

VOLUNTARY CLEANUP AND REDEVELOPMENT PROGRAM GROUNDWATER MONITORING REPORT FORMER GARLAND SHOPPING CENTER 10733 WASHINGTON STREET NORTHGLENN, COLORADO

PREPARED FOR:

Northglenn Urban Renewal Authority 11701 Community Center Drive Northglenn, Colorado 80233

PREPARED BY:

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> January 16, 2015 Project No. 500557004

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January 16, 2014 Project No. 500557004

Ms. Debbie Tuttle Northglenn Urban Renewal Authority 11701 Community Center Drive Northglenn, Colorado 80233

Subject: Groundwater Monitoring Report Former Garland Shopping Center 10733 Washington Street Northglenn, Colorado

Dear Ms. Tuttle:

Please find enclosed the Groundwater Monitoring Report for the above-referenced property. This report documents the groundwater monitoring activities conducted by Ninyo & Moore in December 2014, approximately 19 months after one round of remediation by subsurface injection was conducted. The monitoring activities are required by the approved Voluntary Cleanup and Redevelopment Program application for the site.

Upon your approval, a copy of the report will be submitted to the Colorado Department of Public Health and Environment.

We appreciate the opportunity to be of service on this important project.

Sincerely, NINYO & MOORE

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Beth McDonald, PE, PG Senior Engineer

BM/LMB/ceb

ne Marie Disson

Lise Marie Bisson, P.G. Principal Geologist Environmental Operations Manager

Distribution: (1) Addressee (2) Mr. Fonda Apostolopoulos, CDPHE



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- Appendix B Groundwater Sampling Field Data Sheets
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1. INTRODUCTION

On behalf of the Northglenn Urban Renewal Authority (NURA), Ninyo & Moore has prepared this Groundwater Monitoring Report for the Former Garland Shopping Center, located on the northwest corner of Washington Street and Garland Drive, in the City of Northglenn, Adams County, Colorado (site). The project location is shown on **Figure 1**.

1.1. Site Location and History of Use

The site comprises approximately 5.2 acres of commercial land, and formerly consisted of three retail structures known as the Garland Shopping Center. A dry cleaning facility had been located on the site from the 1960s to the 1990s. A chlorinated-solvent groundwater plume was identified on the southeast corner of the site and offsite beneath Garland Drive. The site was entered into the Colorado Voluntary Cleanup and Redevelopment Program (VCUP) and remediation by subsurface injection was conducted in May 2013.

The site was purchased by Wal-Mart, Inc. (Wal-Mart) in June 2013, the Garland Shopping Center was demolished and a Wal-Mart Neighborhood Market Store was constructed. Ninyo & Moore has been conducting groundwater monitoring activities on behalf of NURA.

1.2. Responsible Agency

The oversight agency for this project is the Colorado Department of Health and Environment (CDPHE) Hazardous Materials and Waste Management Division (HMWMD). The CDPHE HMWMD project manager for the site is Mr. Fonda A. Apostolopoulos.

2. ENVIRONMENTAL BACKGROUND

2.1. Previous Environmental Assessments

In 2012 and early 2013, Ninyo & Moore prepared a Phase I Environmental Site Assessment (ESA) and several Phase II ESAs at the site on behalf of NURA. During the

Phase II ESAs, soil and groundwater samples were collected and analyzed for volatile organic compounds (VOCs). Tetrachloroethylene (PCE) in groundwater, most likely from a former on-site dry cleaning facility located in the building formerly addressed as 10733 Washington Street, was reported at concentrations exceeding the Colorado Basic Standard for Groundwater (CBSGW) for PCE. PCE was not detected in soil samples collected by Ninyo & Moore. The maximum concentrations of PCE were detected in groundwater samples collected from onsite well MW-5 and offsite well MW-17. The locations of these monitoring wells and other borings are indicated on the site plan, **Figure 2**.

Based on groundwater sampling results and the reported south-southeast direction of groundwater flow in the site area, the PCE-impacted groundwater plume has moved downgradient and offsite. Due to the low levels of PCE in the groundwater samples collected closest to the former dry cleaning facility (24.2 micrograms per liter [μ g/L] in SB-2), the CDPHE did not require remediation of the groundwater beneath the former dry cleaning facility, as this area is not considered to be the most severely impacted. The portion of the PCE-impacted groundwater plume beneath the southeast corner of the site and offsite in Garland Drive is the focus of remediation and monitoring.

Ninyo & Moore prepared and submitted a VCUP Application to the CDPHE. The application proposed remediation of the PCE-impacted groundwater plume beneath the southeast corner of the site and offsite in Garland Drive only, by in-situ chemical oxidation. The VCUP Application was approved by the CDPHE in a letter dated March 22, 2013.

Subsequently, Ninyo & Moore prepared and submitted a petition for No Action Determination (NAD) with regards to the onsite PCE-impacted groundwater plume located beneath the former dry cleaning facility. The NAD petition was approved in a letter dated April 29, 2013.

On behalf of NURA, Ninyo & Moore conducted remediation activities as specified in the approved-VCUP Application in May 2013. Ninyo & Moore contracted In-Situ Oxidative Technologies Inc. (ISOTEC) to conduct an injection event. ISOTEC injected a patented

mixture of 10% hydrogen peroxide, 10% sodium persulfate and a catalyst into the subsurface in a triangular grid surrounding the known impacted area. CDPHE-required groundwater monitoring is on-going to determine if the levels of PCE are decreasing long-term or if additional injection may be necessary.

2.2. Site Geology and Hydrology

The site is located approximately 20 miles east of the southern Rocky Mountains, within the Colorado Piedmont section of the Great Plains Physiographic Province. The City of Northglenn is located within a large north-south trending structural basin called the Denver Basin. The Denver Basin formed during the Laramide Orogeny that uplifted the Rocky Mountains during the late Cretaceous and early Tertiary (Trimble, 1980). The site is mapped as being underlain by sandstone, mudstone, claystone, and conglomerate of the Denver and Arapahoe formations.

3. GROUNDWATER MONITORING WELL REPLACEMENT

CDPHE-required groundwater monitoring from the approved VCUP Application includes MW-5, MW-10, and MW-17 (Figure 2). MW-5 is on the southeast corner of the site and MW-10 and MW-17 are located south of the site, along the south side in Garland Drive. Groundwater monitoring well MW-5 was installed by Ninyo & Moore in November 2012. The well was initially advanced to approximately 25 feet below ground surface (bgs) as a soil boring with a temporary monitoring well. The temporary monitoring well was removed and the boring was advanced to approximately 35 feet bgs. Monitoring well MW-5 was installed in the deeper boring for use in periodic groundwater monitoring of the site. Monitoring wells MW-9 and MW-10 were also installed in November 2012, both to a total depth of 34 feet bgs. Boring logs and Well Construction Schematics for these wells are included in Appendix A. Monitoring well MW-17 was previously installed by other and was associated with the adjacent Miller property.

When Wal-Mart purchased the site, NURA retained access to well MW-5 for monitoring purposes. During construction of the Wal-Mart Neighborhood Market, monitoring well MW-5 was destroyed. Ninyo & Moore installed a new monitoring well to replace MW-5 in December

2014. The well was installed to approximately 35 feet bgs near the location of the previous MW-5. MW-5R is the replacement well for MW-5 and will be included in the CDPHE-required groundwater monitoring. A boring log and well construction diagram are included as Appendix A.

4. GROUNDWATER MONITORING

Groundwater activities consisted of groundwater table measurements, groundwater monitor well sampling and laboratory analysis. Monitoring was conducted on two separate occasions, December 3 and December 23, 2014. Laboratory results from the December 3 event indicated concentrations of PCE in wells MW-10 and MW-17 had increased since the previous monitoring event conducted in November 2013. Therefore, the wells were redeveloped and resampled to confirm the laboratory results.

4.1. Groundwater Table Measurements

On December 3, 2014, prior to well purging, Ninyo & Moore personnel measured the depth to static groundwater from the top of the well casing in monitoring wells MW-5R, MW-10 and MW-17 with a decontaminated water level meter, to an accuracy of 0.01 feet. The water levels measured in MW-5R, MW-10 and MW-17 were 19.5 feet below top-of-casing (TOC), 19.75 feet below TOC and 21.05 feet below TOC, respectively. The water level in MW-9 was also measured as an additional data point (17.8 feet below TOC).

On December 23, 2014, prior to well redevelopment, Ninyo & Moore personnel measured the depth to static groundwater from the top of the well casing in monitoring wells MW-9, MW-10 and MW-17 with a decontaminated water level meter, to an accuracy of 0.01 feet. The water levels measured in MW-9, MW-10 and MW-17 were 18.1 feet, 20.00 feet and 21.50 feet below TOC, respectively.

Current and historical groundwater elevation data is presented on **Table 1.** Groundwater elevation contours for the December 2014 monitoring events are presented on **Figures 3** and **4**, respectively.

4.2. Groundwater Quality Field Measurements

During both monitoring events, field measurements for temperature, pH, conductivity and dissolved oxygen were collected during purging and development. Field measurements are provided on Groundwater Sampling Field Data sheets included in **Appendix B**.

4.3. Groundwater Sampling and Laboratory Analysis

On December 3, 2014, groundwater samples were collected from MW-5R, MW-10 and MW-17. Prior to sample collection, MW-5R was developed to ensure connectivity with formation water by purging ten casing volumes of water using a new, disposable bailer. Three casing volumes of groundwater were purged from MW-10 and MW-17 using a new disposable bailer. Following purging, groundwater samples were collected from each well, and placed in laboratory-supplied containers, labeled, and stored in a cooler with ice under chain-of-custody documentation for transport to the analytical laboratory. The groundwater samples were analyzed for VOCs using EPA Method 8260B. Laboratory results are summarized in **Table 2** and laboratory reports are included in **Appendix C**.

Laboratory results, discussed below, indicated the concentrations of PCE in wells MW-10 and MW-17 had increased since the November 2013 sampling event. Therefore, on December 23, 2014, Ninyo & Moore redeveloped wells MW-10 and MW-17 (by purging 10 volumes of water) and conducted another monitoring event, which included monitoring wells MW-9, MW-10 and MW-11. Similar methods were used for groundwater sample collection, transport, and analysis.

4.4. Decontamination Procedures

Decontamination was conducted prior to and after each use of a piece of equipment. Disposable sampling equipment such as disposable polyethylene bailers intended for onetime use was not decontaminated. Nitrile gloves were changed between each sample location to decrease the potential of cross contamination.

5. MONITORING RESULTS

5.1. Groundwater Flow Direction and Gradient

The depth to groundwater measurements are presented in Table 1. Ninyo & Moore calculated the elevation of static groundwater relative to mean sea level. Groundwater elevation contour maps are presented on Figures 3 and 4. Shallow groundwater at the site appears to flow south-southeast. This result is generally consistent with previous monitoring, the natural topography and anticipated regional groundwater flow.

5.2. Groundwater Sample Analytical Results

During the December 3, 2014 sampling, PCE was detected in groundwater from monitoring wells MW-10 (57 μ g/L) and MW-17 (210 μ g/L). The CBSGWr for PCE at sites is 17 μ g/L. PCE concentrations were reported below detection limits in MW-5R, at 57 ug/L in MW-10, and at 210 ug/L in MW-17. PCE in groundwater from the December 3, 2014, sampling is presented on **Figure 5.**

Additional VOCs were detected above the laboratory detection limits:

- Naphthalene (15 μg/l) and 1,2,4-trimethylbenzene (7.6μg/l) were reported in the MW-5R sample. The CBSGW for naphthalene is 140 ug/L, and a CBSGW for 1,2,4trimethylbenzene has not been tablished.
- Cis-1,2-dichloroethylene $(1.7\mu g/L)$ and trichloroethylene (TCE; 2.4 $\mu g/L$) were reported in well MW-10. The detections were below their respective CBSGW.
- TCE (3.4 μ g/l) was detected in the sample collected from MW-17 ; the concentration was below the CBSGW of 5 ug/L.

A summary of historical groundwater analytical results is presented on Table 2. PCE concentrations in wells MW-10 and MW-17 increased from the concentrations reported for November 2013. PCE concentrations in MW-10 and MW-17 increased from below laboratory detection limits to 57 ug/l and 210 ug/L, respectively.

Ninyo & Moore conferred with ISOTEC, the subcontractor firm who conducted the subsurface injections in May 2013. Redevelopment and resampling of the wells was recommended.

On December 23, 2014, monitoring wells MW-9, MW-10 and MW-17 were redeveloped and sampled. PCE was not detected in MW-9. PCE concentrations were reported in MW-10(45 ug/L), and in MW-17 (210 ug/L). Laboratory analytical reports are included in Appendix C.

Ninyo & Moore conferred with ISOTECH and Mr. Fonda Apostolopulos of the CDPHE regarding the apparent "rebound" of PCE concentrations. At the site, PCE concentrations in MW-5 decreased immediately after injection, increased slightly six months later, and were below detection limits in MW-5R in December 2014. In well MW-10, PCE concentrations remained stable immediately after injection, were not detected six months later, and have increased to 57 ug/L. In well MW-17, PCE concentrations remained stable immediately after injection, and have increased to 210 ug/L.

A comparison of historic groundwater levels indicates that the non-detectable levels of PCE observed in November 2013 appear to coincide with high groundwater levels. The high groundwater levels may be related to above average precipitation events that occurred at the site approximately 10 weeks prior to the November 2013 monitoring event. The higher groundwater levels may have diluted PCE impacted groundwater resulting in lower concentrations.

6. INVESTIGATION DERIVED WASTE

Decontamination and purged groundwater generated from field activities was placed into a properly labeled 55-gallon drum, sealed, and temporarily stored on site in a 55-gallon drum. When the drum is full, transportation and offsite disposal of the drum will be coordinated. Gloves and miscellaneous trash remaining from the sampling activities were stored in plastic bags and disposed of as municipal waste.

7. SAMPLE QUALITY ASSURANCE/QUALITY CONTROL

Upon receipt, the analytical laboratory, Environmental Chemistry Services, Inc. inspected the condition of the sample containers and noted "There were no problems with the analytical events associated with this report, unless noted in the Case Narrative. Quality control data is within laboratory defined or method specified acceptance limits except if noted." No problems were reported in the Case Narrative.

8. FINDINGS AND RECOMMENDATIONS

Concentrations of PCE in groundwater in MW-5/MW-5R have decreased since the injection remediation was conducted in May 2013. In monitoring wells MW-10 and MW-17, PCE concentrations increased from the pre-injection concentrations (November 2012) to the post-injection concentrations (December 2014).

Ninyo & Moore recommends a second round of chemical injection be conducted, as proposed in the approved VCUP Application. Injection locations will be relocated further south and closer to wells MW-10 and MW-17. Additional groundwater monitoring events will be required by the CDPHE following the second round of chemical injection.

9. LIMITATIONS AND EXCEPTIONS

The environmental services described in this report have been conducted in general accordance with current regulatory guidelines and the standard-of-care exercised by environmental consultants performing similar work in the project area. No warranty, expressed or implied, is made regarding the professional opinions presented in this report. Please note that this study did not include an evaluation of geotechnical conditions or potential geologic hazards.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires any additional information or has questions regarding the content, interpretations presented, or completeness of this document.

Our findings, conclusions, and recommendations are based on an analysis of the observed site conditions and the referenced literature. It should be understood that the conditions of a site could change with time as a result of natural processes or the activities of man at the site or nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

This report is intended exclusively for use by the Client. Any use or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

10. REFERENCES

- Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division, Table 1. Colorado Soil Evaluation Values, July 2011.
- Ninyo & Moore, 2012, Limited Phase II Environmental Assessment Report, Garland Shopping Center, dated August 17.
- Ninyo & Moore, 2012, Phase I Environmental Site Assessment Report, Garland Shopping Center, Northglenn, Colorado, dated July 18.
- Ninyo & Moore, 2012, Limited Phase II Environmental Assessment Report, Garland Shopping Center, dated December 6.
- Ninyo & Moore, 2013, Voluntary Cleanup and Remediation Program Application Addendum, Garland Shopping Center, dated June 5.
- Trimble, Donald E., 1980, The Geologic Story of the Great Plains, Geological Survey Bulletin 1493.

TABLES



MONITORING WELL TOC MSL	Date	Depth to Groundwater (feet below TOC)	Groundwater Elevation (MSL)
MW-5	11/16/2012	21.00	5284.83
5305.83	11/22/2013	19.60	5286.23
MW-5R* NS	12/3/2014	19.50	
MW 0	11/16/2012	18.78	5285.06
IVI W -9	12/3/2014	17.80	5286.04
5303.84	12/23/2014	18.10	5285.74
MW 10	11/16/2012	19.50	5284.81
IVI VV - 10	11/22/2013	17.80	5286.51
5204 21	12/3/2014	19.75	5284.56
5504.51	12/23/2014	20.00	5284.31
MW 17	11/16/2012	21.10	5283.88
IVI VV - 1 /	11/22/2013	20.00	5284.98
5204 09	12/3/2014	21.05	5283.93
5304.98	12/23/2014	21.50	5283.48

TABLE 1HISTORICAL GROUNDWATER ELEVATIONS

Notes:

Monitoring Well locations are depicted on Figure 2.

TOC = Top of Casing MSL= Mean Sea Level.

NS = Not Surveyed

Boring locations and TOC elevations were surveyed by a Colorado Professional Surveyor, except for MW-5R. MW-5 was destroyed during construction in the summer of 2014 and replaced by MW-5R.

TABLE 2

	SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS																	
Sample ID:		MW-5	MW-5	MW-5	MW-5R*	MW-9	MW-10	MW-10	MW-10	MW-10	MW-10	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	CDPHE Groundwater Quality
Date Sampled:	Units	9/26/12	5/17/13	11/22/13	12/3/14	12/23/14	11/8/12	5/17/13	11/22/13	12/3/14	12/23/14	11/8/12	1/25/13	5/17/13	11/22/13	12/3/14	12/23/14	Stanuaru
Volatile Organic Compo	ounds (V	VOCs)				_	-					-						
Chloroform	μg/l	< 0.38	0.68J	< 0.25	<1.0	<1.0	< 0.38	< 0.38	< 0.25	<1.0	<1.0	<2.0	< 0.38	< 0.38	< 0.25	<1.0	<1.0	3.5
cis-1,2-Dichloroethylene	μg/l	0.71J	<0.47	< 0.30	<1.0	<1.0	0.66J	0.98	< 0.30	1.7	<1.0	<1.0	2.0	2.0	< 0.30	<1.0	<1.0	70
Napthalene	μg/l	NA	NA	NA	15	<2.0	NA	NA	NA	<2.0	<2.0	NA	NA	NA	NA	<2.0	<2.0	140
1,2,4-Trimethylbenzene	μg/l	NA	NA	NA	7.6	<2.0	NA	NA	NA	<2.0	<2.0	NA	NA	NA	NA	<2.0	<2.0	NE
trans-1,2-Dichloroethylene	μg/l	< 0.36	< 0.36	< 0.83	NA	<1.0	<0.36	<0.36	<0.83	NA	<1.0	<2.0	0.64J	0.40J	<0.83	<1.0	<1.0	100
Tetrachloroethylene	μg/l	60.7	<0.42	19.2	<1.0	<1.0	8.4	9.5	< 0.28	57	45	121	183	179	< 0.28	210	210	17
Trichloroethylene	μg/l	1.4J	<0.41	< 0.25	<1.0	2.1	0.69J	0.62J	< 0.25	2.4	<2.1	<2.0	3.6	3.5	< 0.25	3.4	3	5

Notes:

MW-5R was installed on 12/2/2014, and replaced MW-5 (destroyed during construction).

VOCs were analyzed by EPA Method 8260B.

NE= Not established

NA= Not analyzed

µg/l = micrograms per liter

<x = below laboratory reporting limit

BOLD incates concentration is above the laboratory detection level.

BOLD and shaded indicates concentration is above the CDPHE Groundwater Quality Standard.

J indicates an estimated value above the method detection limit but below the reporting limit.

FIGURES







file no: 0557blm0115



file no: 0557gwe0115b



file no: 0557gwe0115



file no: 0557pce0115b



file no: 0557pce0115

APPENDIX A

BORING LOGS AND WELL CONSTRUCTION SCHEMATICS

Ninyo & Moore

	U.S.C.S. METI	HOD (OF S	OIL CLASSIFICATION
MA	JOR DIVISIONS	SYM	BOL	TYPICAL NAMES
			GW	Well graded gravels or gravel-sand mixtures, little or no fines
ILS	GRAVELS (More than 1/2 of coarse		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines
(D SO) of soil size)	fraction > No. 4 sieve size)		GM	Silty gravels, gravel-sand-silt mixtures
AINE In 1/2 Sieve			GC	Clayey gravels, gravel-sand-clay mixtures
SE-GR ore that o. 200			SW	Well graded sands or gravelly sands, little or no fines
OAR (Mo >N	SANDS (More than 1/2 of coarse		SP	Poorly graded sands or gravelly sands, little or no fines
0	fraction <no. 4="" sieve="" size)<="" th=""><td></td><td>SM</td><td>Silty sands, sand-silt mixtures</td></no.>		SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures
			ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with
SOILS of soil size)	SILTS & CLAYS Liquid Limit <50		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean
NED 1/2 c			OL	Organic silts and organic silty clays of low plasticity
-GRAJ re than 5. 200			MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
FINE- (Mo <n(< th=""><th>SILTS & CLAYS Liquid Limit >50</th><th></th><th>СН</th><th>Inorganic clays of high plasticity, fat clays</th></n(<>	SILTS & CLAYS Liquid Limit >50		СН	Inorganic clays of high plasticity, fat clays
			ОН	Organic clays of medium to high plasticity, organic silty clays, organic silts
HIG	HLY ORGANIC SOILS	5	Pt	Peat and other highly organic soils

GRA	AIN SIZE CHART	
~ . ~ . ~	RANGE OF G	RAIN SIZE
CLASSIFICATION	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL Coarse Fine	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.76 76.2 to 19.1 19.1 to 4.76
SAND Coarse Medium Fine	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.76 to 0.075 4.76 to 2.00 2.00 to 0.420 0.420 to 0.075
SILT & CLAY	Below No. 200	Below 0.075



U.S.C.S. METHOD OF SOIL CLASSIFICATION



0 Bulk sample.	
Modified split-barrel drive sampler.	
Sample retained by others.	
Standard Penetration Test (SPT).	
No recovery with a SPT.	
XX/XX Shelby tube sample. Distance pushed in inches/length of sample recovered in inches.	
No recovery with Shelby tube sampler.	
Continuous Push Sample.	
Q Seepage.	
10 ₩ Groundwater encountered during drilling. 𝔤 Groundwater measured after drilling.	
SM ALLUVIUM: Solid line denotes unit change.	
Dashed line denotes material change.	
Attitudes: Strike/Dip b: Bedding c: Contact	
15 j: Joint f: Fracture	
F: Fault cs: Clay Seam	
s: Shear bss: Basal Slide Surface	
sf: Shear Fracture sz: Shear Zone	
sbs: Sheared Bedding Surface	
The total depth line is a solid line that is drawn at the bottom of the boring.	
BORING LOG	
NIJY & NUTE EXPLANATION OF BORING LOG SYMBOLS PROJECT NO. DATE	RE

DATE Rev. 01/03

	PLES			F)	(V		_	DATE DRILLED		9/14/12	BORIN	NG NO		B-5	
eet)	SAN	DOT	(%) Ξ	Y (PC	IPP) (ATION	GROUND ELEVATI		5,306.375 FEET		SHEET	1	OF _	2
TH (fe		NS/FC	TURE	NSIT	DNIC	MBO	S.C.S	METHOD OF DRILL	LING 2	" Diameter Hollow-S	Stem Auge	r (Vine Labs)			
DEP	Bulk Driven	BLO	MOIS	ίΥ DE) RE∕	S	LASS U.	DRIVE WEIGHT	1	40 lbs. (Auto Hamm	er)	_ DROP		30"	
				DR	III		0	SAMPLED BY s	SAH	LOGGED BY	DLH		D BY	LM	В
									ETE.	DESCRIPTION/IF	in aboa th	ration viels			
							CL	ATTIVIIM.	<u>EIE</u> . 1	Approximatery 4	menes u	IICK.			
								Brown to light brown calcium mineralizati	rn, moi ion.	st, medium to ver	ry stiff, s	ome sandy C	CLAY	with litt	le
					0.0										
5 -	-/				0.0										
10 -	-/				0.0										
15 -	$\square/$				0.0			Moist to wet.							
20					0.0			Wet; fine to coarse s	and.						
				.	_		—				BOR	ING LOG			
								GARLAND SHOPPI	NG CENT ORTHGLI	ER - 10733 WA ENN, COLORA	SHINC DO	TON STR	REET		
	_		I	U	-	- 1	_		F	ROJECT NO. 500557001	D 1	0/12		FIGUR A-7	E

	PLES				(DATE DRILLED 9/14/12 BORING NO. B-5
et)	SAM	ŌŢ	(%)	(PCF	(PPN		TION	GROUND ELEVATION 5,306.375 FEET SHEET 2 OF 2
TH (fe		/S/FO	-URE	ISITY	DNIC	MBOL	FICA S.C.S.	METHOD OF DRILLING 7" Diameter Hollow-Stem Auger (Vine Labs)
DEP ⁻	Bulk riven	BLOW	LSIOV	Y DEN	REAI	Sγ	-ASSI U.8	DRIVE WEIGHT 140 lbs. (Auto Hammer) DROP 30"
			2	DR	DIG		Ö	SAMPLED BY SAH LOGGED BY DLH REVIEWED BY LMB
20					0.0		CL	DESCRIPTION/INTERPRETATION ALLUVIUM: (Continued)
25 -					0.0			Light brown, moist to wet, very stiff, fine to coarse sandy CLAY with calcium mineralization. DENVER FORMATION: Brown and bluish gray, moist, intensely weathered, weak to moderate induration, some fine to medium sandy CLAYSTONE with iron staining; some calcium carbonate mineralization; little lignite flex and gypsum mineralization. Total Depth = Approximately 26.6 feet BGS. Groundwater was not encountered during drilling. Groundwater was encountered on 9/27/12 at 24.08' BTOC. Note: Groundwater may rise to a level higher than that measured in borehole due to seasonal
								variations in precipitation and other factors as discussed in the report.
30 -								
35 -								
	<u> </u>				•		A n	BORING LOG GARLAND SHOPPING CENTER - 10733 WASHINGTON STREET
		V	77	5	X	Λ		NORTHGLENN, COLORADO PROJECT NO. DATE FIGURE
		•		-				500557001 10/12 A-8

MPLES		CF)	(M		z	DATE DRILLED	1	1/9/12	BORING	NO	Ν	MW-5	
feet)	E (%)	구 (P(G (PF	5	ATIO S.	GROUND ELEVATIO	ON <u>5,30</u>	6.46' ± (MSL)		SHEET _	1	OF	1
NS/F	STUR	LISNE	ADIN	YMBC	SIFIC .S.C.	METHOD OF DRILL	_ING 4"	Diameter Hollow-St	em Auger/SF	Т			
DEF Bulk Driver	MOIS	ς γ de	D RE,	ω Ι	U CLAS:	DRIVE WEIGHT	1	40 lbs. (Automatic)		DROP			
		Ъ			0	SAMPLED BYN	NA	LOGGED BY	SAH R	EVIEWE TION	D BY _	LMB	
						The existing boring v monitoring well in pl was removed.	was adv lace. Bo	ement. For litho	logic descr	feet bgs, and the to	with a empora e borir	tempora ary moni	ry tory well · B-5.
30	/		0.0		CL	Brown, damp to mois Total Depth = Appro A Monitoring well w	st, dense	e, sandy CLAY.		constructi	- — —	 ails in ap	pendix
40						D. <u>Note</u> : Groundwater may ris variations in precipita	se to a le	evel higher than ad several other f	that measu	ured in bo	rehole in the	due to se report.	easonal
	11		1&	A	An	ore	G	ARLAND SHOPPIN	G CENTER	G LOG 10733 WA	SHING	TON STRE	EET
∥ ″♥		7	_				PR	OJECT NO.	DATE			FIGURE	

	PLES							DATE DRILLED	11/8/12	BORING NO.	MW-9
et)	SAMF	5	(%)	(PCF	MPPM		lion	GROUND ELEVATI	ON 5.304.46' ± (MSL)	SHEET	1 OF 2
H (fee		S/FO	URE	SITY	DING	ABOL	FICA ⁻ C.S.	METHOD OF DRILL	-ING 4" Diameter Hollow-S	tem Auger/SPT	
DEPT	sulk iven	ROW	IOIST	DEN	READ	SYN	ASSI U.S	DRIVE WEIGHT	140 lbs. (Automatic)	DROP	
	Шŋ		≥	DRY	DIA		С	SAMPLED BY S	AH LOGGED BY	SAH REVIEWE	ED BY LMB
									DESCRIPTION/IN	TERPRETATION	
								FILL:	matery 2-menes tinek.		
								6" gravel, brown.			
							CL	ALLUVIUM:			
					0.0			Brown, damp, firm,	medium dense to dense,	, sandy CLAY.	
5 -											
		5/5/8			0.0			Brown, damp to moi	st. dense. CLAY.		
									, ,		
10 -											
		7/6/8			19.2						
15-											
		A/5/7			0.3			Brown damp to mai	st fine to medium son		
		1/5/1			0.5				si, mie to meatum, sand	IY ULA I.	
20											
			<u>}</u>		-			000	GARLAND SHOPPIN	BORING LOG	ASHINGTON STREET
		N	//	4/	8	Λ	Νü	UL A		DRTHGLENN, COLORA	ADO FIGURE
									500557003	12/12	A-2

	PLES							DATE DRILLED	11/8/12	BORING NO.	MW-9							
et)	SAMF	d L	(%)	(PCF	MPPM		TION	GROUND ELEVATIO	ON 5,304.46' ± (MSL)	SHEET	2 OF 2							
LH (fe		/S/FO	URE	ISITY	DNIC	MBOL	FICA S.C.S.	METHOD OF DRILLI	NG 4" Diameter Hollow-S	tem Auger/SPT								
DEPI	<u>sulk</u> riven	BLOW	ISIO	DEN	REAI	SYI	ASSI U.S	DRIVE WEIGHT	140 lbs. (Automatic)	DROP								
			2	DRY	DID		C		H LOGGED BY _	SAH REVIEWE	ED BY							
20									DESCRIPTION/IN	TERPRETATION								
		4/5/7			8.0			Brown, moist, fine to	coarse sandy CLAY.									
			T					C I		- 22 5 feat after 1.1	11 ¹							
			-					Groundwater was mea	noundwater was measured at approximatery 22.5 reet after driffing.									
25 -			Ţ					Groundwater was enc	ountered at approxima	ttely 25 feet during of	drilling.							
		5/6/8			0.2													
30 -																		
		3/1/7																
		5/-1//																
								Total Depth = Approx	kimately 34 feet.									
35 -								A Monitoring well wa D.	as installed. See Monit	oring well construct	tion details in appendix							
								Note:										
								Groundwater may rise variations in precipita	e to a level higher than tion and several other	that measured in b factors as discussed	orehole due to seasonal							
40					<u> </u>		-			BORING LOG	;							
		N	// j] &	Λ	ΛΟ	ore	GARLAND SHOPPI	NG CENTER - 10733 W. ORTHGLENN, COLORA	ASHINGTON STREET							
									PROJECT NO. 500557003	DATE 12/12	FIGURE A-3							

	PLES							DATE DRILLED	11/8/12	BORING N	10.	M	W-10				
DEPTH (feet)	SAMF	L L	(%)	(PCF	PPM		NOI		ON = 5.304.88' + (MSL)	-		1	OF	2			
		S/FOC	JRE (SIT<	NG (1BOL	FICAT C.S.		ING 4" Diamater Hollow	Stom Augor/SPT	, ,	1	01	2			
	ven Ven	-OW	DISTI	DEN	READ	SYN	SSIF U.S.(
	Dri	BL	Ŭ	DRY	DID		CLA										
								SAMPLED BY	AH LOGGED BY DESCRIPTION/	SAH RE	ON		LMB				
0								ASPHALT: Approxi	mately 6-inches thick.								
							<i>a</i> *	ASPHALT BASE: A	pproximately 4-inche	s thick.							
					0.0		CL	FILL: Dark reddish brown,	damp to moist, mediu	ım dense, fine	CLAY.						
5 -		3/5/8			0.0		CL	ALLUVIUM: Brown, damp, dense	, fine CLAY.								
10 -		5/7/7			0.0			Brown, moist, dense, fine to medium sandy CLAY.									
-20					0.0												
			<u> </u>	1	1	<u>r///</u>		<u> </u>		BORING							
			17]&	A	ΛΟ	ore	GARLAND SHOPE	PING CENTER - 1 NORTHGLENN,	10733 WA	SHINGT DO	TON STRE	ET			
				J	4	- 1			PROJECT NO.	DATE			FIGURE				
il –									500557003	12/12			A-4				

	ES													
	MPL	F	(%	CF)	(Md		NO	DATE DRILLEDBORING NOMW-10						
EPTH (feet)	Bulk S Driven S	BLOWS/FOO	MOISTURE (%	I) Y (I	NG (F	30L	CLASSIFICATIO U.S.C.S.	GROUND ELEVATION 5,304.88' ± (MSL) SHEET 2 OF 2						
				ENS	EADII	SYME		METHOD OF DRILLING <u>4" Diameter Hollow-Stem Auger/SPT</u>						
				RΥD	ID RE			DRIVE WEIGHT 140 lbs. (Automatic) DROP						
								SAMPLED BY SAH LOGGED BY SAH REVIEWED BY LMB DESCRIPTION/INTERPRETATION						
20		4/4/5			0.0			Brown, moist, loose to medium dense, fine to coarse, clayey SAND.						
25 -		8/7/8	▶ I ¹		0.0			Groundwater was measured at approximately 24 feet during drilling.						
30 -														
								DENVED FORMATION DEDROCK						
	$\left \right $	15/20/			0.0			Brown, saturated, very dense, CLAY.						
		20												
35 -								Total Depth = Approximately 34 feet. A Monitoring well was installed. See Monitoring well construction details in appendix D. <u>Note</u> : Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report.						
40														
		M	ĥ	77] &	M		GARLAND SHOPPING CENTER - 10733 WASHINGTON STREET NORTHGLENN COLORADO						
				J	_			PROJECT NO. DATE FIGURE						
								<u> 500557005 12/12 A-5</u>						

				1	1	_									
	APLES		TURE (%)	(F)	(F)		CLASSIFICATION U.S.C.S.	DATE DRILLED	1	1/8/12	BORIN	IG NO	N	/W-11	
DEPTH (feet)	SAN	DOT		r (PC	IPPI			GROUND ELEVATIO	ON <u>5,30</u>	99.29'±(MSL)		SHEET	1	OF	2
		BLOWS/FC		NSIT)	DING	MBO		METHOD OF DRILL	LING <u>4"</u>	Diameter Hollow-St	tem Auger	r/SPT			
	Bulk Driven		MOIS	ΥDE	REA	SΥ		DRIVE WEIGHT		140 lbs. (Automatic)		_ DROP			
				DR	DIG			SAMPLED BY s	SAH	LOGGED BY DESCRIPTION/IN	SAH TERPRE		DBY	LMB	3
0								ASPHALT: Approxi	imately	3-inches thick.					
					0.0			FILL: Brown, damp, dense,	, fine to	coarse, SAND.					
5 -		3/4/7			0.0		CL	Brown, damp, dense,	, fine to	coarse SAND, C	CLAY.				
20		5/10/ 13			0.0						BOR	NG LOG			
		M	11	77] &	A	Λ	ore	G	ARLAND SHOPPIN NC	IG CENT	ER - 10733 WA	SHING DO	TON STR	EET
				J					PR 5	OJECT NO.	D	ATE		FIGURE	
	PLES			(in the second s	()			DATE DRILLED 11/8/12 BORING NO. MW-11							
--------	----------------	-------------	------	--	------	-----	----------------	--							
et)	SAM	DOT	(%)	(PCI	(PPN		TION .	GROUND ELEVATION 5,309.29' ± (MSL) SHEET 2 OF 2							
TH (fe		VS/FC	TURE	VSITY	DING	MBO	IFIC∕ S.C.S	METHOD OF DRILLING 4" Diameter Hollow-Stem Auger/SPT							
DEP	Bulk Driven	BLOV	SION	Y DEI	REA	S∖	LASS U	DRIVE WEIGHT140 lbs. (Automatic) DROP							
				DR	PIC		0	SAMPLED BY <u>SAH</u> LOGGED BY <u>SAH</u> REVIEWED BY <u>LMB</u>							
20		10/14/					CL								
-		20			0.0			Brown, damp, dense, fine, CLAY.							
25		9/16/ 18	₩[I-		0.0			Groundwater measured during drilling at approximately 25 feet bgs. On 11/12/12 after well development, groundwater was measured at 13.0 feet bgs. Brown, saturated, medium dense, fine to coarse CLAY.							
-					0.0		CL	DENVER FORMATION BEDROCK: Dark reddish gray, damp, intensely to moderately weathered, weak induration, CLAYSTONE; trace iron staining, fracture faces.							
-								Total Depth = Approximately 34 feet.							
35 -								A Monitoring well was installed. See Monitoring well construction details in appendix D.							
								Note: Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report.							
40				•				BORING LOG							
			//	[][&	Λ	Λα	GARLAND SHOPPING CENTER - 10733 WASHINGTON STREET NORTHGLENN, COLORADO							
				<u> </u>			/	500557003 DATE FIGURE							

MONITORING WELL NO: MW-5 COMPLETION DATE: 11/9/12



MONITORING WELL NO: MW-9 COMPLETION DATE: 11/8/12



MONITORING WELL NO: MW-10 COMPLETION DATE: 11/8/12



			-	-	-										
	LES							DATE DRILLED	12/2/14	BORI	NG NO.]	MW-5R		
iet)	SAMF	ЮТ	(%)	(PCF		TION .	TION	GROUND ELEVATION	Approximately 5306.	4 Feet	SHEET	1	_ OF _	2	
TH (fe		VS/FC	I'URE	ISITY	MBO	IFICA S.C.S	/ELL 'RUC'	METHOD OF DRILLING	4" Diameter AMSL H	Hollow-St	em Auger				
DEP'	iven	BLOW	ISION	Y DEN	SΥ	-ASS U.9	M TSNO	DRIVE WEIGHT	140 lbs (Automatic)	DROP				
	۳Ę		2	DR		U	ŏ	SAMPLED BY N/A	LOGGED BY	BM		D BY	LM	В	
					1777				DESCRIPTION	VINTERF	PRETATION				
						CL		ALLIVIUM.	2. Approximately 5	unck.					
								ALLUVIUM: Brown to light brown, m @ 19.5': Groundwater er DENVER FORMATION	oist, medium to ver	y stiff, C	2LAY. n 12/2/14.				
30 -			¥					Brown and bluish gray, r @ 29.0': Groundwater m Total Depth = 35 feet. Groundwater was measu approximately 19.5 feet of A monitoring well was in	red at a depth of app on 12/3/14. restalled.	oroximat	tely 29 feet in	n bore	bole dur	ing drilli	ing, at
			<u>ــــــــــــــــــــــــــــــــــــ</u>	I	1	I	L	I	BUDI					00	
						R-		Innro	BORI		WALMART 47	47		.00	
				4			77	loor e		GARLAND	DATE	GLENN	N, COLORAI		
		V					V		500862001		01/15		Г	A-1	
L									300002001		V1/1J			4 4 4	

	PLES							DATE DRILLED 12/2/14 BORING NO. MW-5R
et)	SAMF	ЮŢ	(%)	(PCF		TION	TION	GROUND ELEVATION Approximately 5306.4 Feet SHEET 2 OF 2
TH (fe		VS/FC	IURE	USITY	MBOI	IFICA S.C.S.	/ELL 'RUC'	METHOD OF DRILLING 4" Diameter AMSL Hollow-Stem Auger
DEP.	3ulk iven	BLOV	-SION	Y DEN	S	LASS U.	N NO	DRIVE WEIGHT 140 lbs (Automatic) DROP
	۵			DR		Ö	0	SAMPLED BYN/A LOGGED BYM REVIEWED BYMB
40								DESCRIPTION/INTERPRETATION Notes:
								Groundwater may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
								The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
50								
50-								
60 -								
70 -								
80								
	<u> </u>							BORING/MONITORING WELL LOG
		V	//	4		&	N	10755 GARLAND DRIVE, NORTHGLENN, COLORADO
		V					V	500862001 01/15 A-2

APPENDIX B

GROUNDWATER SAMPLING FIELD DATA SHEETS



ar Sar y	$\hat{P}_{ij}^{\rm bet} \propto \hat{\rho}_{ij}^{\rm bet} \hat{q}_{ij}^{\rm bet}$	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1			GROUNE	OWATER	IPLING FIL		
Project Nan	ne NURA	Garlan	Y						
Site:	Walna	rt		Date:	12/3/14	~	Sampler:	Rob Newm	unc
Project No.:		500557	004	Weather:	400 14	Sunny		77	D/LI-
Monitoring	Well ID:	mw-5	<u>R</u>	Vapor Moni	toring Result	s (ppmv):		BZ≓	W 11-
Casing Diar	neter:	X 2"	4" 6"	Other		Casing Mate	erial:] SCH 40-PVC	Other
Total Depth	(ft-TOC):		35						
Depth to W	ater (ft-TOC):		19.5		Floating Imn	niscible Laye	r Observed?		
					Floating Imn	niscible Laye	r Thickness	(Teet):	Min Purge
					2'' = 0.16	$ral/\theta = 2$	49. +3=	7.44	Volume
Water Colu	mn Height (fe	et):	15.5		4'' = 0.05 6'' = 1.47	garm - 21	110 - 20 -	1.11	(gallons)
				C Line	t boadd	161		Cleaned:	
water Leve	1 Measuremen	it Equip:		Neulb	iler	191		Cleaned:	
Furging Me	Bailer Ropes	-New or Cle	med?	MCM 00	11151				
Temn /oH N	Meter	191 50	6 Mpc				Calibration	(date/time):	12/1
Conductivit	w Meter:	VCICC	6 MPS				Calibration	(date/time):	12/1
Comments:			W L						
							pH STND.	Field pH	Field Temp ^o
							4.0		
		and the second					7.0		L
	D. 111	lotalizer			COND				
Time	(Gal)	(Gal)	TEMP ()	nH	(µS/cm)	12096	Do mal-		
1252	(Gui)	(Gui)	6 47	7.41		8011	9.93		
1254	1		202	7.57	-1	79.6	92		
1300	2		11,07	7.69	0	77.6	8,52		
1304	3		11.87	7.66	0	75.3	8.13		
1307	4		12.77	7.69	0	75.6	8,09		
1310	5		13.86	7.62	0.	74.4	17.68		
1320	-6		12.28	7.32	0	73.8	1.67		+
1323	7		13.24	7.45	0	11.1	18.13		
1327	8		1 14.64	11.5	0	Time Tini-1	A Purging	1350	_
Total Volu	me Purged (ga	allon):	-	-	1	I ULISEPA	Containe	rs/Volume/Type	T
Comulia - B	Athe A 12 miles	mant-			Parameter	Method	(VOA	/Glass/Plastic)	Pres.
oampung N	vicinoa/Equipi `Bailer	ment:	12		1 ar anno tor		1		and the second s
	- AF WEEK								
		10							
Bailer Rop	e-New or Clea	aned?:	Nein		 				
Sample Tu	ne:	1400	0						
Baplicate I	D (if and)	-INM-2	K		1				
replicate I	TA (IT abbr.)				1				
Laboratory	7:								
Comments					L				
		and a state of the state of the	Concession of the star of the star	والمعالية المعادية		-			

. Alicany	192 - Juliaeuro	(*8);	a A _{ma} r		GROUNDWATER S PLING FIELD DATA SHEET						
Project Nan Site: Project No. 1	walma	Gatland rt	<u>}</u>	Date: Weather:	12/3/1	Sunny	Sampler:	Rob Neum	lann		
Monitoring	Well ID:	MW-11)	Vapor Mon	itoring Result	s (ppmv):		BZ=	WH=		
Casing Diar Fotal Depth Depth to W	neter: (ft-TOC): ater (ft-TOC):	2"	4" [] 6" 34' 19,75	Other	Floating Im	Casing Mate	rfal:	SCH 40-PVC	Other		
Water Colu	mn Height (fe	et):	14.25		2'' = 0.16 Min. 1 $4'' = 0.65$ gal/ft = $2.2%$ $x3 = 6.84$ Volume $6'' - 1.47$ (gallow)						
Water Leve	l Measuremen	t Equip:	and the second	Solins	t. Mode	101		Cleaned:			
urging Me	thod/Equipme	ent:		New bo	ailer			Cleaned:	22-in 1984) I - State		
Pump Lines Femp./pH M Conductivit	/Bailer Ropes Aeter: y Meter:	New or Clear VSI 55 VSI 55	aned? 6 MPS 6 MPS			- - -	Calibration Calibration	(date/time): (date/time):	<u> 2/1</u> <u> 2/1</u>		
comments.	20.1						pH STND.	Field pH	Field Temp ^o		
V	1. T		in the second				4.0		100		
	1999年1月1日			891 A.A.S.	Sec. F		7.0	Carlo and a second			
Time	Purge Vol (Gal)	Totalizer Reading (Gal)	темр. (° с)	pН	COND. (µS/cm)	D0%	00 mg				
1143	•5		10,15	7,72	-1	94.5	11.06				
1147			10,41	7.82	-1	189,5	8.90	Contraction of the second	Tratter Tile		
1152	2		12.44	1.79		20.5	8.78	The Maria provide			
1150	4		14 6	773	0	76.2	7.74	Constant of the			
1205	5		15.0	7.66	0	75.8	7.61		9 E		
1209	6	18.25	15.5	7.6	0	74.9	7.47		1		
1212	7		15.4	7:52	0	73.6	7.48	1.1.			
1	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	en myram o'n i		and the second	L	Time Floriak	ad Durging:	1212	Part and parts		
Fotal Volu	me Purged (ga	illon):			1	USEPA	Containe	rs/Volume/Type	1		
Sampling N	Aethod/Equipr	ment:	10 A.		Parameter	Method	(VOA	/Glass/Plastic)	Pres.		
PVC	, Baller				14 Ja	and	escates y				
Bailer Rop Sample Tir	e-New or Clea ne:	ined?: 1215	New								
Sample ID:	1.1	MW-1	0				200				
Replicate I	D (if appl.)	1.3									
Laboratory	:			ing the second							
Comments			11-14-15-18 1-1-1-15-194					and the second s			
Sometions	THE PLAT SHOT		Carl and the state of the state		-l lanaacaata	Stocks and the second	APPEND COMO DE COM				
			A STATE OF A	94 C			Sector Street	and the second second second			

e Alitely	Bu - Antonia	1. 基本			GROUNE	OWATER S.	IPLING FIE	ELD DATA SHEET	• •
Project Nan Site: Project No.:	ne: <u>NURA</u> Walmu	Czatlan It 500557	۸ ۵٥4	Date: Weather: Vanor Mon	12/3 11 40° 5	1 Sunny s (nomy):	Sampler:	Rob Neinm BZ=	WH=
wonitoring	weu iD:	[/IW-]			noring Kesuit	s (ppmv).			[] Other
Casing Diar Total Depth Depth to Wi Water Colu	neter: (ft-TOC): ater (ft-TOC): mn Height (fe	₹ 2" [et):	4" [] 6" 25' 21.05 3.95	U Other	Min. Purge Volume (gallons)				
Water Leve	l Measuremen	t Equip:	-	Solins	t Model	101		Cleaned:	
Purging Me	thod/Equipme	ent:		New bo	ailer			Cleaned:	
Pump Lines Temp./pH N Conductivit	/Bailer Ropes Aeter: y Meter:	New or Cler VSI 55 VSI 55	aned? 6 MPS				Calibration Calibration	(date/time): (date/time):	12/1
continenta.	1						pH STND.	Field pH	Field Temp ^o F
							4.0		1
		1					7.0		
Time	Purge Vol (Gal)	Totalizer Reading (Gal)	TEMP. (የር)	pН	COND. (µS/cm)	DO %	DO My/L		
1100	.5	-0	9,27	7,76	-1	77.6	9.32		
103			9.88	7.79	-1	76.1	9.26		10 N
1106	1.5		9,96	7,62	1-1	75.7	917		N
	2		10,41	1.55	-1	755	9.04	1	
1112	4.7		10,13	1.7 %		1313	1100		
	1.2			-	also and				-
	5							Call Call	James Mar
						Time Pint 1	ad Duration	1112	1
Fotal Volu	ne Purged (ga	llon):			1	LISEPA	Containe	rs/Volume/Type	-
Sampling N	fethod/Equipr	nent:			Parameter	Method	(VOA	(Glass/Plastic)	Pres.
PVC	Bailer		3	L	18. 94.				
Bailer Rope	e-New or Clea	ined?:	New						
Sample Tin	ne:	1135	7				- idea		
Replicate ID:	D (if appl)	MM-1	-		-	e	1	e et 10	S. 5 100
cophoate II	~ (ir appi.)			1					1.508 -5
Laboratory	:				1.3			-	
							1.21	-	
Comments:							in the second		
								and service and service and	

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5 - 1 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2	2 - Altheoreth				GROUND	WATER SA	MPLING FI	ELD DATA SHEET			
Project Nam	e: NURA	Garl	pund		1						
Site:				Date:	2/23/1	1, ,	Sampler:	KBN			
roject No.:		50055	7004	Weather:	30°F'	3 Clear	9				
Aonitoring V	Well ID:	MW-9		Vapor Moni	itoring Results	s (ppmv):		BZ=	WH=		
Casing Diam Total Depth Depth to Wa	eter: (ft-TOC): ter (ft-TOC):	2"	4" 6" 34.5 8.1	Other	Floating Imm	Casing Mate	rial: [SCH 40-PVC	Other		
					Floating Imm	niscible Laye	r Thickness	(feet):			
Water Colun	nn Height (fee	et):	16.4		2'' = 0.16 4'' = 0.65 gal/ft = 2.62 x/ $g = 26.24$						
Vator Level	Measurement	t Equip:		Solonia	it in the second			Cleaned:	10		
water Lever	hod/Equipme	nt.		Bailer	21			Cleaned:			
Pump Lines/ Temp./pH M Conductivity Comments:	Bailer Ropes- leter: Meter:	New or Cle	aned?				Calibration Calibration	(date/time): (date/time):			
							pH STND.	Field pH	Field Temp ^o F		
							4.0				
							7.0				
Time	Purge Vol (Gal)	Totalizer Reading (Gal)	TEMP. (° F)	pH	COND. (µS/cm)	ר ט גע COM	DO MY MENTS (co	lor, turbidity, odo	r, sheen, etc.):		
15210			16.1	6.8	3171	25.5	2.54				
1555	8		15.9	7.11	3596	39.4	3.91				
1615	12		16.5	7.13	3648	19.0	1.84				
1630	5		13.8	7.05	3262	15.5	1.27		1		
1645	20		15.5	7.21	3690	21.6	2.16				
1700	22		16.1	7.22	3698	28.8	2.92				
1715	25		16.2	7.20	3748	15.0	1.46				
1730	26		6.3	7.21	3741	10.3	1.61				
							10.1				
Fotal Volum	ne Purged (ga	llon):			1	Time Finish	ed Purging:	A labora /Tama	T		
Sampling M	ethod/Equipn	nent:			Parameter	Method	(VOA	/Glass/Plastic)	Pres.		
rvc	Dallel				TEX/MTB E'	8015m	4 x 40mL	VOA	°4 C, HCI		
Bailer Rope	-New or Clear	ned?:	New								
Sample Tim	e:	1/30									
Sample ID:		MW-9						11.00 T			
Replicate II	(if appl.)										
Laberrate -									e a un france		
Jacoratory:		12.00									

de and	er - Astronau	- 450			GROUND	WATER SA	MPLING FIE	LD DATA SHEET	-
Project Nam Site: Project No.: Monitoring V	e: NURA Well ID:	Garlar 500557 MW-10	nd 7004 0	Date: Weather: Vapor Mon	12/23 14 -30 4 C itoring Results	И Сах (ppmv):	Sampler:	BZ=	WH=
Casing Diam Fotal Depth Depth to Wa Water Colur	- neter: (ft-TOC): nter (ft-TOC): nn Height (fea	2"	4" [6" 30.5 20.0	Other] SCH 40-PVC (feet):]6.9;	Other Min. Purge Volume			
Water Level Purging Met Pump Lines, Temp./pH M Conductivity	Measuremen hod/Equipme /Bailer Ropes- leter: y Meter:	t Equip: nt: -New or Clea	aned?		6" - 1.47		Calibration Calibration	Cleaned: Cleaned: (date/time): (date/time):	(gallons)
Comments:							pH STND. 4.0 7.0	Field pH	Field Temp ^o F
Time 1735 1741 1746 1750 1755 1757 1757 1759	Purge Vol (Gal) 7 10 13 14 15 16 17	Totalizer Reading (Gal)	TEMP. (° F) 13,6 14.1 13.9 14.6 14.6 14.6 14.6 14.5	рН 7.07 7.12 7.11 7.20 7.17 7.29 7.26	COND. (µS/cm) 3613 3622 3626 3571 3540 3541 3547	COM 22.2 30.6 30.7 33.1 32.6 54.2 57.1	MENTS (col 2.33 3.13 3.17 3.9 5.56 5.56 5.79	or, turbidity, odor	r, sheen, etc.):
Total Volun Sampling M PVC	ne Purged (ga Iethod/Equipn Bailer	llon): nent:			Parameter TPH-g/ TEX/MTB	Time Finisl USEPA Method	Containe (VOA)	I rs/Volume/Type /Glass/Plastic)	Pres.
Bailer Rope Sample Tim Sample ID: Replicate II Laboratory: Comments:	-New or Clea ne: D (if appl.)	ned?: 			E'	8015m	4 x 40mL 1	/OA	⁹⁴ C, HCI

~ 消费的注意	τ. Έλλ		GROUNDWATER SAMPLING FIELD DATA SHEET							
Tell ID:	Garlan Mw-1	д	Date: Weather: Vapor Moni	12/23/14	s (ppmv):	Sampler:	BZ=	WH=		
		All [] (ll	C Othor		Casing Mate	rial.	SCH 40-PVC	Other		
ter: t-TOC); er (ft-TOC): n Height (fee	2" [4" [] 6" <u>25.</u> 2[,5 3,5	U Other	Floating Imn Floating Imn 2" = 0.16 4" = 0.65 6" - 1.47	niscible Laye niscible Laye gal/ft = -5	or Observed? or Thickness	(feet): 5.6	Min. Purge Volume (gallons)		
Measurement od/Equipme ailer Ropes- ster: Meter:	t Equip: nt: New or Clea	aned?				Calibration Calibration	Cleaned: Cleaned: (date/time): (date/time):			
						pH STND. 4.0 7.0	Field pH	Field Temp ^o F		
Purge Vol (Gal) 2 3 4 5 6	Totalizer Reading (Gal)	TEMP. (° F) 6.2 5.6 14.3 15.2 16.1 15.7	рН 6,9 7.2 7.19 7.07 7.10 7.12	COND. (μS/cm) 3272 3467 3571 3573 3581 3583	DO11 COM 24 30.6 23.7 19.5 23.6 15.8	DO ^{My} MENTS (co 2.96 3.42 3.09 3.49 2.19 2.36	lor, turbidity, odo	r, sheen, etc.):		
					Time Finish	Duncing	1			
Purged (gal thod/Equipn Bailer	llon): nent:			Parameter IPH-g/ TEX/MTB E'	USEPA Method 8015m	Containe (VOA 4 x 40mL V	ers/Volume/Type /Glass/Plastic) VOA	Pres. ⁰⁴ C, HCI		
Vew or Clear : (if appl.)	ned?:									
	NURA ell ID: er: t-TOC): r (ft-TOC): r (ft-TOC): r (ft-TOC): d Height (fee deasuremen od/Equipme ailer Ropes- ter: Meter: deter: fee gal en gal food/Equipme ailer Purged (ga hod/Equipm ailer New or Clea	NUR A Garlan ell ID: MW - [] er: 2" ter: 2" teasurement Equip: od/Equipment: ailer Ropes-New or Cleater: Meter: Purge Vol (Gal) [Gal] 2 3 4 5 6 9 Purged (gallon): hod/Equipment: ailer kew or Cleaned?: (if appl.)	NMRA Garland ell ID: $MW - 17$ ter: 2" 4" 6" t-TOC): 25. r r (ft-TOC): 2.5 1 a Height (feet): 3.5 1 Measurement Equip: od/Equipment: ailer Ropes-New or Cleaned? ter:	ABBR Vett PARTY PART	AMBA Carland Date: 19/23/14 Weather: Vapor Monitoring Results ell ID: MW - 17 Vapor Monitoring Results ter: 2" 4" 6" Other ter: 2" 4" 6" Other ter: 2" 25. Floating Imm r (h-TOC): 21.5 Floating Imm 2" = 0.16 4" = 0.65 6" - 1.47 Measurement Equip:	GROUNDWATER SA NURBA Garland Date: $19/23/14$ Weather: Vapor Monitoring Results (ppmv): ter: Casing Mate Casing Mate Casing Mate Casing Mate Conting Immiscible Laye Officient Conting Results (ppmv): Meter: Officient Conting Immiscible Laye Conting Immiscible Laye Officient Continue Conting Immiscible Laye Conting Immiscible Laye Officient Continue Officient Continue Officient Continue Officient Conting Results (Mater P	GROUNDWATER SAMPLING FIL NMR A Garland Date: 1/23/14 Sampler: Weather: Vapor Monitoring Results (ppmv):	GROUNDWATER SAMPLING FIELD DATA SHEET Date: $19/23/14$ Sampler: Weather: Weather: Weather: Sampler: Weather: Sampler: Vapor Monitoring Results (ppmv): BZ= er: 2" 44" of the '' vapor Monitoring Results (ppmv): BZ= Vapor Monitoring Results (ppmv): BZ= Casing Material: SCH 40-PVC VTOC): 2.5 Floating Immiscible Layer Observed? Floating Immiscible Layer Status (freet): 2" 0.16 Cleaned: ailer Ropes-New or Cleaned? Calibration (date/time): Cleaned: ailer Ropes-New or Cleaned? Calibration (date/time): Galibration (date/time): Galibration (date/time): (Gal) TEMP. (°F) pH (SSEN PUTEGO (Gal)		

APPENDIX C

LABORATORY ANALYTICAL REPORTS





Environmental Chemistry Services, Inc. 2 Oakwood Park Plaza; 100 Castle Rock, CO 80104-1885 TEL: (303) 850-7606 FAX: (303) 850-7609 Website: www.ecs-corp.com

December 05, 2014

Lise Bisson Ninyo & Moore 6001 South Willow Drive Suite 195 Greenwood Village, CO 80111 Tel: (303) 629-9000 Fax:

Project Name: NURA Garland Project No.: 500557004

Work Order: 1412005

Dear Lise Bisson:

Environmental Chemistry Services, Inc. received 3 sample(s) on 12/4/2014 for the analyses presented in the following report.

There were no problems with the analytical events associated with this report, , unless noted in the Case Narrative.

Quality control data is within laboratory defined or method specified acceptance limits except if noted.

If you have any questions regarding these tests results, please feel free to call or email.

TEL: (303) 850-7606 ext:300 kris@ecs-corp.com

Sincerely,

Kris Mascarenas Director of Client Services

Page 1 of 13



Environmental Chemistry Services, Inc. 2 Oakwood Park Plaza; 100 Castle Rock, CO 80104-1885 TEL: (303) 850-7606 FAX: (303) 850-7609 Website: www.ecs-corp.com

Case Narrative

WO#:	1412005
Date:	12/5/2014

CLIENT:	Ninyo & Moore
Project:	NURA Garland

This report in its entirety consists of the documents listed below. All documents contain the Environmental Chemistry Services, Inc. Work Order Number assigned to this report.

- 1. Paginated Report including: A Cover Letter, Case Narrative, Analytical Results, and Applicable Quality Control Reports.
- 2. Copies of the Chain of Custody Document(s) supplied with this sample set.
- 3. Electronic Data Deliverables (EDD) if requested.

Samples were analyzed for Volatile Organic Compounds by EPA Method 8260B. This is a gas chromatography/mass spectrometry method using purge and trap concentration and a capillary chromatography column. The surrogate standards are added to monitor purging efficiency.

Any comments or problems with the analytical events associated with this report are noted below.

Client:Ninyo & MooreWork Order:1412005Project:NURA GarlandLab ID:1412005-01A

Date: 05-Dec-14

Client Sample ID: MW-5R Canister ID: Collection Date: 12/3/2014 2:00:00 PM Matrix: WATER

Analyses	Result	RL	Qual Units	DF	Date Analyzed
VOCS IN WATER BY EPA 8260B		Method:	SW8260B		Analyst: KM
1,4-Dioxane	ND	4.0	µg/L	1	12/4/2014 5:28:00 PN
Acrolein	ND	4.0	µg/L	1	12/4/2014 5:28:00 PN
Acrylonitrile	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
Dichlorodifluoromethane	ND	3.0	µg/L	1	12/4/2014 5:28:00 PN
Chloromethane	ND	3.0	µg/L	1	12/4/2014 5:28:00 PN
Vinyl chloride	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
Bromomethane	ND	3.0	µg/L	1	12/4/2014 5:28:00 PN
Chloroethane	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
Freon-11	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
1,1-Dichloroethene	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
Methylene chloride	ND	5.0	µg/L	1	12/4/2014 5:28:00 PN
Freon-113	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
Carbon disulfide	ND	6.0	µg/L	1	12/4/2014 5:28:00 PN
trans-1,2-Dichloroethene	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
МТВЕ	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
1,1-Dichloroethane	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
Chloroprene	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
cis-1,2-Dichloroethene	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
Bromochloromethane	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
Chloroform	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
2,2-Dichloropropane	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
THF	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
1,2-Dichloroethane	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
1,1,1-Trichloroethane	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
1,1-Dichloropropene	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
Carbon tetrachloride	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
Benzene	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
Dibromomethane	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
1,2-Dichloropropane	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
Trichloroethene	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
Bromodichloromethane	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
Methyl methacrylate	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
2-CEVE	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
cis-1,3-Dichloropropene	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
Methyl isobutyl ketone	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
trans-1,3-Dichloropropene	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
1,1,2-Trichloroethane	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
Toluene	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
1,3-Dichloropropane	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN

Qualifiers: B Analyte detected in the associated Method Blank

DF Dilution Factor

H Holding times for preparation or analysis exceeded

ND Not Detected at the RL

R RPD outside accepted recovery limits

D Dilution was required.

E Value above quantitation range

N Tentatively identified compounds

O RSD is greater than RSDlimit

R Percent Difference outside accepted limits Page 3 of 13

Client:Ninyo & MooreWork Order:1412005Project:NURA GarlandLab ID:1412005-01A

Date: 05-Dec-14

Client Sample ID: MW-5R Canister ID: Collection Date: 12/3/2014 2:00:00 PM Matrix: WATER

Analyses	Result	RL (Qual Units	DF	Date Analyzed
VOCS IN WATER BY EPA 8260B		Method: S	W8260B		Analyst: KM
Ethyl methacrylate	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
Dibromochloromethane	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
EDB	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
PCE	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
1,1,1,2-Tetrachloroethane	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
Chlorobenzene	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
Ethylbenzene	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
m,p-Xylene	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
Bromoform	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
Styrene	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
1,1,2,2-Tetrachloroethane	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
o-Xylene	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
1,2,3-Trichloropropane	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
trans-1,4-Dichloro-2-butene	ND	3.0	µg/L	1	12/4/2014 5:28:00 PN
Isopropylbenzene	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
Bromobenzene	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
n-Propylbenzene	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
2-Chlorotoluene	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
4-Chlorotoluene	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
Pentachloroethane	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
1,3,5-Trimethylbenzene	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
tert-Butylbenzene	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
DBCP	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
sec-Butylbenzene	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
1,2,4-Trimethylbenzene	7.6	2.0	µg/L	1	12/4/2014 5:28:00 PN
1,3-Dichlorobenzene	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
4-Isopropyltoluene	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
1,4-Dichlorobenzene	ND	1.0	µg/L	1	12/4/2014 5:28:00 PN
1,2-Dichlorobenzene	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
n-Butylbenzene	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
1,2,4-Trichlorobenzene	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
Naphthalene	15	2.0	µg/L	1	12/4/2014 5:28:00 PN
Hexachlorobutadiene	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
1,2,3-Trichlorobenzene	ND	2.0	µg/L	1	12/4/2014 5:28:00 PN
Surr: Dibromofluoromethane	102	50-150	%REC	1	12/4/2014 5:28:00 PN
Surr: 1,2-Dichloroethane-d4	95.7	50-150	%REC	1	12/4/2014 5:28:00 PN
Surr: Toluene-d8	98.0	50-150	%REC	1	12/4/2014 5:28:00 PN
Surr: 4-Bromofluorobenzene	100	50-150	%REC	1	12/4/2014 5:28:00 PN

Qualifiers:	В	Analyte detected in the associated Method Blank	D	Dilution was required.	
	DF	Dilution Factor	Е	Value above quantitation range	
	Н	Holding times for preparation or analysis exceeded	Ν	Tentatively identified compounds	
	ND	Not Detected at the RL	0	RSD is greater than RSDlimit	
	R	RPD outside accepted recovery limits	R	Percent Difference outside accepted limits	Page 4 of 13

Client:Ninyo & MooreWork Order:1412005Project:NURA GarlandLab ID:1412005-02A

Date: 05-Dec-14

Client Sample ID: MW-10 Canister ID: Collection Date: 12/3/2014 12:15:00 PM Matrix: WATER

Analyses	Result	RL	Qual Ur	nits D	F Date Analyzed
VOCS IN WATER BY EPA 8260B		Method:	SW8260B		Analyst: KM
1,4-Dioxane	ND	4.0	μg	/L 1	12/4/2014 5:54:00 PN
Acrolein	ND	4.0	μg	/L 1	12/4/2014 5:54:00 PN
Acrylonitrile	ND	2.0	μg	/L 1	12/4/2014 5:54:00 PN
Dichlorodifluoromethane	ND	3.0	μg	/L 1	12/4/2014 5:54:00 PN
Chloromethane	ND	3.0	μg	/L 1	12/4/2014 5:54:00 PN
Vinyl chloride	ND	2.0	μg	/L 1	12/4/2014 5:54:00 PM
Bromomethane	ND	3.0	μg	/L 1	12/4/2014 5:54:00 PM
Chloroethane	ND	1.0	μg	/L 1	12/4/2014 5:54:00 PN
Freon-11	ND	1.0	μg	/L 1	12/4/2014 5:54:00 PN
1,1-Dichloroethene	ND	1.0	μg	/L 1	12/4/2014 5:54:00 PN
Methylene chloride	ND	5.0	μg	/L 1	12/4/2014 5:54:00 PN
Freon-113	ND	1.0	μg	/L 1	12/4/2014 5:54:00 PN
Carbon disulfide	ND	6.0	μg	/L 1	12/4/2014 5:54:00 PM
trans-1,2-Dichloroethene	ND	1.0	μg	/L 1	12/4/2014 5:54:00 PN
МТВЕ	ND	1.0	μg	/L 1	12/4/2014 5:54:00 PN
1,1-Dichloroethane	ND	1.0	μg	/L 1	12/4/2014 5:54:00 PN
Chloroprene	ND	2.0	μg	/L 1	12/4/2014 5:54:00 PN
cis-1,2-Dichloroethene	1.7	1.0	μg	/L 1	12/4/2014 5:54:00 PM
Bromochloromethane	ND	2.0	μg	/L 1	12/4/2014 5:54:00 PM
Chloroform	ND	1.0	μg	/L 1	12/4/2014 5:54:00 PN
2,2-Dichloropropane	ND	1.0	μg	/L 1	12/4/2014 5:54:00 PN
THF	ND	2.0	μg	/L 1	12/4/2014 5:54:00 PN
1,2-Dichloroethane	ND	1.0	μg	/L 1	12/4/2014 5:54:00 PN
1,1,1-Trichloroethane	ND	1.0	μg	/L 1	12/4/2014 5:54:00 PN
1,1-Dichloropropene	ND	1.0	μg	/L 1	12/4/2014 5:54:00 PN
Carbon tetrachloride	ND	1.0	μg	/L 1	12/4/2014 5:54:00 PN
Benzene	ND	1.0	μg	/L 1	12/4/2014 5:54:00 PN
Dibromomethane	ND	2.0	μg	/L 1	12/4/2014 5:54:00 PN
1,2-Dichloropropane	ND	2.0	μg	/L 1	12/4/2014 5:54:00 PN
Trichloroethene	2.4	1.0	μg	/L 1	12/4/2014 5:54:00 PN
Bromodichloromethane	ND	1.0	μg	/L 1	12/4/2014 5:54:00 PN
Methyl methacrylate	ND	1.0	μg	/L 1	12/4/2014 5:54:00 PN
2-CEVE	ND	1.0	μg	/L 1	12/4/2014 5:54:00 PN
cis-1,3-Dichloropropene	ND	2.0	μg	/L 1	12/4/2014 5:54:00 PN
Methyl isobutyl ketone	ND	2.0	μg	/L 1	12/4/2014 5:54:00 PN
trans-1,3-Dichloropropene	ND	2.0	μg	/L 1	12/4/2014 5:54:00 PN
1,1,2-Trichloroethane	ND	1.0	μg	/L 1	12/4/2014 5:54:00 PN
Toluene	ND	1.0	μg	/L 1	12/4/2014 5:54:00 PN
1,3-Dichloropropane	ND	1.0	μg	/L 1	12/4/2014 5:54:00 PN

Qualifiers: B Analyte detected in the associated Method Blank

DF Dilution Factor

H Holding times for preparation or analysis exceeded

ND Not Detected at the RL

R RPD outside accepted recovery limits

D Dilution was required.

E Value above quantitation range

N Tentatively identified compounds

O RSD is greater than RSDlimit

R Percent Difference outside accepted limits Page 5 of 13

Client:Ninyo & MooreWork Order:1412005Project:NURA GarlandLab ID:1412005-02A

Date: 05-Dec-14

Client Sample ID: MW-10 Canister ID: Collection Date: 12/3/2014 12:15:00 PM Matrix: WATER

Analyses	Result	RL	Qual Units	DF	Date Analyzed
VOCS IN WATER BY EPA 8260B		Method:	SW8260B		Analyst: KM
Ethyl methacrylate	ND	1.0	µg/L	1	12/4/2014 5:54:00 PN
Dibromochloromethane	ND	1.0	µg/L	1	12/4/2014 5:54:00 PN
EDB	ND	1.0	µg/L	1	12/4/2014 5:54:00 PN
PCE	57	1.0	µg/L	1	12/4/2014 5:54:00 PN
1,1,1,2-Tetrachloroethane	ND	1.0	µg/L	1	12/4/2014 5:54:00 PN
Chlorobenzene	ND	1.0	µg/L	1	12/4/2014 5:54:00 PN
Ethylbenzene	ND	1.0	µg/L	1	12/4/2014 5:54:00 PN
m,p-Xylene	ND	2.0	µg/L	1	12/4/2014 5:54:00 PN
Bromoform	ND	2.0	µg/L	1	12/4/2014 5:54:00 PN
Styrene	ND	2.0	μg/L	1	12/4/2014 5:54:00 PN
1,1,2,2-Tetrachloroethane	ND	1.0	µg/L	1	12/4/2014 5:54:00 PN
o-Xylene	ND	1.0	µg/L	1	12/4/2014 5:54:00 PN
1,2,3-Trichloropropane	ND	1.0	µg/L	1	12/4/2014 5:54:00 PN
trans-1,4-Dichloro-2-butene	ND	3.0	µg/L	1	12/4/2014 5:54:00 PN
Isopropylbenzene	ND	1.0	µg/L	1	12/4/2014 5:54:00 PN
Bromobenzene	ND	1.0	µg/L	1	12/4/2014 5:54:00 PN
n-Propylbenzene	ND	1.0	µg/L	1	12/4/2014 5:54:00 PN
2-Chlorotoluene	ND	2.0	µg/L	1	12/4/2014 5:54:00 PN
4-Chlorotoluene	ND	2.0	µg/L	1	12/4/2014 5:54:00 PN
Pentachloroethane	ND	2.0	µg/L	1	12/4/2014 5:54:00 PN
1,3,5-Trimethylbenzene	ND	2.0	µg/L	1	12/4/2014 5:54:00 PN
tert-Butylbenzene	ND	2.0	µg/L	1	12/4/2014 5:54:00 PN
DBCP	ND	2.0	µg/L	1	12/4/2014 5:54:00 PN
sec-Butylbenzene	ND	2.0	µg/L	1	12/4/2014 5:54:00 PN
1,2,4-Trimethylbenzene	ND	2.0	µg/L	1	12/4/2014 5:54:00 PN
1,3-Dichlorobenzene	ND	2.0	µg/L	1	12/4/2014 5:54:00 PN
4-Isopropyltoluene	ND	2.0	µg/L	1	12/4/2014 5:54:00 PN
1,4-Dichlorobenzene	ND	1.0	µg/L	1	12/4/2014 5:54:00 PN
1,2-Dichlorobenzene	ND	2.0	µg/L	1	12/4/2014 5:54:00 PN
n-Butylbenzene	ND	2.0	µg/L	1	12/4/2014 5:54:00 PN
1,2,4-Trichlorobenzene	ND	2.0	µg/L	1	12/4/2014 5:54:00 PN
Naphthalene	ND	2.0	µg/L	1	12/4/2014 5:54:00 PN
Hexachlorobutadiene	ND	2.0	µg/L	1	12/4/2014 5:54:00 PN
1,2,3-Trichlorobenzene	ND	2.0	µg/L	1	12/4/2014 5:54:00 PN
Surr: Dibromofluoromethane	101	50-150	%REC	1	12/4/2014 5:54:00 PN
Surr: 1,2-Dichloroethane-d4	95.2	50-150	%REC	1	12/4/2014 5:54:00 PN
Surr: Toluene-d8	98.4	50-150	%REC	1	12/4/2014 5:54:00 PN
Surr: 4-Bromofluorobenzene	100	50-150	%REC	1	12/4/2014 5:54:00 PN

Qualifiers:	В	Analyte detected in the associated Method Blank	D	Dilution was required.
-	DF	Dilution Factor	Е	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	Ν	Tentatively identified compounds
	ND	Not Detected at the RL	0	RSD is greater than RSDlimit
	R	RPD outside accepted recovery limits	R	Percent Difference outside accepted limits Page 6 of 13

Client:Ninyo & MooreWork Order:1412005Project:NURA GarlandLab ID:1412005-03A

Date: 05-Dec-14

Client Sample ID: MW-17 Canister ID: Collection Date: 12/3/2014 11:38:00 AM Matrix: WATER

Analyses	Result	RL Q	ual Units	DF	Date Analyzed		
VOCS IN WATER BY EPA 8260B		Method: SI	V8260B		Analyst: KM		
1,4-Dioxane	ND	4.0	µg/L	1	12/4/2014 6:20:00 PN		
Acrolein	ND	4.0	µg/L	1	12/4/2014 6:20:00 PN		
Acrylonitrile	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
Dichlorodifluoromethane	ND	3.0	µg/L	1	12/4/2014 6:20:00 PN		
Chloromethane	ND	3.0	µg/L	1	12/4/2014 6:20:00 PN		
Vinyl chloride	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
Bromomethane	ND	3.0	µg/L	1	12/4/2014 6:20:00 PN		
Chloroethane	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
Freon-11	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
1,1-Dichloroethene	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
Methylene chloride	ND	5.0	µg/L	1	12/4/2014 6:20:00 PN		
Freon-113	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
Carbon disulfide	ND	6.0	µg/L	1	12/4/2014 6:20:00 PN		
trans-1,2-Dichloroethene	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
МТВЕ	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
1,1-Dichloroethane	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
Chloroprene	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
cis-1,2-Dichloroethene	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
Bromochloromethane	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
Chloroform	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
2,2-Dichloropropane	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
THF	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
1,2-Dichloroethane	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
1,1,1-Trichloroethane	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
1,1-Dichloropropene	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
Carbon tetrachloride	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
Benzene	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
Dibromomethane	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
1,2-Dichloropropane	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
Trichloroethene	3.4	1.0	µg/L	1	12/4/2014 6:20:00 PN		
Bromodichloromethane	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
Methyl methacrylate	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
2-CEVE	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
cis-1,3-Dichloropropene	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
Methyl isobutyl ketone	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
trans-1,3-Dichloropropene	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
1,1,2-Trichloroethane	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
Toluene	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
1,3-Dichloropropane	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		

Qualifiers: B Analyte detected in the associated Method Blank

DF Dilution Factor

H Holding times for preparation or analysis exceeded

ND Not Detected at the RL

R RPD outside accepted recovery limits

D Dilution was required.

E Value above quantitation range

N Tentatively identified compounds

O RSD is greater than RSDlimit

R Percent Difference outside accepted limits Page 7 of 13

Client:Ninyo & MooreWork Order:1412005Project:NURA GarlandLab ID:1412005-03A

Date: 05-Dec-14

Client Sample ID: MW-17 Canister ID: Collection Date: 12/3/2014 11:38:00 AM Matrix: WATER

Analyses	Result	RL Q	Qual Units	DF	Date Analyzed		
VOCS IN WATER BY EPA 8260B		Method: S	W8260B		Analyst: KM		
Ethyl methacrylate	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
Dibromochloromethane	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
EDB	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
PCE	210	5.0	D µg/L	5	12/5/2014 12:29:00 AN		
1,1,1,2-Tetrachloroethane	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
Chlorobenzene	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
Ethylbenzene	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
m,p-Xylene	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
Bromoform	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
Styrene	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
1,1,2,2-Tetrachloroethane	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
o-Xylene	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
1,2,3-Trichloropropane	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
trans-1,4-Dichloro-2-butene	ND	3.0	µg/L	1	12/4/2014 6:20:00 PN		
Isopropylbenzene	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
Bromobenzene	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
n-Propylbenzene	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
2-Chlorotoluene	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
4-Chlorotoluene	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
Pentachloroethane	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
1,3,5-Trimethylbenzene	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
tert-Butylbenzene	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
DBCP	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
sec-Butylbenzene	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
1,2,4-Trimethylbenzene	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
1,3-Dichlorobenzene	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
4-Isopropyltoluene	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
1,4-Dichlorobenzene	ND	1.0	µg/L	1	12/4/2014 6:20:00 PN		
1,2-Dichlorobenzene	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
n-Butylbenzene	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
1,2,4-Trichlorobenzene	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
Naphthalene	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
Hexachlorobutadiene	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
1,2,3-Trichlorobenzene	ND	2.0	µg/L	1	12/4/2014 6:20:00 PN		
Surr: Dibromofluoromethane	101	50-150	%REC	1	12/4/2014 6:20:00 PN		
Surr: 1,2-Dichloroethane-d4	95.0	50-150	%REC	1	12/4/2014 6:20:00 PN		
Surr: Toluene-d8	99.1	50-150	%REC	1	12/4/2014 6:20:00 PN		
Surr: 4-Bromofluorobenzene	101	50-150	%REC	1	12/4/2014 6:20:00 PN		

Qualifiers:	В	Analyte detected in the associated Method Blank	D	Dilution was required.
-	DF	Dilution Factor	Е	Value above quantitation range
	Η	Holding times for preparation or analysis exceeded	Ν	Tentatively identified compounds
	ND	Not Detected at the RL	0	RSD is greater than RSDlimit
	R	RPD outside accepted recovery limits	R	Percent Difference outside accepted limits Page 8 of 13



Client: Project: Ninyo & Moore

NURA Garland

Environmental Chemistry Services, Inc. 2 Oakwood Park Plaza; 100 Castle Rock, CO 80104-1885 TEL: (303) 850-7606 FAX: (303) 850-7609 Website: www.ecs-corp.com

QC SUMMARY REPORT

Work Order: 1412005

05-Dec-14

BatchID: R1618

Sample ID LCS	SampType: LCS	TestCoo	le: 8260B_W	Units: µg/L		Prep Da	te:		RunNo: 1618			
Client ID: LCSW	Batch ID: R1618	TestN	lo: SW8260B		Analysis Date: 12/4/2014			14	SeqNo: 21334			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
1,1-Dichloroethene	92	1.0	100.0	0	91.8	70	130					
Benzene	100	1.0	100.0	0	103	70	130					
Trichloroethene	92	1.0	100.0	0	91.6	70	130					
Toluene	100	1.0	100.0	0	99.5	70	130					
Chlorobenzene	99	1.0	100.0	0	99.1	70	130					
Surr: Dibromofluoromethane	50		50.00		99.9	50	150					
Surr: 1,2-Dichloroethane-d4	47		50.00		95.0	50	150					
Surr: Toluene-d8	49		50.00		98.1	50	150					
Surr: 4-Bromofluorobenzene	50		50.00		100	50	150					

Sample ID LCSD	SampType: LCSD	TestCoo	de: 8260B_W	Units: µg/L		Prep Dat	e:		RunNo: 16	18	
Client ID: LCSS02	Batch ID: R1618	TestN	lo: SW8260B		Analysis Date: 12/4/2014			14	SeqNo: 21335		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	95	1.0	100.0	0	95.0	70	130	91.83	3.36	30	
Benzene	100	1.0	100.0	0	103	70	130	103.1	0.253	30	
Trichloroethene	93	1.0	100.0	0	92.7	70	130	91.61	1.20	30	
Toluene	100	1.0	100.0	0	99.6	70	130	99.50	0.151	30	
Chlorobenzene	99	1.0	100.0	0	99.1	70	130	99.07	0.0605	30	
Surr: Dibromofluoromethane	50		50.00		100	50	150		0	30	
Surr: 1,2-Dichloroethane-d4	47		50.00		94.9	50	150		0	30	
Surr: Toluene-d8	49		50.00		98.0	50	150		0	30	
Surr: 4-Bromofluorobenzene	50		50.00		100	50	150		0	30	

Qualifiers:

В

Н

- Analyte detected in the associated Method Blank
- D Dilution was required.
- Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

ND Not Detected at the RL Reporting Limit

RL

- Value above quantitation range Е
- 0 RSD is greater than RSDlimit
- S Spike Recovery outside accepted reco



Client: Project: Ninyo & Moore

NURA Garland

Environmental Chemistry Services, Inc. 2 Oakwood Park Plaza; 100 Castle Rock, CO 80104-1885 TEL: (303) 850-7606 FAX: (303) 850-7609 Website: www.ecs-corp.com

QC SUMMARY REPORT

Work Order: 1412005

05-Dec-14

BatchID: R1618

Sample ID MBLK	SampType: MBLK	TestCode: 82	60B_W	Units: µg/L		Prep Da	te:		RunNo: 161	18	
Client ID: PBW	Batch ID: R1618	TestNo: SV	V8260B			Analysis Da	te: 12/4/20)14	SeqNo: 213	336	
Analyte	Result	PQL SPK	Kvalue S	PK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,4-Dioxane	ND	4.0									
Acrolein	ND	4.0									
Acrylonitrile	ND	2.0									
Dichlorodifluoromethane	ND	3.0									
Chloromethane	ND	3.0									
Vinyl chloride	ND	2.0									
Bromomethane	ND	3.0									
Chloroethane	ND	1.0									
Freon-11	ND	1.0									
1,1-Dichloroethene	ND	1.0									
Methylene chloride	ND	5.0									
Freon-113	ND	1.0									
Carbon disulfide	ND	6.0									
trans-1,2-Dichloroethene	ND	1.0									
MTBE	ND	1.0									
1,1-Dichloroethane	ND	1.0									
Chloroprene	ND	2.0									
cis-1,2-Dichloroethene	ND	1.0									
Bromochloromethane	ND	2.0									
Chloroform	ND	1.0									
2,2-Dichloropropane	ND	1.0									
THF	ND	2.0									
1,2-Dichloroethane	ND	1.0									
1,1,1-Trichloroethane	ND	1.0									
1,1-Dichloropropene	ND	1.0									
Carbon tetrachloride	ND	1.0									
Qualifiers: B Analyte detect	ed in the associated Method Bl	ank D	Dilution v	was required.			Е	Value above quant	itation range		

Holding times for preparation or analysis exceeded

Η

R

D Not Detected at the RL ND

RPD outside accepted recovery limits

RL Reporting Limit

Value above quantitation range Е

0 RSD is greater than RSDlimit

S Spike Recovery outside accepted reco



Client: Project: Ninyo & Moore

NURA Garland

Environmental Chemistry Services, Inc. 2 Oakwood Park Plaza; 100 Castle Rock, CO 80104-1885 TEL: (303) 850-7606 FAX: (303) 850-7609 Website: www.ecs-corp.com

QC SUMMARY REPORT

Work Order: 1412005

05-Dec-14

BatchID: R1618

Sample ID MBLK	SampType: MBLK	TestCod	e: 8260B_W	Units: µg/L		Prep Da	ite:		RunNo: 16	18	
Client ID: PBW	Batch ID: R1618	TestN	o: SW8260B			Analysis Da	ate: 12/4/2	014	SeqNo: 213	336	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.0									
Dibromomethane	ND	2.0									
1,2-Dichloropropane	ND	2.0									
Trichloroethene	ND	1.0									
Bromodichloromethane	ND	1.0									
Methyl methacrylate	ND	1.0									
2-CEVE	ND	1.0									
cis-1,3-Dichloropropene	ND	2.0									
Methyl isobutyl ketone	ND	2.0									
trans-1,3-Dichloropropene	ND	2.0									
1,1,2-Trichloroethane	ND	1.0									
Toluene	ND	1.0									
1,3-Dichloropropane	ND	1.0									
Ethyl methacrylate	ND	1.0									
Dibromochloromethane	ND	1.0									
EDB	ND	1.0									
PCE	ND	1.0									
1,1,1,2-Tetrachloroethane	ND	1.0									
Chlorobenzene	ND	1.0									
Ethylbenzene	ND	1.0									
m,p-Xylene	ND	2.0									
Bromoform	ND	2.0									
Styrene	ND	2.0									
1,1,2,2-Tetrachloroethane	ND	1.0									
o-Xylene	ND	1.0									
1,2,3-Trichloropropane	ND	1.0									
Qualifiers: B Analyte detect	ted in the associated Method B	lank	D Diluti	on was required.			Е	Value above quant	itation range		

Η

Dilution was required. D

Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits ND Not Detected at the RL RL Reporting Limit

Value above quantitation range Е

RSD is greater than RSDlimit 0

S Spike Recovery outside accepted reco



Ninyo & Moore

NURA Garland

Client:

Project:

Environmental Chemistry Services, Inc. 2 Oakwood Park Plaza; 100 Castle Rock, CO 80104-1885 TEL: (303) 850-7606 FAX: (303) 850-7609 Website: www.ecs-corp.com

QC SUMMARY REPORT

Work Order: 1412005

05-Dec-14

BatchID: R1618

Sample ID MBLK	SampType: MBLK	TestCo	de: 8260B_W	Units: µg/L	Prep Date: Analysis Date: 12/4/2014				RunNo: 16	18	
Client ID: PBW	Batch ID: R1618	TestN	lo: SW8260B					014	SeqNo: 21	336	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,4-Dichloro-2-butene	ND	3.0									
Isopropylbenzene	ND	1.0									
Bromobenzene	ND	1.0									
n-Propylbenzene	ND	1.0									
2-Chlorotoluene	ND	2.0									
4-Chlorotoluene	ND	2.0									
Pentachloroethane	ND	2.0									
1,3,5-Trimethylbenzene	ND	2.0									
tert-Butylbenzene	ND	2.0									
DBCP	ND	2.0									
sec-Butylbenzene	ND	2.0									
1,2,4-Trimethylbenzene	ND	2.0									
1,3-Dichlorobenzene	ND	2.0									
4-Isopropyltoluene	ND	2.0									
1,4-Dichlorobenzene	ND	1.0									
1,2-Dichlorobenzene	ND	2.0									
n-Butylbenzene	ND	2.0									
1,2,4-Trichlorobenzene	ND	2.0									
Naphthalene	ND	2.0									
Hexachlorobutadiene	ND	2.0									
1,2,3-Trichlorobenzene	ND	2.0									
Surr: Dibromofluoromethane	50		50.00		99.6	50	150				
Surr: 1,2-Dichloroethane-d4	48		50.00		95.2	50	150				
Surr: Toluene-d8	50		50.00		99.4	50	150				
Surr: 4-Bromofluorobenzene	50		50.00		99.9	50	150				

Qualifiers:

В

Н

Analyte detected in the associated Method Blank

D Dilution was required.

Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

ND Not Detected at the RL

RL Reporting Limit

E Value above quantitation range

O RSD is greater than RSDlimit

S Spike Recovery outside accepted reco



Environmental Chemistry Services, Inc. 2 Oakwood Park Plaza; 100 Castle Rock, CO 80104-1885 TEL: (303) 850-7606 FAX: (303) 850-7609 Website: www.ecs-corp.com

QC SUMMARY REPORT

Work Order: 1412005

05-Dec-14

BatchID: R1618

Client: Project: Ninyo & Moore NURA Garland

Qualifiers:

В Analyte detected in the associated Method Blank D Dilution was required.

Н Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

ND Not Detected at the RL Reporting Limit

RL

- Value above quantitation range Е
- 0 RSD is greater than RSDlimit
- S Spike Recovery outside accepted reco

	6 (10) (10)		Billing Info	rmation:				Ar	alysis / Container /	Preservative		Chain of Custody Page of
Ninyo and Moore - 6001 South Willow Dr, Ste Greenwood Village, CO 801	Denver 195 111		Accounts Payable 6001 South Willow Dr, Ste 195 Greenwood Village, CO 80111									
Report to: Lise Bisson			Email To:	on@hir	yound moor	و (م				NV/		12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fay: 615-758-5859
Project Description: NURA G	arland			City/State Collected:	Vorthglenn,	co	The second secon		A CONTRACT		inart	
Phone: 303-629-6000 Fax: 303-629-6001	Client Project	7004	566A	Lab Project	#		5		- Aler Stragense Aler Aler Stare Stare		<i>cups</i>	No 2 Et
Collected by (print): Rab Neumainn	site/Facility ID	Garlan	nd	P.O. #			0		en e			Accthum: NINYOOCO
Collected by (signature):	Rush? (L Same C Next D Two Da Three D	ab MUST Be ay ay y Day	Notified) 200% 	D Emai FAX?	ate Results Needed I?NoYesNoYes	No. of	8 2 2					Prelogin: 38 TSR 288 - Daphrie Richards PB: Shimad Via
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Environmental Chemistry Services, Inc. 2 Oakwood Park Plaza; 100 Castle Rock, CO 80104-1885 TEL: (303) 850-7606 FAX: (303) 850-7609 Website: www.ecs-corp.com

December 29, 2014

Lise Bisson Ninyo & Moore 6001 South Willow Drive Suite 195 Greenwood Village, CO 80111 Tel: (303) 629-6000 Fax: (303) 629-6001

Project Name: NURA Garland Project No.: 500557004

Work Order: 1412070

Dear Lise Bisson:

Environmental Chemistry Services, Inc. received 3 sample(s) on 12/24/2014 for the analyses presented in the following report.

There were no problems with the analytical events associated with this report, , unless noted in the Case Narrative.

Quality control data is within laboratory defined or method specified acceptance limits except if noted.

If you have any questions regarding these tests results, please feel free to call or email.

TEL: (303) 850-7606 ext:300 kris@ecs-corp.com

Sincerely,

Kris Mascarenas Director of Client Services



Environmental Chemistry Services, Inc. 2 Oakwood Park Plaza; 100 Castle Rock, CO 80104-1885 TEL: (303) 850-7606 FAX: (303) 850-7609 Website: www.ecs-corp.com

Case Narrative

WO#:	1412070
Date:	12/29/2014

CLIENT:	Ninyo & Moore
Project:	NURA Garland

This report in its entirety consists of the documents listed below. All documents contain the Environmental Chemistry Services, Inc. Work Order Number assigned to this report.

- 1. Paginated Report including: A Cover Letter, Case Narrative, Analytical Results, and Applicable Quality Control Reports.
- 2. Copies of the Chain of Custody Document(s) supplied with this sample set.
- 3. Electronic Data Deliverables (EDD) if requested.

Samples were analyzed for volatile organic compounds by EPA Method 8260B. This is a gas chromatography/mass spectrometry method using purge and trap concentration and a capillary chromatography column. The surrogate standards are added to monitor purging efficiency.

Any comments or problems with the analytical events associated with this report are noted below.

Client:Ninyo & MooreWork Order:1412070Project:NURA GarlandLab ID:1412070-01A

Date: 29-Dec-14

Client Sample ID: MW-9 Canister ID: Collection Date: 12/23/2014 5:30:00 PM Matrix: WATER

Analyses	Result	RL Qual Units		DF	Date Analyzed	
VOLATILE ORGANIC COMPOUNDS		Method: S	W8260B		Analyst: KM	
1,4-Dioxane	ND	4.0	µg/L	1	12/29/2014 12:53:00 PN	
Acrolein	ND	4.0	µg/L	1	12/29/2014 12:53:00 PN	
Acrylonitrile	ND	2.0	µg/L	1	12/29/2014 12:53:00 PN	
Dichlorodifluoromethane	ND	3.0	µg/L	1	12/29/2014 12:53:00 PN	
Chloromethane	ND	3.0	µg/L	1	12/29/2014 12:53:00 PN	
Vinyl chloride	ND	2.0	µg/L	1	12/29/2014 12:53:00 PN	
Bromomethane	ND	3.0	µg/L	1	12/29/2014 12:53:00 PN	
Chloroethane	ND	1.0	µg/L	1	12/29/2014 12:53:00 PN	
Freon-11	ND	1.0	µg/L	1	12/29/2014 12:53:00 PN	
1,1-Dichloroethene	ND	1.0	µg/L	1	12/29/2014 12:53:00 PN	
Methylene chloride	ND	5.0	µg/L	1	12/29/2014 12:53:00 PN	
Freon-113	ND	1.0	µg/L	1	12/29/2014 12:53:00 PN	
Carbon disulfide	ND	6.0	μg/L	1	12/29/2014 12:53:00 PN	
trans-1,2-Dichloroethene	ND	1.0	µg/L	1	12/29/2014 12:53:00 PN	
MTBE	ND	1.0	µg/L	1	12/29/2014 12:53:00 PN	
1,1-Dichloroethane	ND	1.0	µg/L	1	12/29/2014 12:53:00 PN	
Chloroprene	ND	2.0	μg/L	1	12/29/2014 12:53:00 PN	
cis-1,2-Dichloroethene	ND	1.0	μg/L	1	12/29/2014 12:53:00 PN	
Bromochloromethane	ND	2.0	μg/L	1	12/29/2014 12:53:00 PN	
Chloroform	ND	1.0	µg/L	1	12/29/2014 12:53:00 PN	
2,2-Dichloropropane	ND	1.0	μg/L	1	12/29/2014 12:53:00 PN	
THF	ND	2.0	μg/L	1	12/29/2014 12:53:00 PN	
1,2-Dichloroethane	ND	1.0	μg/L	1	12/29/2014 12:53:00 PN	
1,1,1-Trichloroethane	ND	1.0	μg/L	1	12/29/2014 12:53:00 PN	
1,1-Dichloropropene	ND	1.0	μg/L	1	12/29/2014 12:53:00 PN	
Carbon tetrachloride	ND	1.0	μg/L	1	12/29/2014 12:53:00 PN	
Benzene	ND	1.0	μg/L	1	12/29/2014 12:53:00 PN	
Dibromomethane	ND	2.0	μg/L	1	12/29/2014 12:53:00 PN	
1,2-Dichloropropane	ND	2.0	μg/L	1	12/29/2014 12:53:00 PN	
Trichloroethene	ND	1.0	μg/L	1	12/29/2014 12:53:00 PN	
Bromodichloromethane	ND	1.0	μg/L	1	12/29/2014 12:53:00 PN	
Methyl methacrylate	ND	1.0	µg/L	1	12/29/2014 12:53:00 PN	
2-CEVE	ND	1.0	µg/L	1	12/29/2014 12:53:00 PN	
cis-1,3-Dichloropropene	ND	2.0	μg/L	1	12/29/2014 12:53:00 PN	
Methyl isobutyl ketone	ND	2.0	µg/L	1	12/29/2014 12:53:00 PN	
trans-1,3-Dichloropropene	ND	2.0	μg/L	1	12/29/2014 12:53:00 PN	
1,1,2-Trichloroethane	ND	1.0	µg/L	1	12/29/2014 12:53:00 PN	
Toluene	ND	1.0	µg/L	1	12/29/2014 12:53:00 PN	
1,3-Dichloropropane	ND	1.0	µg/L	1	12/29/2014 12:53:00 PN	

Qualifiers: B Analyte detected in the associated Method Blank

DF Dilution Factor

H Holding times for preparation or analysis exceeded

ND Not Detected at the RL

R RPD outside accepted recovery limits

D Dilution was required.

E Value above quantitation range

N Tentatively identified compounds

O RSD is greater than RSDlimit

R Percent Difference outside accepted limits Page 3 of 13

Client:Ninyo & MooreWork Order:1412070Project:NURA GarlandLab ID:1412070-01A

Date: 29-Dec-14

Client Sample ID: MW-9 Canister ID: Collection Date: 12/23/2014 5:30:00 PM Matrix: WATER

Analyses	Result	RL (Qual Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS	Method: SW8260B				Analyst: KM
Ethyl methacrylate	ND	1.0	μg/L	1	12/29/2014 12:53:00 PN
Dibromochloromethane	ND	1.0	µg/L	1	12/29/2014 12:53:00 PN
EDB	ND	1.0	μg/L	1	12/29/2014 12:53:00 PN
PCE	ND	1.0	μg/L	1	12/29/2014 12:53:00 PN
1,1,1,2-Tetrachloroethane	ND	1.0	μg/L	1	12/29/2014 12:53:00 PN
Chlorobenzene	ND	1.0	μg/L	1	12/29/2014 12:53:00 PN
Ethylbenzene	ND	1.0	μg/L	1	12/29/2014 12:53:00 PN
m,p-Xylene	ND	2.0	μg/L	1	12/29/2014 12:53:00 PN
Bromoform	ND	2.0	μg/L	1	12/29/2014 12:53:00 PN
Styrene	ND	2.0	μg/L	1	12/29/2014 12:53:00 PN
1,1,2,2-Tetrachloroethane	ND	1.0	μg/L	1	12/29/2014 12:53:00 PN
o-Xylene	ND	1.0	μg/L	1	12/29/2014 12:53:00 PN
1,2,3-Trichloropropane	ND	1.0	μg/L	1	12/29/2014 12:53:00 PN
trans-1,4-Dichloro-2-butene	ND	3.0	μg/L	1	12/29/2014 12:53:00 PN
Isopropylbenzene	ND	1.0	μg/L	1	12/29/2014 12:53:00 PN
Bromobenzene	ND	1.0	μg/L	1	12/29/2014 12:53:00 PN
n-Propylbenzene	ND	1.0	μg/L	1	12/29/2014 12:53:00 PN
2-Chlorotoluene	ND	2.0	μg/L	1	12/29/2014 12:53:00 PN
4-Chlorotoluene	ND	2.0	μg/L	1	12/29/2014 12:53:00 PN
Pentachloroethane	ND	2.0	µg/L	1	12/29/2014 12:53:00 PN
1,3,5-Trimethylbenzene	ND	2.0	μg/L	1	12/29/2014 12:53:00 PN
tert-Butylbenzene	ND	2.0	μg/L	1	12/29/2014 12:53:00 PN
DBCP	ND	2.0	μg/L	1	12/29/2014 12:53:00 PN
sec-Butylbenzene	ND	2.0	μg/L	1	12/29/2014 12:53:00 PN
1,2,4-Trimethylbenzene	ND	2.0	μg/L	1	12/29/2014 12:53:00 PN
1,3-Dichlorobenzene	ND	2.0	μg/L	1	12/29/2014 12:53:00 PN
4-Isopropyltoluene	ND	2.0	μg/L	1	12/29/2014 12:53:00 PN
1,4-Dichlorobenzene	ND	1.0	μg/L	1	12/29/2014 12:53:00 PN
1,2-Dichlorobenzene	ND	2.0	μg/L	1	12/29/2014 12:53:00 PN
n-Butylbenzene	ND	2.0	μg/L	1	12/29/2014 12:53:00 PN
1,2,4-Trichlorobenzene	ND	2.0	μg/L	1	12/29/2014 12:53:00 PN
Naphthalene	ND	2.0	μg/L	1	12/29/2014 12:53:00 PN
Hexachlorobutadiene	ND	2.0	μg/L	1	12/29/2014 12:53:00 PN
1,2,3-Trichlorobenzene	ND	2.0	µg/L	1	12/29/2014 12:53:00 PN
Surr: Dibromofluoromethane	103	50-150	%REC	1	12/29/2014 12:53:00 PN
Surr: 1,2-Dichloroethane-d4	85.1	50-150	%REC	1	12/29/2014 12:53:00 PN
Surr: Toluene-d8	98.5	50-150	%REC	1	12/29/2014 12:53:00 PN
Surr: 4-Bromofluorobenzene	106	50-150	%REC	1	12/29/2014 12:53:00 PN

Qualifiers:	В	Analyte detected in the associated Method Blank	D	Dilution was required.	
	DF	Dilution Factor	Е	Value above quantitation range	
	Н	Holding times for preparation or analysis exceeded	Ν	Tentatively identified compounds	
	ND	Not Detected at the RL	0	RSD is greater than RSDlimit	
	R	RPD outside accepted recovery limits	R	Percent Difference outside accepted limits	Page 4 of 13

Client:Ninyo & MooreWork Order:1412070Project:NURA GarlandLab ID:1412070-02A

Date: 29-Dec-14

Client Sample ID: MW-10 Canister ID: Collection Date: 12/23/2014 6:00:00 PM Matrix: WATER

Analyses	Result	RL (Qual Units	DF	Date Analyzed	
VOLATILE ORGANIC COMPOUNDS		Method: S		Analyst: KM		
1,4-Dioxane	ND	4.0	µg/L	1	12/29/2014 1:19:00 PN	
Acrolein	ND	4.0	µg/L	1	12/29/2014 1:19:00 PN	
Acrylonitrile	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN	
Dichlorodifluoromethane	ND	3.0	µg/L	1	12/29/2014 1:19:00 PN	
Chloromethane	ND	3.0	µg/L	1	12/29/2014 1:19:00 PN	
Vinyl chloride	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN	
Bromomethane	ND	3.0	µg/L	1	12/29/2014 1:19:00 PN	
Chloroethane	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN	
Freon-11	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN	
1,1-Dichloroethene	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN	
Methylene chloride	ND	5.0	µg/L	1	12/29/2014 1:19:00 PN	
Freon-113	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN	
Carbon disulfide	ND	6.0	µg/L	1	12/29/2014 1:19:00 PN	
trans-1,2-Dichloroethene	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN	
МТВЕ	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN	
1,1-Dichloroethane	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN	
Chloroprene	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN	
cis-1,2-Dichloroethene	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN	
Bromochloromethane	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN	
Chloroform	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN	
2,2-Dichloropropane	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN	
THF	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN	
1,2-Dichloroethane	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN	
1,1,1-Trichloroethane	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN	
1,1-Dichloropropene	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN	
Carbon tetrachloride	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN	
Benzene	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN	
Dibromomethane	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN	
1,2-Dichloropropane	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN	
Trichloroethene	2.1	1.0	µg/L	1	12/29/2014 1:19:00 PN	
Bromodichloromethane	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN	
Methyl methacrylate	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN	
2-CEVE	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN	
cis-1,3-Dichloropropene	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN	
Methyl isobutyl ketone	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN	
trans-1,3-Dichloropropene	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN	
1,1,2-Trichloroethane	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN	
Toluene	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN	
1,3-Dichloropropane	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN	

Qualifiers: B Analyte detected in the associated Method Blank

DF Dilution Factor

H Holding times for preparation or analysis exceeded

ND Not Detected at the RL

R RPD outside accepted recovery limits

D Dilution was required.

E Value above quantitation range

N Tentatively identified compounds

O RSD is greater than RSDlimit

R Percent Difference outside accepted limits Page 5 of 13

Client:Ninyo & MooreWork Order:1412070Project:NURA GarlandLab ID:1412070-02A

Date: 29-Dec-14

Client Sample ID: MW-10 Canister ID: Collection Date: 12/23/2014 6:00:00 PM Matrix: WATER

Analyses	Result	RL	Qual Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS	Method: SW8260B				Analyst: KM
Ethyl methacrylate	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN
Dibromochloromethane	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN
EDB	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN
PCE	45	1.0	μg/L	1	12/29/2014 1:19:00 PN
1,1,1,2-Tetrachloroethane	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN
Chlorobenzene	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN
Ethylbenzene	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN
m,p-Xylene	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN
Bromoform	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN
Styrene	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN
1,1,2,2-Tetrachloroethane	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN
o-Xylene	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN
1,2,3-Trichloropropane	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN
trans-1,4-Dichloro-2-butene	ND	3.0	µg/L	1	12/29/2014 1:19:00 PN
Isopropylbenzene	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN
Bromobenzene	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN
n-Propylbenzene	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN
2-Chlorotoluene	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN
4-Chlorotoluene	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN
Pentachloroethane	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN
1,3,5-Trimethylbenzene	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN
tert-Butylbenzene	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN
DBCP	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN
sec-Butylbenzene	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN
1,2,4-Trimethylbenzene	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN
1,3-Dichlorobenzene	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN
4-Isopropyltoluene	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN
1,4-Dichlorobenzene	ND	1.0	µg/L	1	12/29/2014 1:19:00 PN
1,2-Dichlorobenzene	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN
n-Butylbenzene	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN
1,2,4-Trichlorobenzene	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN
Naphthalene	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN
Hexachlorobutadiene	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN
1,2,3-Trichlorobenzene	ND	2.0	µg/L	1	12/29/2014 1:19:00 PN
Surr: Dibromofluoromethane	104	50-150	%REC	1	12/29/2014 1:19:00 PN
Surr: 1,2-Dichloroethane-d4	85.1	50-150	%REC	1	12/29/2014 1:19:00 PN
Surr: Toluene-d8	98.6	50-150	%REC	1	12/29/2014 1:19:00 PN
Surr: 4-Bromofluorobenzene	107	50-150	%REC	1	12/29/2014 1:19:00 PN

Qualifiers:	В	Analyte detected in the associated Method Blank	D	Dilution was required.
-	DF	Dilution Factor	Е	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	Ν	Tentatively identified compounds
	ND	Not Detected at the RL	0	RSD is greater than RSDlimit
	R	RPD outside accepted recovery limits	R	Percent Difference outside accepted limits Page 6 of 13

Client:Ninyo & MooreWork Order:1412070Project:NURA GarlandLab ID:1412070-03A

Date: 29-Dec-14

Client Sample ID: MW-17 Canister ID: Collection Date: 12/23/2014 6:30:00 PM Matrix: WATER

Analyses	Result	RL (Qual Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: S	W8260B		Analyst: KM
1,4-Dioxane	ND	4.0	µg/L	1	12/29/2014 1:44:00 PN
Acrolein	ND	4.0	μg/L	1	12/29/2014 1:44:00 PN
Acrylonitrile	ND	2.0	µg/L	1	12/29/2014 1:44:00 PN
Dichlorodifluoromethane	ND	3.0	µg/L	1	12/29/2014 1:44:00 PN
Chloromethane	ND	3.0	μg/L	1	12/29/2014 1:44:00 PN
Vinyl chloride	ND	2.0	μg/L	1	12/29/2014 1:44:00 PM
Bromomethane	ND	3.0	μg/L	1	12/29/2014 1:44:00 PM
Chloroethane	ND	1.0	µg/L	1	12/29/2014 1:44:00 PN
Freon-11	ND	1.0	μg/L	1	12/29/2014 1:44:00 PN
1,1-Dichloroethene	ND	1.0	μg/L	1	12/29/2014 1:44:00 PN
Methylene chloride	ND	5.0	μg/L	1	12/29/2014 1:44:00 PM
Freon-113	ND	1.0	μg/L	1	12/29/2014 1:44:00 PM
Carbon disulfide	ND	6.0	μg/L	1	12/29/2014 1:44:00 PM
trans-1,2-Dichloroethene	ND	1.0	μg/L	1	12/29/2014 1:44:00 PN
МТВЕ	ND	1.0	μg/L	1	12/29/2014 1:44:00 PN
1,1-Dichloroethane	ND	1.0	μg/L	1	12/29/2014 1:44:00 PN
Chloroprene	ND	2.0	μg/L	1	12/29/2014 1:44:00 PN
cis-1,2-Dichloroethene	ND	1.0	μg/L	1	12/29/2014 1:44:00 PN
Bromochloromethane	ND	2.0	μg/L	1	12/29/2014 1:44:00 PN
Chloroform	ND	1.0	μg/L	1	12/29/2014 1:44:00 PN
2,2-Dichloropropane	ND	1.0	μg/L	1	12/29/2014 1:44:00 PN
THF	ND	2.0	μg/L	1	12/29/2014 1:44:00 PN
1,2-Dichloroethane	ND	1.0	μg/L	1	12/29/2014 1:44:00 PN
1,1,1-Trichloroethane	ND	1.0	μg/L	1	12/29/2014 1:44:00 PN
1,1-Dichloropropene	ND	1.0	μg/L	1	12/29/2014 1:44:00 PN
Carbon tetrachloride	ND	1.0	μg/L	1	12/29/2014 1:44:00 PN
Benzene	ND	1.0	μg/L	1	12/29/2014 1:44:00 PN
Dibromomethane	ND	2.0	μg/L	1	12/29/2014 1:44:00 PN
1,2-Dichloropropane	ND	2.0	μg/L	1	12/29/2014 1:44:00 PN
Trichloroethene	3.0	1.0	μg/L	1	12/29/2014 1:44:00 PN
Bromodichloromethane	ND	1.0	μg/L	1	12/29/2014 1:44:00 PN
Methyl methacrylate	ND	1.0	μg/L	1	12/29/2014 1:44:00 PN
2-CEVE	ND	1.0	μg/L	1	12/29/2014 1:44:00 PN
cis-1,3-Dichloropropene	ND	2.0	μg/L	1	12/29/2014 1:44:00 PN
Methyl isobutyl ketone	ND	2.0	μg/L	1	12/29/2014 1:44:00 PN
trans-1,3-Dichloropropene	ND	2.0	µg/L	1	12/29/2014 1:44:00 PN
1,1,2-Trichloroethane	ND	1.0	µg/L	1	12/29/2014 1:44:00 PN
Toluene	ND	1.0	µg/L	1	12/29/2014 1:44:00 PN
1,3-Dichloropropane	ND	1.0	µg/L	1	12/29/2014 1:44:00 PN

Qualifiers: B Analyte detected in the associated Method Blank

DF Dilution Factor

H Holding times for preparation or analysis exceeded

ND Not Detected at the RL

R RPD outside accepted recovery limits

D Dilution was required.

E Value above quantitation range

N Tentatively identified compounds

O RSD is greater than RSDlimit

R Percent Difference outside accepted limits Page 7 of 13

Client:Ninyo & MooreWork Order:1412070Project:NURA GarlandLab ID:1412070-03A

Date: 29-Dec-14

Client Sample ID: MW-17 Canister ID: Collection Date: 12/23/2014 6:30:00 PM Matrix: WATER

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method:	SW8260)B		Analyst: KM
Ethyl methacrylate	ND	1.0	I	µg/L	1	12/29/2014 1:44:00 PN
Dibromochloromethane	ND	1.0		µg/L	1	12/29/2014 1:44:00 PN
EDB	ND	1.0		µg/L	1	12/29/2014 1:44:00 PN
PCE	210	2.0	D	µg/L	2	12/29/2014 2:11:00 PN
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/29/2014 1:44:00 PN
Chlorobenzene	ND	1.0		µg/L	1	12/29/2014 1:44:00 PN
Ethylbenzene	ND	1.0		µg/L	1	12/29/2014 1:44:00 PN
m,p-Xylene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PN
Bromoform	ND	2.0		µg/L	1	12/29/2014 1:44:00 PN
Styrene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PN
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	12/29/2014 1:44:00 PN
o-Xylene	ND	1.0		µg/L	1	12/29/2014 1:44:00 PN
1,2,3-Trichloropropane	ND	1.0		µg/L	1	12/29/2014 1:44:00 PN
trans-1,4-Dichloro-2-butene	ND	3.0		µg/L	1	12/29/2014 1:44:00 PN
Isopropylbenzene	ND	1.0		µg/L	1	12/29/2014 1:44:00 PN
Bromobenzene	ND	1.0		µg/L	1	12/29/2014 1:44:00 PN
n-Propylbenzene	ND	1.0		µg/L	1	12/29/2014 1:44:00 PN
2-Chlorotoluene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PN
4-Chlorotoluene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PN
Pentachloroethane	ND	2.0		µg/L	1	12/29/2014 1:44:00 PN
1,3,5-Trimethylbenzene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PN
tert-Butylbenzene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PN
DBCP	ND	2.0		µg/L	1	12/29/2014 1:44:00 PN
sec-Butylbenzene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PN
1,2,4-Trimethylbenzene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PN
1,3-Dichlorobenzene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PN
4-Isopropyltoluene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PN
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/29/2014 1:44:00 PN
1,2-Dichlorobenzene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PN
n-Butylbenzene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PN
1,2,4-Trichlorobenzene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PN
Naphthalene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PN
Hexachlorobutadiene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PN
1,2,3-Trichlorobenzene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PN
Surr: Dibromofluoromethane	104	50-150		%REC	1	12/29/2014 1:44:00 PN
Surr: 1,2-Dichloroethane-d4	85.7	50-150		%REC	1	12/29/2014 1:44:00 PN
Surr: Toluene-d8	98.2	50-150		%REC	1	12/29/2014 1:44:00 PN
Surr: 4-Bromofluorobenzene	107	50-150		%REC	1	12/29/2014 1:44:00 PN

Qualifiers:	В	Analyte detected in the associated Method Blank	D	Dilution was required.
-	DF	Dilution Factor	Е	Value above quantitation range
	Η	Holding times for preparation or analysis exceeded	Ν	Tentatively identified compounds
	ND	Not Detected at the RL	0	RSD is greater than RSDlimit
	R	RPD outside accepted recovery limits	R	Percent Difference outside accepted limits Page 8 of 13



Client: Project: Ninyo & Moore

NURA Garland

Environmental Chemistry Services, Inc. 2 Oakwood Park Plaza; 100 Castle Rock, CO 80104-1885 TEL: (303) 850-7606 FAX: (303) 850-7609 Website: www.ecs-corp.com

QC SUMMARY REPORT

Work Order: 1412070

29-Dec-14

BatchID: R1683

Sample ID LCS	SampType: LCS	TestCoc	le: 8260B_W	Units: µg/L		Prep Dat	te:		RunNo: 168	33	
Client ID: LCSW	Batch ID: R1683	TestN	lo: SW8260B			Analysis Dat	te: 12/29/2	2014	SeqNo: 223	360	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	79	1.0	100.0	0	79.2	70	130				
Benzene	100	1.0	100.0	0	100	70	130				
Trichloroethene	89	1.0	100.0	0	89.3	70	130				
Toluene	96	1.0	100.0	0	95.6	70	130				
Chlorobenzene	100	1.0	100.0	0	103	70	130				
Surr: Dibromofluoromethane	51		50.00		102	50	150				
Surr: 1,2-Dichloroethane-d4	42		50.00		84.5	50	150				
Surr: Toluene-d8	50		50.00		99.1	50	150				
Surr: 4-Bromofluorobenzene	52		50.00		105	50	150				

Sample ID LCSD	SampType: LCSD	TestCoo	de: 8260B_W	Units: µg/L		Prep Dat	te:		RunNo: 16	83	
Client ID: LCSS02	Batch ID: R1683	TestN	lo: SW8260B			Analysis Dat	te: 12/29/2	2014	SeqNo: 22	361	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	82	1.0	100.0	0	81.7	70	130	79.25	3.02	30	
Benzene	100	1.0	100.0	0	103	70	130	100.2	3.10	30	
Trichloroethene	94	1.0	100.0	0	94.3	70	130	89.34	5.40	30	
Toluene	98	1.0	100.0	0	98.2	70	130	95.65	2.66	30	
Chlorobenzene	100	1.0	100.0	0	103	70	130	103.1	0.291	30	
Surr: Dibromofluoromethane	51		50.00		102	50	150		0	30	
Surr: 1,2-Dichloroethane-d4	42		50.00		84.1	50	150		0	30	
Surr: Toluene-d8	49		50.00		98.1	50	150		0	30	
Surr: 4-Bromofluorobenzene	53		50.00		106	50	150		0	30	

Qualifiers:

В

Н

- Analyte detected in the associated Method Blank
- D Dilution was required.
- Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

ND Not Detected at the RL Reporting Limit

RL

- Value above quantitation range Е
- 0 RSD is greater than RSDlimit
- \mathbf{S} Spike Recovery outside accepted reco



Client: Project: Ninyo & Moore

NURA Garland

Environmental Chemistry Services, Inc. 2 Oakwood Park Plaza; 100 Castle Rock, CO 80104-1885 TEL: (303) 850-7606 FAX: (303) 850-7609 Website: www.ecs-corp.com

QC SUMMARY REPORT

Work Order: 1412070

29-Dec-14

BatchID: R1683

Sample ID MBLK	SampType: MBLK	TestCode: 8	3260B_W	Units: µg/L		Prep Da	te:		RunNo: 16	83	
Client ID: PBW	Batch ID: R1683	TestNo: S	SW8260B			Analysis Da	te: 12/29/	2014	SeqNo: 22	362	
Analyte	Result	PQL SF	PK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,4-Dioxane	ND	4.0									
Acrolein	ND	4.0									
Acrylonitrile	ND	2.0									
Dichlorodifluoromethane	ND	3.0									
Chloromethane	ND	3.0									
Vinyl chloride	ND	2.0									
Bromomethane	ND	3.0									
Chloroethane	ND	1.0									
Freon-11	ND	1.0									
1,1-Dichloroethene	ND	1.0									
Methylene chloride	ND	5.0									
Freon-113	ND	1.0									
Carbon disulfide	ND	6.0									
trans-1,2-Dichloroethene	ND	1.0									
МТВЕ	ND	1.0									
1,1-Dichloroethane	ND	1.0									
Chloroprene	ND	2.0									
cis-1,2-Dichloroethene	ND	1.0									
Bromochloromethane	ND	2.0									
Chloroform	ND	1.0									
2,2-Dichloropropane	ND	1.0									
THF	ND	2.0									
1,2-Dichloroethane	ND	1.0									
1,1,1-Trichloroethane	ND	1.0									
1,1-Dichloropropene	ND	1.0									
Carbon tetrachloride	ND	1.0									
Qualifiers: B Analyte detect	ted in the associated Method B	ank D	D Dilutio	on was required.			Е	Value above quant	itation range		

Qualifiers:

Η

R

Analyte detected in the associated Method Blank

D Dilution was required.

Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits

ND Not Detected at the RL Reporting Limit

RL

Е Value above quantitation range

0 RSD is greater than RSDlimit

S Spike Recovery outside accepted reco



Client: Project: Ninyo & Moore

NURA Garland

Environmental Chemistry Services, Inc. 2 Oakwood Park Plaza; 100 Castle Rock, CO 80104-1885 TEL: (303) 850-7606 FAX: (303) 850-7609 Website: www.ecs-corp.com

QC SUMMARY REPORT

Work Order: 1412070

29-Dec-14

BatchID: R1683

Sample ID MBLK	SampType: MBLK	TestCode	e: 8260B_W	Units: µg/L		Prep Da	te:		RunNo: 16	83	
Client ID: PBW	Batch ID: R1683	TestN	o: SW8260B			Analysis Da	te: 12/29/2	2014	SeqNo: 22	362	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.0									
Dibromomethane	ND	2.0									
1,2-Dichloropropane	ND	2.0									
Trichloroethene	ND	1.0									
Bromodichloromethane	ND	1.0									
Methyl methacrylate	ND	1.0									
2-CEVE	ND	1.0									
cis-1,3-Dichloropropene	ND	2.0									
Methyl isobutyl ketone	ND	2.0									
trans-1,3-Dichloropropene	ND	2.0									
1,1,2-Trichloroethane	ND	1.0									
Toluene	ND	1.0									
1,3-Dichloropropane	ND	1.0									
Ethyl methacrylate	ND	1.0									
Dibromochloromethane	ND	1.0									
EDB	ND	1.0									
PCE	ND	1.0									
1,1,1,2-Tetrachloroethane	ND	1.0									
Chlorobenzene	ND	1.0									
Ethylbenzene	ND	1.0									
m,p-Xylene	ND	2.0									
Bromoform	ND	2.0									
Styrene	ND	2.0									
1,1,2,2-Tetrachloroethane	ND	1.0									
o-Xylene	ND	1.0									
1,2,3-Trichloropropane	ND	1.0									
Qualifiers: B Analyte detect	ted in the associated Method B	lank	D Dilutio	on was required.			Е	Value above quant	itation range		

Н

R

D

Holding times for preparation or analysis exceeded RPD outside accepted recovery limits

ND Not Detected at the RL RL Reporting Limit

Value above quantitation range E

0 RSD is greater than RSDlimit

S Spike Recovery outside accepted reco



Ninyo & Moore

NURA Garland

Client:

Project:

Environmental Chemistry Services, Inc. 2 Oakwood Park Plaza; 100 Castle Rock, CO 80104-1885 TEL: (303) 850-7606 FAX: (303) 850-7609 Website: www.ecs-corp.com

QC SUMMARY REPORT

Work Order: 1412070

29-Dec-14

BatchID: R1683

Sample ID MBLK	SampType: MBLK	TestCoo	le: 8260B_W	Units: µg/L		Prep Date	e:		RunNo: 16	83	
Client ID: PBW	Batch ID: R1683	TestN	lo: SW8260B			Analysis Date	e: 12/29/2	2014	SeqNo: 22	362	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,4-Dichloro-2-butene	ND	3.0									
Isopropylbenzene	ND	1.0									
Bromobenzene	ND	1.0									
n-Propylbenzene	ND	1.0									
2-Chlorotoluene	ND	2.0									
4-Chlorotoluene	ND	2.0									
Pentachloroethane	ND	2.0									
1,3,5-Trimethylbenzene	ND	2.0									
tert-Butylbenzene	ND	2.0									
DBCP	ND	2.0									
sec-Butylbenzene	ND	2.0									
1,2,4-Trimethylbenzene	ND	2.0									
1,3-Dichlorobenzene	ND	2.0									
4-Isopropyltoluene	ND	2.0									
1,4-Dichlorobenzene	ND	1.0									
1,2-Dichlorobenzene	ND	2.0									
n-Butylbenzene	ND	2.0									
1,2,4-Trichlorobenzene	ND	2.0									
Naphthalene	ND	2.0									
Hexachlorobutadiene	ND	2.0									
1,2,3-Trichlorobenzene	ND	2.0									
Surr: Dibromofluoromethane	51		50.00		102	50	150				
Surr: 1,2-Dichloroethane-d4	42		50.00		84.1	50	150				
Surr: Toluene-d8	49		50.00		98.4	50	150				
Surr: 4-Bromofluorobenzene	53		50.00		106	50	150				

Qualifiers:

В

Н

R

Analyte detected in the associated Method Blank

D Dilution was required.

Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits

ND Not Detected at the RL Reporting Limit

RL

Value above quantitation range Е

0 RSD is greater than RSDlimit

S Spike Recovery outside accepted reco



Environmental Chemistry Services, Inc. 2 Oakwood Park Plaza; 100 Castle Rock, CO 80104-1885 TEL: (303) 850-7606 FAX: (303) 850-7609 Website: www.ecs-corp.com

QC SUMMARY REPORT

Work Order: 1412070

29-Dec-14

BatchID: R1683

Client: Project: Ninyo & Moore NURA Garland

Qualifiers:

В Analyte detected in the associated Method Blank D Dilution was required.

Н Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

- ND Not Detected at the RL
- RL Reporting Limit

- Value above quantitation range Е
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- S Spike Recovery outside accepted reco

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THE ABOVE SIGNED HAS READ AND UNDERSTANDS THE CREDIT TERMS AND CREDIT POLICIES OF ECS, INC. AND AGREES TO THE TERMS AND CONDITIONS AS SET FORTH IN THIS AGREEN	AD AND UNDERSTANDS THE CREDIT TERMS AND CREDIT POLICIES OF ECS, INC. AND AC	DEED THE TERMS AND CONDITIONS AS SE	T CODTH IN THIS AGREEMENT

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