

## **Site Check and Groundwater Monitoring Well Installation Report**

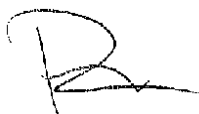
*Conducted on:*

**Smitty's Conoco Lincoln**  
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Yakima, Washington

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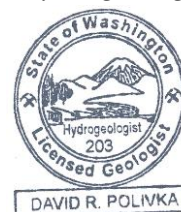
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AEG Project # 12-161  
Date of Report: January 5, 2015



## **TABLE OF CONTENTS**

<b>1.0 INTRODUCTION.....</b>	<b>1</b>
1.1 SITE SETTING AND BACKGROUND.....	1
1.2 PREVIOUS ENVIRONMENTAL WORK SUMMARY .....	2
1.2.1 Subsurface Investigation Jet Convenience Store Yakima, Washington - NUS Corporation, 1986.....	2
1.2.2 Well Installation – AEG, June 2013 .....	3
1.3 SITE GEOLOGY AND HYDROGEOLOGY .....	4
1.3.1 Geology.....	4
1.3.2 Hydrogeology .....	4
<b>2.0 OBJECTIVES AND SCOPE OF WORK .....</b>	<b>6</b>
<b>3.0 FIELD ACTIVITIES &amp; METHODOLOGY .....</b>	<b>7</b>
3.1 GROUNDWATER MONITORING WELL INSTALLATION.....	7
3.2 SOIL SAMPLING PROCEDURES .....	8
3.3 GROUNDWATER SAMPLING PROCEDURES .....	8
3.4 QUALITY CONTROLS .....	9
3.5 INVESTIGATION DERIVED WASTE .....	9
<b>4.0 ANALYTICAL RESULTS.....</b>	<b>10</b>
4.1 SOIL .....	10
4.2 GROUNDWATER .....	11
<b>5.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS.....</b>	<b>12</b>
5.1 SUMMARY.....	12
5.2 CONCLUSIONS.....	13
5.3 RECOMMENDATIONS .....	13
<b>6.0 LIMITATIONS.....</b>	<b>14</b>
<b>7.0 REFERENCES.....</b>	<b>15</b>

## **FIGURES**

- Figure 1: Vicinity Map  
Figure 2: Site Map

## **TABLES**

- Table 1: Summary of Soil Analytical Results  
Table 2: Summary of Groundwater Analytical Results

## **APPENDICES**

- Appendix A: Site Photographs  
  
Appendix B: Supporting Documents  
    Boring Logs  
- Laboratory Datasheets

## INTRODUCTION

Associated Environmental Group, LLC, (AEG) has completed a Site Check and installation of four groundwater monitoring wells at the Smitty's Conoco Lincoln Facility located in Yakima, Yakima County, Washington (Site). This project included the advancement of four borings, subsequently converted to groundwater monitoring wells MW-5 through MW-8, to further assess groundwater quality beneath the Site. This work was prompted by the discovery of free product in well MWS-3R, and the release of gasoline from one of the unleaded gasoline tanks at the Site, found during an underground storage tank (UST) tightness test in July of 2014. A video inspection of the USTs in November of 2014, after the installation of the monitoring wells for this Site Check, revealed the presence of a crack in one of the single walled fiberglass USTs at the Site. This crack was subsequently repaired.

The scope of work for this investigation was developed based on our professional judgment and experience in accordance with requirements in the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Cleanup Regulations (Chapter 173-340 WAC). The investigation was performed in general accordance with the American Society for Testing and Materials (ASTM) Standard E 1903-11, *Standard Guide Environmental Site Assessments: Phase II Environmental Site Assessment Process*.

### ***Site Setting and Background***

Smitty's Lincoln Yakima is located on the northeast corner of the intersection of West Lincoln Avenue and North 1<sup>st</sup> Street in Yakima, Yakima County, Washington (Site). The Site occupies approximately 0.23 acres and has associated Yakima County Assessor parcel number 191319-22429.

The property had operated as a retail gasoline station with an associated convenience store for approximately 31 years. The Site surface is covered by asphalt and structures with no impermeable surface. Currently, there are four USTs and three gasoline pump islands (with two dispensers at one island and one dispenser at each of the other two islands) under one canopy that occupies the approximate center area of the Site.

The present day UST system was installed in 1982 and includes four 10,000-gallon single-wall fiberglass reinforced plastic USTs, containing premium unleaded gasoline in one UST, unleaded gasoline in two USTs, and diesel fuel in the remaining UST. Three of the fuel lines are single-wall fiberglass with corrosion resistance, while the remaining fuel line is single-wall steel with no corrosion protection. Leak detection is performed by the Automatic Line Leak Detector system. Figure 1, *Vicinity Map*, presents the general boundaries and vicinity area.

***Previous Environmental Work Summary***

After noticing a loss of product during a product inventory check on November 17, 1986, the Site's manager shut down the pump system and scheduled the product line to be checked (Kayo Oil Company, 1986). While the repair company was checking the Site, a leak was discovered where the line enters the "sub-pump" manhole. Apparently, approximately 500 gallons of super unleaded gasoline had been released.

***Subsurface Investigation Jet Convenience Store Yakima, Washington - NUS Corporation, 1986***

In December of 1986, NUS Corporation (NUS) conducted a subsurface investigation at the Site (known then as the Jet Convenience Store, owned by KAYO Oil Company) to determine whether gasoline product had infiltrated the groundwater beneath the Site.

Between December 17, and December 24, 1986, four borings were advanced at the Site using an air rotary rig operated by Alberly Drilling, Inc. of Spokane, Washington. The borings were subsequently completed as 4-inch monitoring wells MW-1 through MW-4, to an approximate depth of 28 feet below ground surface (bgs). The wells were constructed with 4-inch diameter steel risers and 4-inch diameter stainless steel slotted screens with 0.010 slots, and bottom caps with silt traps (NUS Corp. 1987).

Monitoring wells MW-1 and MW-2 were placed downgradient of the underground storage tanks (USTs) while the other two wells were placed upgradient of the UST area. During the investigation, groundwater was encountered at approximately 19 feet to 20 feet bgs. Using water level measurements at the Site's wells, groundwater direction was determined to flow northeast, and generally with the local topography which slopes eastward towards the Yakima River (NUS Corp. 1987).

As part of the subsurface investigation, groundwater was sampled and analyzed on a quarterly basis from December of 1986, through April of 1988. Groundwater was analyzed for the gasoline associated volatile organic compounds (VOCs) benzene, toluene, ethylbenzene, and xylenes (BTEX) and total lead.

Analytical results indicated initial concentrations of benzene in wells MW-2, MW-3, and MW-4, at concentrations of 96 micrograms per liter (µg/l), 139 µg/l, and 353 µg/l, respectively, above Ecology's Model Toxics Control Act (MTCA) Method A groundwater cleanup level of 5 µg/l. Results from a sampling event in July of 1987 indicated benzene was detected in only monitoring well MW-3 at a concentration of 31 µg/l, down from 139 in December of 1986.

In a letter from NUS to Ecology dated May 11, 1988, the results of the April 1988 groundwater sampling event were reported to indicate continued contamination issues with MW-3. Wells MW-1 and MW-3 were sampled and analyzed for BTEX. In NUS's fifth groundwater sampling event, all detected concentrations for the constituents of concern were below their respective cleanup levels. Total lead was not detected in the groundwater samples in the three initial sampling events and was not analyzed for in the subsequent events.

#### AEG Groundwater Monitoring Event – July 2012

AEG conducted a groundwater monitoring and sampling event on July 17, 2012. During this event, only monitoring wells MW-1 and MW-3 were sampled because wells MW-2 and MW-4 had been paved over. Groundwater was analyzed for gasoline-, diesel-, and oil-range total petroleum hydrocarbons (TPH) and BTEX. Laboratory analytical results indicated the constituents of concern were not detected in well MW-1.

Gasoline-range TPH and benzene were detected in the sample collected from monitoring well MW-3R at concentrations of 18,900 µg/l, and 332 µg/l, above their respective Method A cleanup levels. Refer to Table 2, *Summary of Groundwater Analytical Results*, for historical analytical results.

#### Well Installation – AEG, June 2013

AEG conducted a Supplemental Remedial Investigation (RI) and installation of groundwater monitoring wells MW-2R, MW-3R, and MW-4R on June 5, and June 6, 2013. The objective of the RI was to investigate the nature and extent of petroleum hydrocarbon contamination at the Site in association with a known release of gasoline fuel in November of 1986. The groundwater monitoring wells were installed because monitoring wells MW-2 and MW-4 had been paved over and it was found that monitoring well MW-3 had been compromised by surface runoff, leaving the integrity of the well and the results of future analytical results in question.

After installation, ground surface and casing elevations at each well were surveyed by Don Wilton Surveying of Yakima, Washington, to the nearest 0.01 foot. The purpose for the survey was to establish elevation data relating the casing elevations to the potentiometric surface of the shallow groundwater. Vertical and horizontal datum were established using the Washington State Department of Transportation monument identifiers in NAVD 88 and NAD 83/07, respectively. Horizontal datum was established using the Washington State Plane North Coordinate System.

Soil and groundwater samples collected during the well installation event were analyzed for gasoline-, diesel- and oil-range TPHs via Northwest Method NWTPH-Gx and NWTPH-Dx/Dx Extended, and BTEX. Soil and groundwater analytical results indicated concentrations of

gasoline-range TPH above the MTCA Method A Cleanup Levels in the soil and/or groundwater samples from all borings and wells.

## ***Site Geology and Hydrogeology***

### *Geology*

The Site is located within the physiographic province of the Yakima River Basin that is part of the Columbia Basin in Eastern Washington. This province is underlain by Miocene Columbia River Basalt Group, which came from vents and fissures which is superimposed by loess hills and incised rivers. (DNR, 2013).

According to the *Geologic Map of Washington, Southeast Quadrant*, the Site and vicinity area is underlain by glacial Quaternary age alluvium deposits (Qa) (Schuster, J.E., Gulick, C.W., et al, 1997). The alluvium deposits typically consist of:

*“...clay, silt, sand, and gravel deposited in streambeds and fans; varied thickness and sorting; includes terrace and organic deposits in places; commonly includes reworked loess, outburst flood deposits (units Qfs, Qfg), Mazama tephra, Ellensburg Formation (units Mc, Mcg) and Ringold Formation (units (RMc, RMcg) sediments, and rounded to angular basalt clasts; older streambed deposits capped by pedogenic carbonates (stages I to IV of Machette, 1985) or silcrete; fan deposits in places overlain by and interstratified with loess and slopewash, little or no caliche development in fan deposits, fans generally cone-shaped with surface only moderately dissected; streambed deposits along rivers whose courses extend beyond the area covered by the Columbia River Basalt Group include pebbles and cobbles of quartzitic, granitic, metamorphic, and volcanoclastic rocks; normal to reversed magnetic polarity”* (Baker and others, 1991, p. 233).

Subsurface soils encountered during AEG's monitoring well installation conducted at the Site in September of 2014 consisted of dense sandy gravel, medium to coarse sand with gravel, fine sand, and coarse gravel, to a maximum depth explored of 25 feet (bgs).

### *Hydrogeology*

The City of Yakima is situated within the Yakima River Basin along the western margin of the Columbia Plateau region and is adjacent to the eastern foothills of the Cascade Range volcanic terrain. The Yakima River Basin is bounded on the west by the Cascades, the north by the Wenatchee Mountains, east by the Rattlesnake Hills, and south by the Horse Haven Hills. While the headwaters of the Yakima River are based in the Cascade Range, much of the river basin area

is semi-arid in climate due to the rain shadow effect created by the mountains to the west, creating a large demand on river water and groundwater resources during summer months for agricultural irrigation (US Department of Interior, 2002).

Generally there are three aquifer systems comprised within the Yakima River basin, including the following: 1) the shallow aquifer composed of alluvium; 2) a deeper, confined gravel aquifer called the Ellensburg aquifer; and 3) a deep basalt bedrock comprised aquifer (USGS, 1987). Due to the shallow nature of the petroleum hydrocarbons contamination at the Site, only the uppermost alluvial aquifer will be significant to this investigation.

The depth-to-groundwater encountered at the time of drilling was 20 feet bgs for all borings. Based on previous groundwater monitoring events at the Site, the direction of groundwater flow beneath the Site is primarily to the east and northeast. The southwestern portion of the Site appears to periodically flow to the southwest and may be affected by dewatering pumping along Lincoln Avenue to the west where it crosses beneath railroad tracks.

## **OBJECTIVES AND SCOPE OF WORK**

The objective of the Site Check and additional groundwater monitoring well installation was to more fully define the quality of groundwater further downgradient of the USTs and fuel dispenser islands, and try to establish the extent of the contaminant plume.

AEG's scope of work for the Site Check included subsurface exploration via a sonic drilling rig, well development, soil and groundwater sampling, submittal of samples to an analytical laboratory for testing, subsequent data analysis, and preparation of this report. Tasks performed included the following:

- Conducting both public and private utilities locates for the Site. Locates performed by Underground Utilities Locate Center included only areas in the public rights-of-way. Utilities Plus, LLC provided private utility locates on the Site;

- Advancing four soil borings and subsequently installing four groundwater monitoring wells to a maximum depth of 25 feet bgs;

- Documenting soil lithology at continuous intervals during borehole drilling;

- Field screening each sample utilizing a Photoionization Detector (PID) to facilitate the selection of appropriate soil samples to be submitted to the analytical laboratory. The soil samples were handled and transported in strict accordance with industry standard chain-of-custody protocols;

- Collecting soil samples at selected intervals from each of the borings advanced for this investigation;

- Conducting well development;

- Analyzing select soil samples for gasoline-, diesel- and oil-range total petroleum hydrocarbons and select volatile organic compounds (VOCs); and

- Preparing this report containing a summary of the subsurface conditions encountered, discussion of analytical laboratory results, conclusions, and recommendations.



## **FIELD ACTIVITIES & METHODOLOGY**

On September 18, 2014, AEG supervised the drilling of four borings and the subsequent installation of groundwater monitoring wells MW-5 through MW-8 at the Site to further define the downgradient extent of groundwater contamination. Borehole drilling was performed by Holt Services, Inc. (Holt Services) from Edgewood, Washington, using a Sonic Drill Rig. The locations selected for the subsurface investigation were based on laboratory analytical results during AEG's previous groundwater monitoring events conducted at the Site.

### ***Groundwater Monitoring Well Installation***

The monitoring well design and construction methods conformed to requirements and specifications outlined in Chapter 173-160 WAC (Washington Administrative Code) for "Resource Protection Wells" in the State of Washington. The monitoring wells were completed between 24 feet and 25 feet bgs. The monitoring wells were constructed with 15 feet of 4-inch diameter, 0.020-inch machine slotted polyvinyl chloride (PVC) casing (screen), mated to five feet of threaded, flush joint PVC riser pipe from the top of the screen to the surface. Figure 2, *Site Map*, shows groundwater monitoring well locations.

With the PVC casing installed in the borehole, the annulus between the casing and the borehole was filled with pre-sieved Colorado 10/20 grade silica sand from the bottom of the borehole to approximately two feet above the top of the well screen. A two-foot thick seal of bentonite chips was placed above the sand pack to approximately one foot bgs to prevent the infiltration of surface water along the well casing and to stabilize the upper section of the well. The wells were completed at surface with 8-inch diameter traffic-rated well boxes installed flush with the surface. Ecology well tag numbers were assigned to each new well as follows:

Well MW-5	Tag No. BIP-971
Well MW-6	Tag No. BIP-970
Well MW-7	Tag No. BIP-969
Well MW-8	Tag No. BIP-968

At the conclusion of well construction, the wells were developed by Holt Services by using a surge block and a submersible pump to withdraw water from the monitoring well at a rate enough to draw the water level in the well as low as possible and then allowing the well to recharge. Well development was conducted to remove fine-grained sediment from the filter pack and well bore. Development was considered complete when the wells produced water that was clear and relatively free of sediment.

### ***Soil Sampling Procedures***

Soil samples were collected and observed to document soil lithology, color, moisture content, and sensory evidence of impairment. The samples were collected using a core barrel contained within the drilling rod. The soil samples were retrieved in transparent plastic sleeves from the core barrel and placed at surface for inspection. All soil samples were screened in the field for organic vapor content utilizing a PID instrument. The PID readings are presented in the soil boring logs provided in Appendix B.

Soil samples selected for laboratory analyses were immediately transferred to laboratory provided containers. All soil samples were placed in a portable chilled ice chest and couriered to the Libby Environmental, Inc. (Libby) chemistry laboratory. Soil samples were handled and transported following industry standard chain-of-custody procedures. Laboratory analyses included:

Diesel and oil-range TPH using Method NWTPH-Dx /Dx Extended;

Gasoline-range TPH using Method NWTPH-Gx; and

Volatile organic compounds by Method 8260C/5035.

All analytical soil results were compared to the Ecology MTCA Method A soil cleanup levels.

### ***Groundwater Sampling Procedures***

AEG sampled the groundwater from the newly installed wells on September 26, 2014. Prior to sampling, depth-to-water measurements were obtained from all the existing Site wells by using an electronic water level indicator. The static depth to water in the wells ranged from 15.97 feet bgs in well MW-4R, to 17.70 feet bgs in well MW-7. New, dedicated polyethylene tubing was installed to total depth in each of the new wells. Following the EPA approved low-flow purging and sampling technique, groundwater from each well was purged until the field parameters, including pH, temperature, specific conductance, dissolved oxygen, and total dissolved solids stabilized.

Groundwater samples were collected in laboratory provided 40-milliliter (ml) vials for gasoline-range TPH and BTEX analyses and 1-liter amber bottles for diesel-range TPH. Upon collection, the samples were placed in a chilled cooler for transport under industry standard chain-of-custody to Libby Environmental, Inc.

### ***Quality Controls***

To ensure that quality information was obtained and was representative of the actual conditions at the Site:

All samples were collected in general accordance with industry protocols for the collection, documentation, and handling of samples;

Nitrile gloves were used in handling all sampling containers and sampling devices;

The drilling equipment was steam cleaned before and after each boring;

A site map showing monitoring well locations was completed prior to leaving the Site;

Water samples were filled carefully in the sampling bottles to prevent volatilization;

Upon sampling, all samples were immediately placed into chilled ice chests; and

The samples were transported under a chain-of-custody to the analytical laboratory for analysis.

The laboratory provided, standard quality assurance/quality control (QA/QC), included:

Surrogate recoveries for each sample;

Method blank results;

Duplicate analyses, matrix or blank spiked analyses; and

Duplicate spiked analyses.

### ***Investigation Derived Waste***

Investigation derived waste generated at the Site during this project consisted of soil cuttings from the subsurface exploration activities and water generated during well development, well purging before sampling, and equipment decontamination. These wastes were placed in approved Department of Transportation (DOT) steel drums and stored at the Site for subsequent characterization and disposal pending analytical results.

## ANALYTICAL RESULTS

### Soil

Soil samples collected from borings MW-5 through MW-8 were submitted for laboratory analyses of gasoline and diesel-range TPH, heavy oil, and BTEX. According to the laboratory analytical results, gasoline-range TPH was detected in boring MW-6 located to the southeast of MW-3R and the USTs at concentrations of 29 milligrams per kilogram (mg/kg) at a depth of 10 feet bgs, and at 226 mg/kg at a depth of 20 feet bgs. The sample from 20 feet bgs, exceeded the MTCA Method A cleanup level of 30 mg/kg.

Benzene was detected at 15 feet bgs in boring MW-6 at a concentration of 0.048 mg/kg, above the MTCA Method A soil cleanup level of 0.03 mg/kg. Ethylbenzene and total xylenes were detected only in the samples collected from boring MW-6 at concentrations of 0.74 mg/kg and 1.52 mg/kg respectively, below their respective MTCA Method A soil cleanup levels. Toluene was not detected in any soil sample collected. There were no detections of constituents of concern in the soil samples from borings MW-5, MW-7, and MW-8. The table below shows a summary of the soil analytical results.

Sample Number	Sample Depth (feet)	Date Sampled	Select Volatile Organic Constituents (mg/kg)				Total Petroleum Hydrocarbons (mg/kg)		
			B	T	E	X	Gasoline	Diesel	Oil
MW5-S4-20	20	9/18/2014	<0.02	<0.1	<0.05	<0.15	<10	<50	<100
MW5-S3-15	15	9/18/2014	<0.02	<0.1	<0.05	<0.15	<10	<50	<100
MW6-S2-10	10	9/18/2014	<0.02	<0.1	<0.05	<0.15	<b>29</b>	<50	<100
MW6-S3-15	15	9/18/2014	<b>0.048</b>	<0.1	<0.05	<0.15	<10	<50	<100
MW6-S4-20	20	9/18/2014	<0.02	<0.1	<b>0.74</b>	<b>1.52</b>	<b>226</b>	<50	<100
MW7-S2-10	10	9/18/2014	<0.02	<0.1	<0.05	<0.15	<10	<50	<100
MW7-S3-15	15	9/18/2014	<0.02	<0.1	<0.05	<0.15	<10	<50	<100
MW7-S4-20	20	9/18/2014	<0.02	<0.1	<0.05	<0.15	<10	<50	<100
MW8-S3-15	15	9/18/2014	<0.02	<0.1	<0.05	<0.15	<10	<50	<100
MW8-S4-20	20	9/18/2014	<0.02	<0.1	<0.05	<0.15	<10	<50	<100
PQL			0.02	0.1	0.05	0.15	10	50	100
Ecology MTCA Method A Cleanup Levels			0.03	7	6	9	30	2,000	2,000

*Notes:*

< = not detected at or above the laboratory detection limits

mg/kg = milligrams per kilogram

**Red font** indicates the concentration is below MTCA Cleanup Levels

**Bold font** indicates concentration detected below MTCA Cleanup Levels.

## Groundwater

Groundwater samples collected from monitoring wells MW-1 through MW-8 were submitted for laboratory analyses of gasoline and diesel-range TPH, heavy oil, and BTEX. According to the laboratory analytical results, gasoline-range TPH was detected in monitoring wells MW-2R, MW-3R, and MW-6 at concentrations exceeding the MTCA Method A cleanup level of 800 µg/l (benzene present in groundwater). Gasoline-range TPH in monitoring well MW-4R was detected at a concentration of 218 µg/l, below the MTCA Method A cleanup level. Refer to Figure 2, *Site Map*, for well locations.

Benzene was detected above the MTCA Method A groundwater cleanup level of 5 µg/l in the samples collected from monitoring wells MW-2R, MW-3R, and MW-6. Toluene, ethylbenzene, and total xylenes were detected in the samples from wells MW-2R, MW-3R, and MW-6. Concentrations above their respective MTCA Method A groundwater cleanup levels were detected in well MW-3R, and for total xylenes in well MW-6. There were no detections of constituents of concern in monitoring wells MW-1, MW-5, MW-7, or MW-8. The table below presents a summary of the groundwater analytical results as compared to the Ecology MTCA Method A groundwater cleanup levels.

Sample No.	Date sampled	Gasoline-range TPH (µg/l)	Diesel-range TPH (µg/l)	Heavy Oil (µg/l)	Volatile Organic Compounds (µg/l)			
					B	T	E	X
MW-1	9/26/2014	<100	<200	<400	<1.0	<2.0	<1.0	<3.0
MW-2R	9/26/2014	<b>905</b>	<b>6.6</b>	<b>141</b>	<b>37.3</b>	<b>103</b>	<b>6.6</b>	<b>141</b>
MW-3R	9/26/2014	<b>63,800</b>	<200	<400	<b>3,730</b>	<b>7,580</b>	<b>1,150</b>	<b>7,990</b>
MW-4R	9/26/2014	<b>218</b>	<200	<400	<1.0	<2.0	<1.0	<3.0
MW-5	9/26/2014	<100	<200	<400	<1.0	<2.0	<1.0	<3.0
MW-6	9/26/2014	<b>24,700</b>	<200	<400	<b>546</b>	<b>114</b>	<b>534</b>	<b>1,880</b>
MW-7	9/26/2014	<100	<200	<400	<1.0	<2.0	<1.0	<3.0
MW-8	9/26/2014	<100	<200	<400	<1.0	<2.0	<1.0	<3.0
MTCA Cleanup Levels (µg/l)		800	500	500	5	1,000	700	1,000

*Notes:*

"<" indicates not detected at or above the laboratory reporting limits

µg/l = micrograms per liter

**Red font** indicates concentration exceeds the MTCA Cleanup Level

**Bold font** indicates concentration detected below MTCA Cleanup Levels.

## **SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS**

### *Summary*

The summary for this project is as follows:

AEG supervised the drilling and installation of groundwater monitoring wells MW-5 through MW-8 at the Smitty's Lincoln in Yakima, Washington, on September 18, 2014;

Soil and groundwater samples collected from borings and the newly installed monitoring wells were submitted for the laboratory analyses of gasoline and diesel-range TPH, heavy oil, and BTEX;

Gasoline-range TPH in soil was found at concentrations exceeding MTCA Method A Cleanup Levels in boring MW-6 at a depth of 20 feet bgs;

Benzene concentrations in soil was above Method A Cleanup Levels of 0.03 mg/kg in boring MW-6 at a depth of 15 feet bgs;

Gasoline-range TPH in groundwater was detected at concentrations exceeding MTCA Method A Cleanup Levels in monitoring well MW-6;

Benzene concentrations in groundwater was detected above the Method A Cleanup Level in monitoring well MW-6;

Toluene, ethylbenzene, and total xylenes were detected in groundwater monitoring wells MW-3R, above their respective MTCA Method A Cleanup Levels, as well as total xylenes in well MW-6;

There were no constituents of concern detected in soil and/or groundwater in the newly installed monitoring wells MW-5, MW-7, or MW-8;

Gasoline-range TPH and benzene concentrations in groundwater from monitoring well MW-2R were detected above the MTCA Cleanup levels after three consecutive quarters of non-detections; and

The depth to groundwater measured during the September 26, 2014 groundwater sampling event ranged between 15.97 feet bgs in monitoring well MW-4R, and 17.70 feet bgs in monitoring well MW-7.

### ***Conclusions***

Based on the laboratory analytical results obtained during this Site Check and groundwater sampling event, it is concluded that:

- The area of gasoline-range TPH affected soil (at a depth of 20 feet bgs) and groundwater detected in well MW-6, do not define the extent of soil and groundwater contamination on the southeastern property boundary, downgradient from the fuel dispenser islands and USTs;
- It appears that soil and groundwater contamination does not extend south of the fuel dispenser islands and the USTs in the vicinity of well MW-5; as indicated by the laboratory analytical results; and
- There were no constituents of concern detected in the soil and groundwater samples collected from the newly installed wells MW7 and MW-8, located east and northeast of the fuel dispenser islands and USTs, defining the horizontal extent of soil and groundwater contamination in these areas.

### ***Recommendations***

Based on the above conclusions, it is recommended that additional subsurface investigation and installation of groundwater monitoring wells be conducted south of monitoring well MW-3R and beyond the southeastern property boundary along East Lincoln Avenue, in the City of Yakima's right-of-way, to attempt to define the extent of subsurface soil and groundwater contamination.

## **LIMITATIONS**

This report summarizes the findings of the services authorized under our agreement. It has been prepared using generally accepted professional practices, related to the nature of the work accomplished. This report was prepared for the exclusive use of R.H. Smith Distributing Company, Inc. and its designated representatives, for the specific application to the project purpose.

Recommendations, opinions, site history, and proposed actions contained in this report apply to conditions and information available at the time this report was completed. Since conditions and regulations beyond our control can change at any time after completion of this report, or our proposed work, we are not responsible for any impacts of any changes in conditions, standards, practices, and/or regulations subsequent to our performance of services. We cannot warrant or validate the accuracy of information supplied by others, in whole or part.



## REFERENCES

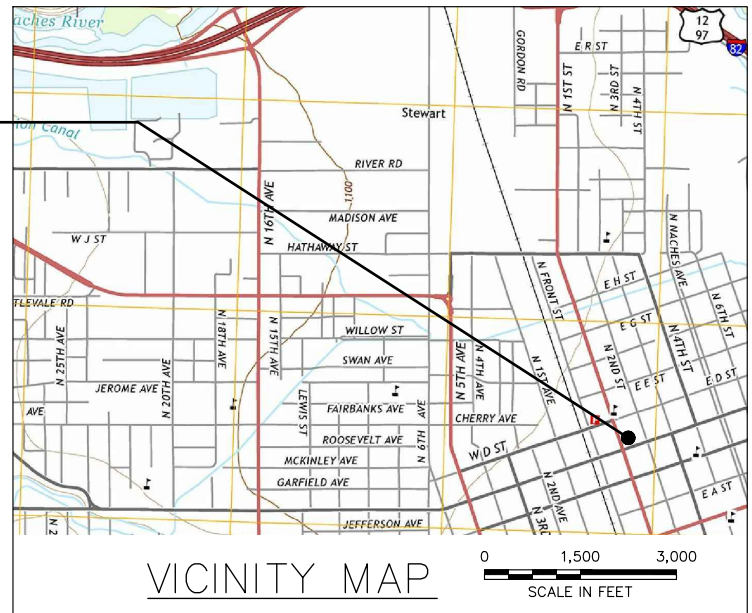
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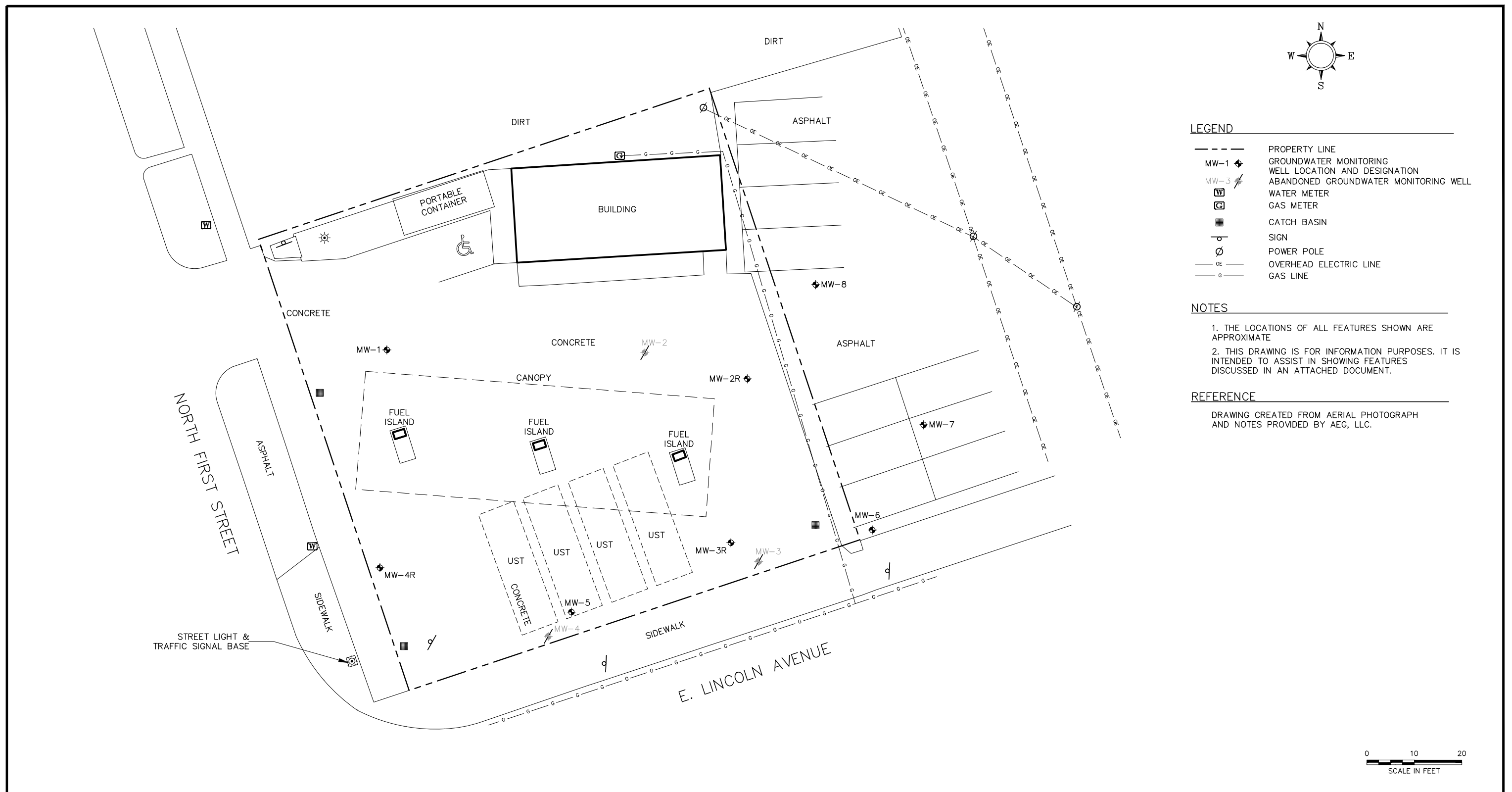
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Washington State Department of Ecology, June 1988. Letter to Kayo Oil Company regarding "November 17, 1986 gasoline spill". 301 N. 1<sup>st</sup> Street, Yakima, WA 98901.

## **FIGURES**



**Sheet:** 1 OF 2



**AEG** ASSOCIATED ENVIRONMENTAL GROUP, LLC  
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## FIGURE 2

## SITE MAP

**SMITTY'S LINCOLN YAKIMA**  
301 NORTH FIRST STREET  
YAKIMA, WASHINGTON

**Project #:** 12-161

**Date:** October 3, 2014

**File:** 12-161\_14Q3\_1.DWG

**Sheet:** 2 OF 2

## **TABLES**

## Table 1- Summary of Soil Analytical Results

### Smitty's Conoco-Lincoln Yakima, WA

Sample Number	Sample Depth (feet)	Date Sampled	Select Volatile Organic Constituents <sup>1</sup> (mg/kg)				Total Petroleum Hydrocarbons (mg/kg)		
			Benzene	Toluene	Ethylbenzene	Xylene	Gasoline <sup>2</sup>	Diesel <sup>3</sup>	Oil <sup>3</sup>
MW5-S4-20	20	9/18/2014	<0.02	<0.1	<0.05	<0.15	<10	<50	<100
MW5-S3-15	15	9/18/2014	<0.02	<0.1	<0.05	<0.15	<10	<50	<100
MW6-S2-10	10	9/18/2014	<0.02	<0.1	<0.05	<0.15	<b>29</b>	<50	<100
MW6-S3-15	15	9/18/2014	<b>0.048</b>	<0.1	<0.05	<0.15	<10	<50	<100
MW6-S3-15 Dup	15	9/18/2014	<b>0.037</b>	<0.1	<0.05	<0.15	<10	<50	<100
MW6-S4-20	20	9/18/2014	<0.02	<0.1	<b>0.74</b>	<b>1.52</b>	<b>226</b>	<50	<100
MW7-S2-10	10	9/18/2014	<0.02	<0.1	<0.05	<0.15	<10	<50	<100
MW7-S3-15	15	9/18/2014	<0.02	<0.1	<0.05	<0.15	<10	<50	<100
MW7-S4-20	20	9/18/2014	<0.02	<0.1	<0.05	<0.15	<10	<50	<100
MW8-S3-15	15	9/18/2014	<0.02	<0.1	<0.05	<0.15	<10	<50	<100
MW8-S3-15 Dup	15	9/18/2014	<0.02	<0.1	<0.05	<0.15	<10	<50	<100
MW8-S4-20	20	9/18/2014	<0.02	<0.1	<0.05	<0.15	<10	<50	<100
PQL			0.02	0.1	0.05	0.15	10	50	100
Ecology MTCA Method A Cleanup Levels			0.03	7	6	9	30	2,000	2,000

Notes:

<sup>1</sup> Analyzed by EPA Method 8260C

<sup>2</sup> Analyzed by NWTPH-Gx

<sup>3</sup> Analyzed by NWTPH-Dx/Dx Extended

mg/kg = milligram per kilogram

< = not detected above laboratory limits

**Bold** indicates a detected concentration that is below Ecology MTCA Method A Cleanup Levels

**Bold Red** indicates the detected concentration exceeds Ecology MTCA Method A Cleanup Levels

PQL = Practical Quantitation Limit

**Table 2 - Summary of Groundwater Analytical Results**

Smitty's Lincoln Yakima  
Yakima, WA

Well Number	Date Sampled	Total Petroleum Hydrocarbons (µg/l)			Select Volatile Organic Compounds (µg/l)								
		Gasoline	Diesel	Heavy Oil	Benzene	Toluene	Ethylbenzene	Total Xylenes	EDC	EDB	Total Naphthalenes	MTBE	Lead
MW-1	7/17/2012	<100	<200	<400	<1.0	<1.0	<1.0	<1.0	--	--	--	--	--
	7/11/2013	<100	<200	<400	<1.0	<2.0	<1.0	<3.0	--	--	--	--	--
	10/1/2013	<100	<200	<400	<1.0	<2.0	<1.0	<2.0	--	--	--	--	--
	1/14/2014	<100	--	--	<1.0	<b>2.6</b>	<1.0	<b>6.3</b>	--	--	--	--	--
	4/9/2014	<100	<200	<400	<1.0	<2.0	<1.0	<3.0	--	--	--	--	--
	7/21/2014	<100	<200	<400	<1.0	<2.0	<1.0	<3.0	--	--	--	--	--
	9/26/2014	<100	<200	<400	<1.0	<2.0	<1.0	<3.0	--	--	--	--	--
MW-2R	6/6/2013	<b>33,600</b>	<200	<400	<1.0	<b>5.6</b>	<b>12.4</b>	<b>56.2</b>	<1.0	<0.01	<b>6.8</b>	<5.0	<5.0
	7/11/2013	<100	<200	<400	<1.0	<2.0	<1.0	<3.0	--	--	--	--	--
	10/1/2013	<b>150</b>	<200	<400	<1.0	<2.0	<1.0	<b>3.6</b>	--	--	--	--	--
	1/14/2014	<100	--	--	<1.0	<2.0	<1.0	<b>3.5</b>	--	--	--	--	--
	4/9/2014	<100	<200	<400	<1.0	<2.0	<1.0	<3.0	--	--	--	--	--
	7/21/2014	<100	<200	<400	<1.0	<2.0	<1.0	5	--	--	--	--	--
	9/26/2014	<b>905</b>	<b>6.6</b>	<b>141</b>	<b>37.3</b>	<b>103</b>	<b>6.6</b>	<b>141</b>	--	--	--	--	--
MW-3	7/17/2012	<b>18,900</b>	<200	<400	<b>332</b>	<b>201</b>	<b>504</b>	<b>8,300</b>	--	--	--	--	--
	7/11/2013	<b>40,200</b>	<200	<400	<b>118</b>	<b>217</b>	<b>40.9</b>	<b>1,190</b>	--	--	--	--	--
	10/1/2013	<b>16,000</b>	<200	<400	<b>160</b>	<b>290</b>	<b>5.6</b>	<b>650</b>	--	--	--	--	--
	1/14/2014	<b>11,100</b>	--	--	<b>44</b>	<b>58.0</b>	<b>261</b>	<b>752</b>	--	--	--	--	--
	4/9/2014	<b>1,050</b>	<200	<400	<b>8</b>	<2.0	<1.0	<3.0	--	--	--	--	--

**Table 2 - Summary of Groundwater Analytical Results**

Smitty's Lincoln Yakima  
Yakima, WA

Well Number	Date Sampled	Total Petroleum Hydrocarbons (µg/l)			Select Volatile Organic Compounds (µg/l)								
		Gasoline	Diesel	Heavy Oil	Benzene	Toluene	Ethylbenzene	Total Xylenes	EDC	EDB	Total Naphthalenes	MTBE	Lead
MW-3R	6/6/2013	35,800	<200	<400	60.4	14.9	172	540	<1.0	<0.01	55.2	<5.0	<5.0
	7/11/2013	73,500	<200	<400	182	1,020	67.1	3,210	--	--	--	--	--
	10/1/2013	26,000	<200	<400	210	580	230	1,000	--	--	--	--	--
	1/14/2014	15,100	--	--	50	205	300	1,260	--	--	--	--	--
	4/9/2014	1,760	<200	<400	7.5	7.3	44.2	117	--	--	--	--	--
	7/21/2014	Free Product											
	9/26/2014	63,800	<200	<400	3,730	7,580	1,150	7,990	--	--	--	--	--
MW-4R	6/6/2013	4,800	<200	<400	<1.0	<1.0	2.3	4.6	<1.0	<0.01	9.5	<5.0	<5.0
	7/11/2013	1,090	<200	<400	<1.0	<2.0	<1.0	4.1	--	--	--	--	--
	10/1/2013	340	<200	<400	<1.0	<2.0	<1.0	<2.0	--	--	--	--	--
	1/14/2014	1,650	--	--	6.5	14.0	5.6	18.0	--	--	--	--	--
	4/9/2014	809	<200	<400	3.3	4.7	<1.0	9.6	--	--	--	--	--
	7/21/2014	310	<200	<400	<1.0	<2.0	<1.0	<3.0	--	--	--	--	--
	9/26/2014	218	<200	<400	<1.0	<2.0	<1.0	<3.0	--	--	--	--	--
MW-5	9/26/2014	<100	<200	<400	<1.0	<2.0	<1.0	<3.0	--	--	--	--	--
MW-6	9/26/2014	24,700	<200	<400	546	114	534	1,800	--	--	--	--	--
MW-7	9/26/2014	<100	<200	<400	<1.0	<2.0	<1.0	<3.0	--	--	--	--	--



**Table 2 - Summary of Groundwater Analytical Results**

Smitty's Lincoln Yakima  
Yakima, WA

Well Number	Date Sampled	Total Petroleum Hydrocarbons (µg/l)			Select Volatile Organic Compounds (µg/l)								
		Gasoline	Diesel	Heavy Oil	Benzene	Toluene	Ethylbenzene	Total Xylenes	EDC	EDB	Total Naphthalenes	MTBE	Lead
MW-8	9/26/2014	<100	<200	<400	<1.0	<2.0	<1.0	<3.0	--	--	--	--	--
PQL		100	200	400	1	1	1	1 / 2 / 3	1	0.01	5	5	5
MTCA Method A Clean Up Levels		800 <sup>1</sup>	500	500	5	1,000	700	1,000	5	0.010	160	20	15

Notes:

(µg/l) = micrograms per liter

-- Not analyzed for constituent

< Not detected at the listed laboratory detection limits (PQL)

PQL = Practical Quantification Limit (laboratory detection limit)

**Red Bold** indicates the detected concentration exceeds Ecology MTCA Method A cleanup level

**Bold** indicates the detected concentration is below Ecology MTCA Method A cleanup levels

<sup>1</sup> TPH-Gasoline Cleanup Level with the presence of Benzene anywhere at the Site

## **APPENDIX A**

### **Site Photographs**



## SITE PHOTOGRAPHIC RECORD

Smitty's Conoco – Lincoln Yakima

Project Number: 12-161

Date: December 22, 2014



Photo #1: Smitty's Conoco gasoline station. View from the corner of Lincoln Avenue and 1<sup>st</sup> Street North



Photo #2: Drilling borehole MW-6 located downgradient from the fuel dispenser island shown in the background. Photo looking west



Photo #3: Location of borehole MW-7 on the parking area of the Site. Photo looking north from Lincoln Avenue.



Photo #4: Drilling of borehole MW-8. Photo looking southwest towards the fuel dispenser island



Photo #5: View of boring MW-8 advanced using a sonic rig. Soil cuttings from the boring for lithology description and screening of volatile organic compounds are shown in the foreground.



Photo #6: Continuous soil cores collected in plastic sheeting during borehole drilling.

## **APPENDIX B**


### **Supporting Documents**

*Boring Logs*




*Laboratory Datasheets*

## LOG OF BOREHOLE






<b>PROJECT:</b> <i>SMITTY'S CONOCO LINCOLN - Site Check</i>	<b>JOB #</b> <i>12-161</i>	<b>Monitoring Well #</b> <i>MW-5</i>	<b>PAGE</b> <i>1 OF 1</i>
<b>Location:</b> <i>301 North 1st Street</i>	<b>Approximate Elevation:</b> <i>1,076 feet mean sea level</i>		
<b>Subcontractor / Driller:</b> <i>Holt Drilling / Brian Owens</i>	<b>Equipment / Drilling Method:</b> <i>Sonic</i>		
<b>Date:</b> <i>September 18, 2014</i>	<b>Logged By:</b> <i>Leo Chaidez</i>		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well Construction
1	Cement surface underlain by; Brown, moist, stiff <u>GRAVELLY SILT</u> ; coarse gravel, subrounded	ML	1			14:30	Not Applicable			
2			2							
3			3							
4	Light brown, moist, dense <u>SANDY GRAVEL</u> ; medium to coarse gravel, medium grained sand	GP	4							
5			5		MW5-S1-5	14:51		0.0		
6			6							
7			7							
8			8							
9			9							
10			10		MW5-S2-10	14:48		0.0		
11	at 10 feet; fine sand		11							
12			12							
13			13							
14			14							
15			15		MW5-S3-15	15:33		0.0		
16			16							
17			17							
18			18							
19			19							
20			20		MW5-S4-20	15:28		0.0	No	
21	at 20 feet; gray, wet		21							
22			22							
23	at 22 feet; brown, coarse sand		23							
24			24							
25			25		MW5-S5-25	15:54		0.0		

### Explanation

-  Sample Advance / Recovery
-  No Recovery
- Contact located approximately
-  Groundwater level at time of drilling  
or date of measurement


### Monitoring Well Construction

-  Grout/Concrete
-  3/4-inch bentonite chips
-  Silica sand
-  2-inch diameter blank PVC casing from
-  2-inch diameter PVC 0.01 slotted screen




Ecology Tag # BIP 971

# LOG OF BOREHOLE






<b>PROJECT:</b> <i>SMITTY'S CONOCO LINCOLN - Site Check</i>	<b>JOB #</b> <i>12-161</i>	<b>Monitoring Well #</b> <i>MW-6</i>	<b>PAGE</b> <i>1 OF 1</i>
<b>Location:</b> <i>301 North 1st Street</i>	<b>Approximate Elevation:</b> <i>1,076 feet mean sea level</i>		
<b>Subcontractor / Driller:</b> <i>Holt Drilling / Brian Owens</i>	<b>Equipment / Drilling Method:</b> <i>Sonic</i>		
<b>Date:</b> <i>September 18, 2014</i>	<b>Logged By:</b> <i>Leo Chaidez</i>		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well Construction
1	Asphalt surface underlain by; Brown, moist, medium stiff <u>SILT</u>	ML	1			12:40	Not Applicable			
2			2							
3			3							
4			4							
5			5		MW6-S1-5	12:49		0.0		
6	Light brown, moist, dense <u>SANDY GRAVEL</u> ; fine to coarse gravel, medium to coarse sand. Cobbles	GP	6							
7			7							
8			8							
9			9							
10			10		MW6-S2-10	12:51		0.0		
11			11							
12			12							
13			13							
14			14							
15			15		MW6-S3-15	13:14		8.8		
16			16							
17			17							
18	at 17 feet; gray, strong hydrocarbon-type odor to 22.5 feet		18							
19			19							
20			20		MW6-S4-20	13:18		867	No	
21	at 20 feet; wet, odor		21							
22			22							
23	at 22.5 feet; brown		23							
24			24							
25			25		MW6-S5-25	13:25		2.2		

## Explanation

-  Sample Advance / Recovery
-  No Recovery
- Contact located approximately
-  Groundwater level at time of drilling  
or date of measurement


## Monitoring Well Construction

-  Grout/Concrete
-  3/4-inch bentonite chips
-  Silica sand
-  2-inch diameter blank PVC casing from
-  2-inch diameter PVC 0.01 slotted screen




Ecology Tag # BIP 970

# LOG OF BOREHOLE






<b>PROJECT:</b> <i>SMITTY'S CONOCO LINCOLN - Site Check</i>	<b>JOB # 12-161</b>	<b>Monitoring Well #</b> <i>MW-7</i>	<b>PAGE 1 OF 1</b>
<b>Location:</b> <i>301 North 1st Street</i>	<b>Approximate Elevation:</b> <i>1,076 feet mean sea level</i>		
<b>Subcontractor / Driller:</b> <i>Holt Drilling / Brian Owens</i>	<b>Equipment / Drilling Method:</b> <i>Sonic</i>		
<b>Date:</b> <i>September 18, 2014</i>	<b>Logged By:</b> <i>Leo Chaidez</i>		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Seen	Monitoring Well Construction
1	Asphalt surface underlain by; Brown, moist, medium stiff <u>SILT</u>	ML	1			10:32	Not Applicable			
2			2							
3			3							
4			4							
5			5		MW7-S1-5	10:38		0.0		
6	Light brown, moist, dense <u>SANDY GRAVEL</u> ; fine to coarse gravel, medium sand. Cobbles	GP	6							
7			7							
8			8							
9			9							
10			10		MW7-S2-10	10:41		0.0		
11			11							
12			12							
13			13							
14			14							
15			15		MW7-S3-15	10:52		0.0		
16			16							
17			17							
18			18							
19			19							
20			20		MW7-S4-20	10:55		0.0	No	
21	at 20 feet; wet		21							
22			22							
23	at 22 feet; coarse gravel, subrounded, trace to some coarse sand		23							
24	AT 23.5 feet; fine to coarse gravel, medium sand. Cobbles		24							
25			25		MW7-S5-25	11:02		0.0		

## Explanation

-  Sample Advance / Recovery
-  No Recovery
- Contact located approximately
-  Groundwater level at time of drilling  
or date of measurement

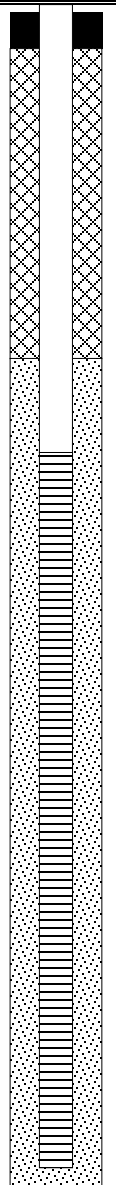

## Monitoring Well Construction

-  Grout/Concrete
-  3/4-inch bentonite chips
-  Silica sand
-  2-inch diameter blank PVC casing from
-  2-inch diameter PVC 0.01 slotted screen




Ecology Tag # BIP 969

# LOG OF BOREHOLE






<b>PROJECT:</b> <i>SMITTY'S CONOCO LINCOLN - Site Check</i>	<b>JOB #</b> 12-161	<b>Monitoring Well #</b> MW-8	<b>PAGE</b> 1 OF 1
<b>Location:</b> 301 North 1st Street	<b>Approximate Elevation:</b> 1,076 feet mean sea level		
<b>Subcontractor / Driller:</b> Holt Drilling / Brian Owens	<b>Equipment / Drilling Method:</b> Sonic		
<b>Date:</b> September 18, 2014	<b>Logged By:</b> Leo Chaidez		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well Construction
1	Asphalt surface underlain by; Brown, moist, medium stiff <u>SILT</u>	ML	1			8:38	Not Applicable			
2			2							
3			3							
4			4							
5			5		MW8-S1-5	8:50		0.0		
6	Light brown, moist, dense <u>SANDY GRAVEL</u> ; fine to coarse gravel, medium sand. Cobbles	GP	6							
7			7							
8			8							
9			9							
10			10		MW8-S2-10	8:53		0.0		
11			11							
12			12							
13			13							
14			14							
15			15		MW8-S3-15	8:57		0.0		
16			16							
17			17							
18			18							
19			19							
20	at 20 feet; wet		20		MW8-S4-20	9:02		0.0	No	
21			21							
22			22							
23			23							
24			24							
25			25		MW8-S5-25	9:28		0.0		

## Explanation

-  Sample Advance / Recovery
-  No Recovery
- Contact located approximately
-  Groundwater level at time of drilling  
or date of measurement

## Monitoring Well Construction

-  Grout/Concrete
-  3/4-inch bentonite chips
-  Silica sand
-  2-inch diameter blank PVC casing from
-  2-inch diameter PVC 0.01 slotted screen

Ecology Tag # BIP 968





# Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

September 24, 2014

Dave Polivka  
Associated Environmental Group, LLC  
605 11<sup>th</sup> Avenue SE, Suite 201  
Olympia, WA 98501

Dear Mr. Polivka:

Please find enclosed the analytical data report for the Smitty's Conoco-Lincoln Project located in Yakima, Washington. Soil samples were analyzed for Gasoline by NWTPH-Gx and BTEX by EPA Method 8260C, and Diesel & Oil by NWTPH-Dx/Dx Extended on September 20 & 22, 2014.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. All soil samples are reported on a dry weight basis. An invoice for this analytical work has been emailed.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

A handwritten signature in black ink that reads "Jamie L. Deyman". The signature is fluid and cursive.

Jamie L. Deyman  
*President*  
*Libby Environmental, Inc.*

# Libby Environmental, Inc.

SMITTY'S CONOCO-LINCOLN PROJECT  
AEG, LLC  
Yakima, Washington  
Libby Project # L140919-3  
Client Project # 12-161

4139 Libby Road NE  
Olympia, WA 98506  
Phone: (360) 352-2110  
FAX: (360) 352-4154  
Email: libbyenv@aol.com

## Analyses of Gasoline (NWTPH-Gx) & BTEX (EPA Method 8260C) in Soil

Sample Number	Date Analyzed	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Gasoline (mg/kg)	Surrogate Recovery (%)
Method Blank	9/20/14	nd	nd	nd	nd	nd	92
LCS	9/20/14	88%	82%				92
MW5-S4-20	9/20/14	nd	nd	nd	nd	nd	90
MW5-S3-15	9/20/14	nd	nd	nd	nd	nd	91
MW6-S2-10	9/20/14	nd	nd	nd	nd	29	87
MW6-S3-15	9/20/14	0.048	nd	nd	nd	nd	94
MW6-S3-15 Dup	9/20/14	0.037	nd	nd	nd	nd	90
MW6-S4-20	9/20/14	nd	nd	0.74	1.52	266	87
MW7-S2-10	9/20/14	nd	nd	nd	nd	nd	90
MW7-S3-15	9/20/14	nd	nd	nd	nd	nd	89
MW7-S4-20	9/20/14	nd	nd	nd	nd	nd	87
MW8-S3-15	9/20/14	nd	nd	nd	nd	nd	85
MW8-S3-15 Dup	9/20/14	nd	nd	nd	nd	nd	92
MW8-S4-20	9/20/14	nd	nd	nd	nd	nd	85
MW8-S4-20 MS	9/20/14	92%	71%				83
MW8-S4-20 MSD	9/20/14	91%	72%				82
Practical Quantitation Limit		0.02	0.10	0.05	0.15	10	

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Toluene-d8): 65% TO 135%

ANALYSES PERFORMED BY: Sherry Chilcutt

# Libby Environmental, Inc.

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SMITTY'S CONOCO-LINCOLN PROJECT

AEG, LLC

Yakima, Washington

Libby Project # L140919-3

Client Project # 12-161

## Analyses of Diesel & Oil (NWTPH-Dx/Dx Extended) in Soil

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Oil (mg/kg)
Method Blank	9/22/14	95	nd	nd
MW5-S4-20	9/22/14	93	nd	nd
MW5-S3-15	9/22/14	133	nd	nd
MW6-S2-10	9/22/14	84	nd	nd
MW6-S3-15	9/22/14	131	nd	nd
MW6-S4-20	9/22/14	87	nd	nd
MW7-S2-10	9/22/14	132	nd	nd
MW7-S3-15	9/22/14	135	nd	nd
MW7-S4-20	9/22/14	111	nd	nd
MW8-S3-15	9/22/14	99	nd	nd
MW8-S4-20	9/22/14	129	nd	nd
Practical Quantitation Limit			50	100

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Sherry Chilcutt

# Libby Environmental, Inc.

# Chain of Custody Record

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Phone: **360 352 9835**

Fax:

Client Project # **12-161**

Date: **9/19/14**

Page: **1** of **1**

Project Manager: **David Polivka**

Project Name: **Smitty's Conoco-Lined**

Location: **301 N 1st Street** City, State **Yakima, WA**

Collector: **Leo Chaidez**

Date of Collection: **9/18/14**

Email: **lchaidez@aequa.com**



Sample Number	Depth	Time	Sample Type	Container Type	VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	PAH 8270	PCB's 8082	MTCA 5 Metals	Field Notes
1 MW5-54-20	20	15:33	SOL	40 ml / 4 oz	✓				✓	✓					
2 MW5-53-15	15	15:28			✓				✓	✓					
3 MW6-52-10	10	12:49			✓				✓	✓					
4 MW6-53-15	15	13:14			✓				✓	✓					
5 MW6-54-20	20	13:18			✓				✓	✓					
6 MW7-52-10	10	10:38			✓				✓	✓					
7 MW7-53-15	15	10:58			✓				✓	✓					
8 MW7-54-20	20	10:55			✓				✓	✓					
9 MW8-53-15	15	9:02			✓				✓	✓					
10 MW8-54-20	20	8:57			✓				✓	✓					
11															
12															
13															
14															
15															
16															
17															

Relinquished by:	Date / Time	Received by:	Date / Time	Sample Receipt:	Remarks:
<b>Lechman</b>	<b>9/19/14 16:55</b>	<b>Palph</b>	<b>9/14/14 1655</b>		
Relinquished by:	Date / Time	Received by:	Date / Time	Good Condition?	
				Cold?	
Relinquished by:	Date / Time	Received by:	Date / Time	Seals Intact?	TAT: 24HR 48HR 5-DAY
				Total Number of Containers	





# Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

October 6, 2014

Dave Polivka  
Associated Environmental Group, LLC  
605 11<sup>th</sup> Avenue SE, Suite 201  
Olympia, WA 98501

Dear Mr. Polivka:

Please find enclosed the analytical data report for the Smitty's Conoco-Lincoln Project located in Yakima, Washington. Water samples were analyzed for Gasoline by NWTPH-Gx and BTEX by EPA Method 8021B, and Diesel & Oil by NWTPH-Dx/Dx Extended on October 2, 2014.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. An invoice for this analytical work has been emailed.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Jamie L. Deyman  
*President*  
*Libby Environmental, Inc.*

# Libby Environmental, Inc.

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SMITTY'S LINCOLN PROJECT

AEG, LLC

Yakima, Washington

Libby Project # L141001-6

Client Project # 12-161

## Analyses of Gasoline (NWTPH-Gx) & BTEX (EPA Method 8021B) in Water

Sample Number	Date Analyzed	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (µg/l)	Xylenes (µg/l)	Gasoline (µg/l)	Surrogate Recovery (%)
Method Blank	10/2/14	nd	nd	nd	nd	nd	90
LCS	10/2/14	116%	133%				89
MW-1	10/2/14	nd	nd	nd	nd	nd	93
MW-2R	10/2/14	37.3	103	6.6	141	905	83
MW-3R	10/2/14	3730	7580	1150	7990	63800	84
MW-4R	10/2/14	nd	nd	nd	nd	218	90
MW-5	10/2/14	nd	nd	nd	nd	nd	88
MW-6	10/2/14	546	114	534	1800	24700	84
MW-7	10/2/14	nd	nd	nd	nd	nd	81
MW-7 Dup	10/2/14	nd	nd	nd	nd	nd	86
MW-8	10/2/14	nd	nd	nd	nd	nd	87
L141001 MS	10/2/14	134%	117%				80
L141001 MSD	10/2/14	128%	125%				89
Practical Quantitation Limit		1	2	1	3	100	

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Trifluorotoluene): 65% TO 135%

ANALYSES PERFORMED BY: Jamie Deyman

# Libby Environmental, Inc.

SMITTY'S LINCOLN PROJECT  
AEG, LLC  
Yakima, Washington  
Libby Project # L141001-6  
Client Project # 12-161

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## Analyses of Diesel & Oil (NWTPH-Dx/Dx Extended) in Water

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (µg/l)	Oil (µg/l)
Method Blank	10/2/14	85	nd	nd
MW-1	10/2/14	95	nd	nd
MW-2R	10/2/14	69	nd	nd
MW-3R	10/2/14	95	nd	nd
MW-4R	10/2/14	91	nd	nd
MW-5	10/2/14	98	nd	nd
MW-6	10/2/14	93	nd	nd
MW-7	10/2/14	94	nd	nd
MW-8	10/2/14	84	nd	nd
MW-8 Dup	10/2/14	84	nd	nd
Practical Quantitation Limit			200	400

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

# Libby Environmental, Inc.

# Chain of Custody Record

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Phone: 360 352 9835

Fax:

Client Project # 12-161

Date: 10/01/14

Page: 1 of 1

Project Manager: DAVID POLIVKA

Project Name: SMITTY'S CONOCO - LINCOLN

Location: 301 NORTH 1ST STREET City, State: YAKIMA, WA

Collector: Leo Chaidetz

Date of Collection: 9/26 & 27, 2014

Email: lchaidetz@regwa.com



Sample Number	Depth	Time	Sample Type	Container Type	VOA 802-1B	VOA 802-1B BTEX Only	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	PAH 8270	PCBs 8082	MTCA 5 Metals	Field Notes
1 <u>MW-1</u>	<u>-</u>	<u>10:33</u>	<u>WATER</u>	<u>VOAS/AMBER</u>	✓				✓		✓				<u>9/26/14</u>
2 <u>MW-2R</u>	<u>-</u>	<u>16:33</u>	<u> </u>	<u> </u>	✓				✓		✓				<u>↓</u>
3 <u>MW-3R</u>	<u>-</u>	<u>13:22</u>	<u> </u>	<u> </u>	✓				✓		✓				<u>9/27/14</u>
4 <u>MW-4R</u>	<u>-</u>	<u>17:56</u>	<u> </u>	<u> </u>	✓				✓		✓				<u>9/26/14</u>
5 <u>MW-5</u>	<u>-</u>	<u>15:06</u>	<u> </u>	<u> </u>	✓				✓		✓				<u>↓</u>
6 <u>MW-6</u>	<u>-</u>	<u>11:37</u>	<u> </u>	<u> </u>	✓				✓		✓				<u>9/27/14</u>
7 <u>MW-7</u>	<u>-</u>	<u>12:03</u>	<u> </u>	<u> </u>	✓				✓		✓				<u>9/26/14</u>
8 <u>MW-8</u>	<u>-</u>	<u>13:25</u>	<u>↓</u>	<u>↓</u>	✓				✓		✓				<u>↓</u>
9															
10															
11															
12															
13															
14															
15															
16															
17															

Relinquished by: <u>L Chaidetz</u>	Date / Time: <u>10/01/14</u>	Received by: <u>[Signature]</u>	Date / Time: <u>10/01/14</u>	Sample Receipt:	Remarks:
Relinquished by: <u>[Signature]</u>	Date / Time: <u>10/01/14 14:15</u>	Received by: <u>[Signature]</u>	Date / Time: <u>10/1/14 14:15</u>	Good Condition? <input checked="" type="checkbox"/>	
				Cold? <u>8.0 °C</u>	
Relinquished by:	Date / Time:	Received by:	Date / Time:	Seals Intact? <input checked="" type="checkbox"/>	
				Total Number of Containers <u>32</u>	TAT: 24HR 48HR <u>5-DAY</u>