperwork.

The samples were analyzed for VOCs, as requested on the COC.

No analytical complications were noted for these analyses. Quality control results are included for your review.

A copy of the reports and all associated raw data will remain on file with ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
kellyb@arilabs.com
206-695-6211

Enclosures

cc: eFile VZ82

KB/kb

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: V2802	Turn-around Requested: Standard	Page: 1 of 1	
ARI Client Company: Floyd|Snider	Phone: 206-292-2078	Date: 1/15/13	Ice Present? Y
Client Contact: Jess. Massingale		No. of Coolers: 1	Cooler Temps: 5.6
Client Project Name: CL-600			
Client Project #: CL-600	Samplers: Tucker Stevens		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Benzene 8260	Notes/Comments
MW-4A-011513	1/15/13	1040	GW	3	✓	
MW-4A-011513-D	1/15/13	1100	GW	3	✓	
TB-011513	1/15/13	1045	Water	2	✓	Trip Blank

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by. (Signature)	Received by (Signature)
Report benzene only	Printed Name: Tucker Stevens	Printed Name: Jennifer Milsap	Printed Name	Printed Name.
	Company: Floyd|Snider	Company: ARI	Company	Company:
	Date & Time: 1/15/13 12:45	Date & Time: 1/15/13 1245	Date & Time:	Date & Time

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client Floyd/Snider Project Name CL-COO

COC No(s) _____ (NA) Delivered by Fed-Ex UPS Courier Hand Delivered Other _____

Assigned ARI Job No VZ82 Tracking No _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc)	(YES)	NO
Temperature of Cooler(s) (°C) (recommended 2.0-6 0 °C for chemistry)	5.6	
If cooler temperature is out of compliance fill out form 00070F	Temp Gun ID#	90877752

Cooler Accepted by dm Date 1/15/13 Time 1245

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	(NA)	YES	NO
Were all VOC vials free of air bubbles?	NA	(YES)	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI...	NA	1/10/13	

Was Sample Split by ARI (NA) YES Date/Time:_____ Equipment:_____ Split by:_____

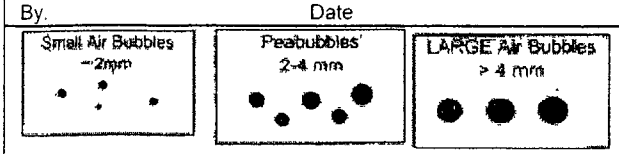
Samples Logged by AV Date 1/15/13 Time: 1450

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By. Date



Small → "sm"
Peabubbles → "pb"
Large → "lg"
Headspace → "hs"

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: VZ82
Client: Floyd-Snider
Project Event: CL-COO
Project Name: CL-COO

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	MW-4A-011513	VZ82A	13-1013	Water	01/15/13 10:40	01/15/13 12:45
2.	MW-4A-011513-D	VZ82B	13-1014	Water	01/15/13 11:00	01/15/13 12:45
3.	Trip Blanks	VZ82C	13-1015	Water	01/15/13	01/15/13 12:45

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MW-4A-011513**
Page 1 of 1 **SAMPLE**

Lab Sample ID: VZ82A
LIMS ID: 13-1013
Matrix: Water
Data Release Authorized:
Reported: 01/28/13

QC Report No: VZ82-Floyd-Snider
Project: CL-COO
CL-COO
Date Sampled: 01/15/13
Date Received: 01/15/13

Instrument/Analyst: NT3/PAB
Date Analyzed: 01/25/13 15:11

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q
71-43-2	**Benzene**	**0.20**	**0.81**	

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MW-4A-011513-D**
Page 1 of 1 **SAMPLE**

Lab Sample ID: VZ82B
LIMS ID: 13-1014
Matrix: Water
Data Release Authorized: MW
Reported: 01/28/13

QC Report No: VZ82-Floyd-Snider
Project: CL-COO
CL-COO
Date Sampled: 01/15/13
Date Received: 01/15/13

Instrument/Analyst: NT3/PAB
Date Analyzed: 01/25/13 15:38

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q
71-43-2	**Benzene**	**0.20**	**0.82**	

Reported in µg/L (ppb)

Volatile Surrogate Recovery	
d8-Toluene	103%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: Trip Blanks**
Page 1 of 1 **SAMPLE**

Lab Sample ID: VZ82C
LIMS ID: 13-1015
Matrix: Water
Data Release Authorized:
Reported: 01/28/13

QC Report No: VZ82-Floyd-Snider
Project: CL-COO
CL-COO
Date Sampled: 01/15/13
Date Received: 01/15/13

Instrument/Analyst: NT3/PAB
Date Analyzed: 01/25/13 16:04

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q
71-43-2	Benzene	0.20	< 0.20	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery	
d8-Toluene	107%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-012513A**
 METHOD BLANK

Lab Sample ID: MB-012513A
LIMS ID: 13-1013
Matrix: Water
Data Release Authorized: MW
Reported: 01/28/13

QC Report No: VZ82-Floyd-Snider
Project: CL-COO
CL-COO
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT3/PAB
Date Analyzed: 01/25/13 12:07

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q
71-43-2	Benzene	0.20	< 0.20	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery	
d8-Toluene	104%

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: VZ82-Floyd-Snider
Project: CL-COO
CL-COO

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
MB-012513A	Method Blank	10	NA	104%	NA	NA	0
LCS-012513A	Lab Control	10	NA	104%	NA	NA	0
LCSD-012513A	Lab Control Dup	10	NA	104%	NA	NA	0
VZ82A	MW-4A-011513	10	NA	102%	NA	NA	0
VZ82B	MW-4A-011513-D	10	NA	103%	NA	NA	0
VZ82C	Trip Blanks	10	NA	107%	NA	NA	0

SW8260C	LCS/MB LIMITS	QC LIMITS
(DCE) = d4-1,2-Dichloroethane	(80-120)	(80-130)
(TOL) = d8-Toluene	(80-120)	(80-120)
(BFB) = Bromofluorobenzene	(80-120)	(80-120)
(DCB) = d4-1,2-Dichlorobenzene	(80-120)	(80-120)

Prep Method: SW5030B
Log Number Range: 13-1013 to 13-1015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-012513A**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-012513A
LIMS ID: 13-1013
Matrix: Water
Data Release Authorized: MW
Reported: 01/28/13

QC Report No: VZ82-Floyd-Snider
Project: CL-COO
CL-COO
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT3/PAB
LCSD: NT3/PAB
Date Analyzed LCS: 01/25/13 11:14
LCSD: 01/25/13 11:41

Sample Amount LCS: 10.0 mL
LCSD: 10.0 mL
Purge Volume LCS: 10.0 mL
LCSD: 10.0 mL

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	11.3	10.0	113%	11.0	10.0	110%	2.7%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d8-Toluene	104%	104%