

## MEMORANDUM

To: Mr. Bryan Everett Senior Project Manager Albertsons LLC 250 Parkcenter Boulevard Boise, Idaho 83706



From: Mr. Nate Evenson, Project Geologist, Kane Environmental, Inc. Mr. John Kane, Principal, Kane Environmental, Inc. Mr. John Kane, Principal, Kane Environmental, Inc.

Date: May 22, 2017

Re: Groundwater Sampling Safeway Fuel Center #462 216 North 5th Avenue Yakima, Washington 98902

Kane Environmental, Inc. (Kane Environmental) is pleased to present this memorandum regarding groundwater sampling and analysis conducted at the Safeway Fuel Center #462, located at 216 North 5th Avenue (the Property) in Yakima, Washington (Figure 1). This report summarizes past environmental investigations and remedial activities, and details the recent groundwater sampling and analysis conducted in March 2017 by Kane Environmental at the Property.

## BACKGROUND

The Property appeared to have been used for residential purposes from at least 1936 through the late 1940s, when the residential structure was demolished and replaced by the original (first-generation) gas station (Garman & Perrault Gas Station and Wayne's Shell Station). The original configuration of the site reportedly included three (3) underground storage tanks (USTs), two (2) pump islands, and a building. The first-generation USTs and dispenser island were reportedly removed in 1965. In 1965, the Property was renovated with three (3) new USTs, three (3) pump islands and a new garage (the second-generation gas station). In 1971 a fourth gasoline UST was installed on the Property. The locations of the first-generation, second-generation, and current USTs are displayed in Figure 2.

Yakima, Washington Page 2 of 10



#### PREVIOUS ENVIRONMENTAL INVESTIGATIONS AND REMEDIATION

Investigation of soil and groundwater (including installation of groundwater monitoring wells) and remediation activities have been conducted at the site since 2002 by Sage Earth Sciences (Sage), PNG Environmental (PNG), and Kane Environmental. These investigations and remedial activities are described below. Results of laboratory analyses of groundwater samples collected from monitoring wells installed by these environmental companies since 2003 are summarized in Table 1, and the current and former locations of these monitoring wells and other Property features are shown in Figure 2.

In September 2002, Sage reportedly removed four (4) gasoline USTs, one (1) heating oil UST, and one (1) used oil UST associated with the second-generation gas station. Soil and groundwater samples collected by Sage during the excavation indicated petroleum products had impacted the Property subsurface. In July 2003, Sage reportedly installed three (3) monitoring wells (MW-1 through MW-3) and sampled the wells in July 2003 and January 2004 (Figure 2). A sample collected from MW-1 in January 2004 contained Gasoline-Range Total Petroleum Hydrocarbons (TPH-G), Diesel-Range Total Petroleum Hydrocarbons (TPH-D), benzene, toluene, ethylbenzene, and total xylenes (BTEX compounds) at concentrations exceeding current Model Toxics Control Act (MTCA) Method A Groundwater Cleanup Levels. In addition, 1,2,4-trimethylbenzene was also reported at a concentration exceeding the current MTCA Method B (Non-Cancer) Groundwater Cleanup Level (no Method A Groundwater Cleanup Level is established for this constituent). No other exceedances of MTCA Method A Cleanup Levels were reported in groundwater samples collected from MW-1 through MW-3 by Sage.

In June 2005, PNG advanced seven (7) temporary soil borings on the Property to investigate potential source areas of contamination on the Property. All soil samples reported contaminant concentrations below Model Toxics Control Act (MTCA) Method A Soil Cleanup Levels, except for total xylenes from a soil boring located in the northeast portion of the Property. Groundwater grab samples collected from several of these soil borings contained Total Petroleum Hydrocarbons (TPH) as gasoline (TPH-G), TPH as diesel (TPH-D), benzene, and/or total lead at concentrations exceeding MTCA Method A Groundwater Cleanup Levels.

To further investigate impacts to groundwater on and down-gradient of the Property, in June 2005, PNG installed five (5) additional groundwater monitoring wells, three (3) of which were on the Property and two (2) of which were located east of the Property. A tenth monitoring well (MW-10) was installed in October 2005. With the exception of an exceedance of the MTCA Method A Groundwater Cleanup Level for Lead in a sample collected from MW-9 in July 2005, the samples collected from these groundwater monitoring wells in June, July, and October 2005 did not report any exceedances of MTCA Method A or B Groundwater Cleanup Levels.



Yakima, Washington Page 3 of 10

In September 2005, Kane Environmental advanced six (6) direct push borings on the Property to determine if the source of the contamination in MW-1 was located in the vicinity of the former North 5th Avenue Shell building (formerly located in the south-central portion of the Property). Soil analytical results did not report concentrations of TPH-G, TPH-D, or BTEX above the MTCA cleanup levels. Groundwater analytical results reported TPH-G and benzene above MTCA cleanup levels in one (1) location, approximately forty (40) feet west of MW-1 and MW-5.

In January 2006, Kane Environmental was retained by Safeway to advance seven (7) temporary soil borings to determine if soil up-gradient of monitoring wells MW-1 and MW-10 contained concentrations of TPH-G and BTEX, and if contaminated groundwater was migrating off-site. Soil sample results reported non-detectable concentrations of all analytes, except for a near surface soil sample (0-2 inches) that detected a concentration of TPH-D; this detection was considered a *de minimis* condition. The groundwater sample from KSB-1, collected off-site and east of MW-1, but west of North 5th Avenue, reported concentrations of TPH-G and benzene exceeding MTCA Method A Groundwater Cleanup Levels.

In February 2006, Kane Environmental was retained by Safeway to excavate seven (7) test pits, primarily in the northeastern portion of the Property, to determine the presence or absence of TPH-G, and BTEX in potential source areas. All soil samples collected from these test pits reported non-detectable concentrations of TPH-G and BTEX.

In March 2006, Kane Environmental provided field oversight of soil excavation during the installation of two (2) new 20,000-gallon fiberglass and steel fuel tanks and the associated fueling canopy footings for the Safeway Fuel Center #462 fueling station (Figure 2). During the UST excavation, soil with a hydrocarbon odor was encountered approximately fifteen (15) feet bgs in the UST installation excavation. In addition, a 500-gallon waste oil UST and concrete sumps were encountered in the south-central part of the site, beneath the former building. The sumps and waste oil UST were removed. Confirmation soil samples taken from the bottom and sidewalls of the UST installation, waste oil UST and concrete sump excavations reported contaminant concentrations below MTCA Method A Soil Cleanup Levels. The service station building, canopy, and associated fueling system currently present on the Property constructed following completion of these activities.

Kane Environmental provided groundwater performance monitoring from March 2007 until December 2008 for monitored natural attenuation (MNA) at the Property. Only samples collected from monitoring well MW-1 consistently reported concentrations of TPH-G and BTEX above MTCA Method A Groundwater Cleanup Levels.

Yakima, Washington Page 4 of 10



Kane Environmental was retained to design and implement a remediation plan to reduce the concentrations of TPH-G and BTEX in groundwater in the vicinity of monitoring well MW-1 below the MTCA Method A Cleanup Level for Ground Water. Based upon the results of the groundwater monitoring, Kane Environmental selected the remediation product RegenOx<sup>™</sup>, manufactured by Regenesis.

In October 2009, a total of three (3) remedial injection wells were constructed and eight (8) temporary injection borings were advanced in the vicinity of MW-1 using a Geoprobe drilling rig. The locations of the injection wells are shown in Figure 2; temporary injection borings were located in the area immediately surrounding these injection wells. Approximately three hundred eighty (380) gallons of RegenOx<sup>™</sup> remediation slurry was injected into the bottom five (5) feet of the temporary injection borings. On January 28, 2010 Kane Environmental injected approximately one hundred fifteen (115) gallons of RegenOx<sup>™</sup> remediation slurry into IW-1, IW-2, and IW-3. Subsequent groundwater monitoring events indicated only slight decreases in peak concentrations was noted throughout the year. On December 21, 2011 Kane Environmental injected approximately fifty-five (55) gallons of undiluted EAS<sup>™</sup> remediation product into IW-1, IW-2, and IW-3. EAS<sup>™</sup> is a proprietary magnesium sulfate remediation product produced by EOS Remediation.

On June 23, 2014, Kane Environmental collected samples from monitoring well MW-1 and injection wells IW-1, IW-2, and IW-3. TPH-G, benzene, and total xylenes were reported above the MTCA Method A Cleanup Levels for Groundwater in the groundwater sample collected from IW-2.

#### HYDROGEOLOGIC SETTING

The U.S. Geological Survey (USGS) Yakima West, Washington 7.5-Minute Quadrangle Topographic Map (Figure 1), indicates that the ground surface of the Property slopes gradually to the east to southeast towards the Yakima River, located approximately two (2) miles east of the Property. The elevation of the Property is between 1,060 and 1,080 feet above mean sea level (msl).

Depths to groundwater collected from three (3) on-Property and three (3) off-Property groundwater monitoring wells by Kane Environmental in March 2017 (see March 2017 entries in Table 1) were used to create a groundwater elevation map, which is included as Figure 3. Based upon this map, the groundwater flow direction on the Property appears to be southerly to southeasterly, with evidence of a low area in the groundwater table present near the southeastern Property corner. This is generally consistent with the findings of previous investigations, which documented a general southeasterly groundwater flow direction. A review of historical groundwater elevation data included in Table 1 indicates that groundwater on the Property is typically higher in the summer and fall, and lower in the

Yakima, Washington Page 5 of 10



winter and spring. According to a 2009 USGS publication focused on hydrogeology of the Yakima River Basin (*Hydrogeologic Framework of the Yakima River Basin Aquifer System, Washington,* USGS SIR 2009-5152), this pattern can be attributed to contributions to groundwater from leakage from irrigation canals and laterals, and infiltration of irrigation water. Contributions from these sources occur during the spring and summer agricultural growing season.

## 2017 GROUNDWATER SAMPLING AND ANALYSIS

Monitoring wells MW-1, MW-3, MW-5 through MW-8, and injection wells IW-1 through IW-3 were sampled on March 29 and March 30, 2017.

## **Groundwater Sampling Methodology**

The groundwater sampling procedure for each well, including Quality Assurance/Quality Control (QA/QC) procedures, is described below in detail.

Depth to groundwater in each of the wells was measured with a decontaminated electric water interface probe. Measurement of depth to groundwater was completed in all wells prior to beginning of pumping of any of the wells for sampling purposes.

Kane Environmental attempted to collect a sample from monitoring well MW-1 on March 29, 2017. However, a non-turbid sample could not be obtained. Therefore, at the end of field activities on March 29, 2017 MW-1, was redeveloped using a decontaminated submersible pump and new flexible PVC tubing. Approximately sixteen (16) gallons of water (equal to approximately twenty [20] well volumes) were removed from this well during redevelopment. On March 30, 2017, prior to sample collection, the depths to groundwater in this and other wells yet to be sampled were checked to ensure that water levels had recovered to a level similar to those measured prior to redevelopment of MW-1.

Groundwater samples were collected from all monitoring wells using a peristaltic pump equipped with new polyethylene tubing and adjusted to a low-flow setting. Field parameters (pH, temperature, conductivity, total dissolved solids, and dissolved oxygen) were monitored in groundwater purged from each monitoring well, and were allowed to stabilize prior to sample collection.

Due to low saturated thicknesses and slow recharge rates observed in injection wells, each injection well was pumped dry at least three (3) times, and then allowed to recharge prior to sampling. In the case of IW-1, the groundwater sample was collected over multiple cycles of pumping and recharge.

Groundwater was placed into appropriate laboratory-supplied, pre-cleaned and preserved containers for analyses. The groundwater samples were labeled and placed into an ice-filled cooler, and were cooled to and held between zero (0) and four (4) degrees Celsius and transported under standard chain-of-custody

Yakima, Washington Page 6 of 10



procedures to Fremont Analytical, Inc. (Fremont) located in Seattle, Washington. The Fremont laboratory is Washington Department of Ecology-accredited.

## Analytical Methodology

Groundwater samples were submitted to the laboratory and analyzed for:

- Gasoline Range Total Petroleum Hydrocarbons (TPH-G) by Washington Method NWTPH-Gx
- Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) by EPA Method 8260.

The analyses were performed in accordance with the Fremont's QA/QC Plans and in compliance with EPA analytical methods and Washington Department of Ecology guidelines. Samples were analyzed within specified holding times. All detection limits were within method requirements and no factors appeared to adversely affect data quality.

## RESULTS

The groundwater samples collected from MW-1 and IW-1 through IW-3 contained TPH-G at concentrations exceeding the MTCA Method A Groundwater Cleanup Level (800 micrograms per liter [ug/L], equivalent to parts per billion [ppb]). Benzene was reported at concentrations exceeding the MTCA Method A Groundwater Cleanup Level (5 ug/L) in groundwater samples collected from MW-1, IW-1, and IW-2, and was not detected at a concentration exceeding the laboratory reporting limit in the groundwater sample collected from IW-3. Toluene, ethylbenzene, and total xylenes were reported at concentrations exceeding MTCA Method A Groundwater Cleanup Levels (1,000 ug/L, 700 ug/L, and 1,000 ug/L, respectively) in the groundwater sample collected from IW-2, and were reported at concentrations below these cleanup levels in samples collected from MW-1, IW-1, and IW-3.

TPH-G and BTEX were not detected at concentrations exceeding the laboratory reporting limits in groundwater samples collected from MW-3, MW-5, MW-6, MW-7, and MW-8. The full laboratory analytical report is included as Attachment A.

Following an inquiry placed by Kane Environmental, Fremont laboratory staff provided copies of the NWTPH-Gx chromatographs for the groundwater samples that contained TPH-G. The Fremont staff indicated that the pattern of peaks on the chromatographs are consistent with "fresh" gasoline, as opposed to "weathered" product. These chromatographs, along with chromatographs showing typical "fresh" and "weathered" gasoline peak distributions, are appended to the end of the analytical report (Attachment A).

Groundwater Sampling Memorandum Safeway Fuel Center #462

Yakima, Washington Page 7 of 10



#### FINDINGS

Based upon the analytical results of the groundwater monitoring conducted in March 2017, gasoline range total petroleum hydrocarbons (TPH-G) and BTEX are present in groundwater on the southeastern portion of the Property at concentrations exceeding MTCA Method A Groundwater Cleanup Levels.

Concentrations of TPH-G and BTEX reported in groundwater samples collected from MW-1 have fluctuated significantly since 2003. Concentrations of these constituents were reported below MTCA Method A Groundwater Cleanup Levels seven (7) times, typically in samples collected during the summer and early fall. Concentrations of these constituents were reported in exceedance of MTCA Method A Groundwater Cleanup Levels thirteen (13) times, typically in samples collected during the late fall, winter and spring (Table 1). The seasonal fluctuation of groundwater elevation in the region (higher in the summer and early fall, and lower in the late fall, winter and spring, see Table 1) appears to be related to gasoline and BTEX concentrations in MW-1, with higher concentrations recovered in the summer and early fall (when groundwater is lower), and low and non-detectable concentrations recovered in the summer and early fall (when groundwater is higher). Concentrations of TPH-G and BTEX reported TPH-G above the MTCA Method A Groundwater Cleanup Level in samples from all injection wells reported TPH-G above the MTCA Method A Groundwater Cleanup Level in samples collected in March 2017, while only one (1) well displayed such contamination in June 2014.

This pattern indicates the presence of petroleum impacted soil located up-gradient of MW-1 in the groundwater "smear zone", at depths of approximately eleven (11) to thirteen (13) feet bgs. The "smear zone" is the zone of soil between the minimum and maximum annual depths to groundwater. Because petroleum contaminants are less dense then water, they float on the surface of groundwater, and are distributed (or "smeared") through this zone of soil throughout the year. As groundwater rises and encounters the contaminated smear zone soils, residual petroleum is mobilized and petroleum-contaminated groundwater begins to move down-gradient, encountering the sampling location at MW-1 approximately three (3) months following the highest groundwater elevation.

The presence of "fresh" gasoline contamination in groundwater samples may indicate the presence of a remaining source of gasoline contamination in subsurface soils on the Property. The source of this gasoline contamination is currently not known.

Yakima, Washington Page 8 of 10



## CONCLUSIONS

- Based upon the findings of the 2017 sampling event, petroleum impacted soil in the upper portion of the groundwater "smear zone" appears to remain in place up-gradient of MW-1 and injection wells IW-1, IW-2, and IW-3.
- The classification of gasoline-range hydrocarbons in groundwater samples collected from these wells as "fresh" product suggests the presence of a remaining source of gasoline contamination in subsurface soil on the Property. The source is currently not known.
- Kane Environmental recommends that additional soil borings be advanced in the area immediately up-gradient (west and northwest) of injection wells IW-1, IW-2, and IW-3. Soil samples collected from these borings will be used to identify the extent of remnant smear zone soil contamination.
- Kane Environmental recommends that a ground-penetrating radar (GPR) survey of the area surrounding MW-1 and the injection wells be conducted as part of the subsurface utility locate process that will be conducted at the Property prior to drilling. This geophysical survey will allow for location of possible underground structures, such as a UST or sump, which may be a source for the groundwater contamination documented in MW-1 and the injection wells.
- Kane Environmental suggests that results from the annual tightness testing conducted on the USTs and product lines installed at the Property be reviewed to verify that this equipment is not the source of groundwater contamination.
- Kane Environmental further recommends re-enrolling the Property into the Washington Department of Ecology Voluntary Clean-up Program in order to pursue a no further action status.

Groundwater Sampling Memorandum Safeway Fuel Center #462

Yakima, Washington Page 9 of 10



## FIGURES

- Figure 1 Vicinity Map
- Figure 2 Site Plan with Monitoring and Injection Well Locations
- Figure 3 Groundwater Elevation Map March 2017

#### TABLES

Table 1 – Summary of Petroleum Hydrocarbons, BTEX, Volatile Organic Compounds, and Lead in Groundwater Monitoring Well Samples, 2003-2017

## ATTACHMENTS

Attachment A – Laboratory Analytical Report

Groundwater Sampling Memorandum Safeway Fuel Center #462

Yakima, Washington Page 10 of 10



#### LIMITATIONS

Kane Environmental has performed this work in general accordance with generally accepted professional practices using the standard of the industry today, for the nature and conditions of the work completed in the same locality and at the same time as the work was performed, and with the terms and conditions as set forth in the executed Master Environmental Services Agreement between Kane Environmental and Albertsons LLC dated October 15, 2015.

Kane Environmental shall not be responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed at the time the report was prepared. Facts and conditions referenced in this report may change over time and the conclusions and recommendations set forth herein are applicable only to the facts and conditions as described at the time the work was performed. Conclusions were made within the operative constraints of the scope of work, budget, and schedule for this project. This report is intended for the exclusive use of Albertsons LLC, and its designated assignees for specific application to the referenced subject property. It is not meant to represent a legal opinion. No other warranty, express or implied, is made.

**FIGURES** 







TABLES

#### TABLE 1

Summary of Petroleum Hydrocarbons, BTEX, Volatile Organic Compounds, and Lead in Groundwater Monitoring Well Samples, 2003-2017 Safeway Fuel Center #462 216 North 5th Avenue

Yakima, Washington 98902

11

			<sup>be</sup> pth	<sup>levation</sup> c 19e Tore	hocarbons le T <sub>C</sub>	rocarbons	rocarbons					ther (MTBE)	<sup>Tane</sup> (EDB)	<sup>tene</sup> (ED <sub>C)</sub>		<sup>benzene</sup>	Denzene		_
Neil D	Sample Date	Groundwater ,	Groundwater .	Gasoline-Rai Petroleum H.	Diesel Rang	Heavy Oil Ra	Benzene	Toluene	Ethylbenzene	<b>Wenes</b>	Methyl t-butha	1,2-Dibromoe	1,2.Dichloroeu	Naphthalene	1,3,5. Trimet.	<sup>1</sup> ,2,4,Trimeth.	<sup>T</sup> otal Lead	Dissolved Lea	
MW-1	7/24/2003 1/21/2004 6/15/2005 10/19/2005 3/22/2007 11/7/2007 4/16/2008 7/22/2008 12/10/2008 10/1/2009 11/4/2009 11/4/2009 1/28/2010 8/17/2010 12/13/2010 3/16/2011 12/21/2011 12/21/2011 12/21/2012 3/22/2012 6/23/2014 3/30/2017	feet           11.22           13.67              12.29           16.25           14.00           15.89           12.85           14.48           12.77           13.72           14.81           12.74           14.38           16.16           14.70           15.52           13.60           13.30           14.81	feet           1063.10           1060.65              1058.07           1060.32           1058.43           1061.47           1059.84           1061.55           1060.60           1059.51           1061.58           1059.94           1058.16           1059.62           1058.80           1060.72           1061.02           1059.51	μg/L           76           31,000           <100	μg/L <250 2,700 <50  2,400 560 <200 <200 <200         	μg/L  <250 <260 <400 <500 <500         	μg/L           <1	μg/L           2           5,800           <1	μg/L           2           1,200           <1	μg/L 10 6,800 3 3,190 1,700 35 <1.0 2,600 <1.0 2,960 2,790 1.1 2,470 3,920 3,048 1,427 967 <1.00 928	μg/L  <1 <1 <10  <8.0 <3.0          -	<u>μg/L</u>  <1 <1 <10 <1 <0.01 <0.01 <0.01 <0.01       	μg/L  <1 <1 <10 <1.0 <1.0 <1.0 <1.0 <1.0        -	μg/L <1 150 <1 100 150 130 <1.0 <1.0 <1.0 92       	μg/L <1 290 <1 <1 230 190 1.7 <1.0 290        -	μg/L           2           1,100           <1	μg/L <1 <1 <1        	μg/L  <1 <1 <2.0 <2.0 <2.0 <2.0 <2.0       	
MW-2	7/24/2003 1/21/2004 6/15/2005 10/19/2005	11.21 14.11  12.41	1063.59 1060.69  1062.39	<50 <50 <100 <100	<250 <250 	  	<1 <1 <1 <1	<1 <1 <1 <1	<1 <1 <1 <1	<2 <2 <3 <3	 <1 <1	 <1 <1	 <1 <1	<1 <1 <1 <1	<1 <1 <1 <1	<1 <1 <1 <1	<1 <1 <1 <1		
MW-3	7/24/2003 1/21/2004 6/15/2005 3/22/2007 11/9/2007 4/16/2008 7/22/2008 12/10/2008 3/29/2017	10.23 13.66  11.90 15.64 12.80 15.22 11.60 13.39 14.04	1064.87 1061.44  1063.20 1059.46 1062.30 1059.88 1063.50 1061.71 1061.06	<50 <50 <100 <100 <100 <100 <100 <100 <50.0	<250 <250 <250  <50 <52 <200 <200 <200 	  <250 <260 <400 <500 <500	<1 <1 <1 <1 <1 <1.0 <1.0 <1.0 <1.00	<1 <1 <1 <1 <1 <1 <1.0 <1.0 <1.0 <1.00	<1 <1 <1 <1 <1 <1 <1.0 <1.0 1.0 <1.00	<pre>&lt;2 &lt;2 &lt;3 &lt;3 &lt;3 &lt;1.0 &lt;1.0 5.8 &lt;1.00</pre>	 <1 <1  <8.0 <3.0	 <1 <1 <1 <1 <1 <0.1 <0.01 <0.01 	 <1 <1 <1 <1 <1.0 <1.0 <1.0 <1.0	<1 <1 <1 <1 <1 <1 <1.0 <1.0 <0.5 	<1 <1 <1 <1 <1 <1 <1.0 <1.0 <1.0 <1.0 	<1 <1 <1 <1 <1 <1 <1.0 <1.0 <1.0 <1.0 	<1 <1 <1   	  <1 <1 <2.0 <2.0 <2.0 <2.0	
MW-4	6/15/2005 10/19/2005	 12.07	 1062.39	<100 <100	 <50		<1 <1	<1 <1	<1 <1	<3 <3	<1 <1	<1 <1	<1 <1	<1 <1	<1 <1	<1 <1	<1 <1		
MW-5	7/1/2005 10/19/2005 3/22/2007 11/8/2007 4/16/2008 7/22/2008 12/10/2008 3/29/2017	10.86 12.15 15.00 12.8 14.7 11.56 13.22 14.61	1063.44 1062.15 1059.30 1061.5 1059.6 1062.74 1061.08 1059.69	<100 <100 180 <100 <100 <100 <100 <50.0	 190 <52 <200 <200 <200	 <250 <260 <400 <500 <500 	<1 <1 <1 <1.0 <1.0 <1.0 <1.00	<1 <1 <1 <1.0 <1.0 <1.0 <1.0 <1.00	<1 <1 <1 <1.0 <1.0 <1.0 <1.0	<3 <3 9.2 <3 <1.0 <1.0 <1.0 <1.00	<1 <1  <8.0 <3.0 	<1 <1 <1 <0.1 <0.01 <0.01 	<1 <1 <1 <1.0 <1.0 <1.0 <1.0 	<1 <1 3.3 <1 <1.0 <1.0 <0.5 	<1 <1 1.4 <1 <1.0 <1.0 <1.0 <1.0 	<1 <1 18 <1 <1.0 <1.0 <1.0 <1.0 	<1 <1    	 <1 <1 <2.0 <2.0 <2.0 	
MW-6	7/1/2005 10/19/2005 3/22/2007 11/8/2007 4/16/2008 7/22/2008 12/10/2008 8/18/2010 3/29/2017	11.39 12.20 14.96 12.60 14.62 11.91 13.08 11.81 13.58	1062.29 1061.48 1058.72 1061.08 1059.06 1061.77 1060.60 1061.87 1060.10	<100 <100 <100 280 <100 <100 <100 <50.0	 71 <52 <200 <200 <200 	 <250 <260 <400 <500 <500  	<1 <1 <1.0 <1.0 <1.0 <1.0 <1.0 <1.00	<1 <1 <1.0 <1.0 <1.0 <1.0 <1.0 <1.00	<1 <1 <1 <1.0 <1.0 <1.0 <1.0 <1.0 <1.00	<pre>&lt;3 &lt;3 3.50 &lt;3 1.3 &lt;1.0 &lt;1.0 &lt;1.0 &lt;1.0 &lt;1.00</pre>	<1 <1  <8.0 <3.0 	<1 <1 <1 <0.1 <0.01 <0.01  	<1 <1 <1 <1.0 <1.0 <1.0 <1.0 	<1 <1 <1 <1.0 <1.0 <0.5  	<1 <1 <1 1.7 <1.0 <1.0 <1.0 	<1 <1 <1 4.5 <1.0 <1.0  	<1 <1     	 <1 <2.0 <2.0 <2.0 	
MW-7	7/1/2005 10/19/2005 3/22/2007 11/8/2007 4/16/2008 7/22/2008 12/10/2008 3/30/2017	12.36 12.66 15.70 12.90 13.99 12.59 13.10 13.33	1061.67 1061.37 1058.33 1061.13 1060.04 1061.44 1060.93 1060.70	<100 <100 <100 <100 <100 <100 <100 <50.0	 <50 <53 <200 <200 <200	 <250 <260 <400 <500 <500	<1 <1 <1 <1.0 <1.0 <1.0 <1.00	<1 <1 <1 <1.0 <1.0 <1.0 <1.0 <1.00	<1 <1 <1 <1.0 <1.0 <1.0 <1.0	<3 <3 <1 <3 <1.0 <1.0 <1.0 <1.0	<1 <1 <3  <8.0 <3.0 	<1 <1 <1 <0.1 <0.01 <0.01 	<1 <1 <1 <1.0 <1.0 <1.0 	<1 <1 <1 <1.0 <1.0 <0.5 	<1 <1 <1 <1.0 <1.0 <1.0 <1.0	<1 <1 <1 <1.0 <1.0 <1.0 <1.0 	<1 <1   	 <1 <1 <2.0 <2.0 <2.0	
MW-8	7/1/2005 10/19/2005 3/22/2007 11/8/2007 4/16/2008 7/22/2008 12/10/2008 8/18/2010 3/30/2017	12.69 13.18 15.40 13.50 15.23 13.06 13.86 12.89 14.14	1061.13 1060.64 1058.42 1060.32 1058.59 1060.76 1059.96 1060.93 1059.68	<100 <100  <100 <100 <100 <100 <100 <	 <50 <52 <200 <200 <200 	 <250 <1250 <400 <500 <500  	<1 <1 <1 <1.0 <1.0 <1.0 <1.0 <1.00	<1 <1 <1 <1.0 <1.0 <1.0 <1.0 <1.00	<1 <1 <1 <1.0 <1.0 <1.0 <1.0 <1.00	<3 <3 <3 <1.0 <1.0 <1.0 <1.0 <1.00	<1 <1  <8.0 <3.0 	<1 <1 <1 <0.1 <0.01 <0.01  	<1 <1 <1 <1.0 <1.0 <1.0 <1.0  	<1 <1 22 <1.0 <1.0 <0.5  	<1 <1 22 <1.0 <1.0 <1.0  	<1 <1 <1 84 <1.0 <1.0 <1.0  	<1 <1     	 <1 <1 <2.0 <2.0 <2.0  	
MW-9	7/1/2005 10/19/2005	11.15 12.17	1063.88 1062.86	750 <100	160 		<1 <1	26 <1	29 <1	149 <3	<1 <1	<1 <1	<1 <1	1 <1	11 <1	31 <1	<b>27</b> <1		
MW-10	10/19/2005 6/23/2014	12.10 12.98	1062.41	160 475			<1 1 75	<1 1 44	3.2 9.63	10 12 54	<1	<1	<1	<1	8.8	23	<1		
IW-1	3/30/2017	14.63		2,580			7.87	129	148	176									
IW-2	3/29/2017	13.09 14.50		82,300			25.1 40.4	6,630	458 <b>2,910</b>	2,106									
IW-3	6/23/2014 3/29/2017	12.88 14.74		327 9,810			<1.00 <1.00	<1.00 72.8	<1.00 346	<1.00 709									
MTCA Method A for Grour	Cleanup Level ndwater			800/ 1000ª	500	500	5	1000	700	1000	20	0.01	5	160 <sup>b</sup>	NV	80 <sup>b</sup>	1	5	

Notes:

deg C = degrees Celsius

uS = microsiemens

mg/L = milligrams per liter [equivalent to parts per million (ppm)] μg/L = micrograms per liter [equivalent to parts per billion (ppb)] Shaded and Bold concentrations are above MTCA Method A Cleanup Level for Groundwater

--- = Constituent not analyzed for this sample

a = Use lower cleanup level used if benzene is present

b = No MTCA Method A Cleanup Level established for this constituent. The MTCA Method B Non-Cancer Cleanup Level is listed in its place.

c = Groundwater elevations reported relative to the City of Yakima datum based on the NGVD88 datum. NV = No MTCA Method A or B Cleanup Level established for this constituent.

## ATTACHMENT A LABORATORY ANALYTICAL REPORT



3600 Fremont Ave. N. Seattle, WA 98103 T: (206) 352-3790 F: (206) 352-7178 info@fremontanalytical.com

Kane Environmental, Inc. Nate Evenson 3815 Woodland Park Ave N, Ste. 102 Seattle, WA 98103

RE: Safeway Yakima Work Order Number: 1703371

April 07, 2017

## **Attention Nate Evenson:**

Fremont Analytical, Inc. received 10 sample(s) on 3/31/2017 for the analyses presented in the following report.

## Gasoline by NWTPH-Gx

## Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Chelsea Ward Project Manager

DoD/ELAP Certification #L2371, ISO/IEC 17025:2005 ORELAP Certification: WA 100009-007 (NELAP Recognized)



CLIENT: Project: Work Order:	Kane Environmental, Inc. Safeway Yakima 1703371	Work Order S	Sample Summary
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1703371-001	MW-5:W-032917	03/29/2017 12:55 PM	03/31/2017 3:54 PM
1703371-002	IW-3:W-032917	03/29/2017 1:25 PM	03/31/2017 3:54 PM
1703371-003	MW-3:W-032917	03/29/2017 2:47 PM	03/31/2017 3:54 PM
1703371-004	IW-2:W-032917	03/29/2017 3:28 PM	03/31/2017 3:54 PM
1703371-005	MW-6:W-032917	03/29/2017 4:25 PM	03/31/2017 3:54 PM
1703371-006	IW-1A:W-033017	03/30/2017 8:28 AM	03/31/2017 3:54 PM
1703371-007	MW-7:W-033017	03/30/2017 9:51 AM	03/31/2017 3:54 PM
1703371-008	MW-8:W-033017	03/30/2017 11:15 AM	03/31/2017 3:54 PM
1703371-009	MW-1:W-033017	03/30/2017 12:42 PM	03/31/2017 3:54 PM
1703371-010	IW-1:W-033017	03/30/2017 4:10 PM	03/31/2017 3:54 PM



**Case Narrative** 

WO#: **1703371** Date: **4/7/2017** 

CLIENT:Kane Environmental, Inc.Project:Safeway Yakima

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

## II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

## **III. ANALYSES AND EXCEPTIONS:**

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

## **Qualifiers & Acronyms**



WO#: **1703371** Date Reported: **4/7/2017** 

## Qualifiers:

- \* Flagged value is not within established control limits
- B Analyte detected in the associated Method Blank
- D Dilution was required
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- I Analyte with an internal standard that does not meet established acceptance criteria
- J Analyte detected below Reporting Limit
- N Tentatively Identified Compound (TIC)
- Q Analyte with an initial or continuing calibration that does not meet established acceptance criteria
- (<20%RSD, <20% Drift or minimum RRF)
- S Spike recovery outside accepted recovery limits
- ND Not detected at the Reporting Limit
- R High relative percent difference observed

Acronyms:

%Rec - Percent Recovery **CCB** - Continued Calibration Blank CCV - Continued Calibration Verification **DF** - Dilution Factor HEM - Hexane Extractable Material ICV - Initial Calibration Verification LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate MB or MBLANK - Method Blank MDL - Method Detection Limit MS/MSD - Matrix Spike / Matrix Spike Duplicate PDS - Post Digestion Spike Ref Val - Reference Value **RL - Reporting Limit RPD** - Relative Percent Difference SD - Serial Dilution SGT - Silica Gel Treatment SPK - Spike Surr - Surrogate



Client: Kane Environmental, Inc.				Collection	n Dat	t <b>e:</b> 3/29/20	017 12:55:00 I	PM
Project: Safeway Yakima								
Lab ID: 1703371-001				Matrix: G	roun	dwater		
Client Sample ID: MW-5:W-03291	7							
Analyses	Result	RL	Qual	Units	DF	D	ate Analyzed	
Gasoline by NWTPH-Gx				Batc	h ID:	16705	Analyst: NC	3
Gasoline	ND	50.0		µg/L	1	4/6/	'2017 2:00:05 AM	
Surr: Toluene-d8	90.8	65-135		%Rec	1	4/6/	2017 2:00:05 AM	
Surr: 4-Bromofluorobenzene	99.1	65-135		%Rec	1	4/6/	2017 2:00:05 AM	
Volatile Organic Compounds by	EPA Method	<u>8260C</u>		Batc	h ID:	16705	Analyst: NC	3
Benzene	ND	1.00		µg/L	1	4/6/	'2017 2:00:05 AM	
Toluene	ND	1.00		µg/L	1	4/6/	2017 2:00:05 AM	
Ethylbenzene	ND	1.00		µg/L	1	4/6/	2017 2:00:05 AM	
m,p-Xylene	ND	1.00		µg/L	1	4/6/	2017 2:00:05 AM	
o-Xylene	ND	1.00		µg/L	1	4/6/	2017 2:00:05 AM	
Surr: Dibromofluoromethane	104	45.4-152		%Rec	1	4/6/	2017 2:00:05 AM	
Surr: Toluene-d8	98.6	40.1-139		%Rec	1	4/6/	2017 2:00:05 AM	
Surr: 1-Bromo-4-fluorobenzene	99.0	64.2-128		%Rec	1	4/6/	2017 2:00:05 AM	



Client: Kane Environmental, Inc.				Collectio	n Date: 3	3/29/2017 1:25:00 PM
Project: Safeway Yakima						
Lab ID: 1703371-002				Matrix: G	roundwa	ater
Client Sample ID: IW-3:W-032917	,					
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batc	h ID: 16	705 Analyst: NG
Gasoline	9,810	500	D	µg/L	10	4/7/2017 10:11:11 AM
Surr: Toluene-d8	100	65-135	D	%Rec	10	4/7/2017 10:11:11 AM
Surr: 4-Bromofluorobenzene	101	65-135	D	%Rec	10	4/7/2017 10:11:11 AM
Volatile Organic Compounds by	EPA Method	<u>8260C</u>		Batc	h ID: 167	705 Analyst: NG
Benzene	ND	1.00		µg/L	1	4/6/2017 2:30:20 AM
Toluene	72.8	10.0	D	µg/L	10	4/7/2017 10:11:11 AM
Ethylbenzene	346	10.0	D	µg/L	10	4/7/2017 10:11:11 AM
m,p-Xylene	625	100	D	µg/L	100	4/7/2017 8:08:54 AM
o-Xylene	84.4	10.0	D	µg/L	10	4/7/2017 10:11:11 AM
Surr: Dibromofluoromethane	94.8	45.4-152		%Rec	1	4/6/2017 2:30:20 AM
Surr: Toluene-d8	95.9	40.1-139		%Rec	1	4/6/2017 2:30:20 AM
Surr: 1-Bromo-4-fluorobenzene	102	64.2-128		%Rec	1	4/6/2017 2:30:20 AM



<b>Client:</b> Kane Environmental, Inc.				Collection	n Date:	: 3/29/2017 2:47:00 PM
Project: Safeway Yakima						
Lab ID: 1703371-003				Matrix: G	round	vater
Client Sample ID: MW-3:W-032917	,					
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batc	h ID: 1	6705 Analyst: NG
Gasoline	ND	50.0		μg/L	1	4/7/2017 6:06:57 AM
Surr: Toluene-d8	97.4	65-135		%Rec	1	4/7/2017 6:06:57 AM
Surr: 4-Bromofluorobenzene	90.2	65-135		%Rec	1	4/7/2017 6:06:57 AM
NOTES:						
Re-analysis						
Volatile Organic Compounds by I	EPA Method	<u>8260C</u>		Batc	h ID: 1	6705 Analyst: NG
Benzene	ND	1.00		µg/L	1	4/7/2017 6:06:57 AM
Toluene	ND	1.00		µg/L	1	4/7/2017 6:06:57 AM
Ethylbenzene	ND	1.00		µg/L	1	4/7/2017 6:06:57 AM
m,p-Xylene	ND	1.00		µg/L	1	4/7/2017 6:06:57 AM
o-Xylene	ND	1.00		µg/L	1	4/7/2017 6:06:57 AM
Surr: Dibromofluoromethane	97.1	45.4-152		%Rec	1	4/7/2017 6:06:57 AM
Surr: Toluene-d8	106	40.1-139		%Rec	1	4/7/2017 6:06:57 AM
Surr: 1-Bromo-4-fluorobenzene	86.4	64.2-128		%Rec	1	4/7/2017 6:06:57 AM



Client: Kane Environmental, Inc.				Collectio	n Date: 3	3/29/2017 3:28:00 PM
Project: Safeway Yakima						
Lab ID: 1703371-004				Matrix: G	roundwa	ater
Client Sample ID: IW-2:W-032917	7					
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batc	h ID: 167	705 Analyst: NG
Gasoline	82,300	5,000	D	µg/L	100	4/7/2017 9:40:35 AM
Surr: Toluene-d8	95.3	65-135		%Rec	1	4/6/2017 3:30:58 AM
Surr: 4-Bromofluorobenzene	118	65-135		%Rec	1	4/6/2017 3:30:58 AM
Volatile Organic Compounds by	EPA Method	<u>8260C</u>		Batc	h ID: 167	705 Analyst: NG
Benzene	40.4	1.00		µg/L	1	4/6/2017 3:30:58 AM
Toluene	6,630	200	D	µg/L	200	4/7/2017 1:14:00 PM
Ethylbenzene	2,910	100	D	µg/L	100	4/7/2017 9:40:35 AM
m,p-Xylene	10,600	200	D	µg/L	200	4/7/2017 1:14:00 PM
o-Xylene	3,520	200	D	µg/L	200	4/7/2017 1:14:00 PM
Surr: Dibromofluoromethane	92.5	45.4-152		%Rec	1	4/6/2017 3:30:58 AM
Surr: Toluene-d8	104	40.1-139		%Rec	1	4/6/2017 3:30:58 AM
Surr: 1-Bromo-4-fluorobenzene	118	64.2-128		%Rec	1	4/6/2017 3:30:58 AM



Client: Kane Environmental, Inc.				Collection	n Date:	3/29/2017 4:25:00 PM
Project: Safeway Yakima						
Lab ID: 1703371-005				Matrix: G	roundw	vater
Client Sample ID: MW-6:W-03291	7					
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batc	h ID: 16	6705 Analyst: NG
Gasoline	ND	50.0		µg/L	1	4/7/2017 6:37:24 AM
Surr: Toluene-d8	91.3	65-135		%Rec	1	4/7/2017 6:37:24 AM
Surr: 4-Bromofluorobenzene	97.3	65-135		%Rec	1	4/7/2017 6:37:24 AM
Volatile Organic Compounds by	EPA Method	<u>8260C</u>		Bato	h ID: 16	6705 Analyst: NG
Benzene	ND	1.00		µg/L	1	4/7/2017 6:37:24 AM
Toluene	ND	1.00		µg/L	1	4/7/2017 6:37:24 AM
Ethylbenzene	ND	1.00		µg/L	1	4/7/2017 6:37:24 AM
m,p-Xylene	ND	1.00		µg/L	1	4/7/2017 6:37:24 AM
o-Xylene	ND	1.00		µg/L	1	4/7/2017 6:37:24 AM
Surr: Dibromofluoromethane	103	45.4-152		%Rec	1	4/7/2017 6:37:24 AM
Surr: Toluene-d8	102	40.1-139		%Rec	1	4/7/2017 6:37:24 AM
Surr: 1-Bromo-4-fluorobenzene	101	64.2-128		%Rec	1	4/7/2017 6:37:24 AM



Client: Kane Environmental, Inc.				Collection	n Date	e: 3/30/2017 9:51:00 AM
Project: Safeway Yakima						
Lab ID: 1703371-007				Matrix: G	round	dwater
Client Sample ID: MW-7:W-03301	7					
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batc	h ID:	16705 Analyst: NG
Gasoline	ND	50.0		μg/L	1	4/7/2017 7:07:55 AM
Surr: Toluene-d8	92.6	65-135		%Rec	1	4/7/2017 7:07:55 AM
Surr: 4-Bromofluorobenzene	91.6	65-135		%Rec	1	4/7/2017 7:07:55 AM
Volatile Organic Compounds by	EPA Method	<u>8260C</u>		Batc	h ID:	16705 Analyst: NG
Benzene	ND	1.00		μg/L	1	4/7/2017 7:07:55 AM
Toluene	ND	1.00		µg/L	1	4/7/2017 7:07:55 AM
Ethylbenzene	ND	1.00		µg/L	1	4/7/2017 7:07:55 AM
m,p-Xylene	ND	1.00		µg/L	1	4/7/2017 7:07:55 AM
o-Xylene	ND	1.00		µg/L	1	4/7/2017 7:07:55 AM
Surr: Dibromofluoromethane	101	45.4-152		%Rec	1	4/7/2017 7:07:55 AM
Surr: Toluene-d8	96.0	40.1-139		%Rec	1	4/7/2017 7:07:55 AM
Surr: 1-Bromo-4-fluorobenzene	95.1	64.2-128		%Rec	1	4/7/2017 7:07:55 AM



Client: Kane Environmental, Inc.				Collection	n Dat	te: 3/30/2017 11:15:00 AM	
Project: Safeway Yakima							
Lab ID: 1703371-008				Matrix: G	roun	dwater	
Client Sample ID: MW-8:W-03301	7						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed	
Gasoline by NWTPH-Gx				Batc	h ID:	16705 Analyst: NG	
Gasoline	ND	50.0		µg/L	1	4/6/2017 5:32:39 AM	
Surr: Toluene-d8	98.1	65-135		%Rec	1	4/6/2017 5:32:39 AM	
Surr: 4-Bromofluorobenzene	91.9	65-135		%Rec	1	4/6/2017 5:32:39 AM	
Volatile Organic Compounds by	EPA Method	<u>8260C</u>		Batc	h ID:	16705 Analyst: NG	
Benzene	ND	1.00		µg/L	1	4/7/2017 7:38:28 AM	
Toluene	ND	1.00		µg/L	1	4/7/2017 7:38:28 AM	
Ethylbenzene	ND	1.00		µg/L	1	4/7/2017 7:38:28 AM	
m,p-Xylene	ND	1.00		µg/L	1	4/7/2017 7:38:28 AM	
o-Xylene	ND	1.00		µg/L	1	4/7/2017 7:38:28 AM	
Surr: Dibromofluoromethane	94.9	45.4-152		%Rec	1	4/7/2017 7:38:28 AM	
Surr: Toluene-d8	101	40.1-139		%Rec	1	4/7/2017 7:38:28 AM	
Surr: 1-Bromo-4-fluorobenzene	86.0	64.2-128		%Rec	1	4/7/2017 7:38:28 AM	



Client: Kane Environmental, Inc.			(	Collectio	n Date: 3	3/30/2017 12:42:00 PM
Project: Safeway Yakima						
Lab ID: 1703371-009			I	Matrix: G	roundwa	ater
Client Sample ID: MW-1:W-03301	17					
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batc	h ID: 167	705 Analyst: NG
Gasoline	7,960	500	D	µg/L	10	4/7/2017 10:41:49 AM
Surr: Toluene-d8	90.4	65-135		%Rec	1	4/6/2017 6:03:00 AM
Surr: 4-Bromofluorobenzene	106	65-135		%Rec	1	4/6/2017 6:03:00 AM
Volatile Organic Compounds by	EPA Method	<u>8260C</u>		Batc	h ID: 167	705 Analyst: NG
Benzene	5.94	1.00		µg/L	1	4/6/2017 6:03:00 AM
Toluene	79.4	10.0	D	µg/L	10	4/7/2017 10:41:49 AM
Ethylbenzene	396	100	D	µg/L	100	4/7/2017 8:39:31 AM
m,p-Xylene	757	10.0	D	µg/L	10	4/7/2017 10:41:49 AM
o-Xylene	171	10.0	D	µg/L	10	4/7/2017 10:41:49 AM
Surr: Dibromofluoromethane	104	45.4-152		%Rec	1	4/6/2017 6:03:00 AM
Surr: Toluene-d8	100	40.1-139		%Rec	1	4/6/2017 6:03:00 AM
Surr: 1-Bromo-4-fluorobenzene	119	64.2-128		%Rec	1	4/6/2017 6:03:00 AM



Client: Kane Environmental, Inc.			(	Collectio	n Date: 3	3/30/2017 4:10:00 PM
Project: Safeway Yakima						
Lab ID: 1703371-010				Matrix: G	roundwa	ater
Client Sample ID: IW-1:W-033017	7					
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batc	h ID: 16	705 Analyst: NG
Gasoline	2,580	500	D	µg/L	10	4/7/2017 11:12:20 AM
Surr: Toluene-d8	102	65-135		%Rec	1	4/6/2017 7:03:51 AM
Surr: 4-Bromofluorobenzene	103	65-135		%Rec	1	4/6/2017 7:03:51 AM
Volatile Organic Compounds by	EPA Method	<u>8260C</u>		Batc	h ID: 16	705 Analyst: NG
Benzene	7.67	1.00		µg/L	1	4/6/2017 7:03:51 AM
Toluene	129	10.0	D	µg/L	10	4/7/2017 11:12:20 AM
Ethylbenzene	148	10.0	D	µg/L	10	4/7/2017 11:12:20 AM
m,p-Xylene	129	10.0	D	µg/L	10	4/7/2017 11:12:20 AM
o-Xylene	46.5	10.0	D	µg/L	10	4/7/2017 11:12:20 AM
Surr: Dibromofluoromethane	99.5	45.4-152		%Rec	1	4/6/2017 7:03:51 AM
Surr: Toluene-d8	77.0	40.1-139		%Rec	1	4/6/2017 7:03:51 AM
Surr: 1-Bromo-4-fluorobenzene	102	64.2-128		%Rec	1	4/6/2017 7:03:51 AM

Work Order: CLIENT: Project:	1703371 Kane Enviro Safeway Ya	onmental, In akima	C.							QC S	SUMMAI Gasolin	RY REF e by NW1	PORT
Sample ID LCS-16	705	SampType	: LCS			Units: µg/L		Prep Date	e: <b>4/5/201</b>	7	RunNo: 35	387	
Client ID: LCSW		Batch ID:	16705					Analysis Date	e: <b>4/5/201</b>	7	SeqNo: 67	7691	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline			532	50.0	500.0	0	106	65	135				
Surr: Toluene-d8			25.8		25.00		103	65	135				
Surr: 4-Bromofluc	probenzene		24.9		25.00		99.7	65	135				
Sample ID MB-167	/05	SampType	: MBLK			Units: µg/L		Prep Date	e: <b>4/5/201</b>	7	RunNo: 35:	387	
Client ID: MBLKW	v	Batch ID:	16705					Analysis Date	e: <b>4/5/201</b>	7	SeqNo: 67	7692	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline			ND	50.0									
Surr: Toluene-d8			24.1		25.00		96.2	65	135				
Surr: 4-Bromofluc	orobenzene		23.5		25.00		94.0	65	135				
Sample ID 170337	1-004ADUP	SampType	: DUP			Units: µg/L		Prep Date	e: <b>4/5/201</b>	7	RunNo: 35:	387	
Client ID: IW-2:W	-032917	Batch ID:	16705					Analysis Date	e: <b>4/6/201</b>	7	SeqNo: 67	7677	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline		3	0,700	50.0						24,980	20.5	30	Е
Surr: Toluene-d8			23.4		25.00		93.8	65	135		0		
Surr: 4-Bromofluc NOTES:	orobenzene		31.0		25.00		124	65	135		0		
E - Estimated val	ue. The amoun	nt exceeds the l	linear workir	ng range of	the instrument								
Sample ID 170337	1-009ADUP	SampType	: DUP			Units: µg/L		Prep Date	e: <b>4/5/201</b>	7	RunNo: 35	387	
Client ID: MW-1:W	V-033017	Batch ID:	16705					Analysis Date	e: <b>4/6/201</b>	7	SeqNo: 67	7682	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline			6,450	50.0						6,445	0.0487	30	Е
Surr: Toluene-d8			23.1		25.00		92.3	65	135		0		
Surr: 4-Bromofluc	orobenzene		27.0		25.00		108	65	135		0		

Fremont

Analytical



Work Order:	1703371							OC SI	IMMAR	Y RFP	ORT
CLIENT:	Kane Enviro	nmental, Inc.								· · · · · · · · ·	
Project:	Safeway Yak	kima							Gasoline	by NW I	PH-Gx
Sample ID 17033	71-009ADUP	SampType: <b>DUP</b>			Units: µg/L		Prep Date: 4/5/2017	F	RunNo: <b>3538</b>	7	
Client ID: MW-1:	W-033017	Batch ID: 16705				Ar	nalysis Date: 4/6/2017	5	SeqNo: 6776	82	
Analyte		Result	RL	SPK value SP	K Ref Val	%REC I	LowLimit HighLimit RPD	Ref Val	%RPD I	RPDLimit	Qual

#### NOTES:

E - Estimated value. The amount exceeds the linear working range of the instrument.

Sample ID CCV-F-16705	SampType: CCV			Units: µg/L		Prep Da	te: 4/7/201	7	RunNo: 353	387	
Client ID: CCV	Batch ID: 16705					Analysis Da	te: 4/7/201	7	SeqNo: 678	3481	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	427	50.0	500.0	0	85.3	80	120				
Surr: Toluene-d8	25.0		25.00		100	65	135				
Surr: 4-Bromofluorobenzene	24.6		25.00		98.2	65	135				



## Work Order: 1703371

Project:

**CLIENT:** Kane Environmental, Inc.

Safeway Yakima

## **QC SUMMARY REPORT**

## Volatile Organic Compounds by EPA Method 8260C

Sample ID LCS-16705	SampType: LCS			Units: µg/L		Prep Date	e: 4/5/201	7	RunNo: 353	386	
Client ID: LCSW	Batch ID: 16705					Analysis Date	e: 4/5/201	17	SeqNo: 677	652	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.4	1.00	20.00	0	107	69.3	132				
Toluene	17.7	1.00	20.00	0	88.3	61.3	145				
Ethylbenzene	19.9	1.00	20.00	0	99.6	72	130				
m,p-Xylene	39.7	1.00	40.00	0	99.3	70.3	134				
o-Xylene	24.6	1.00	20.00	0	123	72.1	131				
Surr: Dibromofluoromethane	25.2		25.00		101	45.4	152				
Surr: Toluene-d8	24.4		25.00		97.4	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	26.3		25.00		105	64.2	128				
Sample ID MB-16705	SampType: MBLK			Units: µg/L		Prep Date	e: <b>4/5/201</b>	17	RunNo: 353	386	

Sample ID MB-16/05	SampType: MBLK			Units: µg/L		Prep Da	ite: 4/5/20	17	Runno: 35.	386	
Client ID: MBLKW	Batch ID: 16705					Analysis Da	ate: 4/5/20 <sup>4</sup>	17	SeqNo: 67	7653	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00									
Toluene	ND	1.00									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	1.00									
o-Xylene	ND	1.00									
Surr: Dibromofluoromethane	26.5		25.00		106	45.4	152				
Surr: Toluene-d8	18.6		25.00		74.4	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	24.9		25.00		99.6	64.2	128				
Sample ID 1703371-004ADUP	SampType: <b>DUP</b>			Units: µg/L		Prep Da	ite: 4/5/20	17	RunNo: 35	386	
Client ID: IW-2:W-032917	Batch ID: 16705					Analysis Da	ate: 4/6/20 <sup>4</sup>	17	SeqNo: 67	7638	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	47.1	1.00						40.45	15.2	30	Е
Toluene	443	1.00						406.5	8.52	30	Е
Ethylbenzene	>40	1.00						212.7	200	30	RE
m,p-Xylene	>40	1.00						588.9	200	30	RE



## Work Order: 1703371

**CLIENT:** Kane Environmental, Inc.

Safeway Yakima

## QC SUMMARY REPORT

## Volatile Organic Compounds by EPA Method 8260C

Sample ID 1703371-004ADUP	SampType: <b>DUP</b>			Units: µg/L		Prep Dat	e: <b>4/5/201</b>	7	RunNo: 353	386	
Client ID: IW-2:W-032917	Batch ID: 16705					Analysis Dat	e: <b>4/6/201</b>	7	SeqNo: 677	7638	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	561	1.00						524.7	6.60	30	EQ
Surr: Dibromofluoromethane	22.6		25.00		90.5	45.4	152		0		
Surr: Toluene-d8	23.6		25.00		94.4	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	31.4		25.00		126	64.2	128		0		

#### NOTES:

Project:

>40 - The analyte concentrations exceeds the linear working range of the instrument.

R - High RPD due to high analyte concentration. In this range, high RPD's may be expected.

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

E - Estimated value. The amount exceeds the linear working range of the instrument.

Sample ID 1703371-009ADUP	SampType: <b>DUP</b>			Units: µg/L		Prep Da	te: 4/5/201	7	RunNo: 35	386	
Client ID: MW-1:W-033017	Batch ID: 16705					Analysis Da	te: 4/6/201	7	SeqNo: 67	7643	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	6.26	1.00						5.938	5.32	30	
Toluene	82.3	1.00						80.93	1.70	30	Е
Ethylbenzene	195	1.00						196.2	0.607	30	Е
m,p-Xylene	428	1.00						433.1	1.27	30	Е
o-Xylene	183	1.00						178.6	2.67	30	QE
Surr: Dibromofluoromethane	24.5		25.00		98.0	45.4	152		0		
Surr: Toluene-d8	24.0		25.00		95.8	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene NOTES:	29.9		25.00		120	64.2	128		0		

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

E - Estimated value. The amount exceeds the linear working range of the instrument.

Sample ID 1703371-0	DIAMS SampTy	pe: <b>MS</b>			Units: µg/L		Prep Dat	te: 4/5/201	7	RunNo: 353	386	
Client ID: MW-5:W-0	Batch IE	: <b>16705</b>					Analysis Dat	te: 4/6/201	7	SeqNo: 677	7633	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene		18.9	1.00	20.00	0	94.4	65.4	138				
Toluene		21.6	1.00	20.00	0	108	64	139				



1703371

Kane Environmental, Inc.

Safeway Yakima

Work Order:

CLIENT:

Project:

		G	C SUMMARY REP	PORT
		Volatile Organic Com	oounds by EPA Method	d 8260C
IS	Units: µg/L	Prep Date: 4/5/2017	RunNo: 35386	

Sample ID 1703371-001AMS	SampType: <b>MS</b>			Units: µg/L		Prep Dat	e: 4/5/201	7	RunNo: 353	86	
Client ID: MW-5:W-032917	Batch ID: 16705				Analysis Date: 4/6/2017			7	SeqNo: 677	633	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethylbenzene	23.5	1.00	20.00	0	118	64.5	136				
m,p-Xylene	44.8	1.00	40.00	0	112	63.3	135				
o-Xylene	25.9	1.00	20.00	0	129	65.4	134				
Surr: Dibromofluoromethane	22.8		25.00		91.3	45.4	152				
Surr: Toluene-d8	26.4		25.00		106	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	25.9		25.00		104	64.2	128				

Sample ID 1703371-001AMSD	SampType: MSD			Units: µg/L		Prep Da	te: 4/5/2017	7	RunNo: 35:	386	
Client ID: MW-5:W-032917	Batch ID: 16705					Analysis Da	te: 4/6/201	7	SeqNo: 67	7634	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	22.0	1.00	20.00	0	110	65.4	138	18.88	15.1	30	
Toluene	19.9	1.00	20.00	0	99.4	64	139	21.63	8.40	30	
Ethylbenzene	23.0	1.00	20.00	0	115	64.5	136	23.53	2.17	30	
m,p-Xylene	45.5	1.00	40.00	0	114	63.3	135	44.76	1.55	30	
o-Xylene	26.3	1.00	20.00	0	131	65.4	134	25.85	1.56	30	
Surr: Dibromofluoromethane	24.3		25.00		97.2	45.4	152		0		
Surr: Toluene-d8	24.3		25.00		97.0	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	24.9		25.00		99.5	64.2	128		0		
Sample ID CCV-F-16705	SampType: CCV			Units: ua/L		Prep Da	te: <b>4/7/201</b>	7	RunNo: 35	386	

Client ID: CCV	Batch ID: 16705					Analysis Da	te: 4/7/201	7	SeqNo: 678	3455	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.0	1.00	20.00	0	95.2	80	120				
Toluene	20.6	1.00	20.00	0	103	80	120				
Ethylbenzene	21.3	1.00	20.00	0	107	80	120				
m,p-Xylene	38.3	1.00	40.00	0	95.7	80	120				
o-Xylene	22.8	1.00	20.00	0	114	80	120				
Surr: Dibromofluoromethane	24.3		25.00		97.3	72.1	122				





## Work Order: 1703371

Project:

**CLIENT:** Kane Environmental, Inc.

Safeway Yakima

## QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID CCV-F-16705	SampType: CCV			Units: µg/L		Prep Dat	te: 4/7/201	7	RunNo: 353	386	
Client ID: CCV	Batch ID: 16705				Analysis Date: 4/7/2017			SeqNo: 678	8455		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Toluene-d8	27.2		25.00		109	62.1	129				
Surr: 1-Bromo-4-fluorobenzene	25.6		25.00		102	63.3	132				



## Sample Log-In Check List

C	ient Name:	KANE	Work Or	der Number	: 1703371	
Lo	ogged by:	Erica Silva	Date Re	ceived:	3/31/201	7 3:54:00 PM
<u>Cha</u>	in of Custo	ody				
1.	Is Chain of C	ustody complete?	Yes	✓	No 🗌	Not Present
2.	How was the	sample delivered?	<u>Clien</u>	<u>t</u>		
loa	In					
<u>د مع</u>	Coolers are p	resent?	Yes	✓	No 🗌	
5.	0001010 0.0 P					
4.	Shipping cont	tainer/cooler in good condition?	Yes	✓	No 🗌	
5.	Custody Seal (Refer to com	s present on shipping container/cooler? ments for Custody Seals not intact)	Yes		No 🗌	Not Required 🗹
6.	Was an atten	npt made to cool the samples?	Yes	✓	No 🗌	NA 🗌
7.	Were all item	s received at a temperature of $>0^{\circ}$ C to $10.0^{\circ}$ C*	Yes	✓	No 🗌	
8.	Sample(s) in	proper container(s)?	Yes	✓	No 🗌	
9.	Sufficient san	nple volume for indicated test(s)?	Yes	✓	No 🗌	
10.	Are samples	properly preserved?	Yes	✓	No 🗌	
11.	Was preserva	ative added to bottles?	Yes		No 🗹	NA 🗌
12.	Is there head	space in the VOA vials?	Yes		No 🔽	NA 🗌
13.	Did all sample	es containers arrive in good condition(unbroken)?	Yes	<ul> <li>✓</li> </ul>	No 🗌	
14.	Does paperw	ork match bottle labels?	Yes	✓	No 🗌	
15.	Are matrices	correctly identified on Chain of Custody?	Yes		No 🗌	
16.	Is it clear what	at analyses were requested?	Yes	✓	No 🗌	
17.	Were all hold	ing times able to be met?	Yes	✓	No 🗌	
Spe	cial Handli	ing (if applicable)				
18.	Was client no	tified of all discrepancies with this order?	Yes		No 🗌	NA 🔽
	Person I By Who Regardi	Notified: Date m: Via: ng: Structions:	eMa	il 🗌 Phon	e 🗌 Fax	In Person
10	Additional rer	narks:				

#### Item Information

Item #	Temp ⁰C
Cooler	1.1
Sample	2.8
Temp Blank	0.3

<sup>\*</sup> Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

	0	3
	C1.1-4.5	
	10 - 1 OT	
-	2 10	

# www.fremontanalytical.com

TAT → SameDay^ NextDay^ 2 Day 3 Day STD	Date/Time							
			Received			e/Time	Dat	linquished
	Date/Time		x	54	7 155		Da	linquished
	d above, that I have verified Client's	half of the Client name	Analytical on bel	ith Fremont Agreement.	Agreement w ckside of this	er into this , ront and ba	authorized to ent the terms on the f	represent that I am reement to each of
Hold unanalyzed sample	fee may be on the following business day.	unless otherwise noted. A	II be held for 30 days ined after 30 days.)	ab (Samples wi mples are reta	Disposal by La assessed if sau	ent	Return to Cl	mple Disposal:
Special Remarks:	te+Nitrite Turn-around times for samples received after 4:00pm will begin	Fluoride Nitrat	e O-Phosphate	Bromide	e Sulfate	Chloride	Nitrate Nitrite	*Anions (Circle):
Pb Sb Se Sr Sn Ti TI U V Zn	Co Cr Cu Fe Hg K Mg Mn Mo Na Ni	Al As B Ba Be Ca Cd	Individual: Ag	ints TAL	Priority Polluta	RCRA-8	cle): MTCA-5	Metals Analysis (Cir
2x HCL VOA			X	4	1610	*	71055	IW-1:W-0
3×HCI VOA, 1× HCI Amber			X	_	1242		710550	Mw-1: W-0
3x HCI VOA			X		1115	-	33017	MW-8: W-0:
7× HCI VOA			X		0951		71055	WW-7: W-0
2x HCI VOA					0818	3/30/17	7330 17	IW-1A: W-C
3 × HCI VOA			X		1625	*	032917	MW-6: W-
3× HCL VOA			X		1528		032917	IW-Z:W-
3× HCL VOA			X		1447		032917	MW-3:W-0
3× HCI VOA			×		1325		032917	IW-3: W-1
ax HCI Vol			X	GW	1255	3/29/17	-032917	MW-5: W
Comments			495-568 64-88-10-60-60- 8-10- 8-10-	Sample Type (Matrix)*	Sample Time	Sample Date		ample Name
orm Water, WW = Waste Water	Drinking Water, GW = Ground Water, SW = St	Solid, W = Water, DW =	SD = Sediment, SL =	ıct, S = Soil,	her, P = Produ	Bulk, O = Ot	AQ = Aqueous, B =	atrix Codes: A = Air,
environmental. com	nevenson@kane -	PM Email:	15-0650	(206)6	Fax:	-0476	(206)691.	Telephone:
	Nate Evensor	Report To (PM):			98103	EA	seaffle,	City, State, Zip:
ve, Yakima, WA	216 North Sty A	Location:	, ste loz	Aven	l Park	odland	3815 Wo	Address:
lected by: Nate Evensor	00443 0 00	Project No:			rental	vironn	Kane En	Client:
Page: of:	Safeway Yakin				90	206-352-37	e N. Tel: . 13 Fax:	3600 Fremont Ave Seattle, WA 9810
Laboratory Project No (internal): 1703571	Date: 3/31/17					<b>Uytica</b>	And	



# Sample ID: IW-3:W-032917

Well: IW-3

Gasoline Concentration: 9,810 ug/L



Sample ID: IW-2:W-032917

Well: IW-2

Gasoline Concentration: 82,300 ug/L



# Sample ID: MW-1:W-033017

Well: MW-1

Gasoline Concentration: 7,960 ug/L



Sample ID: IW-1:W-033017

Well: IW-1

Gasoline Concentration: 2,580 ug/L



Typical "fresh" gasoline (laboratory standard)



Typical "weathered" gasoline