#### **Technical Memorandum**

**TO:** Bucklin Place LLC

FROM: Dylan Frazer, LG; Tim Syverson, LHG

**DATE:** December 16, 2016

RE: Chemical Inventory Evaluation, HVAC System Adjustments, and

**Indoor Air Sampling Summary** 

**Ultra Custom Cleaners Tenant Space – Bucklin Place** 

Silverdale, Washington

Project No. 1595001.020.025

#### Introduction

As a follow up to the ongoing environmental investigations conducted by Landau Associates, Inc. (LAI) at the Ultra Custom Cleaners (UCC) tenant space at Bucklin Place (site) located at 2222 NW Bucklin Hill Road, Suite 105, Silverdale, Washington, a chemical inventory evaluation was conducted of the products used in the current UCC operation, adjustments were made to the heating, ventilation, and air conditioning (HVAC) system at the UCC tenant space, and additional indoor air samples were collected following the HVAC system adjustments. This technical memorandum documents the chemical inventory evaluation, the HVAC system adjustments that were made on September 23, 2016, the additional indoor air sampling and analysis conducted on November 2, 2016, and the implications of the analytical results for future use of the tenant space. The results of the previous indoor air, subslab soil, soil, and groundwater sampling and analysis, as well as the vapor intrusion building survey, were presented in a technical memorandum dated June 29, 2016 (LAI 2016).

### **Chemical Inventory Evaluation**

Volatile organic compounds (VOCs) in the products stored and used in the UCC tenant space could be contributing to the VOC concentrations detected in the indoor air. Accordingly, products listed on the chemical inventory, which was compiled during the vapor intrusion building survey conducted on March 20, 2016, were evaluated to identify if any of the VOCs detected in indoor air are present in the products stored and used on the property.

Table 1 lists the products observed during the chemical inventory, and provides available details regarding product location, the volume/quantity present, the container condition, and the chemical ingredients. Additional products in unlabeled containers were also present; these products are included in Table 1 as unknown products. The chemical ingredients were compiled based on available safety data sheets (SDSs) for each product. The chemical inventory evaluation identified three products stored in the UCC tenant space that contain either tetrachloroethene (PCE) or trichloroethene (TCE), which are the primary contaminants of concern that have been detected in indoor air at concentrations greater than the regulatory screening levels. Depending on the practices



for their storage or use, these products are a potential source that could contribute to the PCE and/or TCE concentrations in indoor air in the UCC tenant space.

### **HVAC System Adjustments**

In an effort to mitigate the TCE concentrations greater than the Washington State Model Toxics Control Act (MTCA) modified Method B screening level and the published US Environmental Protection Agency (EPA) Indoor Air Action Level (IAAL) Urgent and Accelerated Response Action Levels (EPA 2014) that were previously detected in samples of indoor air, HVAC system adjustments were made to increase the air pressure (i.e., create positive pressure) inside the UCC tenant space and decrease the pressure gradient for potential indoor vapor intrusion from sub-slab soil vapor. These HVAC system adjustments were made on September 23, 2016, and consisted of adjusting the HVAC fresh air dampers on the roof-mounted units. Documentation provided by the HVAC technician indicates that the indoor air pressure was increased to 3 pascals.

### **Indoor Air Sampling and Analytical Results**

To evaluate the effectiveness of the HVAC adjustments as a mitigation measure for potential vapor intrusion, a follow-up indoor air sample was collected from inside the UCC tenant space on November 2, 2016. The analytical results for this indoor air sample are provided in Table 2, which also includes the results for prior indoor air samples. For comparison with the detected concentrations, Table 2 also includes screening levels developed using the Washington State Department of Ecology (Ecology) MTCA modified Method B scenario for a commercial worker, and published EPA IAALs for a 10-hour/day exposure. The modified MTCA Method B screening levels were developed for the UCC tenant space using the modified Method B procedures, as allowable under MTCA and suggested by Ecology vapor intrusion guidance, assuming that an adult worker will occupy the UCC tenant space for 60 hours per week (12 hours/day, 5 days/week) for 52 weeks per year.

The analytical results for the indoor air sample collected on November 2, 2016 (IA-1) indicate that PCE and TCE were detected at concentrations greater than the laboratory reporting limits. TCE was detected at a concentration greater than the modified MTCA Method B screening level and the published EPA IAAL Urgent Response Action Level. Vinyl chloride and cis-1,2-dichloroethene were not detected at concentrations greater than the laboratory reporting limits. These data indicate that the HVAC system adjustments did not reduce the TCE concentrations that are present in the indoor air within the UCC tenant space to less than the screening levels.

#### Recommendations

The analytical results indicate that the mitigation effort to create and maintain positive pressure within the UCC tenant space via the HVAC system has not been effective at reducing the contaminant concentrations in indoor air inside the UCC tenant space to below the screening levels, and LAI is

evaluating additional mitigation options to address the elevated contaminant concentrations in the indoor air. The HVAC system adjustments did meet the objective of creating positive air pressure within the UCC tenant space. Therefore, because the potential for vapor intrusion from sub-slab soil vapor beneath the UCC still exists, the HVAC system should continue to be operated at the settings set by the HVAC technician on September 22, 2016, during use of the UCC tenant space and during the evaluation of additional mitigation measures.

As noted in Table 2, the analytical data for the indoor air samples indicate that the concentrations of TCE in indoor air are significantly lower during time periods when the exterior doors are open. The increased ventilation due to the open doors along with the operating HVAC system should be considered as interim mitigation measures during occupancy of the UCC tenant space while other alternatives are being evaluated.

\* \* \* \* \*

If you have any questions or comments regarding the information provided in this technical memorandum, please contact the undersigned.

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DHF/TLS/ccv

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#### References

EPA. 2014. Memorandum: EPA Region 9 Interim Action Levels and Response Recommendations to Address Potential Developmental Hazards Arising from Inhalation Exposures to TCE in Indoor Air from Subsurface Vapor Intrusion. From Gerald Hiatt and Daniel Stralka, Regional Toxicologists, US Environmental Protection Agency, to Enrique Manzanilla, Superfund Division, US Environmental Protection Agency. June 30.

LAI. 2016. Technical Memorandum: Air, Sub-Slab Soil Vapor, Soil and Groundwater Sampling and Analysis Results, Ultra Custom Cleaners Tenant Space - Bucklin Place, Silverdale, Washington. Landau Associates, Inc. June 29.

### **Attachments**

**Chemical Inventory Evaluation** Table 1: Table 2: **Indoor Air Analytical Results** 

		Number of						Does this product contain chemicals that		
Location	Product Description		Size of Container	Condition	Chemical ingredients	Wt. %	CAS#	could contribute to VOCs in indoor air?		
20001011	1 Todace Description	Contamers	Jize or container	Contacton	n-Butane	2.5 - 10	106-97-8	Could continue to 1000 in incoor air.		
Main Area	Laidlaw Spray Sizing	>1	20 oz	U	Propane	1 - 2.5	74-98-6			
Ividiii Ai Ca	Laidiaw Spray Sizing	71	20 02		Diethanolamine	0.1 - 1	111-42-2			
					Dietrianolamine	0.1 - 1	111-42-2			
Main Area	Slick Rail Cleaner	>1	approx 20 oz	U	Wac Emulsion	90	mixture			
					Teflon dispersion	0 - 10	none			
Main Area	Olio Sintetico Base (Synthetic Base Oil) PAO SP 068	1	approx 20 oz	PAO Synthetic Base Oils O oz U		80 - 95	68037-01-04, 68037-01-04, 68649-12-7, 163149-29-9, 151006-63-2, 151006-62-1, 151006-60-9			
					Olefin Sulfide	< 5	NA			
					Phosphoric Acid Esters	< 2	296-404-1			
					Alkenyl Amide	< 0.1	NA			
Main Area	NAPA Premium Performance Non-	1	1	1	1 U.S. Qt	U	Heavy Paraffinic Distillate	≥ 80 - < 90	64742-54-7	
	Detergent SAE 30 Motor Oil				Residual Oils (Petroleum), Solvent-Dewaxed	≥ 10 - < 15	64742-62-7			
					Hydrotreated Heavy Paraffinic Base Oil	≥ 1.5 - < 5	64742-55-8			
					Catalytic Dewaxed Heavy Paraffinic Oil (Petroleum)	≥ 1.5 - < 5	64742-70-7			
					Hydrotreated Heavy Paraffinic Base Oil	≥ 1 - < 1.5	64742-54-7			
					Severely Hydrotreated Petroleum Distillates	30 - 50	64742-52-5			
Main Anna	Mana Karil	42	42		Light Petroleum Distillates	30 - 50	64742-95-6 64742- 88-7 64742-47-8 64742-96-7			
Main Area	Kano Kroil	1?	approx 12 oz	D	Diisobutyl Ketone	0 - 15	108-83-8			
					Proprietary Ingredient	1 - 10	Proprietary			
					Dipropylene Glycol Monopropyl Ether	1-5	29911-27-1			
					Dipropylene Glycol Methyl Ether	0 - 5	88917-22-0			
					Aliphatic Alcohol #1	< 3	123-42-2			
					Aliphatic Alcohol #2	< 3	78-83-1			
					Glycerin	Confidential	56-81-5			
Main Area	Hot Melt®	2	8 oz	U	Polyethylene Glycol	Confidential	25322-68-3			
					Paraffin Wax	Confidential	8002-74-2			
Main Area	Husky Air Compressor Oil	1?	16 oz	U	Petroleum oil	50 - 60	64742-54-7			
iviaiii Al Ca	Husky All Colliplessor Oil	1:	10 02		Petroleum oil	40 - 50	64742-62-7			
Main Area	Sobo Premium Craft and Fabric	1?	8 fl. Oz	U	PolyVinyl Acetate Copolymer Emulsion	48	9003-20-7			
	Glue	1:	0 11. OZ	-	Propylene Glycol	5	57-55-6			
					Water	47	-			

		Number of						Does this product contain chemicals that
Location	Product Description		Size of Container	Condition	Chemical ingredients	Wt. %	CAS#	could contribute to VOCs in indoor air?
					9			
Main Area	Enzyme Fabriclean with enzyme and oxy bleach- powder laundry	>1	50 lbs	U	None under 29 CFR 1910.12	-	-	
	detergent				Sodium Metasilicate, Sodium Carbonate, Sodium Alumino Silicate, Linear Alkyl Benzane Sulfonic Acid, Polyoxysthylene laurl ether, Coconut Fatty Acid, Optical brighteners, Bleach, Enzyme	-	-	
					Terpene hydrocarbon	7 - 13	5989-27-5	
Main Area	Laundry Wetspo	2	annroy 1 gallon	U	Trade Secret #2	-	-	
IVIdIII AI Ed	Lauriury Wetspo	2	approx 1 gallon	U	Trade Secret #3	-	-	
					Trade Secret #4	-	-	
Main Area	Kirkland Signature: Refreshing Scent Ultra Soft Premium Fabric Softener	>1	5.53 gal	U	Contains fabric softening agents (cationic) and perfume	-	-	
Main Area	Adco Twin 2 AC; Large Format Split Carbon Core Cartridges	2	N/A	U	Activated carbon	100	7440-44-0	
Main Area	Prenett K4	>1	22 kg	U	Sulfosuccinat-sodiumsalt	15 - 30	577-11-7	
Ivialii Alea	FIEHELL N4		22 Ng		Alcohols C12 - C15 ethoxylated, propoxylated	5.0 - 15	120313-48-6	
					Perfumes	≤1	-	
					Alcohols, C13 branched, ethoxylated	15 - 30	69011-36-5	
					Alcohols C13-15 branched and linear, ethoxylated	5.0 - 15	157627-86-6	
					2-(2-butoxyethoxy)ethanol	5.0 - 15	112-34-5	
					Sulfosuccinat-sodiumsalt 5.0 - 15		577-11-7	
				Alcohols C12 - C15 ethoxylated, propoxyl		5.0 - 15	120313-48-6	
	Clip K4	2	60.1		Fatty alcohol ether-sulfate	5.0 - 15	9004-82-4	
Main Area			60 kg	U	Soyafattyacid-diethanolamide	5.0 - 15	68425-47-8	
					Alcohols C12 - C18 ethoxylated, propoxylated  Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl,  chlorides	5.0 - 15 5.0 - 15	69227-21-0 68424-85-1	
					Alcohols C13 branched, ethoxylated	1.0 - 5.0	69011-36-5	
					Quaternary ammonium compounds, dicocoalkyldimethyl, chlorides	1.0 - 5.0	61789-77-3	
					2,2'-iminodiethanol	≤ 1	111-42-2	
Main Area	CP™ Tannin® Spotter	3	1 gallon	U	NA		-	
Main Area	Ah! All Clear the odorless Odor Eliminator	1	1 gallon	U	No Hazardous Materials in formula	-	-	
Main Area	Clorox	1	1 gallon	U	Sodium hypochlorite	5 - 10	7681-52-9	
Main Area	Adco QUAD 4AC Small Format All Carbon Cartridges	1	N/A	U	Activated carbon	100	7440-44-0	
	Ĭ				Methylene Chloride	> 75	75-09-2	
Main Area	Laidlaw Bull out Promium V	<b>\0</b>	20.07	11	Dimethoxymethane	1 - 10	109-87-5	
Main Area	Laidlaw: Pull-out Premium -V	>8	20 oz	U	Hydrated amorphous silica	1 - 10	112926-00-8	
					Liquefied petroleum gas	20 - 25	68476-86-8	
					Trade Secret #1	-	-	
Bathroom	Streetex Spray Spotter	1	1 gallon	U	Trade Secret #2	-	-	
					Trade Secret #3	-	-	

		Number of						Does this product contain chemicals that
Location	Product Description	Containers	Size of Container	Condition	Chemical ingredients	Wt. %	CAS#	could contribute to VOCs in indoor air?
					2-Butoxyethanol	2.5 - 10	111-76-2	
					Ethyl Alcohol	2.5 - 10	64-17-15	
Bathroom	Sprayway Glass Cleaner	2	19 oz	U	Butane	1 - 2.5	106-97-8	
					Propane	1 - 2.5	74-98-6	
				=	Other components below reportable levels	90 - 100	-	
Bathroom	Revitalize by Sanitone	1	1 gallon	U	NA NA	-	-	
Bathroom	Clear view flex-oiler	1	4 oz	U	Part No. BEI-200	-	-	
Bathroom	Febreze Fabric Refresher	2	16.9 fl oz	U	Ethanol 1 - 5		64-17-5	
Bathroom	CP™ Aquapog	5	1 gallon	U	2-Propanol < 5.0 67-63-0			
	1 1 0		Ü		p-Alkyl dimethyl benzyl ammonium chlorides	0.11	-	
					n-Alkyl dimethyl ethylbenzyl ammonium chlorides	0.11	-	
				=	Water	-	-	
					Tetrasodium EDTA		-	
Bathroom	Scrubbing Bubbles	1	1 lb 9 oz	U	Isobutane		_	
					Butoxydiglycol	99.78	_	
					Ethoxylated Alcohol		_	
					Fragrance		_	
					Hydrochloric acid	_	7647-01-0	
Bathroom	Virginia Scale Remover	1	10 lbs	U	Isopropyl alcohol	_	67-63-0	
Bathroom	CP™ Tannin® Spotter	2	1 gallon	U	NA -		-	
Batinooni			1 8011011		Linalool	5 - 10	78-70-6	
				-	Benzyl Acetate	5 - 10	140-11-4	+
				-	Ethyl methylphenylglycidate	5 - 10	77-83-8	
				-	3,7-Dimethyloctan-3-ol	5 - 10	78-69-3	+
					•			
				-	Allyl heptanoate	1 - 5	142-19-8	
					Citronellol	1 - 5	106-22-9	
					Linalyl acetate	1 - 5	115-95-7	
Dathroom	Febreze Air Effects Cranberry Cheer	1	0.7.07		Hydroxycitronellal	1 - 5	107-75-5	
Bathroom	rebreze Air Effects Craffberry Cheer	1	9.7 oz	U	Allyl 3-Cyclohexylpropionate	1 - 5	2705-87-5	
					Ethyl trans-2,2,6-trimethylcyclo-hexanecarb oxylate	0.5 - 1.5	22471-55-2	
					Isobutyl Salicylate	0.5 - 1.5	87-19-4	
					Raspberry Ketone	0.5 - 1.5	5471-51-2	
					Heliotropine	0.5 - 1.5	120-57-0	
					Limonene	0.5 - 1.5	5989-27-5	
					2,4-Dimethyl-3-Cyclohexene Carboxaldehyde	0.5 - 1.5	68039-49-6	
					6-Methoxy-2,6-Dimethylheptanal	0.5 - 1.5	62439-41-2	
					d,l-Isomenthone	0.1 - 1.0	491-07-6	
Bathroom	Picrin	1	1 gallon	U	Trichloroethylene (TCE)	> 75	79-01-6	Yes (TCE)
Bathroom	CP Spray Spotter	2	1 gallon	U	NA	-	-	
					Trade Secret #1	-	-	
Bathroom	Liquid Shirt Sour	1	1 gallon	U	Glycolic acid	< 15	79-14-1	
					Trade Secret #2	-	-	
Bathroom	Adco Stain Removal Puro Volatile Dry Solvent	2	1 gallon	U	Trichloroethylene (TCE)			Yes (TCE)
Bathroom	Febreze Air Effects Linen and Sky	2	9.7 oz	U	Ethanol	1 - 5	64-17-5	
Bathroom	Febreze Air Effects Happy Spring	1	9.7 oz	U	Ethanol	1 - 5	64-17-5	

		Number of						Does this product contain chemicals that
Location	Product Description	Containers	Size of Container	Condition	Chemical ingredients	Wt. %	CAS#	could contribute to VOCs in indoor air?
					n-Butane	2.5 - 10	106-97-8	
Bathroom	Laidlaw Spray Sizing	>3	20 oz	U	Propane	1 - 2.5	74-98-6	
					Diethanolamine	0.1 - 1	111-42-2	
Dathroom	Claray Claan un Claanar I Blaach	2	22 fl oz	- 11	Sodium hypochlorite	1 - 5	7681-52-9	
Bathroom	Clorox: Clean-up Cleaner + Bleach	2	32 fl oz	U	Sodium hydroxide 0.1 - 1		1310-73-2	
Bathroom	NAPA 9800 Power Steering Fluid	1	12 fl oz	U	Petroleum distillates, hydrotreated heavy paraffinic	90 - 100	64742-54-7	
Bathroom	Mobil 1 5W-30	2	1 Qt	U	1-Decene, homopolymer hydrogenated	20 - < 30	68037-01-4	
	Softsoap Advanced Clean Hand				sodium laureth sulfate	≥ 5 - < 10	9004-82-4	
Bathroom	Soap	1	80 fl oz	U	cocamidoproply bentaine	≥1-<5	61789-40-0	
	Зоар				sodium chloride	≥1-<5	7647-14-5	
Bathroom	NAPA -20 windshield wash	1	1 gallon	U	Methly alcohol	30 - 40	67-56-1	
Bathroom	Clorox Concentrate	3	1 gallon	U	Sodium hypochlorite 5 - 10 7681-52-9			
					Perfumes	≤ 1	-	
Bathroom	Lanadol Aktiv	1	40 kg	U	Oleicacid Monoethanolamid, ethoxylated	5.0 - 15	26027-37-2	
Batilloom	Lanador Aktiv	1	40 Kg	U	Alcohols, C13 branched, ethoxylated	1.0 - 5.0	69011-36-5	
					2-(2-butoxyethoxy)ethanol	1.0 - 5.0	112-34-5	
					Trade Secret #1 - aliphatic carboxylic ester	-	-	
Bathroom	Pyratex	1	1 gallon	D	Trade Secret #2 - glycol ether	< 30	=	
DatiiiOOiii	rylatex	1	1 gallon	D	Trade Secret #3 - aliphatic ketone	< 15	-	
					Trade Secret #4	-	-	
					Acetone	35 - 40	67-64-1	
Main Area	Laidlaw: Swan Cote Water and Stain Repellent	>5	10.5 fl oz	U/D	Heptane	25 - 30	142-82-5	
Main Area			10.5 11 02	0/0	Butane	15 - 20	106-97-8	
					Propane	10 - 15	74-98-6	
					Aliphatic Hydrocarbon	45 - 50	64742-47-8	
Main Area	WD-40	2	11 oz	U	Petroleum Base Oil	< 25	64742-56-9 64742- 65-0 64742-53-6 64742-54-7 64742- 71-8	
					LVP Aliphatic Hydrocarbon	12 - 18	64742-47-8	
					Carbon Dioxide	2 - 3	124-38-9	
					Non-Hazardous Ingredients	< 10	Mixture	
Main Area	Gunk Hydraulic Jack Oil	1	12 fl oz	U	Distillates (petroleum), Hydrotreated Heavy Naphthenic	90 - 100	64742-52-5	Yes (Naphthalene)
	,				Citric Acid	5.0 - 15	201-069-1	, , ,
Main Area	DePrit Professional 5	1	500 ml	U	Oxalic Acid	1.0 - 5.0	205-634-3	
					Distillates (petroleum), hydrotreated light	60 - 100	64742-47-8	
Main Area	Goo Gone ®	1	8 oz	U	d-Limonene	1 - 5	5989-27-5	
		_			Orange sweet extract	0.5 - 1.5	8028-48-6	
					Hydrofluoric Acid	5 - 12	7664-39-3	
Main Area	RustGo®	2	14 oz	U	Ammonium Bifluoride	8 - 16	1341-49-7	
		_	1 2 7 0 2	Č	Water	75 - 85	7732-18-5	
					Trade Secret #1	-	-	
Main Area	StreeTAN ®	1	12 oz	U/D	Trade Secret #2	-	-	
Maili Alea				•	Trade Secret #3	_	_	

		Number of						Does this product contain chemicals that
Location	Product Description	Containers	Size of Container	Condition	Chemical ingredients	Wt. %	CAS#	could contribute to VOCs in indoor air?
					2-(2-butoxyethoxy)ethanol	≥ 50	112-34-5	
					Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl,	1.0 - 5.0	68424-85-1	
					chlorides	1.0 - 5.0	08424-85-1	
Main Area	Peramon	2	4.5 kg	U	Sulfosuccinat-sodiumsalt	1.0 - 5.0	577-11-7	
Ivialii Alea	retatiion	2	4.5 kg	O	Soyafattyacid-diethanolamide	1.0 - 5.0	68425-47-8	
					Alcohols, C13 branched, ethoxylated	1.0 - 5.0	69011-36-5	
					2,2'-iminodiethanol	≤ 1	111-42-2	
					alcohol, C12-14, ethoxylated	≤ 1	68439-50-9	
					Methylene Chloride	60 - 70	75-09-2	
Main Area	Volatile Dry Solvent	1	1 gallon	U	Perchloroethylene (PCE)	5 - 15	127-18-4	Yes (PCE)
Ivialii Alca	Volatile Bry Solvent	ordatic bry solvent	Petroleum Distillate	NA	64742-48-9			
					Carbon Dioxide	NA	124-38-9	
Main Area	Kirkland Signature: Institutional Laundry Detergent	1	28 lbs	U	NA	-	-	
Main Area	Valvoline: Non detergent SAE 30 Motor oil	1	1 qt	U	Residual Oils (Petroleum), Solvent-Dewaxed	15.05	64742-62-7	
				Potassium hydroxide		< 10	1310-58-3	
Main Area	Steam Dragon ®	2	1 gallon	U	trade secret #1	-	-	
Ivialii Alea	Steam Dragon	2	1 galloll	O	trade secret #2	•	-	
					trade secret #3	-	-	
Bathroom	Unknown #1	1	1 gallon	D	NA	ı	-	
Main Area	Unknown #2	1	approx 8 oz	U	NA	-	-	
Main Area	Unknown #3	1	approx 20 oz	D	NA	-	-	
Main Area	Unknown #4	1	approx 20 oz	U/D	NA	-	-	
Main Area	Unknown #5	1	approx 20 oz	U/D	NA	-	-	
Main Area	Unknown #6	1	approx 20 oz	U/D	NA	-	-	
Main Area	Unknown #7	1	approx 20 oz	D	NA	ı	-	

U = Used

D = Deteriorated

NA = Not available

#### Table 2

### Indoor Air Analytical Results Ultra Custom Cleaners Tenant Space - Bucklin Place Silverdale, Washington

	Modified MTCA Method B Indoor Air Screening Level-	Accelerated Response	ccelerated Urgent Response Response			Sample Location, L m Cleaners <sup>b</sup>	ı, Lab ID, Sample Date Ambient Air					
	Commercial		Commercial/	IA-1	IA-2	IA-1	IA-1	AA-1	AA-1			
	Exposure	Industrial	Industrial	P1602080-001	P1602080-002	P1602491-004	P1605188-001	P1602080-003	P1605188-003			
Analyte	Scenario <sup>a</sup>	10-hour work	10-hour work	4/19/2016	4/19/2016	5/11/2016	11/2/2016	4/19/2016	11/2/2016			
Volatiles (μg/m³)												
Method EPA TO-15												
Vinyl Chloride	NC	N/A	N/A	0.18 U	0.14 U	0.23 U	0.21 U	0.17 U	0.18 U			
cis-1,2-Dichloroethene	NC	N/A	N/A	0.18 U	0.14 U	0.23 U	0.21 U	0.17 U	0.18 U			
Trichloroethene	1.7	7	21	68	67	4.8	65	0.52	0.99			
Tetrachloroethene	27	N/A	N/A	10	10	5.7	4.1	0.29	0.18 U			

U = The compound was not detected at the reported concentration.

J = Analyte was positively identified. Reported result is an estimate below the associated reporting limit but above the method detection limit.

NC = Not calculated as analyte was not detected.

N/A = Not applicable.

Bold = Detected compound.

= Exceedance of screening criteria.

EPA = US Environmental Protection Agency

MTCA = Model Toxics Control Act

 $\mu g/m^3$  = Micrograms per cubic meter

<sup>&</sup>lt;sup>a</sup> MTCA Method B Indoor Air Screening Level adjusted for a commercial exposure scenario (adult only, 60 hours/week, 52 weeks/year).

<sup>&</sup>lt;sup>b</sup>4/19/16 samples were collected with exterior doors closed. 5/11/16 sample was collected with exterior doors open. 11/2/16 sample was collected after HVAC system modifications and with exterior doors closed.