

**2025 Q1 ACUTE HEALTH RISK ASSESSMENT
REPORT
COMMERCE CITY NORTH DENVER
COMMUNITY AIR MONITORING NETWORK
COMMERCE CITY, COLORADO**

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Document Number: **317AA-049284-RT-792**
Report Period: **February 20, 2025 (Q1, 2025)**
Report Date: **April 3, 2026**



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EXECUTIVE SUMMARY

In response to community feedback Suncor Energy (U.S.A.) Inc. (Suncor) voluntarily developed an air monitoring program to gain insight into air quality for neighborhoods in the vicinity of Suncor's operations in Commerce City, Colorado in 2021. On December 31, 2024, Suncor became required to conduct community monitoring pursuant to CRS § 25-7-146(3)(a). Suncor, however, voluntarily engaged a third-party consultant to perform health risk assessments and publish reports of its monitoring results online. Montrose Environmental Group - Air Quality Services, LLC (Montrose) operates the air monitoring network in the Commerce City and North Denver (CCND) neighborhoods, and health scientists from CTEH, LLC (CTEH®) perform a screening-level human health risk assessment. A screening-level assessment compares exposure concentrations (ECs) to reference levels (RLs) set by state and/or federal guidance that represent exposure levels that protect public health and the environment.

Air monitoring under the program is continuous and near real-time, and uses three separate technical approaches:

- (1) Continuous, near real-time air monitoring for the following compounds using sensor technology: carbon monoxide (CO), sulfur dioxide (SO₂), hydrogen sulfide (H₂S), nitrogen dioxide (NO₂), particulate matter (PM_{2.5}), total volatile organic compounds (tVOCs), benzene, toluene, ethylbenzene, and xylenes;
- (2) Periodic (planned and triggered) air sample collection and laboratory analysis for the presence of 59 VOCs from evacuated canisters (colloquially referred to as "Summa" canisters); and
- (3) Periodic real-time air monitoring throughout six neighborhoods using a mobile monitoring van to detect the presence of 65 chemicals that are evaluated as 18 individual chemicals with the remaining 47 chemicals being combined into 12 chemical groups known as isomer groups.

This report details the second approach, which consists of two parts: collection of planned air samples and collection of unplanned (i.e., tVOC sensor-triggered air samples) over a 1-hour time period. A total of 13 planned air samples (1-hour) were collected: ten samples were collected from locations within the CCND neighborhoods, and an additional three background concentration samples were collected from non-CCND community monitoring reference locations. This report analyzes the planned air samples that were collected during the first quarter of 2025. Any unplanned air sample results are available in a separate report.

The risk assessment set out to determine whether measured concentrations of individual or cumulative (combined) VOCs could potentially be associated with an increased risk of acute (short-term) adverse health effects. The health risk calculations described in this report were performed per federal and state guidance. The risk assessment results for this reporting period indicate the following overall findings:

CCND Community Monitoring
February 20, 2025 (Q1 2025)

- All measured individual and cumulative air concentrations of detected VOCs in planned air samples collected on February 20, 2025 at the CCND and reference locations were below their respective acute health-based reference levels.
- The cumulative acute health risks calculated at each location were not above the level of concern (HI = 1).
- The measured concentrations of VOCs during this planned sampling event are not expected to be associated with an increased risk of adverse acute health effects, even for sensitive sub-populations.

1.0 INTRODUCTION

In response to community feedback received by Suncor Energy (U.S.A.) Inc. (Suncor) during community engagement that was conducted in the fall of 2020, Suncor voluntarily developed a continuous, near real-time air monitoring program to gain insight into the air quality for neighborhoods in the vicinity of Suncor's operations in Commerce City, Colorado in 2021. On December 31, 2024, Suncor became required to conduct community monitoring pursuant to CRS § 25-7-146(3)(a). Suncor, however, voluntarily engaged a third-party consultant to perform health risk assessments and publish reports of its air monitoring results online. Montrose Environmental Group - Air Quality Services, LLC (Montrose) was contracted by Suncor to deploy, operate, and maintain the network in the Commerce City and North Denver (CCND) neighborhoods, perform screening-level health risk assessments, and publish reports on the air monitoring results online.

Air monitoring was accomplished through three separate technical approaches:

- (1) Continuous, near real-time air monitoring for the following compounds using sensor technology: carbon monoxide (CO), sulfur dioxide (SO₂), hydrogen sulfide (H₂S), nitrogen dioxide (NO₂), particulate matter (PM_{2.5}), total volatile organic compounds (tVOCs), benzene, toluene, ethylbenzene, and xylenes;
- (2) Periodic (planned and triggered) air sample collection and laboratory analysis for the presence of 59 VOCs from Summa canisters; and,
- (3) Periodic real-time air monitoring throughout six neighborhoods using a mobile monitoring van to detect the presence of 65 chemicals that are evaluated as 18 individual chemicals with the remaining 47 chemicals being combined into 12 chemical groups known as isomer groups.

The objective of this report is to provide results from the planned canister sample collected in Q1 of 2025. The measured concentrations for these samples were compared to established acute (short-term) health-based reference levels and compared between CCND neighborhoods and reference locations. Air monitoring, sampling, and analysis from the first two approaches were conducted in accordance with the Quality Assurance Project Plan (QAPP) and are available online at www.ccnd-air.com/documents.

2.0 METHODS

2.1 Description of Air Monitoring Sites

Planned Summa canister one-hour samples were collected from a total of 13 sites. Ten samples were collected at existing air sensor locations throughout the CCND neighborhoods within a three-mile radius of Suncor operations. The locations are shown in Figure 1 and described in Table 1; they were selected based on the following criteria:

- Historical wind pattern data
- Proximity to Suncor operations and other stationary sources not operated by Suncor
- Existing infrastructure, as well as site access and safety
- Community feedback

An additional three samples were collected at non-CCND monitoring sites in urban and rural locations to serve as “reference locations” (Figure 2 and Table 2). These reference locations were: the E470-I25 Junction (JUNC), the Brighton Fire Department (BFD) station and the National Jewish Health (NJH) hospital. Reference location data represent what are known as “background” air conditions, which provide information on what compounds are normally present in the air when not including sources in the CCND and their concentration levels. The JUNC and BFD monitoring locations were chosen to represent rural background air conditions because they are approximately 13 miles north of the CCND network. The NJH location was selected to represent urban background air conditions because the location has been used as a source of comparative air data in the region by CDPHE.

FIGURE 1 MAP OF TEN CCND MONITOR LOCATIONS

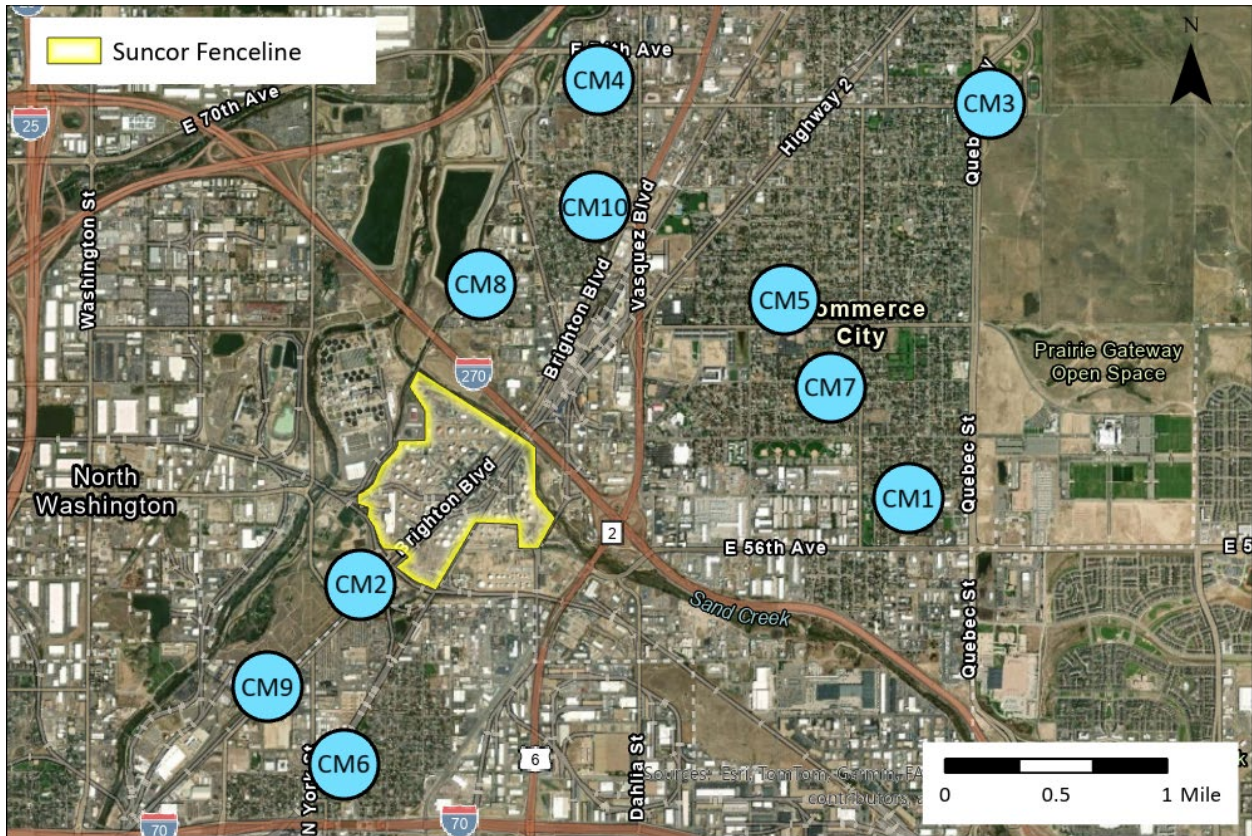


FIGURE 2 MAP OF THREE URBAN AND RURAL BACKGROUND SITES: E470/I25 (JUNC), BRIGHTON FIRE DEPARTMENT (BFD) AND NATIONAL JEWISH HEALTH (NJH)

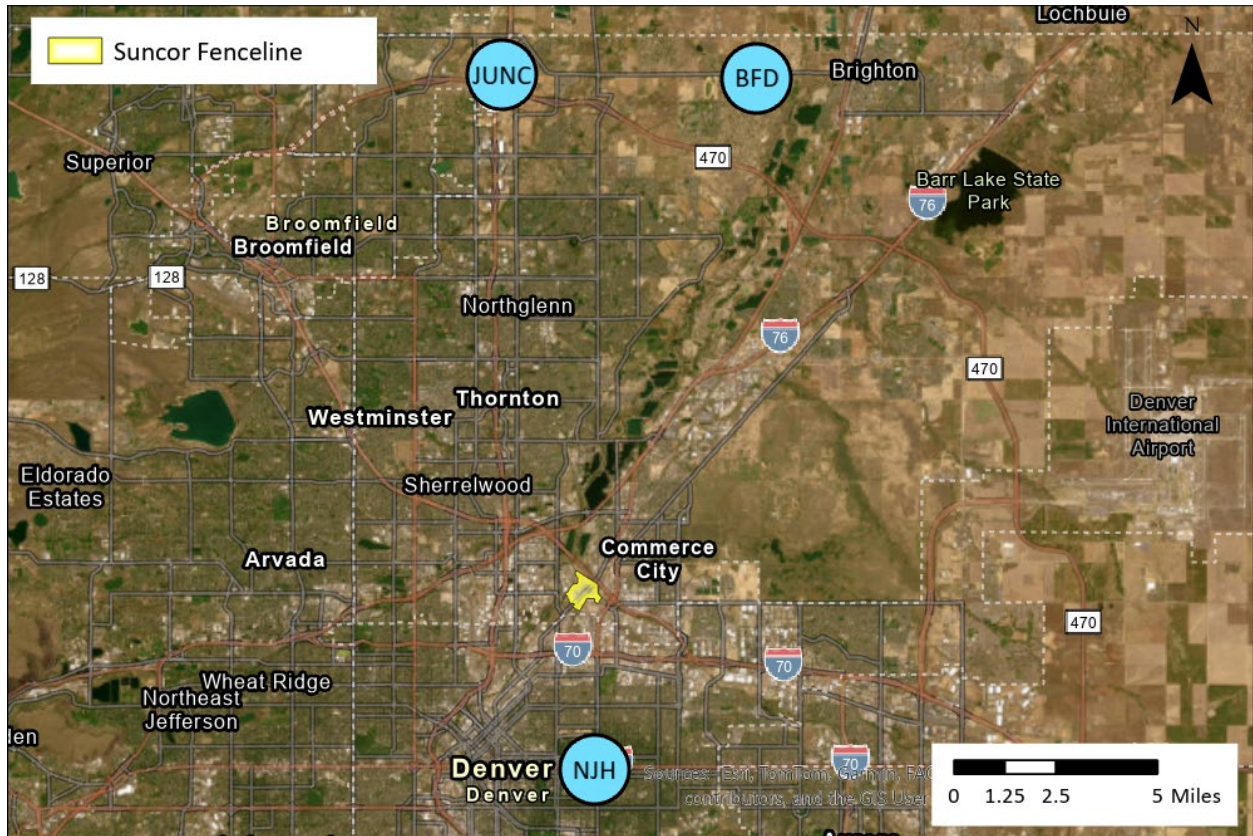


TABLE 1 CCND MONITORS AND SUMMA CANISTER SAMPLING LOCATIONS

Location ID	Secondary ID	GPS Coordinates	Distance from Center of Refining Operations (miles)	Cross Streets
CM1	Rose Hill Elementary School	39.80164, -104.90882	2.0	E. 58 th Ave. & Oneida St., Commerce City
CM2	Suncor Business Center	39.79606, -104.95518	0.7	Brighton Blvd. & York St., Commerce City
CM3	Adams City High School	39.82736, -104.90193	2.9	E. 72 nd Ave. & Quebec Pkwy, Commerce City
CM4	Adams City Middle School	39.82893, -104.93499	1.9	Birch St. & E. 72 nd Ave., Commerce City
CM5	Central Elementary School	39.81457, -104.91928	1.7	Holly St. & E. 64 th Ave., Commerce City
CM6	Focus Points Family Resource Center	39.78436, -104.95663	1.4	Columbine St. & 48 th Ave., Denver
CM7	Kearney Middle School	39.80888, -104.91545	1.7	E. 62 nd Ave. & Kearney St., Commerce City
CM8	Monroe	39.8156, -104.94503	0.85	Monroe St. & E. 64 th Ave., Denver
CM9	48th & Race	39.78455, -104.96264	1.7	East 48 th Ave. & Race St., Denver
CM10	Alsup Elementary School	39.82063, -104.93536	1.3	East 68 th Ave. & Birch St., Commerce City

TABLE 2 SUMMA CANISTER REFERENCE LOCATIONS

Location ID	Secondary ID	GPS Coordinates	Distance from Center of Refining Operations (miles)	Cross Streets
JUNC	E470/I25	39.98614, -104.98468	12.8	E. 160 th & Washington St., Thornton
BFD	Brighton	39.98512, -104.86665	13.1	Havana St. & Havana Way, Brighton
NJH	National Jewish Health	39.73904, -104.94215	4.10	Colorado Blvd. & East 14th Ave, Denver

2.2 Air Sampling Methods

Planned air samples were collected using Summa canisters during the first quarter of 2025 on February 20, 2025.

Entech Instruments Silonite™ CS1200E Passive Canister Samplers connected to 6-liter chemically inert stainless steel evacuated canisters (colloquially referred to as “Summa” canisters) were used to collect samples over a 1-hour period. The Summa canisters were cleaned and blanked for use according to laboratory standard operating procedures. Planned air samples were collected during a time when real-time instruments indicated total VOC concentrations to be less than the 1-ppm trigger level. All sampling and quality assurance procedures were performed by Montrose. All Summa canister field sampling followed the Standard Operating Procedure (SOP) provided in the QAPP available online at www.ccnd-air.com/documents.

The planned canister samples were shipped to Enthalpy Analytical in Deer Park, Texas. The United States Environmental Protection Agency (USEPA) Compendium Method TO-14A “*Determination of Volatile Organic Compounds (VOCs) in Ambient Air using Specially Prepared Canisters with Subsequent Analysis by Gas Chromatography*” and TO-15 entitled “*Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS)*” were followed for both sampling and analysis methodology. A total of 59 analytes were selected for analysis in this assessment, based on the typical suite of compounds monitored for in urban and industrial areas, accounting for laboratory analysis capabilities (Table 3).

TABLE 3 COMPOUNDS MEASURED IN SUMMA CANISTERS

	Compound Name	CAS Number	Reference Level Source	Reference Level (ppbv)	Method Detection Limit (ppbv)*
1	1-Butene†	106-98-9	TCEQ Short-Term AMCV	27,000	0.073
2	1-Hexene†	592-41-6	TCEQ Short-Term AMCV	500	0.087
3	1-Pentene†	109-67-1	TCEQ Short-Term AMCV	12,000	0.067
4	1,2,3-Trimethylbenzene†	526-73-8	TCEQ Short-Term AMCV	3,000	0.098
5	1,2,4-Trimethylbenzene‡	95-63-6	TCEQ Short-Term AMCV	3,000	0.035
6	1,3-Butadiene‡	106-99-0	OEHHA Acute REL	298	0.035
7	1,3-Diethylbenzene†	141-93-5	TCEQ Short-Term AMCV	450	0.12
8	1,3,5-Trimethylbenzene‡	108-67-8	TCEQ Short-Term AMCV	3,000	0.043
9	1,4-Diethylbenzene†	105-05-5	TCEQ Short-Term AMCV	450	0.13
10	2-Ethyltoluene†	611-14-3	TCEQ Short-Term AMCV	250	0.076
11	2-Methylheptane†	592-27-8	TCEQ Short-Term AMCV	4,100	0.072
12	2-Methylhexane†	591-76-4	TCEQ Short-Term AMCV	8,300	0.071
13	2-Methylpentane†	107-83-5	TCEQ Short-Term AMCV	5,400	0.072
14	2,2-Dimethylbutane†	75-83-2	TCEQ Short-Term AMCV	5,400	0.075
15	2,2,4-Trimethylpentane‡	540-84-1	TCEQ Short-Term AMCV	4,100	0.035
16	2,3-Dimethylbutane†	79-29-8	TCEQ Short-Term AMCV	5,400	0.072
17	2,3-Dimethylpentane†	565-59-3	TCEQ Short-Term AMCV	8,300	0.071
18	2,3,4-Trimethylpentane†	565-75-3	TCEQ Short-Term AMCV	4,100	0.072
19	2,4-Dimethylpentane†	108-08-7	TCEQ Short-Term AMCV	8,300	0.07
20	3-Methylheptane†	589-81-1	TCEQ Short-Term AMCV	4,100	0.057
21	3-Methylhexane†	589-34-4	TCEQ Short-Term AMCV	8,300	0.06
22	3-Methylpentane†	96-14-0	TCEQ Short-Term AMCV	5,400	0.096
23	4-Ethyltoluene‡	622-96-8	TCEQ Short-Term AMCV	250	0.035
24	Acetylene†	74-86-2	TCEQ Short-Term AMCV	25,000	0.073
25	Benzene‡	71-43-2	ATSDR Acute MRL	9	0.035
26	Butane†	106-97-8	TCEQ Short-Term AMCV	92,000	200
27	Carbon Disulfide‡	75-15-0	OEHHA Acute REL	1,991	0.035
28	cis-2-Butene†	590-18-1	TCEQ Short-Term AMCV	15,000	0.071
29	cis-2-Pentene†	627-20-3	TCEQ Short-Term AMCV	12,000	0.069
30	Cyclohexane‡	110-82-7	TCEQ Short-Term AMCV	1,000	0.035
31	Cyclopentane†	287-92-3	TCEQ Short-Term AMCV	5,900	0.061
32	Ethane†	74-84-0	NA	NA	260
33	Ethene†	74-85-1	TCEQ Short-Term AMCV	500,000	0.071
34	Ethylbenzene‡	100-41-4	ATSDR Acute MRL	5,000	0.035
35	Isobutane†	75-28-5	TCEQ Short-Term AMCV	33,000	0.046
36	Isopentane†	78-78-4	TCEQ Short-Term AMCV	68,000	0.046
37	Isoprene†	78-79-5	TCEQ Short-Term AMCV	1,400	0.063
38	Isopropylbenzene‡	98-82-8	TCEQ Short-Term AMCV	510	0.035
39	m-Ethyltoluene†	620-14-4	TCEQ Short-Term AMCV	250	0.06
40	m,p-Xylenes‡	179601-23-1	ATSDR Acute MRL	2,000	0.04
41	Methylcyclohexane†	108-87-2	TCEQ Short-Term AMCV	4,000	0.057
42	Methylcyclopentane†	96-37-7	TCEQ Short-Term AMCV	750	0.069
43	n-Decane†	124-18-5	TCEQ Short-Term AMCV	1,000	0.075
44	n-Dodecane†	112-40-3	CDPHE Acute	1,720	0.97
45	n-Heptane‡	142-82-5	TCEQ Short-Term AMCV	8,300	0.035
46	n-Hexane‡	110-54-3	TCEQ Short-Term AMCV	5,400	0.035
47	n-Nonane†	111-84-2	TCEQ Short-Term AMCV	3,000	0.05
48	n-Octane†	111-65-9	TCEQ Short-Term AMCV	4,100	0.053
49	n-Pentane†	109-66-0	TCEQ Short-Term AMCV	68,000	100
50	n-Undecane†	1120-21-4	TCEQ Short-Term AMCV	550	0.13
51	Naphthalene‡	91-20-3	TCEQ Short-Term AMCV	95	0.045
52	o-Xylene‡	95-47-6	ATSDR Acute MRL	1,700	0.035
53	Propane†	74-98-6	NA	NA	250
54	Propylbenzene‡	103-65-1	TCEQ Short-Term AMCV	510	0.035
55	Propylene†	115-07-1	NA	NA	0.06
56	Tetrachloroethene‡	127-18-4	ATSDR Acute MRL	6	0.035
57	Toluene‡	108-88-3	ATSDR Acute MRL	2,000	0.035
58	trans-2-Butene†	624-64-6	TCEQ Short-Term AMCV	15,000	0.068
59	trans-2-Pentene†	646-04-8	TCEQ Short-Term AMCV	12,000	0.073

*MDL values may vary depending on canister pressurization factors and/or any required dilutions; NA- Not Available; ppbv - parts per billion (volume); AMCV – Air Monitoring Comparison Value; MRL - Minimum Risk Level; REL - Reference Exposure Level; TCEQ - Texas Commission on Environmental Quality; ATSDR - Agency for Toxic Substances and Disease Registry; OEHHA - Office of Environmental Health Hazard Assessment; CDPHE - Colorado Department of Public Health and Environment; † Method EPA TO-14A; ‡ Method EPA TO-15

2.3 Reference Level Selection for Health Screening Risk Assessment

To perform a risk-based assessment, exposure concentrations must be compared to reference levels (RLs). Reference levels are established by state and federal agencies following extensive review and assume that, if the exposure levels fall below the RL, then no acute or chronic adverse effect is expected in human health and/or the environment, even for sensitive populations.

The RLs used in this report are from the Colorado Department of Public Health and Environment's (CDPHE) Fall 2019 Health Guideline Values.¹ The CDPHE's Fall 2019 Health Guideline Values adopted levels from other state and federal programs, including (Table 3):

- Agency for Toxic Substances and Disease Registry (ATSDR) acute minimum risk levels (MRL);
- California EPA Office of Environmental Health Hazard Assessment (OEHHA) Acute Reference Exposure Levels (REL); and
- Texas Commission on Environmental Quality (TCEQ) Air Monitoring Comparison Values (AMCVs).

CDPHE also derives some of its own Health Guideline Values.² If the chemical was not listed by CDPHE, CTEH[®] followed a federal and state recommended hierarchy for selection of RLs (Table 3).

By definition, the RLs used in this report are values that *"are set below levels that, based on current information, might cause adverse health effects in the people most sensitive."*² This is because RLs are based on observed toxicity in human or animal studies with an added safety factor to account for uncertainties and variabilities in the toxicity data. Therefore, these values are intended to represent the level at which there is no potential increased risk of adverse health effects being observed in a population, accounting for susceptible individuals. As such, if exposure is found to be above the RLs during the screening-level risk assessment, additional steps including a more nuanced exposure characterization, are required before determining if the population will experience changes in risk of adverse health effects.

In addition to RLs, the USEPA also has established values for use in emergency situations, termed Acute Exposure Guideline Levels (AEGLs) that are also presented as another point of comparison. Unlike RLs that can be thousands of times below exposure levels where adverse effects are observed, AEGL values are levels at which different acute adverse health effects may be anticipated to occur. However, a concentration above an AEGL-1 value does not necessarily mean that health effects will occur. According to USEPA, *"AEGL-1 represents exposure levels that could produce mild and progressively increasing but transient and non-disabling odor, taste, and sensory irritation or certain asymptomatic, non-sensory effects. With increasing airborne concentration above each AEGL, there is a progressive increase in the likelihood of occurrence*

¹ Colorado Department of Public Health and Environment, Oil and Gas Health Information Response Program, Toxicology and Risk Assessment Section, "Updated acute and chronic health guidance values for use in preliminary risk assessment" (September 20, 2019).

² https://www.atsdr.cdc.gov/minimal-risk-levels/php/about/?CDC_AAref_Val=https://www.atsdr.cdc.gov/mrls/index.html

*and the severity of effects described for each corresponding AEGL [i.e., AEGL-2 or AEGL-3].*³ The AEGL-1 60-minute value, if available for the applicable chemical, was also used for comparison purposes because it is more precautionary (than AEGL-2 or AEGL-3) as the AEGL-1 level reflects protecting against acute health effects that are reversible upon cessation of exposure.

2.4 Screening Health Risk Assessment Methods

To determine whether exposure to the detected concentrations of individual or cumulative (combined) chemicals in the air could potentially alter the risk of acute (short-term) health effects, CTEH[®] conducted a screening-level public health risk assessment, consistent with federal and state risk assessment guidelines. A tiered approach to this risk assessment was used. This approach involves one or more iterative steps (or tiers) being performed in which health risks are calculated and evaluated multiple times. In most cases, risk assessors cannot know exactly the level of chemical exposure experienced by individuals or communities. Therefore, the first tier involves the use of exposure assumptions that are health-conservative.

During this process, data reflecting the maximum exposure potential are assumed during the risk calculations. If this screening level risk assessment indicates the estimated community exposure is above the RL, it does not mean that adverse health effects are occurring or will occur, but rather a more detailed exposure characterization is required to determine whether the exposure is higher than the RL. For this assessment, CTEH[®] performed a screening-level risk assessment that used the maximum 1-hour canister measurement as the exposure concentration (EC) and the RLs provided by the CDPHE or other state/federal agencies to generate a hazard quotient (HQ). The HQ is a measure of risk that is calculated by dividing the EC by the corresponding RL for each compound individually (Eq. 1). In this assessment, HQs were generated for the individual chemicals and chemical groups (Table 3) with the lowest available risk level. Where the EC was determined to be below the detection limit, the method detection limit (MDL) reported by the laboratory was assigned.

Eq. 1 – Hazard Quotient (HQ) Equation

$$\text{Hazard Quotient (HQ)} = \frac{\text{Exposure Concentration (EC)}}{\text{Reference Level (RL)}}$$

The assumptions used in this assessment were chosen to be health protective in nature. First, the EC used was the 1-hour concentration of each measured compound. The EC value was likely higher than the actual average ambient air concentration as dispersion would likely result in decreased air concentrations over periods more than 1-hour. Second, the RLs used during the HQ calculation assume exposure occurs for 1-hour up to multiple days. This is because the RLs chosen are acute health hazard values, which are meant to be protective for up to 14 days of exposure. Overall, this set of assumptions uses a higher than likely exposure concentration and a lower threshold of concern for health outcomes, making it more health protective than other paradigms.

³ <https://www.epa.gov/aegl/about-acute-exposure-guideline-levels-aegls>

To determine the impact of cumulative chemical exposure a Hazard Index (HI) was generated. This is a process by which HQs are summed across chemicals (Eq. 2). This is a health-protective approach because it assumes that all the measured chemicals exert an adverse effect on the body in a similar manner, which is rarely the case. In this assessment, HIs were calculated by summing HQs across all individual chemicals and chemical groups in Table 2.

Eq. 2 – Hazard Quotient (HI) Equation

$$\text{Hazard Index (HI)} = \sum_i \text{HQ}_i$$

An HQ or HI of less than or equal to one is an indication that the estimated exposure is likely to be without an appreciable risk of adverse acute health effects, even for sensitive sub-populations⁴. As such, an exceedance of an acceptable risk level does not indicate that adverse health effects are likely but rather that “*health assessors may want to look more closely at a site where they find exposures higher than the MRLs*”⁵. In other words, an HQ or HI greater than one suggests a need to refine the risk assessment process with more realistic details of potential exposure to determine if risk exists.

3.0 RESULTS

3.1 Summary of Air Sampling Results

A total of 13, one-hour planned air samples were collected during the first quarter of 2025. Ten samples were collected from CCND sampling locations and three were collected from background reference locations. Summary details are presented in Table 4, and additional details are available in Appendix A and Appendix B.

⁴ USEPA. 2004. Air Toxics Risk Assessment Reference Library. Volume 1. U.S. Environmental Protection Agency Office of Air Quality Planning and Standards Research Triangle Park, NC. EPA-453-K-04-001A

⁵ <https://www.atsdr.cdc.gov/minimal-risk-levels/about/index.html>

TABLE 4 FEBRUARY 20, 2025 (Q1) PLANNED AIR SAMPLE DETECTION SUMMARY – CCND MONITORING LOCATIONS (ALL RESULTS IN PARTS PER BILLION BY VOLUME)

Compound Name	CAS Number	CCND Monitoring Locations			Reference Locations		
		# Samples	# Detections	Range of Detections (ppb)	# Samples	# Detections	Range of Detections (ppb)
1-Butene	106-98-9	10	3	0.19 - 0.24	3	0	< 0.15 - < 0.17
1-Hexene	592-41-6	10	0	< 0.11 - < 0.14	3	1	1.10
1-Pentene	109-67-1	10	8	0.16 - 0.24	3	2	0.19 - 0.20
1,2,3-Trimethylbenzene	526-73-8	10	0	< 0.10 - < 0.14	3	0	< 0.11 - < 0.12
1,2,4-Trimethylbenzene	95-63-6	10	10	0.03 - 0.11	3	2	0.05 - 0.05
1,3-Butadiene	106-99-0	10	9	0.04 - 0.30	3	2	0.04 - 0.04
1,3-Diethylbenzene	141-93-5	10	0	< 0.11 - < 0.14	3	0	< 0.12 - < 0.13
1,3,5-Trimethylbenzene	108-67-8	10	0	< 0.06 - < 0.08	3	0	< 0.06 - < 0.07
1,4-Diethylbenzene	105-05-5	10	0	< 0.08 - < 0.11	3	1	0.13
2-Ethyltoluene	611-14-3	10	0	< 0.12 - < 0.15	3	0	< 0.13 - < 0.14
2-Methylheptane	592-27-8	10	5	0.15 - 0.64	3	1	0.22
2-Methylhexane	591-76-4	10	10	0.20 - 0.41	3	2	0.15 - 0.31
2-Methylpentane	107-83-5	10	8	0.79 - 1.50	3	3	0.39 - 1.30
2,2-Dimethylbutane	75-83-2	10	3	0.14 - 0.18	3	0	< 0.12 - < 0.14
2,2,4-Trimethylpentane	540-84-1	10	10	0.05 - 0.21	3	3	0.02 - 0.18
2,3-Dimethylbutane	79-29-8	10	10	0.19 - 0.34	3	1	0.37
2,3-Dimethylpentane	565-59-3	10	9	0.22 - 0.50	3	3	0.17 - 0.35
2,3,4-Trimethylpentane	565-75-3	10	0	< 0.12 - < 0.16	3	0	< 0.13 - < 0.15
2,4-Dimethylpentane	108-08-7	10	2	0.14 - 0.54	3	0	< 0.13 - < 0.14
3-Methylheptane	589-81-1	10	3	0.12 - 0.15	3	0	< 0.12 - < 0.13
3-Methylhexane	589-34-4	10	4	0.17 - 0.20	3	1	0.12
3-Methylpentane	96-14-0	10	9	0.45 - 1.50	3	3	0.26 - 0.72
4-Ethyltoluene	622-96-8	10	0	< 0.03 - < 0.04	3	0	< 0.03 - < 0.04
Acetylene	74-86-2	10	10	1.70 - 3.40	3	3	0.61 - 1.50
Benzene	71-43-2	10	10	0.40 - 0.75	3	3	0.30 - 0.62
Butane	106-97-8	10	10	7.90 - 15.00	3	3	4.50 - 15.00
Carbon Disulfide	75-15-0	10	4	0.02 - 0.03	3	0	< 0.02 - < 0.02
cis-2-Butene	590-18-1	10	3	0.14 - 0.19	3	0	< 0.11 - < 0.13
cis-2-Pentene	627-20-3	10	1	2.20	3	0	< 0.13 - < 0.14
Cyclohexane	110-82-7	10	10	0.33 - 1.10	3	3	0.17 - 0.70
Cyclopentane	287-92-3	10	1	0.34	3	0	< 0.11 - < 0.13
Ethane	74-84-0	10	10	32.00 - 52.00	3	3	21.00 - 57.00
Ethene	74-85-1	10	10	2.60 - 6.50	3	3	1.40 - 2.60
Ethylbenzene	100-41-4	10	10	0.05 - 0.32	3	3	0.05 - 0.09
Isobutane	75-28-5	10	10	3.20 - 12.00	3	3	2.10 - 5.80
Isopentane	78-78-4	10	10	3.10 - 14.00	3	3	2.60 - 4.30

CCND Community Monitoring
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Compound Name	CAS Number	CCND Monitoring Locations			Reference Locations		
		# Samples	# Detections	Range of Detections (ppb)	# Samples	# Detections	Range of Detections (ppb)
Isoprene	78-79-5	10	1	0.16	3	0	< 0.13 - < 0.14
Isopropylbenzene	98-82-8	10	0	< 0.02 - < 0.03	3	0	< 0.02 - < 0.03
m-Ethyltoluene	620-14-4	10	1	0.18	3	1	0.14
m,p-Xylenes	179601-23-1	10	10	0.15 - 0.85	3	3	0.14 - 0.24
Methylcyclohexane	108-87-2	10	9	0.33 - 0.48	3	3	0.15 - 0.73
Methylcyclopentane	96-37-7	10	9	0.52 - 1.30	3	3	0.30 - 0.99
n-Decane	124-18-5	10	2	0.18 - 0.18	3	1	0.16
n-Dodecane	112-40-3	10	0	< 0.62 - < 0.81	3	0	< 0.68 - < 0.75
n-Heptane	142-82-5	10	10	0.36 - 0.60	3	3	0.21 - 0.90
n-Hexane	110-54-3	10	10	1.10 - 3.50	3	3	0.69 - 2.40
n-Nonane	111-84-2	10	1	0.13	3	1	0.23
n-Octane	111-65-9	10	2	0.14 - 0.23	3	0	< 0.12 - < 0.13
n-Pentane	109-66-0	10	10	2.90 - 42.00	3	3	1.50 - 5.30
n-Undecane	1120-21-4	10	0	< 0.12 - < 0.15	3	0	< 0.13 - < 0.14
Naphthalene	91-20-3	10	1	0.16	3	0	< 0.07 - < 0.07
o-Xylene	95-47-6	10	10	0.05 - 0.25	3	3	0.05 - 0.08
Propane	74-98-6	10	10	19.00 - 30.00	3	3	11.00 - 38.00
Propylbenzene	103-65-1	10	0	< 0.03 - < 0.04	3	0	< 0.03 - < 0.03
Propylene	115-07-1	10	10	0.37 - 1.50	3	3	0.20 - 0.47
Tetrachloroethene	127-18-4	10	10	0.03 - 0.27	3	1	0.04
Toluene	108-88-3	10	10	0.42 - 7.80	3	3	0.45 - 0.66
trans-2-Butene	624-64-6	10	7	0.12 - 0.34	3	1	0.12
trans-2-Pentene	646-04-8	10	1	0.13	3	0	< 0.13 - < 0.15

3.2 Screening Health Risk Assessment Results

The purpose of this screening health risk assessment was to determine whether exposure to the concentrations of individual or cumulative VOCs could potentially alter the risk of acute (short-term) health hazards. Acute health risks were estimated for each location for each substance both individually (HQ) and combined (HI). The calculated acute HQ and HI are summarized in Table 5 and Figure 3, and all data are presented in Appendix B. In general, the air sampling data and health risk assessment indicate:

- All measured individual and cumulative air concentrations of detected VOCs in the planned air samples collected on February 20, 2025 at the CCND and reference locations were below their respective acute health-based RLs (Table 5, Appendix B).
- The cumulative acute health risks calculated at each location were not above the level of concern (HI = 1).
- The measured concentrations of VOCs during this planned sampling event are not expected to be associated with an increased risk of adverse acute health effects, even for sensitive sub-populations (Table 5, Figure 3).

TABLE 5 FEBRUARY 20, 2025 (Q1) CCND SUMMA CANISTER SCREENING RISK ANALYSIS: COMPOUND-SPECIFIC HAZARD QUOTIENTS FOR PLANNED AIR SAMPLES – CCND MONITORING SITES

Compound Name	CAS Number	CCND Monitoring Location Hazard Quotients										Reference Locations Hazard Quotients		
		CM1	CM2	CM3	CM4	CM5	CM6	CM7	CM8	CM9	CM10	JUNC	BFD	NJH
1-Butene	106-98-9	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1-Hexene	592-41-6	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0002	0.0002	0.0002	0.0003	0.0002	0.0022
1-Pentene	109-67-1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1,2,3-Trimethylbenzene	526-73-8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1,2,4-Trimethylbenzene	95-63-6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1,3-Butadiene	106-99-0	0.0001	0.0002	0.0002	0.0002	0.0002	0.0004	0.0001	0.0010	0.0003	0.0002	0.0001	0.0001	0.0001
1,3-Diethylbenzene	141-93-5	0.0003	0.0002	0.0003	0.0003	0.0002	0.0003	0.0003	0.0003	0.0002	0.0003	0.0003	0.0003	0.0003
1,3,5-Trimethylbenzene	108-67-8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1,4-Diethylbenzene	105-05-5	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0002
2-Ethyltoluene	611-14-3	0.0005	0.0005	0.0005	0.0005	0.0005	0.0006	0.0006	0.0005	0.0005	0.0005	0.0006	0.0005	0.0005
2-Methylheptane	592-27-8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0001	0.0000
2-Methylhexane	591-76-4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2-Methylpentane	107-83-5	0.0001	0.0000	0.0002	0.0002	0.0003	0.0002	0.0002	0.0000	0.0002	0.0002	0.0001	0.0002	0.0001
2,2-Dimethylbutane	75-83-2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2,2,4-Trimethylpentane	540-84-1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2,3-Dimethylbutane	79-29-8	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0000	0.0000	0.0001	0.0000	0.0000	0.0001	0.0000
2,3-Dimethylpentane	565-59-3	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
2,3,4-Trimethylpentane	565-75-3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2,4-Dimethylpentane	108-08-7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
3-Methylheptane	589-81-1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3-Methylhexane	589-34-4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3-Methylpentane	96-14-0	0.0001	0.0001	0.0001	0.0001	0.0003	0.0002	0.0001	0.0000	0.0001	0.0001	0.0000	0.0001	0.0001
4-Ethyltoluene	622-96-8	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001
Acetylene	74-86-2	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000	0.0001
Benzene	71-43-2	0.0444	0.0633	0.0489	0.0544	0.0644	0.0833	0.0622	0.0667	0.0756	0.0556	0.0333	0.0689	0.0478

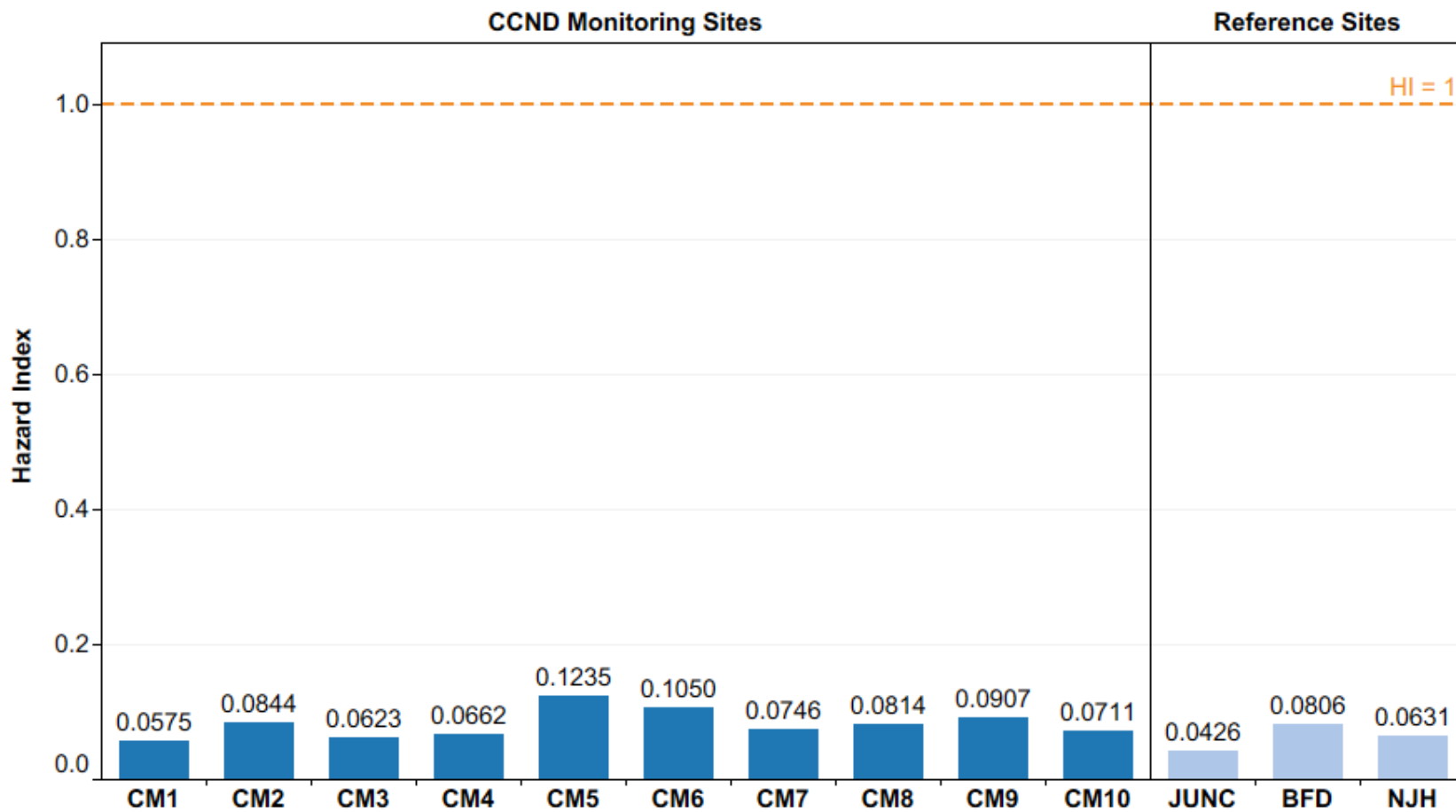
CCND Community Monitoring
February 20, 2025 (Q1 2025)

CCND Monitoring Location Hazard Quotients												Reference Locations Hazard Quotients		
Compound Name	CAS Number	CM1	CM2	CM3	CM4	CM5	CM6	CM7	CM8	CM9	CM10	JUNC	BFD	NJH
Butane	106-97-8	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0000
Carbon Disulfide	75-15-0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
cis-2-Butene	590-18-1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
cis-2-Pentene	627-20-3	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Cyclohexane	110-82-7	0.0003	0.0005	0.0004	0.0003	0.0011	0.0005	0.0004	0.0003	0.0005	0.0004	0.0002	0.0007	0.0002
Cyclopentane	287-92-3	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Ethane	74-84-0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethene	74-85-1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Ethylbenzene	100-41-4	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Isobutane	75-28-5	0.0001	0.0002	0.0001	0.0001	0.0004	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001
Isopentane	78-78-4	0.0000	0.0001	0.0001	0.0001	0.0002	0.0001	0.0000	0.0000	0.0001	0.0001	0.0000	0.0001	0.0001
Isoprene	78-79-5	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Isopropylbenzene	98-82-8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000
m-Ethyltoluene	620-14-4	0.0005	0.0005	0.0005	0.0005	0.0005	0.0007	0.0006	0.0005	0.0005	0.0005	0.0006	0.0006	0.0005
m,p-Xylenes	179601-23-1	0.0001	0.0002	0.0001	0.0001	0.0004	0.0003	0.0001	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001
Methylcyclohexane	108-87-2	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.0001	0.0001	0.0000	0.0002	0.0000
Methylcyclopentane	96-37-7	0.0007	0.0010	0.0007	0.0007	0.0017	0.0016	0.0008	0.0002	0.0009	0.0009	0.0004	0.0013	0.0009
n-Decane	124-18-5	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	0.0001
n-Dodecane	112-40-3	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
n-Heptane	142-82-5	0.0000	0.0001	0.0001	0.0000	0.0001	0.0001	0.0000	0.0001	0.0001	0.0000	0.0000	0.0001	0.0000
n-Hexane	110-54-3	0.0002	0.0003	0.0002	0.0002	0.0004	0.0006	0.0002	0.0002	0.0003	0.0003	0.0001	0.0004	0.0004
n-Nonane	111-84-2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000
n-Octane	111-65-9	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
n-Pentane	109-66-0	0.0000	0.0001	0.0001	0.0000	0.0006	0.0001	0.0000	0.0000	0.0001	0.0000	0.0000	0.0001	0.0000
n-Undecane	1120-21-4	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0002	0.0002	0.0002	0.0003	0.0002	0.0002
Naphthalene	91-20-3	0.0007	0.0006	0.0007	0.0007	0.0006	0.0007	0.0008	0.0017	0.0007	0.0007	0.0007	0.0007	0.0007
o-Xylene	95-47-6	0.0000	0.0001	0.0000	0.0000	0.0001	0.0001	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000

CCND Community Monitoring
February 20, 2025 (Q1 2025)

CCND Monitoring Location Hazard Quotients												Reference Locations Hazard Quotients		
Compound Name	CAS Number	CM1	CM2	CM3	CM4	CM5	CM6	CM7	CM8	CM9	CM10	JUNC	BFD	NJH
Propane	74-98-6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	103-65-1	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Propylene	115-07-1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	127-18-4	0.0067	0.0133	0.0067	0.0050	0.0450	0.0117	0.0050	0.0067	0.0067	0.0083	0.0033	0.0033	0.0067
Toluene	108-88-3	0.0002	0.0005	0.0003	0.0003	0.0039	0.0007	0.0002	0.0003	0.0010	0.0004	0.0002	0.0002	0.0003
trans-2-Butene	624-64-6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
trans-2-Pentene	646-04-8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hazard Index	--	0.0575	0.0844	0.0623	0.0662	0.1235	0.1050	0.0746	0.0814	0.0907	0.0711	0.0426	0.0806	0.0631

FIGURE 3 FEBRUARY 20, 2025 (Q1) - HAZARD INDEX BY AIR SAMPLING LOCATION FOR ALL PLANNED AIR SAMPLES



Hazard Index (HI) is the sum of all combined hazard quotients (HQ). According to EPA, a HI less than or equal to one (orange line) indicates that exposures are likely to be without any appreciable risk of adverse acute health effects, even for sensitive sub-populations.

3.3 Strengths and Limitations

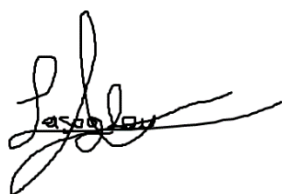
Scientific uncertainty is inherent in each step of the risk assessment process because all risk assessments incorporate a variety of assumptions and professional judgments^{6, 7}. Therefore, the acute health hazard estimates presented in this assessment are conditional estimates given a considerable number of assumptions about exposure and toxicity.

This screening-level inhalation risk assessment relied on a combination of health-protective exposure scenarios and input values (i.e., high-end exposures and health-protective selection of acute reference levels intended to reflect up to 14 days of exposure). Because of these assumptions, the estimates of acute hazards are likely to be over-estimates of actual risk. However, this risk assessment did not address past or present health outcomes associated with current or past exposures. As such, this risk assessment cannot be used to make realistic predictions of biological effects and/or used to determine whether someone is ill (cancer or other adverse health effects) due to past or current exposures. This risk assessment was limited to inhalation exposures from outdoor exposures to all potential sources. It can be used to inform on air quality in the CCND and guide decision-making.

4.0 PROGRAM CHANGES

There are no program changes.

Prepared by:



Antonios Tasoglou, PhD, PMP
Emerging Technology Manager
Montrose Air Quality Services

⁶ USEPA. 1989. Risk Assessment Guidance for Superfund, Vol. I: Human Health Evaluation Manual (Part A). EPA/540/1-89/002, Interim Final, Office of Emergency and Remedial Response, Washington DC

⁷ USEPA. 2004. Air Toxics Risk Assessment Reference Library. Volume 1. U.S. Environmental Protection Agency Office of Air Quality Planning and Standards Research Triangle Park, NC. EPA-453-K-04-001A

APPENDIX A

SAMPLE CHAINS OF CUSTODY



Air Chain of Custody Record

Turn Around Time (rush by advanced notice only)

Lab No: **0225-1007-101583** 10 Day: X 5 Day: 3 Day:
 Page: 1 of 1 2 Day: 1 Day: Custom TAT:

CUSTOMER INFORMATION

PROJECT INFORMATION

Company: MAQS Name: Suncor
 Report To: Curtis Neuhring Number: PROJ-022555
 Email: cu-neuhring@montrose-env.com P.O. #: PO-023647
 Address: 6270 Joyce Drive, Golden CO 80403 Address: N/A
 Phone: 815-520-0696 Global ID: N/A
 Fax: N/A Sampled By: MAQS - Denver

1 Hour Samples

+13 FC
 ① Label ID says "TOP GOLF". EGs 02-21-25

**Canister pressure may increase as samples are shipping to a different elevation

Analysis Requested

Sample ID (Location ID)	Type	Equipment Information			Sampling Information						Suncor List	
	(I) Indoor (A) Ambient (SV) Soil Vapor (S) Source	Canister ID	Size (1L, 3L, 6L, 15L)	Flow Controller ID	Sample Start Date	Sample Start Time	Vacuum Start ("Hg)	Sample End Date	Sample End Time	Vacuum End ("Hg)		
1	RBC (CM2)	A	C70722	6	16724	2/20/25	6:57 AM	25	2/20/25	7:57 AM	1	x
2	48th & Race (CM9)	A	44311	6	16728	2/20/25	7:15 AM	25	2/20/25	8:15 AM	1	x
3	Focus Points (CM6)	A	C70471	6	16711	2/20/25	7:00 AM	23	2/20/25	8:00 AM	1	x
4	Adams City High School (CM3)	A	C70745	6	14884	2/20/25	7:59 AM	25	2/20/25	8:59 AM	1	x
5	Central Elementary School (CM5)	A	C70495	6	16723	2/20/25	6:40 AM	24	2/20/25	7:40 AM	1	x
6	Rose Hill Elementary School (CM1)	A	44313	6	16727	2/20/25	7:45 AM	24	2/20/25	8:45 AM	1	x
7	Kearney Middle School (CM7)	A	C70490	6	15970	2/20/25	7:32 AM	24	2/20/25	8:32 AM	1	x
8	Alsup Elementary School (CM10)	A	C70710	6	1803	2/20/25	6:30 AM	25	2/20/25	7:30 AM	1	x
9	Adams City Middle School (CM4)	A	C70707	6	16720	2/20/25	7:45 AM	26	2/20/25	8:45 AM	1	x
10	Monroe Street (CM8)	A	C70592	6	16729	2/20/25	6:45 AM	25	2/20/25	7:45 AM	1	x
11	Brighton Fire Department (BFD)	A	C70501	6	16725	2/20/25	7:45 AM	25	2/20/25	8:45 AM	1	x
12	E470/125 (JUNC) ①	A	40115	6	16721	2/20/25	7:58 AM	24	2/20/25	8:58 AM	1	x
13	National Jewish Hospital (NJH)	A	C70719	6	16719	2/20/25	6:52 AM	23	2/20/25	7:52 AM	1	x

	Signature	Print Name	Company / Title	Date / Time
1 Relinquished By:	<i>CWNS</i>	Curtis Neuhring	Montrose / PM	2/20/2025 13:00
1 Received By:	<i>Elijah Salal</i>	Elijah Salal	Enthalpy/tech	02-21-25 @ 12:53
2 Relinquished By:				
2 Received By:				
3 Relinquished By:				
3 Received By:				

APPENDIX B

AIR SAMPLING RESULTS AND SCREENING RISK ASSESSMENT

CCND Community Monitoring
February 20, 2025 (Q1 2025)

Compound Name	Cas No.	AEGL 1 60 min Value (ppb)	Health Based Reference Level (ppb)	Source	CCND Monitoring Sites										Reference Sites		
					CM1 - Rose	CM2 - RBC	CM3 - Adams High School	CM4 - Adams Middle School	CM5 - Central Elementary	CM6 - Focus	CM7 - Kearney	CM8 - Monroe	CM9 - 48th and Race	CM10 - Alsop Elementary	JUNC - E470/I25	BFD - Brighton	NJH - National Jewish Health
1-Butene	106-98-9	NR	27,000	TCEQ Short-Term AMCV	< 0.15	0.19 (J)	< 0.15	< 0.15	< 0.14	0.24 (J)	< 0.18	< 0.15	0.2 (J)	< 0.15	< 0.17	< 0.15	< 0.15
1-Hexene	592-41-6	NR	500	TCEQ Short-Term AMCV	< 0.12	< 0.12	< 0.12	< 0.12	< 0.11	< 0.13	< 0.14	< 0.12	< 0.12	< 0.12	< 0.13	< 0.12	1.1
1-Pentene	109-67-1	NR	12,000	TCEQ Short-Term AMCV	0.18 (J)	0.16 (J)	0.16 (J)	0.16 (J)	< 0.13	0.24 (J)	0.17 (J)	0.2 (J)	0.18 (J)	< 0.14	0.19 (J)	0.2 (J)	< 0.14
1,2,3-Trimethylbenzene	526-73-8	140,000	3,000	TCEQ Short-Term AMCV	< 0.11	< 0.11	< 0.11	< 0.11	< 0.1	< 0.12	< 0.14	< 0.11	< 0.11	< 0.11	< 0.12	< 0.11	< 0.11
1,2,4-Trimethylbenzene	95-63-6	140,000	3,000	TCEQ Short-Term AMCV	0.03 (J)	0.07	0.04 (J)	0.05 (J)	0.07	0.11	0.04 (J)	0.08	0.09	0.06 (J)	0.05 (J)	< 0.02	0.05 (J)
1,3-Butadiene	106-99-0	670,000	298	OEHHA Acute REL	< 0.03	0.07	0.05 (J)	0.05 (J)	0.06	0.12	0.04 (J)	0.3	0.08	0.06 (J)	0.04 (J)	< 0.03	0.04 (J)
1,3-Diethylbenzene	141-93-5	NR	450	TCEQ Short-Term AMCV	< 0.12	< 0.11	< 0.12	< 0.12	< 0.11	< 0.12	< 0.14	< 0.12	< 0.11	< 0.12	< 0.13	< 0.12	< 0.12
1,3,5-Trimethylbenzene	108-67-8	140,000	3,000	TCEQ Short-Term AMCV	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07	< 0.08	< 0.06	< 0.06	< 0.06	< 0.07	< 0.06	< 0.06
1,4-Diethylbenzene	105-05-5	NR	450	TCEQ Short-Term AMCV	< 0.09	< 0.09	< 0.09	< 0.09	< 0.08	< 0.1	< 0.11	< 0.09	< 0.09	< 0.09	< 0.1	0.13 (J,b)	< 0.09
2-Ethyltoluene	611-14-3	NR	250	TCEQ Short-Term AMCV	< 0.13	< 0.13	< 0.13	< 0.13	< 0.12	< 0.14	< 0.15	< 0.13	< 0.13	< 0.13	< 0.14	< 0.13	< 0.13
2-Methylheptane	592-27-8	NR	4,100	TCEQ Short-Term AMCV	< 0.12	0.18 (J)	< 0.12	< 0.12	0.15 (J)	0.2 (J)	< 0.14	0.64	0.17 (J)	< 0.12	< 0.13	0.22 (J)	< 0.12
2-Methylhexane	591-76-4	NR	8,300	TCEQ Short-Term AMCV	0.2 (J)	0.34 (J)	0.22 (J)	0.23 (J)	0.37	0.41	0.23 (J)	0.32 (J)	0.34 (J)	0.23 (J)	< 0.15	0.31 (J)	0.15 (J)
2-Methylpentane	107-83-5	NR	5,400	TCEQ Short-Term AMCV	0.79	< 0.14	0.86	0.82	1.5	1.2	0.83	< 0.14	1.1	0.84	0.39 (J)	1.3	0.52
2,2-Dimethylbutane	75-83-2	NR	5,400	TCEQ Short-Term AMCV	< 0.13	0.17 (J)	< 0.13	< 0.13	< 0.11	0.18 (J)	< 0.15	< 0.12	0.14 (J)	< 0.12	< 0.14	< 0.12	< 0.13
2,2,4-Trimethylpentane	540-84-1	NR	4,100	TCEQ Short-Term AMCV	0.05 (J)	0.18	0.06 (J)	0.07	0.14	0.21	0.06 (J)	0.09	0.16	0.08	0.03 (J)	0.02 (J)	0.18
2,3-Dimethylbutane	79-29-8	NR	5,400	TCEQ Short-Term AMCV	0.19 (J)	0.25 (J)	0.2 (J)	0.19 (J)	0.34 (J)	0.27 (J)	0.2 (J)	0.2 (J)	0.29 (J)	0.2 (J)	< 0.15	0.37	< 0.14
2,3-Dimethylpentane	565-59-3	NR	8,300	TCEQ Short-Term AMCV	0.22 (J)	0.37	0.26 (J)	0.26 (J)	0.5	0.48	0.25 (J)	< 0.13	0.42	0.27 (J)	0.17 (J)	0.35 (J)	0.22 (J)
2,3,4-Trimethylpentane	565-75-3	NR	4,100	TCEQ Short-Term AMCV	< 0.13	< 0.13	< 0.13	< 0.13	< 0.12	< 0.14	< 0.16	< 0.13	< 0.13	< 0.13	< 0.15	< 0.13	< 0.13
2,4-Dimethylpentane	108-08-7	NR	8,300	TCEQ Short-Term AMCV	< 0.13	0.14 (J)	< 0.13	< 0.13	< 0.12	< 0.14	< 0.16	0.54	< 0.13	< 0.13	< 0.14	< 0.13	< 0.13
3-Methylheptane	589-81-1	NR	4,100	TCEQ Short-Term AMCV	< 0.12	0.12 (J)	< 0.12	< 0.12	< 0.11	0.15 (J)	< 0.14	< 0.12	0.12 (J)	< 0.12	< 0.13	< 0.12	< 0.12
3-Methylhexane	589-34-4	NR	8,300	TCEQ Short-Term AMCV	< 0.12	0.17 (J)	< 0.12	< 0.12	0.19 (J)	0.2 (J)	< 0.14	< 0.12	0.18 (J)	< 0.12	< 0.13	0.12 (J)	< 0.12
3-Methylpentane	96-14-0	NR	5,400	TCEQ Short-Term AMCV	0.45	0.74	0.49	0.49	1.5	1	0.47	< 0.15	0.66	0.56	0.26 (J)	0.72	0.56
4-Ethyltoluene	622-96-8	NR	250	TCEQ Short-Term AMCV	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04	< 0.03	< 0.03	< 0.03	< 0.04	< 0.03	< 0.03
Acetylene	74-86-2	NR	25,000	TCEQ Short-Term AMCV	1.7	2.4	1.7	2.3	1.8	3.3	1.9	2.5	3.4	2.7	1.1	0.61	1.5
Benzene	71-43-2	52,000	9	ATSDR Acute MRL	0.4	0.57	0.44	0.49	0.58	0.75	0.56	0.6	0.68	0.5	0.3	0.62	0.43
Butane	106-97-8	5,500,000	92,000	TCEQ Short-Term AMCV	10	15	11	8.7	8	11	10	7.9	12	8.5	5.1	15	4.5
Carbon Disulfide	75-15-0	13,000	1,990	OEHHA Acute REL	< 0.02	0.03 (J)	< 0.02	< 0.02	0.02 (J)	0.03 (J)	< 0.02	< 0.02	0.02 (J)	< 0.02	< 0.02	< 0.02	< 0.02
cis-2-Butene	590-18-1	NR	15,000	TCEQ Short-Term AMCV	< 0.12	0.19 (J)	< 0.12	< 0.12	< 0.1	0.14 (J)	< 0.14	< 0.11	0.14 (J)	< 0.11	< 0.13	< 0.11	< 0.12
cis-2-Pentene	627-20-3	NR	12,000	TCEQ Short-Term AMCV	< 0.13	< 0.13	< 0.13	< 0.13	2.2	< 0.14	< 0.15	< 0.13	< 0.13	< 0.13	< 0.14	< 0.13	< 0.13
Cyclohexane	110-82-7	NR	1,000	TCEQ Short-Term AMCV	0.33	0.48	0.37	0.34	1.1	0.5	0.37	0.34	0.47	0.36	0.17	0.7	0.19
Cyclopentane	287-92-3	NR	5,900	TCEQ Short-Term AMCV	< 0.11	0.34 (J)	< 0.12	< 0.12	< 0.1	< 0.12	< 0.14	< 0.11	< 0.11	< 0.11	< 0.13	< 0.11	< 0.12
Ethane	74-84-0	NR	NA	NA	44	36	41	34	32	38	44	34	52	34	25	57	21
Ethene	74-85-1	NR	500,000	TCEQ Short-Term AMCV	2.6	4.2	2.9	3.4	3.1	6.5	3	4	5.4	3.6	1.9	1.4	2.6
Ethylbenzene	100-41-4	33,000	5,000	ATSDR Acute MRL	0.05 (J)	0.11	0.06 (J)	0.08	0.32	0.18	0.07 (J)	0.09	0.14	0.09	0.05 (J)	0.05 (J)	0.09
Isobutane	75-28-5	NR	33,000	TCEQ Short-Term AMCV	4	5.6	3.9	3.2	12	5.1	4	3.3	4.5	3.6	2.1	5.8	2.9
Isopentane	78-78-4	NR	68,000	TCEQ Short-Term AMCV	3.2	8.2	4.7	4.3	14	8.9	3.3	3.1	7.3	5.2	2.6	4.3	4.2
Isoprene	78-79-5	NR	1,400	TCEQ Short-Term AMCV	< 0.13	< 0.13	< 0.13	< 0.13	0.16 (J)	< 0.14	< 0.16	< 0.13	< 0.13	< 0.13	< 0.14	< 0.13	< 0.13
Isopropylbenzene	98-82-8	50,000	510	TCEQ Short-Term AMCV	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.03	< 0.02	< 0.02	< 0.02	< 0.03	< 0.02	< 0.02
m-Ethyltoluene	620-14-4	NR	250	TCEQ Short-Term AMCV	< 0.13	< 0.13	< 0.13	< 0.13	< 0.12	0.18 (J)	< 0.15	< 0.13	< 0.13	< 0.13	< 0.14	0.14 (J)	< 0.13
m,p-Xylenes	108-38-3 & 130000	2,000	ATSDR Acute MRL	0.15	0.36	0.2	0.24	0.85	0.55	0.2	0.29	0.46	0.27	0.19	0.14	0.24	
Methylcyclohexane	108-87-2	NR	4,000	TCEQ Short-Term AMCV	0.33 (J)	0.48	0.39	0.34 (J)	0.41	0.44	0.37 (J)	< 0.12	0.46	0.35 (J)	0.19 (J)	0.73	0.15 (J)
Methylcyclopentane	96-37-7	NR	750	TCEQ Short-Term AMCV	0.52	0.77	0.55	0.52	1.3	1.2	0.6	< 0.13	0.71	0.66	0.3 (J)	0.99	0.65
n-Decane	124-18-5	NR	1,000	TCEQ Short-Term AMCV	< 0.13	< 0.13	< 0.13	< 0.13	0.18 (J)	< 0.14	< 0.15	0.18 (J)	< 0.13	< 0.13	< 0.14	0.16 (J)	< 0.13
n-Dodecane	112-40-3	NR	1,720	CDPHE Acute	< 0.69	< 0.67	< 0.69	< 0.69	< 0.62	< 0.73	< 0.81	< 0.68	< 0.68	< 0.68	< 0.75	< 0.68	< 0.69
n-Heptane	142-82-5	NR	8,300	TCEQ Short-Term AMCV	0.36	0.55	0.43	0.38	0.6	0.6	0.38	0.43	0.57	0.4	0.22	0.9	0.21
n-Hexane	110-54-3	NR	5,400	TCEQ Short-Term AMCV	1.1	1.4	1.2	1.1	1.9	3.5	1.2	1.3	1.4	1.6	0.69	2.4	2
n-Nonane	111-84-2	NR	3,000	TCEQ Short-Term AMCV	< 0.11	0.13 (J)	< 0.11	< 0.11	< 0.1	< 0.12	< 0.13	< 0.11	< 0.11	< 0.11	< 0.12	0.23 (J)	< 0.11
n-Octane	111-65-9	NR	4,100	TCEQ Short-Term AMCV	< 0.12	0.23 (J)	< 0.12	< 0.12	< 0.11	0.14 (J)	< 0.14	< 0.12	< 0.12	< 0.12	< 0.13	< 0.12	< 0.12
n-Pentane	109-66-0	NR	68,000	TCEQ Short-Term AMCV	3.2	4.3	3.4	3	42	3.8	3.3	2.9	3.6	3.1	1.5	5.3	1.6
n-Undecane	1120-21-4	NR	550	TCEQ Short-Term AMCV	< 0.13	< 0.12	< 0.13	< 0.13	< 0.12	< 0.13	< 0.15	< 0.13	< 0.12	< 0.13	< 0.14	< 0.13	< 0.13
Naphthalene	91-20-3	NR	95	TCEQ Short-Term AMCV	< 0.07	< 0.06	< 0.07	< 0.07	< 0.06	< 0.07	< 0.08	0.16	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07
o-Xylene	95-47-6	130000	1,700	ATSDR Acute MRL	0.05 (J)	0.11	0.06 (J)	0.07	0.25	0.17	0.06 (J)	0.09	0.14	0.09	0.06 (J)	0.05 (J)	0.08
Propane	74-98-6	5,500,000	NA	NA	28	24	26	19	30	22	28	19	24	20	13	38	11
Propylbenzene	103-65-1	NR	510	TCEQ Short-Term AMCV	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Propylene	115-07-1	NR	NA	NA	0.37 (J)	1.5	0.47	0.52	0.69	1.3	0.46	0.74	0.56	0.31 (J)	0.2 (J)	0.47	
Tetrachloroethene	127-18-4	35,000	6	ATSDR Acute MRL	0.04 (J)	0.08	0.04 (J)	0.03 (J)	0.27	0.07	0.03 (J)	0.04 (J)	0.04 (J)	0.05 (J)	< 0.02	< 0.02	0.04 (J)
Toluene	108-88-3	67,000	2,000	ATSDR Acute MRL	0.42	0.93	0.5	0.64	7.8	1.4	0.47	0.68	1.9	0.71	0.45	0.46	0.66
trans-2-Butene	624-64-6	NR	15,000	TCEQ Short-Term AMCV	0.12 (J)	< 0.11	0.14 (J)	0.17 (J)	0.19 (J)	0.29 (J)	< 0.14	< 0.11	0.34 (J)	0.14 (J)	< 0.13	< 0.11	0.12 (J)
trans-2-Pentene	646-04-8	NR	12,000	TCEQ Short-Term AMCV	< 0.13	0.13 (J)	< 0.14	< 0.14	< 0.12	< 0.14	< 0.16	< 0.13	< 0.13	< 0.13	< 0.15	< 0.13	< 0.14
Xylene (total)	1330-20-7	130000	2,000	ATSDR Acute MRL	0.2	0.47	0.26	0.31	1.1	0.72	0.26	0.37	0.6	0.36	0.25	0.19	0.32

Laboratory non-detections are reported as less than ("<") the MDL.

Result qualifiers are reported to the right of corresponding detections (in parentheses).

(J) flag indicates an estimated value when the concentration is below the reporting limit but above the method detection limit.

(B) flag indicates contamination was found in associated laboratory method blank.

(H) holding time was exceeded.

(b) Results for several targets are reported with high bias due to co-elution and other interferences. See laboratory report narrative.

NA = Not Available

NR = According to EPA, AEGL is "Not Recommended due to insufficient data"

Screening Legend

■ Detection (No Screening Value Established)

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