

SoundEarth Strategies, Inc. 2811 Fairview Avenue East, Suite 2000 Seattle, Washington 98102

February 17, 2016

Mr. Mark Chandler TOC Holdings Co. 2737 West Commodore Way Seattle, Washington 98199

SUBJECT: VAPOR INSTRUSION ASSESSMENT ASKO Hydraulic Property 2805 West Commodore Way Seattle, Washington Project Number: 0440-004

Dear Mr. Chandler:

SoundEarth Strategies, Inc. (SoundEarth) has prepared this letter report to provide the results of soil gas, indoor air, and outdoor air (also known as ambient air) sampling conducted at the ASKO Hydraulic Property located at 2805 West Commodore Way in Seattle, Washington (Figure 1). The ASKO Hydraulic Property is part of the Seattle Terminal Properties. The Seattle Terminal Properties include four real properties (King County Tax Parcel Numbers 112503-9050 [Bulk Terminal Property], 112503-9120 [East Waterfront Property], 423790-0405 [ASKO Hydraulic Property], and 112503-9081 [West Waterfront Property]), and one parcel leased from the Washington State Department of Natural Resources (DNR; King County Tax Parcel Number 112503-9113). The Seattle Terminal Properties are identified as the Bulk Terminal Property, East Waterfront Property, ASKO Hydraulic Property, West Waterfront Property, and the DNR Aquatic Lease Land Property.

TOC Holdings Co. (TOC) operated a petroleum bulk storage facility at the Seattle Terminal Properties between 1941 and October 2001. Operations included distribution of petroleum products, including gasoline and diesel, between transport ships, railroad tank cars, and trucks. Former features used at the ASKO Hydraulic Property as part of the petroleum bulk storage facility included two barreling sheds located on the southeast portion of the ASKO Hydraulic Property, five rail spurs, three aboveground storage tanks that reportedly stored waste and/or lube oil, and a warehouse that was formerly used as a vehicle maintenance facility. The ASKO Hydraulic Property is currently occupied by an office building, marine retail, machine shop, and warehouse space.

#### PURPOSE

The vapor intrusion assessment was conducted to evaluate whether the potential soil vapor pathway is complete for buildings located approximately 100 feet from the dissolved-phase trichloroethene (TCE) plume at the Seattle Terminal Properties. The vapor intrusion assessment was conducted in general accordance with SoundEarth's proposal, dated January 20, 2015; SoundEarth's Work Plan, dated April 9, 2015; and the Washington State Department of Ecology (Ecology) draft *Guidance for Evaluating Soil* 

*Vapor Intrusion in Washington State: Investigation and Remedial Action,* dated October 2009 and updated in April 2015.

This letter report includes a detailed description of the vapor intrusion assessment, a summary of the results, and conclusions.

#### VAPOR INTRUSION ASSESSMENT

The vapor intrusion assessment was performed using a tier approach as recommended in Ecology's guidance, so that the assessment is conducted in a cost-effective manner. The vapor intrusion assessment included a preliminary assessment, a Tier 1 assessment, and a Tier 2 assessment. A summary of the assessments and associated results are presented below.

#### PRELIMINARY ASSESSMENT

The preliminary assessment was performed to identify whether the potential for vapor intrusion exists at a specific site at the ASKO Hydraulic Property, and if so, which buildings may be affected. Existing data from previous subsurface investigations and groundwater monitoring conducted at the ASKO Hydraulic Property indicated that TCE and several of its degradation compounds and total petroleum hydrocarbons (TPH) were detected in soil and groundwater exceeding Washington State Model Toxics Control Act (MTCA) cleanup levels as established in Chapter 340 of Title 173 of the Washington Administrative Code. A detailed summary of remedial investigations performed at the ASKO Hydraulic Property is described in the Remedial Investigation Report, dated May 23, 2014 (2014 RI Report). Figure 2 depicts the approximate location of dissolved-phase TCE in relation to buildings located on the Seattle Terminal Properties.

#### PRELIMINARY ASSESSMENT RESULTS

Concentrations of TCE and its degradation compounds and/or TPH were identified in soil and groundwater in the vicinity of the following buildings located on the Seattle Terminal Properties:

- Machine shop currently occupied by ASKO Industrial Repair, now known as ASKO Industrial Repair Machine Shop.
- Warehouse currently labeled and occupied by Marine Service & Supply (Marine Service & Supply Warehouse).
- Office currently occupied by Marine Service & Supply (Marine Service & Supply Office).
- Office building currently occupied by TOC Holdings Co. (TOC Headquarters Office Building) and located on the Bulk Terminal Property.

Additional assessment was recommended to further assess the potential for vapor intrusion at the four buildings.

#### TIER I ASSESSMENT

The Tier I Assessment was conducted to assess the concentrations of TCE and its degradation compounds and/or TPH in groundwater and soil gas that may act as potential sources of vapor intrusion at the four buildings. The Tier I Assessment included installation of soil gas points and collection of a soil

gas sample for comparison to Method B soil gas screening levels. In addition, groundwater analytical results from previous groundwater monitoring events performed for the ASKO Hydraulic Property were compared to Method B groundwater screening levels.

Soil gas sample points were installed to assess for potential concentrations of TCE and its degradation compounds and volatile petroleum compounds, including benzene, toluene, ethylbenzene, and total xylenes (BTEX), in soil gas in the vadose zone. Field activities for the Tier I Assessment were conducted on March 26, 27, and 31, 2015. Cascade Drilling, L.P. of Woodinville, Washington, performed the drilling and permanent soil gas point installation activities using a direct-push probe rig. Drilling and soil gas point installation activities using a direct-push probe rig. Drilling and soil gas point installation activities using a direct-push probe rig. Drilling and soil gas point installation activities were observed by a SoundEarth geologist. Prior to initiating field activities, a health and safety plan was prepared in accordance with MTCA and Part 1910.120 of Title 29 of the Code of Federal Regulations. In addition, a utility locate was performed at the proposed soil gas point locations using Applied Professional Services of North Bend, Washington, and contacting the Northwest Utility Notification Center.

Direct-push borings B367, B368, and B370 were continually sampled from the ground surface to the maximum depth explored of 5.5 feet below ground surface (bgs), using a 4-foot-long probe rod driven with a 140-pound-per-square-inch hydraulic hammer powered by pressurized hydraulic fluid (Figure 2). The sampler was lined with disposable polyvinyl chloride sleeves that were removed and opened to reveal the sample after each interval driven.

The soil samples were described in accordance with SoundEarth's *Standard Operating Procedure 005 – Soil Sampling.* Soil samples were screened in the field for potential evidence of contamination using visual observations, notations of odor, and by conducting headspace analysis using a photoionization detector (PID) to detect the presence of volatile organic vapors. Headspace analysis was conducted by placing soil from each sample interval into a resealable plastic bag and allowing the sample to warm for a minimum of 30 seconds. The probe of the PID was then inserted into the bag, and the highest reading obtained over an approximately 30-second interval was recorded. The Unified Soil Classification System symbol, visual and olfactory notations for the samples, and PID readings were recorded on boring log forms, which are provided in Attachment A. Soil samples were placed directly into laboratory-prepared sample containers for potential future analysis. The containers were placed in an iced cooler and transported for potential laboratory analysis to Friedman & Bruya, Inc. of Seattle, Washington. No soil samples were analyzed as part of this assessment.

SoundEarth's proposal stated that soil gas samples would be collected at least 5 feet bgs and above the capillary zone; however, due to shallow perched water encountered, the screened interval in borings B367 and B368 were placed from 4.5 to 5 and 4 to 4.5 feet bgs, respectively. The screened interval in boring B370 was 5 to 5.5 bgs. The borings were advanced at the following locations (Figure 2):

- Boring B367 was advanced to 5.5 feet bgs and located approximately 25 feet west of the midline of the TOC Headquarters Building, on the Bulk Terminal Property.
- Boring B368 was advanced to 5.5 feet bgs and located approximately 20 feet north of the northwest corner of the Marine Service & Supply Office.
- Boring B370 was advanced to 5.5 feet bgs and located approximately 25 feet south of the northeast corner of the AKSO Industrial Repair Machine Shop.

Borings B367, B368, and B370 were converted to soil gas sampling points. The soil gas points were constructed of 0.25-inch-diameter stainless steel casing, flush-threaded to 0.5 feet of stainless steel mesh. The bottom and top of each soil gas point were fitted with a threaded stainless steel bottom cap and a locking compression-fit well cap. The annulus of each soil gas point was filled with #2/12 silica sand to approximately 1 foot above the top of the screened interval. A bentonite seal of 2 feet was installed above the sand pack. The soil gas points were completed at the surface with a flush-mounted, traffic-rated well box set in concrete.

Generated soil cuttings were placed into appropriately labeled 55-gallon steel drums and transported to the designated staging area at the ASKO Hydraulic Property pending proper disposal to a permitted treatment, storage, and disposal facility.

SoundEarth collected a soil gas sample from soil gas point B370 (sample ID Soil Gas 03) on March 31, 2015. Soil gas sample collection was attempted at soil gas points B367 and B368; however, during sample collection water was observed in the sample train. Therefore, soil gas samples would not be representative of vadose zone conditions and no samples were collected.

Eurofins Air Toxics, Inc. (Eurofins) of Folsom, California provided a 6-liter, individually certified summa canister for soil gas sample collection. Teflon tubing from the summa canister was inserted into the locking compression-fit well cap of the soil gas point. As part of the soil gas sampling, SoundEarth placed an acrylic shroud over the sample train. Helium gas was then introduced into the sample train as a leak detection tracer compound to determine whether outdoor air was entering the sample train. Sample Soil Gas 03 was collected over a 45-minute period. Initial and final vacuum readings for the canister were recorded on the chain-of-custody form. Photographs of the soil gas sampling process are included in Attachment B.

The soil gas sample was submitted to Eurofins, under standard chain-of-custody protocols for laboratory analysis. The soil gas sample was analyzed for BTEX and chlorinated volatile organic compounds (CVOCs) by Modified EPA Method TO-15 GC/MS Full Scan and helium by modified ASTM D-1946.

#### TIER I ASSESSMENT RESULTS

Concentrations of TCE, cis-1,2-dichloroethene (cis-1,2-DCE), vinyl chloride, and benzene in groundwater samples collected from monitoring wells in proximity to buildings located on the Seattle Terminal Properties exceeded the Method B groundwater screening levels (2014 RI Report).

Analytical results for the sample Soil Gas 03 collected in the vicinity of the ASKO Industrial Repair Machine Shop indicated the following:

- Concentrations of benzene, vinyl chloride, and 1,2-dichloroethane (1,2-DCA) exceeded the Method B soil gas screening levels.
- Concentrations of chloroethane, 1,1-DCA, toluene, ethylbenzene, and total xylenes were detected at concentrations above the laboratory reporting limits but below the Method B soil gas screening levels.
- Concentrations of tetrachloroethene (PCE), TCE, 1,1-DCE, trans-1,2-DCE, and 1,1,1-TCA were not detected above the laboratory reporting limit or the MTCA Method B soil gas screening levels.

 Helium concentrations were not detected above the laboratory reporting limits, indicating no leaks were present in the sample train.

Based on the results of the Tier 1 Assessment, groundwater and soil are a potential source of vapor intrusion for the ASKO Industrial Repair Machine Shop, Marine Service & Supply Office, Marine Service & Supply Warehouse, and TOC Headquarters Office Building located on the Bulk Terminal Property.

#### TIER II ASSESSMENT

The Tier II Assessment was conducted to further assess whether the potential sources of vapor intrusion are affecting indoor air. The Tier II Assessment included building surveys to search for the presence of materials that could potentially contribute to background concentrations of CVOCs and BTEX, collection of indoor air and outdoor air samples, and a review of barometric conditions during air sampling.

On March 31 and April 2, 2015, SoundEarth performed a site walk of the Marine Service & Supply Office, Marine Service & Supply Warehouse, and TOC Headquarters Office Building to review the proposed locations of the indoor air and outdoor air samples and perform a building survey. SoundEarth's observations included a review of current tenant operations; building and foundation construction; heating, ventilation, and air conditioning system (HVAC); potential indoor air sources of pollution; and location of the utilities (sewer, sumps, and cleanouts). The building survey results are included as Attachment C.

In 2014, a limited environmental audit, which included a building survey, was performed at the ASKO Industrial Repair Machine Shop. Additional information on industrial processes and chemicals used at the facility is provided in the Limited Environmental Audit, dated December 3, 2014. Indoor air sampling was not recommended for the ASKO Industrial Repair Machine Shop because the machine shop stores and uses volatile organic compound (VOC) products throughout the building as part of its standard business operations and sampling would cause a significant interruption to business operations involving the temporary removal all the VOC material from within the building.

The Marine Service & Supply Office consists of a 234-square-foot, double-wide trailer with an enclosed 2-foot high crawl space on a concrete slab. The building is currently occupied and used as an office for a marine supply company. The building contained general office supplies and equipment. Flares were noted beneath a desk in one of the offices. Ventilation was supplied by a forced air-unit located on the south side of the building.

The Marine Service & Supply Warehouse consists of a two-story, 7,200-square-foot, slab-on-grade building. The western portion of the building is located on the ASKO Hydraulic Property and the eastern portion of the building is located on the Bulk Terminal Property. The first story of the building is separated into two separate rooms. One of the rooms is used as a work and storage area containing miscellaneous paints and caulk, a work bench, and hand tools. The second room is used as the store for the marine supply company. The store generally contains clothing, safety equipment, metal fittings, galvanized and zinc-plated steel fittings, rope, paint and caulk, paint thinners, and degreasers. The second floor of the building is used as a work and storage area. The work area contains tools, including a machine cutter with cutting oil, a lathe, and a detergent defoamer. Rope and boat bumpers are stored on the second floor. The building is heated with electric heat.

The TOC Headquarters Office Building consists of a two-story, 13,662-square-foot, slab-on-grade office building. The first and second stories are divided into numerous offices, conference rooms, and file rooms. An HVAC system is located on the roof of the building and was operational.

On April 8, 2015, SoundEarth conducted a site visit and removed items from the Marine Service & Supply Office that could bias indoor air analytical results. Stained work clothing, carpet, window cleaners, and saturated fishing nets were removed from the building. In addition, the flares previously located in one of the offices had been removed.

On April 10, 2015, SoundEarth collected three indoor air samples and three outdoor air samples as part of the vapor intrusion assessment. The air samples were collected at the following locations (Figure 2):

- Indoor air sample IA01 was placed on a table in an office space of the TOC Headquarters Office Building on the Bulk Terminal Property, east of soil gas point B367.
- Indoor air sample IA02 was placed on a table located in the southwest portion of the Marine Service & Supply Office.
- Indoor air sample IA03 was placed on a counter top in the Marine Service & Supply Warehouse.
- Outdoor air sample OA01 was placed on a ladder located south (upwind) of the TOC Headquarters Office Building, on the Bulk Terminal Property.
- Outdoor air sample OA02 was placed on the HVAC intake on the roof of the TOC Headquarters Office Building.
- Outdoor air sample OA03 was collected adjacent to the forced air-unit located on the south side of the Marine Service & Supply Office.

Eurofins provided 6-liter, individually certified summa canisters for indoor and outdoor air sampling. The summa canisters for the indoor air samples were placed approximately 3 feet above ground surface and collected over an 8-hour period. The summa canisters for the outdoor air samples were placed approximately 5 feet above ground and/or roof surface and collected over a 9-hour period. Initial and final vacuum readings for each canister were recorded on the chain-of-custody form. Photographs of the sample collection process are included in Attachment B. The indoor and outdoor air samples were analyzed for BTEX and CVOCs by EPA Method Modified TO-15 GC/MS SIM.

#### TIER II ASSESSMENT RESULTS

Analytical results for the indoor and outdoor air samples collected as part of the Tier II assessment for the TOC Headquarters Office Building, Marine Service & Supply Office, and Marine Service & Supply Warehouse indicate the following:

- Concentrations of benzene exceeding the MTCA Method B indoor air cleanup level were detected in the three indoor air samples IA01, IA02, and IA03 and two of the outdoor air samples OA01 and OA03.
- Detections in the indoor air samples above the laboratory reporting limits but below the MTCA Method B indoor air cleanup levels included TCE, toluene, ethylbenzene, and total xylenes in

sample IA01; toluene and total xylenes in sample IA02; and PCE, vinyl chloride, toluene, ethylbenzene, and total xylenes in sample IA03.

- Detections in the outdoor air samples above the laboratory reporting limits but below the MTCA Method B indoor air cleanup levels included benzene in sample OA02, and toluene and total xylenes in the three outdoor air samples OA01, OA02, and OA03.
- The reporting limit for 1,2-DCA analyses exceeded the MTCA Method B indoor air cleanup level of 0.096 micrograms per cubic meter (µg/m<sup>3</sup>) for the three indoor air and the three outdoor air samples.

SoundEarth reviewed the barometric pressure data for April 10, 2015, which indicated a falling barometric head. As stated in the Ecology's draft *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial* Action, indoor air sample collection is considered representative of worst case conditions when a building is depressurized or has a lower indoor pressure when compared to outdoor air or may also occur during periods of falling barometric pressure when indoor and outdoor pressures are less than the subsurface pressure. Therefore, the results of the air samples collected during the vapor intrusion assessment are representative of worst case conditions.

#### CONCLUSIONS

The results of the Tier I assessment indicate that the soil to vapor pathway is complete in the vicinity of the ASKO Industrial Repair Machine Shop; however, due to the active status of the machine shop, the chemicals used in daily operations, and the inability to isolate and remove the chemicals that could contribute to background indoor air contamination, it was not feasible to proceed to a Tier II assessment for the ASKO Industrial Repair Machine Shop.

To assist TOC Holdings Co. with a preliminary evaluation if worker health is potentially being impacted by soil gas present beneath the ASKO Industrial Repair Machine Shop, the soil gas sample results were compared to Occupational Safety and Health Administration (OSHA) permissible exposure limits (PELs), which are protective for employees working an 8-hour work shift of a 40-hour work week, and National Institute for Occupational Safety and Health (NIOSH) recommended exposure limits (RELs), which are protective for employees working 10-hour work shift of a 40-hour work week (Table 1). The PELs are an enforceable limit for specific chemical substances that employees cannot be exposed to over a specific period of time. NIOSH RELs are generally more stringent than OSHA PELs; however, they have not been adopted by OSHA and are not legally enforceable. Concentrations of benzene, vinyl chloride, and 1,2-DCA in sample Soil Gas 03 were below OSHA PELs and NIOSH RELs; therefore, it is not likely that the identified subsurface soil vapors located east of the building in the vicinity of sample Soil Gas 03 would affect industrial workers at the ASKO Industrial Repair Machine Shop, according to OSHA and NIOSH standards. Further assessment may be warranted to evaluate the worker health associated with the existing facility operations and potential sources of VOCs stored and used throughout the machine shop.

The Tier II Assessment results from indoor and outdoor air samples indicate that concentrations of benzene exceed the MTCA Method B indoor air cleanup level in indoor air and outdoor air. However, Ecology allows for indoor air measurements to be adjusted by subtracting outdoor air measurements taken upwind of the indoor air samples. After correcting the indoor air concentrations for benzene in

outdoor air measurements, the three indoor air samples were below MTCA Method B indoor air cleanup level.

Indoor air sample IA01 (TOC Headquarters Office Building) had a TCE concentration of 0.23  $\mu$ g/m<sup>3</sup>, which is below the MTCA Method B indoor air cleanup level of 0.37  $\mu$ g/m<sup>3</sup>. However, the EPA Region 10 has recommended a TCE screening levels of 0.21  $\mu$ g/m<sup>3</sup> for residential indoor air and 0.88  $\mu$ g/m<sup>3</sup> for commercial indoor air be used to be protective of short-term exposures to women of reproductive age. Because the TOC Headquarters Office Building is for commercial use, the TCE concentration of indoor air is below the recommended EPA screening level for commercial buildings. If land use were to change, additional investigation may be warranted.

Respectfully,

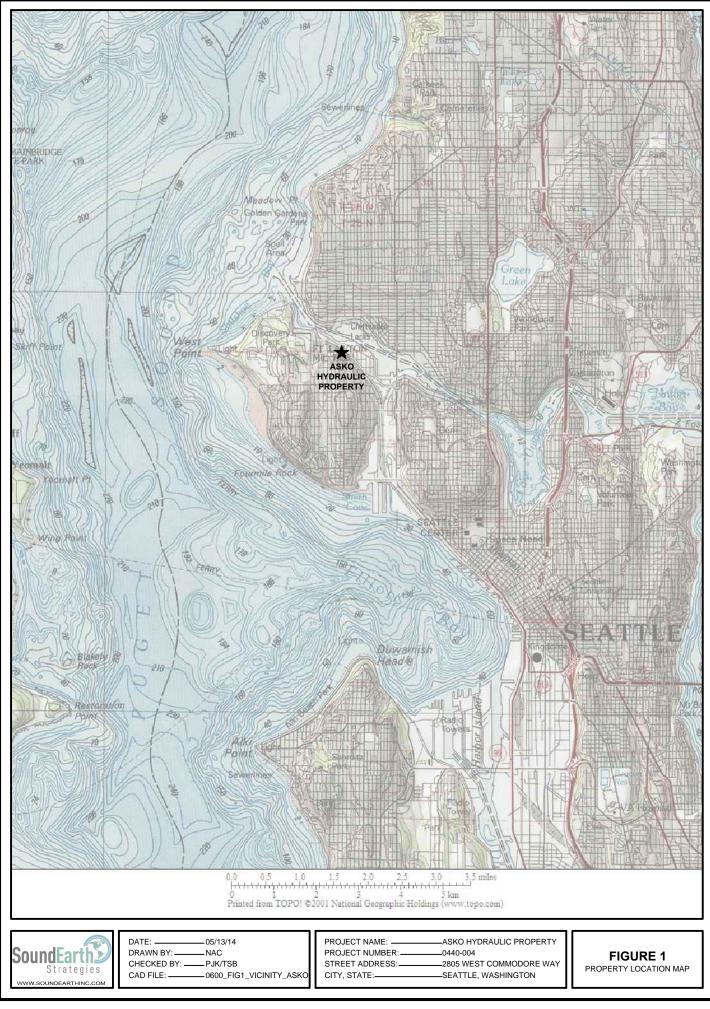
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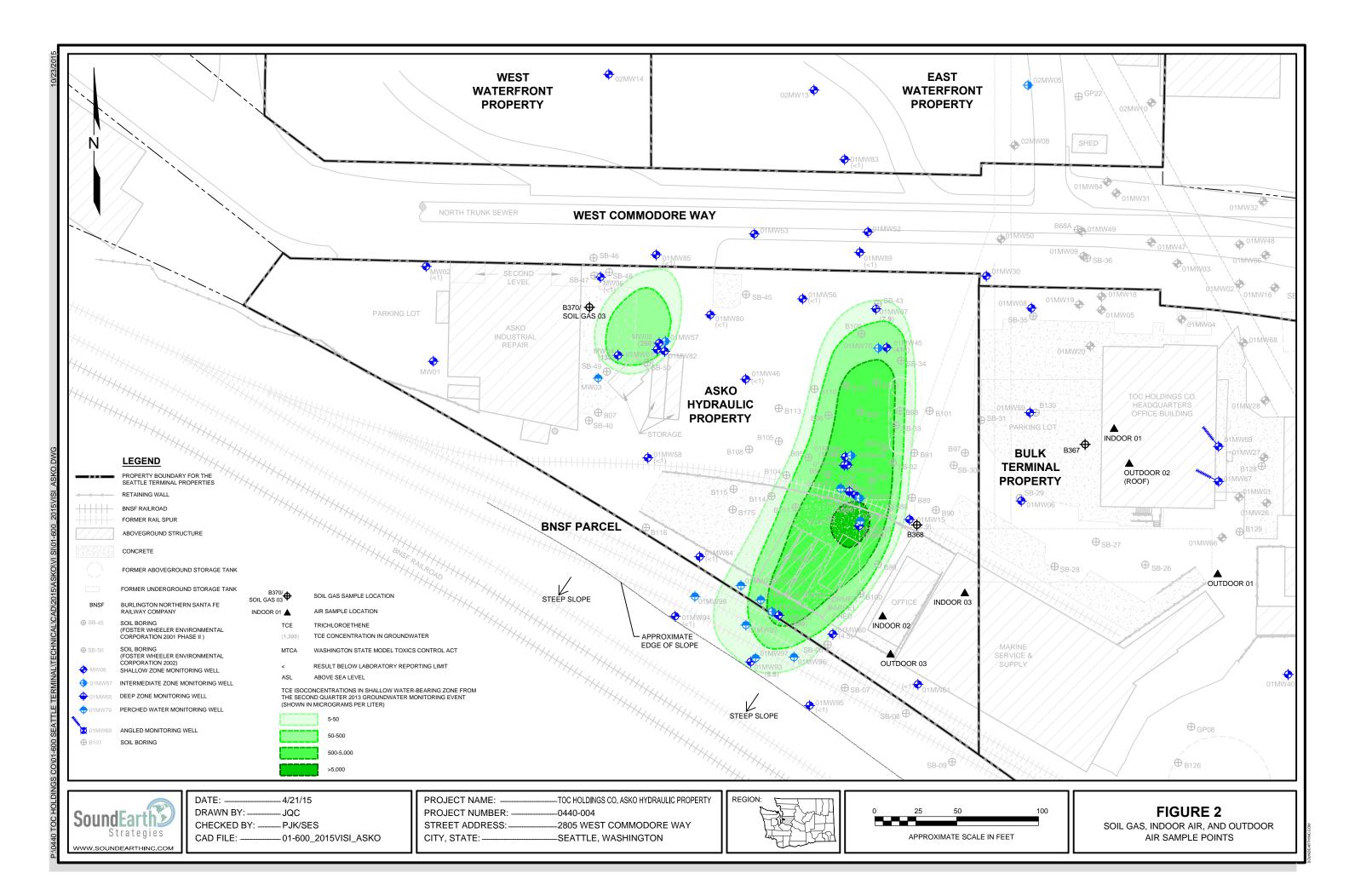
Timothy S. Brown, LHG Senior Hydrogeologist

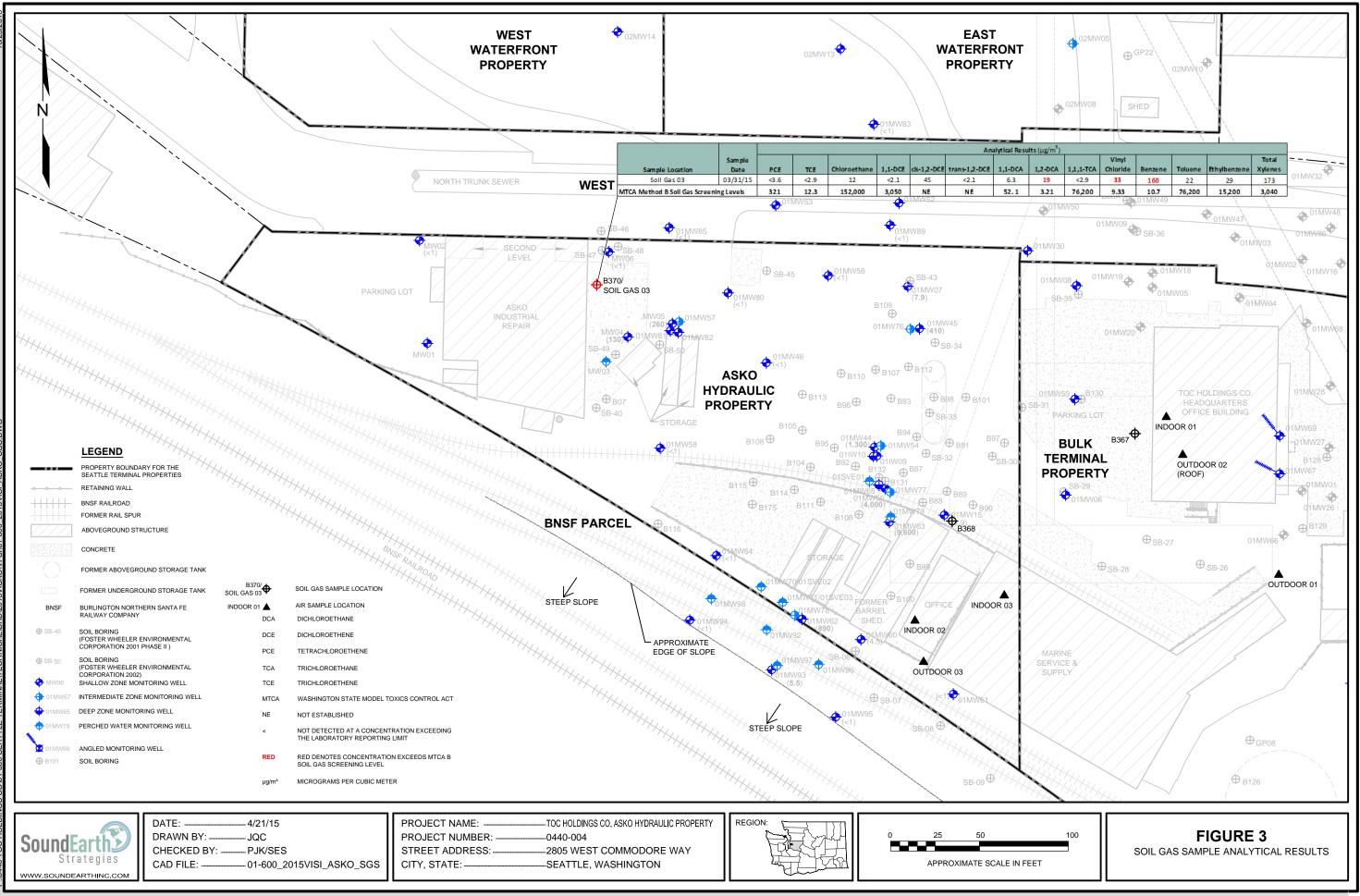
Peter Kingston, LG Associate Geologist

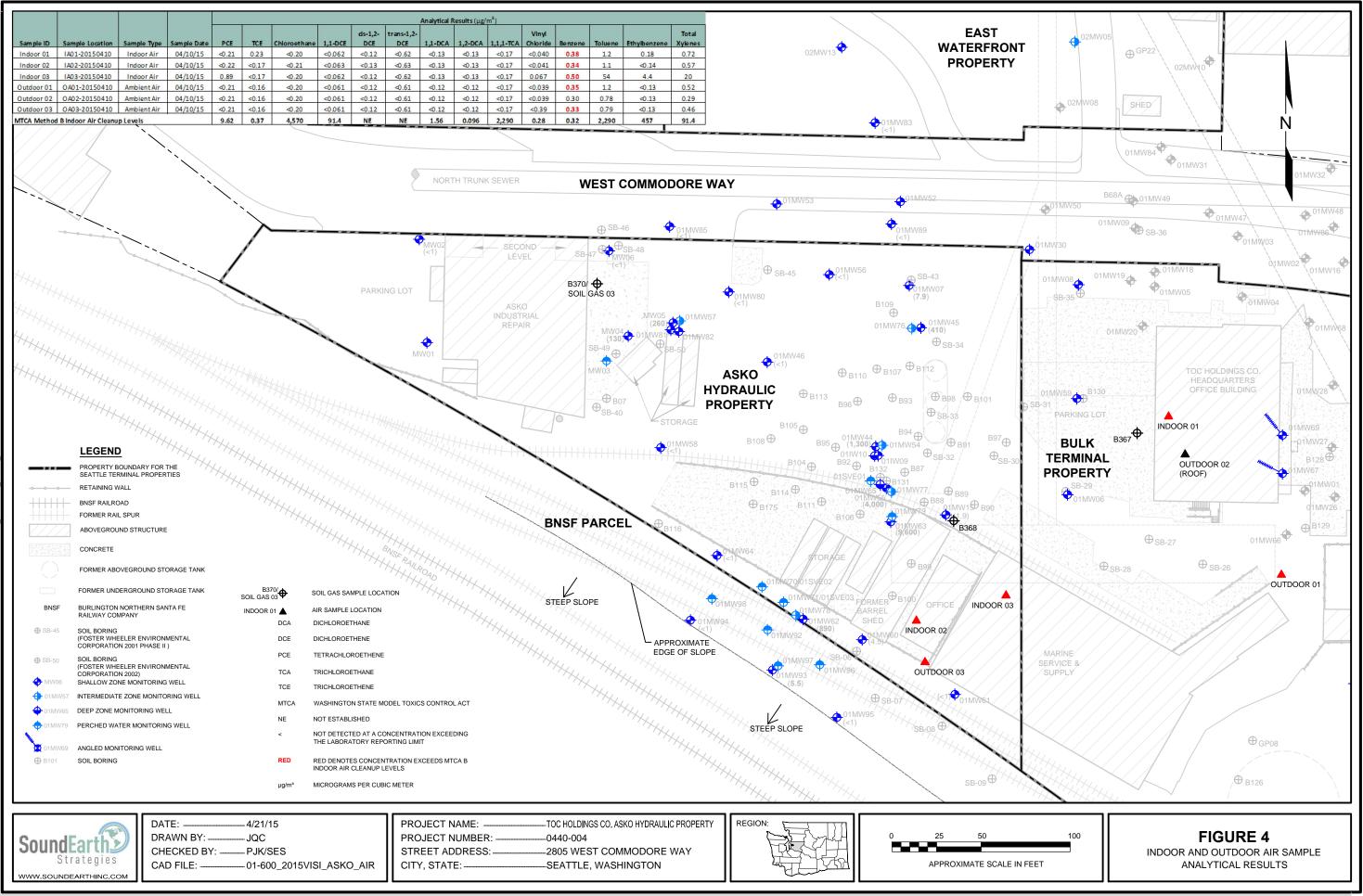
Attachments: Figure 1, Property Location Map Figure 2, Soil Gas, Indoor Air, and Outdoor Air Sample Points Figure 3, Soil Gas Sample Analytical Results Figure 4, Indoor and Outdoor Air Sample Analytical Results Table 1, Summary of Soil Gas Analytical Results for CVOCs and BTEX Table 2, Summary of Indoor and Outdoor Air Analytical Results for CVOCs and BTEX A, Boring Logs B, Project Photographs C, Building Survey Forms D, Laboratory Analytical Reports *Eurofins/Air Toxics Report #1504062A Eurofins/Air Toxics Report #1504062B Eurofins/Air Toxics Report #1504062B*  FIGURES



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TABLES



Table 1 Summary of Soil Gas Analytical Results for CVOCs and BTEX **TOC Holdings Co.** ASKO Hydraulic Property 2805 West Commodore Way Seattle, Washington

						Analytical Results <sup>(1)</sup> (µg/m <sup>3</sup> )													
				Sample						trans-1,2-				Vinyl				Total	Helium <sup>(2)</sup>
Sample Name	Sample Location	Sampled By	Sample Type	Date	PCE	TCE	Chloroethane	1,1-DCE	cis-1,2-DCE	DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	Chloride	Benzene	Toluene	Ethylbenzene	Xylenes	(%)
ASKO_SOILGAS_03_20150331	Boring B370	SoundEarth	Soil Gas	03/31/15	<3.6	<2.9	12	<2.1	45	<2.1	6.3	19	<2.9	33	160	22	29	173	<0.080
MTCA Method B Soil Gas Screeni	ing Levels				<b>321</b> <sup>(3)</sup>	12.3 <sup>(3)</sup>	152,000 <sup>(4)</sup>	<b>3,050</b> <sup>(4)</sup>	NE	NE	52.1 <sup>(3)</sup>	3.21 <sup>(3)</sup>	<b>76,200</b> <sup>(4)</sup>	9.33 <sup>(3)</sup>	10.7 <sup>(3)</sup>	76,200 <sup>(4)</sup>	15,200 <sup>(4)</sup>	<b>3,040</b> <sup>(4)</sup>	NE
NIOSH TWA <sup>(5)</sup>					NE	NE	NE	NE	<b>790,000</b> <sup>(6)</sup>	<b>790,000</b> <sup>(6)</sup>	400,000	4,000	54,600	NE	319	375,000	435,000	434,000	NE
OSHA TWA <sup>(7)</sup>					678,000	537,000	2,600,000	NE	<b>790,000</b> <sup>(6)</sup>	<b>790,000</b> <sup>(6)</sup>	400,000	202,500	54,600	2,500	3,190	560,000	435,000	434,000	NE

NOTES:

Sample analysis performed by Eurofins Air Toxics, Inc. of Folsom, California.

Red denotes concentration exceeds MTCA Method B Soil Gas Screening Level.

<sup>(1)</sup>Analyzed by EPA Method Modified TO-15 GC/MS Full Scan.

<sup>(2)</sup>Analyzed by Modified ASTM D-1946.

<sup>(3)</sup>MTCA Method B Sub-Slab Soil Gas Screening Levels, Cancer, Draft Guidance for Evaluating Soil

Vapor Intrusion in Washington State, October 2009 and updated in April 2015.

<sup>(4)</sup>MTCA Method B Sub-Slab Soil Gas Screening Levels, Noncancer, Draft Guidance for Evaluating Soil Vapor

Intrusion in Washington State, October 2009 and updated in April 2015.

<sup>(5)</sup>NIOSH 10-hour work day for a 40-hour work week TWA PEL , NIOSH Pocket Guide to Chemical Hazards, September 2007.

<sup>(6)</sup>PEL for total 1,2-DCE, guidebook does not separate isomers.

 $^{(7)}\mbox{OSHA}$  8-hour work day for a 40-hour work week TWA PEL , NIOSH

Pocket Guide to Chemical Hazards, September 2007.

< = not detected at a concentration exceeding the laboratory reporting limit  $\mu g/m^3$  = micrograms per cubic meter ASTM = American Society for Testing and Materials BTEX = benzene, toluene, ethylbenzene, and total xylenes CVOC = chlorinated volatile organic compound DCA = dichloroethane DCE = dichloroethene EPA = U.S. Environmental Protection Agency MTCA = Washington State Model Toxics Control Act NE = not established NIOSH = National Institute for Occupational Safety and Health OSHA = Occupational Safety and Health Administration PCE = tetrachloroethene PEL = Permissable Exposure Limit SoundEarth = SoundEarth Strategies, Inc. TCA = trichloroethane TCE = trichloroethene TWA = time-weighted average



#### Table 2 Summary of Indoor and Outdoor Air Analytical Results for CVOCs and BTEX **TOC Holdings Co.** ASKO Hydraulic Property 2805 West Commodore Way Seattle, Washington

						Analytical Results <sup>(1)</sup> (µg/m <sup>3</sup> )													
										cis-1,2-	trans-1,2-				Vinyl				Total
Sample ID	Sample Name	Sample Location	Sampled By	Sample Type	Sample Date	PCE	TCE	Chloroethane	1,1-DCE	DCE	DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	Chloride	Benzene	Toluene	Ethylbenzene	Xylenes
Indoor 01	IA01-20150410	TOC HQ Building	SoundEarth	Indoor Air	04/10/15	<0.21	0.23	<0.20	<0.062	<0.12	<0.62	<0.13	<0.13	<0.17	<0.040	0.38	1.2	0.18	0.72
Indoor 02	IA02-20150410	Marine Service & Supply Office	SoundEarth	(8-hour)	04/10/15	<0.22	<0.17	<0.21	<0.063	<0.13	<0.63	<0.13	<0.13	<0.17	<0.041	0.34	1.1	<0.14	0.57
Indoor 03	IA03-20150410	Marine Service & Supply Warehouse	SoundEarth	(8-11001)	04/10/15	0.89	<0.17	<0.20	<0.062	<0.12	<0.62	<0.13	<0.13	<0.17	0.067	0.50	54	4.4	20
Outdoor 01	OA01-20150410	South of TOC HQ Building	SoundEarth	Outdoor Air	04/10/15	<0.21	<0.16	<0.20	< 0.061	<0.12	<0.61	<0.12	<0.12	<0.17	<0.039	0.35	1.2	<0.13	0.52
Outdoor 02	OA02-20150410	TOC HQ Building - HVAC Intake	SoundEarth	(9-hour)	04/10/15	<0.21	<0.16	<0.20	< 0.061	<0.12	<0.61	<0.12	<0.12	<0.17	<0.039	0.30	0.78	<0.13	0.29
Outdoor 03	OA03-20150410	Marine Service & Supply Building - HVAC Intake	SoundEarth	(J-nour)	04/10/15	<0.21	<0.16	<0.20	<0.061	<0.12	<0.61	<0.12	<0.12	<0.17	<0.039	0.33	0.79	<0.13	0.46 <sup>J</sup>
MTCA Method B	Indoor Air Cleanup Levels				-	<b>9.62</b> <sup>(2)</sup>	<b>0.37</b> <sup>(2)</sup>	<b>4,570</b> <sup>(3)</sup>	<b>91.4</b> <sup>(3)</sup>	NE	NE	1.56 <sup>(2)</sup>	0.096 <sup>(2)</sup>	<b>2,290</b> <sup>(3)</sup>	<b>0.28</b> <sup>(2)</sup>	<b>0.32</b> <sup>(2)</sup>	<b>2,290</b> <sup>(3)</sup>	<b>457</b> <sup>(3)</sup>	<b>91.4</b> <sup>(3)</sup>
NIOSH TWA <sup>(4)</sup>						NE	NE	NE	NE	<b>790,000</b> <sup>(5)</sup>	<b>790,000</b> <sup>(5)</sup>	400,000	4,000	54,600	NE	319	375,000	435,000	434,000
OSHA TWA <sup>(6)</sup>						678,000	537,000	2,600,000	NE	<b>790,000</b> <sup>(5)</sup>	<b>790,000</b> <sup>(5)</sup>	400,000	202,500	54,600	2,500	3,190	560,000	435,000	434,000

NOTES:

Sample analysis performed by Eurofins Air Toxics, Inc. of Folsom, California.

Bold denotes the concentration is below the laboratory detection limit, but exceeds the MTCA Method B Indoor Air Cleanup Levels.

Red denotes concentration exceeds MTCA Method B Indoor Air Cleanup Levels.

<sup>(1)</sup>Analyzed by EPA Method Modified TO-15 GC/MS SIM.

<sup>(2)</sup>MTCA Method B Indoor Air Cleanup Levels, Cancer, Draft Guidance for Evaluating Soil Vapor Intrusion in Washington State, October 2009 and updated in April 2015.

<sup>(3)</sup>MTCA Method B Indoor Air Cleanup Levels, Noncancer, Draft Guidance for Evaluating Soil Vapor Intrusion in Washington State, October 2009 and updated in April 2015.

<sup>(4)</sup>NIOSH 10-hour work day for a 40-hour work week TWA REL , NIOSH Pocket Guide to Chemical Hazards, September 2007.

<sup>(5)</sup>PEL for total 1,2-DCE, guidebook does not separate isomers.

<sup>(6)</sup>OSHA 8-hour work day for a 40-hour work week TWA PEL , NIOSH Pocket Guide to Chemical Hazards, September 2007.

Laboratory Note:

<sup>J</sup>Estimated value (o-Xylene only).

#### < = not detected at a concentration exceeding the laboratory reporting limit</p> $\mu g/m^3$ = micrograms per cubic meter BTEX = benzene, toluene, ethylbenzene, and total xylenes CVOC = chlorinated volatile organic compound DCA = Dichloroethane DCE = Dichloroethene EPA = U.S. Environmental Protection Agency HQ = Headquarters HVAC = heating, ventilating, and air conditioning MTCA = Washington State Model Toxics Control Act NE = not established NIOSH = National Institute for Occupational Safety and Health OSHA = Occupational Safety and Health Administration PCE = tetrachloroethene PEL = Permissable Exposure Limit SoundEarth = SoundEarth Strategies, Inc. TCA = trichloroethane TCE = trichloroethene TOC = TOC Holdings Co.

TWA = time-weighted average

ATTACHMENT A BORING LOGS

So	JU	nd	art	Pr Lo Da	oject: oject Number ogged by: nte Started: urface Condit	r: 0440 JSL 3/26/	-004-38 /15	Co ASKO	BORING LOG Site Address: 2805 Seatt	B367 West Comr tle, Washing	modore Way
		0.01	utug	We We Re	ell Location N ell Location E eviewed by: ate Completed	<b>/W:</b> 10' W PJK	of SW corn	er of TOC HQ Building er of TOC HQ Building	Water Deptl Time of Dril Water Deptl After Comp	ling <sup></sup> h	feet bgs feet bgs
Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic	Description		Well Detail/ Water Depth
			100	108.6	B367-02 B367-05.5	SM		0.5' of concrete. Hand cleared to 1.5' bgs Moist, silty fine SAND wi brown to gray, moderate 75-5). 2" by 4" piece of lumber Moist, silty fine SAND wi to brown, moderate hydr Moist, silty fine SAND wi to brown, faint hydrocarl Moist, silty fine SAND, gu odor (40-60-0). Boring terminated at 5.5'	th trace fine grave hydrocarbon odo encountered at 1' th trace fine grave ocarbon odor (25- th trace fine grave bon odor (25-70-5) ray, no hydrocarb	el, or (20- bgs. el, gray -70-5). el, gray ).	
15Drilling Co./Driller:Cascade/FranceDrilling Equipment:PushprobeSampler Type:Core BarrelHammer Type/Weight:Total Boring Depth:5.5Total Well Depth:5		Core Barrel - .5	W So Ibs Fi feet bgs Su	ell/Auger D ell Screene creen Slot S Iter Pack U urface Seal nnular Seal	ed Interval Size: sed: :	2 inches : 4.5 to 5 feet bg: Mesh inches #2/12 Sand Cement Bentonite	Moderate hydrod from 0.5 to 3.5' b odor from 3.5 to	carbon odor o ogs and faint			
State V	Well	ID No.:	E	BJA 721	M	onument T	уре:	Flushmount	Page:	1	of 1

So	U	nd Str	art	ies Pri Da Da Su Wa Re	oject: oject Number gged by: te Started: rface Conditi ell Location N ell Location E viewed by:	: 0440 <sup>.</sup> JSL 3/26/ ons: Conc /S: 12' S /W: 112' V PJK	-004-38 /15 crete of SW corne W of SW corr	co ASKO r of TOC HQ Building her of TOC HQ Building	Water Dept Time of Dril	tle, Washing h At Iling 5 h	nodore Way ton feet bgs
	al	II	~	Da	te Completed				After Comp	letion	feet bgs
Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic	Description		Well Detail/ Water Depth
0											
			90	394	B368-02	Concrete		0.75' of concrete. Moist, silty SAND with s no hydrocarbon odor (2 Moist, silty SAND with t brown to gray, moderate 65-5). Moist, silty SAND, light odor (30-70-0).	0-65-15). race fine gravel, lig e hydrocarbon odd	ght or (30-	
5				1.9	B368-05.5			Wet, silty SAND, gray, n 70-0).	o hydrocarbon od	or (30-	
								Boring terminated at 5.5	' bgs.		
15					1						
Drilling Sample Hamm Total B Total V	g Eq er Ty er Ty Borir Vell	ype: ype/We ng Dept Depth:	nt: P C ight: h: 5. 4.	5 5	We Sc Ibs Fil feet bgs Su feet bgs An	ell/Auger D ell Screene reen Slot S ter Pack Us Inface Seal: Inular Seal	ed Interval: Size: sed: : :	Mesh inches #2/12 Sand Cement Bentonite	JS Moderate hydroo from 1.5 to 3' bg odor from 3 to 5'	carbon odor o s and faint hy bgs.	ydrocarbon
State V	vell	ID No.:	В	JA 722	MC	onument Ty	ype:	Flushmount	Page:	1	of 1

So	DU		<b>Ear</b> rate	gies W Re	oject: oject Number: ogged by: ate Started: urface Condition ell Location N/ ell Location E/ eviewed by: ate Completed	: 0440 JSL 3/27/ Dons: Conc /S: 26' S /W: 6.5' E PJK	-004-38 15 crete of NE corne of NE corne	Co ASKO r of TOC HQ building er of TOC HQ building	BORING LOG B37 LOG Seattle, Wash	ommodore Way ington • feet bgs
Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic	Description	Well Detail/ Water Depth
			90	2.5	B370-02 B370-05.5	Concrete SM SP		Moist, fine gravelly SAN no hydrocarbon odor (1 Asphalt Moist, fine gravelly SAN brown, scattered wood hydrocarbon odor (15-5	ID with some silt, gray to fragments, moderate 5-30). Due gray, no hydrocarbon lark brown, numerous dor (30-70-0). ome silt, gray, no 0-0).	
15										
Drillin Samp Hamn Total Total	ng Eq pler Ty ner Ty Borir Well	o./Drille uipmer ype: ype/We ng Dept Depth: ID No.:	nt: eight: th:	Cascade/Frank Pushprobe Core Barrel  5.5 5.5 BJA 724	We Sci Ibs Fild feet bgs Su feet bgs An	ell/Auger D ell Screene reen Slot S ter Pack U rface Seal nular Seal nument T	d Interval Size: sed: :	2 inches 5 to 5.5 feet by Mesh inches #2/12 Sand Cement Bentonite Flushmount	Moderate hydrocarbon od from 1.5 to 2.5' bgs.	or encountered

# ATTACHMENT B PROJECT PHOTOGRAPHS



PROPERTY PHOTOGRAPHS ASKO Hydraulic Property 2805 West Commodore Way Seattle, Washington



Photograph 1. Installing soil gas point B370.



Photograph 3. Setting up soil gas sample Soil Gas 03.



Photograph 5. Helium gas introduced to sample train as a leak detection tracer compound.



Project No.: Date:

Drawn By:

Chk By:

0440-004-38

JAC

PJK

February 17, 2016

Photograph 2. Soil sample collection.



Photograph 4. Sample train for soil gas sample Soil Gas 03.



Photograph 6. Flow controller on summa canister used for collecting integrated air samples.



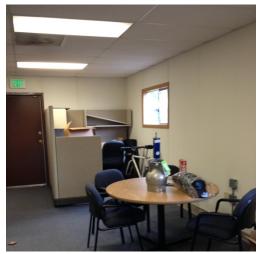
PROPERTY PHOTOGRAPHS ASKO Hydraulic Property 2805 West Commodore Way Seattle, Washington Project No.: Date: Drawn By: Chk By: 0440-004-38 February 17, 2016 JAC PJK



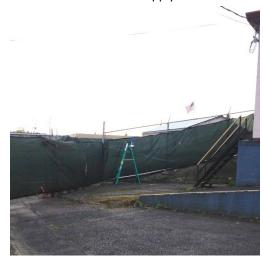
Photograph 7. Indoor Air Sample 01, placed in an office space inside the TOC Headquarters Office Building.



Photograph 9. Indoor Air Sample 03, placed in the north corner of the Marine Service & Supply Warehouse.



Photograph 8. Indoor Air Sample 02, placed in the southwest portion of the Marine Service & Supply Office.



Photograph 10. Outdoor Air Sample 01, placed south of the TOC Headquarters Office Building.



Photograph 11. Outdoor Air Sample 02, on the HVAC intake on roof of TOC Headquarters Office Building.



Photograph 12. Outdoor Air Sample 03, adjacent to Marine Service & Supply Office HVAC intake.

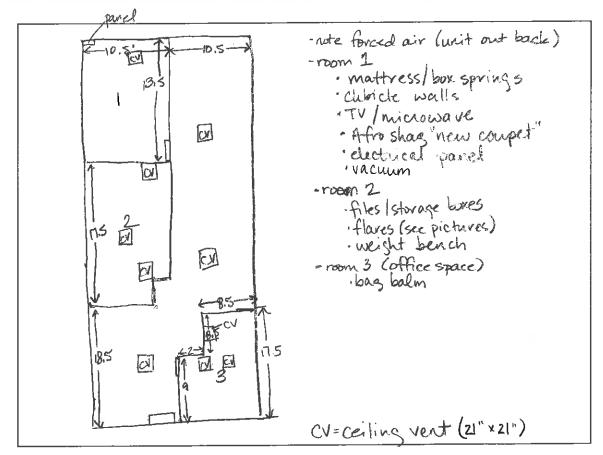
# ATTACHMENT C BUILDING SURVEY FORMS

1

APPENDIX L - BUILDING SURV	EY FORM
Preparer's Name: Suzy Stumpf Affiliation: SoundFouth/Owner's Rep.	Date/Time Prepared: <u>3/31/15</u> @ 1555 Phone Number:
Occupant Information	
Occupant Name: Marine Service Supply Office	Interviewed: 🗆 Yes 🗆 No
Mailing Address:         IIIIIII           City:	Zip Code:
Owner/Landlord Information (Check if same as occupant	
Occupant Name: <u>TOC HOLDINGS</u> Mailing Address:	
Mailing Address.         State:           City:	Zip Code:
Building Type (Check appropriate boxes)	
□ Residential □ Residential Duplex □ Apartment Building □ □ Commercial (warehouse) □ Industrial □ Strip Mall □ Spli	Mobile Home 💢 Commercial (office) t Level 🗆 Church 🗀 School
Building Characteristics	
Approximate Building Age (years): Number Approximate Building Area (square feet): N	r of Stories:I
Foundation Type (Check appropriate boxes) - double wide	e trailer with enclosed crawl
□ Slab-on-Grade ⊠ Crawl Space □ Basement Provider si Basement Characteristics (Check appropriate boxes)	concrete slab over A dirt
Basement Characteristics (Check appropriate boxes)	re 2' hish
□ Dirt Floor □ Sealed □ Wet Surfaces □ Sump Pump □ C	Concrete Cracks
Factors Influencing Indoor Air Quality	
is there all attached galage.	□ Yes       2 No         □ Yes       0 No

#### Sampling Locations

Draw the general floor plan of the building and denote locations of sample collection. Indicate locations of doors, windows, indoor air contaminant sources and field instrument readings.



Primary Type of Energy Used (Check appropriate boxes)

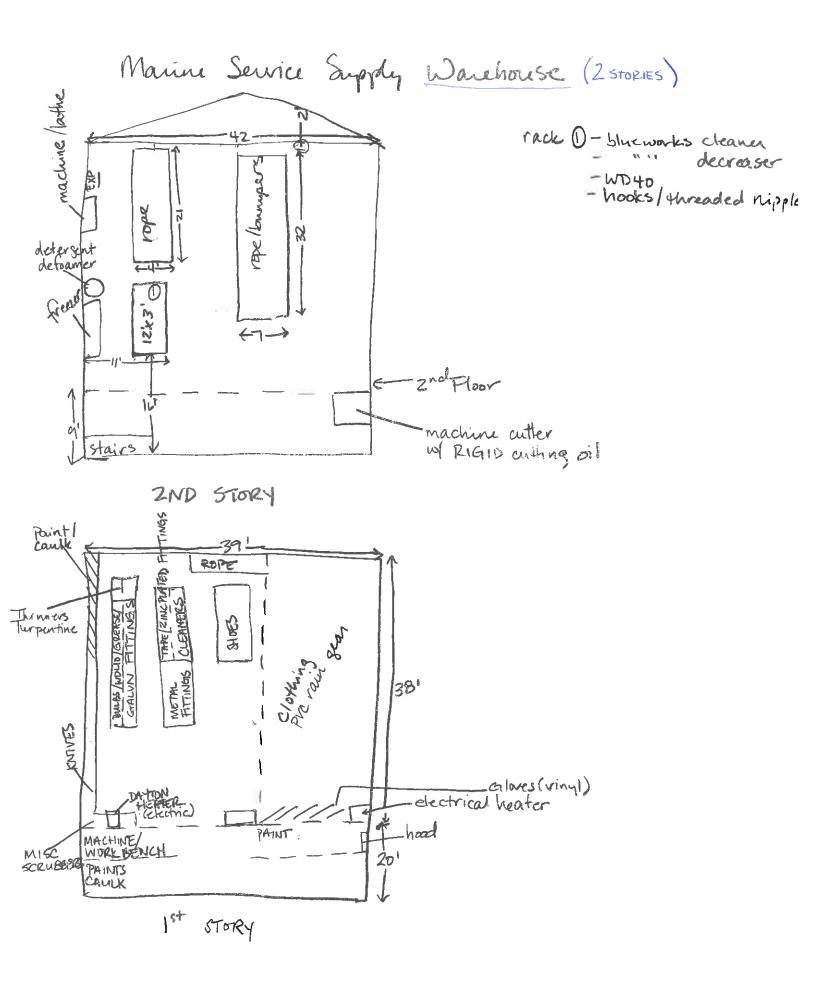
🗆 Natural Gas 🔲 Fuel Oil 🔲 Propane 🗇 Electricity 🗋 Wood 🖂 Kerosene

#### **Meteorological Conditions**

Describe the general weather conditions during the indoor air sampling event.

General Comments (HVAC System)

Provide any other information that may be of importance in understanding the indoor air quality of this building.

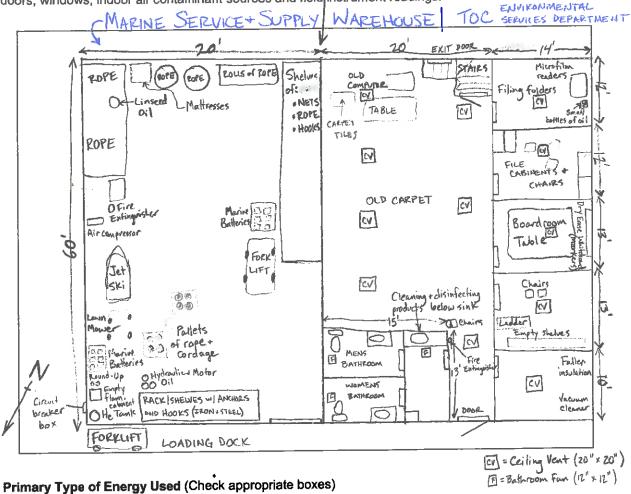


	APPENDIX L - BUILDING SU	RVEY FORM         4/2/15@14            Date/Time Prepared: 3/31/15_0            Phone Number:
Proparer's Name:	JONATHAN LOEFFLER	Date/Time Prepared: 3/31/15
Affiliation: Sound	DEARTH / OWNER'S REP.	Phone Number:
Occupant Informa	ation	
	MARINE SERVICE AND SUPPLY	Interviewed: 🗆 Yes 🖾 No
City:	State:	Zip Code:
Phone:	Email:	
Owner/Landlord I	nformation (Check if same as occupant 🗆	)
	TOC HOLDINGS	Interviewed: 🗆 Yes 🛛 No
Mailing Address:	State:	Zip Code:
Phone:	Email:	
Building Type (Cł	neck appropriate boxes)	
Residential	Residential Duplex 🛛 Apartment Building arehouse) 🗆 Industrial 🔲 Strip Mall 🗍 S	☐ Mobile Home ∰⊄ommercial (office) Split Level ☐ Church ☐ School
Building Characte	eristics	
Approximate Build Approximate Build	ing Age (years): Num ing Area (square feet):	ber of Stories: _Number of Elevators: <u>N/A</u>
Foundation Type	(Check appropriate boxes)	
🛛 Slab-on-Grade	Crawl Space  Basement	
Basement Chara	cteristics (Check appropriate boxes)	
Dirt Floor	ealed 🛛 Wet Surfaces 🖾 Sump Pump 🛛	Concrete Cracks D Floor Drains
Factors Influenci	ng Indoor Air Quality	
Has painting or sta Has the building b Has the building e Is there a hobby o Is gun cleaner sto Is there a fuel oil t Is there a septic ta	a the building? at or furniture? apes been recently dry cleaned? aining been done with the last six months? een recently remodeled? ver had a fire? r craft area in the building? red in the building? ank on the property? ank on the property?	□ Yes       ☑ No         □ Yes       ☑ No
Has the building b	een fumigated or sprayed for pests recently	? □ Yes ☑ No Describe:
Is there a fuel oil t is there a septic ta Has the building b	ank on the property?	□ Yes □ No □ Yes □ No ? □ Yes ☑ No Describe:

### Sampling Locations

\* ANOTHER MARINE SERVICES + SUPPLY I WAREHOUSE BETWEEN THESE 2 SPACES

Draw the general floor plan of the building and denote locations of sample collection. Indicate locations of doors, windows, indoor air contaminant sources and field instrument readings.



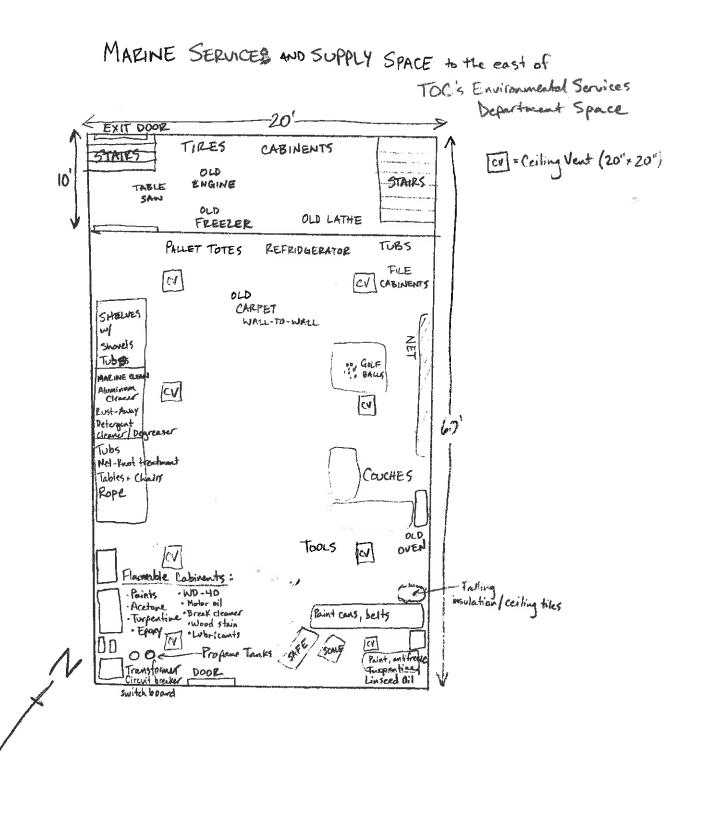
□ Natural Gas □ Fuel Oil □ Propane □ Electricity □ Wood □ Kerosene

#### **Meteorological Conditions**

Describe the general weather conditions during the indoor air sampling event.

#### **General Comments**

Provide any other information that may be of importance in understanding the indoor air quality of this building.



# ATTACHMENT D LABORATORY ANALYTICAL REPORTS

Eurofins/Air Toxics Report #1504062A



## **Air Toxics**

4/6/2015 Ms. Suzanne Stumpf SoundEarth Strategies, Inc 2811 Fairview Avenue East Suite 2000 Seattle WA 98102

Project Name: ASKO Project #: 01-600 Workorder #: 1504062A

Dear Ms. Suzanne Stumpf

The following report includes the data for the above referenced project for sample(s) received on 4/3/2015 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Killy Butte

Kelly Buettner Project Manager

A Eurofins Lancaster Laboratories Company

180 Blue Ravine Road, Suite B Folsom, CA 95630



**Air Toxics** 

### WORK ORDER #: 1504062A

#### Work Order Summary

CLIENT:	Ms. Suzanne Stumpf SoundEarth Strategies, Inc 2811 Fairview Avenue East Suite 2000 Seattle, WA 98102	BILL TO:	Ms. Suzanne Stumpf SoundEarth Strategies, Inc 2811 Fairview Avenue East Suite 2000 Seattle, WA 98102
PHONE:	206-306-1900	<b>P.O.</b> #	0440-004-38
FAX:	206-306-1907	PROJECT #	01-600 ASKO
DATE RECEIVED:	04/03/2015	CONTACT:	Kelly Buettner
DATE COMPLETED:	04/06/2015		

			RECEIPT	FINAL
FRACTION #	NAME	<u>TEST</u>	VAC./PRES.	<b>PRESSURE</b>
01A	ASKO_SOILGAS_03_20150331	Modified TO-15	5.3 "Hg	4.8 psi
02A	Lab Blank	Modified TO-15	NA	NA
03A	CCV	Modified TO-15	NA	NA
04A	LCS	Modified TO-15	NA	NA
04AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY:

layes

DATE: <u>04/06/15</u>

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704343-14-7, UT NELAP CA009332014-5, VA NELAP - 460197, WA NELAP - C935 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program) Accreditation number: CA300005, Effective date: 10/18/2014, Expiration date: 10/17/2015. Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

> This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc. 180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

#### LABORATORY NARRATIVE Modified TO-15 SoundEarth Strategies, Inc Workorder# 1504062A

One 6 Liter Summa Canister (100% Certified) sample was received on April 03, 2015. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	TO-15	ATL Modifications
Initial Calibration	<pre><!--=30% RSD with 2 compounds allowed out to < 40% RSD</pre--></pre>	=30% RSD with 4 compounds allowed out to < 40% RSD</td
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

## **Receiving Notes**

🛟 eurofins

There were no receiving discrepancies.

## **Analytical Notes**

Dilution was performed on sample ASKO\_SOILGAS\_03\_20150331 due to matrix interference.

The recovery of surrogate 1,2-Dichloroethane-d4 in sample ASKO\_SOILGAS\_03\_20150331 was outside laboratory control limits due to high level hydrocarbon matrix interference. The surrogate recovery is flagged.

## **Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

- E Exceeds instrument calibration range.
- S Saturated peak.
- Q Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates



as follows:

- a-File was requantified
- b-File was quantified by a second column and detector
- r1-File was requantified for the purpose of reissue



### **Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

#### Client Sample ID: ASKO\_SOILGAS\_03\_20150331

#### Lab ID#: 1504062A-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.54	13	1.4	33
Chloroethane	2.7	4.6	7.1	12
1,1-Dichloroethane	0.54	1.6	2.2	6.3
cis-1,2-Dichloroethene	0.54	11	2.1	45
Benzene	0.54	49	1.7	160
1,2-Dichloroethane	0.54	4.6	2.2	19
Toluene	0.54	5.8	2.0	22
Ethyl Benzene	0.54	6.7	2.3	29
m,p-Xylene	0.54	25	2.3	110
o-Xylene	0.54	14	2.3	63



#### Client Sample ID: ASKO\_SOILGAS\_03\_20150331 Lab ID#: 1504062A-01A MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

٦

File Name: Dil. Factor:	20040316 5.36	Date of Collection: 3/31/15 1:08:00 PM Date of Analysis: 4/3/15 09:09 PM				
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)		
Vinyl Chloride	0.54	13	1.4	33		
Chloroethane	2.7	4.6	7.1	12		
1,1-Dichloroethene	0.54	Not Detected	2.1	Not Detected		
trans-1,2-Dichloroethene	0.54	Not Detected	2.1	Not Detected		
1,1-Dichloroethane	0.54	1.6	2.2	6.3		
cis-1,2-Dichloroethene	0.54	11	2.1	45		
1,1,1-Trichloroethane	0.54	Not Detected	2.9	Not Detected		
Benzene	0.54	49	1.7	160		
1,2-Dichloroethane	0.54	4.6	2.2	19		
Trichloroethene	0.54	Not Detected	2.9	Not Detected		
Toluene	0.54	5.8	2.0	22		
Tetrachloroethene	0.54	Not Detected	3.6	Not Detected		
Ethyl Benzene	0.54	6.7	2.3	29		
m,p-Xylene	0.54	25	2.3	110		
o-Xylene	0.54	14	2.3	63		

Q = Exceeds Quality Control limits.

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	193 Q	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	107	70-130



#### Client Sample ID: Lab Blank Lab ID#: 1504062A-02A MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

٦

File Name: Dil. Factor:	20040306 1.00	Date of Collection: NA Date of Analysis: 4/3/15 11:52 AM				
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)		
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected		
Chloroethane	0.50	Not Detected	1.3	Not Detected		
1,1-Dichloroethene	0.10	Not Detected	0.40	Not Detected		
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected		
1,1-Dichloroethane	0.10	Not Detected	0.40	Not Detected		
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected		
1,1,1-Trichloroethane	0.10	Not Detected	0.54	Not Detected		
Benzene	0.10	Not Detected	0.32	Not Detected		
1,2-Dichloroethane	0.10	Not Detected	0.40	Not Detected		
Trichloroethene	0.10	Not Detected	0.54	Not Detected		
Toluene	0.10	Not Detected	0.38	Not Detected		
Tetrachloroethene	0.10	Not Detected	0.68	Not Detected		
Ethyl Benzene	0.10	Not Detected	0.43	Not Detected		
m,p-Xylene	0.10	Not Detected	0.43	Not Detected		
o-Xylene	0.10	Not Detected	0.43	Not Detected		

		Method
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	83	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	97	70-130



#### Client Sample ID: CCV Lab ID#: 1504062A-03A MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name: Dil. Factor:	20040302 1.00	Date of Collection: NA Date of Analysis: 4/3/15 08:43 AM
Compound		%Recovery
Vinyl Chloride		102
Chloroethane		108
1,1-Dichloroethene		107
trans-1,2-Dichloroethene		100
1,1-Dichloroethane		103
cis-1,2-Dichloroethene		104
1,1,1-Trichloroethane		102
Benzene		99
1,2-Dichloroethane		100
Trichloroethene		101
Toluene		102
Tetrachloroethene		104
Ethyl Benzene		108
m,p-Xylene		106
o-Xylene		107

		Method
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	100	70-130



#### Client Sample ID: LCS Lab ID#: 1504062A-04A MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name: Dil. Factor:	20040303 1.00	Date of Collec Date of Analys	tion: NA sis:  4/3/15 09:28 AM	
Compound	%Recovery		Method Limits	
Vinyl Chloride		105	70-130	
Chloroethane		110	70-130	
1,1-Dichloroethene		107	70-130	
trans-1,2-Dichloroethene		88	60-140	
1,1-Dichloroethane		102	70-130	
cis-1,2-Dichloroethene		114	70-130	
1,1,1-Trichloroethane		102	70-130	
Benzene		99	70-130	
1,2-Dichloroethane		101	70-130	
Trichloroethene		100	70-130	
Toluene		101	70-130	
Tetrachloroethene		108	70-130	
Ethyl Benzene		109	70-130	
m,p-Xylene		105	70-130	
o-Xylene		108	70-130	

		Method
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	100	70-130



#### Client Sample ID: LCSD Lab ID#: 1504062A-04AA MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

-

File Name: Dil. Factor:	20040304 1.00	Date of Collect Date of Analys	tion: NA sis:  4/3/15 10:12 AM
Compound		%Recovery	Method Limits
Vinyl Chloride		103	70-130
Chloroethane		112	70-130
1,1-Dichloroethene		106	70-130
trans-1,2-Dichloroethene		87	60-140
1,1-Dichloroethane		100	70-130
cis-1,2-Dichloroethene		112	70-130
1,1,1-Trichloroethane		100	70-130
Benzene		98	70-130
1,2-Dichloroethane		100	70-130
Trichloroethene		101	70-130
Toluene		101	70-130
Tetrachloroethene		106	70-130
Ethyl Benzene		106	70-130
m,p-Xylene		105	70-130
o-Xylene		106	70-130

		Method
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	100	70-130

### st eurofins Air Toxics

#### **Sample Transportation Notice**

Relinquishing signature on this document indicates that sample is being shipped in compliance with 180 BLUE RAVINE ROAD, SUITE B all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

### FOLSOM, CA 95630-4719 (916) 985-1000 FAX (916) 985-1020

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*Eurofins/Air Toxics Report #1504062B* 



4/6/2015 Ms. Suzanne Stumpf SoundEarth Strategies, Inc 2811 Fairview Avenue East Suite 2000 Seattle WA 98102

Project Name: ASKO Project #: 01-600 Workorder #: 1504062B

Dear Ms. Suzanne Stumpf

The following report includes the data for the above referenced project for sample(s) received on 4/3/2015 at Air Toxics Ltd.

The data and associated QC analyzed by Modified ASTM D-1946 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Killy Butte

Kelly Buettner Project Manager

A Eurofins Lancaster Laboratories Company

180 Blue Ravine Road, Suite B Folsom, CA 95630



#### WORK ORDER #: 1504062B

#### Work Order Summary

5 2 5	Ms. Suzanne Stumpf SoundEarth Strategies, Inc 2811 Fairview Avenue East Suite 2000 Seattle, WA 98102	BILL TO:	Ms. Suzanne Stumpf SoundEarth Strategies, Inc 2811 Fairview Avenue East Suite 2000 Seattle, WA 98102
PHONE: 2	206-306-1900	<b>P.O.</b> #	0440-004-38
<b>FAX:</b> 2	206-306-1907	PROJECT #	01-600 ASKO
	04/03/2015 04/06/2015	CONTACT:	Kelly Buettner

			<b>KEUEIF</b> I	FINAL
FRACTION #	NAME	<u>TEST</u>	VAC./PRES.	PRESSURE
01A	ASKO_SOILGAS_03_20150331	Modified ASTM D-1946	5.3 "Hg	4.8 psi
02A	Lab Blank	Modified ASTM D-1946	NA	NA
03A	LCS	Modified ASTM D-1946	NA	NA
03AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY:

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04/06/15 DATE:

DECEIDT

**FINAT** 

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704343-14-7, UT NELAP CA009332014-5, VA NELAP - 460197, WA NELAP - C935 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program) Accreditation number: CA300005, Effective date: 10/18/2014, Expiration date: 10/17/2015. Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

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#### LABORATORY NARRATIVE Modified ASTM D-1946 SoundEarth Strategies, Inc Workorder# 1504062B

One 6 Liter Summa Canister (100% Certified) sample was received on April 03, 2015. The laboratory performed analysis via Modified ASTM Method D-1946 for Helium in air using GC/TCD. The method involves direct injection of 1.0 mL of sample.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	ASTM D-1946	ATL Modifications
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A minimum of 5-point calibration curve is performed. Quantitation is based on average Response Factor.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a >/= 95% accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections > 5 X's the RL.

#### **Receiving Notes**

There were no receiving discrepancies.

#### **Analytical Notes**

There were no analytical discrepancies.



#### **Definition of Data Qualifying Flags**

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:

- B Compound present in laboratory blank greater than reporting limit.
- J Estimated value.
- E Exceeds instrument calibration range.
- S Saturated peak.
- Q Exceeds quality control limits.
- U Compound analyzed for but not detected above the detection limit.
- M Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:

- a-File was requantified
- b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



### Summary of Detected Compounds NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: ASKO\_SOILGAS\_03\_20150331

Lab ID#: 1504062B-01A No Detections Were Found.



#### Client Sample ID: ASKO\_SOILGAS\_03\_20150331 Lab ID#: 1504062B-01A NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	9040322b	Date of Colle	ction: 3/31/15 1:08:00 PM	
Dil. Factor:	1.61	Date of Analy	Date of Analysis: 4/3/15 06:48 PM	
		Rpt. Limit	Amount	
Compound		(%)	(%)	
Helium		0.080	Not Detected	



#### Client Sample ID: Lab Blank Lab ID#: 1504062B-02A NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name: Dil. Factor:	9040304b 1.00	Date of Collection: NA Date of Analysis: 4/3/15 10:24 AM	
Compound		Rpt. Limit (%)	Amount (%)
Helium		0.050	Not Detected

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### Air Toxics

#### Client Sample ID: LCS Lab ID#: 1504062B-03A NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name: Dil. Factor:	9040302b 1.00	Date of Collection: NA Date of Analysis: 4/3/15 09:37	
Compound		%Recovery	Method Limits
Helium		100	85-115



#### Client Sample ID: LCSD Lab ID#: 1504062B-03AA NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	00402085	Data of Collo	ation. NA
rile Name:	9040308b	Date of Colle	Ction: NA
Dil. Factor:	1.00	Date of Analysis: 4/3/15 12:03 PM	
			Method
Compound		%Recovery	Limits
Helium		100	85-115

*Eurofins/Air Toxics Report #1504205* 



4/15/2015 Mr. Tyler Oester SoundEarth Strategies, Inc 2811 Fairview Avenue East Suite 2000 Seattle WA 98102

Project Name: Toc Terminal Project #: Workorder #: 1504205

Dear Mr. Tyler Oester

The following report includes the data for the above referenced project for sample(s) received on 4/14/2015 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 SIM are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Killy Butte

Kelly Buettner Project Manager

A Eurofins Lancaster Laboratories Company

180 Blue Ravine Road, Suite B Folsom, CA 95630



#### WORK ORDER #: 1504205

#### Work Order Summary

CLIENT:	Mr. Tyler Oester SoundEarth Strategies, Inc 2811 Fairview Avenue East Suite 2000 Seattle, WA 98102	BILL TO:	Mr. Tyler Oester SoundEarth Strategies, Inc 2811 Fairview Avenue East Suite 2000 Seattle, WA 98102
PHONE:	206-306-1900	<b>P.O.</b> #	0440-004
FAX:	206-306-1907	PROJECT #	Toc Terminal
DATE RECEIVED:	04/14/2015	CONTACT:	Kelly Buettner
DATE COMPLETED:	04/15/2015	continent	Keny Buetiler

			RECEIPT	FINAL
FRACTION #	NAME	<u>TEST</u>	VAC./PRES.	PRESSURE
01A	IA01-20150410	Modified TO-15 SIM	4.1 "Hg	5.1 psi
02A	IA02-20150410	Modified TO-15 SIM	4.3 "Hg	5.3 psi
03A	IA03-20150410	Modified TO-15 SIM	4.3 "Hg	5 psi
04A	OA01-20150410	Modified TO-15 SIM	3.5 "Hg	5.2 psi
05A	OA02-20150410	Modified TO-15 SIM	3.7 "Hg	5.1 psi
06A	OA03-20150410	Modified TO-15 SIM	4.1 "Hg	4.9 psi
07A	Lab Blank	Modified TO-15 SIM	NA	NA
08A	CCV	Modified TO-15 SIM	NA	NA
09A	LCS	Modified TO-15 SIM	NA	NA
09AA	LCSD	Modified TO-15 SIM	NA	NA

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DATE: <u>04/15/15</u>

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Technical Director

CERTIFIED BY:

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704343-14-7, UT NELAP CA009332014-5, VA NELAP - 460197, WA NELAP - C935 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program) Accreditation number: CA300005, Effective date: 10/18/2014, Expiration date: 10/17/2015. Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

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(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

#### LABORATORY NARRATIVE Modified TO-15 SIM SoundEarth Strategies, Inc Workorder# 1504205

Six 6 Liter Summa Canister (SIM Certified) samples were received on April 14, 2015. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the SIM acquisition mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	TO-15	ATL Modifications
ICAL %RSD acceptance criteria	=30% RSD with 2<br compounds allowed out to < 40% RSD	Project specific; default criteria is =30% RSD with 10% of compounds allowed out to < 40% RSD</td
Daily Calibration	+- 30% Difference	Project specific; default criteria is = 30% Difference<br with 10% of compounds allowed out up to =40%.; flag<br and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

#### **Receiving Notes**

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The Chain of Custody (COC) information for sample IA01-20150410 did not match the information on the canister with regard to canister identification. The client was notified of the discrepancy and the information on the canister was used to process and report the sample.

#### **Analytical Notes**

There were no analytical discrepancies.

#### **Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

- E Exceeds instrument calibration range.
- S Saturated peak.
- Q Exceeds quality control limits.
- U Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See



data page for project specific U-flag definition.

- UJ- Non-detected compound associated with low bias in the CCV
- N The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



### Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS SIM

#### Client Sample ID: IA01-20150410

#### Lab ID#: 1504205-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.078	0.12	0.25	0.38
Trichloroethene	0.031	0.043	0.17	0.23
Toluene	0.031	0.32	0.12	1.2
Ethyl Benzene	0.031	0.041	0.14	0.18
m,p-Xylene	0.062	0.12	0.27	0.52
o-Xylene	0.031	0.045	0.14	0.20

#### Client Sample ID: IA02-20150410

#### Lab ID#: 1504205-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.080	0.10	0.25	0.34
Toluene	0.032	0.29	0.12	1.1
m,p-Xylene	0.064	0.098	0.28	0.42
o-Xylene	0.032	0.036	0.14	0.15

#### Client Sample ID: IA03-20150410

#### Lab ID#: 1504205-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.016	0.026	0.040	0.067
Benzene	0.078	0.16	0.25	0.50
Toluene	0.031	14	0.12	54
Tetrachloroethene	0.031	0.13	0.21	0.89
Ethyl Benzene	0.031	1.0	0.14	4.4
m,p-Xylene	0.062	3.4	0.27	15
o-Xylene	0.031	1.1	0.14	4.8

#### Client Sample ID: OA01-20150410

Lab ID#: 1504205-04A

	Rpt. Limit	Amount	Rpt. Limit	Amount	
Compound	(ppbv)	(ppbv)	(ug/m3)	(ug/m3)	



### Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS SIM

#### Client Sample ID: OA01-20150410

#### Lab ID#: 1504205-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)	_
Benzene	0.076	0.11	0.24	0.35	
Toluene	0.031	0.32	0.12	1.2	
m,p-Xylene	0.061	0.087	0.26	0.38	
o-Xylene	0.031	0.032	0.13	0.14	

#### Client Sample ID: OA02-20150410

#### Lab ID#: 1504205-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.076	0.095	0.24	0.30
Toluene	0.031	0.21	0.12	0.78
m,p-Xylene	0.061	0.067	0.26	0.29

#### Client Sample ID: OA03-20150410

#### Lab ID#: 1504205-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.077	0.10	0.24	0.33
Toluene	0.031	0.21	0.12	0.79
m,p-Xylene	0.062	0.077	0.27	0.33
o-Xylene	0.031	0.030 J	0.13	0.13 J



### Client Sample ID: IA01-20150410 Lab ID#: 1504205-01A MODIFIED EPA METHOD TO-15 GC/MS SIM

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File Name: Dil. Factor:	v041409sim Date of Collection: 4/10/15 5 1.56 Date of Analysis: 4/14/15 03			
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.016	Not Detected	0.040	Not Detected
Chloroethane	0.078	Not Detected	0.20	Not Detected
1,1-Dichloroethene	0.016	Not Detected	0.062	Not Detected
trans-1,2-Dichloroethene	0.16	Not Detected	0.62	Not Detected
1,1-Dichloroethane	0.031	Not Detected	0.13	Not Detected
cis-1,2-Dichloroethene	0.031	Not Detected	0.12	Not Detected
1,1,1-Trichloroethane	0.031	Not Detected	0.17	Not Detected
Benzene	0.078	0.12	0.25	0.38
1,2-Dichloroethane	0.031	Not Detected	0.13	Not Detected
Trichloroethene	0.031	0.043	0.17	0.23
Toluene	0.031	0.32	0.12	1.2
Tetrachloroethene	0.031	Not Detected	0.21	Not Detected
Ethyl Benzene	0.031	0.041	0.14	0.18
m,p-Xylene	0.062	0.12	0.27	0.52
o-Xylene	0.031	0.045	0.14	0.20

		Method
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	91	70-130



#### Client Sample ID: IA02-20150410 Lab ID#: 1504205-02A MODIFIED EPA METHOD TO-15 GC/MS SIM

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File Name: Dil. Factor:	v041410sim Date of Collection: 4/10/15 4:45:0 1.59 Date of Analysis: 4/14/15 04:31 Pl			
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.016	Not Detected	0.041	Not Detected
Chloroethane	0.080	Not Detected	0.21	Not Detected
1,1-Dichloroethene	0.016	Not Detected	0.063	Not Detected
trans-1,2-Dichloroethene	0.16	Not Detected	0.63	Not Detected
1,1-Dichloroethane	0.032	Not Detected	0.13	Not Detected
cis-1,2-Dichloroethene	0.032	Not Detected	0.13	Not Detected
1,1,1-Trichloroethane	0.032	Not Detected	0.17	Not Detected
Benzene	0.080	0.10	0.25	0.34
1,2-Dichloroethane	0.032	Not Detected	0.13	Not Detected
Trichloroethene	0.032	Not Detected	0.17	Not Detected
Toluene	0.032	0.29	0.12	1.1
Tetrachloroethene	0.032	Not Detected	0.22	Not Detected
Ethyl Benzene	0.032	Not Detected	0.14	Not Detected
m,p-Xylene	0.064	0.098	0.28	0.42
o-Xylene	0.032	0.036	0.14	0.15

		Method
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	93	70-130



#### Client Sample ID: IA03-20150410 Lab ID#: 1504205-03A MODIFIED EPA METHOD TO-15 GC/MS SIM

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File Name: Dil. Factor:	v041411sim 1.56	2 4 10	Date of Collection: 4/10/15 4:52:00 PM Date of Analysis: 4/14/15 05:06 PM		
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)	
Vinyl Chloride	0.016	0.026	0.040	0.067	
Chloroethane	0.078	Not Detected	0.20	Not Detected	
1,1-Dichloroethene	0.016	Not Detected	0.062	Not Detected	
trans-1,2-Dichloroethene	0.16	Not Detected	0.62	Not Detected	
1,1-Dichloroethane	0.031	Not Detected	0.13	Not Detected	
cis-1,2-Dichloroethene	0.031	Not Detected	0.12	Not Detected	
1,1,1-Trichloroethane	0.031	Not Detected	0.17	Not Detected	
Benzene	0.078	0.16	0.25	0.50	
1,2-Dichloroethane	0.031	Not Detected	0.13	Not Detected	
Trichloroethene	0.031	Not Detected	0.17	Not Detected	
Toluene	0.031	14	0.12	54	
Tetrachloroethene	0.031	0.13	0.21	0.89	
Ethyl Benzene	0.031	1.0	0.14	4.4	
m,p-Xylene	0.062	3.4	0.27	15	
o-Xylene	0.031	1.1	0.14	4.8	

		Method
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	95	70-130
4-Bromofluorobenzene	96	70-130



#### Client Sample ID: OA01-20150410 Lab ID#: 1504205-04A MODIFIED EPA METHOD TO-15 GC/MS SIM

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File Name: Dil. Factor:	v041412sim 1.53			
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.015	Not Detected	0.039	Not Detected
Chloroethane	0.076	Not Detected	0.20	Not Detected
1,1-Dichloroethene	0.015	Not Detected	0.061	Not Detected
trans-1,2-Dichloroethene	0.15	Not Detected	0.61	Not Detected
1,1-Dichloroethane	0.031	Not Detected	0.12	Not Detected
cis-1,2-Dichloroethene	0.031	Not Detected	0.12	Not Detected
1,1,1-Trichloroethane	0.031	Not Detected	0.17	Not Detected
Benzene	0.076	0.11	0.24	0.35
1,2-Dichloroethane	0.031	Not Detected	0.12	Not Detected
Trichloroethene	0.031	Not Detected	0.16	Not Detected
Toluene	0.031	0.32	0.12	1.2
Tetrachloroethene	0.031	Not Detected	0.21	Not Detected
Ethyl Benzene	0.031	Not Detected	0.13	Not Detected
m,p-Xylene	0.061	0.087	0.26	0.38
o-Xylene	0.031	0.032	0.13	0.14

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	96	70-130



#### Client Sample ID: OA02-20150410 Lab ID#: 1504205-05A MODIFIED EPA METHOD TO-15 GC/MS SIM

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File Name: Dil. Factor:	v041413sim 1.53		Date of Collection: 4/10/15 5:23:00 PM Date of Analysis: 4/14/15 06:15 PM	
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.015	Not Detected	0.039	Not Detected
Chloroethane	0.076	Not Detected	0.20	Not Detected
1,1-Dichloroethene	0.015	Not Detected	0.061	Not Detected
trans-1,2-Dichloroethene	0.15	Not Detected	0.61	Not Detected
1,1-Dichloroethane	0.031	Not Detected	0.12	Not Detected
cis-1,2-Dichloroethene	0.031	Not Detected	0.12	Not Detected
1,1,1-Trichloroethane	0.031	Not Detected	0.17	Not Detected
Benzene	0.076	0.095	0.24	0.30
1,2-Dichloroethane	0.031	Not Detected	0.12	Not Detected
Trichloroethene	0.031	Not Detected	0.16	Not Detected
Toluene	0.031	0.21	0.12	0.78
Tetrachloroethene	0.031	Not Detected	0.21	Not Detected
Ethyl Benzene	0.031	Not Detected	0.13	Not Detected
m,p-Xylene	0.061	0.067	0.26	0.29
o-Xylene	0.031	Not Detected	0.13	Not Detected

		Method	
Surrogates	%Recovery	Limits	
1,2-Dichloroethane-d4	99	70-130	
Toluene-d8	96	70-130	
4-Bromofluorobenzene	91	70-130	



#### Client Sample ID: OA03-20150410 Lab ID#: 1504205-06A MODIFIED EPA METHOD TO-15 GC/MS SIM

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File Name: Dil. Factor:	v041414sim Date of Collection: 4/10/15 5:09 1.54 Date of Analysis: 4/14/15 06:52			
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.015	Not Detected	0.039	Not Detected
Chloroethane	0.077	Not Detected	0.20	Not Detected
1,1-Dichloroethene	0.015	Not Detected	0.061	Not Detected
trans-1,2-Dichloroethene	0.15	Not Detected	0.61	Not Detected
1,1-Dichloroethane	0.031	Not Detected	0.12	Not Detected
cis-1,2-Dichloroethene	0.031	Not Detected	0.12	Not Detected
1,1,1-Trichloroethane	0.031	Not Detected	0.17	Not Detected
Benzene	0.077	0.10	0.24	0.33
1,2-Dichloroethane	0.031	Not Detected	0.12	Not Detected
Trichloroethene	0.031	Not Detected	0.16	Not Detected
Toluene	0.031	0.21	0.12	0.79
Tetrachloroethene	0.031	Not Detected	0.21	Not Detected
Ethyl Benzene	0.031	Not Detected	0.13	Not Detected
m,p-Xylene	0.062	0.077	0.27	0.33
o-Xylene	0.031	0.030 J	0.13	0.13 J

J = Estimated value.

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	89	70-130



#### Client Sample ID: Lab Blank Lab ID#: 1504205-07A MODIFIED EPA METHOD TO-15 GC/MS SIM

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File Name: Dil. Factor:	v041406sim 1.00	2 410	of Collection: NA of Analysis: 4/14	/15 01:52 PM
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
Chloroethane	0.050	Not Detected	0.13	Not Detected
1,1-Dichloroethene	0.010	Not Detected	0.040	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,1-Dichloroethane	0.020	Not Detected	0.081	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
1,1,1-Trichloroethane	0.020	Not Detected	0.11	Not Detected
Benzene	0.050	Not Detected	0.16	Not Detected
1,2-Dichloroethane	0.020	Not Detected	0.081	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected
Toluene	0.020	Not Detected	0.075	Not Detected
Tetrachloroethene	0.020	Not Detected	0.14	Not Detected
Ethyl Benzene	0.020	Not Detected	0.087	Not Detected
m,p-Xylene	0.040	Not Detected	0.17	Not Detected
o-Xylene	0.020	Not Detected	0.087	Not Detected

		Method
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	96	70-130



#### Client Sample ID: CCV Lab ID#: 1504205-08A MODIFIED EPA METHOD TO-15 GC/MS SIM

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File Name: Dil. Factor:	v041402sim 1.00	Date of Collection: NA Date of Analysis: 4/14/15 10:43 AM
Compound		%Recovery
Vinyl Chloride		96
Chloroethane		102
1,1-Dichloroethene		93
trans-1,2-Dichloroethene		98
1,1-Dichloroethane		101
cis-1,2-Dichloroethene		99
1,1,1-Trichloroethane		96
Benzene		87
1,2-Dichloroethane		104
Trichloroethene		98
Toluene		92
Tetrachloroethene		96
Ethyl Benzene		92
m,p-Xylene		84
o-Xylene		83

		Method
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	96	70-130



#### Client Sample ID: LCS Lab ID#: 1504205-09A MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name: Dil. Factor: Compound	v041403sim 1.00	Date of Collect Date of Analys	tion: NA sis:  4/14/15 11:26 AM
		%Recovery	Method Limits
Vinyl Chloride		104	70-130
Chloroethane		110	70-130
1,1-Dichloroethene		97	70-130
trans-1,2-Dichloroethene		88	70-130
1,1-Dichloroethane		105	70-130
cis-1,2-Dichloroethene		113	70-130
1,1,1-Trichloroethane		99	70-130
Benzene		90	70-130
1,2-Dichloroethane		107	70-130
Trichloroethene		100	70-130
Toluene		94	70-130
Tetrachloroethene		101	70-130
Ethyl Benzene		97	70-130
m,p-Xylene		90	70-130
o-Xylene		90	70-130

		Method	
Surrogates	%Recovery	Limits	
1,2-Dichloroethane-d4	101	70-130	
Toluene-d8	97	70-130	
4-Bromofluorobenzene	97	70-130	



#### Client Sample ID: LCSD Lab ID#: 1504205-09AA MODIFIED EPA METHOD TO-15 GC/MS SIM

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File Name: Dil. Factor: Compound	v041404sim 1.00	Date of Collect Date of Analys	tion: NA sis:  4/14/15 12:26 PM
		%Recovery	Method Limits
Vinyl Chloride		103	70-130
Chloroethane		110	70-130
1,1-Dichloroethene		97	70-130
trans-1,2-Dichloroethene		88	70-130
1,1-Dichloroethane		104	70-130
cis-1,2-Dichloroethene		112	70-130
1,1,1-Trichloroethane		99	70-130
Benzene		89	70-130
1,2-Dichloroethane		106	70-130
Trichloroethene		100	70-130
Toluene		93	70-130
Tetrachloroethene		98	70-130
Ethyl Benzene		96	70-130
m,p-Xylene		91	70-130
o-Xylene		91	70-130

		Method		
Surrogates	%Recovery	Limits		
1,2-Dichloroethane-d4	100	70-130		
Toluene-d8	97	70-130		
4-Bromofluorobenzene	98	70-130		

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024 1A02-20130410		33980		0848/1645			27.5	3.5		
03A 1A03-20150410		31149		0851/1652		4	25.5	3.0		
044 0A01-20150410		93		08351636	······		26.5	3.D		
09/ 04-02-20150410		35254		0826/1723		2	27.0	3.5		
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