

**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:
Ninyo & Moore
Geotechnical and Environmental Sciences Consultants
6001 S. Willow Drive, Suite 195
Greenwood Village, Colorado 80111

January 16, 2015
Project No. 500557004

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



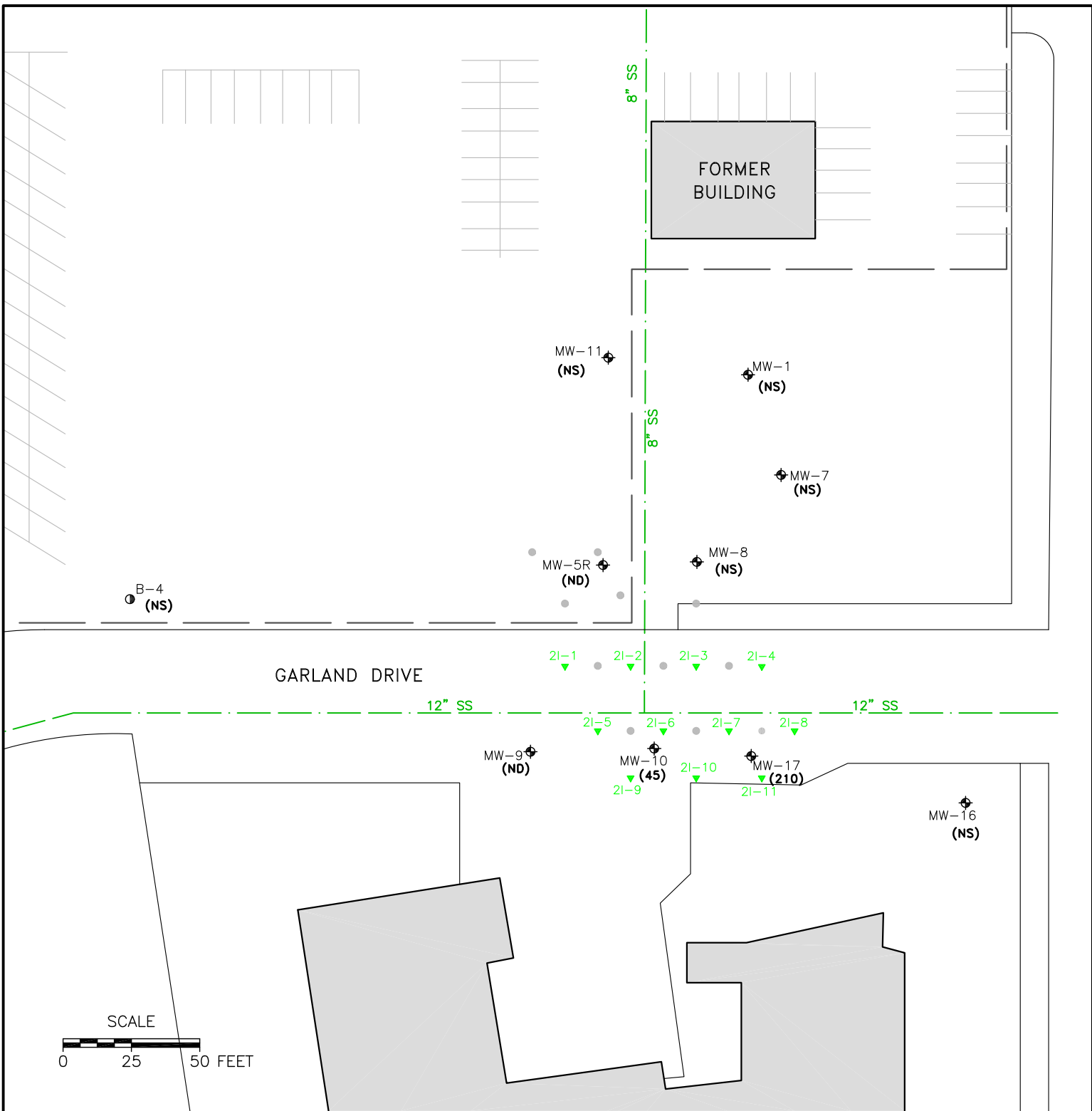
Beth McDonald, PE, PG
Senior Engineer

BM/LMB/ceb



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

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



LEGEND

- ◆ Groundwater Monitoring Well
- 57 PCE Concentration in micrograms per liter (Wells Sampled on 12-23-2014)
- First Event Injection Locations
- ▼ Proposed Second Event Injection Locations

<p style="font-size: small; margin: 0;">In-Situ Oxidative Technologies, Inc.</p> <p style="font-size: large; margin: 0;">ISOTEC</p> <p style="font-size: x-small; margin: 0;">6452 Fig Street, Suite C Arvada, Colorado 80004 www.insituoxidation.com (303) 843-9079</p>		
<p>PROPOSED SECOND EVENT INJECTION LOCATION MAP ISCO REMEDIATION PROGRAM Garland Shopping Center 10733 Washington Street Northglenn, Colorado</p>		
DRAWN BY: MU	DATE: 1/12/2015	FIGURE 1
CHECKED BY: SH	PROJECT NO: 901154	

Note: Base Map provide by Ninyo & Moore

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Appendix A – Boring Log and Well Construction Diagrams

Appendix B – Groundwater Sampling Field Data Sheets

Appendix C – Laboratory Analytical Reports

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 [$\mu\text{g/L}$] 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 one-time 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 µg/L) and MW-17 (210 µg/L). The CBSGW_r for PCE at sites is 17 µg/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 1,2,4-trimethylbenzene has not been tabulated.
- Cis-1,2-dichloroethylene (1.7µg/L) and trichloroethylene (TCE; 2.4 µg/L) were reported in well MW-10. The detections were below their respective CBSGW.
- TCE (3.4 µg/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, were not-detected six months following 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

TABLE 1
HISTORICAL GROUNDWATER ELEVATIONS

MONITORING WELL	Date	Depth to Groundwater (feet below TOC)	Groundwater Elevation (MSL)
TOC MSL			
MW-5 5305.83	11/16/2012	21.00	5284.83
	11/22/2013	19.60	5286.23
MW-5R* NS	12/3/2014	19.50	---
MW-9 5303.84	11/16/2012	18.78	5285.06
	12/3/2014	17.80	5286.04
	12/23/2014	18.10	5285.74
MW-10 5304.31	11/16/2012	19.50	5284.81
	11/22/2013	17.80	5286.51
	12/3/2014	19.75	5284.56
	12/23/2014	20.00	5284.31
MW-17 5304.98	11/16/2012	21.10	5283.88
	11/22/2013	20.00	5284.98
	12/3/2014	21.05	5283.93
	12/23/2014	21.50	5283.48

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 Standard
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	
Volatile Organic Compounds (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

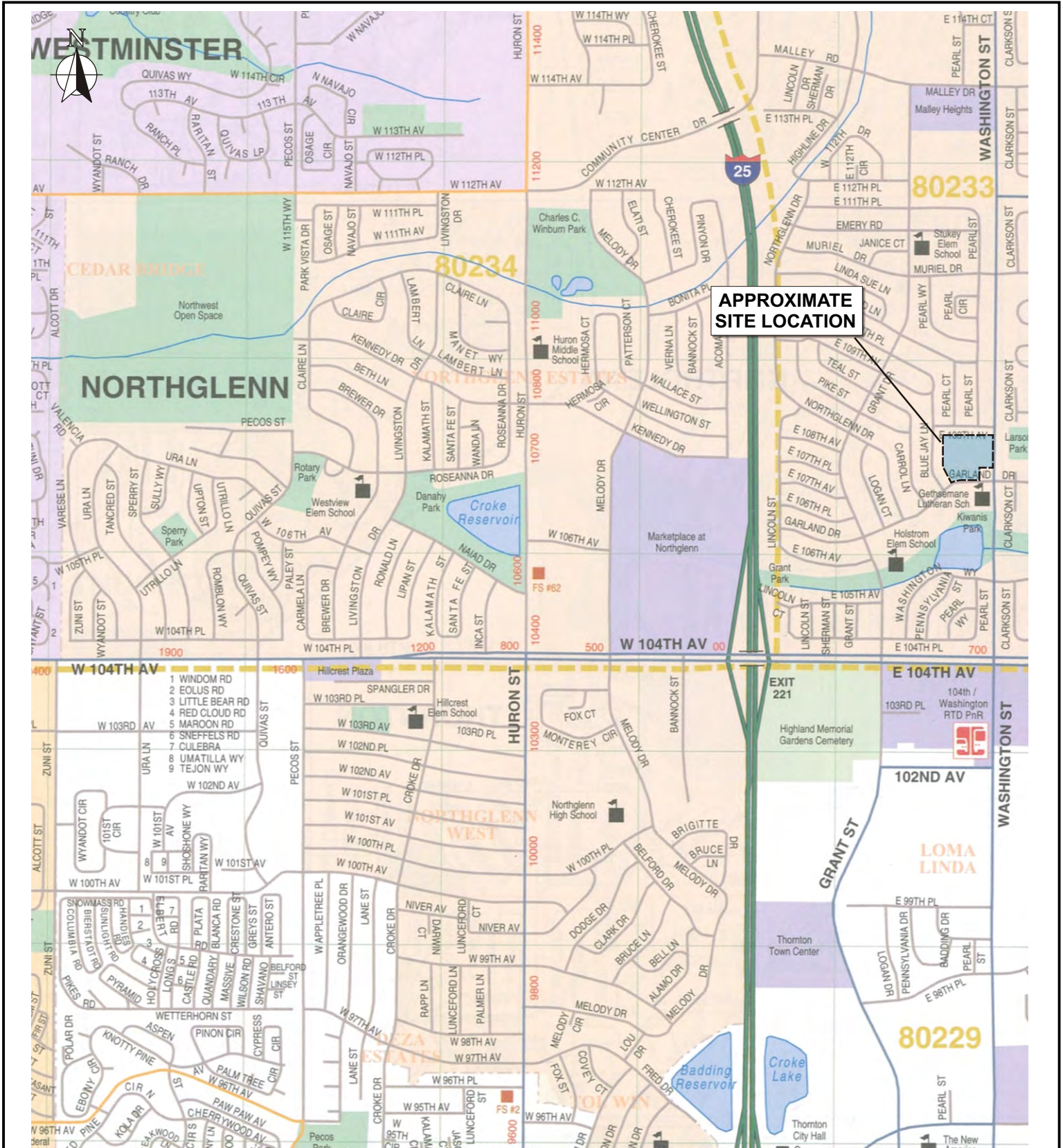
<x = below laboratory reporting limit

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



Source: Macvan Map Company, Denver Metro Edition, Colorado, 2010.

0 1900

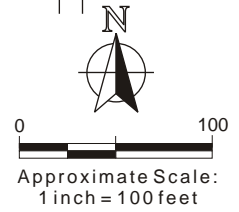
Approximate Scale:
1 inch = 1900 feet

Note: Dimensions, directions, and locations are approximate.

		SITE LOCATION		FIGURE 1
		PROJECT NO: 500557004	DATE: 1/15	FORMER GARLAND SHOPPING CENTER 10755 WASHINGTON STREET NORTHGLEN, COLORADO

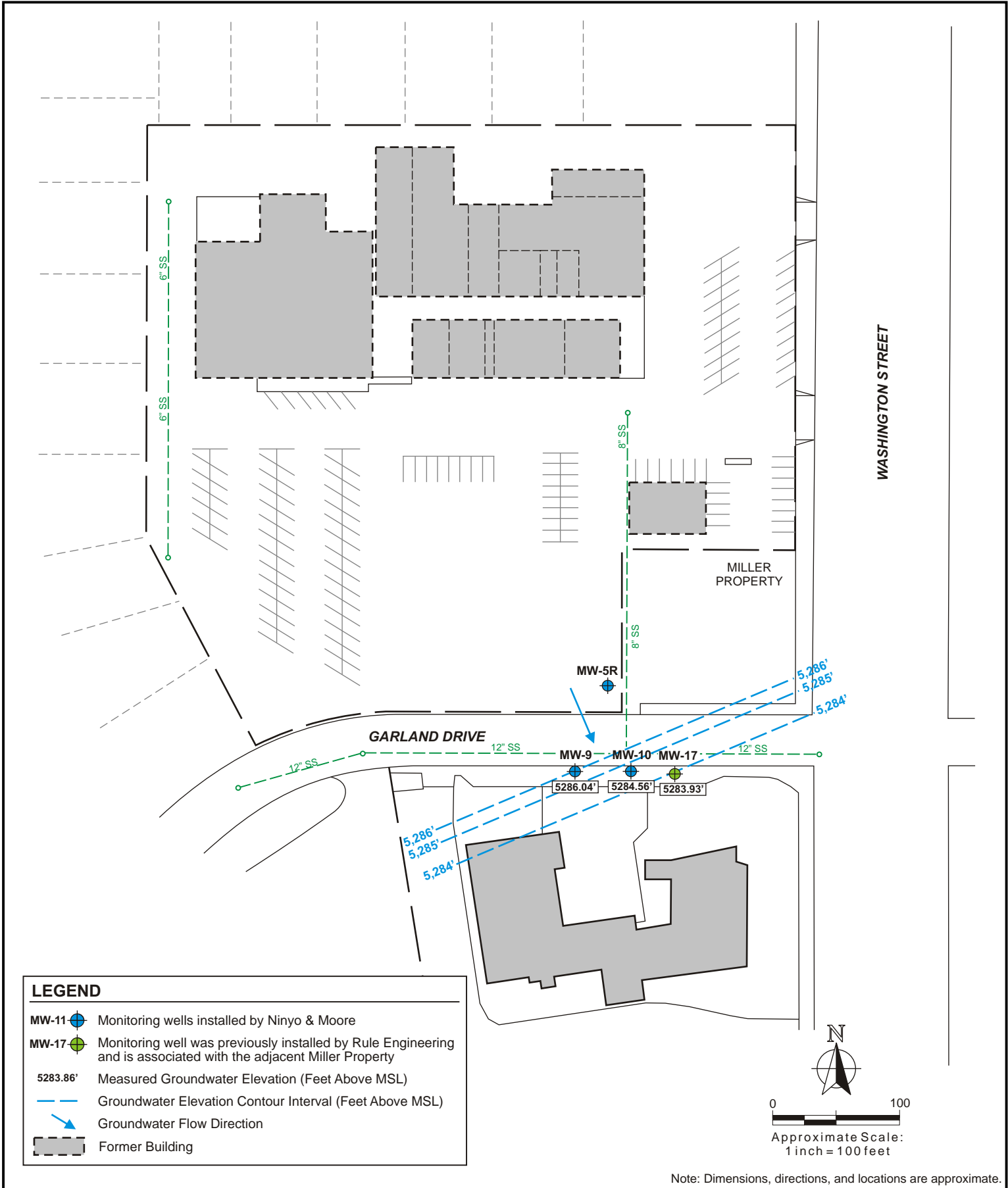


LEGEND	
MW-9	Monitoring wells were installed by Ninyo & Moore.
MW-17	Monitoring well was installed by others and is associated with the adjacent Miller Property.
	Former Building



Note: Dimensions, directions, and locations are approximate.

Ninyo & Moore		SITE PLAN	FIGURE
PROJECT NO: 500557004	DATE: 1/15	FORMER GARLAND SHOPPING CENTER 10755 WASHINGTON STREET NORTHGLENN, COLORADO	2



LEGEND

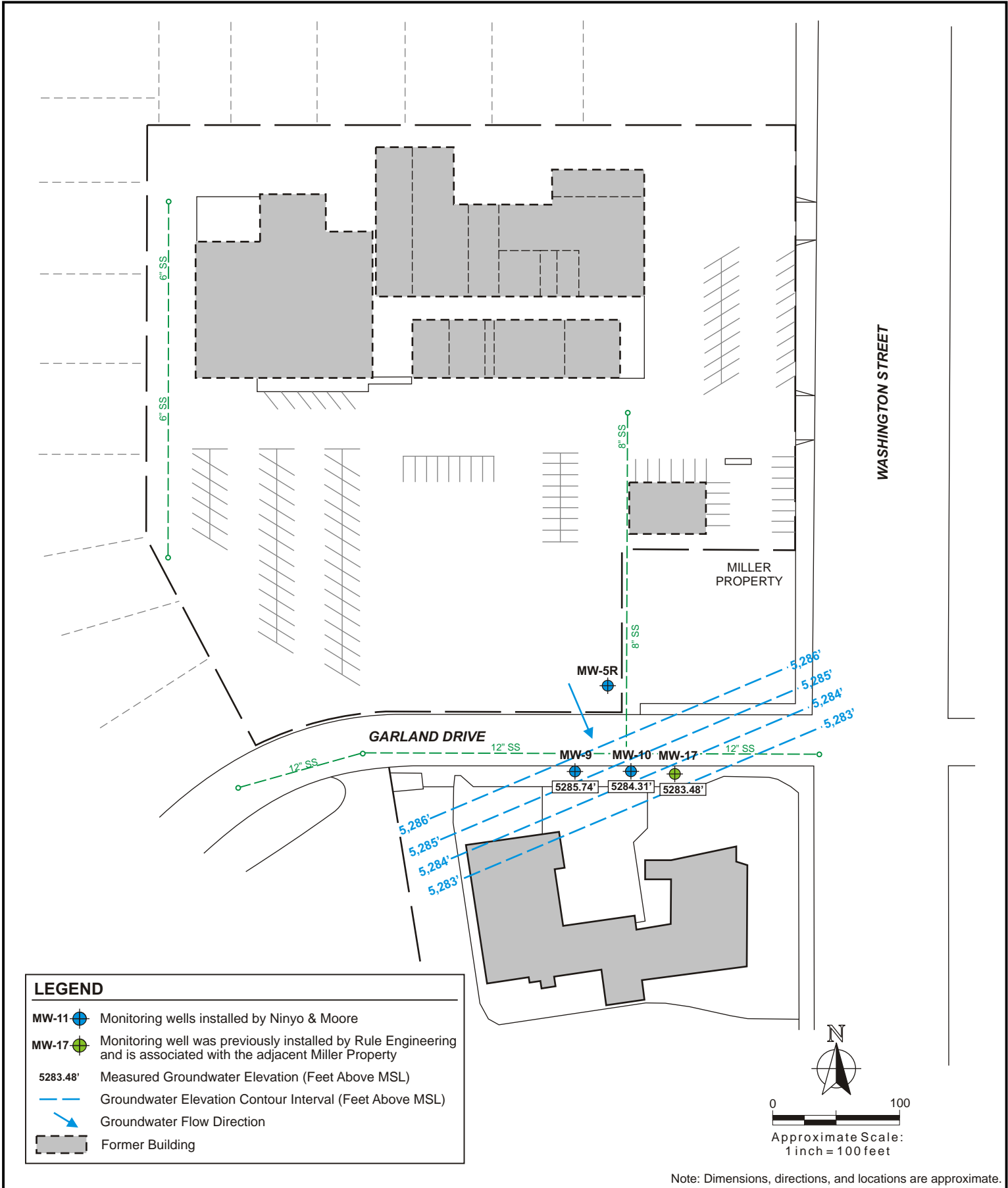
- MW-11 Monitoring wells installed by Ninyo & Moore
- MW-17 Monitoring well was previously installed by Rule Engineering and is associated with the adjacent Miller Property
- 5283.86' Measured Groundwater Elevation (Feet Above MSL)
- Groundwater Elevation Contour Interval (Feet Above MSL)
- Groundwater Flow Direction
- Former Building

N

Approximate Scale:
1 inch = 100 feet

Note: Dimensions, directions, and locations are approximate.

Ninyo & Moore		GROUNDWATER ELEVATION CONTOURS - 12/03/2014	FIGURE 3
PROJECT NO: 500557004	DATE: 1/15	FORMER GARLAND SHOPPING CENTER 10755 WASHINGTON STREET NORTHGLENN, COLORADO	



LEGEND

- MW-11 Monitoring wells installed by Ninyo & Moore
- MW-17 Monitoring well was previously installed by Rule Engineering and is associated with the adjacent Miller Property
- 5283.48' Measured Groundwater Elevation (Feet Above MSL)
- Groundwater Elevation Contour Interval (Feet Above MSL)
- Groundwater Flow Direction
- Former Building

N

0 100

Approximate Scale:
1 inch = 100 feet

Note: Dimensions, directions, and locations are approximate.

Ninyo & Moore		GROUNDWATER ELEVATION CONTOURS - 12/23/2014	FIGURE
PROJECT NO: 500557004	DATE: 1/15	FORMER GARLAND SHOPPING CENTER 10755 WASHINGTON STREET NORTHGLENN, COLORADO	4



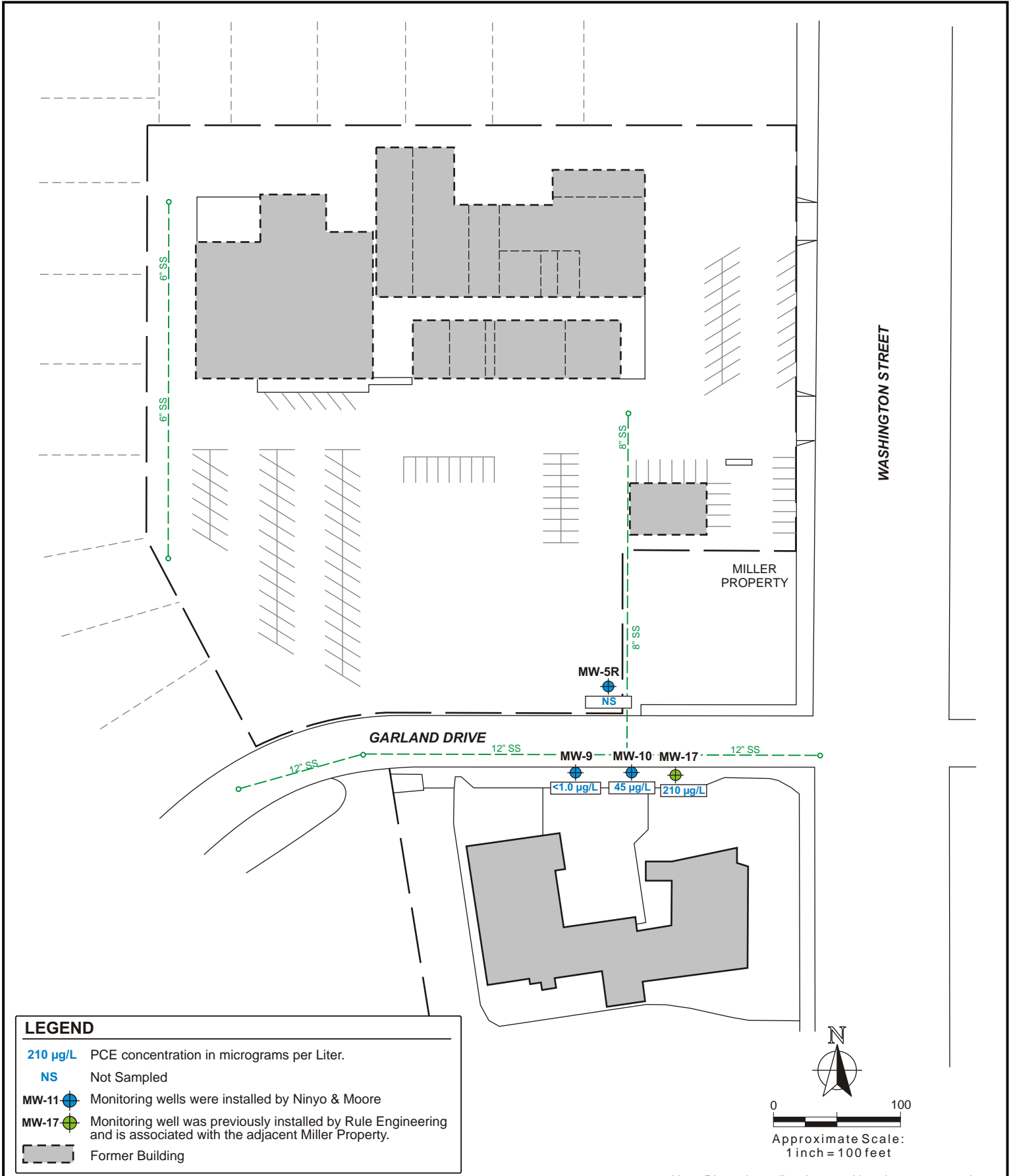
LEGEND

- 210 µg/L PCE concentration in micrograms per Liter.
- NS Not Sampled
- Monitoring wells were installed by Ninyo & Moore
- Monitoring well was previously installed by Rule Engineering and is associated with the adjacent Miller Property.
- Former Building

Approximate Scale:
1 inch = 100 feet

Note: Dimensions, directions, and locations are approximate.

Ninyo & Moore		PCE CONCENTRATIONS IN GROUNDWATER - 12/03/2014	FIGURE
PROJECT NO: 500557004	DATE: 1/15	FORMER GARLAND SHOPPING CENTER 10755 WASHINGTON STREET NORTHGLENN, COLORADO	5



LEGEND

- 210 $\mu\text{g/L}$ PCE concentration in micrograms per Liter.
- NS Not Sampled
- MW-11 Monitoring wells were installed by Ninyo & Moore
- MW-17 Monitoring well was previously installed by Rule Engineering and is associated with the adjacent Miller Property.
- Former Building

N

Approximate Scale:
1 inch = 100 feet















Note: Dimensions, directions, and locations are approximate.

Ninyo & Moore		PCE CONCENTRATIONS IN GROUNDWATER - 12/23/2014	FIGURE 6
PROJECT NO: 500557004	DATE: 1/15	FORMER GARLAND SHOPPING CENTER 10755 WASHINGTON STREET NORTHGLENN, COLORADO	

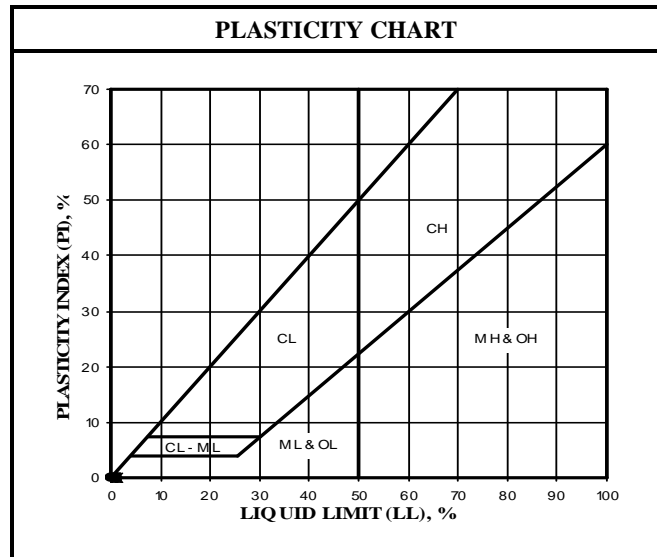
APPENDIX A

BORING LOGS AND WELL CONSTRUCTION SCHEMATICS

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

MAJOR DIVISIONS	SYMBOL	TYPICAL NAMES
COARSE-GRAINED SOILS (More than 1/2 of soil >No. 200 sieve size)	GRAVELS (More than 1/2 of coarse fraction > No. 4 sieve size)	 GW Well graded gravels or gravel-sand mixtures, little or no fines
		 GP Poorly graded gravels or gravel-sand mixtures, little or no fines
		 GM Silty gravels, gravel-sand-silt mixtures
		 GC Clayey gravels, gravel-sand-clay mixtures
	SANDS (More than 1/2 of coarse fraction <No. 4 sieve size)	 SW Well graded sands or gravelly sands, little or no fines
		 SP Poorly graded sands or gravelly sands, little or no fines
		 SM Silty sands, sand-silt mixtures
		 SC Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (More than 1/2 of soil <No. 200 sieve size)	SILTS & CLAYS Liquid Limit <50	 ML Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with
		 CL Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean
		 OL Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS Liquid Limit >50	 MH Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		 CH Inorganic clays of high plasticity, fat clays
		 OH Organic clays of medium to high plasticity, organic silty clays, organic silts
HIGHLY ORGANIC SOILS		Pt Peat and other highly organic soils

GRAIN SIZE CHART		
CLASSIFICATION	RANGE OF GRAIN SIZE	
	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



Ninyo & Moore

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

BORING LOG EXPLANATION SHEET

DEPTH (feet)	Bulk Driven SAMPLES	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.
0	■					Bulk sample.
	■					Modified split-barrel drive sampler.
	⊗					No recovery with modified split-barrel drive sampler.
	■					Sample retained by others.
	■					Standard Penetration Test (SPT).
5	⊗					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.
	∩					Seepage.
10	∩					Groundwater encountered during drilling.
	∩					Groundwater measured after drilling.
					■	SM
						ALLUVIUM: Solid line denotes unit change.
						Dashed line denotes material change.
15						Attitudes: Strike/Dip b: Bedding c: Contact 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
20						The total depth line is a solid line that is drawn at the bottom of the boring.



BORING LOG

EXPLANATION OF BORING LOG SYMBOLS

PROJECT NO.

DATE
Rev. 01/03

FIGURE

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	PID READING (PPM)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>9/14/12</u> BORING NO. <u>B-5</u>	
	Bulk	Driven							GROUND ELEVATION <u>5,306.375 FEET</u>	SHEET <u>1</u> OF <u>2</u>
									METHOD OF DRILLING <u>7" Diameter Hollow-Stem Auger (Vine Labs)</u>	
									DRIVE WEIGHT <u>140 lbs. (Auto Hammer)</u> DROP <u>30"</u>	
									SAMPLED BY <u>SAH</u> LOGGED BY <u>DLH</u> REVIEWED BY <u>LMB</u>	
									DESCRIPTION/INTERPRETATION	
0								CL	<u>ASPHALT CONCRETE</u> : Approximately 4 inches thick. <u>ALLUVIUM</u> : Brown to light brown, moist, medium to very stiff, some sandy CLAY with little calcium mineralization.	
5						0.0				
10						0.0				
15						0.0			Moist to wet.	
20						0.0			Wet; fine to coarse sand.	



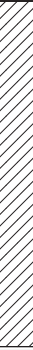

BORING LOG

GARLAND SHOPPING CENTER - 10733 WASHINGTON STREET
NORTHGLENN, COLORADO

PROJECT NO.
500557001

DATE
10/12

FIGURE
A-7

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	PID READING (PPM)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>9/14/12</u> BORING NO. <u>B-5</u>		
	Bulk	Driven							GROUND ELEVATION <u>5,306.375 FEET</u>	SHEET <u>2</u> OF <u>2</u>	METHOD OF DRILLING <u>7" Diameter Hollow-Stem Auger (Vine Labs)</u>
20						0.0		CL	ALLUVIUM: (Continued) Light brown, moist to wet, very stiff, fine to coarse sandy CLAY with calcium mineralization.		
25						0.0			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.		
30									Total Depth = Approximately 26.6 feet BGS. Groundwater was not encountered during drilling. Groundwater was encountered on 9/27/12 at 24.08' BTOC. <u>Note:</u> 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.		
35											
40											



BORING LOG

GARLAND SHOPPING CENTER - 10733 WASHINGTON STREET
NORTHGLENN, COLORADO

PROJECT NO.
500557001

DATE
10/12

FIGURE
A-8

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	PID READING (PPM)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>11/9/12</u> BORING NO. <u>MW-5</u>		
	Bulk	Driven							GROUND ELEVATION <u>5,306.46' ± (MSL)</u>	SHEET <u>1</u> OF <u>1</u>	METHOD OF DRILLING <u>4" Diameter Hollow-Stem Auger/SPT</u>
									DRIVE WEIGHT <u>140 lbs. (Automatic)</u> DROP _____		
									SAMPLED BY <u>NA</u> LOGGED BY <u>SAH</u> REVIEWED BY <u>LMB</u>		
									DESCRIPTION/INTERPRETATION		
0									The existing boring was advanced to approximately 25 feet bgs, with a temporary monitoring well in place. Boring was further advanced and the temporary monitoring well was removed.		
10											
20									Total depth of initial advancement. For lithologic description, see boring log for B-5.		
30							CL	CL	Brown, damp to moist, dense, sandy CLAY.		
37							10/25/37	0.0	Total Depth = Approximately 35 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											



BORING LOG

GARLAND SHOPPING CENTER - 10733 WASHINGTON STREET
NORTHGLENN, COLORADO

PROJECT NO. 500557003	DATE 12/12	FIGURE A-1
--------------------------	---------------	---------------

DEPTH (feet)	Bulk Driven SAMPLES	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	PID READING (PPM)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.	
								11/8/12	MW-9	
								GROUND ELEVATION	SHEET	OF
								5,304.46' ± (MSL)	1	2
								METHOD OF DRILLING 4" Diameter Hollow-Stem Auger/SPT		
								DRIVE WEIGHT	DROP	
								140 lbs. (Automatic)		
								SAMPLED BY	LOGGED BY	REVIEWED BY
								SAH	SAH	LMB
								DESCRIPTION/INTERPRETATION		
0								<u>ASPHALT</u> : Approximately 2-inches thick. <u>FILL</u> : 6" gravel, brown.		
5		5/5/8			0.0		CL	<u>ALLUVIUM</u> : Brown, damp, firm, medium dense to dense, sandy CLAY.		
10		7/6/8			0.0			Brown, damp to moist, dense, CLAY.		
15		4/5/7			19.2					
20					0.3			Brown, damp to moist, fine to medium, sandy CLAY.		



BORING LOG

GARLAND SHOPPING CENTER - 10733 WASHINGTON STREET
NORTHGLENN, COLORADO

PROJECT NO.
500557003

DATE
12/12

FIGURE
A-2

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	PID READING (PPM)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>11/8/12</u> BORING NO. <u>MW-9</u>		
	Bulk	Driven							GROUND ELEVATION <u>5,304.46' ± (MSL)</u> SHEET <u>2</u> OF <u>2</u>		
									METHOD OF DRILLING <u>4" Diameter Hollow-Stem Auger/SPT</u>		
									DRIVE WEIGHT <u>140 lbs. (Automatic)</u> DROP _____		
									SAMPLED BY <u>SAH</u> LOGGED BY <u>SAH</u> REVIEWED BY <u>LMB</u>		
									DESCRIPTION/INTERPRETATION		
20			4/5/7			8.0			Brown, moist, fine to coarse sandy CLAY.		
									Groundwater was measured at approximately 22.5 feet after drilling.		
25			5/6/8			0.2			Groundwater was encountered at approximately 25 feet during drilling.		
30			3/4/7								
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											



BORING LOG

GARLAND SHOPPING CENTER - 10733 WASHINGTON STREET
NORTHGLENN, COLORADO

PROJECT NO.
500557003

DATE
12/12

FIGURE
A-3

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	PID READING (PPM)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION			
	Bulk	Driven							DATE DRILLED	BORING NO.	GROUND ELEVATION	SHEET
									DATE DRILLED	11/8/12	BORING NO.	MW-10
									GROUND ELEVATION	5,304.88' ± (MSL)	SHEET	1 OF 2
									METHOD OF DRILLING	4" Diameter Hollow-Stem Auger/SPT		
									DRIVE WEIGHT	140 lbs. (Automatic)	DROP	
									SAMPLED BY	SAH	LOGGED BY	SAH
									REVIEWED BY	LMB		
0									<u>ASPHALT</u> : Approximately 6-inches thick. <u>ASPHALT BASE</u> : Approximately 4-inches thick. <u>FILL</u> : Dark reddish brown, damp to moist, medium dense, fine CLAY.			
						0.0		CL				
								CL	<u>ALLUVIUM</u> : Brown, damp, dense, fine CLAY.			
5			3/5/8			0.0						
10			5/7/7			0.0			Brown, moist, dense, fine to medium sandy CLAY.			
15						0.0						
20												



BORING LOG

GARLAND SHOPPING CENTER - 10733 WASHINGTON STREET
NORTHGLENN, COLORADO

PROJECT NO.
500557003

DATE
12/12

FIGURE
A-4

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	PID READING (PPM)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>11/8/12</u> BORING NO. <u>MW-10</u>		
	Bulk	Driven							GROUND ELEVATION <u>5,304.88' ± (MSL)</u> SHEET <u>2</u> OF <u>2</u>		METHOD OF DRILLING <u>4" Diameter Hollow-Stem Auger/SPT</u>
20			4/4/5			0.0			Brown, moist, loose to medium dense, fine to coarse, clayey SAND.		
25			8/7/8			0.0			Groundwater was measured at approximately 24 feet during drilling.		
30											
35			15/20/ 20			0.0			<u>DENVER FORMATION BEDROCK:</u> Brown, saturated, very dense, CLAY.		
40									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.		



BORING LOG

GARLAND SHOPPING CENTER - 10733 WASHINGTON STREET
NORTHGLENN, COLORADO

PROJECT NO.
500557003

DATE
12/12

FIGURE
A-5

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	PID READING (PPM)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>11/8/12</u> BORING NO. <u>MW-11</u>	
	Bulk	Driven							GROUND ELEVATION <u>5,309.29' ± (MSL)</u>	SHEET <u>1</u> OF <u>2</u>
									METHOD OF DRILLING <u>4" Diameter Hollow-Stem Auger/SPT</u>	
									DRIVE WEIGHT <u>140 lbs. (Automatic)</u> DROP _____	
									SAMPLED BY <u>SAH</u> LOGGED BY <u>SAH</u> REVIEWED BY <u>LMB</u>	
									DESCRIPTION/INTERPRETATION	
0									<u>ASPHALT</u> : Approximately 3-inches thick.	
						0.0			<u>FILL</u> : Brown, damp, dense, fine to coarse, SAND.	
								CL	Brown, damp, dense, fine to coarse SAND, CLAY.	
5			3/4/7			0.0				
10			3/5/6			0.0				
15			5/10/ 13			0.0				
20										



BORING LOG

GARLAND SHOPPING CENTER - 10733 WASHINGTON STREET
NORTHGLENN, COLORADO

PROJECT NO.
500557003

DATE
12/12

FIGURE
A-6

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	PID READING (PPM)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.	
	Bulk	Driven							11/8/12	MW-11	
									GROUND ELEVATION	SHEET	OF
									METHOD OF DRILLING		
									DRIVE WEIGHT	DROP	
									SAMPLED BY	LOGGED BY	REVIEWED BY
									DESCRIPTION/INTERPRETATION		
20			10/14/ 20			0.0		CL	Brown, damp, dense, fine, CLAY.		
25			9/16/ 18			0.0		CL	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.		
30											
35						0.0		CL	DENVER FORMATION BEDROCK: Dark reddish gray, damp, intensely to moderately weathered, weak induration, CLAYSTONE; trace iron staining, fracture faces.		
40									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.		



BORING LOG

GARLAND SHOPPING CENTER - 10733 WASHINGTON STREET
NORTHGLENN, COLORADO

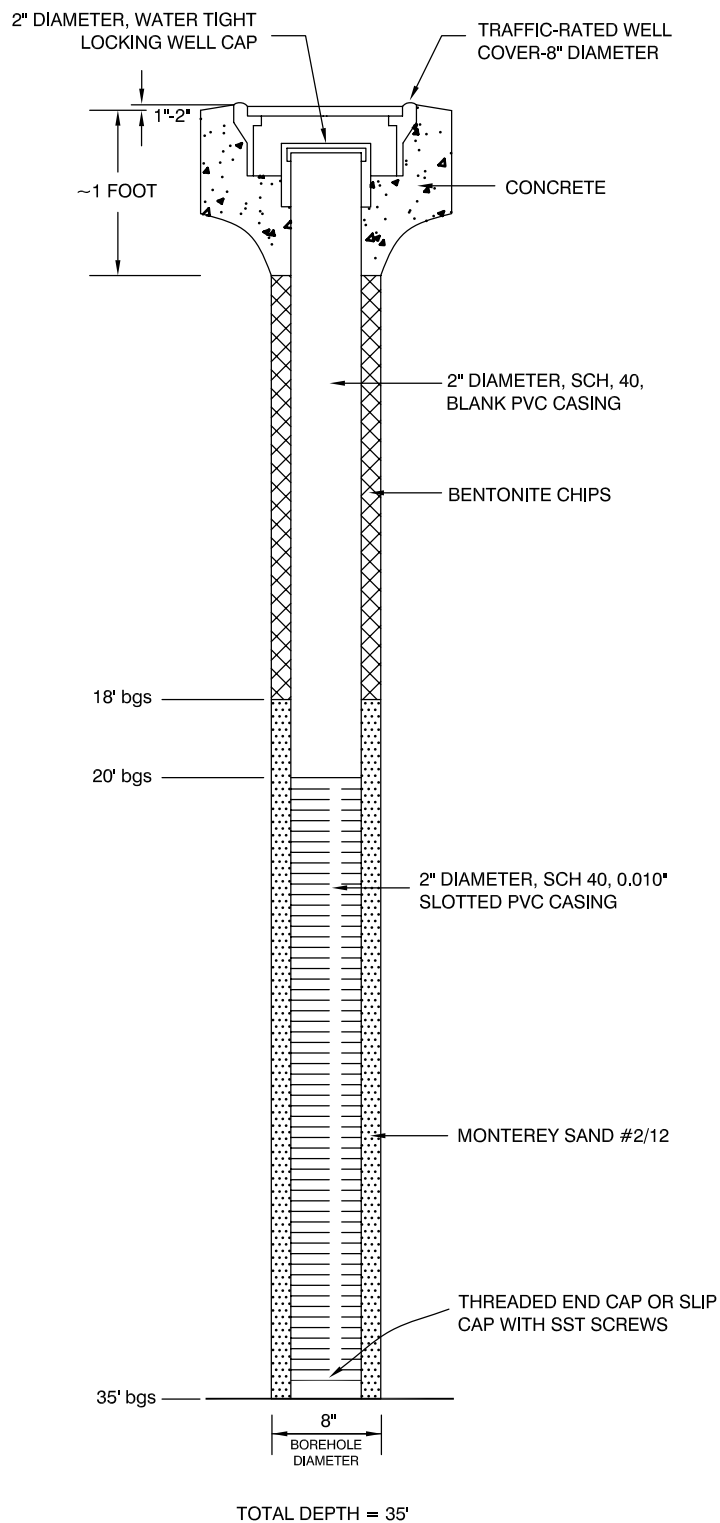
PROJECT NO.
500557003

DATE
12/12

FIGURE
A-7

MONITORING WELL NO: MW-5

COMPLETION DATE: 11/9/12



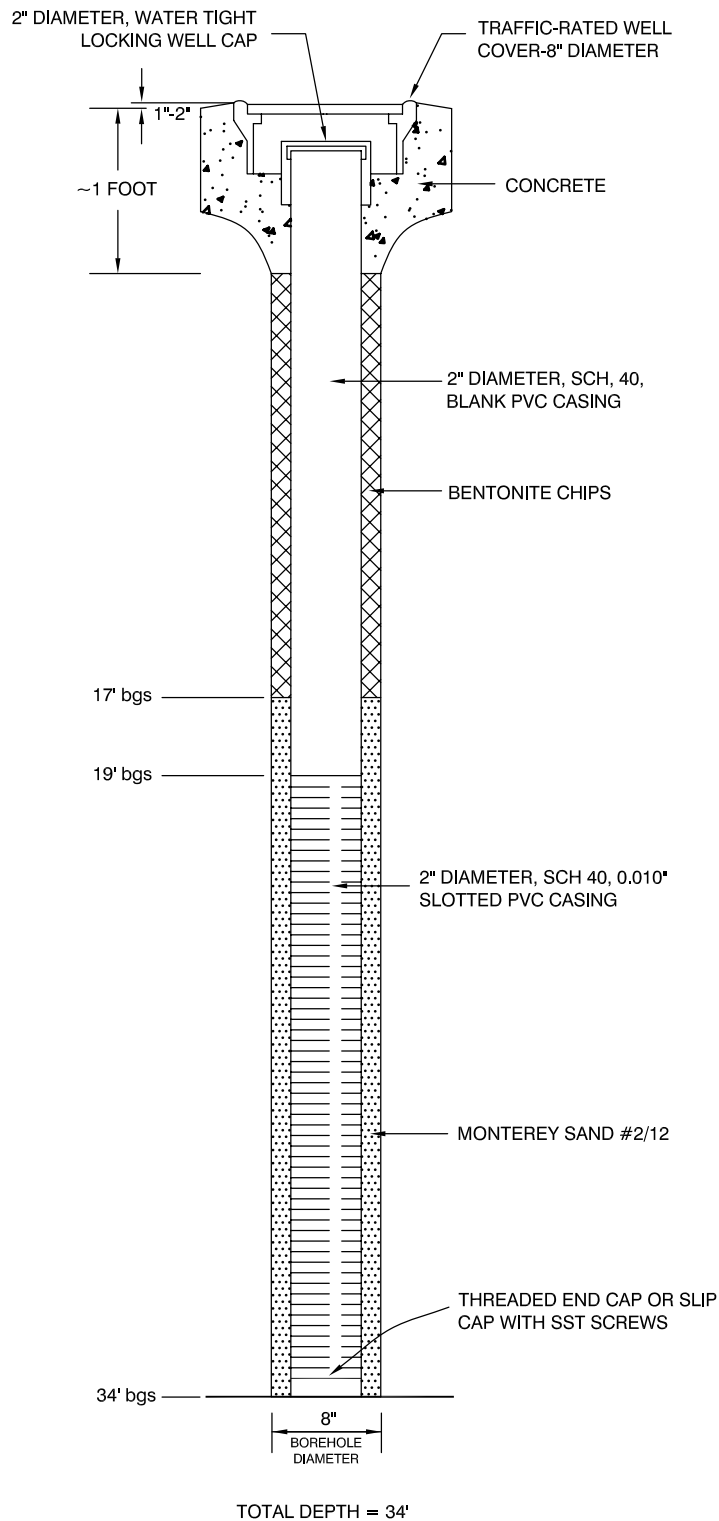
NOT TO SCALE

NOTE: ALL DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

Ninyo & Moore		WELL CONSTRUCTION SCHEMATIC	FIGURE MW-5
PROJECT NO. 500557003	DATE 12/12		

MONITORING WELL NO: MW-9

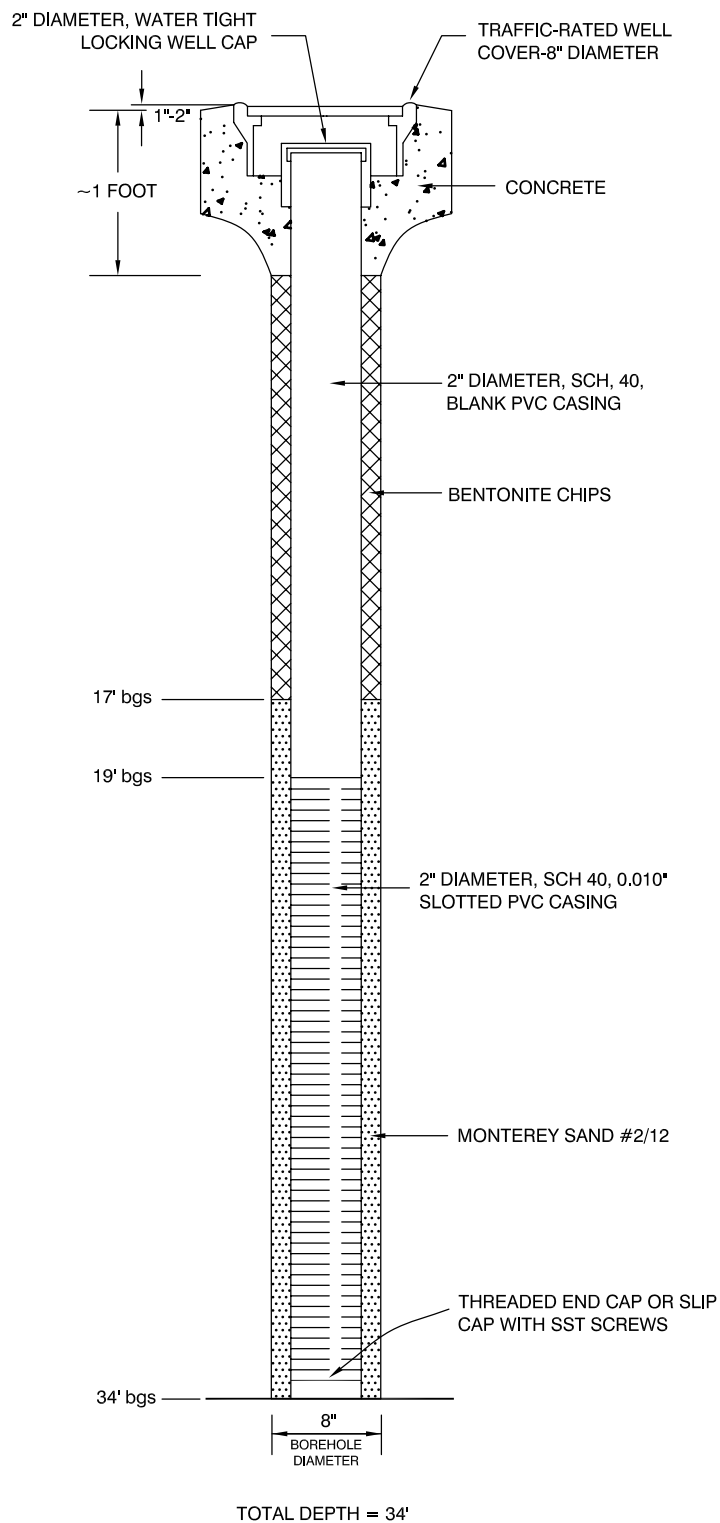
COMPLETION DATE: 11/8/12



NOT TO SCALE


NOTE: ALL DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

Ninyo & Moore		WELL CONSTRUCTION SCHEMATIC	FIGURE
PROJECT NO.	DATE	GARLAND SHOPPING CENTER 10733 WASHINGTON STREET NORTHGLENN, COLORADO	MW-9
500557003	12/12		



NOT TO SCALE

NOTE: ALL DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

		<p style="text-align: center;">WELL CONSTRUCTION SCHEMATIC</p>		<p style="text-align: right;">FIGURE</p> <p style="text-align: right;">MW-10</p>	
PROJECT NO.	DATE				
500557003	12/12				

DEPTH (feet)	Bulk Driven	SAMPLES	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	WELL CONSTRUCTION	DATE DRILLED <u>12/2/14</u> BORING NO. <u>MW-5R</u> GROUND ELEVATION <u>Approximately 5306.4 Feet</u> SHEET <u>2</u> OF <u>2</u> METHOD OF DRILLING <u>4" Diameter AMSL Hollow-Stem Auger</u> DRIVE WEIGHT <u>140 lbs (Automatic)</u> DROP _____ SAMPLED BY <u>N/A</u> LOGGED BY <u>BM</u> REVIEWED BY <u>LMB</u>
DESCRIPTION/INTERPRETATION									
40									<u>Notes:</u> 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									
60									
70									
80									

	BORING/MONITORING WELL LOG		
	WALMART 4747 10755 GARLAND DRIVE, NORTHGLENN, COLORADO		
	PROJECT NO.	DATE	FIGURE
500862001	01/15	A-2	

APPENDIX B

GROUNDWATER SAMPLING FIELD DATA SHEETS

GROUNDWATER DRILLING FIELD DATA SHEET

Project Name: NARA Garland
 Site: Walmart Date: 12/3/14 Sampler: Rob Neumann
 Project No.: 500557004 Weather: 40° & Sunny
 Monitoring Well ID: MW-5R Vapor Monitoring Results (ppmv): BZ= _____ WH= _____

Casing Diameter: 2" 4" 6" Other Casing Material: SCH 40-PVC Other
 Total Depth (ft-TOC): 35
 Depth to Water (ft-TOC): 19.5 Floating Immiscible Layer Observed? _____
 Floating Immiscible Layer Thickness (feet): _____
 2" = 0.16 Min. Purge
 4" = 0.65 gal/ft = 2.48 x3= 7.44 Volume
 6" = 1.47 (gallons)

Water Level Measurement Equip: Solinst Model 101 Cleaned: _____
 Purging Method/Equipment: New bailer Cleaned: _____
 Pump Lines/Bailer Ropes-New or Cleaned? _____
 Temp./pH Meter: YSI 556 MPS Calibration (date/time): 12/1
 Conductivity Meter: YSI 556 MPS Calibration (date/time): 12/1
 Comments: _____

pH STND.	Field pH	Field Temp °F
4.0		
7.0		

Time	Purge Vol (Gal)	Totalizer Reading (Gal)	TEMP. (°C)	pH	COND. (µS/cm)	DO %	DO mg/L
1250	0.5		6.42	7.41	-1	80.11	9.93
1254	1		8.88	7.57	-1	79.6	9.2
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	7.68
1320	6		12.28	7.32	0	73.8	7.87
1323	7		13.24	7.45	0	77.9	8.13
1327	8		14.64	7.5	0	75.5	7.65

Total Volume Purged (gallon): _____ Time Finished Purging: 1350

Parameter	USEPA Method	Containers/Volume/Type (VOA/Glass/Plastic)	Pres.
Sampling Method/Equipment: <u>PVC Bailer</u>			
Bailer Rope-New or Cleaned?: <u>New</u>			
Sample Time: <u>1400</u>			
Sample ID: <u>MW-5R</u>			
Replicate ID (if appl.)			
Laboratory:			
Comments:			

GROUNDWATER SAMPLING FIELD DATA SHEET

Project Name: NURA Garland
 Site: Walmart Date: 12/3/14 Sampler: Rob Neumann
 Project No.: 500557004 Weather: 40° & Sunny
 Monitoring Well ID: MW-10 Vapor Monitoring Results (ppmv): BZ= WH=

Casing Diameter: 2" 4" 6" Other Casing Material: SCH 40-PVC Other
 Total Depth (ft-TOC): 34'
 Depth to Water (ft-TOC): 19.75 Floating Immiscible Layer Observed?
 Floating Immiscible Layer Thickness (feet):
 2" = 0.16 Min. Purge
 4" = 0.65 gal/ft = 2.28 x3= 6.84 Volume
 6" = 1.47 (gallons)
 Water Column Height (feet): 14.25

Water Level Measurement Equip: Solinst Model 101 Cleaned:
 Purging Method/Equipment: New bailer Cleaned:

Pump Lines/Bailer Ropes-New or Cleaned?
 Temp./pH Meter: YSI 556 MPS Calibration (date/time): 12/1
 Conductivity Meter: YSI 556 MPS Calibration (date/time): 12/1

Comments:

pH STND.	Field pH	Field Temp °F
4.0		
7.0		

Time	Purge Vol (Gal)	Totalizer Reading (Gal)	TEMP. (°C)	pH	COND. (µS/cm)	DO %	DO mg/L
1143	0.5		10.15	7.72	-1	94.5	11.06
1147	1		10.41	7.82	-1	89.5	8.90
1152	2		12.44	7.79	-1	80.3	8.48
1156	3		13.90	7.75	-1	77.5	8.01
1200	4		14.56	7.73	0	76.2	7.74
1205	5		15.0	7.66	0	75.8	7.61
1209	6		15.5	7.6	0	74.9	7.47
1212	7		15.4	7.52	0	73.6	7.48

Total Volume Purged (gallon): Time Finished Purging: 1212

Sampling Method/Equipment:	Parameter	USEPA Method	Containers/Volume/Type (VOA/Glass/Plastic)	Pres.
PVC Bailer				
Bailer Rope-New or Cleaned?: <u>New</u>				
Sample Time: <u>1215</u>				
Sample ID: <u>MW-10</u>				
Replicate ID (if appl.)				
Laboratory:				
Comments:				

GROUNDWATER SAMPLING FIELD DATA SHEET

Project Name: NURA Garland
 Site: Walmart Date: 12/3/14 Sampler: Rob Neumann
 Project No.: 500557004 Weather: 40° & Sunny
 Monitoring Well ID: MW-17 Vapor Monitoring Results (ppmv): BZ= _____ WH= _____

Casing Diameter: 2" 4" 6" Other Casing Material: SCH 40-PVC Other
 Total Depth (ft-TOC): 25'
 Depth to Water (ft-TOC): 21.05 Floating Immiscible Layer Observed? _____
 Floating Immiscible Layer Thickness (feet): _____
 2" = 0.16 Min. Purge
 4" = 0.65 gal/ft = .632 x3= 1.896 Volume
 6" = 1.47 (gallons)
 Water Column Height (feet): 3.95

Water Level Measurement Equip: Solinst Model 101 Cleaned: _____
 Purging Method/Equipment: New bailer Cleaned: _____
 Pump Lines/Bailer Ropes-New or Cleaned? _____
 Temp./pH Meter: YSI 556 MPS Calibration (date/time): 12/1
 Conductivity Meter: YSI 556 MPS Calibration (date/time): 12/1
 Comments: _____

pH STND.	Field pH	Field Temp °F
4.0		
7.0		

Time	Purge Vol (Gal)	Totalizer Reading (Gal)	TEMP. (°C)	pH	COND. (µS/cm)	DO %	DO mg/L
1100	0.5		9.27	7.76	-1	77.6	9.32
1103	1		9.88	7.79	-1	76.1	9.26
1106	1.5		9.96	7.62	-1	75.9	9.21
1110	2		10.41	7.53	-1	75.6	9.17
1112	2.5		10.45	7.56	-1	75.5	9.08

Total Volume Purged (gallon): _____ Time Finished Purging: 1112

Sampling Method/Equipment:	Parameter	USEPA Method	Containers/Volume/Type (VOA/Glass/Plastic)	Pres.
PVC Bailer				
Bailer Rope-New or Cleaned?: <u>New</u>				
Sample Time: <u>1138</u>				
Sample ID: <u>MW-17</u>				
Replicate ID (if appl.) _____				
Laboratory: _____				
Comments: _____				

GROUNDWATER SAMPLING FIELD DATA SHEET

Project Name: NURA Garland
 Date: 12/23/14 Sampler: RBN
 Site: _____
 Project No.: 500557004 Weather: 30°F 1/3 clear
 Monitoring Well ID: MW-9 Vapor Monitoring Results (ppmv): BZ= _____ WH= _____

Casing Diameter: 2" 4" 6" Other Casing Material: SCH 40-PVC Other
 Total Depth (ft-TOC): 34.5
 Depth to Water (ft-TOC): 18.1 Floating Immiscible Layer Observed? _____
 Floating Immiscible Layer Thickness (feet): _____
 2" = 0.16
 4" = 0.65 gal/ft = 2.69 x 10 = 26.24 Min. Purge Volume (gallons)
 6" = 1.47
 Water Column Height (feet): 16.4

Water Level Measurement Equip: Solonist Cleaned: _____
 Purging Method/Equipment: Bailer Cleaned: _____
 Pump Lines/Bailer Ropes-New or Cleaned? _____
 Temp./pH Meter: _____ Calibration (date/time): _____
 Conductivity Meter: _____ Calibration (date/time): _____
 Comments: _____

pH STND.	Field pH	Field Temp °F
4.0		
7.0		

Time	Purge Vol (Gal)	Totalizer Reading (Gal)	TEMP. (°F)	pH	COND. (µS/cm)	DO %	DO mg/L	COMMENTS (color, turbidity, odor, sheen, etc.):	
1520	1		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	15		13.8	7.05	3262	15.5	1.29		
1645	20		15.5	7.21	3690	21.6	2.16		
1700	22		16.1	7.22	3698	28.8	2.82		
1715	26		16.2	7.20	3748	15.0	1.46		
1730	26		16.3	7.21	3741	10.3	1.01		

Total Volume Purged (gallon): _____ Time Finished Purging: _____

Sampling Method/Equipment:	Parameter	USEPA Method	Containers/Volume/Type (VOA/Glass/Plastic)	Pres:
PVC Bailer	TPH-g TEX/MTB E'	8015m	4 x 40mL VOA	☉ C, HCl
Bailer Rope-New or Cleaned?: <u>New</u>				
Sample Time: <u>1730</u>				
Sample ID: <u>MW-9</u>				
Replicate ID (if appl.)				
Laboratory:				
Comments:				

GROUNDWATER SAMPLING FIELD DATA SHEET

Project Name: NURA Garland

Site: _____ Date: 12/23/07 Sampler: _____

Project No.: 500557004 Weather: 30° clear

Monitoring Well ID: MW-10 Vapor Monitoring Results (ppmv): _____ BZ= _____ WH= _____

Casing Diameter: 2" 4" 6" Other Casing Material: SCH 40-PVC Other
 Total Depth (ft-TOC): 30.5
 Depth to Water (ft-TOC): 20.0 Floating Immiscible Layer Observed? _____
 Floating Immiscible Layer Thickness (feet): _____
 2" = 0.16 Min. Purge Volume
 4" = 0.65 gal/ft = 1.69 ~~x 10~~ 16.3 (gallons)
 6" = 1.47
 Water Column Height (feet): 10.5

Water Level Measurement Equip: _____ Cleaned: _____
 Purging Method/Equipment: _____ Cleaned: _____
 Pump Lines/Bailer Ropes-New or Cleaned? _____
 Temp./pH Meter: _____ Calibration (date/time): _____
 Conductivity Meter: _____ Calibration (date/time): _____
 Comments: _____

pH STND.	Field pH	Field Temp °F
4.0		
7.0		

Time	Purge Vol (Gal)	Totalizer Reading (Gal)	TEMP. (°F)	pH	COND. (µS/cm)	COMMENTS (color, turbidity, odor, sheen, etc.):				
1735	1		13.6	7.07	3613	22.2	2.33			
1741	3		14.1	7.12	3622	30.6	3.13			
1746	7		13.9	7.11	3626	30.7	3.17			
1750	10		14.6	7.20	3571	33.1	3.9			
1755	13		14.9	7.17	3540	32.6	5.56 3.7			
1757	16		14.6	7.29	3549	54.2	5.56			
1759	17		14.5	7.26	3547	57.1	5.79			

Total Volume Purged (gallon): _____ Time Finished Purging: _____

Sampling Method/Equipment:	Parameter	USEPA Method	Containers/Volume/Type (VOA/Glass/Plastic)	Pres.
PVC Bailer	TPH-g/ TEX/MTB			
Bailer Rope-New or Cleaned?:	E'	8015m	4 x 40mL VOA	94 C, HCl
Sample Time: <u>1800</u>				
Sample ID: _____				
Replicate ID (if appl.) _____				
Laboratory: _____				
Comments: _____				

GROUNDWATER SAMPLING FIELD DATA SHEET

Project Name: NURA Garland

Site: _____

Date: 12/23/14

Sampler: _____

Project No.: _____

Weather: _____

Monitoring Well ID: MW-17

Vapor Monitoring Results (ppmv): _____

BZ= _____

WH= _____

Casing Diameter: 2" 4" 6" Other _____

Casing Material: SCH 40-PVC Other _____

Total Depth (ft-TOC): 25

Depth to Water (ft-TOC): 21.5

Floating Immiscible Layer Observed? _____

Floating Immiscible Layer Thickness (feet): _____

2" = 0.16

4" = 0.65

6" = 1.47

gal/ft = .56 x ~~10~~ 5.6

Min. Purge

Volume

(gallons)

Water Column Height (feet): 3.5

Water Level Measurement Equip: _____

Cleaned: _____

Purging Method/Equipment: _____

Cleaned: _____

Pump Lines/Bailer Ropes-New or Cleaned? _____

Temp./pH Meter: _____

Calibration (date/time): _____

Conductivity Meter: _____

Calibration (date/time): _____

Comments: _____

pH STND.	Field pH	Field Temp °F
4.0		
7.0		

Time	Purge Vol (Gal)	Totalizer Reading (Gal)	TEMP. (°F)	pH	COND. (µS/cm)	DO% DO _m % COMMENTS (color, turbidity, odor, sheen, etc.):			
1805	1		16.2	6.9	3272	24.1	2.86		
1809	2		15.6	7.2	3467	30.6	3.42		
1815	3		14.3	7.18	3571	28.7	3.09		
1820	4		15.2	7.07	3573	19.5	3.48		
1826	5		16.1	7.10	3581	23.6	2.19		
1830	6		15.7	7.12	3583	15.8	2.36		

Total Volume Purged (gallon): _____

Time Finished Purging: _____

Sampling Method/Equipment:	Parameter	USEPA Method	Containers/Volume/Type (VOA/Glass/Plastic)	Pres.
PVC Bailer	1PH-g/ TEX/MTB			
Bailer Rope-New or Cleaned?:	E'	8015m	4 x 40mL VOA	94 C, HCl
Sample Time: _____				
Sample ID: _____				
Replicate ID (if appl.) _____				
Laboratory: _____				
Comments: _____				

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*

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

December 05, 2014

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,

A handwritten signature in purple ink, appearing to be "Kris Mascarenas", written in a cursive style.

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#: 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.

Environmental Chemistry Services, Inc.

Date: 05-Dec-14

Client: Ninyo & Moore
Work Order: 1412005
Project: NURA Garland
Lab ID: 1412005-01A

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 PM
Acrolein	ND	4.0		µg/L	1	12/4/2014 5:28:00 PM
Acrylonitrile	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
Dichlorodifluoromethane	ND	3.0		µg/L	1	12/4/2014 5:28:00 PM
Chloromethane	ND	3.0		µg/L	1	12/4/2014 5:28:00 PM
Vinyl chloride	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
Bromomethane	ND	3.0		µg/L	1	12/4/2014 5:28:00 PM
Chloroethane	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
Freon-11	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
Methylene chloride	ND	5.0		µg/L	1	12/4/2014 5:28:00 PM
Freon-113	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
Carbon disulfide	ND	6.0		µg/L	1	12/4/2014 5:28:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
MTBE	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
Chloroprene	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
Bromochloromethane	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
Chloroform	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
2,2-Dichloropropane	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
THF	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
Benzene	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
Dibromomethane	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
Trichloroethene	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
Methyl methacrylate	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
2-CEVE	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
cis-1,3-Dichloropropene	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
Methyl isobutyl ketone	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
trans-1,3-Dichloropropene	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
Toluene	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM

Qualifiers:	B Analyte detected in the associated Method Blank	D Dilution was required.
	DF Dilution Factor	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	N Tentatively identified compounds
	ND Not Detected at the RL	O RSD is greater than RSDlimit
	R RPD outside accepted recovery limits	R Percent Difference outside accepted limits

Environmental Chemistry Services, Inc.

Date: 05-Dec-14

Client: Ninyo & Moore
Work Order: 1412005
Project: NURA Garland
Lab ID: 1412005-01A

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	
Ethyl methacrylate	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
EDB	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
PCE	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
Chlorobenzene	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
Ethylbenzene	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
m,p-Xylene	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
Bromoform	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
Styrene	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
o-Xylene	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
1,2,3-Trichloropropane	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
trans-1,4-Dichloro-2-butene	ND	3.0		µg/L	1	12/4/2014 5:28:00 PM
Isopropylbenzene	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
Bromobenzene	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
n-Propylbenzene	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
2-Chlorotoluene	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
4-Chlorotoluene	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
Pentachloroethane	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
1,3,5-Trimethylbenzene	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
tert-Butylbenzene	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
DBCP	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
sec-Butylbenzene	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
1,2,4-Trimethylbenzene	7.6	2.0		µg/L	1	12/4/2014 5:28:00 PM
1,3-Dichlorobenzene	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
4-Isopropyltoluene	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/4/2014 5:28:00 PM
1,2-Dichlorobenzene	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
n-Butylbenzene	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
1,2,4-Trichlorobenzene	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
Naphthalene	15	2.0		µg/L	1	12/4/2014 5:28:00 PM
Hexachlorobutadiene	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
1,2,3-Trichlorobenzene	ND	2.0		µg/L	1	12/4/2014 5:28:00 PM
Surr: Dibromofluoromethane	102	50-150		%REC	1	12/4/2014 5:28:00 PM
Surr: 1,2-Dichloroethane-d4	95.7	50-150		%REC	1	12/4/2014 5:28:00 PM
Surr: Toluene-d8	98.0	50-150		%REC	1	12/4/2014 5:28:00 PM
Surr: 4-Bromofluorobenzene	100	50-150		%REC	1	12/4/2014 5:28:00 PM

Qualifiers:						
B	Analyte detected in the associated Method Blank	D	Dilution was required.			
DF	Dilution Factor	E	Value above quantitation range			
H	Holding times for preparation or analysis exceeded	N	Tentatively identified compounds			
ND	Not Detected at the RL	O	RSD is greater than RSDlimit			
R	RPD outside accepted recovery limits	R	Percent Difference outside accepted limits			

Environmental Chemistry Services, Inc.

Date: 05-Dec-14

Client: Ninyo & Moore
Work Order: 1412005
Project: NURA Garland
Lab ID: 1412005-02A

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	
1,4-Dioxane	ND	4.0		µg/L	1	12/4/2014 5:54:00 PM
Acrolein	ND	4.0		µg/L	1	12/4/2014 5:54:00 PM
Acrylonitrile	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
Dichlorodifluoromethane	ND	3.0		µg/L	1	12/4/2014 5:54:00 PM
Chloromethane	ND	3.0		µg/L	1	12/4/2014 5:54:00 PM
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 PM
Freon-11	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
Methylene chloride	ND	5.0		µg/L	1	12/4/2014 5:54:00 PM
Freon-113	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
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 PM
MTBE	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
Chloroprene	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
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 PM
2,2-Dichloropropane	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
THF	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
Benzene	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
Dibromomethane	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
Trichloroethene	2.4	1.0		µg/L	1	12/4/2014 5:54:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
Methyl methacrylate	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
2-CEVE	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
cis-1,3-Dichloropropene	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
Methyl isobutyl ketone	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
trans-1,3-Dichloropropene	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
Toluene	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required.
	DF	Dilution Factor	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	N	Tentatively identified compounds
	ND	Not Detected at the RL	O	RSD is greater than RSDlimit
	R	RPD outside accepted recovery limits	R	Percent Difference outside accepted limits

Environmental Chemistry Services, Inc.

Date: 05-Dec-14

Client: Ninyo & Moore
Work Order: 1412005
Project: NURA Garland
Lab ID: 1412005-02A

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 PM
Dibromochloromethane	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
EDB	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
PCE	57	1.0		µg/L	1	12/4/2014 5:54:00 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
Chlorobenzene	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
Ethylbenzene	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
m,p-Xylene	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
Bromoform	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
Styrene	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
o-Xylene	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
1,2,3-Trichloropropane	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
trans-1,4-Dichloro-2-butene	ND	3.0		µg/L	1	12/4/2014 5:54:00 PM
Isopropylbenzene	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
Bromobenzene	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
n-Propylbenzene	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
2-Chlorotoluene	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
4-Chlorotoluene	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
Pentachloroethane	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
1,3,5-Trimethylbenzene	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
tert-Butylbenzene	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
DBCP	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
sec-Butylbenzene	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
1,2,4-Trimethylbenzene	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
1,3-Dichlorobenzene	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
4-Isopropyltoluene	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/4/2014 5:54:00 PM
1,2-Dichlorobenzene	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
n-Butylbenzene	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
1,2,4-Trichlorobenzene	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
Naphthalene	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
Hexachlorobutadiene	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
1,2,3-Trichlorobenzene	ND	2.0		µg/L	1	12/4/2014 5:54:00 PM
Surr: Dibromofluoromethane	101	50-150		%REC	1	12/4/2014 5:54:00 PM
Surr: 1,2-Dichloroethane-d4	95.2	50-150		%REC	1	12/4/2014 5:54:00 PM
Surr: Toluene-d8	98.4	50-150		%REC	1	12/4/2014 5:54:00 PM
Surr: 4-Bromofluorobenzene	100	50-150		%REC	1	12/4/2014 5:54:00 PM

Qualifiers:						
B	Analyte detected in the associated Method Blank	D	Dilution was required.			
DF	Dilution Factor	E	Value above quantitation range			
H	Holding times for preparation or analysis exceeded	N	Tentatively identified compounds			
ND	Not Detected at the RL	O	RSD is greater than RSDlimit			
R	RPD outside accepted recovery limits	R	Percent Difference outside accepted limits			

Environmental Chemistry Services, Inc.

Date: 05-Dec-14

Client: Ninyo & Moore
Work Order: 1412005
Project: NURA Garland
Lab ID: 1412005-03A

Client Sample ID: MW-17
Canister ID:
Collection Date: 12/3/2014 11:38:00 AM
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 6:20:00 PM
Acrolein	ND	4.0		µg/L	1	12/4/2014 6:20:00 PM
Acrylonitrile	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
Dichlorodifluoromethane	ND	3.0		µg/L	1	12/4/2014 6:20:00 PM
Chloromethane	ND	3.0		µg/L	1	12/4/2014 6:20:00 PM
Vinyl chloride	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
Bromomethane	ND	3.0		µg/L	1	12/4/2014 6:20:00 PM
Chloroethane	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
Freon-11	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
Methylene chloride	ND	5.0		µg/L	1	12/4/2014 6:20:00 PM
Freon-113	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
Carbon disulfide	ND	6.0		µg/L	1	12/4/2014 6:20:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
MTBE	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
Chloroprene	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
Bromochloromethane	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
Chloroform	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
2,2-Dichloropropane	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
THF	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
Benzene	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
Dibromomethane	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
Trichloroethene	3.4	1.0		µg/L	1	12/4/2014 6:20:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
Methyl methacrylate	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
2-CEVE	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
cis-1,3-Dichloropropene	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
Methyl isobutyl ketone	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
trans-1,3-Dichloropropene	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
Toluene	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required.
	DF	Dilution Factor	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	N	Tentatively identified compounds
	ND	Not Detected at the RL	O	RSD is greater than RSDlimit
	R	RPD outside accepted recovery limits	R	Percent Difference outside accepted limits

Environmental Chemistry Services, Inc.

Date: 05-Dec-14

Client: Ninyo & Moore
Work Order: 1412005
Project: NURA Garland
Lab ID: 1412005-03A

Client Sample ID: MW-17
Canister ID:
Collection Date: 12/3/2014 11:38:00 AM
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 6:20:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
EDB	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
PCE	210	5.0	D	µg/L	5	12/5/2014 12:29:00 AM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
Chlorobenzene	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
Ethylbenzene	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
m,p-Xylene	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
Bromoform	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
Styrene	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
o-Xylene	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
1,2,3-Trichloropropane	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
trans-1,4-Dichloro-2-butene	ND	3.0		µg/L	1	12/4/2014 6:20:00 PM
Isopropylbenzene	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
Bromobenzene	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
n-Propylbenzene	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
2-Chlorotoluene	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
4-Chlorotoluene	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
Pentachloroethane	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
1,3,5-Trimethylbenzene	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
tert-Butylbenzene	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
DBCP	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
sec-Butylbenzene	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
1,2,4-Trimethylbenzene	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
1,3-Dichlorobenzene	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
4-Isopropyltoluene	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/4/2014 6:20:00 PM
1,2-Dichlorobenzene	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
n-Butylbenzene	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
1,2,4-Trichlorobenzene	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
Naphthalene	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
Hexachlorobutadiene	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
1,2,3-Trichlorobenzene	ND	2.0		µg/L	1	12/4/2014 6:20:00 PM
Surr: Dibromofluoromethane	101	50-150		%REC	1	12/4/2014 6:20:00 PM
Surr: 1,2-Dichloroethane-d4	95.0	50-150		%REC	1	12/4/2014 6:20:00 PM
Surr: Toluene-d8	99.1	50-150		%REC	1	12/4/2014 6:20:00 PM
Surr: 4-Bromofluorobenzene	101	50-150		%REC	1	12/4/2014 6:20:00 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required.
	DF	Dilution Factor	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	N	Tentatively identified compounds
	ND	Not Detected at the RL	O	RSD is greater than RSDlimit
	R	RPD outside accepted recovery limits	R	Percent Difference outside accepted limits



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

Client: Ninyo & Moore
Project: NURA Garland

BatchID: R1618

Sample ID	LCS	SampType: LCS	TestCode: 8260B_W	Units: µg/L	Prep Date:	RunNo: 1618					
Client ID:	LCSW	Batch ID: R1618	TestNo: SW8260B	Analysis Date: 12/4/2014	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	LCSS02	SampType: LCSS02	TestCode: 8260B_W	Units: µg/L	Prep Date:	RunNo: 1618					
Client ID:	LCSS02	Batch ID: R1618	TestNo: SW8260B	Analysis Date: 12/4/2014	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:

B	Analyte detected in the associated Method Blank	D	Dilution was required.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the RL	O	RSD is greater than RSDlimit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted reco



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 Website: www.ecs-corp.com

QC SUMMARY REPORT

Work Order: **1412005**
05-Dec-14

Client: Ninyo & Moore
Project: NURA Garland

BatchID: R1618

Sample ID MBLK	SampType: MBLK	TestCode: 8260B_W	Units: µg/L	Prep Date:	RunNo: 1618						
Client ID: PBW	Batch ID: R1618	TestNo: SW8260B		Analysis Date: 12/4/2014	SeqNo: 21336						
Analyte	Result	PQL	SPK 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									
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 detected in the associated Method Blank D Dilution was required. E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the RL O RSD is greater than RSDlimit
 R RPD outside accepted recovery limits RL Reporting Limit S Spike Recovery outside accepted reco



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QC SUMMARY REPORT

Work Order: **1412005**
05-Dec-14

Client: Ninyo & Moore
Project: NURA Garland

BatchID: R1618

Sample ID MBLK	SampType: MBLK	TestCode: 8260B_W	Units: µg/L	Prep Date:	RunNo: 1618						
Client ID: PBW	Batch ID: R1618	TestNo: SW8260B		Analysis Date: 12/4/2014	SeqNo: 21336						
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 detected in the associated Method Blank D Dilution was required. E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the RL O RSD is greater than RSDlimit
 R RPD outside accepted recovery limits RL Reporting Limit S Spike Recovery outside accepted reco



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QC SUMMARY REPORT

Work Order: **1412005**
05-Dec-14

Client: Ninyo & Moore
Project: NURA Garland

BatchID: R1618

Sample ID MBLK	SampType: MBLK	TestCode: 8260B_W	Units: µg/L	Prep Date:	RunNo: 1618						
Client ID: PBW	Batch ID: R1618	TestNo: SW8260B		Analysis Date: 12/4/2014	SeqNo: 21336						
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:

B	Analyte detected in the associated Method Blank	D	Dilution was required.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the RL	O	RSD is greater than RSDlimit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted reco



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Castle Rock, CO 80104-1885
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QC SUMMARY REPORT

Work Order: 1412005
05-Dec-14

Client: Ninyo & Moore
Project: NURA Garland

BatchID: R1618

Qualifiers: B Analyte detected in the associated Method Blank D Dilution was required. E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the RL O RSD is greater than RSDlimit
R RPD outside accepted recovery limits RL Reporting Limit S Spike Recovery outside accepted reco



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

December 29, 2014

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,

A handwritten signature in blue ink, appearing to be "Kris Mascarenas", written in a cursive style.

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.

Environmental Chemistry Services, Inc.

Date: 29-Dec-14

Client: Ninyo & Moore
Work Order: 1412070
Project: NURA Garland
Lab ID: 1412070-01A

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	
1,4-Dioxane	ND	4.0		µg/L	1	12/29/2014 12:53:00 PM
Acrolein	ND	4.0		µg/L	1	12/29/2014 12:53:00 PM
Acrylonitrile	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
Dichlorodifluoromethane	ND	3.0		µg/L	1	12/29/2014 12:53:00 PM
Chloromethane	ND	3.0		µg/L	1	12/29/2014 12:53:00 PM
Vinyl chloride	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
Bromomethane	ND	3.0		µg/L	1	12/29/2014 12:53:00 PM
Chloroethane	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
Freon-11	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
Methylene chloride	ND	5.0		µg/L	1	12/29/2014 12:53:00 PM
Freon-113	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
Carbon disulfide	ND	6.0		µg/L	1	12/29/2014 12:53:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
MTBE	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
Chloroprene	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
Bromochloromethane	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
Chloroform	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
2,2-Dichloropropane	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
THF	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
Benzene	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
Dibromomethane	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
Trichloroethene	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
Methyl methacrylate	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
2-CEVE	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
cis-1,3-Dichloropropene	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
Methyl isobutyl ketone	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
trans-1,3-Dichloropropene	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
Toluene	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required.
	DF	Dilution Factor	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	N	Tentatively identified compounds
	ND	Not Detected at the RL	O	RSD is greater than RSDlimit
	R	RPD outside accepted recovery limits	R	Percent Difference outside accepted limits

Environmental Chemistry Services, Inc.

Date: 29-Dec-14

Client: Ninyo & Moore
Work Order: 1412070
Project: NURA Garland
Lab ID: 1412070-01A

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 PM
Dibromochloromethane	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
EDB	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
PCE	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
Chlorobenzene	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
Ethylbenzene	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
m,p-Xylene	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
Bromoform	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
Styrene	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
o-Xylene	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
1,2,3-Trichloropropane	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
trans-1,4-Dichloro-2-butene	ND	3.0		µg/L	1	12/29/2014 12:53:00 PM
Isopropylbenzene	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
Bromobenzene	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
n-Propylbenzene	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
2-Chlorotoluene	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
4-Chlorotoluene	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
Pentachloroethane	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
1,3,5-Trimethylbenzene	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
tert-Butylbenzene	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
DBCP	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
sec-Butylbenzene	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
1,2,4-Trimethylbenzene	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
1,3-Dichlorobenzene	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
4-Isopropyltoluene	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/29/2014 12:53:00 PM
1,2-Dichlorobenzene	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
n-Butylbenzene	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
1,2,4-Trichlorobenzene	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
Naphthalene	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
Hexachlorobutadiene	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
1,2,3-Trichlorobenzene	ND	2.0		µg/L	1	12/29/2014 12:53:00 PM
Surr: Dibromofluoromethane	103	50-150		%REC	1	12/29/2014 12:53:00 PM
Surr: 1,2-Dichloroethane-d4	85.1	50-150		%REC	1	12/29/2014 12:53:00 PM
Surr: Toluene-d8	98.5	50-150		%REC	1	12/29/2014 12:53:00 PM
Surr: 4-Bromofluorobenzene	106	50-150		%REC	1	12/29/2014 12:53:00 PM

Qualifiers:						
B	Analyte detected in the associated Method Blank	D	Dilution was required.			
DF	Dilution Factor	E	Value above quantitation range			
H	Holding times for preparation or analysis exceeded	N	Tentatively identified compounds			
ND	Not Detected at the RL	O	RSD is greater than RSDlimit			
R	RPD outside accepted recovery limits	R	Percent Difference outside accepted limits			

Environmental Chemistry Services, Inc.

Date: 29-Dec-14

Client: Ninyo & Moore
Work Order: 1412070
Project: NURA Garland
Lab ID: 1412070-02A

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	
1,4-Dioxane	ND	4.0		µg/L	1	12/29/2014 1:19:00 PM
Acrolein	ND	4.0		µg/L	1	12/29/2014 1:19:00 PM
Acrylonitrile	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
Dichlorodifluoromethane	ND	3.0		µg/L	1	12/29/2014 1:19:00 PM
Chloromethane	ND	3.0		µg/L	1	12/29/2014 1:19:00 PM
Vinyl chloride	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
Bromomethane	ND	3.0		µg/L	1	12/29/2014 1:19:00 PM
Chloroethane	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
Freon-11	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
Methylene chloride	ND	5.0		µg/L	1	12/29/2014 1:19:00 PM
Freon-113	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
Carbon disulfide	ND	6.0		µg/L	1	12/29/2014 1:19:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
MTBE	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
Chloroprene	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
Bromochloromethane	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
Chloroform	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
2,2-Dichloropropane	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
THF	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
Benzene	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
Dibromomethane	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
Trichloroethene	2.1	1.0		µg/L	1	12/29/2014 1:19:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
Methyl methacrylate	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
2-CEVE	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
cis-1,3-Dichloropropene	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
Methyl isobutyl ketone	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
trans-1,3-Dichloropropene	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
Toluene	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required.
	DF	Dilution Factor	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	N	Tentatively identified compounds
	ND	Not Detected at the RL	O	RSD is greater than RSDlimit
	R	RPD outside accepted recovery limits	R	Percent Difference outside accepted limits

Environmental Chemistry Services, Inc.

Date: 29-Dec-14

Client: Ninyo & Moore
Work Order: 1412070
Project: NURA Garland
Lab ID: 1412070-02A

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 PM
Dibromochloromethane	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
EDB	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
PCE	45	1.0		µg/L	1	12/29/2014 1:19:00 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
Chlorobenzene	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
Ethylbenzene	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
m,p-Xylene	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
Bromoform	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
Styrene	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
o-Xylene	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
1,2,3-Trichloropropane	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
trans-1,4-Dichloro-2-butene	ND	3.0		µg/L	1	12/29/2014 1:19:00 PM
Isopropylbenzene	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
Bromobenzene	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
n-Propylbenzene	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
2-Chlorotoluene	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
4-Chlorotoluene	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
Pentachloroethane	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
1,3,5-Trimethylbenzene	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
tert-Butylbenzene	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
DBCP	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
sec-Butylbenzene	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
1,2,4-Trimethylbenzene	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
1,3-Dichlorobenzene	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
4-Isopropyltoluene	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/29/2014 1:19:00 PM
1,2-Dichlorobenzene	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
n-Butylbenzene	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
1,2,4-Trichlorobenzene	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
Naphthalene	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
Hexachlorobutadiene	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
1,2,3-Trichlorobenzene	ND	2.0		µg/L	1	12/29/2014 1:19:00 PM
Surr: Dibromofluoromethane	104	50-150		%REC	1	12/29/2014 1:19:00 PM
Surr: 1,2-Dichloroethane-d4	85.1	50-150		%REC	1	12/29/2014 1:19:00 PM
Surr: Toluene-d8	98.6	50-150		%REC	1	12/29/2014 1:19:00 PM
Surr: 4-Bromofluorobenzene	107	50-150		%REC	1	12/29/2014 1:19:00 PM

Qualifiers:					
B	Analyte detected in the associated Method Blank	D	Dilution was required.		
DF	Dilution Factor	E	Value above quantitation range		
H	Holding times for preparation or analysis exceeded	N	Tentatively identified compounds		
ND	Not Detected at the RL	O	RSD is greater than RSDlimit		
R	RPD outside accepted recovery limits	R	Percent Difference outside accepted limits		

Environmental Chemistry Services, Inc.

Date: 29-Dec-14

Client: Ninyo & Moore
Work Order: 1412070
Project: NURA Garland
Lab ID: 1412070-03A

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: SW8260B			Analyst: KM	
1,4-Dioxane	ND	4.0		µg/L	1	12/29/2014 1:44:00 PM
Acrolein	ND	4.0		µg/L	1	12/29/2014 1:44:00 PM
Acrylonitrile	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
Dichlorodifluoromethane	ND	3.0		µg/L	1	12/29/2014 1:44:00 PM
Chloromethane	ND	3.0		µg/L	1	12/29/2014 1:44:00 PM
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 PM
Freon-11	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
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 PM
MTBE	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
Chloroprene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
Bromochloromethane	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
Chloroform	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
2,2-Dichloropropane	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
THF	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
Benzene	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
Dibromomethane	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
Trichloroethene	3.0	1.0		µg/L	1	12/29/2014 1:44:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
Methyl methacrylate	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
2-CEVE	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
cis-1,3-Dichloropropene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
Methyl isobutyl ketone	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
trans-1,3-Dichloropropene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
Toluene	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required.
	DF	Dilution Factor	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	N	Tentatively identified compounds
	ND	Not Detected at the RL	O	RSD is greater than RSDlimit
	R	RPD outside accepted recovery limits	R	Percent Difference outside accepted limits

Environmental Chemistry Services, Inc.

Date: 29-Dec-14

Client: Ninyo & Moore
Work Order: 1412070
Project: NURA Garland
Lab ID: 1412070-03A

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: SW8260B			Analyst: KM	
Ethyl methacrylate	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
EDB	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
PCE	210	2.0	D	µg/L	2	12/29/2014 2:11:00 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
Chlorobenzene	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
Ethylbenzene	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
m,p-Xylene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
Bromoform	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
Styrene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
o-Xylene	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
1,2,3-Trichloropropane	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
trans-1,4-Dichloro-2-butene	ND	3.0		µg/L	1	12/29/2014 1:44:00 PM
Isopropylbenzene	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
Bromobenzene	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
n-Propylbenzene	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
2-Chlorotoluene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
4-Chlorotoluene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
Pentachloroethane	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
1,3,5-Trimethylbenzene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
tert-Butylbenzene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
DBCP	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
sec-Butylbenzene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
1,2,4-Trimethylbenzene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
1,3-Dichlorobenzene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
4-Isopropyltoluene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/29/2014 1:44:00 PM
1,2-Dichlorobenzene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
n-Butylbenzene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
1,2,4-Trichlorobenzene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
Naphthalene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
Hexachlorobutadiene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
1,2,3-Trichlorobenzene	ND	2.0		µg/L	1	12/29/2014 1:44:00 PM
Surr: Dibromofluoromethane	104	50-150		%REC	1	12/29/2014 1:44:00 PM
Surr: 1,2-Dichloroethane-d4	85.7	50-150		%REC	1	12/29/2014 1:44:00 PM
Surr: Toluene-d8	98.2	50-150		%REC	1	12/29/2014 1:44:00 PM
Surr: 4-Bromofluorobenzene	107	50-150		%REC	1	12/29/2014 1:44:00 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required.
	DF	Dilution Factor	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	N	Tentatively identified compounds
	ND	Not Detected at the RL	O	RSD is greater than RSDlimit
	R	RPD outside accepted recovery limits	R	Percent Difference outside accepted limits



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QC SUMMARY REPORT

Work Order: **1412070**
29-Dec-14

Client: Ninyo & Moore
Project: NURA Garland

BatchID: R1683

Sample ID	LCS	SampType:	LCS	TestCode:	8260B_W	Units:	µg/L	Prep Date:	RunNo:	1683	
Client ID:	LCSW	Batch ID:	R1683	TestNo:	SW8260B	Analysis Date:	12/29/2014	SeqNo:	22360		
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	LCSS02	SampType:	LCSS02	TestCode:	8260B_W	Units:	µg/L	Prep Date:	RunNo:	1683	
Client ID:	LCSS02	Batch ID:	R1683	TestNo:	SW8260B	Analysis Date:	12/29/2014	SeqNo:	22361		
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: B Analyte detected in the associated Method Blank D Dilution was required. E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the RL O RSD is greater than RSDlimit
 R RPD outside accepted recovery limits RL Reporting Limit S Spike Recovery outside accepted reco



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QC SUMMARY REPORT

Work Order: **1412070**
29-Dec-14

Client: Ninyo & Moore
Project: NURA Garland

BatchID: R1683

Sample ID MBLK	SampType: MBLK	TestCode: 8260B_W	Units: µg/L	Prep Date:	RunNo: 1683						
Client ID: PBW	Batch ID: R1683	TestNo: SW8260B		Analysis Date: 12/29/2014	SeqNo: 22362						
Analyte	Result	PQL	SPK 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									
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 detected in the associated Method Blank D Dilution was required. E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the RL O RSD is greater than RSDlimit
 R RPD outside accepted recovery limits RL Reporting Limit S Spike Recovery outside accepted reco



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QC SUMMARY REPORT

Work Order: **1412070**
29-Dec-14

Client: Ninyo & Moore
Project: NURA Garland

BatchID: R1683

Sample ID MBLK	SampType: MBLK	TestCode: 8260B_W	Units: µg/L	Prep Date:	RunNo: 1683						
Client ID: PBW	Batch ID: R1683	TestNo: SW8260B		Analysis Date: 12/29/2014	SeqNo: 22362						
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									

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BatchID: R1683

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Client ID: PBW	Batch ID: R1683	TestNo: SW8260B		Analysis Date: 12/29/2014	SeqNo: 22362						
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				

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