ADDENDUM 1 TO FOCUSED SUBSURFACE INVESTIGATION

SAFEWAY FUELING CENTER #1235
2204 W NOB HILL BOULEVARD
YAKIMA, WASHINGTON

FACILITY/SITE ID NO. 5883805

VCP NO. CE0407

Prepared for:

ARGONAUT INVESTMENTS

770 Tamalpais Dr., #401B
Corte Madera, CA 94925

Prepared by:

EVREN NORTHWEST INC.
environmental natural resource consultants

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June 29, 2014

ENW Project No. 773-13001-03

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State of Washington
Engineering Geologist
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Exp. 8/14/2014
Lynn D. Green
June 29, 2014

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AUG 27 2014
REGIONAL OFFICE

TABLE OF CONTENTS

TABLES, FIGURES AND APPENDICES

ACRONYMS AND ABBREVIATIONS

BTEX	benzene, toluene, ethylbenzene and xylenes
bgs	below ground surface
Client	Argonaut Investments (dba, ARGO Yakima, LLC)
COIs	constituents of interest
COPCs	constituents of potential concern
CY	cubic yards
DID	Drainage Improvement Ditch
DRO	diesel-range organics
Ecology	Washington Department of Ecology
ENW	EVREN Northwest, Inc.
EPA	US Environmental Protection Agency
Mercy	Mercy Development Company
µg/L	micrograms per Liter
mg/Kg	milligrams per kilogram
MTCA	Model Toxics Control Act
PAHs	polynuclear aromatic hydrocarbons
PCS	petroleum-impacted soil
PQL	practical quantification limit
RRO	residual (lube oil)-range organics
RSLs	Regional Screening Levels
SOW	scope of work
TPH	total petroleum hydrocarbon
UST	underground storage tank
VCP	Voluntary Cleanup Program
VOCs	volatile organic constituents
WAC	Washington Administrative Code

EXECUTIVE SUMMARY

On behalf of Argonaut Investments (dba, ARGO Yakima, LLC), EVREN Northwest, Inc. presents this Addendum 1 to the Focused Subsurface Investigation report previously issued in May 2014 for the Safeway Fueling Center #1235, located at 2204 W Nob Hill Boulevard, Yakima, Washington. This site is listed with the Washington State Department of Ecology's Voluntary Cleanup Program (VCP No. CE0407) for residual impacts from a historical release of diesel and oil-range petroleum hydrocarbons and associated constituents. The *Focused Subsurface Investigation*, dated May 8, 2014, addressed identified data gaps and provided additional information required to achieve site closure from Ecology.

Ecology staff have indicated that site characterization and delineation of impacts have been completed, and that previous soil removals have accomplished the cleanup standards established for the site. However additional ground water monitoring is required to assure the Department that post-cleanup controls will be sufficient to protect potential future human receptors at the site. As has been previously conceptually agreed in discussions between EVREN Northwest and Ecology staff, the purpose of this addendum is to present additional analytical data for two ground water monitoring well locations. Additional monitoring data will be generated and presented to Ecology staff for the next three quarters as well in a future addendums (Quarterly Monitoring Reports) to the *Focused Subsurface Investigation*.

Monitoring well sampling activities reported in this Addendum 1 were performed in April 2014. Since the monitoring well samples were properly preserved in the field with aliquots of hydrochloric acid at the request of ENW, the two monitoring well ground water samples were analyzed for diesel-and oil-range organics even though both samples were out of acceptable hold time. After removing organic interference by passing the samples through a silica gel column, both samples were "non-detect" for both diesel and oil-range organics. Therefore these first quarterly monitoring results support the finding that the site has been remediated to Model Toxics Control Act Method A Cleanup Levels. Three additional quarters of monitoring of the two monitoring wells will be reported in the future.

1.0 INTRODUCTION

On behalf of Argonaut Investments (dba, ARGO Yakima, LLC), EVREN Northwest, Inc. (ENW) presents this Addendum 1 to the Focused Subsurface Investigation[1] for the Safeway Fueling Center #1235, located at 2204 W Nob Hill Boulevard, Yakima, Washington (Figures 1, 2 and 3; subject site). This Addendum provides additional ground water data from samples collected in April 2014.

1.1 Background

In February 2004, a Washington Department of Ecology (Ecology)-approved independent cleanup action[2] was conducted by Mercy Development Company (Mercy) at its property located at 2204 W Nob Hill Boulevard, Yakima, Washington. The site had been impacted by releases of petroleum hydrocarbons, possibly from an underground storage tank (UST) system, dry wells, and/or other sources. The objective of the cleanup action was to remove petroleum-impacted soil (PCS) and recover separate-phase petroleum hydrocarbons from the north-central portion of the parking lot for the purpose of progressing toward site closure.

The independent cleanup action consisted of the excavation of 960 cubic yards (CY) of soil from depths ranging from 6 feet to 16 feet below ground surface (bgs), re-use as fill of the upper 5 feet of clean soil overburden (330 cubic yards) removed from the excavation, disposal of 630 CY (1,005 tons) of PCS at the Anderson PCS facility, use of sorbent pads and booms to recover oily sheen on the surface of water in the excavation, and collection of confirmation soil samples from the floor and sidewalls of the excavation for laboratory analysis. Confirmation sampling results indicated that residual petroleum hydrocarbons in soils contained less than the Model Toxics Control Act (MTCA) Method A Cleanup Level of 2,000 milligrams per kilogram (mg/Kg). However, confirmation soil samples collected by the removal consultant, Landau Associates, were not analyzed for all constituents typical of DRO and RRO impacts, as required by MTCA. Additionally, ground water was not characterized following the independent cleanup action, and nearby monitoring well KMW-04 had not been monitored since the early 2000s.

With input from Ecology[3], ENW developed a *Work Plan*[4] for a focused subsurface investigation under Ecology's Voluntary Cleanup Program (VCP) consistent with the requirements of MTCA

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[1] ENW, May 8, 2014, *Focused Subsurface Investigation*, Safeway Fueling Center #1235, 2204 West Nob Hill Boulevard, Yakima, Washington, Facility/Site ID#: 5883805, VCP #CE0407: Prepared for Argonaut Investments, 770 Tamalpais Drive, Suite 401B, Corte Madera, California 94925, 8 pages, 2 tables, 5 figures, and 4 appendices.

[2] Landau Associates, 2004, *Cleanup Report*, Mercy Development Company Property, 2204 West Nob Hill Boulevard, Yakima, Washington: Prepared for Mercy Development Company, Yakima, Washington, dated April 22, 2004, 8 pages, 3 figures, 1 table, and 4 appendices.

[3] Personal communication with Norm Peck, Washington Department of Ecology, July 2013.

[4] ENW, January 2014, *Work Plan, Data Gap Investigation*, Safeway Fueling Center #1235, 2204 West Nob Hill Boulevard, Yakima, Washington, Facility/Site ID#: 5883805: Prepared for Argonaut Investments, Attn: Jon Lefferts, 770 Tamalpais Drive, Suite 401B, Corte Madera, California 94925, 12 pages, 2 tables, 4 figures.

Cleanup Regulation Chapter 173-340 of the Washington Administrative Code (WAC). The purpose of the focused subsurface investigation was to address identified data gaps, to provide information required to progress toward site closure and a "No Further Action" determination from Ecology.

On March 19, 2014, ARGO Yakima, LLC received letter confirmation[5] of its acceptance into Ecology's VCP. Ecology assigned Mr. Norm Peck as the site manager, and updated its database to reflect ARGO Yakima, LLC's participation in the program (VCP No. CE0407).

ENW's Focused Subsurface Investigation consisted of measuring ground water levels in eight monitoring wells, confirming a southeastward ground water flow direction, and installing boring EB1A immediately down-gradient from the former impacted soil removal excavation. A soil sample collected from EB1A at 12 feet bgs was non-detect for diesel-range and residual oil-range organics (DRO and RRO, respectively), benzene, toluene, ethylbenzene, and xylenes (BTEX). Only a few polynuclear aromatic hydrocarbons (PAHs) were detected at concentrations well below their MTCA Method A Cleanup Level for unrestricted land use. This data confirmed 2004 soil confirmation results indicating that the residual impacted soils did not present an unacceptable health risk to future human receptors. A reconnaissance ground water sample collected from EB1A was analyzed for DRO, RRO, BTEX, and PAHs, with only DRO and a few low concentration PAHs being detected. All ground water constituents were below their applicable MTCA Method A Cleanup Levels.

Ecology indicated that while existing data appeared to indicate that cleanup levels had been attained, data from properly constructed ground water monitoring wells were needed to confirm these initial results. ENW, on behalf of ARGO, proposed to analyze ground water samples collected from KMW-04 and EPI-MW-2 during the April 2014 event. These samples were not initially analyzed. Although the samples exceeded the established analytical hold times for NWTPH-Dx analysis, the laboratory manager indicated that reliable results could still be obtained because the samples were preserved with hydrochloric acid. Ecology agreed pending confirmation that the samples were preserved, that the data could prove useful and the basis for reaching a conditional "No Further Action" determination for the site. The condition of Ecology's determination would be four quarters of monitoring of KMW-04 and EPI-MW-2, after which an unconditional "No Further Action" determination could be reached if DRO/RRO and related constituents continued to be lower than MTCA Method A Cleanup Levels.

1.2 Purpose

The purpose of this Addendum is to present additional monitoring well data to supplement initial findings[6] that DRO/RRO and related constituents are not present in ground water hydraulically down-gradient of the former remedial excavation at concentrations that exceed MTCA Method A Cleanup Levels. These initial findings and supplemental data described herein are intended to

[5] Washington Department of Ecology, March 19, 2014, Letter addressed to Mr. Jon Lefferts, ARGO Yakima, LLC, 770 Tamalpais Dr. #401B, Corte Madera CA 94925.

[6] From analysis of reconnaissance ground water sample EB1A-GW-13.

support a conditional "No Further Action" determination from Ecology for the site and serve as a baseline for three (3) subsequent quarterly ground water monitoring events including sampling of KMW-04 and EPI-MW-2.

1.3 Scope

ENW performed the following scope of work (SOW) for Addendum 1 of this project:

- Purged and sampled wells KMW-04 and the western-most Safeway Well (also known as EPI-MW-2). The locations of these wells are shown on Figure 3
- Submitted samples for selected laboratory analyses under chain-of-custody protocols in accordance with the project-specific Sampling and Analysis Plan.
- Evaluated analytical results with respect to Washington State MTCA Cleanup Levels and associated guidance documents.
- Prepared this Addendum 1 documenting the additional ground water data.

The following sections of this addendum provide a site description, describe methods and procedures used, present findings, conduct a risk assessment, and then present conclusions.

2.0 METHODS AND PROCEDURES

This section describes the methods and procedures used to purge and sample ground water monitoring wells KMW-04 and EPI-MW-02. Work performed for this addendum was developed with the following specific objectives:

- To conduct adequate and cost-effective ground water monitoring for the purposes of assessing ground water impacts to the site, if any, and in providing information that can be used by the Client as a baseline for future quarterly monitoring for the site.
- To perform ground water monitoring in a manner safe for technical personnel on-site, and that would result in minimal, if any, impacts to the property.
- To document information and data generated under this statement of work that is valid for the intended use.

The remainder of this section describes the methods and procedures used for this ground water monitoring addendum. Field Data Sampling Sheets are included in Appendix A, and laboratory analytical reports are included in Appendix B. Findings are presented in Section 3.

2.1 Monitoring Well Sampling

On April 9, 2014, monitoring wells KMW-04 and EPI-MW-2 were sampled with a peristaltic pump, dedicated Teflon tubing, and using the low-flow sampling technique. Samples were collected when the water parameters stabilized after initial low-flow sampling. Care was taken not to agitate the column of water in each monitoring well, and to pump at a minimal flow rate which would not appreciably disturb the water level in the well (not greater than 0.3 feet of drawdown). Samples collected for DRO/RRO analysis were collected in a Boston Rounds container with an aliquot of hydrochloric acid. Samples collected for PAH analysis were collected in an unpreserved 1-liter amber Boston rounds container. After sealing, each container was labeled with the sample location, date, time, sampler name, and analysis required. All sampling data were recorded on Field Sampling Data Sheets for each monitoring well. Samples were immediately placed in cooled storage until delivered to the laboratory under chain-of-custody protocols.

2.2 Analytical Methods

Ground water samples were analyzed by Friedman & Bruya, Inc., of Seattle, Washington. The laboratory analytical reports, including quality control information, are provided in Appendix B.

All samples were analyzed according to the analytical plan and protocol presented in the following tables.

Table 2-1. Analytical Methods

Analytical Method	Constituents	Ground Water
NWTPH-Dx	Total Petroleum Hydrocarbons (TPH)-Diesel-Range quantification (DRO) and Residual (Oil)-Range quantification (RRO)	Both well samples
EPA 8270-SIM	Polynuclear Aromatic Hydrocarbons (PAHs), also include 1 methyl-naphthalene and 2-methyl-naphthalene	Only with detection of DRO

Table 2-2. Analytical Protocol

Analyte(s)	Analytical Method	Container and preservative	Holding time	Preservation
Ground Water:				
DRO/RRO	NWTPH-Dx	1 Liter amber bottle	14-days	Ice & HCl
PAHs	EPA Method 8270	1 Liter amber bottle	7-days*	Ice
Indicators (data collected during temporary well-point purge)	ORP	per instrument instructions	Field	
	Dissolved Oxygen	per instrument instructions	Field	
	pH	per instrument instructions	Field	
	Temperature	per instrument instructions	Field	
	Conductivity	per instrument instructions	Field	

*days for extraction; 40 days after extraction for analysis

Ground water samples collected from KMW-04 and EPI-MW-2 during the April 2014 event were submitted for analysis. These samples were not initially analyzed. Although the samples exceeded the established analytical hold times for NWTPH-Dx analysis, the laboratory manager indicated that reliable results could still be obtained because the samples were preserved with hydrochloric acid.

2.3 Cleanup Standards

2.3.1 Model Toxics Control Act (MTCA) Regulations

The State of Washington MTCA Regulations (WAC Chapter 173-340) sets numeric cleanup levels for "routine cleanup actions". "Routine cleanup actions" are defined as those sites where: 1) cleanup standards for each hazardous substance are obvious and undisputed, allowing for an adequate margin of safety for protection of human health and the environment; 2) does not require preparation of an environmental impact statement, and 3) qualifies for an exclusion from conducting a terrestrial ecological evaluation. Cleanup levels are defined as the concentration of a hazardous substance in soil, water, air, or sediment that is determined to be protective of human health and the environment under specified exposure conditions.

2.3.2 EPA Regional Screening Levels (RSLs)

For constituents that do not have established MTCA cleanup levels, ENW screened the analytical data against the EPA's 2012 Regional Screening Levels (RSLs). The RSLs combine current

human health toxicity values with standard exposure factors to estimate contaminant concentrations in environmental media (soil, air, and water) that are considered by the Agency to be health protective of human exposures (including sensitive groups) over a lifetime. The RSLs were developed using the criteria of acceptable additional risk of cancer from exposure with carcinogenic constituents less than one in one million incidences, or for non-carcinogenic constituents, below the constituent threshold concentration at which health impacts would occur (i.e., Hazard Quotient less than 1.0).

2.4 Waste Management and Disposal

All waste fluids ("decon" water) were drummed for future disposal and left on the site.

3.0 FINDINGS

ENW purged and sampled monitoring wells KMW-04 and EPI-MW-02 on April 9, 2014. Results are discussed in this section.

3.1 Limited Ground Water Monitoring

As described in the *Focused Subsurface Investigation***Error! Bookmark not defined.**, the monitoring wells listed in Table 4-1 were accessed and depth-to-water measurements taken on April 9, 2014. Ground water elevation was calculated by subtracting the depth-to-water measurement (measured to 0.01 feet accuracy) from the surveyed top-of-casing elevation of each monitoring well.

Table 4-1. Monitoring Well Construction

Monitoring Well Designation	Date	Depth of Well* ft.	Monitored Depth Interval (ft)	Top of Casing (ft)	Depth to Static Water Level (ft)	Relative Elevation (ft)
KMW-01	4/9/2014	20.60	5' - 20'	1083.16	15.06	1068.10
KMW-04	4/9/2014	17.10	5' - 20'	1082.45	9.93	1072.52
KMW-05	4/9/2014	18.95	5' - 20'	1082.78	9.74	1073.04
KMW-14	4/9/2014	18.72	5' - 20'	1082.39	13.49	1068.90
KMW-15	4/9/2014	19.60	5' - 20'	1083.39	11.92	1071.47
KMW-16	4/9/2014	20.35	5' - 20'	1083.29	11.73	1071.56
KMW-18	4/9/2014	19.05	5' - 20'	1085.35	10.18	1075.17
EPI-MW-2	4/9/2014	19.01	5' - 20'	1082.25	12.61	1069.64

* Depth of well measured in feet below top of casing (btoc) on 4/9/14

A southeastward ground-water flow direction and gradient was confirmed through monitoring water levels in existing wells east of the drainage improvement ditch (DID; see Figure 4). This data is consistent with historical ground-water flow direction determinations. It also confirms that the reconnaissance ground water sample collected from EB1A and monitoring well data from KMW-04 and EPI-MW-2 are representative of ground water hydraulically down-gradient from the former remedial excavation area.

3.2 Ground Water Analytical Results

A discussion of reconnaissance ground water sample EB1A-GW-13 analytical results was presented in the *Focused Subsurface Investigation*, so it will not be repeated in this addendum. However, analytical laboratory data for EB1A-GW-13 are included in Table 1 for completeness. Analytical laboratory results for KMW-04 and EPI-MW-2 are discussed below. These results corroborate the confirmation sample analyses conducted by Landau Associates2 in 2004.

For sample KMW-04:

- Based on consultation from the laboratory that the chromatographic signature obtained from initial analysis did not resemble the fuel standard used in the analysis; the sample extract was passed through a silica gel column prior to laboratory analysis. Results of the

analysis indicated that DRO and RRO concentrations were not detected above the method reporting limit, and therefore were below the MTCA Method A Cleanup Level.

For sample EPI-MW-2,

- Like sample KMW-04, the results were flagged by the laboratory that its chromatogram signature did not resemble the fuel standard used in the analysis. Therefore, the laboratory passed the sample extract through a silica gel column and then re-analyze the sample. Results of the analysis indicated that DRO was not detected above the method reporting limit.
- RRO was not detected above the method reporting limit.

Analytical data for ground water samples KMW-04 and EPI-MW-2 are presented in Table 1 (following text after Tables Tab).

3.2.1 MTCA Risk Evaluation

MTCA's three (3) methods for establishing cleanup levels are briefly described below.

Method A: Method A provides tables of cleanup levels that are protective of human health for the most common hazardous substances found in soil and ground water at sites. Note that these levels were developed by procedures of Method B. The Method A cleanup must meet the concentrations listed in the Method A table and, if not listed in the table, the concentration standards established under applicable state or federal laws. If neither the Method A table nor applicable state and federal laws provide an appropriate cleanup level, then natural background concentration or the practical quantification limit (PQL) may be used as the cleanup level. Method A is the simplest, most streamlined approach to cleanup, but is meant to be applied with sites that have releases of only a few, common, hazardous substances.

Method B: Method B provides cleanup levels using risk assessment equations developed for various exposure pathways, as well as by using standards specified by applicable state and federal laws. Standard Method B uses generic default assumptions; Modified Method B uses chemical-specific and/or site-specific parameters in calculating the cleanup levels. Natural background concentrations and PQLs are also considered in this method. Method B is considered the universal approach to site closure and is the method most commonly used.

Both Methods A and B do not permit cleanup levels that would allow impacts to ecological receptors unless it can be demonstrated that ecological impacts are not a concern at the site.

Method C: Method C is used at industrial sites with the most complex impacts, and employs less stringent exposure assumptions and less stringent lifetime cancer risks. Although ecological impacts are evaluated, only impacts to wildlife are considered during terrestrial ecological evaluation.

3.2.1.1 Ground Water

Table 1 shows that no constituents in ground water exceed MTCA Method A Clean-up Levels.

4.0 CONCLUSIONS

Addendum 1 presents additional data to supplement initial findings that DRO/RRO and related constituents are not present in ground water hydraulically down-gradient of the former remedial excavation at concentrations that exceed MTCA Method A Cleanup Levels. These initial findings and supplemental data described herein are intended to support a conditional "No Further Action" determination from Ecology for the site. Ecology's "No Further Action" determination is conditional upon completing four quarters of monitoring of KMW-04 and EPI-MW-2 without exceeding MTCA Method A Cleanup Levels in ground water samples from these wells. Upon demonstrating that DRO/RRO and related constituents are not detected hydraulically down-gradient of the remedial action area at concentrations that exceed MTCA Method A Cleanup Levels, Ecology would issue an unconditional "No Further Action" determination and grant regulatory closure of the site. Findings related to each scope are summarized here.

4.1 Residual DRO and RRO Constituents in Ground Water

Neither DRO nor RRO were detected above MTCA Method A Cleanup Levels in monitoring well samples collected from KMW-04 and EPI-MW-2 located hydraulically down-gradient of the former YSB-1 excavation. These results corroborate initial findings from the analysis of reconnaissance ground water sample EB1A-GW-13, that residual DRO/RRO do not occur in ground water down-gradient of the remedial excavation at concentrations in excess of MTCA Method A Cleanup Levels. Therefore, residual petroleum hydrocarbon impacts are unlikely to present an unacceptable risk to current or future site receptors.

4.2 Ground Water Flow Direction and Gradient

As discussed in the *Focused Subsurface Investigation*, a southeastward ground water flow direction and gradient was confirmed through monitoring water levels in existing wells east of the DID. Further, this data indicates that the reconnaissance ground water sample collected from EB1A, and ground water samples from monitoring wells KMW-04 and EPI-MW-2 are representative of ground water hydraulically down-gradient from the former remedial excavation area.

Based on these findings, a conditional "No Further Action" determination from Ecology appears to be warranted for the site. Following three additional monitoring events, a subsequent report will be presented, evaluating this data for the purposes of requesting unconditional site closure.

5.0 LIMITATIONS

The scope of this report is limited to observations made during on-site work; interviews with knowledgeable sources; and review of readily available published and unpublished reports and literature. As a result, these conclusions are based on information supplied by others as well as interpretations by qualified parties.

The focus of the site closure does not extend to the presence of the following conditions unless they were the express concerns of contacted personnel, report and literature authors or the work scope.

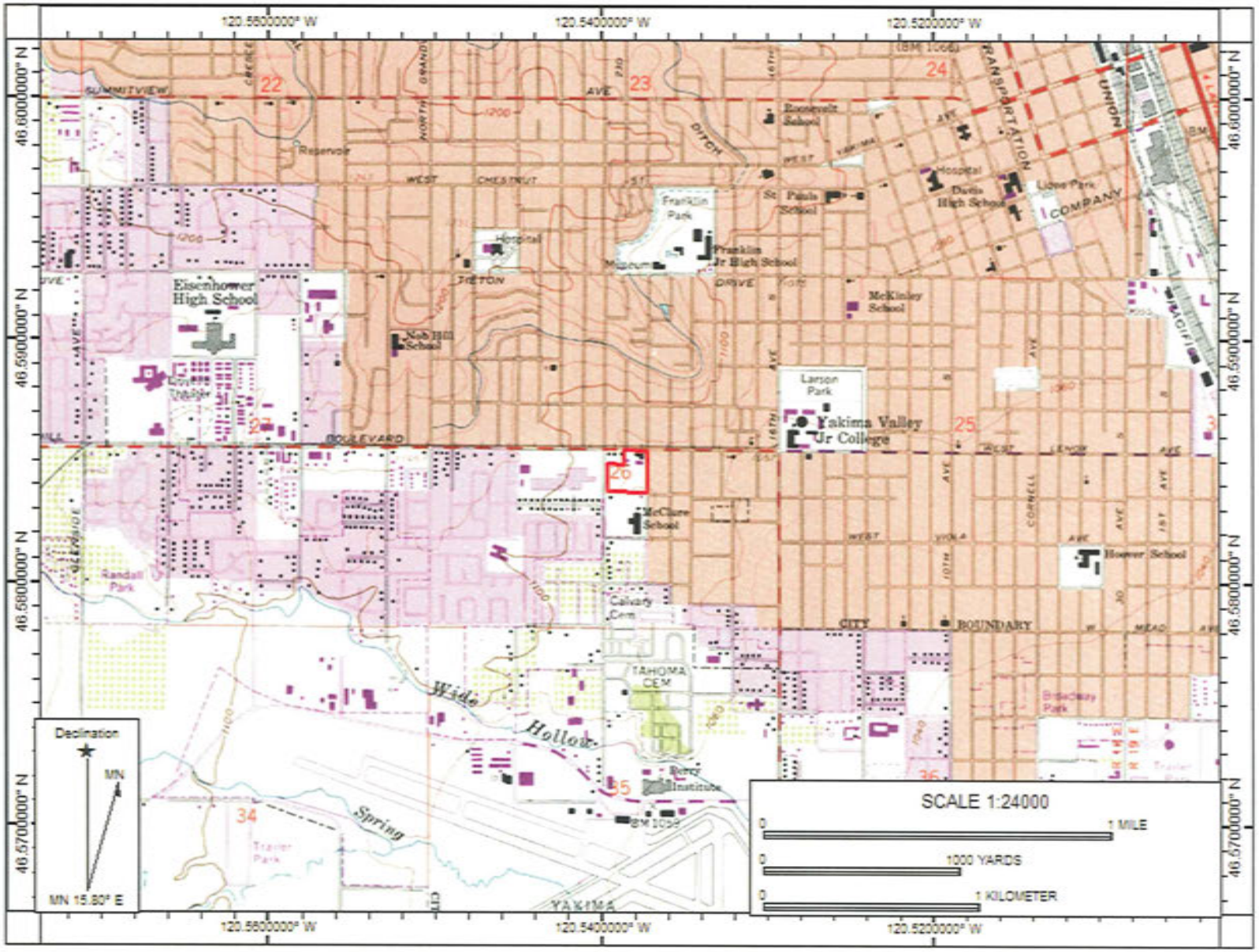
1. Naturally occurring toxic or hazardous substances in the subsurface soils, geology and water,
2. Toxicity of substances common in current habitable environments, such as stored chemicals, products, building materials and consumables,
3. Contaminants or contaminant concentrations that are not a concern now but may be under future regulatory standards,
4. Unpredictable events that may occur after ENW's site work, such as illegal dumping or accidental spillage.

There is no practice that is thorough enough to absolutely identify the presence of all hazardous substances that may be present at a given site. ENW's investigation has been focused only on the potential for contamination that was specifically identified in the SOW. Therefore, if contamination other than that specifically mentioned is present and not identified as part of a limited SOW, ENW's environmental investigation shall not be construed as a guaranteed absence of such materials. ENW has endeavored to collect representative analytical samples for the locations and depths indicated in this report. However, no sampling program can thoroughly identify all variations in contaminant distribution.

We have performed our services for this project in accordance with our agreement and understanding with the client. This document and the information contained herein have been prepared solely for the use of the client.

ENW performed this study under a limited scope of services per our agreement. It is possible, despite the use of reasonable care and interpretation, that ENW may have failed to identify regulation violations related to the presence of hazardous substances other than those specifically mentioned at the closure site. ENW assumes no responsibility for conditions that we did not specifically evaluate or conditions that were not generally recognized as environmentally unacceptable at the time this report was prepared.

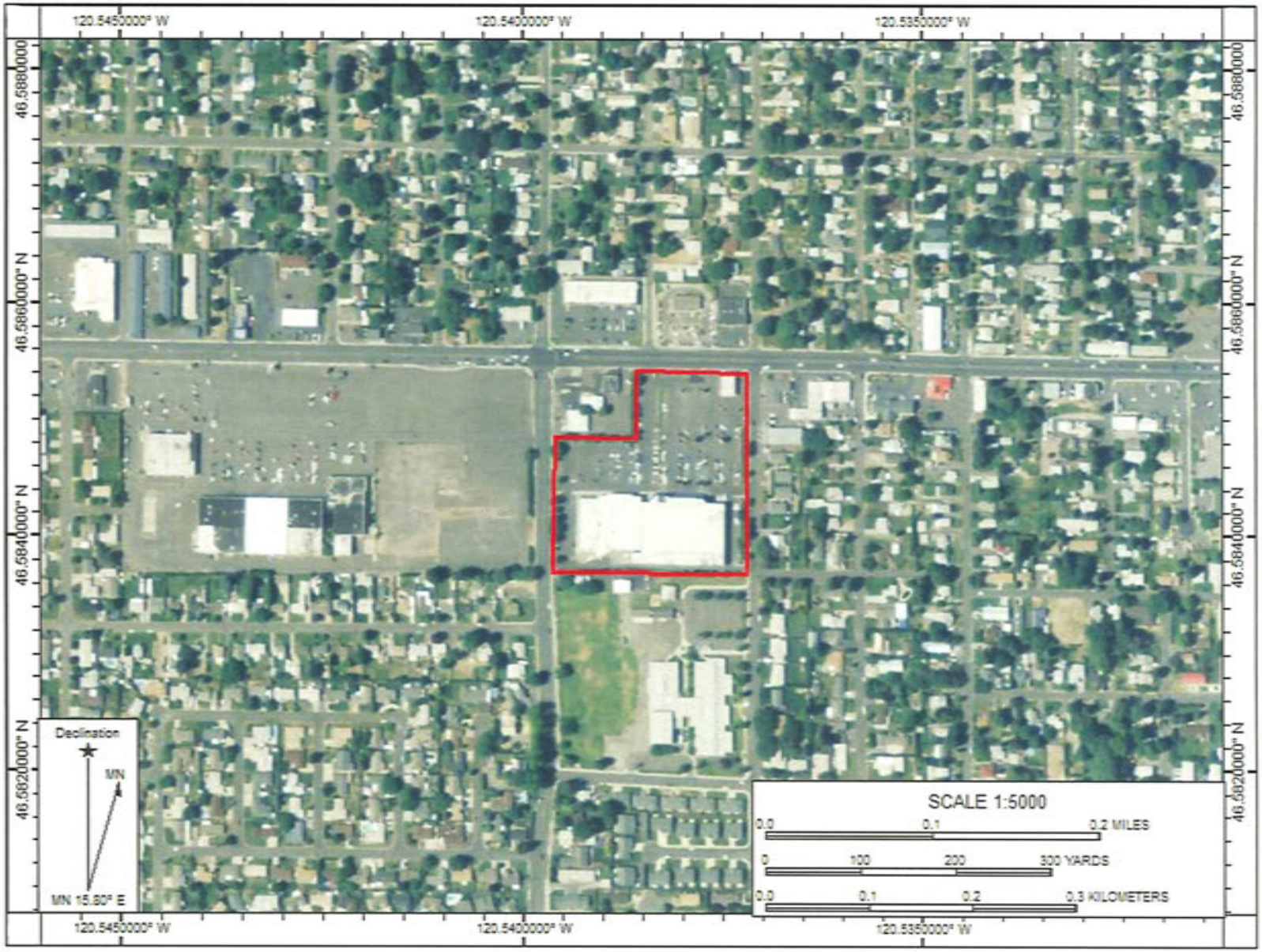
FIGURES



Mape Name: YAKIMA WEST Quadrangle
Date: 1958 / Photorevised: 1985

Location: 046.5625000° N, 120.5624999° W
Contour Intervals: 20 Feet

	Date Drawn: 5/5/2014 CAD File Name: 773-13001-svmap(Fig1) Drawn By: PMT Approved By: LG	Nob Hill Shopping Center 2204 West Nob Hill Blvd. Yakima, Washington	**Site Vicinity Map**	Project No. 773-13001 Figure No. **1**

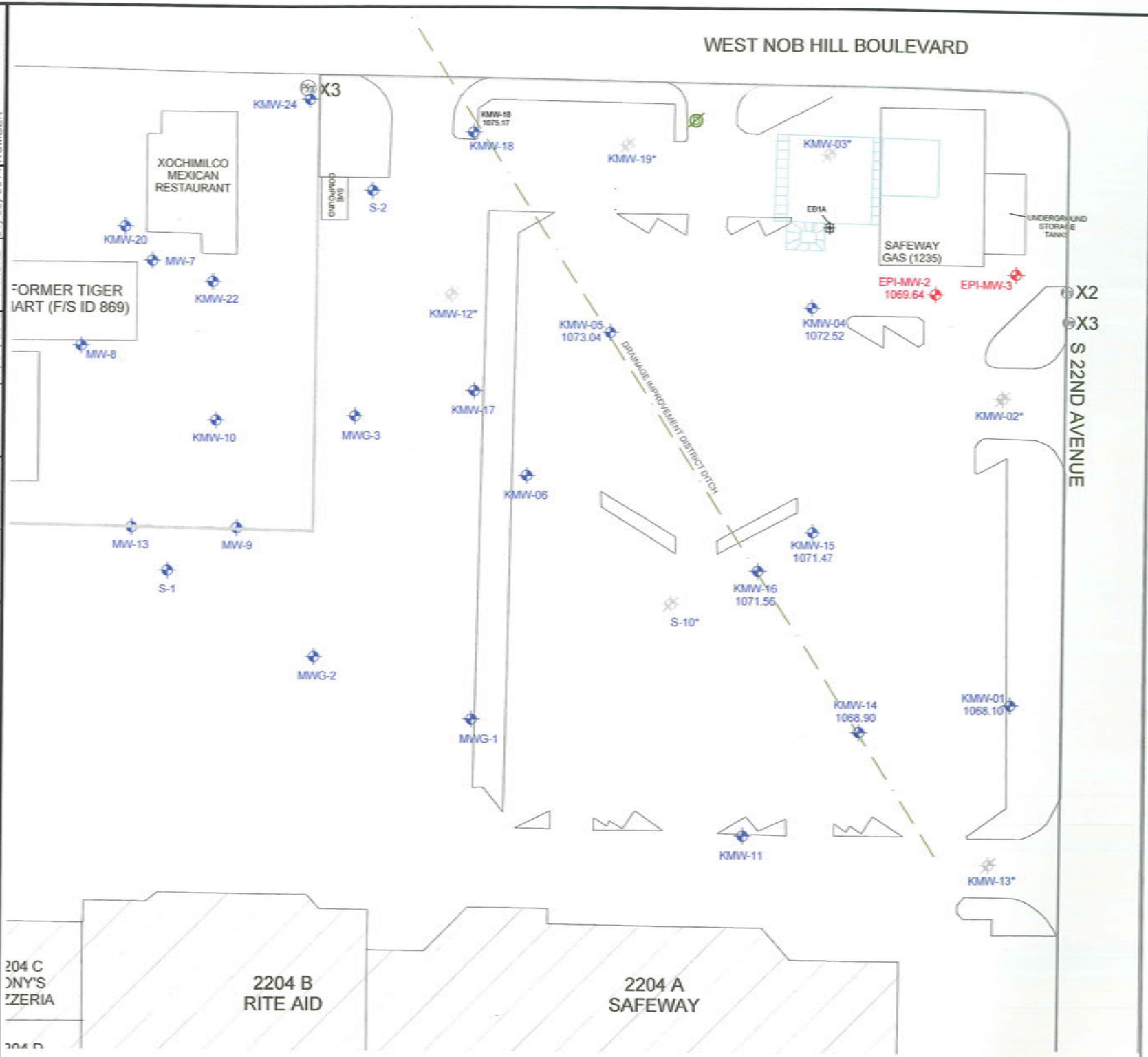


Mape Name: YAKIMA WEST NE, WA Quadrangle
Date: Jul 1, 2009

Location: 046.5939012° N, 120.5300729° W

	Date Drawn: 5/5/2014 CAD File Name: 775-13001aerial(Fig2) Drawn By: PMT Approved By: NMW	Nob Hill Shopping Center 2204 West Nob Hill Blvd. Yakima, Washington	**2009 Aerial Photograph**	Project No. 885-13001-01 Figure No. **2**

DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
K. CLINE 07/24/2013	L.GREEN 07/31/2013	P. TRONE 01/09/2014	773-13001(v01)



LEGEND:

- APPROXIMATE BUILDING LOCATIONS
- APPROXIMATE SUBJECT PROPERTY BOUNDARIES
- APPROXIMATE SUBJECT BUILDINGS
- POLE-MOUNTED TRANSFORMER
- PAD-MOUNTED TRANSFORMER
- DECOMMISSIONED DRY WELL
- KMW-05 — APPROXIMATE LOCATION OF GROUND-WATER MONITORING WELL (* INDICATES ABANDONED)
- EPI-MW-2 — APPROXIMATE LOCATION OF SAFEWAY GROUND-WATER MONITORING WELLS
- 1069.64 OR 1072.52 — GROUND WATER SURFACE ELEVATION CALCULATED FROM WATER LEVELS MEASURED ON 4/9/2014
- INDEPENDENT CLEANUP ACTION SOIL REMOVAL AREA (FEB 2004)
- DRAINAGE IMPROVEMENT DISTRICT DITCH

NOTES:

1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2012 AND ENW FIELD NOTES.

APPROXIMATE SCALE

0 50 100 FEET

N

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FIGURE 3

SITE PLAN

SAFEWAY FUELING CENTER #1235
2204 NOB HILL BOULEVARD
YAKIMA, WASHINGTON

DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
K. CLINE 01/09/2014	P. TRONE 01/13/2014	L. GREEN 01/09/2014	773-13001(v01)

WEST NOB HILL BOULEVARD

S 22ND AVENUE

KMW-18
1075.17

KMW-18

KMW-19*

KMW-03*

EB1A

UNDERGROUND STORAGE TANKS

SAFEWAY
GAS (1235)

EPI-MW-2
1069.64

EPI-MW-3

X2

X3

KMW-12*

KMW-05
1073.04

KMW-04
1072.52

KMW-17

KMW-02*

MWG-3

KMW-06

KMW-15
1071.47

KMW-16
1071.56

S-10*

KMW-14
1068.90

KMW-01
1068.10

MWG-1

KMW-11

KMW-13*

DRAINAGE IMPROVEMENT DISTRICT DITCH

91 90 89 88 87 86 85

2112
UNITED
BUILDERS

1111
MFR

1113
MFR

1115
MFR

1117
MFR

LEGEND:

- SUBJECT BUILDINGS
- SUBJECT PROPERTY BOUNDARIES
- BUILDING LOCATIONS
- POLE TRANSFORMER
- INDEPENDENT CLEANUP ACTION SOIL REMOVAL AREA (FEB 2004)
- KMW-04 — MONITORING WELL (*INDICATES WELL IS ABANDONED)
- 90 — GROUND WATER CONTOUR LINE WITH ELEVATION (FT) BASED ON ARBITRARY DATUM
- GROUND WATER FLOW DIRECTION
- ENW BORING
- DECOMMISSIONED DRY WELL
- DRAINAGE IMPROVEMENT DISTRICT DITCH
- EPI-MW-2 — APPROXIMATE LOCATION OF SAFEWAY GROUND-WATER MONITORING WELLS
- 1069.64 OR 1072.52 — GROUND WATER SURFACE ELEVATION CALCULATED FROM WATER LEVELS MEASURED ON 4/9/2014

NOTES:

1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2009 AND EAI FIELD NOTES.
2. ALL BUILDING, STREET, AND FEATURE LOCATIONS ARE APPROXIMATE.
3. GROUND WATER CONTOURS BASED ON MONITORING BY ENVIRONMENTAL ASSOCIATES (JULY 2005)

APPROXIMATE SCALE

0 45 90 FEET

N

EVREN NORTHWEST INC.
environmental natural resource consultants
PO BOX 14488, PORTLAND, OREGON 97293
P: (503)452-5561, E: ENW@EVREN-NW.COM

FIGURE 4

GROUND-WATER FLOW DIAGRAM

SAFEWAY FUELING CENTER #1235
2204 NOB HILL BOULEVARD
YAKIMA, WASHINGTON

TABLES

Table 1 - Summary of Analytical Data, Ground Water and Reconnaissance Ground Water

Sample ID		Safeway-W	KMW04	EB1A-GW-13	Maximum Ground Water Concetnration	MTCA Method A Cleanup Levels for Ground Water	EPA Region IX Regional Screening Levels (Tapwater) Last Updated November 2013	Constituent of Potential Concern (COPC)?[3]
Depth to Water		12.61	9.93	10.9				
Screen Interval		5-20 (?)	5-20 (?)	9' - 13'				
Sample Type		Water	Water	Water				
Date Sampled		4/9/2014	4/9/2014	4/10/2014				
Location		46.58503 -120.53859	46.58505 -120.53879	18' north and 25' west of southwest corner of station building				
Constituent of Interest	Note	µg/L (ppb)	µg/L (ppb)	µg/L (ppb)	µg/L (ppb)	µg/L (ppb)	µg/L (ppb)	Y/N
Polyaromatic Hydrocarbons								
Acenaphthene	nc, v	---	---	<0.05 (ND)	<0.05 (ND)	---	400	N
Anthracene	nc, v	---	---	<0.05 (ND)	<0.05 (ND)	---	1300	N
Benz[a]anthracene	c, nv	---	---	<0.05 (ND)	<0.05 (ND)	0.1 (**)	0.029	N
Benzo[a]pyrene	c, nv	---	---	<0.05 (ND)	<0.05 (ND)	0.1 (**)	0.0029	N
Benzo[b]fluoranthene	c, nv	---	---	<0.05 (ND)	<0.05 (ND)	0.1 (**)	0.029	N
Benzo[k]fluoranthene	c, nv	---	---	<0.05 (ND)	<0.05 (ND)	0.1 (**)	0.29	N
Chrysene	c, nv	---	---	<0.05 (ND)	<0.05 (ND)	0.1 (**)	2.9	N
Dibenz[a,h]anthracene	c, nv	---	---	<0.05 (ND)	<0.05 (ND)	0.1 (**)	0.0029	N
Fluoranthene	nc, nv	---	---	<0.05 (ND)	<0.05 (ND)	---	630	N
Fluorene	nc, v	---	---	0.19	0.19	---	220	N
Indeno[1,2,3-cd]pyrene	c, nv	---	---	<0.05 (ND)	<0.05 (ND)	0.1 (**)	0.029	N
Naphthalene	c, v	---	---	0.33	0.33	160 (***)	0.14	N
1-Methylnaphthalene	nc, v	---	---	0.15	0.15		0.97	
2-Methylnaphthalene	nc, v	---	---	<0.05 (ND)	<0.05 (ND)		27	
Acenaphthylene	nc, nv	---	---	<0.05 (ND)	<0.05 (ND)	---	---	N
Phenanthrene	nc, nv	---	---	<0.05 (ND)	<0.05 (ND)	---	---	N
Volatile Organic Constituents (VOCs)								
Benzene	c, v	---	---	<1 (ND)	<1 (ND)	5	0.39	N
Ethylbenzene	c, v	---	---	<1 (ND)	<1 (ND)	700	1.3	N
Naphthalene	nc, v	---	---	0.33	0.33	160	0.14	N
Toluene	nc, v	---	---	<1 (ND)	<1 (ND)	1000	860	N
Xylenes	nc, v	---	---	<3 (ND)	<3 (ND)	1000	190	N
Total Petroleum Hydrocarbons								
DRO	nc, nv	<50 (ND)* ht	<50 (ND)* ht	56 x*	56 x*	500	NE	N
RRO (Generic Mineral Insulating Oil)	nc, nv	<250 (ND)* ht	<250 (ND)* ht	<250 (ND)*	<250 (ND)*	500	NE	N

Notes:

--- = not analyzed or not applicable.

ND = not detected at or above the method reporting limit shown.

NE = not established.

µg/L = micrograms per Liter

c = carcinogenic

nc = noncarcinogenic

v = volatile

nv = nonvolatile

DRO = diesel-range organics.

RRO = residual-range organics.

[3] MTCA Method A used as primary screening. EPA Region IX used only if no MTCA Standard available (1E-05 carcinogenic risk)

ht = indicates the samples were analyzed outside of hold time

x = indicates the sample chromatographic pattern does not resemble the fuel standard used for quantitation

* indicates sample extracts passed through silica gel

** indicates Cleanup standard for all carcinogenic PAHs using WAC 173-340-708(8) TEC methodology

*** Cleanup standard for all naphthalene compounds

APPENDIX A FIELD SAMPLING DATA SHEETS

FIELD SAMPLING DATA SHEET

LYRIN NORTHWEST
environmental · natural resource consultants
PO Box 14488
Portland, Oregon, 97293
503-452-5561 Fax: 503-452-7669

PROJECT NAME/NUMBER: 7735300l-03 **WELL ID:** LMW-04

SITE ADDRESS: **BLIND ID:**

DUP ID: NA

WIND FROM:	N	NE	E	SE	S	SW	W	NW	LIGHT	MEDIUM	HEAVY
WEATHER:	SUNNY		CLOUDY		RAIN			?	TEMPERATURE:	°F . °C	

(Circle appropriate units)

HYDROLOGY/LEVEL MEASUREMENTS (Nearest 0.01 ft) (Product Thickness) (Water Column) (Water Column x Gal/ft)

Date	Time	DT-Bottom	DT-Product	DT-Water	DTP-DTW	DTB-DTW		Volume (gal)
/ /	:	17.1	.	9.93	.	.	X 1	.
1/4 1/4	13:27	.	.	10.00	.		X 3	.

Gal/ft = (dia./2)² x 0.163 | 1" = 0.041 | 2" = 0.163 | 3" = 0.367 | 4" = 0.653 | 6" = 1.469 | 10" = 4.080 | 12" = 5.875

§ METHODS: (A) Submersible Pump (B) Peristaltic Pump (C) Disposable Bailer (D) PVC/Teflon Bailer (E) Dedicated Bailer (F) Dedicated Pump (G) Other =

GROUNDWATER SAMPLING DATA (if product is detected, do NOT sample) Sample Depth: (√ if used)

Bottle Type	Date	Time	Method §	Amount & Volume mL	Preservative (circle)	Ice	Filter	pH	√
VOA Glass	4/9/14	16:52	B	3	(40 ml)	HCl	YES	(NO)		
Amber Glass	/ /	16:52		2	250, 500, (1L)	(None) (HCl) (H_2SO_4)	YES	(NO)		
White Poly	/ /	:			250, 500, 1L	None	YES	NO	NA	
Yellow Poly	/ /	:			250, 500, 1L	H_2SO_4	YES	NO		
Green Poly	/ /	:			250, 500, 1L	NaOH	YES	NO		
Red Total Poly	/ /	:			250, 500, 1L	HNO_3	YES	NO		
Red Diss. Poly	/ /	:			250, 500, 1L	HNO_3	YES	YES		
	/ /	:			250, 500, 1L		YES			

Total Bottles (include duplicate count):

Analysis Allowed per Bottle Type

BOTTLE TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
VOA - Glass	(8010) (8010/8020) (8020) (8240) (8260) (BTEX) (TPH-G) (BTEX/TPH-G) OR [ ] WA [ ]
AMBER - Glass	(PAH) (TPH-HCID) (TPH-D) (TPH-418.1) (Oil &Grease) OR [ ] WA [ ]
WHITE - Poly	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO_3/CO_3) (Cl) (SO_4) (NO_3) (NO_2) (F)
YELLOW - Poly	(COD) (TOC) (Total PO_4) (Total Keldahl Nitrogen) (NH_3) (NO_3/NO_2)
GREEN - Poly	(Cyanide)
RED TOTAL - Poly	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
RED DISSOLVED - Poly	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silica)

WATER QUALITY DATA Purge Start Time: : Pump/Bailer Inlet Depth:

Meas.	Method §	Purged (gal)	pH	E Cond (µS)	°F Temp °C	ORP (mV)	Diss O_2 (mg/l)	Water Quality
4		.	.		.		.	
3		.	.		.		.	
2		.	SEE	PURGE	SHEET		.	
1		.	.		.		.	
0		0.00	.		.		.	

[Casing] [Select A-G] [Cumulative Totals] [Circle units] [Clarity, Color]

SAMPLER: KEVIN CLINE (PRINTED NAME) (SIGNATURE)

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Kurt Johnson, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

June 20, 2014

Lynn Green, Project Manager
Evren Northwest, Inc.
PO Box 14488
Portland, OR 97293

Dear Mr. Green:

Included are the additional results from the testing of material submitted on April 11, 2014 from the Data Gap Investigation 773-13001, F&BI 404232 project. There are 6 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Neil Woller, Paul Trone
ENW0620R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on April 11, 2014 by Friedman & Bruya, Inc. from the Evren Northwest Data Gap Investigation 773-13001, F&BI 404232 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Evren Northwest
404232-01	EB1A-GW-13
404232-02	Safeway-W

The NWTPH-Dx analysis for sample Safeway-W was requested outside of the recommended holding time. The data were qualified accordingly.

All quality control requirements were acceptable.

Date of Report: 06/20/14
Date Received: 04/11/14
Project: Data Gap Investigation 773-13001, F&BI 404232
Date Extracted: 06/19/14
Date Analyzed: 06/19/14

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND RESIDUAL RANGE USING METHOD NWTPH-Dx
Sample Extracts Passed Through a Silica Gel Column Prior to Analysis
Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Residual Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
Safeway-W ht 404232-02	<50	<250	114
Method Blank 04-1249 MB	<50	<250	75

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/20/14
Date Received: 04/11/14
Project: Data Gap Investigation 773-13001, F&BI 404232
Date Extracted: 06/19/14
Date Analyzed: 06/19/14

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND RESIDUAL RANGE USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Residual Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
Safeway-W ht 404232-02	56 x	<250	111
Method Blank 04-1249 MB	<50	<250	70

Date of Report: 06/20/14
Date Received: 04/11/14
Project: Data Gap Investigation 773-13001, F&BI 404232

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	100	100	61-133	0

Date of Report: 06/20/14
Date Received: 04/11/14
Project: Data Gap Investigation 773-13001, F&BI 404232

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	90	99	61-133	10

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

404232

SAMPLE CHAIN OF CUSTODY ME 04/11/14

V4/B05/AT-2

Page # 1 of 1

Send Report To LYNN D. GREEN, M.S.

Company EVREN NORTHWEST INC.

Address 18 SE 24TH AVENUE

City, State, Zip PORTLAND, OR 97214

Phone # (503)452-5561 Fax # (503)452-7669

SAMPLERS (signature) [signature]

PROJECT NAME/NO.	PO #
Data Gap Investigation 3201 ... Blvd ... 773-1500 C3	773-1500 1

REMARKS

48 Hour TAT

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☑ RUSH

Rush charges authorized by: [signature]

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☑ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	BTEX	PAHs	Dx w/SG			Notes (①-per GC 2nd 4/11/14 ME)
EB1A-GW-13	01 A-H	4/4/14	0830	W	8	①						✓	✓	✓			Hold
SAFEWAY-W	02 A-G	4/4/14	1551	W	5	*											Hold
																	✓-per LL 4/15/14 ms
																	*-per LL 6/18/14 ms

Samples received at 4 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	ERIK CHAPMAN	ENW	4/10/14	1200
Received by: [signature]	Nhan Phan	FeBI	4/11/14	1000
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Kurt Johnson, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

June 20, 2014

Lynn Green, Project Manager
Evren Northwest, Inc.
PO Box 14488
Portland, OR 97293

Dear Mr. Green:

Included are the additional results from the testing of material submitted on April 11, 2014 from the Data Gap Investigation 773-13001, F&BI 404231 project. There are 6 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Neil Woller, Paul Trone
ENW0620R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on April 11, 2014 by Friedman & Bruya, Inc. from the Evren Northwest Data Gap Investigation 773-13001, F&BI 404231 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Evren Northwest
404231 -01	EB1A-12
404231 -02	KMW04

The NWTPH-Dx analysis for sample KMW04 was requested outside of the recommended holding time. The data were qualified accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/20/14
Date Received: 04/11/14
Project: Data Gap Investigation 773-13001, F&BI 404231
Date Extracted: 06/19/14
Date Analyzed: 06/19/14

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND RESIDUAL RANGE USING METHOD NWTPH-Dx
Sample Extracts Passed Through a Silica Gel Column Prior to Analysis
Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Residual Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
KMW04 ht 404231-02	<50	<250	107
Method Blank 04-1249 MB	<50	<250	75

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/20/14
Date Received: 04/11/14
Project: Data Gap Investigation 773-13001, F&BI 404231
Date Extracted: 06/19/14
Date Analyzed: 06/19/14

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND RESIDUAL RANGE USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Residual Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
KMW04 ht 404231-02	3,400	1,300 x	120
Method Blank 04-1249 MB	<50	<250	70

Date of Report: 06/20/14
Date Received: 04/11/14
Project: Data Gap Investigation 773-13001, F&BI 404231

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	100	100	61-133	0

Date of Report: 06/20/14
Date Received: 04/11/14
Project: Data Gap Investigation 773-13001, F&BI 404231

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	90	99	61-133	10

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

~~40231~~ (NP) 404231

SAMPLE CHAIN OF CUSTODY ME 04/11/14

Page # 1 of 1 V4/B05

Send Report To LYNN D. GREEN, M.S.

Company EVREN NORTHWEST INC.

Address 18 SE 24TH AVENUE

City, State, Zip PORTLAND, OR 97214

Phone # (503)452-5561 Fax # (503)452-7669

SAMPLERS (signature)

PROJECT NAME/NO. Data Gap Investigation 2204 W Nob Hill Blvd Yakima, WA 773-13001-03

PO # 773-13001

REMARKS 48-HOUR TAT

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☒ Will call with instructions

ANALYSES REQUESTED

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	BTEX by 8260B	PAH's 8270SIM *	EPH 8015B (M)		Notes
EB1A-12	01	4/9/14	1743	S	1	⊗						⊗	⊗	HOLD		
KMW04	02 A-E	4/9/14	1652	W	5	*						X	**			

Notes: ⓨ pre-EC [illegible] holding [illegible]

* PAHs 1 methyl-naphthalene, 2-methyl-naphthalene

** GID

* - per LG [illegible] 4/10/14 [illegible]

Samples received at 4 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Eric Chapman	EnW	4/10/14	1200
Received by: [signature]	Nhan Phan	FeBI	4/11/14	100
Relinquished by:				
Received by:				

FORMS\COC\COC.DOC

FIELD SAMPLING DATA SHEET (Low-Flow Sampling)

EVREN NORTHWEST INC
environmental natural resource consultants

PO Box 14488
Portland, Oregon, 97293
503-452-5561 Fax: 503-452-7669

PROJECT NAME/NUMBER: 773132001-03 = KNOB HILL SHOPPING **WELL ID:** KMW04

PROJECT NO: **BLIND ID:**

DUP ID: NA

WATER QUALITY DATA

Purge Start Time: 1329 Purge Stop Time: 1357 Pump/Bailer/Tube Inlet Depth: 16'

Meas.	Method §	Purged (L)	Purge Rate ~~(L/min)~~ mL/min	Depth to Water (Ft BTOC)	Drawdown (ft)	pH	E Cond (µS)	°F Temp (°C)	ORP (mV)	Diss O_2 (mg/l)	Water Quality/Notes
1	B	0.5	100	10.17	0.17	6.46	6240	16.33	-136	.	CLEAR
2		1.0	90.	10.28	0.28	6.43	6172	16.55	+165	1.62	
3		1.5	90.	10.38	0.38	6.43	6142	16.70	+153	1.01	
4		2.0	70.	10.49	0.49	6.43	6111	17.14	+203	0.49	
5		2.5	70.	10.57	0.57	6.43	6113	17.13	+209	0.41	
6		.	.	.	.	.		.		.	
7		STOP PURGE & ALLOW FOR RECHARGE BEFORE SAMPLING									
8		.	.	.	.	.		.		.	
9		.	.	.	.	.		.		.	
10		.	.	.	.	.		.		.	
11		.	.	.	.	.		.		.	
12		.	.	.	.	.		.		.	
13		.	.	.	.	.		.		.	
14		.	.	.	.	.		.		.	
15		.	.	.	.	.		.		.	
16		.	.	.	.	.		.		.	
17		.	.	.	.	.		.		.	
18		.	.	.	.	.		.		.	
19		.	.	.	.	.		.		.	
20		.	.	.	.	.		.		.	
	[Casing]	[Select A-G]	[Cumulative Totals]	[measured]	[measured]	[Cumulative Totals]			[Circle units]		[Clarity, Color, Sediment present]

§ METHODS: (A) Submersible Pump (B) Peristaltic Pump (C) Disposable Bailer (D) PVC/Teflon Bailer (E) Dedicated Bailer (F) Dedicated Pump (G) Other =

SAMPLER: KEVIN CLINE (PRINTED NAME) (SIGNATURE)

FIELD SAMPLING DATA SHEET

EVREN NORTHWEST
environmental natural resource consultants
PO Box 14488
Portland, Oregon, 97293
503-452-5561 Fax: 503-452-7669

PROJECT NAME/NUMBER: 113-13001-03 **WELL ID:** EB1A

SITE ADDRESS: **BLIND ID:**

DUP ID: NA

WIND FROM:	N	NE	E	SE	S	SW	W	NW	LIGHT	MEDIUM	HEAVY
WEATHER:	SUNNY		CLOUDY		RAIN		?		**TEMPERATURE:**	°F . °C	

(Circle appropriate units)

HYDROLOGY/LEVEL MEASUREMENTS (Nearest 0.01 ft)

Date	Time	DT-Bottom	DT-Product	DT-Water	[Product Thickness] DTP-DTW	[Water Column] DTB-DTW		[Water Column x Gal/ft] Volume (gal)
4/10/14	08:10	13.3	.	10.9	.	.	X 1	.
/ /	:	.	.	.	.		X 3	.

Gal/ft = (dia./2)² x 0.163 | 1" = 0.041 | 2" = 0.163 | 3" = 0.367 | 4" = 0.653 | 6" = 1.469 | 10" = 4.080 | 12" = 5.875

§ METHODS: (A) Submersible Pump (B) Peristaltic Pump (C) Disposable Bailer (D) PVC/Teflon Bailer (E) Dedicated Bailer (F) Dedicated Pump (G) Other =

GROUNDWATER SAMPLING DATA (If product is detected, do NOT sample) Sample Depth:

Bottle Type	Date	Time	Method §	Amount & Volume mL		Preservative (circle)	Ice	Filter	pH	[√ if used] √
VOA Glass	4/10/14	09:30	B	3	(40 ml)	(HCl)	YES	NO		
Amber Glass	/ /	08:30	B	2	250, 500, 1L	(None) (HCl) (H_2SO_4)	YES	NO		
White Poly	/ /	:			250, 500, 1L	None	YES	NO	NA	
Yellow Poly	/ /	:			250, 500, 1L	H_2SO_4	YES	NO		
Green Poly	/ /	:			250, 500, 1L	NaOH	YES	NO		
Red Total Poly	/ /	:			250, 500, 1L	HNO_3	YES	NO		
Red Diss. Poly	/ /	:	B	1	(250), 500, 1L	HNO_3	(YES)	(YES)		
	/ /	:			250, 500, 1L		YES			

Total Bottles (include duplicate count):

Analysis Allowed per Bottle Type	BOTTLE TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
	VOA - Glass	(8010) (8010/8020) (8020) (8240) (8260) (BTEX) (TPH-G) (BTEX/TPH-G) OR [ ] WA [ ]
	AMBER - Glass	(PAH) (TPH-HCID) (TPH-D) (TPH-418.1) (Oil &Grease) OR [ ] WA [ ]
	WHITE - Poly	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO_3/CO_3) (Cl) (SO_4) (NO_3) (NO_2) (F)
	YELLOW - Poly	(COD) (TOC) (Total PO_4) (Total Keldahl Nitrogen) (NH_3) (NO_3/NO_2)
	GREEN - Poly	(Cyanide)
	RED TOTAL - Poly	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	RED DISSOLVED - Poly	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silica)

WATER QUALITY DATA Purge Start Time: : Pump/Bailer Inlet Depth:

Meas.	Method §	Purged (gal)	pH	E Cond (µS)	°F Temp °C	ORP (mV)	Diss O_2 (mg/l)	Water Quality
4		.	.		.		.	
3		.	.		.		.	
2		.	.		.		.	
1		.	.		.		.	
0		0.00	.		.		.	

[Casing] [Select A-G] [Cumulative Totals] [Circle units] [Clarity, Color]

SAMPLER: _____ _____

(PRINTED NAME) (SIGNATURE)

FIELD SAMPLING DATA SHEET

EVREN NORTHWEST
environmental natural resource consultants
PO Box 14488
Portland, Oregon, 97293
503-452-5561 Fax: 503-452-7669

PROJECT NAME/NUMBER: **WELL ID:** SAFEWAY-(G)

SITE ADDRESS: **BLIND ID:**

DUP ID: NA

WIND FROM:	N	NE	E	SE	S	SW	W	NW	LIGHT	MEDIUM	HEAVY
WEATHER:	SUNNY		CLOUDY		RAIN			?	**TEMPERATURE:**	°F . °C	

[Circle appropriate units]

HYDROLOGY/LEVEL MEASUREMENTS (Nearest 0.01 ft) [Product Thickness] [Water Column] [Water Column x Gal/ft]

Date	Time	DT-Bottom	DT-Product	DT-Water	DTP-DTW	DTB-DTW		Volume (gal)
/ /	:	.	.	.	.	.		
4/19/16	15:02	.	.	12.63	.		X 1	.
							X 3	.

Gal/ft = (dia./2)² x 0.163	1" = 0.041	2" = 0.163	3" = 0.367	4" = 0.653	6" = 1.469	10" = 4.080	12" = 5.875

§ METHODS: (A) Submersible Pump (B) Peristaltic Pump (C) Disposable Bailer (D) PVC/Teflon Bailer (E) Dedicated Bailer (F) Dedicated Pump (G) Other =

GROUNDWATER SAMPLING DATA (if product is detected, do NOT sample) Sample Depth: [√ if used]

Bottle Type	Date	Time	Method §	Amount & Volume mL		Preservative (circle)	Ice	Filter	pH	√
VOA Glass	4/19/16	15:51	B	3	(40 ml)	HCl	YES	NO		
Amber Glass	/ /	15:51	B	2	250, 500, (1L)	(None) (HCl) (H_2SO_4)	YES	NO		
White Poly	/ /	:			250, 500, 1L	None	YES	NO	NA	
Yellow Poly	/ /	:			250, 500, 1L	H_2SO_4	YES	NO		
Green Poly	/ /	:			250, 500, 1L	NaOH	YES	NO		
Red Total Poly	/ /	:			250, 500, 1L	HNO_3	YES	NO		
Red Diss. Poly	/ /	:			250, 500, 1L	HNO_3	YES	YES		
	/ /	:			250, 500, 1L		YES			

Total Bottles (include duplicate count):

Analysis Allowed per Bottle Type	BOTTLE TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
	VOA - Glass	(8010) (8010/8020) (8020) (8240) (8260) (BTEX) (TPH-G) (BTEX/TPH-G) OR [ ] WA [ ]
	AMBER - Glass	(PAH) (TPH-HCID) (TPH-D) (TPH-418.1) (Oil &Grease) OR [ ] WA [ ]
	WHITE - Poly	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO_3/CO_3) (Cl) (SO_4) (NO_3) (NO_2) (F)
	YELLOW - Poly	(COD) (TOC) (Total PO_4) (Total Keldahl Nitrogen) (NH_3) (NO_3/NO_2)
	GREEN - Poly	(Cyanide)
	RED TOTAL - Poly	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	RED DISSOLVED - Poly	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silica)

WATER QUALITY DATA Purge Start Time: : Pump/Bailer Inlet Depth:

Meas.	Method §	Purged (gal)	pH	E Cond (µS)	°F Temp °C	ORP (mV)	Diss O_2 (mg/l)	Water Quality
4		.	.		.		.	
3		.	.		.		.	
2		.	SEE PURGE SHEET				.	
1		.	.		.		.	
0		0.00	.		.		.	

[Casing] [Select A-G] [Cumulative Totals] [Circle units] [Clarity, Color]

SAMPLER: KEVIN CLINE (PRINTED NAME) (SIGNATURE)

FIELD SAMPLING DATA SHEET (Low-Flow Sampling)

EVREN NORTHWEST INC.
environmental natural resource consultants

PO Box 14488
Portland, Oregon, 97293
503-452-5561 Fax: 503-452-7669

PROJECT NAME/NUMBER: 772-13001-03 WELL ID: BACKWELL-EN

PROJECT NO: BLIND ID:

DUP ID: NA

WATER QUALITY DATA

Purge Start Time: 1502 Purge Stop Time: 1551 Pump/Bailer/Tube Inlet Depth: 17

Meas.	Method §	Purged (L)	Purge Rate ~~(L/min)~~ mL/min	Depth to Water (Ft BTOC)	Drawdown (ft)	pH	E Cond (µS)	°F Temp °C	ORP (mV)	Diss O_2 (mg/l)	Water Quality/Notes
1		0.5	100	12.70	0.08	7.38	1357	15.81	-168	2.12	IRON STAINING
2		0.5	100	12.67	0.05	7.15	1315	15.93	-174	1.77	
3		1.1	60	12.67	0.05	7.09	1311	19.00	-176	.	
4		1.5	60.	12.68	0.06	7.23	1295	15.73	-180	.	
5		1.9	60	12.67	0.05	6.98	1299	18.76	-184	1.24	
6		2.1	60.	12.67	0.05	6.92	1302	18.98	-183	1.12	
7		2.4	60.	12.67	0.05	6.89	1311	15.83	-182	1.06	
8		.	.	.	.	.		.		.	
9		.	.	.	.	.		.		.	
10		.	.	.	.	.		.		.	
11		.	.	.	.	.		.		.	
12		.	.	.	.	.		.		.	
13		.	.	.	.	.		.		.	
14		.	.	.	.	.		.		.	
15		.	.	.	.	.		.		.	
16		.	.	.	.	.		.		.	
17		.	.	.	.	.		.		.	
18		.	.	.	.	.		.		.	
19		.	.	.	.	.		.		.	
20		.	.	.	.	.		.		.	
[Casing]	[Select A-G]	[Cumulative Totals]	[measured]	[measured]	[Cumulative Totals]			[Circle units]			[Clarity, Color, Sediment present]

§ METHODS: (A) Submersible Pump (B) Peristaltic Pump (C) Disposable Bailer (D) PVC/Teflon Bailer (E) Dedicated Bailer (F) Dedicated Pump (G) Other =

SAMPLER: KEVIN CLING
(PRINTED NAME)

(SIGNATURE)

APPENDIX B LABORATORY ANALYTICAL REPORTS