



March 04, 2022

Director
Environmental Approvals Branch
Manitoba Environment, Climate and Parks
1007 Century Street
Winnipeg MB R3H 0W4
Canada

Dear Director,

SolutionAir a Price Industries Limited company is submitting their Environmental licence application. Based on a Class 2 Development under the *Classes of Development Regulation* M.R. 164/88 and as such would require a license under *The Environment Act*. Please find enclosed the following:

- 1) The Environment Act Proposal Form.
- 2) A \$7,500 cheque to the Minister of Finance for the Class 2 Developments application fee.
- 3) One flash drive containing an electronic version of SolutionAir's Environment License Proposal.
- 4) Two (2) hard copies of Price Industries Environment Act Proposal.

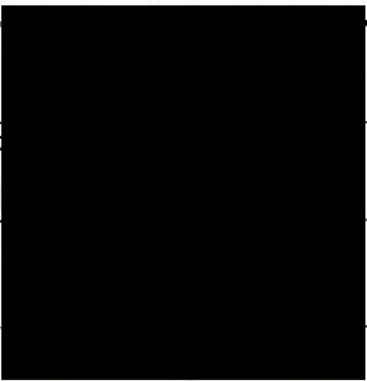
Please do not hesitate to contact me if you would like more information regarding this application. I am available by phone 204-633-4808 ext 5134 or by e-mail at chrisr@priceindustries.com.

Yours truly,

Chris Renaud
Health & Safety Coordinator

Environment Act Proposal Form



Name of the development: SolutionAir		
Type of development per Classes of Development Regulation (Manitoba): Class 2 - Manufacturing		
Legal name of the applicant: Price Industries Limited		
Mailing address of the applicant: 404 Egesz St		
Contact Person: Chris Renaud		
City: Winnipeg		Province: Manitoba
		Postal Code: R2R 1X5
Phone Number: (204) 633-4808 Fax:		email: chrisr@priceindustries.com
Location of the development: 404 Egesz St, Winnipeg, MB		
Contact Person: Chris Renaud		
Street Address: 404 Egesz		
Legal Description: Price Industries Limited		
City/Town: Winnipeg		Province: Manitoba
		Postal Code: R2R 1X5
Phone Number: (204) 633-4808 Fax:		email: chrisr@priceindustries.com
Name of proponent contact person for purposes of the environmental assessment: Chris Renaud		
Phone: (204) 633-4808	Mailing address: 404 Egesz St, Winnipeg, MB, R2R 1X5	
Fax:		
Email address: chrisr@priceindustries.com		
Webpage address: www.solutionairgroup.com		
Date: 2022-03-04	Signature of proponent, or corporate principal of corporate proponent: 	
	Printed name: Chris Renaud	

PRINT

RESET



5 Donwood Drive, Winnipeg, MB R2G 0V9
Phone (204) 668-3141
Email: contact@winnipegairtesting.com

SolutionAir
404 Egesz Street
Winnipeg, MB R2R 1X5

February 7, 2022

Project Number: 5295

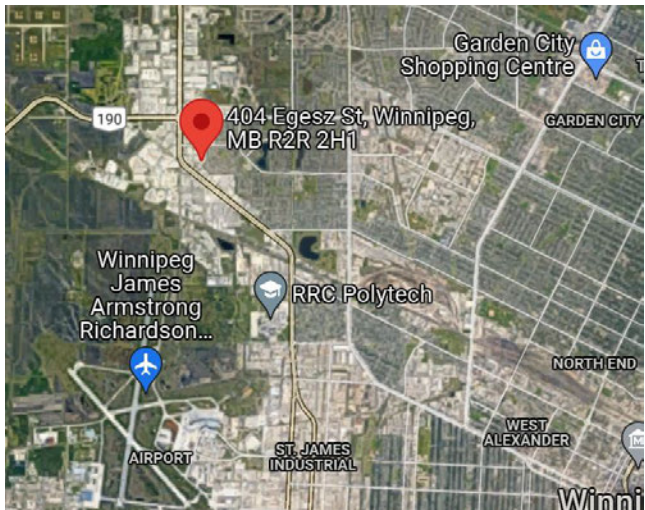
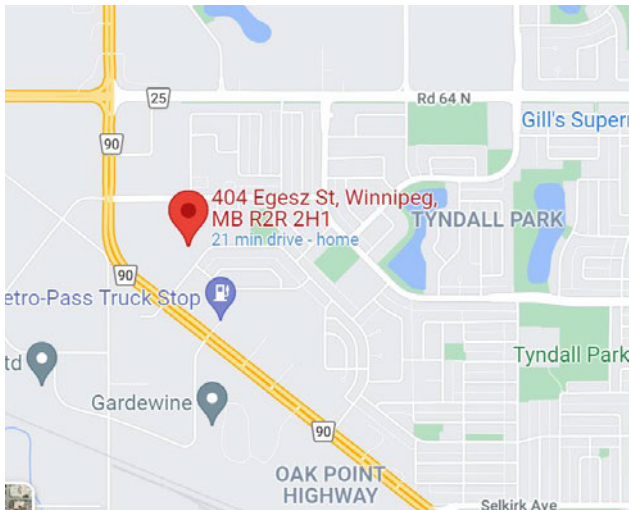
Environmental License

Executive Summary

The building is situated adjacent to similar industrial companies in the Inkster West neighbourhood. The plant is shared by both SolutionAir and Arow Global. Most of the processes performed in the facility are assembling and machine work, with a small amount of welding. Airborne emissions, noise, and other emissions to the environment are minimal.

Location

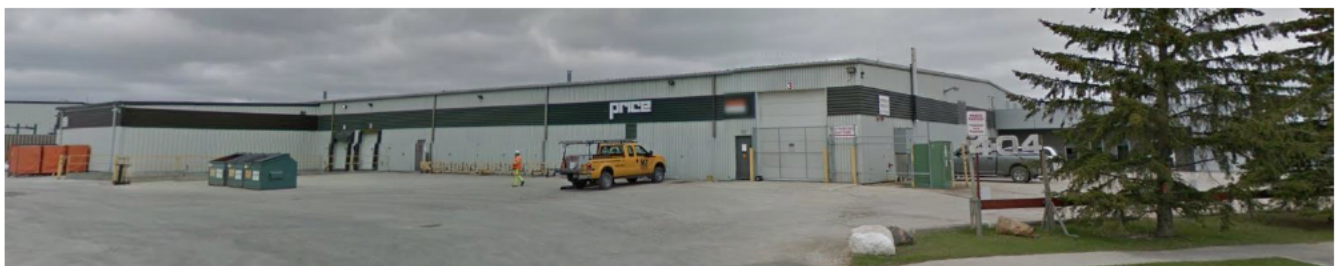
The site is located at 404 Egesz Street in the northwest section of Winnipeg adjacent to other industrial properties. The images below show the location of the facility and some of the surrounding properties.



Above. Images of the SolutionAir facility. Source: Google Maps.



The image above shows the size and layout of the lot. SolutionAir identified by red border. The building faces south towards Route 90. The parking lot for employees is located in the northeast portion of the property that in part, wraps around the Ryder Truck Rental property (also shown in the image).



Front of Building taken from Google Earth

The building is 170 meters wide at its longest point. The building occupies about half of the property with an employee parking lot and grass lawn on the north side and a small storage

yard located on the south side of the property. The property has ample parking on site so there is no impact on street parking in the area.

Existing Land Use

The site is a pre-existing building located in the Inkster West neighbourhood. The land is used for light manufacturing.

Nearby Transportation Routes

The building is located just 100 meters off of Route 90 (Oakpoint Highway). The building is also 800 meters from railway lines and is just 1 km away from the Richardson International Airport and directly on the main flight path.

Nearby Industries

The property is adjacent to the following businesses:

- Westrans Winnipeg Heavy Duty Parts
- Cummins Sales and Services
- Ryder Truck Rental
- Cervus Equipment Forklift Dealer

Nearby Residential Housing

The property is abutted by residential properties on the north and east.

Topography

The property is a typical urban industrial lot and has no significant topographical features in that it is essentially a flat grade with no water features. The property's topography is similar to its industrial neighbours.

Wildlife Fisheries and Vegetation

The property is a typical urban site. There are no forests, prairie bushes, marshes or waterways on or adjacent to the property. There is a string of trees along Egesz Street to help shield the property from view from the street. The lawn on the north side by the parking lot is residential grass and is mowed and maintained in the summer months.

The Manitoba Species and Ecosystems at Risk website was reviewed. There is no evidence that the site affects or puts at risk any of the species or ecosystems listed on the website.

Source: <https://www.gov.mb.ca/fish-wildlife/wildlife/ecosystems/index.html>

Local Surface Water Bodies

There are no waterways or standing water on the property. There are two artificial ponds nearby. The ponds are located in Cutler Park and Albina Park. The nearest body of water is approximately 700 meters from the property and separated by private residences.



Heritage Resources

The property is a small commercial site inside the boundaries of the City of Winnipeg. There are no known Heritage sites or resources located on the property.

Indigenous Communities

The facility is not anticipated to have any impacts on indigenous communities. The facility is already constructed and no new developments are included in the environmental assessment plan.

Industrial Processes

The facility is a modern and clean facility. The most common processes are standard operations for metal fabrication (laser cutting, shearing, etc) and assembly.

Laser

Laser is used to cut metals including steel, aluminum and stainless steel. The fumes produced by the cutting are collected in a filtration system and recycled.

Industrial Brakes

There a number of industrial brakes. The hydraulic oil is replaced periodically as part of normal maintenance. The used hydraulic oil is taken away with the maintenance company as part of the maintenance contract.

Welding

A very limited amount of welding is performed (typically 1 welder per shift). The welding is MIG welding on aluminium.

Refrigerant

Some of the pieces equipment are charged with refrigerant (Freon 410A). The freon is placed in the equipment and is shipped out as part of the equipment with no emission to the environment. There is no release of refrigerant from the process.

Electrical Department

The electrical department installs wiring into the final product. The process generates some small amount of metals scrap (pieces of wiring, etc) that is recycled.

There a number of vacuum pumps in the facility. The oil from vacuum pumps is disposed of through a hazardous waste company.

Foam Insulation Process

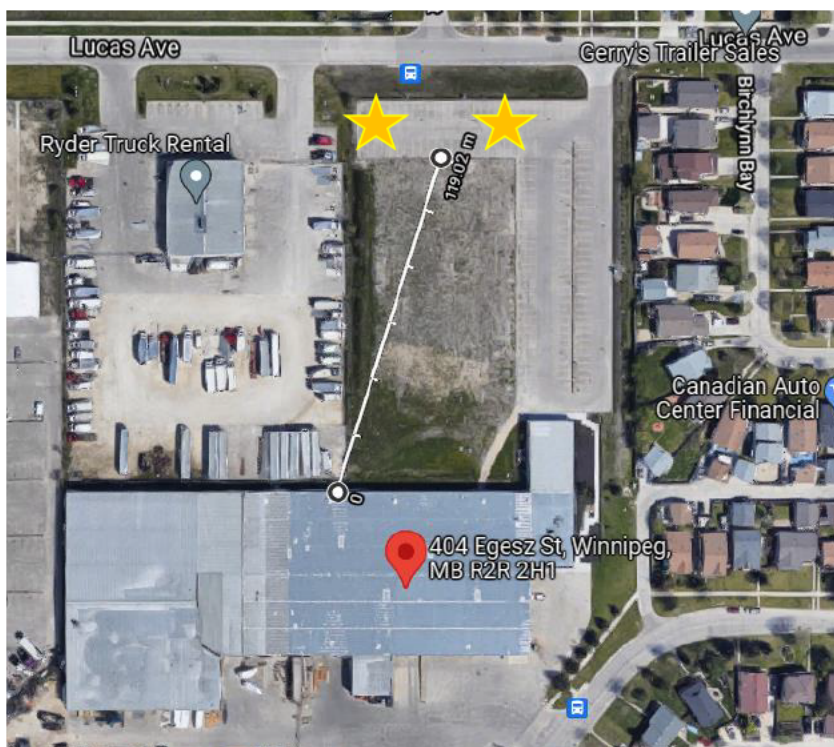
Foam insulation is injected into the frame of various pieces of equipment for thermal and insulation purposes. The process produces waste insulation foam.

Other

There is a spray booth on site but the booth is currently not used.

Downwind Emissions

The downwind emissions were evaluated using three broad parameters: dust, metals and volatile organic compounds (VOCs).



Two sampling locations were used. On the day of sampling there was a 10 km/hour wind out of the SSW. Sampling was performed on the north edge of the south lawn (and thus still on the property). The samples averaged 120 meters downwind of the plant.

It should be noted that while the samples are in a position to collect emissions from the facility, the sampling does not and cannot separate the emissions from the plant from emissions from other nearby facilities, by the other company

that shares the building, or the natural background of the area.

Many of the ambient air quality standards are based on a 24-hour period. The facility operates 16 hours per day. Sampling was performed during the day shift when the maximum activity in the facility would be expected. Sampling performed over a full 24 hours would include times that the facility is closed and thus would average out as a lower value than included in this report. Thus, the comparison of the sample results in this report to ambient standards based on 24 hours is conservative.

Total Dust

There is no process that exhausts dust from the facility. In fact, the processes inside the facility are well controlled with local exhaust systems so that there is no to minimal dust inside the facility. As a result, there is no exhaust stack or other point of emission from the local exhaust controls – other than for a small amount of welding (see metals sampling results below).

The downwind sampling was performed over a period of approximately 6.5 hours. For the dust samples, portable sampling pumps were used to draw air through preweighed filters at a flowrate of 3 litres per minute (lpm). The samples were subsequently analyzed at an AIHA-accredited laboratory using NIOSH (National Institute for Occupational Safety and Health) Method 0500.

Downwind Dust Sampling Results

Sample Location	Concentration (mg/m³)
West Sample	0.041
East Sample	0.042
Canadian National Air Quality Objective (24 Hour)	0.120

Canada uses a nation-wide criteria for PM₁₀ (those particles that are 10 microns in size or less). However, if the total dust levels (i.e., a sample that includes particles both less than 10 microns and also greater than 10 microns) is greater than the PM₁₀ guideline, then it must be concluded that the results are in compliance with the PM₁₀ criteria. The PM_{2.5} is 30 ug/m³. While the results do not necessarily rule out non-compliance, it is very unlikely that the PM_{2.5} from the plant is above the criteria. The 24-hour average PM_{2.5} values in urban settings from Canada averages about 6 ug/m³ with peak values as high as 17 – 27 ug/m³. If we subtract this lower level from the total dust results, the result would be less than 30 ug/m³. Bear in mind that facility does not operate on a 24-hour basis, and the facility was downwind of a major transportation artery on the day of the testing.

Source of PM_{2.5} data: <https://www.canada.ca/content/dam/eccc/documents/pdf/cesindicators/air-quality/air-quality-en.pdf>

Metals

The dust samples were also analyzed for metals. The samples were analyzed for a broad metal scan using NIOSH Method 7300.

Downwind Metals Sampling Results

Sample Location	Aluminum Concentration ($\mu\text{g}/\text{m}^3$)	Iron Concentration ($\mu\text{g}/\text{m}^3$)
West Sample	1.33	6.06
East Sample	<0.878	1.14
Ontario AAQC	120	4
10% of Workplace Exposure Limit	100	350*

AAQC = Ambient Air Quality Criteria

* iron portion of iron oxide TLV from ACGIH

There are no Manitoba air quality standards for metals. In fact, most jurisdictions do not have criteria for metals. To put the values in some context, some values are provided. The Ontario Ambient Air Quality Criteria (AAQC) is shown in the above table. The two samples average below the Ontario Criteria. In addition, the 24 average results would be lower as samples were collected while the plant was running but the plant only runs two shifts per day. In addition, as the company is located in an industrial area, there may be some background level of iron in the area. Secondly, it is common practice to use 10% of the occupational exposure limit as a rough guideline for acceptable exposure to the general population. While these two approaches are similar for aluminum, the Ontario guideline seems very conservative relative to 10% of the allowable workplace exposure.

The sample results were very low. The metals analysis included other metals not shown in the above table, but no other metals were detected in either sample. The full metal results are appended to this report.

VOCs

There are no specific processes that would emit or release VOCs (volatile organic compounds). For example, there is no spray painting or use of large amounts of solvents. As a general precaution, downwind sampling was performed for a broad scan of VOCs.

Downwind Total VOC Sampling Results

Sample Location	Concentration (mg/m^3)
West Sample	<0.200
East Sample	<0.200
Residential VOC Criteria	0.500

There was a trace amount of VOCs found in the samples. For example, in the West Sample, toluene was found at 1 part per billion (ppb) and xylene was found at 0.6 ppb. Additional VOC testing data has been appended to this report.

Solid Non-Hazardous Waste

Solid materials that cannot be recycled are disposed of through a waste management company. This type of waste includes non-recyclable packaging, personal protective equipment, damaged wood pallets, and similar items.

The solid waste is combined for the plant and disposed of under a single account. The quantities of non-hazardous solid waste disposed of through a waste management company for the last three years are as follows:

- 2019 – 175 MT
- 2020 – 161 MT
- 2021 – 133 MT

As shown by the data, efforts to reduce packaging waste and other efforts have resulted in a significant reduction in non-hazardous solid waste over time.

Hazardous Waste

The following information is based on 2020 data.

Category	Annual Volume	Comment / Example
Waste Adhesives	615	Waste Resin
Waste Paint	410	Paint sludge
Flammable Solids	None	Paint dust, paint filters
Waste Aerosols	None	
Flammable Liquids	None	Thinners, solvents
Waste Isocyanates	101	
Waste solids containing Flammable Liquids	205	Rags with flammable liquids
Waste Oil	410 205	Compressor Oil Cutting Oil
Flourescent Tubes	120	

Discharge to Sewer

There are very few processes that produce liquid waste. There is some waste oil but all such material is collected and disposed of through a hazardous waste company and none is discharged to sewer.

Noise

Daytime Measurements

Noise datalogging equipment was used to collect average noise levels during the day time. One sample was located on the south side of the building. This location would collect noise generated by the plant including any commercial or shipping trucks on the property. A second sample was located along Egesz at the end of the row of trees. The sample adjacent to the plant had an average noise level of 76.5 dBA. The sample taken along Egesz was 80.3 dBA.

The sample along Egesz had somewhat higher average noise levels due to community traffic noise (i.e., traffic along Egesz itself).



The yellow stars show the location of the two daytime noise sampling locations

Evening Measurements

Noise measurements were performed in the early evening using a handheld noise meter. This process allows both the levels of noise around the plant to be quantified and the source of the noise to be identified. At this time of night, the facility would be operating the second or afternoon shift.

November 27, 2021 7:45 PM

Location	Noise Level (dBA)	Comment
North Parking Lot	52 - 55	Mostly Route 90 and truck idling at Ryders. No noticeable noise from the plant.
South Side of Facility	42-44	Background level with no discernable source.
	52 - 62	Plane taking off from Richardson International Airport.
	47	Backup alarm on forklift from adjacent property.
	47	Dog barking in community.

Hazardous Waste Storage



There is an outside storage unit for hazardous waste waiting for collection by a hazardous waste unit. The unit is clearly posted and located behind a chain link fence to separate it from the public.

There are some empty drum storage on site as well. It is located at the west end of the lot and is shielded from view from the street by the plant itself. This area is also behind the chain link fence. There are typically 10 – 15 drums present at any time awaiting proper disposal.

Recycling

The plant recycles materials whenever possible. Examples include metal dust from the laser process and hydraulic oils from machinery.

Waste to Landfill

Nonhazardous waste sent to landfill is 133 MT. This is largely packaging and foam insulation trimmings / foam waste. It would also include some damaged wood pallets but there was no identified process or waste stream of material that goes to landfill.

Aesthetics

The building is neat and well maintained. There is minimal traffic to and from the facility and this traffic occurs during normal day hours. Employee parking is at the north end of the property that allows workers to enter off of Route 90 and enter the lot while passing only a couple of residential homes.

Potential for Chemical Spill

There is limited chemicals on site. The largest chemical by volume is likely compressor or hydraulic oil which is essentially non-toxic. It is extremely unlikely that there would be a chemical spill that would escape the building or in anyway impact the community.

Indigenous Communities

The small pre-existing urban lot would no impact on indigenous communities.

I hope this information is of assistance to you. Should you have any questions, or if we can be of any further assistance, please contact me at (204) 668-3141.

Sincerely,

Winnipeg Air Testing

Per:

A black rectangular box redacting the signature of Doug Wylie.

Doug Wylie, CIH, ROH, CRSP, CRM
Occupational Hygienist

Laboratory Results

Total Dust

Customer: Winnipeg Air Testing (4201)
Address: 5 Donwood Drive, Suite B
 Winnipeg, MB R2G 0V9

Order #:

Attn:
Project: Solution/AROW
Location:
Number: 5286

Matrix
Received
Analyzed
Reported

PO Number:

Sample ID	Cust. Sample ID	Location	Date	Pre-Wt	Post-Wt
Parameter	Method		Time		
447447-001		West	11/04/21	0.014953 g	
TND	NIOSH 0500			0.01500 g	
447447-002		East	11/04/21	0.012832 g	
TND	NIOSH 0500			0.01288 g	

Note: The total dust concentration is calculated by subtracting the preweight of the filter from the postweight. The West sample had a volume of 1150 liters and the east sample had a volume of 1140 liters.

For example, the West sample had a weight difference of 0.000047 grams (0.047 mg). 0.047 milligrams divided by 1140 liters (1.150 m³) equates to 0.041 mg/m³. The East sample had very similar laboratory results and sample volume.

Metal Concentrations Downwind

Project: Solution/AROW

Reported

11/18/21

Location:

Number: 5286

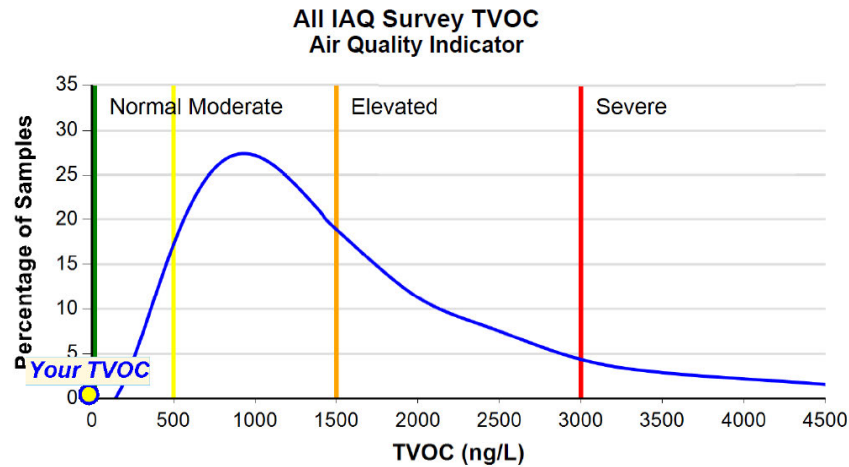
PO Number:

Sample ID	Cust. ID	Location	Date	Time	Flow	Volume
Parameter		Method		Total	RL*	Conc.
447447-001		West	11/04/21			1150 L
Aluminum		NIOSH 7300M		1.52 µg	1.00 µg	1.33 µg/m3
Antimony		NIOSH 7300M		<0.400 µg	0.400 µg	<0.349 µg/m3
Beryllium		NIOSH 7300M		<0.400 µg	0.400 µg	<0.349 µg/m3
Cadmium		NIOSH 7300M		<0.400 µg	0.400 µg	<0.349 µg/m3
Chromium		NIOSH 7300M		<1.00 µg	1.00 µg	<0.871 µg/m3
Cobalt		NIOSH 7300M		<0.400 µg	0.400 µg	<0.349 µg/m3
Copper		NIOSH 7300M		<1.00 µg	1.00 µg	<0.871 µg/m3
Iron		NIOSH 7300M		6.96 µg	1.00 µg	6.06 µg/m3
Lead		NIOSH 7300M		<0.400 µg	0.400 µg	<0.349 µg/m3
Manganese		NIOSH 7300M		<0.400 µg	0.400 µg	<0.349 µg/m3
Molybdenum		NIOSH 7300M		<0.400 µg	0.400 µg	<0.349 µg/m3
Nickel		NIOSH 7300M		<0.400 µg	0.400 µg	<0.349 µg/m3
Titanium		NIOSH 7300M		<0.400 µg	0.400 µg	<0.349 µg/m3
Vanadium		NIOSH 7300M		<0.400 µg	0.400 µg	<0.349 µg/m3
Zinc		NIOSH 7300M		<1.00 µg	1.00 µg	<0.871 µg/m3
447447-002		East	11/04/21			1140 L
Aluminum		NIOSH 7300M		<1.00 µg	1.00 µg	<0.878 µg/m3
Antimony		NIOSH 7300M		<0.400 µg	0.400 µg	<0.351 µg/m3
Beryllium		NIOSH 7300M		<0.400 µg	0.400 µg	<0.351 µg/m3
Cadmium		NIOSH 7300M		<0.400 µg	0.400 µg	<0.351 µg/m3
Chromium		NIOSH 7300M		<1.00 µg	1.00 µg	<0.878 µg/m3
Cobalt		NIOSH 7300M		<0.400 µg	0.400 µg	<0.351 µg/m3
Copper		NIOSH 7300M		<1.00 µg	1.00 µg	<0.878 µg/m3
Iron		NIOSH 7300M		1.30 µg	1.00 µg	1.14 µg/m3
Lead		NIOSH 7300M		<0.400 µg	0.400 µg	<0.351 µg/m3
Manganese		NIOSH 7300M		<0.400 µg	0.400 µg	<0.351 µg/m3
Molybdenum		NIOSH 7300M		<0.400 µg	0.400 µg	<0.351 µg/m3
Nickel		NIOSH 7300M		<0.400 µg	0.400 µg	<0.351 µg/m3
Titanium		NIOSH 7300M		<0.400 µg	0.400 µg	<0.351 µg/m3
Vanadium		NIOSH 7300M		<0.400 µg	0.400 µg	<0.351 µg/m3
Zinc		NIOSH 7300M		<1.00 µg	1.00 µg	<0.878 µg/m3

Note; only aluminium and iron were detected in either sample. All of the other metals were either not present in the ambient air or too low to detect.

Volatile Organic Compounds

VOCs - East Sample



VOCs by Source

Building Sources	Contamination Index Category	Estimated VOC Level (ng/L)	Severity	Source Prediction & Suggestions for VOC Reduction
	Coatings (Paints, Varnishes, etc.)	24	Normal	Includes interior and exterior paints (including low- or no-VOC paints), varnishes, lacquers, some sealants, and other products that can be classified as a coating over a surface. Typically, VOCs from these products are in the 10 to 14 carbon size range and can linger for several months after application, sometimes longer. Ventilate as much as possible during and after application of any of these products. Dispose of opened but unused products and related supplies if possible or store in areas that will minimize off gassing. Additional sources include fuel oil or diesel fuel.
	PVC Cement	0	Normal	PVC cement is used to join pieces of PVC pipe together, usually for plumbing.
	Building Materials-Toluene Based	0	Normal	Adhesives and glues used in construction and maintenance, arts and crafts; adhesive removers; contact cement; sealants; coatings (paint, polyurethane, lacquer, thinner); automotive products, including parts cleaners. Additional sources include gasoline and other fuels.
	Gasoline	28	Normal	VOCs from gasoline are typically a result of off-gassing from gas containers, small spills, and gas-powered equipment used in facilities maintenance in nearby garage or storage areas. Most vehicles in good operating condition do not emit gasoline vapors due to the tightly sealed gas tank. This category does not include exhaust emissions. Gasoline VOCs can linger on clothing after refueling at a gas station. Gasoline includes chemical compounds that are also included in the Light Solvents category.
	Fuel Oil, Diesel Fuel, Kerosene	0	Normal	Typically found in garages and facilities maintenance areas. These fuels are not very volatile so they will not readily get into the air, but they can linger for a long time and produce a strong, unpleasant odor. This category does not include exhaust emissions. Additional sources include coatings such as paints, varnishes, sealants, waxes, etc.
	Light Hydrocarbons	3	Normal	Building materials; aerosol cans; liquefied petroleum gas (LPG); refrigerant; natural gas; propellant; blowing agent. Includes chemical compounds such as propane, butane, and isobutane.
	Light Solvents	11	Normal	Stoddard solvent; mineral spirits; some coatings (paints, varnish, enamels, etc.); wax remover; adhesives; automotive products; light oils. Typically, VOCs from these products are in the 6 to 9 carbon size range.

Occupant Sources	Contamination Index Category	Estimated VOC Level (ng/L)	Severity	Source Prediction & Suggestions for VOC Reduction
	HFCs and CFCs (Freons TM)	1	Normal	Most often used as refrigerants for air conditioners and refrigerator/freezers and propellants for blown-in insulation, cushions, aerosol cans, etc. Many of these chemical compounds are being phased out because of the Montreal Protocol.
	Personal Care and Cleaning Products	9	Normal	Personal care products such as soap, deodorant, lotions, perfumes, hair coloring supplies, nail care supplies, oral hygiene products, etc. Cleaning agents such as surface, window, and flooring products, also restroom and antibacterial products. These products contain many VOCs that will dissipate if use is discontinued or reduced.
	Odorants and Fragrances	2	Normal	Air fresheners, scented cleaning products, and scented personal care products.
	Dry Cleaning Solvents	0	Normal	Typical dry-cleaning methods employ the use of carcinogenic chemicals. Dry-cleaning should be allowed to vent outside, without plastics bags, before being placed inside.

Specific VOCs identified in Sample

Compound	CAS	Estimated VOC Level (ng/L)	Estimated VOC Level (ppb)	Description
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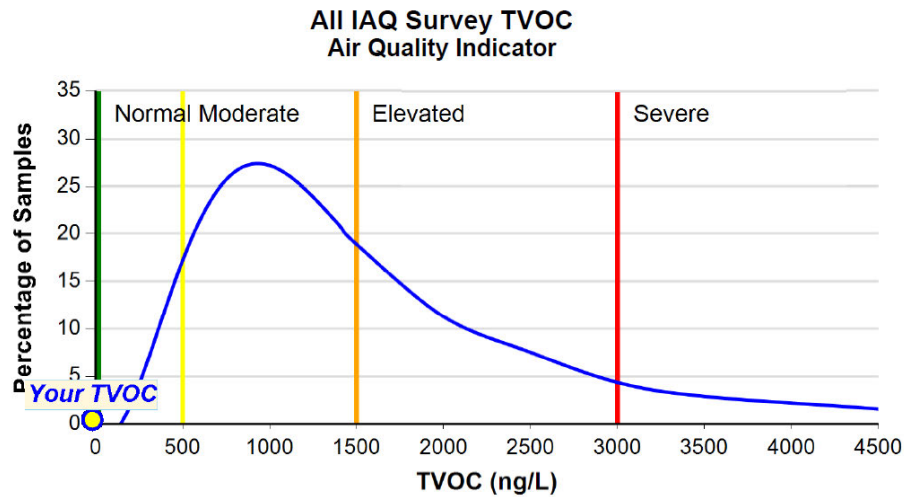
The notes below indicate any additional significant compounds present in this air sample or other noteworthy information.

No significant VOCs were detected in this air sample.

Standard List of Standard Solvents of Environmental Concern

Compound	CAS	Estimated VOC Level (ng/L)	Estimated VOC Level (ppb)	NIOSH Exposure Limit	Description
Carbonyl Sulfide	463-58-1	2	0.6	None Listed	Fumigant; contaminated drywall; fuel combustion byproduct; some foods; naturally occurring at low levels
Carbon Disulfide	75-15-0	< 1	< 0.3	3,000 ng/L (1,000 ppb)	Solvent; fumigant; contaminated drywall; combustion byproduct
Methylene Chloride	75-09-2	< 1	< 0.3	Carcinogen	Automotive products; degreasing solvent; paint stripper; adhesive remover; aerosol propellant; insecticide
Hexane (C 6)	110-54-3	< 1	< 0.3	180,000 ng/L (50,000 ppb)	Solvent; adhesive; grease; lubricant; paints and coatings; petroleum fuel component
1,1,1-Trichloroethane	71-55-6	< 1	< 0.2	C: 1,900,000 ng/L (350,000 ppb)	Adhesives, lubricants, cleaners, solvents
Benzene	71-43-2	< 1	< 0.3	320 ng/L (100 ppb)	Gasoline. Less common sources include some discontinued solvents; printing and lithography; paints and coatings; rubber; dry cleaning; adhesives; detergents
1,2-Dichloroethane	107-06-2	< 1	< 0.2	Carcinogen; 4,000 ng/L (1,000 ppb)	PVC production; solvent for rubber, insecticides, oils, waxes, gums, resins; rug and upholstery cleaners
Trichloroethene	79-01-6	< 1	< 0.2	Carcinogen	Dry cleaning; degreasers and cleaners for home/automotive; varnish removers; anesthetic
Methyl methacrylate	80-62-6	< 1	< 0.3	410,000 ng/L (100,000 ppb)	Acrylic Polymers for paints and coatings, adhesives, fillers; solvent; pharmaceuticals; personal care
Toluene	108-88-3	4	1	375,000 ng/L (100,000 ppb)	Gasoline; adhesives (building and arts/crafts); contact cement; solvent; heavy duty cleaner
Tetrachloroethene	127-18-4	< 1	< 0.1	Carcinogen	Dry cleaning; adhesives, automotive cleaners, polishes
Ethylbenzene	100-41-4	< 1	< 0.2	435,000 ng/L (100,000 ppb)	Gasoline; paints and coatings; solvent; pesticide
m,p-Xylene	108-38-3; 106-42-3	2	0.5	435,000 ng/L (100,000 ppb)	Gasoline; paints and coatings; adhesives and cements; solvent; print cartridges
o-Xylene	95-47-6	< 1	< 0.2	435,000 ng/L (100,000 ppb)	Gasoline; paints and coatings; adhesives and cements; solvent; print cartridges
Styrene	100-42-5	< 1	< 0.2	215,000 ng/L (50,000 ppb)	Polystyrene foam; synthetic rubber; flavoring agent
1,4-Dichlorobenzene	106-46-7	< 1	< 0.2	Carcinogen	Moth balls/crystals; room deodorant
Naphthalene	91-20-3	< 1	< 0.2	50,000 ng/L (10,000 ppb)	Gasoline; diesel; Moth balls/crystals; insecticide

West VOC Sample



VOCs by Source

Building Sources	Contamination Index Category	Estimated VOC Level (ng/L)	Severity	Source Prediction & Suggestions for VOC Reduction
	Coatings (Paints, Varnishes, etc.)	41	Normal	Includes interior and exterior paints (including low- or no-VOC paints), varnishes, lacquers, some sealants, and other products that can be classified as a coating over a surface. Typically, VOCs from these products are in the 10 to 14 carbon size range and can linger for several months after application, sometimes longer. Ventilate as much as possible during and after application of any of these products. Dispose of opened but unused products and related supplies if possible or store in areas that will minimize off gassing. Additional sources include fuel oil or diesel fuel.
	PVC Cement	0	Normal	PVC cement is used to join pieces of PVC pipe together, usually for plumbing.
	Building Materials-Toluene Based	0	Normal	Adhesives and glues used in construction and maintenance, arts and crafts; adhesive removers; contact cement; sealants; coatings (paint, polyurethane, lacquer, thinner); automotive products, including parts cleaners. Additional sources include gasoline and other fuels.
	Gasoline	34	Normal	VOCs from gasoline are typically a result of off-gassing from gas containers, small spills, and gas-powered equipment used in facilities maintenance in nearby garage or storage areas. Most vehicles in good operating condition do not emit gasoline vapors due to the tightly sealed gas tank. This category does not include exhaust emissions. Gasoline VOCs can linger on clothing after refueling at a gas station. Gasoline includes chemical compounds that are also included in the Light Solvents category.
	Fuel Oil, Diesel Fuel, Kerosene	0	Normal	Typically found in garages and facilities maintenance areas. These fuels are not very volatile so they will not readily get into the air, but they can linger for a long time and produce a strong, unpleasant odor. This category does not include exhaust emissions. Additional sources include coatings such as paints, varnishes, sealants, waxes, etc.
	Light Hydrocarbons	4	Normal	Building materials; aerosol cans; liquefied petroleum gas (LPG); refrigerant; natural gas; propellant; blowing agent. Includes chemical compounds such as propane, butane, and isobutane.
	Light Solvents	15	Normal	Stoddard solvent; mineral spirits; some coatings (paints, varnish, enamels, etc.); wax remover; adhesives; automotive products; light oils. Typically, VOCs from these products are in the 6 to 9 carbon size range.

Contamination Index Category	Estimated VOC Level (ng/L)	Severity	Source Prediction & Suggestions for VOC Reduction
HFCs and CFCs (Freons TM)	1	Normal	Most often used as refrigerants for air conditioners and refrigerator/freezers and propellants for blown-in insulation, cushions, aerosol cans, etc. Many of these chemical compounds are being phased out because of the Montreal Protocol.
Personal Care and Cleaning Products	10	Normal	Personal care products such as soap, deodorant, lotions, perfumes, hair coloring supplies, nail care supplies, oral hygiene products, etc. Cleaning agents such as surface, window, and flooring products, also restroom and antibacterial products. These products contain many VOCs that will dissipate if use is discontinued or reduced.
Odorants and Fragrances	3	Normal	Air fresheners, scented cleaning products, and scented personal care products.
Dry Cleaning Solvents	0	Normal	Typical dry-cleaning methods employ the use of carcinogenic chemicals. Dry-cleaning should be allowed to vent outside, without plastics bags, before being placed inside.

Specific VOCs identified in Sample

Compound	CAS	Estimated VOC Level (ng/L)	Estimated VOC Level (ppb)	Description
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The notes below indicate any additional significant compounds present in this air sample or other noteworthy information.

No significant VOCs were detected in this air sample.

Standard List of Standard Solvents of Environmental Concern

Compound	CAS	Estimated VOC Level (ng/L)	Estimated VOC Level (ppb)	NIOSH Exposure Limit	Description
Carbonyl Sulfide	463-58-1	2	0.7	None Listed	Fumigant; contaminated drywall; fuel combustion byproduct; some foods; naturally occurring at low levels
Carbon Disulfide	75-15-0	< 1	< 0.3	3,000 ng/L (1,000 ppb)	Solvent; fumigant; contaminated drywall; combustion byproduct
Methylene Chloride	75-09-2	< 1	< 0.3	Carcinogen	Automotive products; degreasing solvent; paint stripper; adhesive remover; aerosol propellant; insecticide
Hexane (C 6)	110-54-3	< 1	< 0.3	180,000 ng/L (50,000 ppb)	Solvent; adhesive; grease; lubricant; paints and coatings; petroleum fuel component
1,1,1-Trichloroethane	71-55-6	< 1	< 0.2	C; 1,900,000 ng/L (350,000 ppb)	Adhesives, lubricants, cleaners, solvents
Benzene	71-43-2	< 1	< 0.3	320 ng/L (100 ppb)	Gasoline. Less common sources include some discontinued solvents; printing and lithography; paints and coatings; rubber; dry cleaning; adhesives; detergents
1,2-Dichloroethane	107-06-2	< 1	< 0.2	Carcinogen; 4,000 ng/L (1,000 ppb)	PVC production; solvent for rubber, insecticides, oils, waxes, gums, resins; rug and upholstery cleaners
Trichloroethene	79-01-6	< 1	< 0.2	Carcinogen	Dry cleaning; degreasers and cleaners for home/automotive; varnish removers; anesthetic
Methyl methacrylate	80-62-6	< 1	< 0.3	410,000 ng/L (100,000 ppb)	Acrylic Polymers for paints and coatings, adhesives, fillers; solvent; pharmaceuticals; personal care
Toluene	108-88-3	4	1	375,000 ng/L (100,000 ppb)	Gasoline; adhesives (building and arts/crafts); contact cement; solvent; heavy duty cleaner
Tetrachloroethene	127-18-4	< 1	< 0.1	Carcinogen	Dry cleaning; adhesives, automotive cleaners, polishes
Ethylbenzene	100-41-4	< 1	< 0.2	435,000 ng/L (100,000 ppb)	Gasoline; paints and coatings; solvent; pesticide
m,p-Xylene	108-38-3; 106-42-3	3	0.6	435,000 ng/L (100,000 ppb)	Gasoline; paints and coatings; adhesives and cements; solvent; print cartridges
o-Xylene	95-47-6	< 1	< 0.2	435,000 ng/L (100,000 ppb)	Gasoline; paints and coatings; adhesives and cements; solvent; print cartridges
Styrene	100-42-5	< 1	< 0.2	215,000 ng/L (50,000 ppb)	Polystyrene foam; synthetic rubber; flavoring agent
1,4-Dichlorobenzene	106-46-7	< 1	< 0.2	Carcinogen	Moth balls/crystals; room deodorant
Naphthalene	91-20-3	< 1	< 0.2	50,000 ng/L (10,000 ppb)	Gasoline; diesel; Moth balls/crystals; insecticide