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:

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ENW Project No. 773-13001-03

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ACRONYMS AND ABBREVIATIONS

BTEX	benzene, toluene, ethylbenzene and xylenes
bgs	below ground surface
Client	Argonaut Investments
COIs	constituents of interest
COPCs	constituents of potential concern
CRBG	Columbia River Basalt Group
CY	cubic yards
DID	Drainage Improvement Ditch
DRO	diesel-range organics
EAI	Environmental Associates, Inc.
Ecology	Washington Department of Ecology
ENW	EVREN Northwest, Inc.
EPA	US Environmental Protection Agency
GRO	gasoline-range organics
Mercy	Mercy Development Company
µg/L	micrograms per Liter
mg/Kg	milligrams per kilogram
MTCA	Model Toxics Control Act
PAHs	polynuclear aromatic hydrocarbons
PCE	tetrachloroethene
PLPs	potentially liable parties
PCS	petroleum-impacted soil
PID	photoionization detector
ppmv	parts per million by volume
PQL	practical quantification limit
RRO	residual (lube oil)-range organics
RSLs	Regional Screening Levels
sf	square foot
SOW	scope of work
TCE	trichloroethene
TMB	trimethylbenzene
TPH	total petroleum hydrocarbon
UST	underground storage tank
VCP	Voluntary Cleanup Program
VOA	volatile organic analysis
VOCs	volatile organic constituents
WAC	Washington Administrative Code

EXECUTIVE SUMMARY

On behalf of Argonaut Investments (dba, ARGO Yakima, LLC), EVREN Northwest, Inc. performed a focused subsurface investigation at 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. The purpose of this focused subsurface investigation was to address identified data gaps, to provide information required to achieve site closure, and to obtain a "No Further Action" determination from Ecology.

Field activities for the focused subsurface investigation was conducted in April 2014 following a Work Plan prepared by EVREN Northwest with input from Ecology.

Hydraulic Gradient. Ground water levels were measured in eight monitoring wells across the site. Consistent with historical data, a southeastward ground water flow direction and gradient was confirmed for the area of the historic release.

Soil and Reconnaissance Ground Water Assessment. Boring EB1A was installed near, but hydraulically down gradient (as confirmed by ground water monitoring) of the former impacted soil excavation.

- A soil sample collected from EB1A at 12 feet below ground surface was analyzed for diesel-range organics (DRO), residual (oil)-range organics (RRO), BTEX constituents (benzene, toluene, ethylbenzene, and xylenes) and polynuclear aromatic hydrocarbons (PAHs), of which only a few PAHs were detected (at very low-level concentrations).
- A reconnaissance ground water sample was collected from EB1A and analyzed for DRO, RRO, BTEX and PAHs. Only DRO and a few PAHs (at low-level concentrations) were detected.

The concentrations of the detected constituents in the soil and reconnaissance ground water samples were compared to State of Washington Model Toxics Control Act (MTCA) Method A Cleanup Levels, or if not established, the US Environmental Protection Agency Regional Screening Level (RSL). All constituents detected were well below their applicable MTCA screening level (Method A), corroborating 2004 soil confirmation results and indicating that residual petroleum constituents are unlikely to pose a risk to current or future site receptors.

These findings address identified data gaps for the site, and the results indicate no additional investigation is warranted at this time. Ecology is requested to grant regulatory closure and issue a "No Further Action" letter for the site.

1.0 INTRODUCTION

At the request of Argonaut Investments (dba, ARGO Yakima, LLC), EVREN Northwest, Inc. (ENW) performed a Focused Subsurface Investigation to address data gaps at the Safeway Fueling Center #1235, located at 2204 W Nob Hill Boulevard, Yakima, Washington (Figures 1, 2 and 3; subject site).

1.1 Background

In February 2004, a Washington Department of Ecology (Ecology)-approved independent cleanup action[1] was conducted by Mercy Development Company (Mercy) at its property located at 2204 W Nob Hill Boulevard, Yakima, Washington. Petroleum hydrocarbons, possibly released from an underground storage tank (UST) system and/or other sources when United Builders formerly occupied their property, impacted a dry well and ultimately subsurface soil and ground water. The objective of the cleanup action was to remove petroleum-impacted soil (PCS) and separate-phase petroleum hydrocarbon product from the north-central portion of the parking lot (the area of YSB-1 and YSB-8 indicated in Figure 4). 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 up to 61-milligrams per kilogram (mg/Kg) diesel-range organics (DRO) and 53-mg/Kg residual (lube oil)-range organics (RRO) remained, much less than the Model Toxics Control Act (MTCA) Method A Cleanup Level of 2,000 mg/Kg; however, confirmation soil samples collected by the removal consultant, Landau Associates (Landau), 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 has not been monitored since the early 2000s.

With input from Ecology[2], ENW developed a *Work Plan*[3] for a focused subsurface investigation under Ecology's Voluntary Cleanup Program (VCP) consistent with the requirements of MTCA Cleanup Regulation Chapter 173-340 of the Washington Administrative Code (WAC). The purpose of this focused subsurface investigation is to address identified data gaps, to provide

[1] 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.

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

[3] ENW, 2014, 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.

information required to achieve site closure, and to obtain a "No Further Action" determination from Ecology.

On March 19, 2014, ARGO Yakima, LLC received letter confirmation[4] 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).

1.2 Purpose

Soil and ground water samples were collected to determine:

1) the ground water gradient and flow direction within and down-gradient of the former United Builders site and east of the City's Drainage Improvement Ditch (DID; which flows on a southeasterly trend through the site);
2) whether residual petroleum hydrocarbon (specifically DRO and RRO) and related constituent concentrations in soil adjacent to the south margin of the soil removal area present an unacceptable health risk to occupational workers and customers at the site, and;
3) whether ground water hydraulically down-gradient of the soil removal area is impacted with residual petroleum hydrocarbons (specifically DRO and RRO) and related constituents.

1.3 Scope

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

- Ordered utility clearance (One Call) to provide borehole clearance for this project, prior to implementation of the subsurface sampling program.
- Prepared a project-specific Health and Safety Plan[5] designed to identify, evaluate, and minimize potential health and safety hazards, as well as to outline emergency response guidance.
- Prepared a project-specific Sampling and Analysis Plan.
- Conducted Fluid Level Monitoring (KMW-01, -04, -05, -14, -15, -16, -18, Safeway well [also known as EPI-MW-2 as indicated on Figure 4]).
- Purged and sampled wells KMW-04 and Safeway Well.
- Submitted samples for selected laboratory analyses under chain-of-custody protocols.

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

[5] ENW, 2014, *Health and Safety Plan*, ARGO Yakima LLC Property – Former United Builders Site (Safeway Fueling Center #1235 Facility), 2204 W Nob Hill Boulevard, Yakima, Washington, Facility/Site ID #5883805: Prepared for Argonaut Investments, 770 Tamalpais Drive, Suite 401B, Corte Madera, California 94925, 15 pages, 2 appendices.

- Evaluated analytical results with respect to Washington State MTCA cleanup standards and associated guidance documents.
- Prepared this report documenting findings and conclusions.

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

2.0 SITE SETTING

2.1 Description and Location

The 7.59-acre subject property is located on the 2200 block south of W Nob Hill Boulevard in Yakima, Washington (Figures 1 and 2) and is called the Nob Hill Shopping Center. The northwest quarter of the block, occupied by the former Tiger Mart retail gasoline station (vacant) and two retail commercial buildings, is not included within the property boundaries.

The Nob Hill Shopping Center consists of: a 53,843-square foot (sf) Safeway Store #1235, a 19,165-sf Rite Aid Store #05296, and 8,250-sf of shop space all occupying a single building on the southern part of the site; and a 6,790-sf Safeway Fuel Center located on the northeast corner of the site. The exterior areas consist of a 400+ space asphalt-paved parking lot, drive entrances/exits, driveways, and landscaped areas of lawn and shrubs. The shopping center has a total leasable area of 88,580 sf. Safeway Store #1235 and the Rite-Aid Store are the development's anchor tenants. The smaller retail tenants include Tony's Big Cheese Pizza, Sub Shop of Tacoma (vacant), 24th Avenue Cuts, Fresh Fast Meals (vacant), and two additional vacant spaces.

The Safeway Fueling Center consists of a manned food mart kiosk, two fueling islands with four gasoline dispensers each, and a canopy that covers the kiosk and fueling islands. Two 20,000-gallon USTs are located under a concrete hold-down pad on the east part of the site. One tank holds 20,000 gallons of gasoline, and the second UST is divided into two 10,000-gallon compartments. Thus, three grades of unleaded gasoline are dispensed: (regular) unleaded, plus, and premium.

The site is located in a commercial setting along W Nob Hill Blvd., which borders the north side of the property. S 22nd Avenue borders the east side of the property, S 24th Avenue borders the west side of the property, and two residential properties and the McClure Elementary School yard border the property to the south.

2.2 Historical Background

The historical background presented in this section was derived from ENW's 2013 *Phase I Environmental Site Assessment*[6]. By 1959, the subject site was used for the storage and distribution of farm and building supplies. During its history as a farm supply, rudimentary agricultural pesticides were manufactured (mixed) using lime and sulfur on the northern part of the site. Later, United Builders operated a lumber and building supply yard on the northern part of the site. At least two dry wells, a diesel pump, two USTs - gasoline and diesel - were located at the United Builder's facility. In 1987, Mercy acquired the property with plans to redevelop it

[6] ENW, July 23, 2013, *Phase I Environmental Site Assessment*, Nob Hill Shopping Center, 2204 West Nob Hill Boulevard, Yakima, Washington: Prepared for Mechanics Bank, Aaron Nissim Real Estate Industries Group, 1111 Civic Drive, Suite 385, Walnut Creek, California 94565, 42 pages, 3 figures, and 9 appendices.

with a shopping center. The United Builders' structures were razed to make way for the shopping center. In 1989-1990, an 81,258-sf shopping center consisting of a Safeway Store, Payless Drug Store, and several other shops was constructed on the site along with a large parking lot.

Mercy was informed of a release of petroleum hydrocarbons at nearby Tiger Mart to the west and that the owner Tiger Oil Corporation was taking the required steps towards compliance with Washington law. Mercy retained a consultant to conduct its own investigation of the parking lot down gradient of the Tiger Mart site. Around 1990, Tiger Oil Company, Federated Mutual Insurance Company, and Mercy were named in an amended enforcement order as Potentially Liable Parties (PLPs) for the petroleum release at the site; notwithstanding, there was no evidence to tie Mercy to the release. Meanwhile, Tiger Oil retained consultants to recover separated phase hydrocarbons, monitor ground water, and install and operate a ground water extraction/soil vapor extraction system underlying a portion of the parking lot at the subject site.

In 2003, Mercy negotiated a *de minimis* settlement and entered into a Consent Decree known as the Mercy Decree to avoid complex litigation, secure a covenant-not-to-sue from the state, and achieve contribution protection against claims from any and all other parties affiliated with the release. In return for these benefits, Mercy agreed to operate and maintain the interim and expanded soil vapor extraction system underlying the Safeway parking lot for a period of 30 months. As a pre-requisite for operating the soil vapor extraction system, Tiger Oil was required to make the soil vapor extraction equipment operable and clean up the up-gradient source of contamination by removal. Yakima SC Associates purchased the center from Mercy in 2004[7]. Argo Yakima purchased the property in 2013.

2.3 Historical Site Assessment and Remediation

ENW's 2013 *Phase I Environmental Site Assessment*[6] documents prior site assessments in detail. Here we will discuss assessment and findings specific to the data gaps being investigated (see Section 1.2) at the former Union Builders release location.

Overview. In 2004, petroleum impacted soil and ground water were encountered at the northeast corner of the property in the vicinity of two gasoline USTs and two dry wells formerly operated by United Builders. This release was investigated by Kleinfelder in 1992-94[8], Landau Associates in 1999[9], and Environmental Partners Inc. in 2001[10]. Environmental Associates, Inc. monitored

[7] Ecology, December 2009, Periodic Review, Safeway Fuel Center #1235, Facility/Site ID #:5883805, 2204 West Nob Hill Boulevard, Yakima, Washington 98902: Central Regional Office Toxics Cleanup Program, dated December 2009, 21 pages including references and appendices.

[8] Kleinfelder, April 4, 1994, *Final Draft State Remedial Investigation/Feasibility Study*, Tiger Oil Facility, West Nob Hill Boulevard & 24th Avenue, Yakima, Washington.

[9] Landau Associates, August 27, 1999, *Well KMW-03 Environmental Investigation*, Mercy Development Company Property, 2204 West Nob Hill Boulevard, Yakima, Washington: Prepared for Mercy Development Company, Yakima, Washington.

[10] Environmental Partners, Inc., 2002, *Phase II Environmental Assessment* Letter Report, Store No. 1235 Proposed Fueling Center, 2204-A Nob Hill Boulevard, Yakima, Washington, EPI Project No. 082132.1, 11 pages, 6 tables, 8 figures, and 2 attachments.

ground water in 2005[11,12]. Petroleum impacted soil was discovered 5 to 10 feet bgs, within the range of seasonal ground water fluctuation, over an approximate 10,000 square foot area in the north-central portion of the property[6]. Petroleum impacted soil only occurred above the water table at the area of YSB-8, located east of YSB-1. Kleinfelder reported up to 9 inches of separate phase petroleum hydrocarbon product in KMW-03 and YSB-1 located near the center of this area[8]. In response, Kleinfelder conducted separate phase petroleum hydrocarbon product recovery and monitoring activities from 1990 to 1994. In accordance with Enforcement Order No. DE 94TC-C432 to Tiger Oil (August 1994), Tiger Oil retained Clearwater Group Inc. to conduct interim remedial actions at the site, consisting of ground water and soil vapor extraction.

Remedial Soil Excavation. On February 23, 2004, Landau oversaw the remedial excavation by MRM Construction of an approximately 2,200 square foot area to depths of 12 to 16 feet surrounding YSB-1, and a 625 square foot area to a depth of 6 feet surrounding YSB-8[9]. A total volume of 630 cubic yards (1,005 tons) of PCS was transported to Anderson Rock & Demolition Pits of Yakima, Washington, for thermal treatment. Only three of the 22 confirmation samples collected from the floors and sidewalls of the excavations had detectable petroleum hydrocarbons, with DRO ranging from 27 to 61 mg/Kg, and RRO detected at a concentration of 53 mg/Kg. These detections were well below the MTCA Method A Cleanup level of 2,000 mg/Kg. Water collected in the YSB-1 excavation. Although no separate phase petroleum hydrocarbon product was observed floating on the water in the YSB-1 excavation, absorbent pads and booms were placed on the water for a two-day period. The pads and booms were removed, and the excavations were backfilled with clean overburden supplemented with clean imported crushed rock.

Ground Water Monitoring. Ground water monitoring has been conducted at the site since the early 1990s. Ground water monitoring of the Tiger Oil plume has been ongoing up until 2013, primarily in those wells west of the county's DID (see Figure 4). The northwest-southeast trending DID is believed to hydraulically divide (isolate) the petroleum hydrocarbon plume originating at the Tiger Oil site from ground water at the United Builder's site. For this reason, comprehensive ground water monitoring has not been performed east of the DID since 2003, although selected wells have been monitored up until 2013 as summarized below[13].

Historically (2003 and prior), gasoline-related volatile constituents were detected in four of the ten monitoring wells east of the DID (KMW-01, KMW-13, KMW-14, and KMW-16):

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[11] Environmental Associates, Inc., June 27, 2005, *Groundwater Sampling and Testing, Vicinity of Safeway Gas Sales*, Safeway Shopping Center, 2204 West Nob Hill Boulevard, Yakima, Washington: Prepared for Glacier Real Estate Finance, Report # JN25092-X

[12] Environmental Associates, Inc., July 25, 2005, *Supplemental Groundwater Sampling and Testing with Water Table Survey*, Safeway Shopping Center, 2204 West Nob Hill Boulevard, Yakima, Washington: Prepared for Glacier Real Estate Finance, Report # JN25092-2

[13] Environmental Associates, Inc., surveyed ground water levels east of the DID on July 21, 2005, in conjunction with a supplemental investigation of ground water along the hydraulically up-gradient north boundary of the property. Ground water analysis was limited to tetrachloroethene (PCE) and excluded petroleum hydrocarbon constituents.

- Maximum detections were reported in KMW-16 on January 20, 1994, of the following constituents:
    - 2,300-µg/L (micrograms per Liter) gasoline-range organics (GRO)
    - 340-µg/L benzene
    - 120-µg/L toluene
    - 73-µg/L ethylbenzene
    - 200-µg/L xylenes
- During the October 2003 monitoring event, gasoline-related volatile constituents were only detected in KMW-16, and only benzene (at 51 µg/L) exceeded its MTCA Method A Cleanup Level (5 µg/L).

Environmental Associates, Inc. (EAI) conducted focused ground water sampling in 2005 in the northeast corner of the property, specifically to assess for volatile organic constituents (VOCs).

- On June 9, 2005, EAI collected ground water samples from selected monitoring wells KMW-03R and EPI-MW-2 located east of the DID on June 9, 2005 (Figure 4). Ground water samples from these wells were analyzed for the full suite of VOCs. The sample from KMW-03R was reported to contain:
    - 0.4-µg/L ethylbenzene
    - 2.4-µg/L naphthalene
    - 0.38-µg/L 1,2,4-trimethylbenzene (TMB)
    - 1.0-µg/L trichloroethene (TCE)
    - 14-µg/L tetrachloroethene (PCE)

    Only TCE (0.81 µg/L) and PCE (21 µg/L) were detected in EPI-MW-2.
- On July 21, 2005, EAI performed supplemental ground water testing and a water table survey in response to the detections of TCE and PCE. Reconnaissance ground water samples were collected from one on-site boring (A-1) and five off-site borings (A-2 through A-6) located along the northern boundary of the site (Figure 4). Ground water analysis was limited to PCE. A northwest to southeast ground water flow direction was estimated from the water table survey data. PCE concentrations ranged from 7.4 µg/L at the onsite boring A-1 to 20 µg/L at offsite boring A-3. EAI concluded that PCE migrated onto the site from an (as yet unidentified) off-site up-gradient locality.

In April 2013, Terra Graphics[14] and teaming partner Hart Crowser performed comprehensive monitoring of the Tiger Oil plume wells, including one well KMW-16 located in line with the DID. Benzene was detected in KMW-16 at a concentration of 5.5 µg/L, just slightly greater than the

[14] TerraGraphics Environmental Engineering and Hart Crowser, Inc., June 12, 2013, *Final Groundwater Sampling Report* Tiger Oil, Yakima, Washington: Prepared for: State of Washington Department of Ecology Toxics Cleanup Program, Central Regional Office 15 West Yakima Avenue, Suite 200-, Yakima, Washington 98902-3401, Contract #C1100144; Work Assignment #C110144LL, 6 pages, 3 figures, 3 tables, and 4 appendices.

cleanup level of 5 µg/L. Based on water level data measured on April 2, 2013, the ground water flow direction was northwest to southeast across the site. Therefore, the benzene impact in MW-16 is likely from the Tiger Oil plume and not the United Builders site.

Current Status. ENW conducted a Phase I Environmental Site Assessment[6] at the site as part of ARGO Yakima LLC's due diligence and to secure funding for purchasing the property and shopping center facility. Specific to the northeast portion of the site, this assessment revealed that The Safeway Fuel 1235 site is listed in Ecology's Leaking Underground Storage Tank, Confirmed & Suspected Contaminated Sites list, and Voluntary Cleanup Program databases. Approximately 1,005 tons of PCS were removed from the site. Ecology indicated that only a limited investigation would be necessary to obtain a No Further Action determination from Ecology and regulatory closure of the Safeway Fuel 1235 file.

2.4 Topography

The US Geological Survey 7.5-minute Yakima West WA Topographic Quadrangle Map (1985) indicates the subject property is located at 1066 feet elevation mean sea level, on a terrace which slopes gently toward the Yakima River to the east.

2.5 Geologic Setting

Yakima is located in the Columbia Plateau physiographic province of Washington. The Columbia Plateau is bordered on the north and east by the Rocky Mountains, on the south by the Blue Mountains, and on the west by the Cascade Range.[15] The Columbia Plateau is underlain by voluminous (90,300 cubic miles) flows of the Columbia River Basalt Group (CRBG) which were erupted between 17 and 5.5 million years ago. CRBG flows comprise the bedrock in the Yakima basin. During the Pleistocene, the Cordilleran ice sheet advanced from Canada and covered parts of Washington. The ice damned drainages and created glacial impounded lakes, the largest of which was Lake Missoula. Repeated failures of the ice dams released catastrophic glacial floods which swept across northern Idaho, down the Spokane Valley, southwestward across eastern Washington, and through the Columbia River Gorge. These catastrophic floods scoured parts of eastern Washington and deposited a variety of sediments in their wake. As a result of Quaternary glaciation, loess, sand dunes, and sand sheets were deposited on the Columbia Plateau. Loess is clastic sediment formed predominantly by the accumulation of wind-blown or Aeolian silt-sized dust. Geologic mapping by Washington Department of Natural Resources, Division of Geology and Earth Resources staff indicates that the site is located on periglacial, Quaternary Loess deposits characterized by pale orange to brown eolian silt and fine sand; which

[15]Washington State Department of Natural Resources, Division of Geology and Earth Resources, Norman, D.K., et al, 2004, Geology of the Yakima Valley Wine Country – A Geologic Field Trip Guide from Stevenson to Zillah, Washington: Field Trip Guide 1.

locally contains caliche and tephra beds[16]. The mapped deposits include the Palouse Formation and all younger loess[17].

The borings completed east of the DID at the site (installed from 13 to 21 feet bgs) encountered clay, silt, sand, and gravel alluvium, the stratigraphic order of which varies from boring to boring. Borings KMW-16 and EB1A (designation for ENW's boring completed for this report) encountered gravelly sand with silt in the upper 6 to 8 feet of soil column. KMW-18 encountered gravel with silt and sand from 4 to 11 feet bgs. Borings KMW-04, KMW-14, and KMW-15 encountered silty, sandy gravel at greater depths of 19 to 20 feet bgs. Up to 11 feet of gravel fill was encountered in KMW-05, before finding silty sand from 11 to 16 feet bgs and sandy gravel from 16 to 20.5 feet bgs. Only silt, silty clay, and fine sand were encountered in KMW-01. A log for the EB1A soil boring ENW completed at the site is presented in Appendix A.

2.6 Hydrogeologic Setting

2.6.1 Surface Water

The topography of this portion of west Yakima slopes toward the east. Consequently surface drainage, where unmodified, is also toward the east. The site is outside the 100-year flood plain, according to the Federal Emergency Management Agency flood plain map panel 53000330001E. The National Wetland Inventory referenced by Environmental Data Resources, Inc., of Southport, Connecticut, shows that there are two wetlands in the vicinity of the site. One is located one mile to the southwest and one is located approximately one half (0.5) mile to the north.

The Yakima River is located approximately three miles to the east.

2.6.2 Ground Water

ENW accessed Ecology's Well Log Viewer to determine ground water conditions in the vicinity of the subject site. The Well Log Viewer did not indicate that any wells are present on the subject site. Water well logs for the vicinity of the subject site indicate that ground water is present below the site at a depth of approximately 7.5 to 12.5 feet bgs. Work conducted by ENW for this report measured depth to water from 9.74 to 15.06 feet bgs.

[16] Washington State Department of Natural Resources, Division of Geology and Earth Resources, Walsh, Timothy J, et al, 1987, Geologic Map of Washington - Southwest Quadrant, Geologic Map GM-34

[17] Washington State Department of Natural Resources, Division of Geology and Earth Resources, Bentley, R.D. and Campbell, N.P., 1983, Geologic Map of the Yakima Quadrangle, Washington, Geologic Map GM-29.

3.0 METHODS AND PROCEDURES

This section describes the methods and procedures used to collect and evaluate samples for the focused subsurface investigation. Work performed for this project was developed with the following specific objectives:

- To conduct an adequate and cost-effective investigation for the purposes of assessing impacts to the site, and in providing information that can be used by the Client in future planning for the site.
- To perform the investigation 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 investigation. A photographic log of all the field work is presented in Appendix B, Field Data Sampling Sheets are included in Appendix C, and laboratory analytical reports are included in Appendix D. Findings are presented in Section 4.

3.1 Soil Sampling Methodology

3.1.1 Direct-Push and Hand Auger Borings

ENW staff collected soil samples at one location (EB1A). All sampling equipment was decontaminated before and after each boring using a sequential wash of Alconox-water, ½ Alconox-water (diluted), and distilled water. First, a 2-inch inside diameter hole was cored through the exterior pavement using a roto-hammer fitted with a masonry bit. ENW staff then attempted to use a 2-inch outside diameter auger to advance the borehole and collect a soil sample. Due to the gravels underlying this portion of the site, it was impossible for ENW staff to advance the borehole beyond a depth of three feet using a hand auger. In fact, it became necessary for ENW to move the borehole south 3 feet (EB1A) following the first attempt (EB1), believing that the hole may have been located within the gravel fill of the former YSB-1 excavation. ENW staff used a slide hammer to hand-drive a GeoProbe-type sampler to collect a one-inch outside diameter soil core. The boring was advanced to 13 feet bgs, sufficient to sample ground water. ENW staff logged the recovered soil cores; screened recovered soils using a photoionization detector (PID), visual, and olfactory means; and transferred samples from the freshly recovered soil cores directly into laboratory-supplied jars with clean Nitrile gloves. The jars were promptly sealed with minimal interior headspace and labeled with distinctive designations. The samples were immediately placed in a cooler with ice and remained in cooled storage until delivered to a laboratory for analysis under chain-of-custody protocols.

3.1.2 Reconnaissance Ground Water Sampling

A reconnaissance ground water sample was collected from a temporary well point set in the base of EB1A. The well point was subjected to a sequential wash of Alconox® solution, tap water, and distilled water, before and after sampling. The temporary borehole was purged of at least one (1) liter before sampling. The water was sampled using a peristaltic pump with new polyethylene tubing.

Samples collected for VOCs and GRO analyses were collected in volatile organic analysis (VOA) vials preserved with aliquots of hydrochloric acid, prepared by the laboratory. The sample containers were filled completely and immediately sealed to eliminate headspace. Samples collected for polynuclear aromatic hydrocarbons (PAHs) were collected in unpreserved one (1)-liter brown glass containers (Boston Rounds). Samples collected for total petroleum hydrocarbon (TPH) and diesel- and residual oil-range organics (DRO/RRO) analysis were collected in a Boston Rounds container with an aliquot of hydrochloric acid. All samples were immediately placed in cooled storage until they were delivered to the laboratory. Chain-of-custody protocols were implemented for all samples.

3.2 Ground Water Elevation Measurements

On April 9, 2014, select monitoring wells (see Section 4.1) were opened to allow water levels to equilibrate to ambient barometric pressure. Depth-to-water measurements were then made relative to the notched top of casing of each monitoring well. 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.

3.3 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 were transferred slowly into VOA containers without turbulence, and eliminating all bubbles within the container before sealing. After sealing, each VOA container was labeled with the sample location, depth of sample, date, time, sampler name, and analysis required. Samples collected for TPH and 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. 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.

3.4 Well Survey and Field Check

On April 10, 2014, monitoring well top-of-casing elevation was derived for EPI-MW-2 using a Ziplevel® relative to preexisting top-of-casing survey elevations for the nearby “KMW-“ series

monitoring wells. In addition, the latitude and longitude of existing site features were established using a Garmin GPS unit. The relative locations of mapped features were field checked using relative taped distances.

3.5 Analytical Methods

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

All samples were analyzed according to the analytical plan presented in Table 3-2, below.

Table 3-1. Analytical Methods

Analytical Method	Constituents	Soil	Ground Water
NWTPH-Dx	Total Petroleum Hydrocarbons (TPH)-Diesel-Range quantification (DRO) and Residual (Oil)-Range quantification (RRO)	EB1A; hold any optional samples	EB1A only; hold well samples
US Environmental Protection Agency (EPA) 8015B(M)	Extractable Petroleum Hydrocarbon Fractions	Hold for analysis if necessary, based on initial data evaluation	NA
EPA 8260B	DRO-related Volatile Organic Constituents: Benzene, Toluene, Ethylbenzene and Xylenes (BTEX)	EB1A; hold any optional samples	EB1A only; hold well samples
EPA 8270-SIM	Polynuclear Aromatic Hydrocarbons (PAHs), also include 1 methyl-naphthalene and 2-methyl-naphthalene	EB1A; hold any optional samples	Only with detection of DRO
1. EPA 8260 modified to only analyze for constituents of diesel indicated in MTCA Table 830-1 "Required Testing for Petroleum Releases"			

3.6 Cleanup Standards

3.6.1 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. MTCA is a risk-based approach further discussed in Section 5.0.

3.6.2 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).

3.7 Waste Management and Disposal

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

3.8 Site Restoration

All borings were backfilled with bentonite Holeplug®, and the ground surface was restored with asphaltic concrete cold patch.

4.0 FINDINGS

ENW conducted the focused site investigation on April 9 and 10, 2014. Results are discussed in this section.

4.1 Limited Ground Water Monitoring

On April 9, 2014, the monitoring wells listed in Table 4-1 were accessed and depth-to-water measurements taken. 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 DID (see Figure 5). This data is consistent with historical ground-water flow direction determinations. It also confirms that the reconnaissance ground water sample collected from EB1A is representative of ground water hydraulically down-gradient from the former remedial excavation area.

4.2 Summary of Sampling Locations

A soil sample and a reconnaissance ground water sample were collected from soil boring EB1A as described in Table 4-2. For efficiency, monitoring wells KMW-04 and EPI-MW-2 were also sampled to potentially provide hydraulically down-gradient data in the event that constituents of interest (COIs) were detected in reconnaissance ground water sample EB1A. However, monitoring results (Section 4.4) indicated analysis of these samples were not necessary.

Table 4-2. Summary of Sampling Locations

Medium	Sample Location Identification	Sample ID	Date Sampled	Depth Sampled (feet bgs)	Sampled by:	Location and Comments
Soil	EB1A	EB1A-12	4/9/2012	12	ENW	N 46.5805°, W 120.53886°, 18'N and 25'W of SW corner of Safeway Fueling Center Kiosk
Reconnaissance Ground Water	EB1A	EB1A-GW-13	4/10/2014	10.9	ENW	N 46.5805°, W 120.53886°, 18'N and 25'W of SW corner of Safeway Fueling Center Kiosk

4.3 Field Observations and Screening

There were no visible or olfactory indications of hazardous substance impacts during the subsurface investigation performed at the site. Very low PID readings were recorded in soil from boring EB1A (all less than 2.0 parts per million by volume [ppmv]).

4.4 Analytical Results

Soil and reconnaissance ground water sampling and analysis adjacent to the south side of the former YSB-1 excavation indicate that residual impacts are only present at low concentrations below applicable cleanup concentrations. These results corroborate the confirmation sample analyses conducted by Landau[1] in 2004.

Soil. Sample EB1A-12 was collected adjacent to, but outside, the southern margin of former soil remediation excavation. No DRO, RRO, or BTEX were detected in the sample above method reporting limits. A few PAHs were detected; however, at very low concentrations, none of which exceeded their respective MTCA Method A Cleanup Levels. Analytical data for soil sample EB1A-12 are presented in Table 1 (following text after Tables Tab).

Reconnaissance Ground Water. Sample EB1A-GW-13 was collected immediately down-gradient of the former YSB-1 excavation and therefore is representative of ground water conditions in the remedial excavation area.

- DRO was detected at 56 µg/L; however, was flagged by the laboratory that its chromatogram signature did not resemble the fuel standard used in the analysis. This concentrations is well below the MTCA Method A Cleanup Level.
- RRO was not detected[18].
- Benzene, toluene, ethylbenzene, and xylenes were not detected.
- Low-concentration fluorene was detected; however, did not exceed its EPA RSLs (note, MTCA Method A Cleanup Level for fluorene has not been established).
- Naphthalene and 1-methylnaphthalene were detected at concentrations well below the MTCA Method A Cleanup Level applicable to all naphthalene compounds.

Analytical data for ground water sample EB1A-GW-13 are presented in Table 2 (following text after Tables Tab).

[18] Note, laboratory had to cleaned up sample extract using silica gel due to matrix interference

5.0 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.

5.1 Identification of Constituents of Interest

COIs identified for the site are as follows:

- DRO and RRO
- BTEX
- PAHs

5.2 Identification of Constituents of Potential Concern

Tables 1 and 2 compare laboratory-reported constituent concentrations with the MTCA Method A Cleanup levels (most conservative risk-based concentrations). Where MTCA cleanup concentrations have not been established, EPA 2013 RSLs are used to screen soil and ground water. If a COI's concentration exceeds its respective cleanup/screening level, than that COI is considered a constituent of potential concern (COPC) and requires further evaluation.

5.2.1 Soil

Table 1 shows that no COPCs in soil were identified.

5.2.2 Ground Water

Table 2 shows that no COPCs in ground water were identified.

6.0 CONCLUSIONS

As previously stated, this project was conducted to: 1) confirm that DRO/RRO and related constituents are not present in soil immediately adjacent to the former remedial excavation at concentrations that exceed MTCA screening levels; 2) confirm that ground water hydraulically down-gradient of the former remedial excavation is not impacted with residual DRO, RRO, or their constituents at concentrations that exceed MTCA screening levels; and 3) confirm a southeastward ground water flow direction and gradient east of the DID. As we understood through our prior discussions with Ecology, a satisfactory resolution of these data gaps gives sufficient information and justification for Ecology to issue a "No Further Action" determination and grant regulatory closure of the site. Findings related to each scope are summarized here.

6.1 Residual DRO and RRO Constituents in Soil

DRO, RRO, and their related constituents were not detected in a soil sample collected adjacent to the former YSB-1 remedial soil excavation above MTCA Method A Cleanup Levels for unrestricted land use, thereby corroborating Landau's 2004[1] soil confirmation results. These results indicate residual petroleum constituents are unlikely to be present at concentrations that may pose a risk to current or future human receptors.

6.2 Residual DRO and RRO Constituents in Ground Water

DRO, RRO, and their related constituents were not detected above MTCA Method A screening levels in a reconnaissance ground water sample collected immediately down-gradient of the former YSB-1 excavation. These results indicate that low-level residual petroleum constituents in ground water are unlikely to present an unacceptable risk to current or future site receptors.

6.3 Ground Water Flow Direction and Gradient

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 is representative of ground water hydraulically down-gradient from the former remedial excavation area.

Based on these findings, no additional investigation is warranted at this time. Ecology is requested to grant regulatory closure and issue a "No Further Action" letter for the site.

7.0 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.

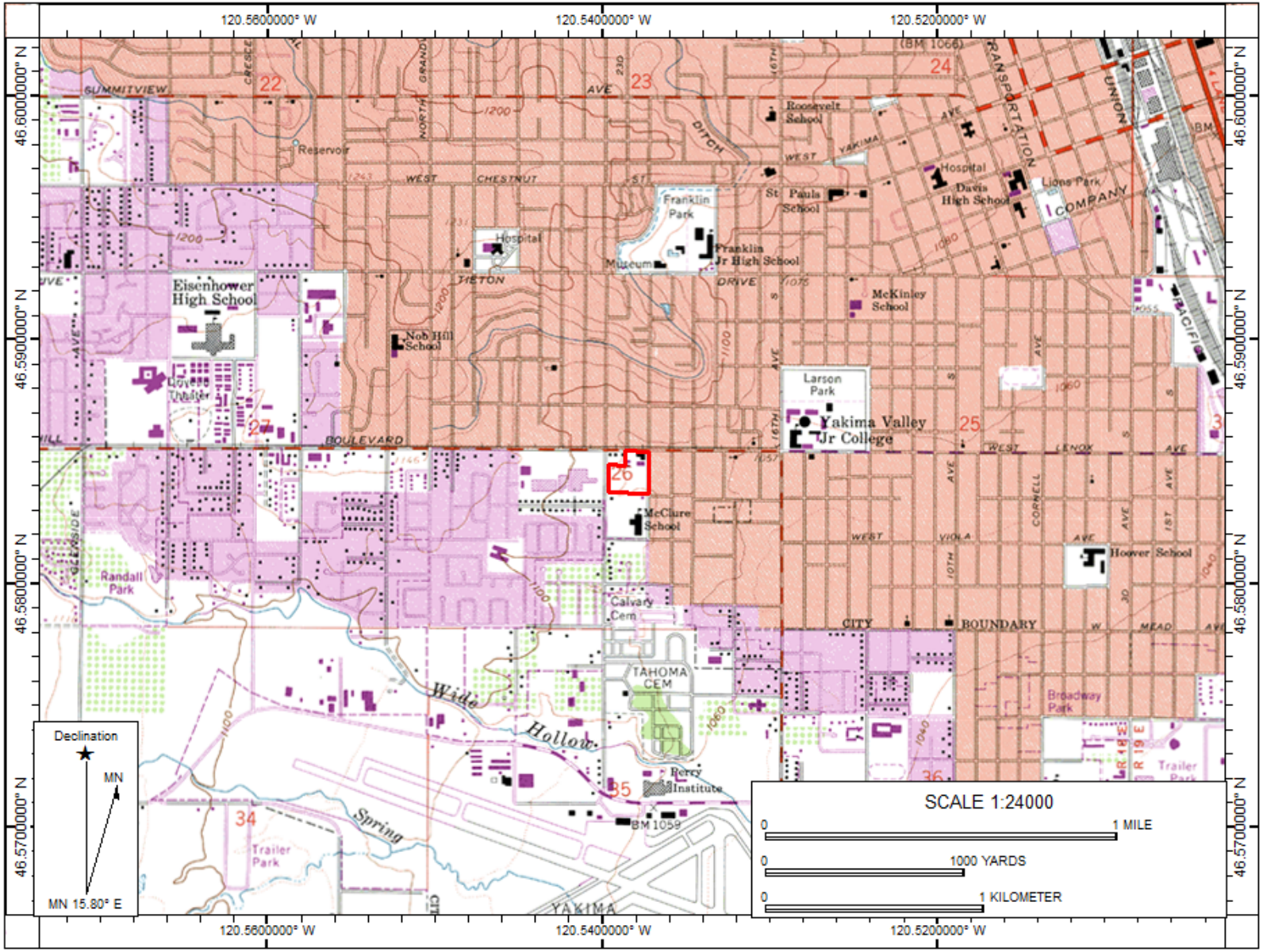
1. Naturally occurring toxic or hazardous substances in the subsurface soils, geology and water,
2. Toxicity of substances common in current habitable environments, such as stored chemicals, products, building materials and consumables,
3. Contaminants or contaminant concentrations that are not a concern 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.

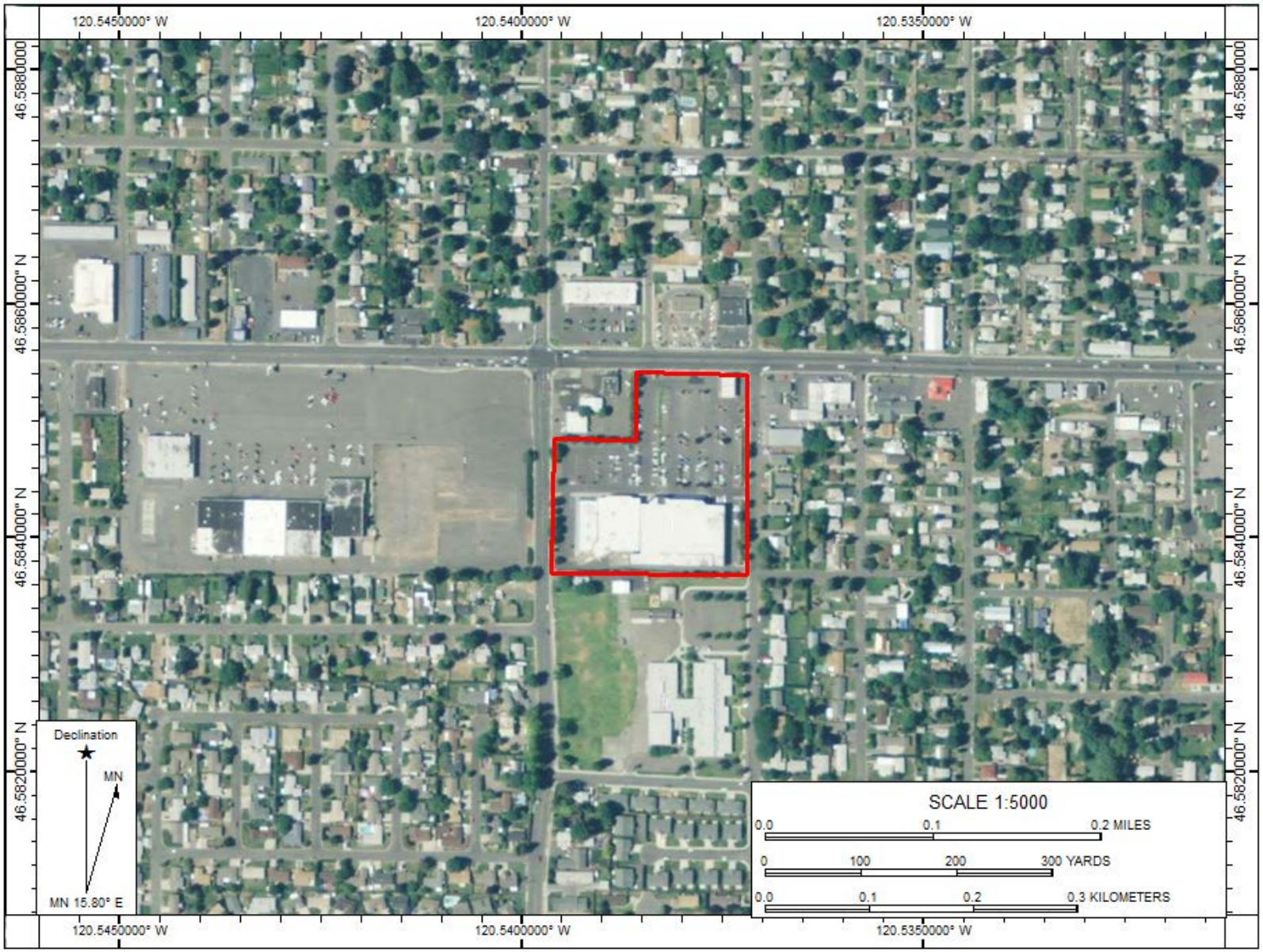
FIGURES



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

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

EVREN NORTHWEST	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**

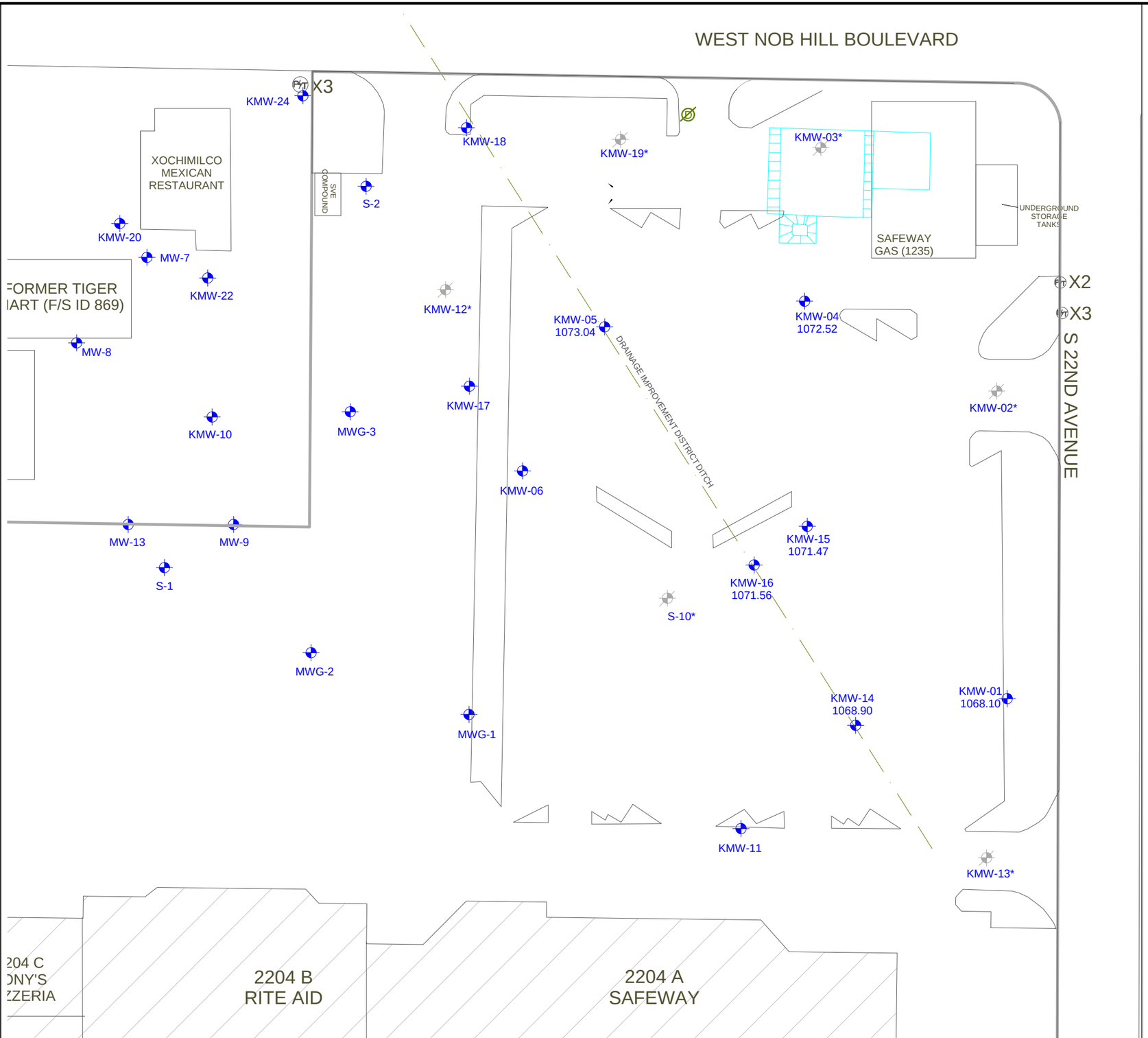


Mape Name: YAKIMA WEST NE, WA Quadrangle
Date: Jul 1, 2009

Location: 046.5939012° N, 120.5300729° W

EVREN NORTHWEST	Date Drawn: 5/5/2014 CAD File Name: 773-13001aerial(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)
- 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 03/19/2014	L. GREEN 01/09/2014	773-13001(V02)

WEST NOB HILL BOULEVARD

GP-4
GP-3
GP-5
GP-6
GP-1
GP-2
GP-7
GP-4
GP-9
GP-10
GP-11
GP-12
GP-13
GP-14

KMW-18
1075.17
KMW-18
KMW-19*
KMW-03*
KMW-12*
KMW-05
1073.04
KMW-17
KMW-06
KMW-04
1072.52
KMW-15
1071.47
KMW-02*

YSB-1-NSW
YSB-1-BTM1-12
YSB-8-WSW
YSB-8-NSW
YSB-1-WSW
YSB-1
YSB-1-BTM2-11.5
YSB-8-BTM1-6
YSB-8-ESW
YSB-8
YSB-8-BTM2-6
YSB-1-ESW-8.5
EB1A
YSB-1-ESW-5
YSB-8-SSW
YSB-1-WSW-8.5
YSB-1-BTM3-16
YSB-1-SSW-5
YSB-1-SSW-8.5
FORMER UST

EPI-MW-2
1069.64
EPI-MW-3

FORMER GAS AND DIESEL USTS

FORMER UNITED BUILDERS SITE

SAFEWAY GAS (1235)

UNDERGROUND STORAGE TANKS

DRAINAGE IMPROVEMENT DISTRICT DITCH

X2
X3

S 22ND AVENUE

LEGEND:

- SUBJECT PROPERTY BOUNDARIES
- SUBJECT BUILDINGS
- FORMER UNDERGROUND STORAGE TANK
- INDEPENDENT CLEANUP ACTION SOIL REMOVAL AREA (FEB 2004)
- DECOMMISSIONED DRY WELL
- KMW-04 — MONITORING WELL (*INDICATES WELL IS ABANDONED)
- YSB-1-ESW-8.5 — LANDAU ASSOCIATES GRAB SAMPLE (FEBRUARY 2004)
- YSB-1 — EVIRONMENTAL PARTNERS BORINGS (NOVEMBER 2001)
- PROPOSED ENW BORING
- GP-1 — LANDAU ASSOCIATES BORING (1999)
- SAFEWAY WELLS* *WELL CONSTRUCTION AND DATE INSTALLED UNKNOWN

NOTES:

1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2012 AND ENW FIELD NOTES.
2. ALL BUILDING, STREET, FEATURE, AND SAMPLE LOCATIONS ARE APPROXIMATE.

APPROXIMATE SCALE

0 30 60 FEET

N

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FIGURE 4
SOIL SAMPLE LOCATION DIAGRAM
(PREVIOUS AND CURRENT)

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

DRAWING NUMBER 773-13001(v04)
APPROVED BY L. GREEN 04/28/2014
CHECKED BY P. TRONE 04/28/2014
DRAWN BY K. CLINE 04/28/2014

WEST NOB HILL BOULEVARD

KMW-18
1075.17
KMW-18
KMW-19*
KMW-03*
S-2
1073
EB1A
UNDERGROUND STORAGE TANKS
SAFEWAY GAS (1235)
EPI-MW-2
1069.64
EPI-MW-3
X2
X3
KMW-12*
KMW-05
1073.04
1073
DRAINAGE IMPROVEMENT DISTRICT DITCH
KMW-04
1072.52
KMW-17
MWG-3
KMW-02*
S 22ND AVENUE
KMW-06
1070.5
KMW-15
1071.47
KMW-16
1071.56
S-10*
1073
KMW-14
1068.90
KMW-01
1068.10
MWG-1
KMW-11
KMW-13*

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 (GREY COLOR INDICATES WELL IS ABANDONED)
- 1073 — GROUND WATER CONTOUR LINE WITH ELEVATION (FT) BASED ON ARBITRARY DATUM
- GROUND WATER FLOW DIRECTION
- ENW BORING
- DECOMMISSIONED DRY WELL
- DRAINAGE IMPROVEMENT DISTRICT DITCH

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 MEASUREMENTS BY ENW (APRIL 2014)

APPROXIMATE SCALE

0 45 90 FEET

N

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FIGURE 5

GROUND-WATER CONTOUR DIAGRAM

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

TABLES

Table 1 - Summary of Analytical Data, Soil

Sample ID		EB1A-12	MTCA Method A Soil Cleanup Levels for Unrestricted Land Uses	Nov. 2013 EPA RSLs Residential Soil - Protection of Ground Water (mg/Kg)	Constituent of Potential Concern (COPC)?
Date Sampled		4/9/2014			
Depth Sampled (feet)		12			
Sampled by:		ENW			
Location		46.5805 120.53886			
Constituent of Interest	Note	mg/Kg (ppm)	mg/Kg (ppm)		Y / N
Polyaromatic Hydrocarbons					
Acenaphthene	nc, v	<0.01 (ND)	---	4.1	N
Anthracene	nc, v	<0.01 (ND)	---	42	N
Benz[a]anthracene	c, nv	<0.01 (ND)	0.1 **	0.01	N
Benzo[a]pyrene	c, nv	<0.01 (ND)	0.1 **	0.0035	N
Benzo[b]fluoranthene	c, nv	0.014	0.1 **	0.035	N
Benzo[k]fluoranthene	c, nv	<0.01 (ND)	0.1 **	0.35	N
Chrysene	c, nv	0.017	0.1 **	1.1	N
Dibenz[a,h]anthracene	c, nv	<0.01 (ND)	0.1 **	0.011	N
Fluoranthene	nc, nv	<0.01 (ND)	---	70	N
Fluorene	nc, v	<0.01 (ND)	---	4.0	N
Indeno[1,2,3-cd]pyrene	c, nv	0.011	0.1 **	0.2	N
Pyrene	nc, nv	0.010	---	9.5	N
Naphthalene	c, nv	<0.01 (ND)	5	0.00047	N
1-Methylnaphthalene	c, nv	<0.01 (ND)		0.0051	N
2-Methylnaphthalene	c, nv	<0.01 (ND)		0.14	N
Volatile Organic Constituents (VOCs)					
Benzene	c, v	<0.03 (ND)	0.03	0.00021	N
Ethylbenzene	nc, v	<0.05 (ND)	6	0.0017	N
Toluene	nc, v	<0.05 (ND)	7	1.6	N
Xylenes	nc, v	<0.1 (ND)	9	0.20	N
Total Petroleum Hydrocarbons					
DRO	nc, nv	<50 (ND)	2000	NE	N
RRO	nc, nv	<250 (ND)		NE	N

Notes:

ND = not detected at or above laboratory method reporting limits

— = not analyzed or not applicable.

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

NE = not established.

mg/Kg = milligram per kilogram.

nc = noncarcinogenic

v = volatile

nv = nonvolatile

DRO = diesel-range organics.

RRO = residual-range organics.

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

Bolded concentrations exceed either MTCA Cleanup Levels or EPA screening levels.

Table 2 - Summary of Analytical Data, Reconnaissance Ground Water

Sample ID		EB1A-GW-13	Maximum Ground Water Concetnration	MTCA Method A Cleanup Levels for Groundwater	EPA Region IX Regional Screening Levels (Tapwater) Last Updated November 2013	Constituent of Potential Concern (COPC)?[3]
Depth to Water		10.9				
Screen Interval		9' - 13'				
Sample Type		Water				
Date Sampled		4/10/2014				
Location		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)	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	56 x*	56 x*	500	NE	N
RRO (Generic Mineral Insulating Oil)	nc, nv	<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)

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 BORING LOGS

EVREN Northwest, Inc.

DRILL LOG

PROJECT	PROJECT NO.	BORING NO.
Safeway #1235 (Former United Builders)	773-13001-03	**EB1A**

SITE	BEGUN	COMPLETED	HOLE SIZE	ANGLE FROM HORIZ.
2204 West Nob Hill Boulevard, Yakima, Washington		4/9/14	2"	90

COORDINATES	DEPTH GROUND WATER	DATE SL	STATIC LEVEL	FIRST WATER	GROUND ELEVATION
E: W 120.53869, N: 46.58505		4/10/14	10.9	11.5	1066.00 MSL

DRILLER	CORE RECOVERY (%)	# SAMPLES	# CORE BOXES	DEPTH TOP OF ROCK
ENW	100	2		

DRILL MAKE AND MODEL	LOGGED BY:	DEPTH BOTTOM OF HOLE
Hand Auger and Manual Geoprobe	Erik Chapman	14

DEPTH	STRATA ELEVATION/ DEPTH	GRAPHIC LOG	DESCRIPTION	SAMPLE DATA: SAMPLE NO.	SAMPLE DATA: SAMPLE TYPE	SAMPLE DATA: CORE RECOVERY	SAMPLE DATA: MW Const./ Completion	PID/OVM	REMARKS: NOTES ON WATER LEVELS, LOSSES, CAVING, CASING, DEPTH & DRILLING CONDITIONS.
0			Asphalt Surface						
	1065		Gravel base course						
			Fine sandy SILT with gravel, dry, dark grey, loose, angular gravels, low cohesive, organic odor						
3									Change from hand auger to manual geoprobe
	1062								
6									
	1059							1.4	
								1.1	
								2.0	
9			Transitions to a sandy SILT, damp, mottled light brown and grey brown					0.8	
	1056							0.3	
								0.2	
12			Soil and water interface - some moisture	EB1A-12				0.1	
	1053		Free water						
			Total Depth = 14 feet						
15									
	1050								
18									
	1047								
21									
	1044								

APPENDIX B PROJECT PHOTOGRAPHS

Advancing boring EB1A using a slide hammer and manual direct-push technology (DPT) - view north.

Retrieving soil core from manual DPT sample sleeve and screening with a PID.

Purging ground water from monitoring well KMW-04.

Monitoring well EPI-MW-2 south of fueling station – view east-southeast.

EVREN NORTHWEST INC. environmental / natural resource consultants	Safeway Fueling Center #1235 2204 W Nob Hill Boulevard Yakima, Washington	**Site Photographs**	Project No. 773-13001-03 Appendix **B**

Sampling KMW-04 – view west.

Close-up showing recovered saturated soil from EB1A.

Wet, gravelly sandy soil recovered from EB1A at the soil/water interface.

Purging ground water from EB1A – view northeast.

EVREN NORTHWEST INC. environmental / natural resource consultants	Safeway Fueling Center #1235 2204 W Nob Hill Boulevard Yakima, Washington	**Site Photographs**	Project No. 773-13001-03 Appendix **B**

View down hole in EB1A showing the gravelly character of the soil.

Sampling ground water at EB1A – view northeast.

Surveying top-of-casing elevations for Safeway UST observation wells – view west.

EVREN NORTHWEST INC. environmental / natural resource consultants	Safeway Fueling Center #1235 2204 W Nob Hill Boulevard Yakima, Washington	**Site Photographs**	Project No. 773-13001-03 Appendix **B**

APPENDIX C FIELD DATA SAMPLING SHEETS

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: 775-1300-03 **WELL ID:** KMW-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	.
4/9/14	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	R	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)

FIELD SAMPLING DATA SHEET (Low-Flow Sampling)

EVREN NORTHWEST
environmental natural resource consultants

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

PROJECT NAME/NUMBER: 773-13001-03 - KNOB HILL SHOPPING **WELL ID:** KMW04

PROJECT NO: **BLIND ID:**

DUP ID: NA

WATER QUALITY DATA

Purge Start Time: 1328 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: 773-13001-03 **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: [√ if used]

Bottle Type	Date	Time	Method §	Amount & Volume mL	Preservative [circle]	Ice	Filter	pH	√
VOA Glass	4/10/14	08:30	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		
	NA /	:			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, INC.
environmental natural resource consultants

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

PROJECT NAME/NUMBER: **WELL ID:** SAFEWAY-EW

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)
/ /	:	.	.	.	.	.	X 1	.
4/9/14	15:02	.	.	12.62	.		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	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: 773-13001-03 **WELL ID:** BAEUMEL-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	15.91	-168	2.12	IRON STAINING
2		0.8	60	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	476	.	
4		1.5	60	12.68	0.06	7.23	1295	15.73	-180	.	
5		1.8	60	12.67	0.05	6.98	1299	18.76	-184	1.24	
6		2.1	60	12.67	0.05	6.92	1302	18.90	-183	1.12	
7		2.4	60	12.67	0.05	6.89	1311	18.83	-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 CLINE (PRINTED NAME) (SIGNATURE)

APPENDIX D LABORATORY ANALYTICAL REPORTS

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

April 18, 2014

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

Dear Mr. Green:

Included are the results from the testing of material submitted on April 11, 2014 from the Data Gap Investigation 773-13001, F&BI 404231 project. There are 10 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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
ENW0418R.DOC

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

All quality control requirements were acceptable.

Date of Report: 04/18/14
Date Received: 04/11/14
Project: Data Gap Investigation 773-13001, F&BI 404231
Date Extracted: 04/14/14
Date Analyzed: 04/15/14

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

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Residual Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 53-144)
EB1A-12 404231-01	<50	<250	105
Method Blank 04-729 MB	<50	<250	96

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	EB1A-12	Client:	Evren Northwest
Date Received:	04/11/14	Project:	Data Gap Investigation 773-13001
Date Extracted:	04/14/14	Lab ID:	404231-01
Date Analyzed:	04/14/14	Data File:	041415.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	142
Toluene-d8	97	51	121
4-Bromofluorobenzene	97	32	146

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	Data Gap Investigation 773-13001
Date Extracted:	04/14/14	Lab ID:	04-0734 mb
Date Analyzed:	04/14/14	Data File:	041410.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	62	142
Toluene-d8	96	51	121
4-Bromofluorobenzene	96	32	146

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	EB1A-12	Client:	Evren Northwest
Date Received:	04/11/14	Project:	Data Gap Investigation 773-13001
Date Extracted:	04/14/14	Lab ID:	404231-01 1/5
Date Analyzed:	04/15/14	Data File:	041423.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	125	50	150
Benzo(a)anthracene-d12	129	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	0.010
Benz(a)anthracene	<0.01
Chrysene	0.017
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	0.014
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	0.011
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	0.014
1-Methylnaphthalene	<0.01
2-Methylnaphthalene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	Data Gap Investigation 773-13001
Date Extracted:	04/14/14	Lab ID:	04-731 mb 1/5
Date Analyzed:	04/14/14	Data File:	041405.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	116	50	150
Benzo(a)anthracene-d12	115	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01
1-Methylnaphthalene	<0.01
2-Methylnaphthalene	<0.01

Date of Report: 04/18/14
Date Received: 04/11/14
Project: Data Gap Investigation 773-13001, F&BI 404231

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

Laboratory Code: 404231-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	111	109	64-133	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	111	58-147

Date of Report: 04/18/14
Date Received: 04/11/14
Project: Data Gap Investigation 773-13001, F&BI 404231

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 404094-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Benzene	mg/kg (ppm)	2.5	<0.03	76	72	29-129	5
Toluene	mg/kg (ppm)	2.5	<0.05	78	74	35-130	5
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	81	76	32-137	6
m,p-Xylene	mg/kg (ppm)	5	<0.1	82	77	34-136	6
o-Xylene	mg/kg (ppm)	2.5	<0.05	82	78	33-134	5

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	2.5	84	68-114
Toluene	mg/kg (ppm)	2.5	85	66-126
Ethylbenzene	mg/kg (ppm)	2.5	87	64-123
m,p-Xylene	mg/kg (ppm)	5	88	78-122
o-Xylene	mg/kg (ppm)	2.5	90	77-124

Date of Report: 04/18/14
Date Received: 04/11/14
Project: Data Gap Investigation 773-13001, F&BI 404231

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: 404199-10 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	<0.01	87	89	44-129	2
2-Methylnaphthalene	mg/kg (ppm)	0.17	<0.01	79	97	45-135	20
1-Methylnaphthalene	mg/kg (ppm)	0.17	<0.01	80	96	64-115	18
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	94	97	52-121	3
Acenaphthene	mg/kg (ppm)	0.17	<0.01	93	96	51-123	3
Fluorene	mg/kg (ppm)	0.17	<0.01	108	102	37-137	6
Phenanthrene	mg/kg (ppm)	0.17	<0.01	90	92	45-124	2
Anthracene	mg/kg (ppm)	0.17	<0.01	94	98	32-124	4
Fluoranthene	mg/kg (ppm)	0.17	<0.01	101	105	50-125	4
Pyrene	mg/kg (ppm)	0.17	<0.01	95	97	41-135	2
Benz(a)anthracene	mg/kg (ppm)	0.17	<0.01	89	92	23-144	3
Chrysene	mg/kg (ppm)	0.17	<0.01	97	101	45-122	4
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	<0.01	94	97	31-144	3
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	90	91	45-130	1
Benzo(a)pyrene	mg/kg (ppm)	0.17	<0.01	91	91	39-128	0
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	91	102	28-146	11
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	92	96	46-129	4
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	93	95	37-133	2

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	90	58-121
2-Methylnaphthalene	mg/kg (ppm)	0.17	94	58-123
1-Methylnaphthalene	mg/kg (ppm)	0.17	93	60-124
Acenaphthylene	mg/kg (ppm)	0.17	96	54-121
Acenaphthene	mg/kg (ppm)	0.17	95	54-123
Fluorene	mg/kg (ppm)	0.17	103	56-127
Phenanthrene	mg/kg (ppm)	0.17	93	55-122
Anthracene	mg/kg (ppm)	0.17	97	50-120
Fluoranthene	mg/kg (ppm)	0.17	104	54-129
Pyrene	mg/kg (ppm)	0.17	97	53-127
Benz(a)anthracene	mg/kg (ppm)	0.17	95	51-115
Chrysene	mg/kg (ppm)	0.17	100	55-129
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	105	56-123
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	85	54-131
Benzo(a)pyrene	mg/kg (ppm)	0.17	89	51-118
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	98	49-148
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	96	50-141
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	96	52-131

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.

A1 – More than one compound of similar molecule structure was identified with equal probability.

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 this range fell outside of acceptance criteria. The value reported is an estimate.

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

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

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. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

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

j – The result is below normal reporting limits. 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 analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is 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 compound indicated 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 in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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.

~~402 31~~ (NP) 404231

SAMPLE CHAIN OF CUSTODY ME 04/11/14

V4 / B05

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):

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 (X) per EC [illegible] Hold others
EB1A-12	01	4/9/14	1743	S	1	(X)						(X)	(X)	HOLD			* plus 1 methyl-naphthalene, 2-methyl-naphthalene
KMW04	02 A-E	4/9/14	1652	W	5	X						X	**				** QID

Samples received at 4 °C

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

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

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