

**2025 Q2 MOBILE MONITORING VAN REPORT
COMMERCE CITY NORTH DENVER
COMMUNITY AIR MONITORING NETWORK
COMMERCE CITY, COLORADO**

Prepared For:

Suncor Energy (U.S.A.) Inc.
5801 Brighton Boulevard
Commerce City, CO 80022

Prepared By:

Montrose Air Quality Services, LLC
6270 Joyce Dr unit B,
Arvada, CO 80403

CTEH, LLC
5120 Northshore Drive
North Little Rock, AR 72118

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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 third approach: the real-time mobile monitoring approach. This report conducts a screening health risk assessment of the detected compounds. The mobile monitoring van contains equipment to measure air concentrations of chemical compounds at ultra-low concentrations. Specifically, the equipment measures sub-parts per billion (ppb) levels at an interval of one reading a second.

To collect this data, the van drove through six CCND residential neighborhoods within a three-mile radius of Suncor operations. For each neighborhood, the route was traversed at approximately 10 miles per hour (mph), and data was collected every one second for each of the 65 chemicals. During the second quarter of 2025, the mobile monitoring van collected 55,033 readings and meteorological data for every chemical across the six CCND neighborhoods. A risk assessment was subsequently conducted to determine if the maximum 1-hour average concentrations of individual or cumulative (combined) VOCs could potentially increase the risk of

acute (short-term) adverse health effects. The risk assessment followed federal and state guidelines. The air monitoring data and health risk assessment results for this reporting period indicate the following overall findings:

- All HQs were less than one for all detected chemicals and chemical groups, indicating that the maximum 1-hour rolling average concentration for each chemical was below its respective acute RL in all six neighborhoods (Figures 2 through 7).
- In this quarter, benzene, tetrachloroethylene, hydrogen sulfide, hexene group, trimethylbenzene group, and hydrogen cyanide were the chemicals or isomer groupings resulting in the highest HQ in each neighborhood, accounting for over 93% of the total calculated HI values. However, all HI values calculated in all six neighborhoods were below one (Figures 2 through 7).
- These results indicate that the measured concentrations of chemicals, both individually and cumulative (combined), are not likely to be associated with a 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.

This report details the third approach: the real-time mobile monitoring approach. Air monitoring, sampling, and analysis from the first two approaches were conducted in accordance with the Quality Assurance Project Plan (QAPP) that can be found online at ccnd-air.com/documents.

2.0 MOBILE SAMPLING PROGRAM

2.1 Mobile Van Air Sampling Description

The mobile monitoring van is a Mercedes 2500 Sprinter Van, which is outfitted with equipment necessary to identify and quantify individual chemical compounds present in ambient air to sub-part per billion (ppb) concentrations. Specifically, the mobile monitoring van is equipped with an Ionicon Model 6000-X2 proton transfer reaction time-of-flight mass spectrometer (PTR-TOF-MS). This instrument provides concentrations of select chemicals at ppb levels and as quickly as one measurement per second. The mobile monitoring van is outfitted with an external sampling system, which transports ambient air from outside of the van into the PTR-TOF-MS sample inlet for immediate real-time analysis. The entire sampling system is comprised of Teflon or Teflon-

coated materials, which ensures the lowest amount of sample loss due to surface absorption of chemical molecules. The mobile monitoring van incorporates a high-precision global positioning system (GPS), a sonic anemometer to measure wind direction and wind velocity. Specifically, an Ionicon Model 4000 PTR-TOF-MS was used for the April 28, 2025 – May 1, 2025 testing.

During the mobile monitoring program, the van's instrumentation measured the 18 chemicals and 12 chemical groups, that cover the 65 chemicals listed in Table 1. The groupings consist of compounds with the same chemical composition but different chemical structure (called isomers). Table 1 and Appendix A provide more detail on the usefulness of isomer grouping. Grouped compounds are assessed together as a single chemical group rather than as an individual chemical. Compounds selected for analysis are typical chemicals monitored in urban and industrial areas that are within analytical capabilities of the mobile monitoring van.

The details of the monitored neighborhoods are listed in Table 2 and are shown in Figure 1.

TABLE 1 MOBILE MONITORING VAN PROGRAM 30 INDIVIDUAL CHEMICALS AND CHEMICAL GROUPS MONITORED¹

Individual Chemicals			
1,3-Butadiene	Dodecanes	Methanol	Tetrachloroethylene
Acetylene	Ethylene	Methylcyclohexane	Toluene
Benzene	Hydrogen Cyanide	Nonanes	Undecanes
Carbon disulfide	Hydrogen Sulfide	Propylene	
Decanes	Isoprene	Styrene	
Grouped Chemicals			
Group Name	Specific Isomers	Group Name	Specific Isomers
<i>Butenes</i>	1-Butene cis-2-Butene trans-2-Butene	<i>Xylenes</i>	Ethyl Benzene o-Xylene m-Xylene p-Xylene
<i>Butanes</i>	iso-Butane n-Butane	<i>Dimethylcyclohexanes</i>	Ethylcyclohexane cis-1,3-Dimethylcyclohexane trans-1,2-Dimethylcyclohexane trans-1,3-Dimethylcyclohexane
<i>Cyclopentanes</i>	Cyclopentane 1-Pentene 2-Methyl-2-butene cis-2-Pentene trans-2-Pentene	<i>Octanes</i>	n-Octane 2-Methylheptane 3-Methylheptane 2,2,4-Trimethylpentane 2,3,4-Trimethylpentane
<i>Pentanes</i>	iso-Pentane n-Pentane neo-Pentane	<i>Trimethylbenzenes</i>	Cumene 1,2,4-Trimethylbenzene o-Ethyltoluene m-Ethyltoluene p-Ethyltoluene n-Propylbenzene 1,3,5-Trimethylbenzene
<i>Hexenes</i>	1-Hexene Cyclohexane Methylcyclopentane	<i>Diethylbenzenes</i>	o-Diethylbenzene m-Diethylbenzene p-Diethylbenzene All other C ₁₀ H ₁₄ Isomers
<i>Hexanes</i>	n-Hexane 2-Methylpentane 3-Methylpentane 2,2-Dimethylbutane 2,3-Dimethylbutane		
<i>Heptanes</i>	n-Heptane 2-Methylhexane 3-Methylhexane 2,3-Dimethylpentane 2,4-Dimethylpentane		

¹ See Appendix A for isomer analysis details.

TABLE 2 NEIGHBORHOOD MONITORING PROGRAM DETAILS

Neighborhood	Area (square miles)	Sampling Date	Start Time	End Time	Total Data Points Collected	Total Hourly Rolling Averages Calculated*
Adams City	0.41	4/30/2025	13:00	15:31	9,049	5,522
Dupont	1.4	4/30/2025	9:56	12:36	9,605	6,078
Elyria-Swansea	1.2	4/29/2025	12:47	15:02	8,091	4,564
Globeville	0.44	4/28/2025	14:36	16:50	8,078	4,551
Pioneer Park	1.7	5/1/2025	9:52	13:01	11,323	7,796
Western Hills	1.6	4/29/2025	9:48	12:16	8,887	5,360

*Data completeness threshold set at 98%

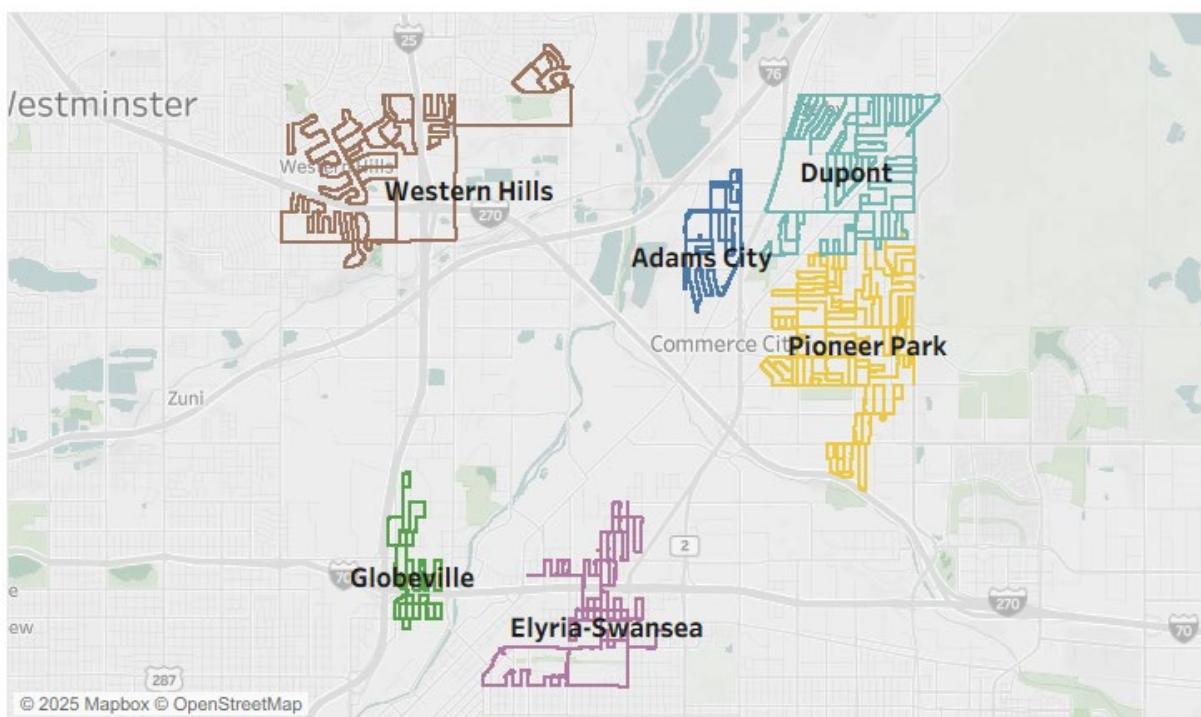
2.2 Mobile Monitoring Van Air Sampling Methods

The mobile van is equipped with a Proton-Transfer-Reaction Time-of-Flight Mass Spectrometry (PTR-TOF-MS) to measure VOCs in the air. To ensure the accuracy of the PTR-TOF-MS system, calibration was performed, and the instrument was zeroed each day prior to the collection of any ambient air data. The instrument was calibrated using United States Environmental Protection Agency (USEPA) protocol certified calibration gases. Not all chemicals listed in Table 1 are available as certified calibration gases. For chemicals with commercially available standards, the multi-chemical cylinder standards were used to perform a multiple point calibration. For the chemicals without commercially available standards, dilutions were made using an Environics Model 4040 gas dilution system. The gas dilution system was validated using the appropriate USEPA methodology (40 Code of Federal Regulation Part 51 Appendix M, Method 205). Next, zero-count measurements were obtained to ensure proper baseline measurements and were incorporated into the calculation of each chemical's concentration.

To ensure accuracy was maintained through the sampling process, zero-count measurements were performed through the entire sampling system using ultra-high purity air, and post-testing calibration checks were performed on the instrument to ensure there was no significant drift during the course of the sampling event. Instrument drift can cause an increase or decrease in the measured chemical concentrations, which can lead to either positive or negative biasing of the obtained results.

The mobile monitoring van collected continuous measurements throughout each neighborhood following the routes shown in Figure 1. The ambient air measurements were collected at a height of 15 feet above ground, at approximately 8 liters per minute, using a Teflon-coated sampling boom and pump. The PTR-TOF-MS sampled a slip stream of this flow at approximately 100 ml/min. The sample was introduced into the reaction tube of the PTR-TOF-MS and results were collected in 1-second intervals. For specific PTR-TOF-MS instrument operation conditions, see Appendix D attached.

FIGURE 1 MOBILE MONITORING VAN PROGRAM ROUTE THROUGH SIX NEIGHBORHOOD AREAS



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.² The CDPHE's Fall 2019 Health Guideline Values adopted levels from other state and federal programs including:

² 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).

- 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.³ If the chemical was not listed by CDPHE, CTEH[®] followed a federal and state recommended hierarchy for selection of RLs (Appendix C).

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.*”⁴ 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. 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 represent 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 and the severity of effects described for each corresponding AEGL [i.e., AEGL-2 or AEGL-3].*”⁵ 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.

³ 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).

⁴ <https://www.atsdr.cdc.gov/minimal-risk-levels/php/about/index.html>

⁵ <https://www.epa.gov/aegl/about-acute-exposure-guideline-levels-aegls>

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 that the estimated community exposure is above the RL, this does not indicate 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 rolling average 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 (18 total) and chemical groups (12 total; Table 2) with the lowest available risk level. Where the EC was determined to be below the detection limit, one half of the method detection limit 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 protective of human health. The first assumption was the grouping of chemicals into isomer groups. In a real-time PTR-TOF analysis, it is not possible to speciate isomers, or chemical compounds that have the same molecular weight. For example, n-hexane, 2-methyl pentane and 2,2-dimethyl butane all have a molecular mass of 86.178 g/mol. In order to provide the most health-protective determination of concentration during this mapping program, each isomer's concentration is reported by summing all the concentrations of isomers with the same molecular weight in the isomer group. Because of this, the screening-level risk assessment was undertaken for the individual chemicals and chemical groups (Table 2). One of the individual chemicals (propylene) did not have health-based RLs, resulting in its exclusion from the assessment but its concentrations were reported. Thus, the screening-level risk assessment includes acute risks from exposure to 17 (out of the 18 chemicals) and to 12 chemical groups, for a total of 29. In addition, the assessment includes acute risks from exposure to all the 29 measured compounds at once (cumulative).

The next assumption was to set the EC to the maximum 1-hour rolling average concentrations of each chemical in each of the six CCND neighborhoods. These were calculated by averaging a 1-hour time window of the 1-second air concentrations, and the time window moved (rolled) one second forward in time to calculate the next average. The window required 98% of 1-second readings (or 3,528 1-second concentrations) to calculate the average. If the window was below 98% it continued moving forward one second at a time until the 1-hour window contained 98% of 1-second readings. Using the maximum 1-hour rolling average for the EC conservatively assumes that a hypothetical maximally exposed individual occupies the monitored neighborhood and breathes the maximum 1-hour rolling average concentration continuously for an hour up to multiple days (an acute exposure). Averaging the 1-second concentrations to 1-hour reduces the variability in the data that is due to both measurement accuracy and potential transient sources which the monitoring van may encounter and sample, such as emissions from an idle truck (see notes in Appendix D). Averaging the concentrations provides an estimate closer to the real-world ambient air concentrations that the majority of individuals may be breathing in the CCND area. Across all neighborhoods, 33,871 1-hour rolling averages of air concentrations for each individual chemical and chemical group were calculated to derive the estimated ECs (Table 2). The range between the average and maximum 1-hour rolling averages provides a robust estimate of plausible ambient air concentrations in the monitored neighborhood while the mobile monitoring van was present (Figures 2-7).

The last assumption was to use the RLs in the HQ calculation that are based on exposures that occur for an hour up to 14 days (i.e., acute exposure). The AEGL-1 values, or the guidance values used in emergency situations that assume a single hour of exposure, are higher than the RL counterparts used in this analysis. Overall, this set of assumptions uses a higher-than-likely exposure concentration and a lower threshold level of concern for health effects, making this more health-protective than other approaches.

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

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

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-populations⁶. As such, an exceedance of an acceptable risk level (defined below) does not indicate that adverse health effects are likely but rather that “[h]ealth assessors may want to look more closely at a site

⁶ 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

where they find exposures higher than the MRLs”⁷. 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 SUMMARY AND DISCUSSION OF RESULTS

3.1 Summary of Mobile Monitoring Van Results

A summary of mobile monitoring van results by neighborhood can be found in Table 2. Over four days, six neighborhoods were monitored for 65 chemicals total (that are evaluated as 18 individual chemicals with the remaining 47 chemicals being combined into 12 chemical groups known as isomer groups), resulting in more than 55,033 total 1-second air measurement for each chemical. Individual neighborhood results are detailed in Figures 2-7. Each figure shows a map of the monitoring route within each neighborhood, the chemicals that resulted in the five highest calculated acute HQs, and the trends of the chemical concentration trends over time. The trend graphs show all the 1-second readings (orange) and calculated 1-hour rolling averages (green) of the ambient air concentrations. Each green 1-hour average concentration reflects the average of 1-second measurements collected over the previous hour. Thus, 1-hour rolling average concentrations are shown on the graphs after one hour of data collection (Figures 2-7).

Wind roses for each sampling day are provided in Appendix B. The data used to derive the wind roses were collected from the CCND community sensor location nearest to the neighborhood being monitored as the fixed meteorological station is more reliable than the station on the mobile monitoring van when the van is moving.

3.2 Screening Health Risk Assessment Results

Acute health risks were calculated for each neighborhood. According to USEPA guidelines, an acute HQ or HI less than or equal to one indicates that exposures are likely to be without any acute adverse health effects, even for sensitive sub-populations.

Figures 2 through 7 show concentrations of chemicals over the sampling time and summaries of results for compounds (or groups) resulting in the five highest HQs by neighborhood. The estimated HI shown in Figures 2 through 7 were calculated by summing the HQs of all detected chemicals measured in a given neighborhood. If any measured chemical resulted in a HQ greater than one, then a separate figure would be shown for that chemical alone. Complete results for HQs for all chemicals detected in each neighborhood are available in Appendix C.

In conclusion, the air concentrations collected during this study phase did not indicate a potential for acute adverse health effects, both individually and combined.

- All HQs were less than one for all detected chemicals and chemical groups, indicating that the maximum 1-hour rolling average concentration for each

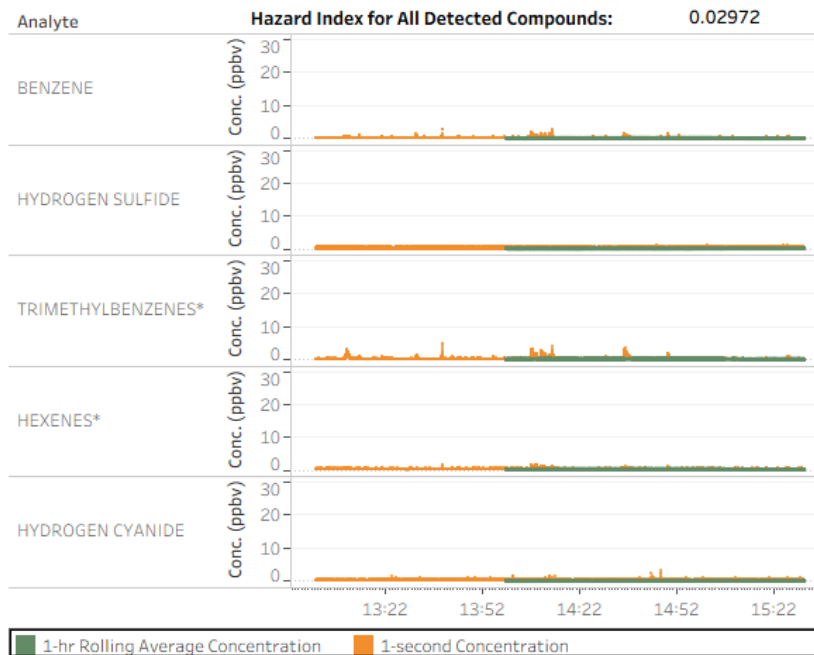
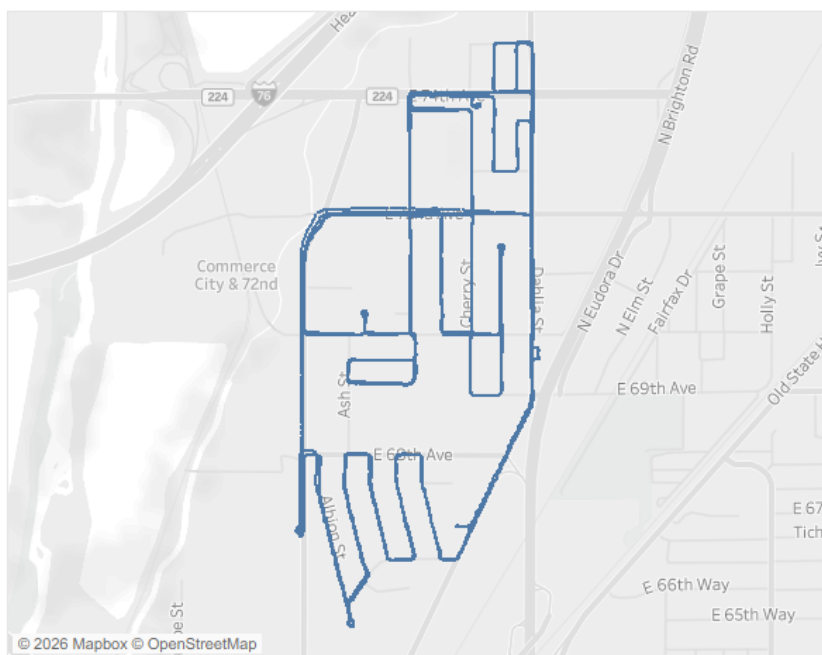
⁷ <https://www.atsdr.cdc.gov/minimal-risk-levels/about/index.html>

chemical was below its respective acute RL in all six neighborhoods (Figures 2 through 7).

- In this quarter, benzene, tetrachloroethylene, hydrogen sulfide, hexene group, trimethylbenzene group, and hydrogen cyanide were the chemicals or isomer groupings resulting in the highest HQ in each neighborhood, accounting for over 93% of the total calculated HI values. However, all HI values calculated in all six neighborhoods were below one (Figures 2 through 7).
- These results indicate that the measured concentrations of chemicals, both individually and cumulative (combined), are not likely to be associated with a risk of adverse acute health effects, even for sensitive sub-populations.

FIGURE 2 ADAMS CITY NEIGHBORHOOD: APRIL 30, 2025

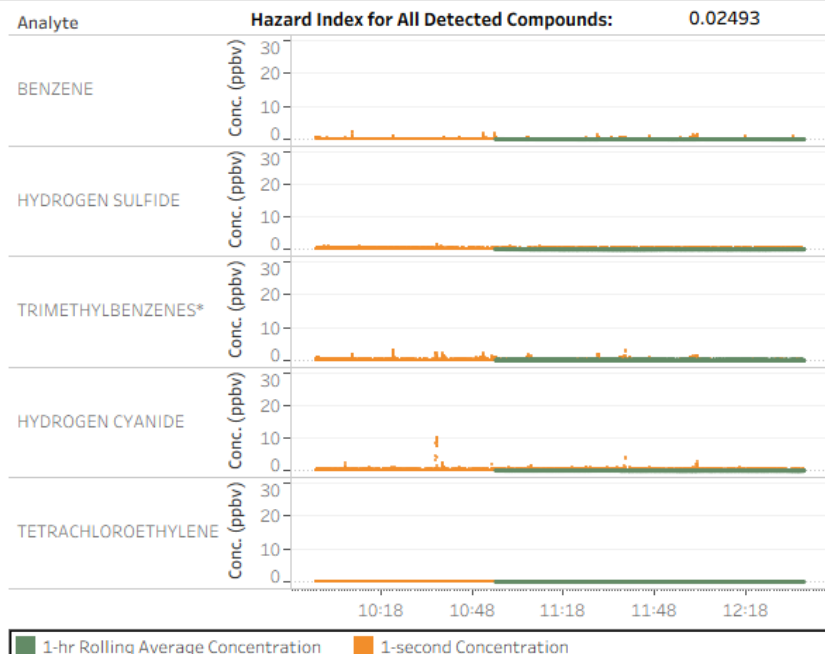
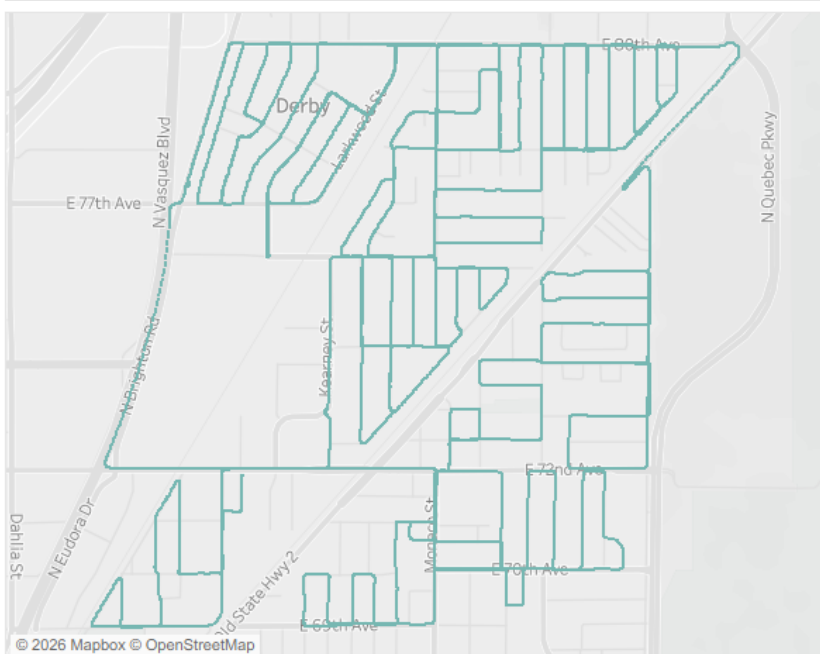
Analyte	Maximum 1-second Concentration (ppbv)	Count of 1-hr Rolling Averages Derived (#)	Average 1-hr Rolling Average (ppbv)	Maximum 1-hr Rolling Average (ppbv)	AEGL 1 60-min Value (ppbv)	Health Reference Level (ppbv)	Hazard Quotient
BENZENE	2.78	5,522	0.17	0.20	52,000	9	0.02193
HYDROGEN SULFIDE	0.98	5,522	0.20	0.22	510	70	0.00315
TRIMETHYLBENZENES*	4.65	5,522	0.31	0.36	NR	250	0.00144
HEXENES*	1.72	5,522	0.26	0.28	NR	500	0.00056
HYDROGEN CYANIDE	3.32	5,522	0.15	0.16	2,000	308	0.00052



The top 5 hazard quotients are reported in this dashboard. The hazard index represents cumulative risks including all unlisted analytes. The hazard quotient was calculated by comparing the acute health reference level to the maximum 1-hour rolling average. The comparative AEGL value is shown for comparison purposes. NR = According to EPA, the AEGL value is "not recommended due to insufficient data".
*For analyte isomer groups which were unable to be differentiated, the lowest health reference value of the group was selected for use in this assessment (Appendix A).

FIGURE 3 DUPONT NEIGHBORHOOD: APRIL 30, 2025

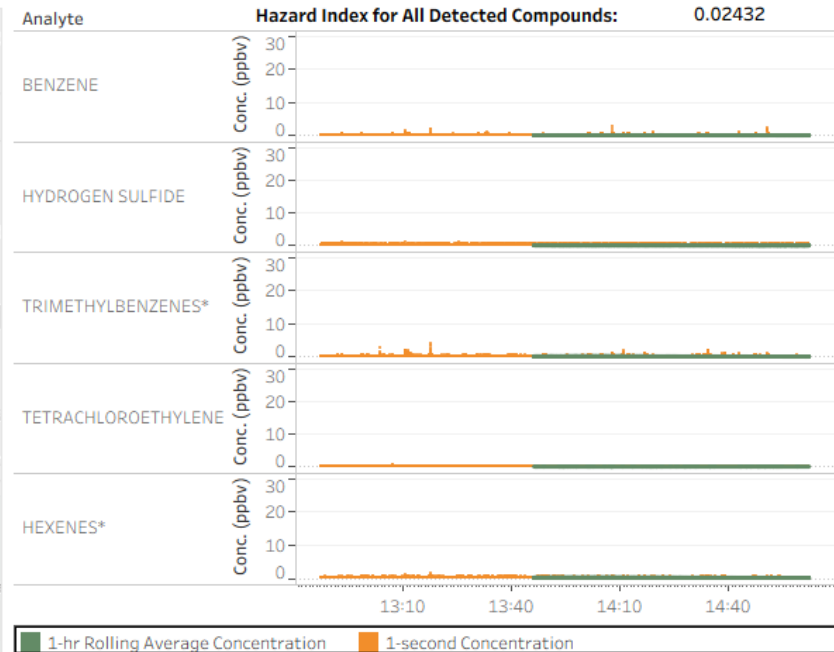
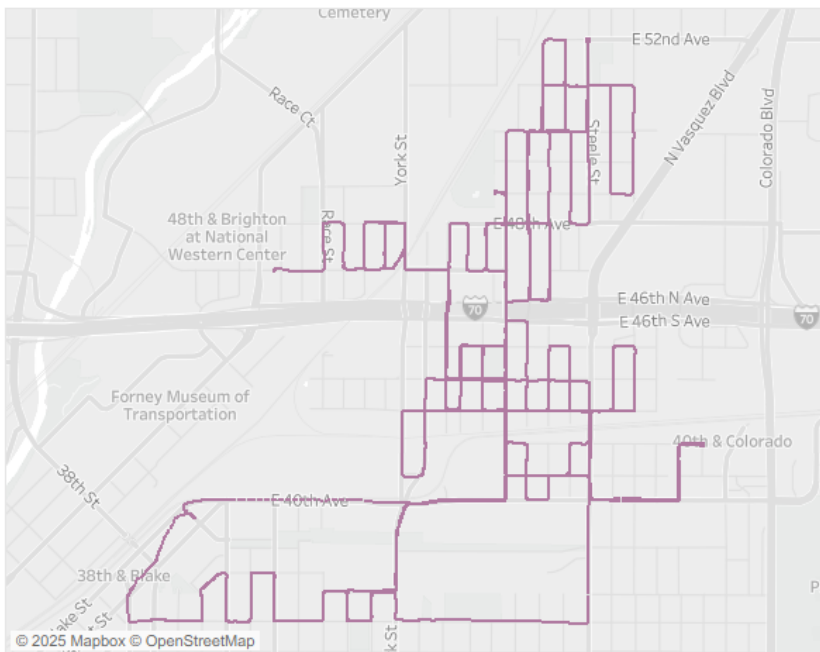
Analyte	Maximum 1-second Concentration (ppbv)	Count of 1-hr Rolling Averages Derived (#)	Average 1-hr Rolling Average (ppbv)	Maximum 1-hr Rolling Average (ppbv)	AEGL 1 60-min Value (ppbv)	Health Reference Level (ppbv)	Hazard Quotient
BENZENE	2.17	6,078	0.15	0.17	52,000	9	0.01894
HYDROGEN SULFIDE	1.48	6,078	0.12	0.15	510	70	0.00213
TRIMETHYLBENZENES*	3.15	6,078	0.30	0.32	NR	250	0.00130
HYDROGEN CYANIDE	10.22	6,078	0.17	0.19	2,000	308	0.00060
TETRACHLOROETHYLENE	0.02	6,078	0.00	0.00	35,000	6	0.00041



The top 5 hazard quotients are reported in this dashboard. The hazard index represents cumulative risks including all unlisted analytes. The hazard quotient was calculated by comparing the acute health reference level to the maximum 1-hour rolling average. The comparative AEGL value is shown for comparison purposes. NR = According to EPA, the AEGL value is "not recommended due to insufficient data".
*For analyte isomer groups which were unable to be differentiated, the lowest health reference value of the group was selected for use in this assessment (Appendix A).

FIGURE 4 ELYRIA-SWANSEA NEIGHBORHOOD: APRIL 29, 2025

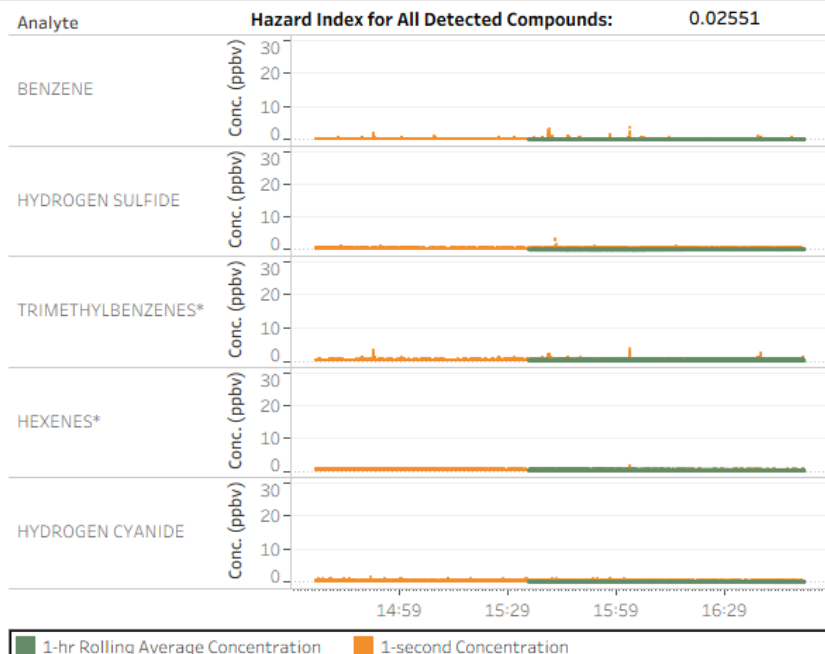
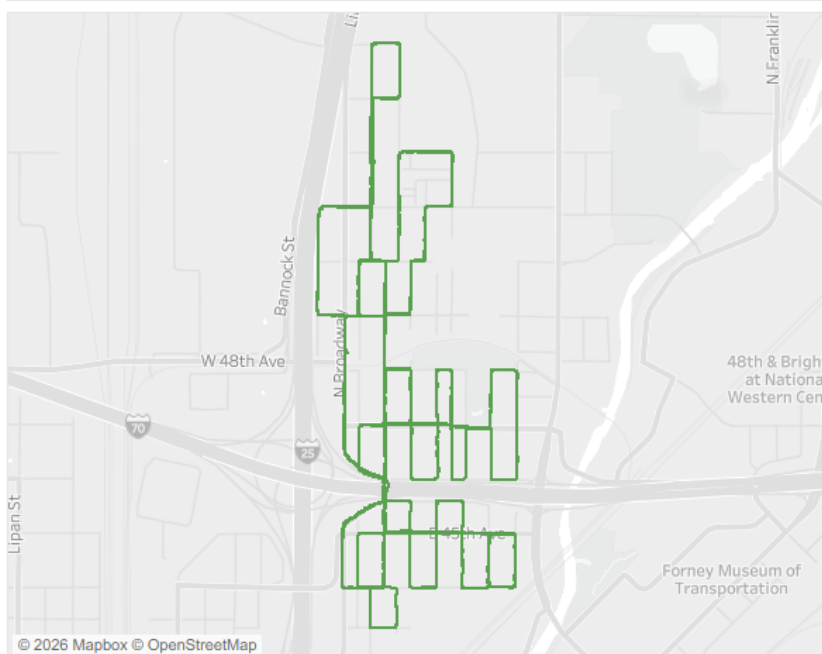
Analyte	Maximum 1-second Concentration (ppbv)	Count of 1-hr Rolling Averages Derived (#)	Average 1-hr Rolling Average (ppbv)	Maximum 1-hr Rolling Average (ppbv)	AEGL 1 60-min Value (ppbv)	Health Reference Level (ppbv)	Hazard Quotient
BENZENE	2.67	4,564	0.15	0.16	52,000	9	0.01810
HYDROGEN SULFIDE	0.93	4,564	0.16	0.17	510	70	0.00244
TRIMETHYLBENZENES*	3.82	4,564	0.19	0.21	NR	250	0.00083
TETRACHLOROETHYLENE	0.35	4,564	0.00	0.00	35,000	6	0.00059
HEXENES*	1.38	4,564	0.26	0.27	NR	500	0.00055



The top 5 hazard quotients are reported in this dashboard. The hazard index represents cumulative risks including all unlisted analytes. The hazard quotient was calculated by comparing the acute health reference level to the maximum 1-hour rolling average. The comparative AEGL value is shown for comparison purposes. NR = According to EPA, the AEGL value is "not recommended due to insufficient data".
*For analyte isomer groups which were unable to be differentiated, the lowest health reference value of the group was selected for use in this assessment (Appendix A).

FIGURE 5 GLOBEVILLE NEIGHBORHOOD: APRIL 28, 2025

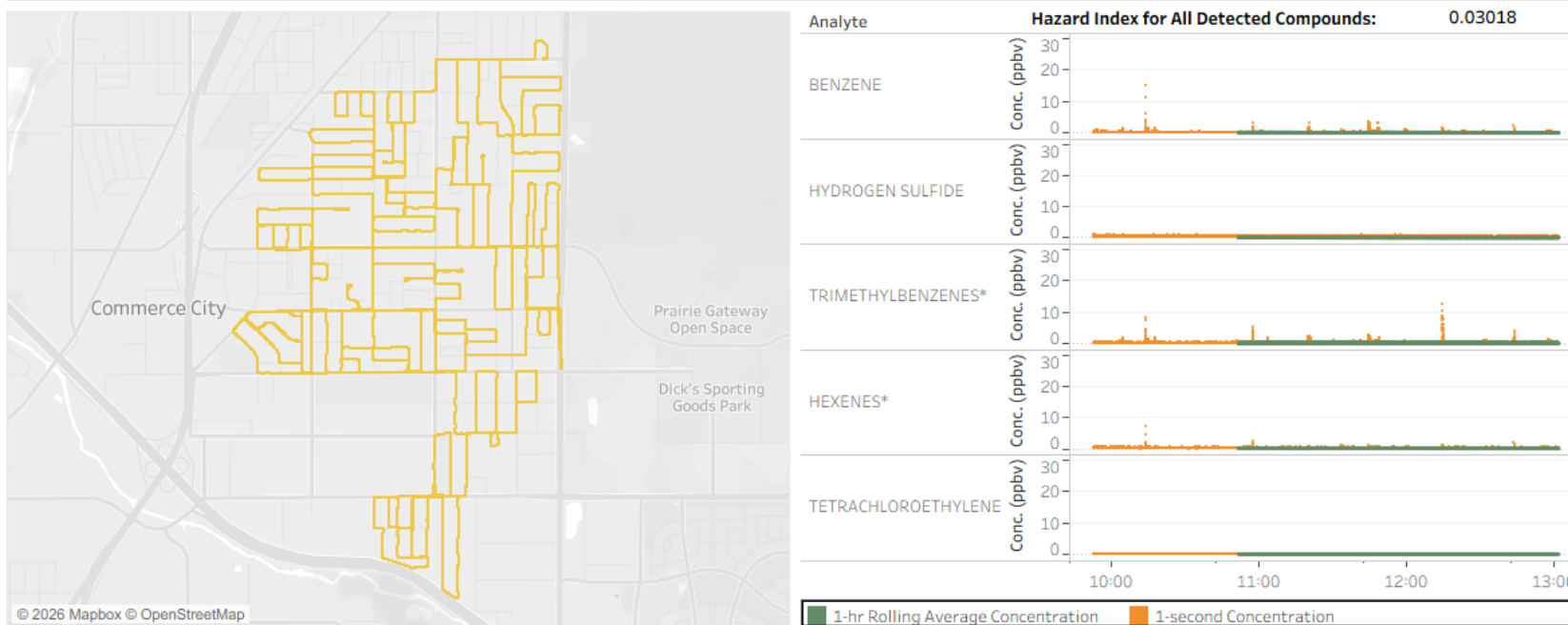
Analyte	Maximum 1-second Concentration (ppbv)	Count of 1-hr Rolling Averages Derived (#)	Average 1-hr Rolling Average (ppbv)	Maximum 1-hr Rolling Average (ppbv)	AEGL 1 60-min Value (ppbv)	Health Reference Level (ppbv)	Hazard Quotient
BENZENE	3.33	4,551	0.15	0.16	52,000	9	0.01787
HYDROGEN SULFIDE	3.18	4,551	0.17	0.19	510	70	0.00264
TRIMETHYLBENZENES*	3.56	4,551	0.41	0.43	NR	250	0.00174
HEXENES*	1.71	4,551	0.34	0.39	NR	500	0.00079
HYDROGEN CYANIDE	1.47	4,551	0.15	0.15	2,000	308	0.00050



The top 5 hazard quotients are reported in this dashboard. The hazard index represents cumulative risks including all unlisted analytes. The hazard quotient was calculated by comparing the acute health reference level to the maximum 1-hour rolling average. The comparative AEGL value is shown for comparison purposes. NR = According to EPA, the AEGL value is "not recommended due to insufficient data".
*For analyte isomer groups which were unable to be differentiated, the lowest health reference value of the group was selected for use in this assessment (Appendix A).

FIGURE 6 PIONEER PARK NEIGHBORHOOD: MAY 1, 2025

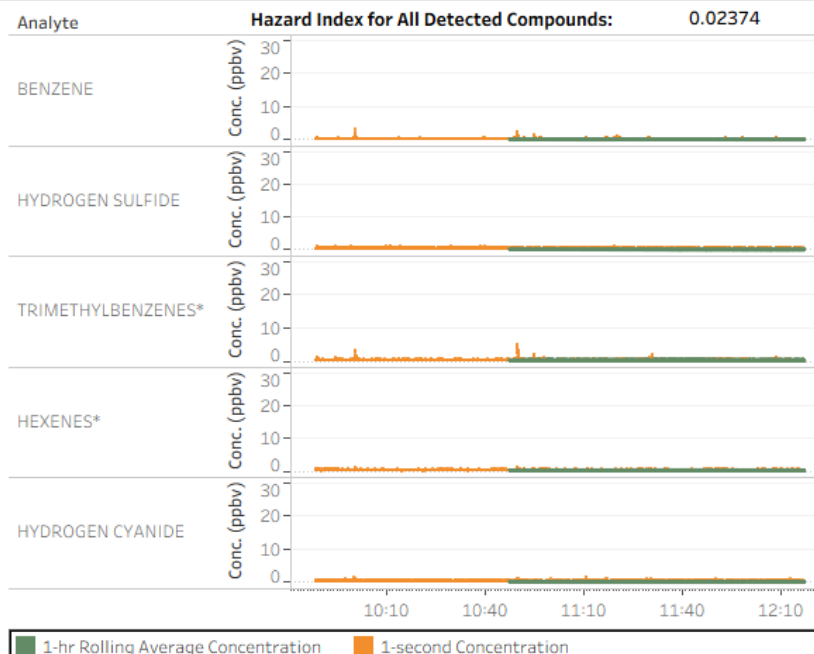
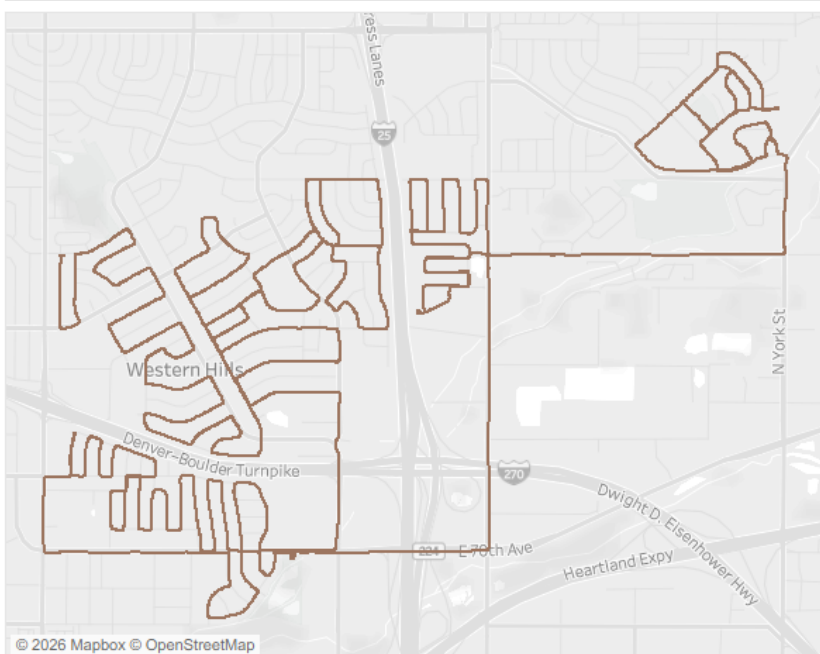
Analyte	Maximum 1-second Concentration (ppbv)	Count of 1-hr Rolling Averages Derived (#)	Average 1-hr Rolling Average (ppbv)	Maximum 1-hr Rolling Average (ppbv)	AEGL 1 60-min Value (ppbv)	Health Reference Level (ppbv)	Hazard Quotient
BENZENE	14.85	7,796	0.18	0.21	52,000	9	0.02344
HYDROGEN SULFIDE	1.22	7,796	0.15	0.20	510	70	0.00288
TRIMETHYLBENZENES*	12.59	7,796	0.30	0.34	NR	250	0.00136
HEXENES*	7.10	7,796	0.23	0.24	NR	500	0.00049
TETRACHLOROETHYLENE	0.02	7,796	0.00	0.00	35,000	6	0.00045



The top 5 hazard quotients are reported in this dashboard. The hazard index represents cumulative risks including all unlisted analytes. The hazard quotient was calculated by comparing the acute health reference level to the maximum 1-hour rolling average. The comparative AEGL value is shown for comparison purposes. NR = According to EPA, the AEGL value is "not recommended due to insufficient data".
*For analyte isomer groups which were unable to be differentiated, the lowest health reference value of the group was selected for use in this assessment (Appendix A).

FIGURE 7 WESTERN HILLS NEIGHBORHOOD: APRIL 29, 2025

Analyte	Maximum 1-second Concentration (ppbv)	Count of 1-hr Rolling Averages Derived (#)	Average 1-hr Rolling Average (ppbv)	Maximum 1-hr Rolling Average (ppbv)	AEGL 1 60-min Value (ppbv)	Health Reference Level (ppbv)	Hazard Quotient
BENZENE	2.92	5,360	0.14	0.15	52,000	9	0.01649
HYDROGEN SULFIDE	1.01	5,360	0.16	0.21	510	70	0.00293
TRIMETHYLBENZENES*	4.78	5,360	0.34	0.35	NR	250	0.00140
HEXENES*	1.12	5,360	0.28	0.28	NR	500	0.00057
HYDROGEN CYANIDE	1.54	5,360	0.13	0.14	2,000	308	0.00046



The top 5 hazard quotients are reported in this dashboard. The hazard index represents cumulative risks including all unlisted analytes. The hazard quotient was calculated by comparing the acute health reference level to the maximum 1-hour rolling average. The comparative AEGL value is shown for comparison purposes. NR = According to EPA, the AEGL value is "not recommended due to insufficient data".
*For analyte isomer groups which were unable to be differentiated, the lowest health reference value of the group was selected for use in this assessment (Appendix A).

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^{8,9}. 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 lowest reference value per isomer group). 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

No program changes.

Respectfully Submitted:



Steven Yuchs, PhD.
Vice President, Technical
Ambient & Emerging Technology
Montrose Air Quality Services

⁸ 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

⁹ 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

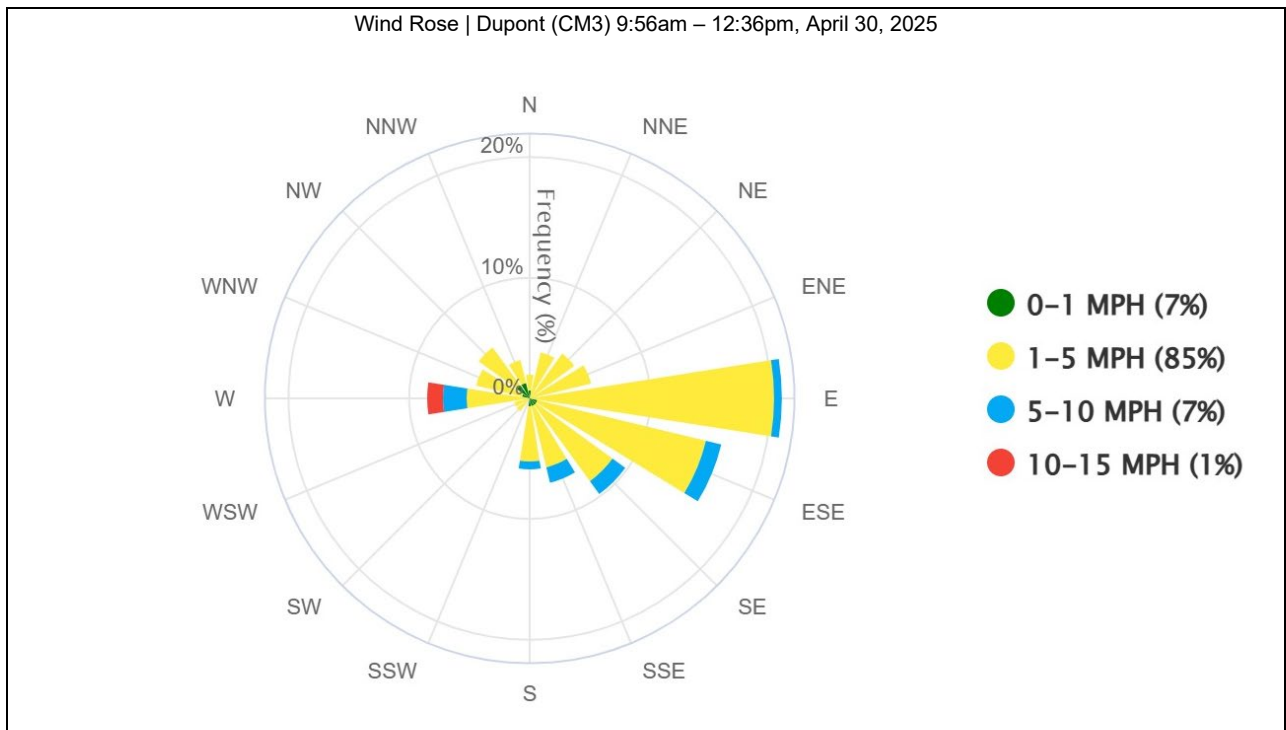
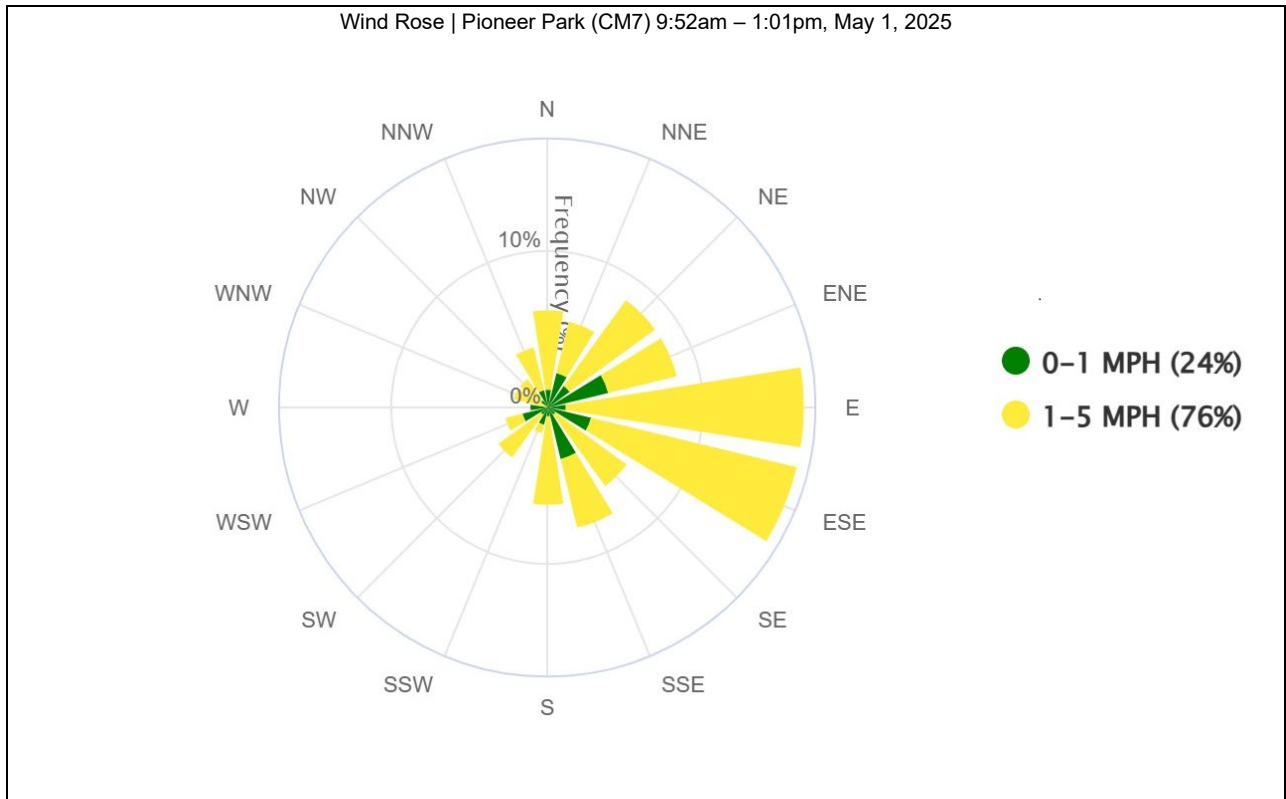
APPENDIX A ISOMER CHEMICAL SAMPLING DETAILS

In a real-time PTR-TOF analysis, it is not possible to speciate isomers, or chemical compounds that have the same molecular weight. For example, n-hexane, 2-methyl pentane and 2,2-dimethyl butane all have a molecular mass of 86.178 g/mol. In order to provide the most conservative determination of concentration during this mapping program, each isomer's concentration is reported as the sum of all isomers with the same molecular weight. For the sake of simplicity, the calculations in the report refer to generic names for a group of specific isomers. The following table defines a simplified list of the many isomers that may comprise the generic groups reported.

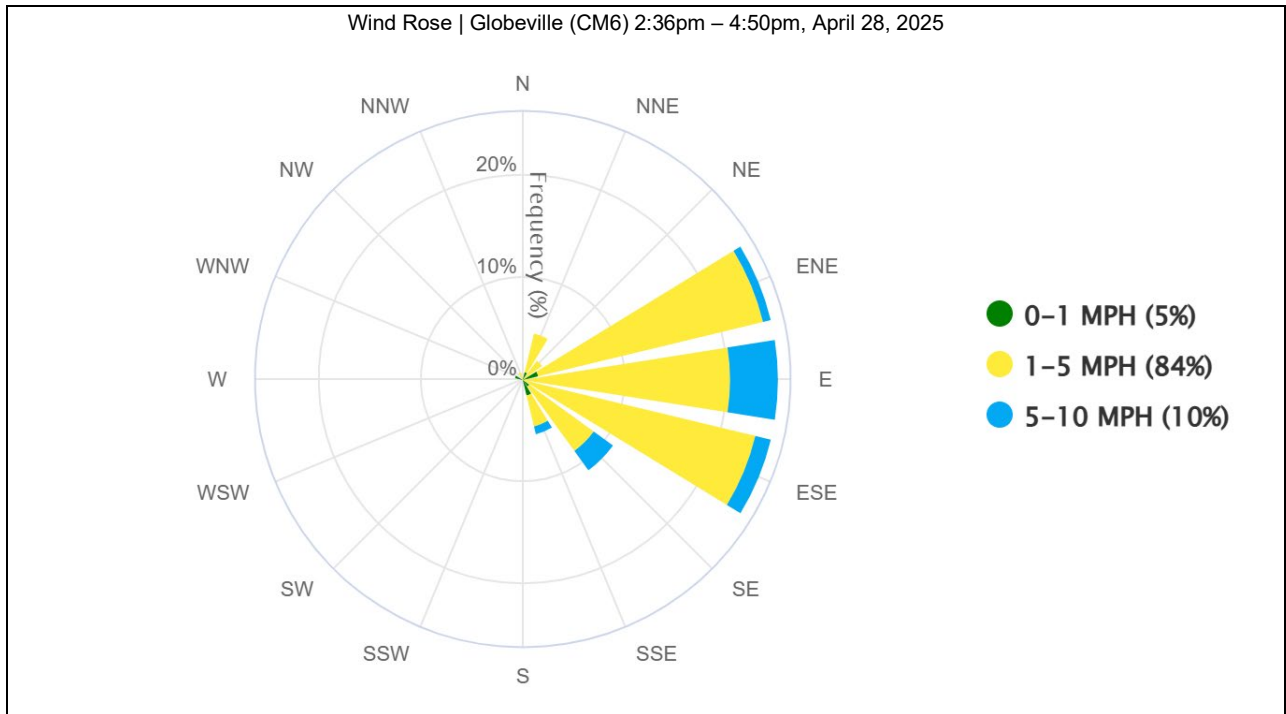
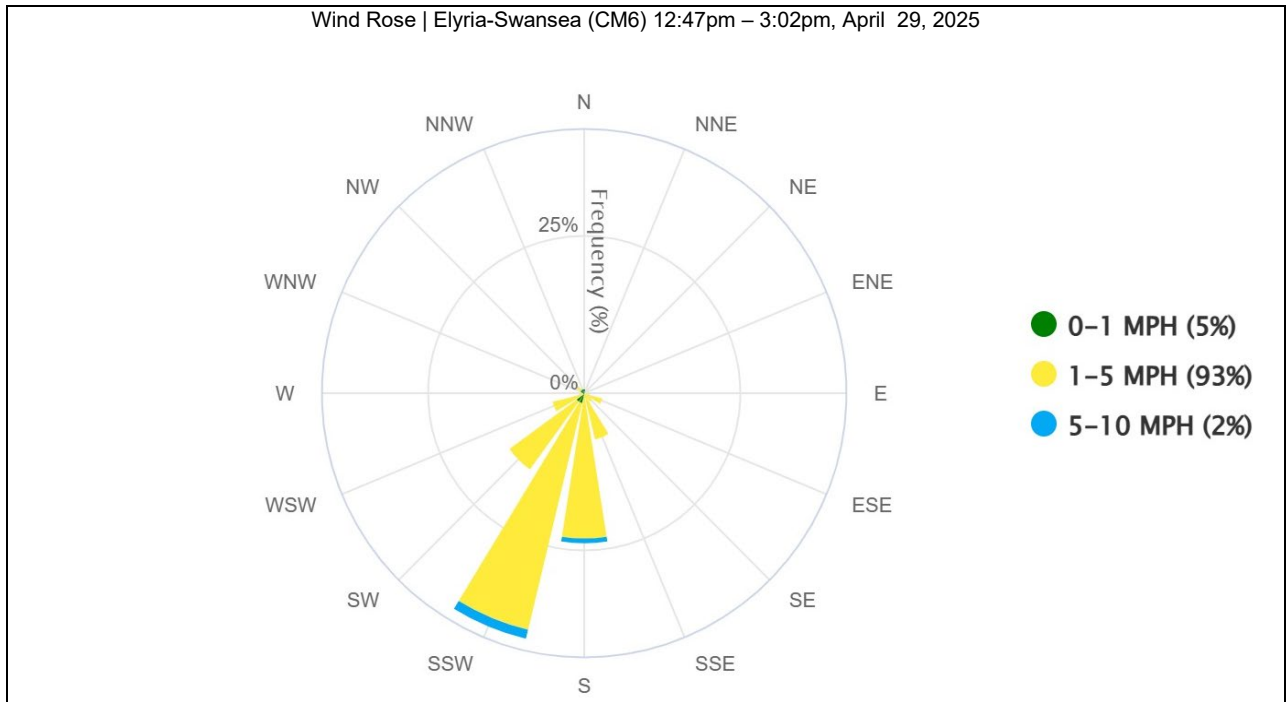
Group Name	Specific Isomers	Group Name	Specific Isomers
<i>Butenes</i>	1-Butene cis-2-Butene trans-2-Butene	<i>Xylenes</i>	Ethyl Benzene o-Xylene m-Xylene p-Xylene
<i>Butanes</i>	iso-Butane n-Butane	<i>Dimethylcyclohexanes</i>	Ethylcyclohexane cis-1,3-Dimethylcyclohexane trans-1,2-Dimethylcyclohexane trans-1,3-Dimethylcyclohexane
<i>Cyclopentanes</i>	Cyclopentane 1-Pentene 2-Methyl-2-butene cis-2-Pentene trans-2-Pentene	<i>Octanes</i>	n-Octane 2-Methylheptane 3-Methylheptane 2,2,4-Trimethylpentane 2,3,4-Trimethylpentane
<i>Pentanes</i>	iso-Pentane n-Pentane neo-Pentane	<i>Trimethylbenzenes</i>	Cumene 1,2,4-Trimethylbenzene o-Ethyltoluene m-Ethyltoluene p-Ethyltoluene n-Propylbenzene 1,3,5-Trimethylbenzene
<i>Hexenes</i>	1-Hexene Cyclohexane Methylcyclopentane	<i>Diethylbenzenes</i>	o-Diethylbenzene m-Diethylbenzene p-Diethylbenzene All other C ₁₀ H ₁₄ Isomers
<i>Hexanes</i>	n-Hexane 2-Methylpentane 3-Methylpentane 2,2-Dimethylbutane 2,3-Dimethylbutane		
<i>Heptanes</i>	n-Heptane 2-Methylhexane 3-Methylhexane 2,3-Dimethylpentane 2,4-Dimethylpentane		

APPENDIX B DAILY WIND ROSES

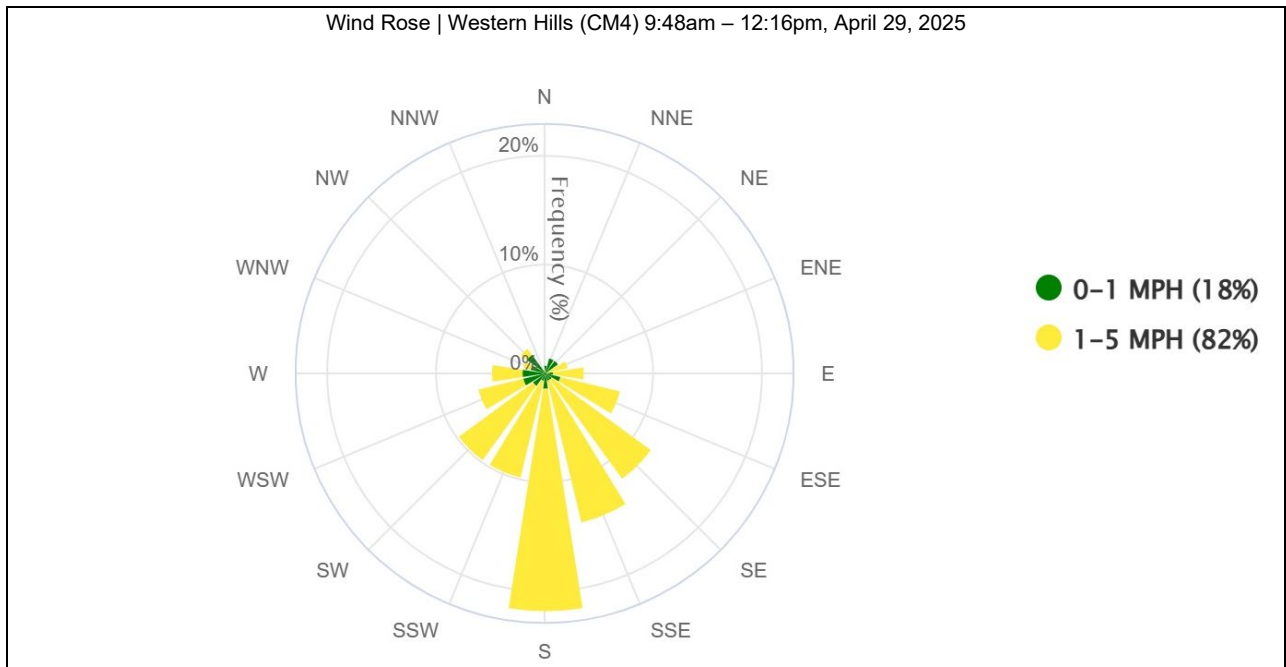
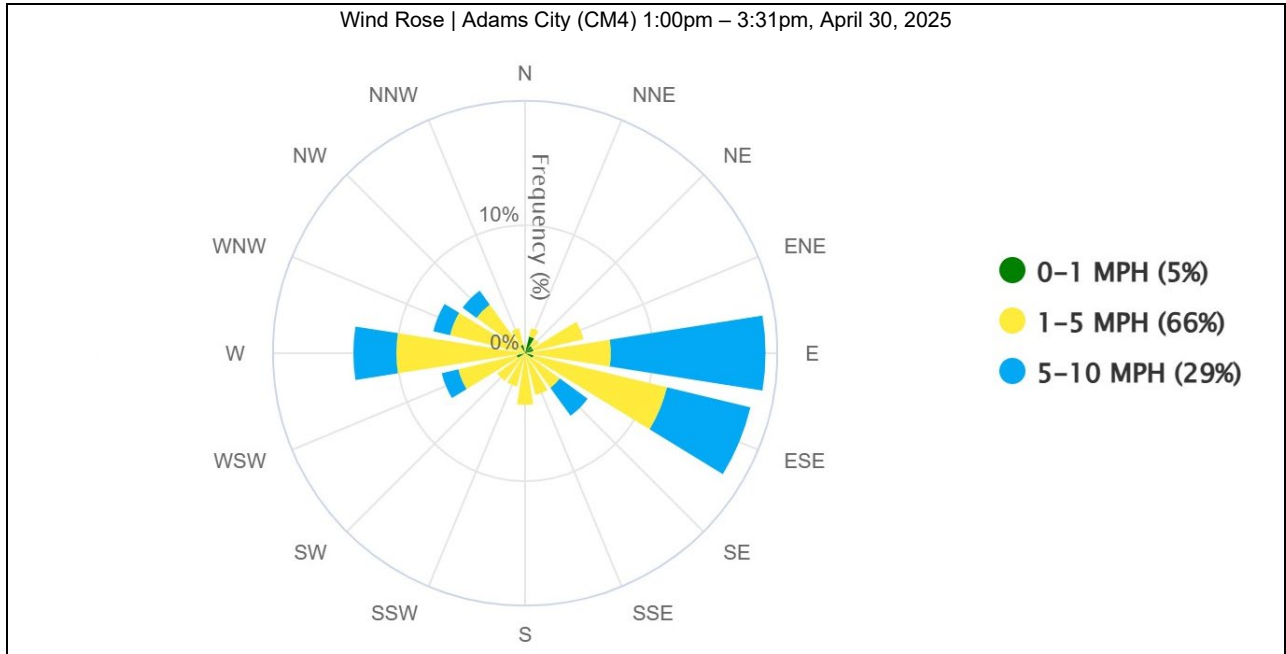
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**APPENDIX C SCREENING RISK ASSESSMENT DETAILS
(ALPHABETICAL ORDER BY NEIGHBORHOOD NAME)**

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2025 Q2

Mobile Laboratory Sampling Data Summary and Risk Assessment
Adams City Neighborhood | April 30, 2025

Analyte	Cas No	Method Detection Limit (ppbv)	Count of 1-second Concentrations (#)	Maximum 1-second Concentration (ppbv)	Count of 1-hr Rolling Averages Derived (#)	Average 1-hr Rolling Average (ppbv)	Maximum 1-hr Rolling Average (ppbv)	AEGL 1 60-min Value	Health Reference Level (ppbv)	Screening Value Source	Hazard Quotient
1,3 BUTADIENE	106-99-0	0.008	9,049	0.09	5,522	0.01	0.01	670,000	298	OEHHA Acute REL	0.00004
ACETYLENE	74-86-2	0.11	9,049	0.71	5,522	0.19	0.21	NR	25,000	TCEQ Short-Term AMCV	0.00001
BENZENE	71-43-2	0.026	9,049	2.78	5,522	0.17	0.20	52,000	9	ATSDR Acute MRL	0.02193
BUTANES*	75-28-5	0.115	9,049	52.02	5,522	2.94	3.29	NR	33000	TCEQ Short-Term AMCV	0.00010
BUTENES*	590-18-1	0.173	9,049	8.36	5,522	0.99	1.06	NR	15000	TCEQ Short-Term AMCV	0.00007
CARBON DISULFIDE	75-15-0	0.013	9,049	0.03	5,522	0.01	0.01	13,000	1,991	OEHHA Acute REL	0.00000
CYCLOPENTANES*	287-92-3	0.03	9,049	5.22	5,522	0.99	1.03	NR	5,900	TCEQ Short-Term AMCV	0.00017
DECANES	124-18-5	0.009	9,049	0.07	5,522	0.02	0.02	NR	1,000	TCEQ Short-Term AMCV	0.00002
DIETHYLBENZENES*	141-93-5	0.019	9,049	0.16	5,522	0.04	0.04	NR	450	TCEQ Short-Term AMCV	0.00010
DIMETHYLCYCLOHEXANES*	638-04-0	0.017	9,049	0.09	5,522	0.03	0.03	NR	4,000	CDPHE	0.00001
DODECANES	112-40-3	0.005	9,049	0.01	5,522	0.00	0.00	NR	1720	CDPHE	0.00000
ETHYLENE	74-85-1	0.297	9,049	102.77	5,522	8.58	9.07	NR	500,000	TCEQ Short-Term AMCV	0.00002
HEPTANES*	142-82-5	0.01	9,049	0.05	5,522	0.01	0.01	NR	8,300	TCEQ Short-Term AMCV	0.00000
HEXANES*	110-54-3	0.014	9,049	0.16	5,522	0.11	0.11	NR	5,400	TCEQ Short-Term AMCV	0.00002
HEXENES*	592-41-6	0.02	9,049	1.72	5,522	0.26	0.28	NR	500	TCEQ Short-Term AMCV	0.00056
HYDROGEN CYANIDE	74-90-8	0.031	9,049	3.32	5,522	0.15	0.16	2,000	308	OEHHA Acute REL	0.00052
HYDROGEN SULFIDE	7783-06-4	0.026	9,049	0.98	5,522	0.20	0.22	510	70	ATSDR Acute MRL	0.00315
ISOPRENE	78-79-5	0.042	9,049	0.62	5,522	0.11	0.14	NR	1,400	TCEQ Short-Term AMCV	0.00010
METHANOL	67-56-1	0.248	9,049	193.08	5,522	7.46	8.37	530,000	21,366	OEHHA Acute REL	0.00039
METHYLCYCLOHEXANE	108-87-2	0.016	9,049	0.09	5,522	0.02	0.02	NR	4,000	TCEQ Short-Term AMCV	0.00001
NONANES	111-84-2	0.007	9,049	0.02	5,522	0.00	0.00	NR	3,000	TCEQ Short-Term AMCV	0.00000
OCTANES*	111-65-9	0.011	9,049	0.06	5,522	0.02	0.02	NR	4,100	TCEQ Short-Term AMCV	0.00000
PENTANES*	109-66-0	0.015	9,049	0.41	5,522	0.37	0.37	NR	68,000	TCEQ Short-Term AMCV	0.00001
PROPYLENE	115-07-1	0.088	9,049	4.14	5,522	0.26	0.30	NR	NA	NA	
STYRENE	100-42-5	0.015	9,049	1.59	5,522	0.07	0.08	20,000	5,000	ATSDR Acute MRL	0.00002
TETRACHLOROETHYLENE	127-18-4	0.004	9,049	0.02	5,522	0.00	0.00	35,000	6	ATSDR Acute MRL	0.00048
TOLUENE	108-88-3	0.037	9,049	6.57	5,522	0.40	0.47	67,000	2,000	ATSDR Acute MRL	0.00024
TRIMETHYLBENZENES*	622-96-8	0.019	9,049	4.65	5,522	0.31	0.36	50,000	250	TCEQ Short-Term AMCV	0.00144
UNDECANES	1120-21-4	0.016	9,049	0.17	5,522	0.04	0.05	NR	550	TCEQ Short-Term AMCV	0.00010
XYLENES*	1330-20-7	0.031	9,049	7.29	5,522	0.38	0.45	130,000	2,000	ATSDR Acute MRL	0.00022
Hazard Index											0.02972

The hazard quotient was calculated by comparing the acute health reference level to the maximum 1-hour rolling average.

*For analyte isomer groups which were unable to be differentiated, the lowest health reference value of the isomer group was selected for use in this assessment.

CDPHE = Colorado Department of Public Health and Environment; TCEQ = Texas Commission on Environmental Quality; ATSDR = Agency for Toxic Substances and Disease Registry; OEHHA = California Office of Environmental Health Hazard Assessment

MRL = Minimal Risk Level; REL = Reference Exposure Level; AMCV = Air Monitoring Comparison Values; AEGL = Acute Exposure Guideline Levels

ppbv = parts per billion volume

NA = Not Available

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

CCND Mobile Monitoring Van
2025 Q2

Mobile Laboratory Sampling Data Summary and Risk Assessment
Dupont Neighborhood | April 30, 2025

Analyte	Cas No	Method Detection Limit (ppbv)	Count of 1-second Concentrations (#)	Maximum 1-second Concentration (ppbv)	Count of 1-hr Rolling Averages Derived (#)	Average 1-hr Rolling Average (ppbv)	Maximum 1-hr Rolling Average (ppbv)	AEGL 1 60-min Value	Health Reference Level (ppbv)	Screening Value Source	Hazard Quotient
1,3 BUTADIENE	106-99-0	0.008	9,605	0.13	6,078	0.01	0.01	670,000	298	OEHHA Acute REL	0.00003
ACETYLENE	74-86-2	0.11	9,605	1.15	6,078	0.12	0.14	NR	25,000	TCEQ Short-Term AMCV	0.00001
BENZENE	71-43-2	0.026	9,605	2.17	6,078	0.15	0.17	52,000	9	ATSDR Acute MRL	0.01894
BUTANES*	75-28-5	0.115	9,605	47.10	6,078	2.83	2.98	NR	33000	TCEQ Short-Term AMCV	0.00009
BUTENES*	590-18-1	0.173	9,605	5.30	6,078	1.34	1.52	NR	15000	TCEQ Short-Term AMCV	0.00010
CARBON DISULFIDE	75-15-0	0.013	9,605	0.04	6,078	0.01	0.01	13,000	1,991	OEHHA Acute REL	0.00000
CYCLOPENTANES*	287-92-3	0.03	9,605	3.12	6,078	0.11	0.14	NR	5,900	TCEQ Short-Term AMCV	0.00002
DECANES	124-18-5	0.009	9,605	0.05	6,078	0.01	0.01	NR	1,000	TCEQ Short-Term AMCV	0.00001
DIETHYLBENZENES*	141-93-5	0.019	9,605	0.13	6,078	0.05	0.05	NR	450	TCEQ Short-Term AMCV	0.00011
DIMETHYLCYCLOHEXANES*	638-04-0	0.017	9,605	0.20	6,078	0.03	0.03	NR	4,000	CDPHE	0.00001
DODECANES	112-40-3	0.005	9,605	0.05	6,078	0.00	0.00	NR	1720	CDPHE	0.00000
ETHYLENE	74-85-1	0.297	9,605	25,711.00	6,078	10.98	22.59	NR	500,000	TCEQ Short-Term AMCV	0.00005
HEPTANES*	142-82-5	0.01	9,605	0.29	6,078	0.01	0.01	NR	8,300	TCEQ Short-Term AMCV	0.00000
HEXANES*	110-54-3	0.014	9,605	0.45	6,078	0.01	0.02	NR	5,400	TCEQ Short-Term AMCV	0.00000
HEXENES*	592-41-6	0.02	9,605	1.28	6,078	0.08	0.11	NR	500	TCEQ Short-Term AMCV	0.00022
HYDROGEN CYANIDE	74-90-8	0.031	9,605	10.22	6,078	0.17	0.19	2,000	308	OEHHA Acute REL	0.00060
HYDROGEN SULFIDE	7783-06-4	0.026	9,605	1.48	6,078	0.12	0.15	510	70	ATSDR Acute MRL	0.00213
ISOPRENE	78-79-5	0.042	9,605	0.59	6,078	0.15	0.15	NR	1,400	TCEQ Short-Term AMCV	0.00011
METHANOL	67-56-1	0.248	9,605	107.44	6,078	7.33	8.09	530,000	21,366	OEHHA Acute REL	0.00038
METHYLCYCLOHEXANE	108-87-2	0.016	9,605	0.14	6,078	0.03	0.03	NR	4,000	TCEQ Short-Term AMCV	0.00001
NONANES	111-84-2	0.007	9,605	0.07	6,078	0.00	0.00	NR	3,000	TCEQ Short-Term AMCV	0.00000
OCTANES*	111-65-9	0.011	9,605	0.12	6,078	0.02	0.03	NR	4,100	TCEQ Short-Term AMCV	0.00001
PENTANES*	109-66-0	0.015	9,605	0.32	6,078	0.01	0.01	NR	68,000	TCEQ Short-Term AMCV	0.00000
PROPYLENE	115-07-1	0.088	9,605	4.62	6,078	0.22	0.23	NR	NA	NA	
STYRENE	100-42-5	0.015	9,605	0.26	6,078	0.03	0.03	20,000	5,000	ATSDR Acute MRL	0.00001
TETRACHLOROETHYLENE	127-18-4	0.004	9,605	0.02	6,078	0.00	0.00	35,000	6	ATSDR Acute MRL	0.00041
TOLUENE	108-88-3	0.037	9,605	4.92	6,078	0.34	0.39	67,000	2,000	ATSDR Acute MRL	0.00019
TRIMETHYLBENZENES*	622-96-8	0.019	9,605	3.15	6,078	0.30	0.32	50,000	250	TCEQ Short-Term AMCV	0.00130
UNDECANES	1120-21-4	0.016	9,605	0.07	6,078	0.01	0.01	NR	550	TCEQ Short-Term AMCV	0.00002
XYLENES*	1330-20-7	0.031	9,605	4.18	6,078	0.32	0.38	130,000	2,000	ATSDR Acute MRL	0.00019
Hazard Index											0.02493

The hazard quotient was calculated by comparing the acute health reference level to the maximum 1-hour rolling average.

*For analyte isomer groups which were unable to be differentiated, the lowest health reference value of the isomer group was selected for use in this assessment.

CDPHE = Colorado Department of Public Health and Environment; TCEQ = Texas Commission on Environmental Quality; ATSDR = Agency for Toxic Substances and Disease Registry; OEHHA = California Office of Environmental Health Hazard Assessment

MRL = Minimal Risk Level; REL = Reference Exposure Level; AMCV = Air Monitoring Comparison Values; AEGL = Acute Exposure Guideline Levels

ppbv = parts per billion volume

NA = Not Available

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

CCND Mobile Monitoring Van
2025 Q2

Mobile Laboratory Sampling Data Summary and Risk Assessment
Elyria-Swansea Neighborhood | April 29, 2025

Analyte	Cas No	Method Detection Limit (ppbv)	Count of 1-second Concentrations (#)	Maximum 1-second Concentration (ppbv)	Count of 1-hr Rolling Averages Derived (#)	Average 1-hr Rolling Average (ppbv)	Maximum 1-hr Rolling Average (ppbv)	AEGL 1 60-min Value	Health Reference Level (ppbv)	Screening Value Source	Hazard Quotient
1,3 BUTADIENE	106-99-0	0.008	8,091	0.11	4,564	0.01	0.01	670,000	298	OEHHA Acute REL	0.00004
ACETYLENE	74-86-2	0.11	8,091	0.65	4,564	0.13	0.14	NR	25,000	TCEQ Short-Term AMCV	0.00001
BENZENE	71-43-2	0.026	8,091	2.67	4,564	0.15	0.16	52,000	9	ATSDR Acute MRL	0.01810
BUTANES*	75-28-5	0.115	8,091	95.46	4,564	3.15	3.55	NR	33000	TCEQ Short-Term AMCV	0.00011
BUTENES*	590-18-1	0.173	8,091	4.24	4,564	0.89	1.00	NR	15000	TCEQ Short-Term AMCV	0.00007
CARBON DISULFIDE	75-15-0	0.013	8,091	0.04	4,564	0.01	0.01	13,000	1,991	OEHHA Acute REL	0.00000
CYCLOPENTANES*	287-92-3	0.03	8,091	2.78	4,564	0.96	0.99	NR	5,900	TCEQ Short-Term AMCV	0.00017
DECANES	124-18-5	0.009	8,091	0.05	4,564	0.01	0.01	NR	1,000	TCEQ Short-Term AMCV	0.00001
DIETHYLBENZENES*	141-93-5	0.019	8,091	0.14	4,564	0.05	0.05	NR	450	TCEQ Short-Term AMCV	0.00011
DIMETHYLCYCLOHEXANES*	638-04-0	0.017	8,091	0.09	4,564	0.03	0.03	NR	4,000	CDPHE	0.00001
DODECANES	112-40-3	0.005	8,091	0.02	4,564	0.00	0.00	NR	1720	CDPHE	0.00000
ETHYLENE	74-85-1	0.297	8,091	53.05	4,564	8.01	8.33	NR	500,000	TCEQ Short-Term AMCV	0.00002
HEPTANES*	142-82-5	0.01	8,091	0.04	4,564	0.01	0.01	NR	8,300	TCEQ Short-Term AMCV	0.00000
HEXANES*	110-54-3	0.014	8,091	0.05	4,564	0.01	0.01	NR	5,400	TCEQ Short-Term AMCV	0.00000
HEXENES*	592-41-6	0.02	8,091	1.38	4,564	0.26	0.27	NR	500	TCEQ Short-Term AMCV	0.00055
HYDROGEN CYANIDE	74-90-8	0.031	8,091	2.34	4,564	0.11	0.11	2,000	308	OEHHA Acute REL	0.00037
HYDROGEN SULFIDE	7783-06-4	0.026	8,091	0.93	4,564	0.16	0.17	510	70	ATSDR Acute MRL	0.00244
ISOPRENE	78-79-5	0.042	8,091	0.58	4,564	0.14	0.15	NR	1,400	TCEQ Short-Term AMCV	0.00011
METHANOL	67-56-1	0.248	8,091	46.76	4,564	7.10	7.47	530,000	21,366	OEHHA Acute REL	0.00035
METHYLCYCLOHEXANE	108-87-2	0.016	8,091	0.09	4,564	0.02	0.03	NR	4,000	TCEQ Short-Term AMCV	0.00001
NONANES	111-84-2	0.007	8,091	0.02	4,564	0.00	0.00	NR	3,000	TCEQ Short-Term AMCV	0.00000
OCTANES*	111-65-9	0.011	8,091	0.06	4,564	0.02	0.02	NR	4,100	TCEQ Short-Term AMCV	0.00000
PENTANES*	109-66-0	0.015	8,091	0.04	4,564	0.01	0.01	NR	68,000	TCEQ Short-Term AMCV	0.00000
PROPYLENE	115-07-1	0.088	8,091	2.44	4,564	0.28	0.31	NR	NA	NA	
STYRENE	100-42-5	0.015	8,091	0.35	4,564	0.13	0.14	20,000	5,000	ATSDR Acute MRL	0.00003
TETRACHLOROETHYLENE	127-18-4	0.004	8,091	0.35	4,564	0.00	0.00	35,000	6	ATSDR Acute MRL	0.00059
TOLUENE	108-88-3	0.037	8,091	6.55	4,564	0.34	0.36	67,000	2,000	ATSDR Acute MRL	0.00018
TRIMETHYLBENZENES*	622-96-8	0.019	8,091	3.82	4,564	0.19	0.21	50,000	250	TCEQ Short-Term AMCV	0.00083
UNDECANES	1120-21-4	0.016	8,091	0.08	4,564	0.01	0.02	NR	550	TCEQ Short-Term AMCV	0.00003
XYLENES*	1330-20-7	0.031	8,091	7.25	4,564	0.34	0.37	130,000	2,000	ATSDR Acute MRL	0.00019
Hazard Index											0.02432

The hazard quotient was calculated by comparing the acute health reference level to the maximum 1-hour rolling average.

*For analyte isomer groups which were unable to be differentiated, the lowest health reference value of the isomer group was selected for use in this assessment.

CDPHE = Colorado Department of Public Health and Environment; TCEQ = Texas Commission on Environmental Quality; ATSDR = Agency for Toxic Substances and Disease Registry; OEHHA = California Office of Environmental Health Hazard Assessment

MRL = Minimal Risk Level; REL = Reference Exposure Level; AMCV = Air Monitoring Comparison Values; AEGL = Acute Exposure Guideline Levels

ppbv = parts per billion volume

NA = Not Available

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

CCND Mobile Monitoring Van
2025 Q2

Mobile Laboratory Sampling Data Summary and Risk Assessment
Globeville Neighborhood | April 28, 2025

Analyte	Cas No	Method Detection Limit (ppbv)	Count of 1-second Concentrations (#)	Maximum 1-second Concentration (ppbv)	Count of 1-hr Rolling Averages Derived (#)	Average 1-hr Rolling Average (ppbv)	Maximum 1-hr Rolling Average (ppbv)	AEGL 1 60-min Value	Health Reference Level (ppbv)	Screening Value Source	Hazard Quotient
1,3 BUTADIENE	106-99-0	0.008	8,078	0.11	4,551	0.01	0.01	670,000	298	OEHHA Acute REL	0.00003
ACETYLENE	74-86-2	0.11	8,078	0.85	4,551	0.26	0.27	NR	25,000	TCEQ Short-Term AMCV	0.00001
BENZENE	71-43-2	0.026	8,078	3.33	4,551	0.15	0.16	52,000	9	ATSDR Acute MRL	0.01787
BUTANES*	75-28-5	0.115	8,078	9.60	4,551	2.57	2.82	NR	33000	TCEQ Short-Term AMCV	0.00009
BUTENES*	590-18-1	0.173	8,078	4.92	4,551	1.30	1.75	NR	15000	TCEQ Short-Term AMCV	0.00012
CARBON DISULFIDE	75-15-0	0.013	8,078	0.04	4,551	0.01	0.01	13,000	1,991	OEHHA Acute REL	0.00000
CYCLOPENTANES*	287-92-3	0.03	8,078	3.60	4,551	0.50	0.53	NR	5,900	TCEQ Short-Term AMCV	0.00009
DECANES	124-18-5	0.009	8,078	0.05	4,551	0.01	0.01	NR	1,000	TCEQ Short-Term AMCV	0.00001
DIETHYLBENZENES*	141-93-5	0.019	8,078	0.32	4,551	0.05	0.05	NR	450	TCEQ Short-Term AMCV	0.00012
DIMETHYLCYCLOHEXANES*	638-04-0	0.017	8,078	0.11	4,551	0.04	0.04	NR	4,000	CDPHE	0.00001
DODECANES	112-40-3	0.005	8,078	0.02	4,551	0.00	0.00	NR	1720	CDPHE	0.00000
ETHYLENE	74-85-1	0.297	8,078	65.75	4,551	7.96	9.19	NR	500,000	TCEQ Short-Term AMCV	0.00002
HEPTANES*	142-82-5	0.01	8,078	0.05	4,551	0.01	0.01	NR	8,300	TCEQ Short-Term AMCV	0.00000
HEXANES*	110-54-3	0.014	8,078	0.07	4,551	0.01	0.02	NR	5,400	TCEQ Short-Term AMCV	0.00000
HEXENES*	592-41-6	0.02	8,078	1.71	4,551	0.34	0.39	NR	500	TCEQ Short-Term AMCV	0.00079
HYDROGEN CYANIDE	74-90-8	0.031	8,078	1.47	4,551	0.15	0.15	2,000	308	OEHHA Acute REL	0.00050
HYDROGEN SULFIDE	7783-06-4	0.026	8,078	3.18	4,551	0.17	0.19	510	70	ATSDR Acute MRL	0.00264
ISOPRENE	78-79-5	0.042	8,078	0.82	4,551	0.12	0.13	NR	1,400	TCEQ Short-Term AMCV	0.00009
METHANOL	67-56-1	0.248	8,078	65.92	4,551	6.29	8.02	530,000	21,366	OEHHA Acute REL	0.00038
METHYLCYCLOHEXANE	108-87-2	0.016	8,078	0.13	4,551	0.03	0.04	NR	4,000	TCEQ Short-Term AMCV	0.00001
NONANES	111-84-2	0.007	8,078	0.02	4,551	0.00	0.00	NR	3,000	TCEQ Short-Term AMCV	0.00000
OCTANES*	111-65-9	0.011	8,078	3.40	4,551	0.04	0.06	NR	4,100	TCEQ Short-Term AMCV	0.00001
PENTANES*	109-66-0	0.015	8,078	0.58	4,551	0.54	0.54	NR	68,000	TCEQ Short-Term AMCV	0.00001
PROPYLENE	115-07-1	0.088	8,078	4.99	4,551	0.57	0.59	NR	NA	NA	
STYRENE	100-42-5	0.015	8,078	0.33	4,551	0.07	0.08	20,000	5,000	ATSDR Acute MRL	0.00002
TETRACHLOROETHYLENE	127-18-4	0.004	8,078	0.02	4,551	0.00	0.00	35,000	6	ATSDR Acute MRL	0.00041
TOLUENE	108-88-3	0.037	8,078	9.70	4,551	0.48	0.51	67,000	2,000	ATSDR Acute MRL	0.00026
TRIMETHYLBENZENES*	622-96-8	0.019	8,078	3.56	4,551	0.41	0.43	50,000	250	TCEQ Short-Term AMCV	0.00174
UNDECANES	1120-21-4	0.016	8,078	0.07	4,551	0.02	0.02	NR	550	TCEQ Short-Term AMCV	0.00003
XYLENES*	1330-20-7	0.031	8,078	8.98	4,551	0.47	0.49	130,000	2,000	ATSDR Acute MRL	0.00025
Hazard Index											0.02551

The hazard quotient was calculated by comparing the acute health reference level to the maximum 1-hour rolling average.

*For analyte isomer groups which were unable to be differentiated, the lowest health reference value of the isomer group was selected for use in this assessment.

CDPHE = Colorado Department of Public Health and Environment; TCEQ = Texas Commission on Environmental Quality; ATSDR = Agency for Toxic Substances and Disease Registry; OEHHA = California Office of Environmental Health Hazard Assessment

MRL = Minimal Risk Level; REL = Reference Exposure Level; AMCV = Air Monitoring Comparison Values; AEGL = Acute Exposure Guideline Levels

ppbv = parts per billion volume

NA = Not Available

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

CCND Mobile Monitoring Van
2025 Q2

Mobile Laboratory Sampling Data Summary and Risk Assessment
Pioneer Park Neighborhood | May 1, 2025

Analyte	Cas No	Method Detection Limit (ppbv)	Count of 1-second Concentrations (#)	Maximum 1-second Concentration (ppbv)	Count of 1-hr Rolling Averages Derived (#)	Average 1-hr Rolling Average (ppbv)	Maximum 1-hr Rolling Average (ppbv)	AEGL 1 60-min Value	Health Reference Level (ppbv)	Screening Value Source	Hazard Quotient
1,3 BUTADIENE	106-99-0	0.008	11,323	0.18	7,796	0.01	0.01	670,000	298	OEHHA Acute REL	0.00005
ACETYLENE	74-86-2	0.11	11,323	0.78	7,796	0.12	0.16	NR	25,000	TCEQ Short-Term AMCV	0.00001
BENZENE	71-43-2	0.026	11,323	14.85	7,796	0.18	0.21	52,000	9	ATSDR Acute MRL	0.02344
BUTANES*	75-28-5	0.115	11,323	21.37	7,796	2.81	3.03	NR	33000	TCEQ Short-Term AMCV	0.00009
BUTENES*	590-18-1	0.173	11,323	60.16	7,796	0.54	0.61	NR	15000	TCEQ Short-Term AMCV	0.00004
CARBON DISULFIDE	75-15-0	0.013	11,323	0.04	7,796	0.01	0.01	13,000	1,991	OEHHA Acute REL	0.00000
CYCLOPENTANES*	287-92-3	0.03	11,323	15.11	7,796	0.34	0.35	NR	5,900	TCEQ Short-Term AMCV	0.00006
DECANES	124-18-5	0.009	11,323	0.13	7,796	0.01	0.01	NR	1,000	TCEQ Short-Term AMCV	0.00001
DIETHYLBENZENES*	141-93-5	0.019	11,323	0.35	7,796	0.01	0.02	NR	450	TCEQ Short-Term AMCV	0.00004
DIMETHYLCYCLOHEXANES*	638-04-0	0.017	11,323	0.43	7,796	0.03	0.03	NR	4,000	CDPHE	0.00001
DODECANES	112-40-3	0.005	11,323	0.02	7,796	0.00	0.00	NR	1720	CDPHE	0.00000
ETHYLENE	74-85-1	0.297	11,323	58.68	7,796	6.41	6.77	NR	500,000	TCEQ Short-Term AMCV	0.00001
HEPTANES*	142-82-5	0.01	11,323	0.05	7,796	0.01	0.01	NR	8,300	TCEQ Short-Term AMCV	0.00000
HEXANES*	110-54-3	0.014	11,323	0.08	7,796	0.01	0.01	NR	5,400	TCEQ Short-Term AMCV	0.00000
HEXENES*	592-41-6	0.02	11,323	7.10	7,796	0.23	0.24	NR	500	TCEQ Short-Term AMCV	0.00049
HYDROGEN CYANIDE	74-90-8	0.031	11,323	4.50	7,796	0.12	0.13	2,000	308	OEHHA Acute REL	0.00042
HYDROGEN SULFIDE	7783-06-4	0.026	11,323	1.22	7,796	0.15	0.20	510	70	ATSDR Acute MRL	0.00288
ISOPRENE	78-79-5	0.042	11,323	4.27	7,796	0.08	0.09	NR	1,400	TCEQ Short-Term AMCV	0.00006
METHANOL	67-56-1	0.248	11,323	20.15	7,796	6.01	6.72	530,000	21,366	OEHHA Acute REL	0.00031
METHYLCYCLOHEXANE	108-87-2	0.016	11,323	0.40	7,796	0.02	0.02	NR	4,000	TCEQ Short-Term AMCV	0.00001
NONANES	111-84-2	0.007	11,323	0.03	7,796	0.00	0.00	NR	3,000	TCEQ Short-Term AMCV	0.00000
OCTANES*	111-65-9	0.011	11,323	0.08	7,796	0.02	0.02	NR	4,100	TCEQ Short-Term AMCV	0.00001
PENTANES*	109-66-0	0.015	11,323	0.14	7,796	0.10	0.10	NR	68,000	TCEQ Short-Term AMCV	0.00000
PROPYLENE	115-07-1	0.088	11,323	29.11	7,796	0.43	0.45	NR	NA	NA	
STYRENE	100-42-5	0.015	11,323	1.43	7,796	0.04	0.05	20,000	5,000	ATSDR Acute MRL	0.00001
TETRACHLOROETHYLENE	127-18-4	0.004	11,323	0.02	7,796	0.00	0.00	35,000	6	ATSDR Acute MRL	0.00045
TOLUENE	108-88-3	0.037	11,323	31.60	7,796	0.37	0.42	67,000	2,000	ATSDR Acute MRL	0.00021
TRIMETHYLBENZENES*	622-96-8	0.019	11,323	12.59	7,796	0.30	0.34	50,000	250	TCEQ Short-Term AMCV	0.00136
UNDECANES	1120-21-4	0.016	11,323	0.06	7,796	0.01	0.01	NR	550	TCEQ Short-Term AMCV	0.00002
XYLENES*	1330-20-7	0.031	11,323	25.39	7,796	0.36	0.40	130,000	2,000	ATSDR Acute MRL	0.00020
Hazard Index											0.03018

The hazard quotient was calculated by comparing the acute health reference level to the maximum 1-hour rolling average.

*For analyte isomer groups which were unable to be differentiated, the lowest health reference value of the isomer group was selected for use in this assessment.

CDPHE = Colorado Department of Public Health and Environment; TCEQ = Texas Commission on Environmental Quality; ATSDR = Agency for Toxic Substances and Disease Registry; OEHHA = California Office of Environmental Health Hazard Assessment

MRL = Minimal Risk Level; REL = Reference Exposure Level; AMCV = Air Monitoring Comparison Values; AEGL = Acute Exposure Guideline Levels

ppbv = parts per billion volume

NA = Not Available

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

CCND Mobile Monitoring Van
2025 Q2

Mobile Laboratory Sampling Data Summary and Risk Assessment
Western Hills Neighborhood | April 29, 2025

Analyte	Cas No	Method Detection Limit (ppbv)	Count of 1-second Concentrations (#)	Maximum 1-second Concentration (ppbv)	Count of 1-hr Rolling Averages Derived (#)	Average 1-hr Rolling Average (ppbv)	Maximum 1-hr Rolling Average (ppbv)	AEGL 1 60-min Value	Health Reference Level (ppbv)	Screening Value Source	Hazard Quotient
1,3 BUTADIENE	106-99-0	0.008	8,887	0.12	5,360	0.01	0.01	670,000	298	OEHHA Acute REL	0.00004
ACETYLENE	74-86-2	0.11	8,887	0.78	5,360	0.14	0.16	NR	25,000	TCEQ Short-Term AMCV	0.00001
BENZENE	71-43-2	0.026	8,887	2.92	5,360	0.14	0.15	52,000	9	ATSDR Acute MRL	0.01649
BUTANES*	75-28-5	0.115	8,887	15.24	5,360	3.28	3.59	NR	33000	TCEQ Short-Term AMCV	0.00011
BUTENES*	590-18-1	0.173	8,887	5.33	5,360	1.61	1.65	NR	15000	TCEQ Short-Term AMCV	0.00011
CARBON DISULFIDE	75-15-0	0.013	8,887	0.05	5,360	0.01	0.01	13,000	1,991	OEHHA Acute REL	0.00000
CYCLOPENTANES*	287-92-3	0.03	8,887	2.07	5,360	0.41	0.43	NR	5,900	TCEQ Short-Term AMCV	0.00007
DECANES	124-18-5	0.009	8,887	0.05	5,360	0.01	0.01	NR	1,000	TCEQ Short-Term AMCV	0.00001
DIETHYLBENZENES*	141-93-5	0.019	8,887	0.14	5,360	0.05	0.05	NR	450	TCEQ Short-Term AMCV	0.00011
DIMETHYLCYCLOHEXANES*	638-04-0	0.017	8,887	0.09	5,360	0.03	0.03	NR	4,000	CDPHE	0.00001
DODECANES	112-40-3	0.005	8,887	0.02	5,360	0.00	0.00	NR	1720	CDPHE	0.00000
ETHYLENE	74-85-1	0.297	8,887	52.10	5,360	8.12	8.57	NR	500,000	TCEQ Short-Term AMCV	0.00002
HEPTANES*	142-82-5	0.01	8,887	0.09	5,360	0.06	0.06	NR	8,300	TCEQ Short-Term AMCV	0.00001
HEXANES*	110-54-3	0.014	8,887	0.06	5,360	0.02	0.02	NR	5,400	TCEQ Short-Term AMCV	0.00000
HEXENES*	592-41-6	0.02	8,887	1.12	5,360	0.28	0.28	NR	500	TCEQ Short-Term AMCV	0.00057
HYDROGEN CYANIDE	74-90-8	0.031	8,887	1.54	5,360	0.13	0.14	2,000	308	OEHHA Acute REL	0.00046
HYDROGEN SULFIDE	7783-06-4	0.026	8,887	1.01	5,360	0.16	0.21	510	70	ATSDR Acute MRL	0.00293
ISOPRENE	78-79-5	0.042	8,887	0.60	5,360	0.12	0.14	NR	1,400	TCEQ Short-Term AMCV	0.00010
METHANOL	67-56-1	0.248	8,887	53.39	5,360	6.26	7.65	530,000	21,366	OEHHA Acute REL	0.00036
METHYLCYCLOHEXANE	108-87-2	0.016	8,887	0.08	5,360	0.03	0.03	NR	4,000	TCEQ Short-Term AMCV	0.00001
NONANES	111-84-2	0.007	8,887	0.03	5,360	0.00	0.00	NR	3,000	TCEQ Short-Term AMCV	0.00000
OCTANES*	111-65-9	0.011	8,887	0.26	5,360	0.03	0.03	NR	4,100	TCEQ Short-Term AMCV	0.00001
PENTANES*	109-66-0	0.015	8,887	0.16	5,360	0.11	0.11	NR	68,000	TCEQ Short-Term AMCV	0.00000
PROPYLENE	115-07-1	0.088	8,887	2.77	5,360	0.22	0.24	NR	NA	NA	
STYRENE	100-42-5	0.015	8,887	0.46	5,360	0.12	0.14	20,000	5,000	ATSDR Acute MRL	0.00003
TETRACHLOROETHYLENE	127-18-4	0.004	8,887	0.02	5,360	0.00	0.00	35,000	6	ATSDR Acute MRL	0.00045
TOLUENE	108-88-3	0.037	8,887	6.20	5,360	0.40	0.42	67,000	2,000	ATSDR Acute MRL	0.00021
TRIMETHYLBENZENES*	622-96-8	0.019	8,887	4.78	5,360	0.34	0.35	50,000	250	TCEQ Short-Term AMCV	0.00140
UNDECANES	1120-21-4	0.016	8,887	0.07	5,360	0.01	0.02	NR	550	TCEQ Short-Term AMCV	0.00003
XYLENES*	1330-20-7	0.031	8,887	7.16	5,360	0.38	0.40	130,000	2,000	ATSDR Acute MRL	0.00020
Hazard Index											0.02374

The hazard quotient was calculated by comparing the acute health reference level to the maximum 1-hour rolling average.

*For analyte isomer groups which were unable to be differentiated, the lowest health reference value of the isomer group was selected for use in this assessment.

CDPHE = Colorado Department of Public Health and Environment; TCEQ = Texas Commission on Environmental Quality; ATSDR = Agency for Toxic Substances and Disease Registry; OEHHA = California Office of Environmental Health Hazard Assessment

MRL = Minimal Risk Level; REL = Reference Exposure Level; AMCV = Air Monitoring Comparison Values; AEGL = Acute Exposure Guideline Levels

ppbv = parts per billion volume

NA = Not Available

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

APPENDIX D PTR CALIBRATION AND QA/QC DATA

Observations During Mobile Van Monitoring

4-28-25 Globeville Neighborhood

14:52 50th & Lincoln: BTEX, unknown
14:55 50th & Leaf: TEX, unknown
15:41 46th & Lincoln: BTEX, auto exhaust, intersection
16:03 44th & Lincoln: BTEX, alkenes, Intersection
16:26 53rd & Lincoln: BTEX, alkenes, Intersection

4-29-25 Western Hills Neighborhood

10:00 Dakin & Hilltop: BTEX, alkenes, auto exhaust, intersection
10:50 Bronco & Broadway: BTEX, truck exhaust, intersection
10:53 W. 70th & Kidder: BTEX, unknown
12:08 E. 78th & York St: BTEX, exhaust, intersection

4-29-25 Elyria-Swansea Neighborhoods

12:54 48th & Gaylord, BTEX, TMB, tank cleaning/tank production facility
1:13 E. 41st & Milwaukee: BTEX, intersection
1:17 E. 40th Ave & Adam St: BTEX, alkenes, auto exhaust, intersection
2:09 51st & Milwaukee: BTEX and propylene, intersection, unknown
2:11 47th & Milwaukee: BTEX, alkenes, intersection, auto exhaust
2:17 50th & Steele: BTEX, intersection, exhaust
2:51 44th & Thompson: BTEX, TMB intersection, truck exhaust

4-30-25 Dupont Neighborhood

10:08 78th & Kimberly: BTEX, TMB, butene, Intersection, exhaust
10:22 80th & Kimberly: BTEX, alkenes, intersection traffic
10:37 Magnolia & Niagara, TMB, unknown
10:57 80th & Quebec: BTEX, intersection
12:27 80th & Roslyn: BTEX, alkenes, intersection

4-30-25 Adams City Neighborhood

1:14 Birch & Saurini: BTEX, TMB, alkenes, Intersection, exhaust
1:32 72nd & Clermont: BTEX, Toluene high, Intersection, unknown
1:36 72nd & Clermont: Toluene, unknown
1:39 72nd & Colorado Blvd: BTEX, alkenes, TMB, near construction zone
2:10 69th & Daliah: Multiple BTEX, alkenes, intersection, exhaust
2:14 72nd & Dexter: BTEX, TMB, following semi-truck, exhaust
2:37 72nd & Cherry: BTEX, alkenes, TMB, exhaust from School Pickup
2:50 68th & Albion: BTEX, intersection exhaust

CCND Mobile Monitoring Van
2025 Q2

5-1-25 Pioneer Park Neighborhood

10:16 64th & Olive: Large BTEX, intersection, unknown
10:57 68th & Kearney: BTEX, alkenes, TMB, intersection, exhaust
11:22 63rd & Ivanhoe: BTEX, intersection, exhaust
11:45 62nd & Monaco: BTEX, TMB, intersection
11:47 62nd & Kearney: BTEX, intersection
12:16 60th & Rose: BTEX, TMB, alkenes, intersection, exhaust
12:44 56th & Niagara: BTEX, unknown

CCND Mobile Monitoring Van
2025 Q2

2nd Quarter 2025 CCND Testing
PTR Screenshots
4/28/25

Setting			
Setting	Odor		
Primary Ion	H3O+		
Transmission	DC		
	Man/Ctrl		Ctrl
PC	370.6		370.58 mbar
p Drift	2.30		2.30 mbar
TofLens			8.48E-5 mbar
TOF			1.03E-6 mbar
E/N			157.2 110.7 Td
Temps	79.80 °C		79.90 °C
SrcValve	50.0		
H2O	6.0		6.00 sccm
O2	0.0		0.00 sccm
NO	0.0		0.00 sccm
Ihc	4		4.0 mA
	On/Off		On
FCinlet	60.0		59.97 sccm
U	FU	°C	C*
Us	150		145.0 V
Uso	80		78.6 V
Udrift	525		526.1 V

Production Settings

CCND Mobile Monitoring Van
2025 Q2

TPS TPS Settings 2025_04_27 *Changed*

Lens 1	10.0	10.0 V	All on	<input checked="" type="checkbox"/>
Lens 2	20.0	19.0 V	Lenses	<input checked="" type="checkbox"/>
Lens 3	20.0	20.0 V		
Lens 4	35.0	35.0 V		
Lens 5	120.0	119.0 V		
Lens 6	20.0	20.0 V		
Lens 7	12.0	12.0 V		
Push L	18.0	18.0 V	<input checked="" type="checkbox"/>	3 mA
Push H	790.0	790.0 V	<input checked="" type="checkbox"/>	2 mA
Pull L	117.0	114.0 V	<input checked="" type="checkbox"/>	4 mA
Pull H	900.0	900.0 V	<input checked="" type="checkbox"/>	4 mA
Grid	2000.0	1904 V	<input checked="" type="checkbox"/>	1 μ A
Cage	5000.0	4750 V	<input checked="" type="checkbox"/>	98 μ A
Refl. Grid	662.0	629.0 V	<input checked="" type="checkbox"/>	73 μ A
Refl. Back	900.0	855 V	<input checked="" type="checkbox"/>	166 μ A
MCP F	5500	5228.0 V	<input checked="" type="checkbox"/>	16 μ A
MCP B	2350	2253.0 V	<input checked="" type="checkbox"/>	200 μ A

Hex1		OP
OFF/ON	<input checked="" type="checkbox"/>	ON
Frequency	5.40	5.40Mhz
Amplitude	98.0	119.9V
Offset	- 0.10	-0.07V

TOF and Hex Voltages

CCND Mobile Monitoring Van
2025 Q2

Defined Peaks

	Mass	Value	Unit
New_000	0.00000	NaN	ppb
*(H2O)+	18.01000	22.22	ppb
*(H3N)H+	18.03380	254.02	ppb
*(H2O)H+	19.01780	1.26E+4	ppb
✓ *(H2O)H+	21.02210	1.20E+5	ppb
[HCN]+	27.02000	0.26	ppb
*(N2)+	28.00600	10.93	ppb
✓ (HCN)H+	28.01500	4.30	ppb
✓ (C2H4)+	28.03508	17.00	ppb
*(N2)H+	29.01340	271.61	ppb
*(NO)+ i_18O	30.99450	337.14	ppb

20 of 253 Peaks selected from
"HON MACT Additions.ipta"

Instrument

DataCollection

Description	Value	Unit
ACQ_SRV_SpecTime_ms_	1000.000	
ACQ_SRV_MassCal_a_Ac	1.503E+4	
ACQ_SRV_MassCal_b_Ac	-4.371E+4	
ACQ_SRV_AutoCalOnOf	1.000	
ACQ_SRV_AutoCalPerio	15.000	




Calculated Traces

Trace	Value	Unit
PI (total)	40.53	x1E6
H3O+	96.29	%
H2O.H3O+ (Cluster)	0.4419	%
NO+	0.2702	%
O2+	2.997	%

calc_traces_O2%180181.iCT

Peaks and Traces

Acquisition ACQ active

Single Spec Time (ms) 1000

Extraction time (μs) 4.0 395.4 amu

max Flighttime(μs) 33.0 30.30 kHz


Data Save Settings

Spec Trace Raw

Time Duration


02:00:00 Single File Duration

24 Number of Files To Store

D:\Data 

Add File Count Extension





New ACQ for new file





<year>_<month>_<day>\ 

Data_<hour>_<minute>_<second>

2025_04_27\Data_12_43_15_part_XXX

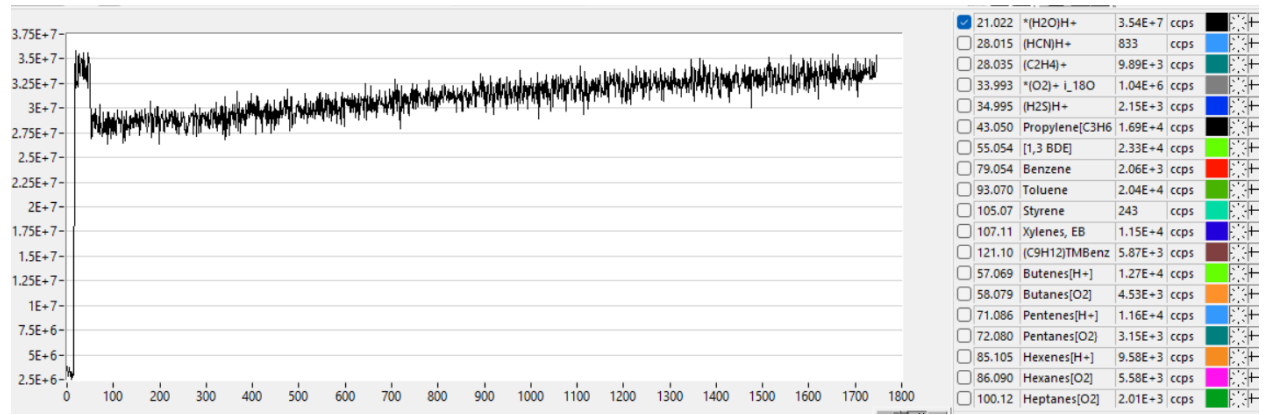
Mass Axis Calibration

    Cal Fine 15 sec

Mass	TimeBin		a
21.0221	25193		15029.2
203.9400	170918		b -43711.4
330.8500	229657		

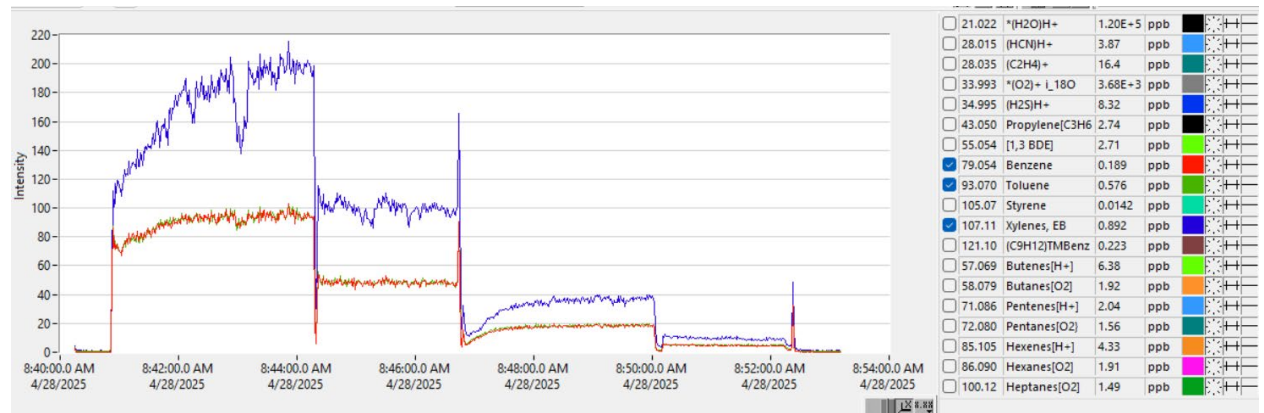
Acquisition Settings

CCND Mobile Monitoring Van 2025 Q2

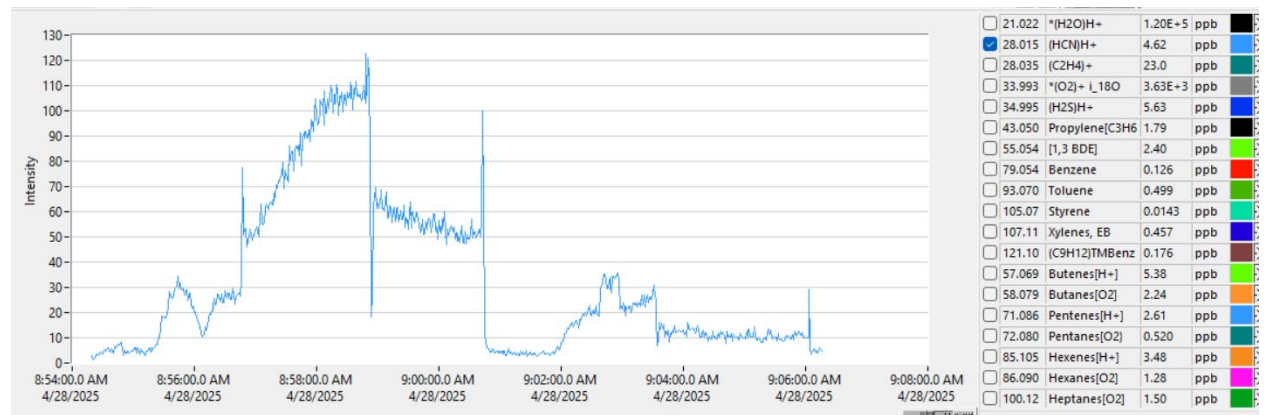


Hydronium Stability

Initial Calibration Screen Shots

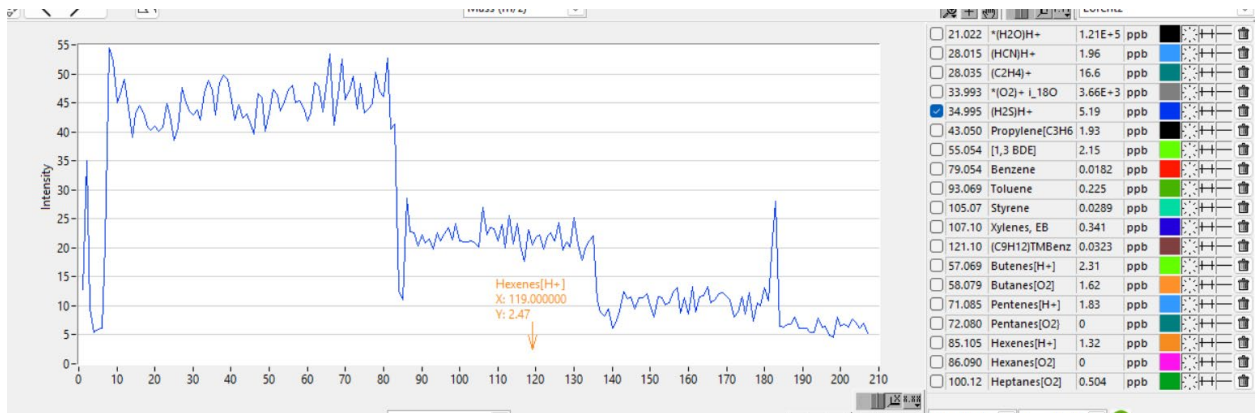


BTEX Calibration 100, 50, 20 and 5 ppb

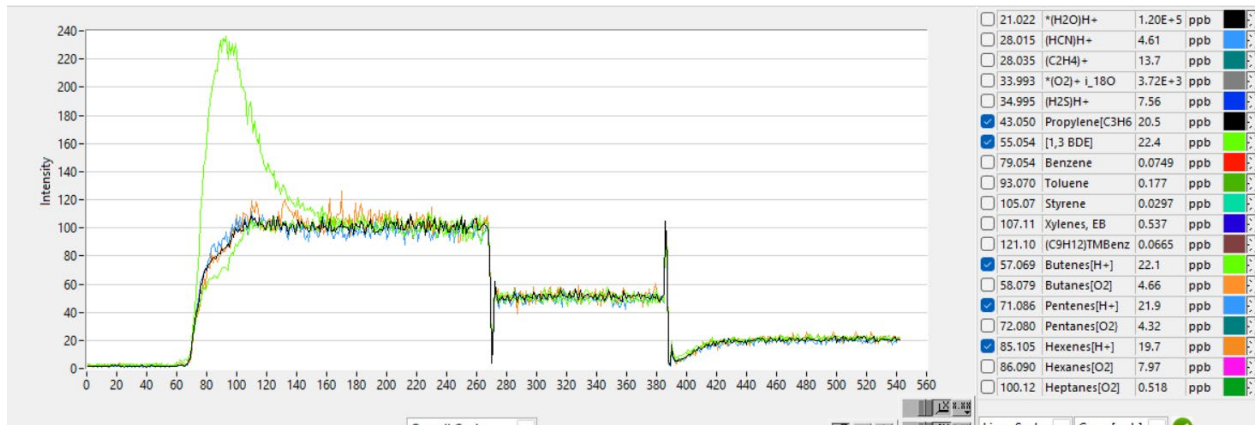


HCN 100, 50, 25 and 10 ppb

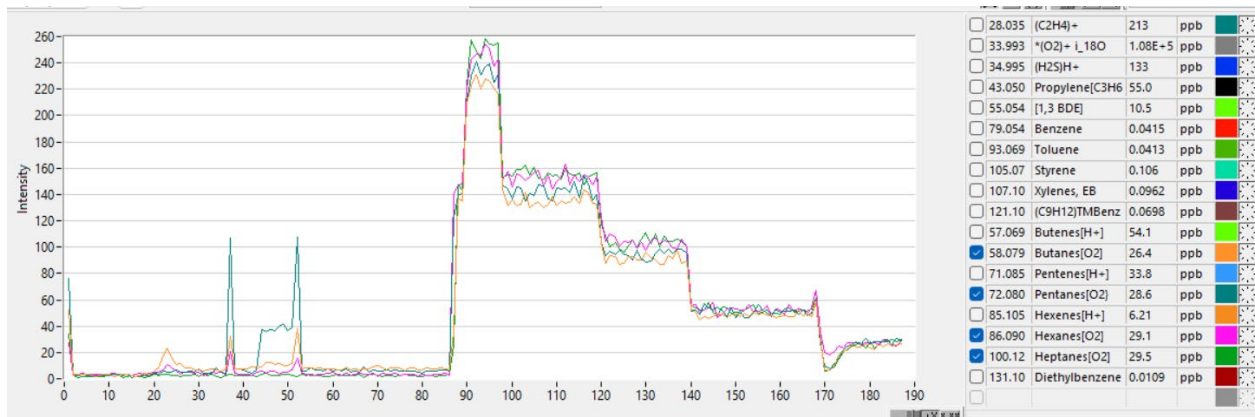
CCND Mobile Monitoring Van 2025 Q2



50, 20 10 and 5 ppb H₂S

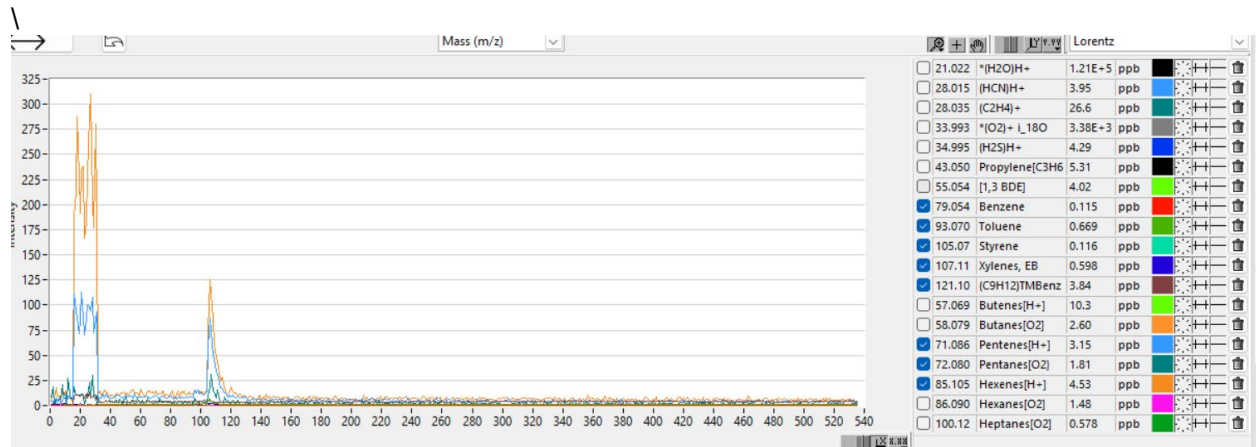


100, 50 and 20 ppb Alkenes

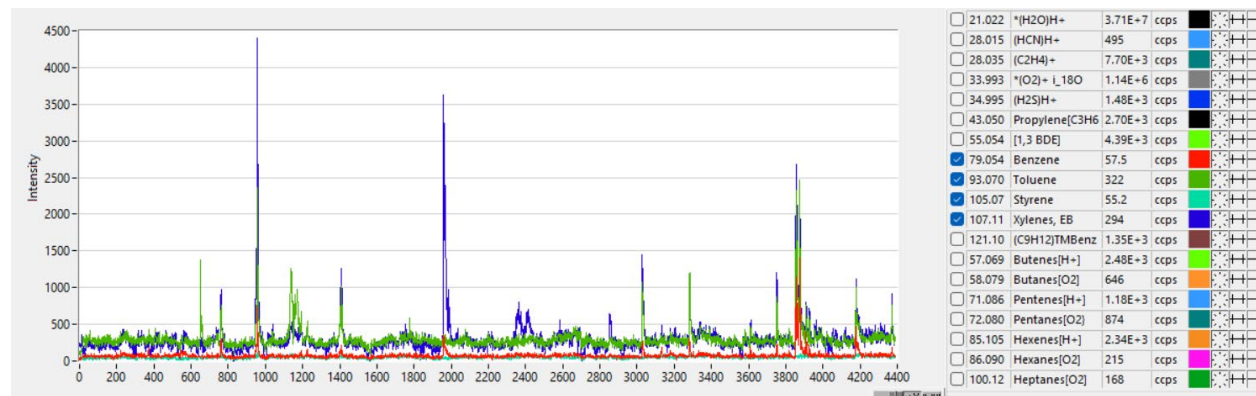


150, 100 and 50 and 25 ppb Alkanes

CCND Mobile Monitoring Van 2025 Q2

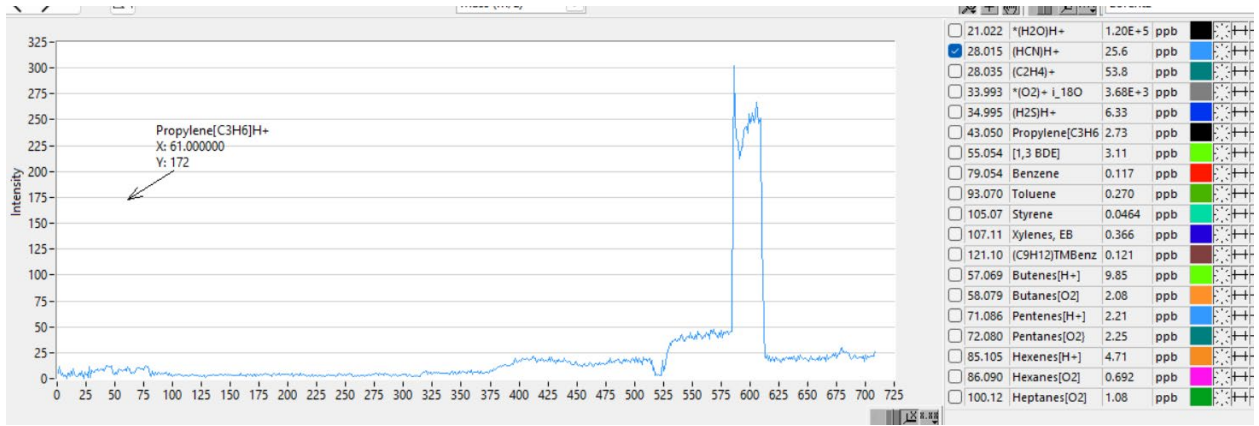


Field Zero Globeville Cycles 260-530 used

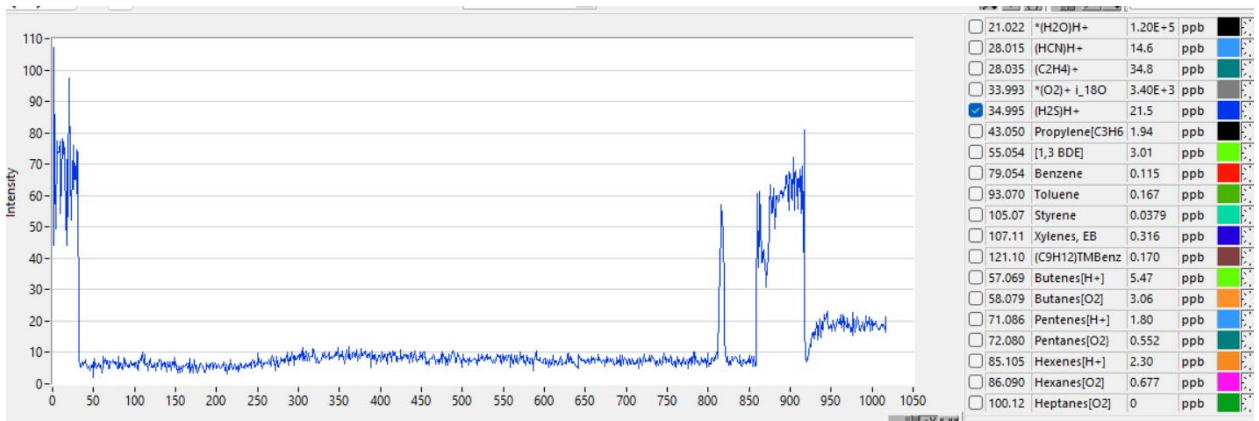


Globeville Raw Data

Post Calibration Checks

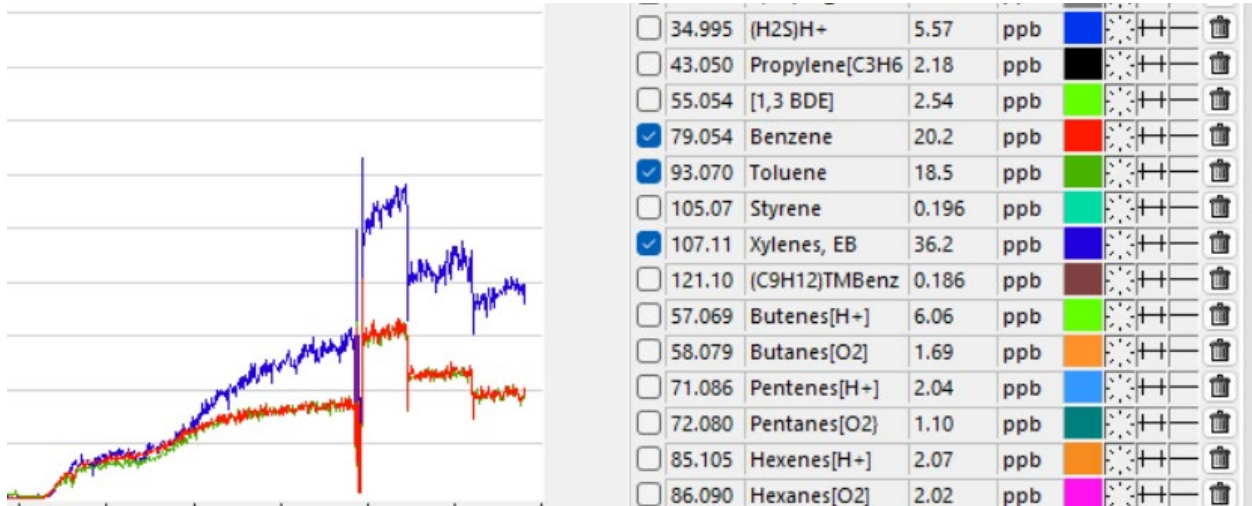


25 ppb HCN

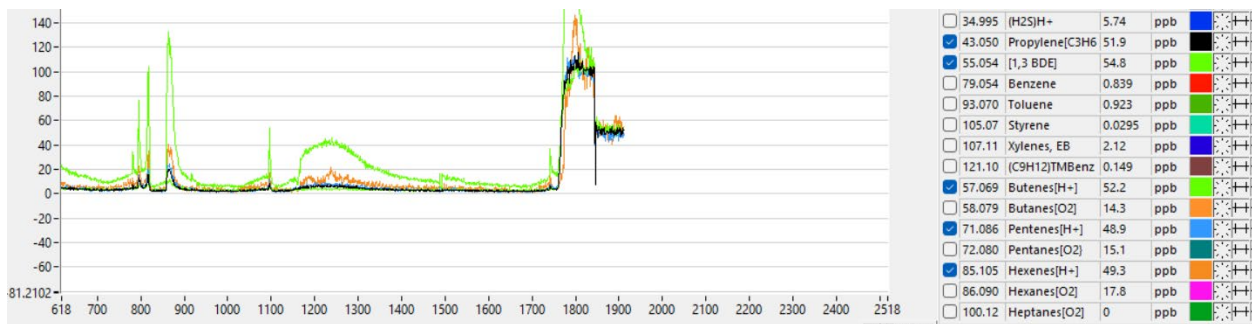


20 ppb H2S

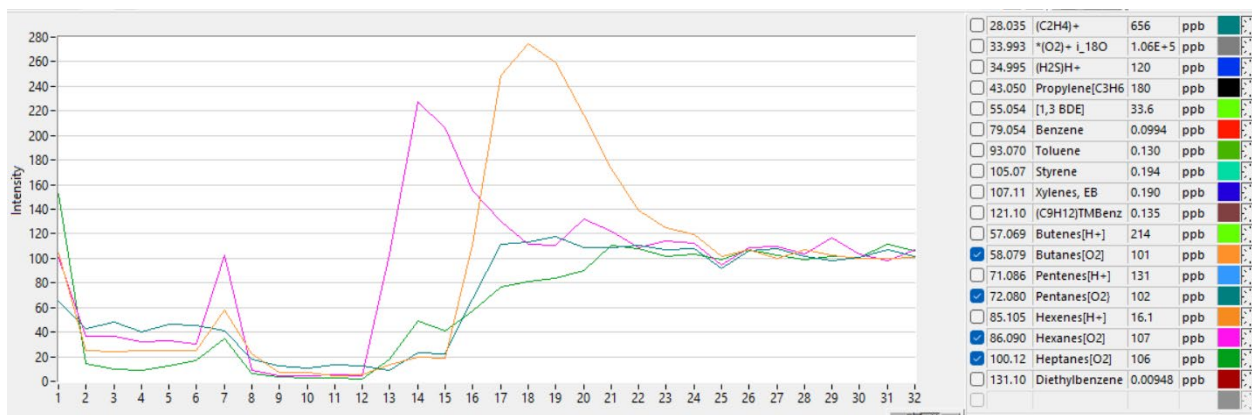
CCND Mobile Monitoring Van
2025 Q2



20 ppb BTEX



50 ppb Alkenes



100 ppb alkanes

CCND Mobile Monitoring Van
2025 Q2

4-29-25 CCND Western Hills and Swansea
PTR Screenshots

		Man/Ctrl	Ctrl
Setting	Odor		
Primary Ion	H3O+		
Transmission	DC		
PC	370.4	370.41 mbar	
p Drift	2.30	2.29 mbar	
TofLens		8.35E-5 mbar	
TOF		8.15E-7 mbar	
E/N		158.2 111.4 Td	
Temps	80.30 °C	80.00 °C	
SrcValve	50.0		
H2O	6.0	6.00 sccm	
O2	0.0	0.00 sccm	
NO	0.0	0.00 sccm	
Ihc	4	4.0 mA	
	On/Off	On	
FCinlet	60.0	59.96 sccm	
U	FU	°C	↔
Us	150	145.3 V	
Uso	80	78.6 V	
Udrift	525	526.1 V	

Production Settings

CCND Mobile Monitoring Van
2025 Q2

TPS TPS Settings 2025_04_27 *Changed*

Lens 1	10.0	10.0 V	All on	<input checked="" type="checkbox"/>
Lens 2	20.0	20.0 V	Lenses	<input checked="" type="checkbox"/>
Lens 3	20.0	20.0 V		
Lens 4	35.0	35.0 V		
Lens 5	120.0	119.0 V		
Lens 6	20.0	20.0 V		
Lens 7	12.0	12.0 V		
Push L	18.0	18.0 V	<input checked="" type="checkbox"/>	3 mA
Push H	790.0	790.0 V	<input checked="" type="checkbox"/>	2 mA
Pull L	117.0	117.0 V	<input checked="" type="checkbox"/>	4 mA
Pull H	900.0	900.0 V	<input checked="" type="checkbox"/>	4 mA
Grid	2000.0	1904 V	<input checked="" type="checkbox"/>	1 μ A
Cage	5000.0	4750 V	<input checked="" type="checkbox"/>	99 μ A
Refl. Grid	662.0	629.0 V	<input checked="" type="checkbox"/>	73 μ A
Refl. Back	900.0	855 V	<input checked="" type="checkbox"/>	165 μ A
MCP F	5500	5228.0 V	<input checked="" type="checkbox"/>	16 μ A
MCP B	2350	2254.0 V	<input checked="" type="checkbox"/>	198 μ A

Hex1		OP
OFF/ON	<input checked="" type="checkbox"/>	ON
Frequency	5.40	5.40Mhz
Amplitude	98.0	133.9V
Offset	- 0.10	-0.08V

TRS Voltages and Hex settings

CCND Mobile Monitoring Van
2025 Q2

Defined Peaks

	Mass	Value	Unit
(C3H4)H+ i_13C	42.04200	262.37	ccps
(C2H2O)H+ f	43.01690	2.71E+3	ccps
✓ Propylene[C3H6	43.05000	1.21E+4	ccps
(C2H3N)H+	44.03000	135.26	ccps
(C2H4O)+	44.02567	158.58	ccps
(C3H6)H+ f [IPA	43.03000	5.86E+3	ccps
*(CO2)H+	44.99710	879.65	ccps
*(N2O)H+	45.00830	3.61E+3	ccps
(C2H4O)H+	45.03350	4.51E+3	ccps
*(NO2)+	45.99240	412.23	ccps
(C2H4O)H+	46.03690	308.59	ccps

20 of 253 Peaks selected from
"HON MACT Additions.ipta"

Instrument

TOFSupply

Description	Value	Unit
TPS_Lens1_Set	10.000	V
TPS_Lens1_Act	10.000	V
TPS_Lens2_Set	20.000	V
TPS_Lens2_Act	20.000	V
TPS_Lens3_Set	20.000	V




Calculated Traces

Trace	Value	Unit
PI (total)	30.99	x1E6
H3O+	93.94	%
H2O.H3O+ (Cluster)	2.551	%
NO+	0.3374	%
O2+	3.174	%

calc_traces_O2%180181.iCT

Peaks and Traces

Acquisition ACQ active

Single Spec Time (ms)

Extraction time (μs) 395.7 amu


max Flighttime(μs) 30.30 kHz

Data Save Settings

Spec Trace Raw


Time Duration Single File Duration

Number of Files To Store










Add File Count Extension

New ACQ for new file



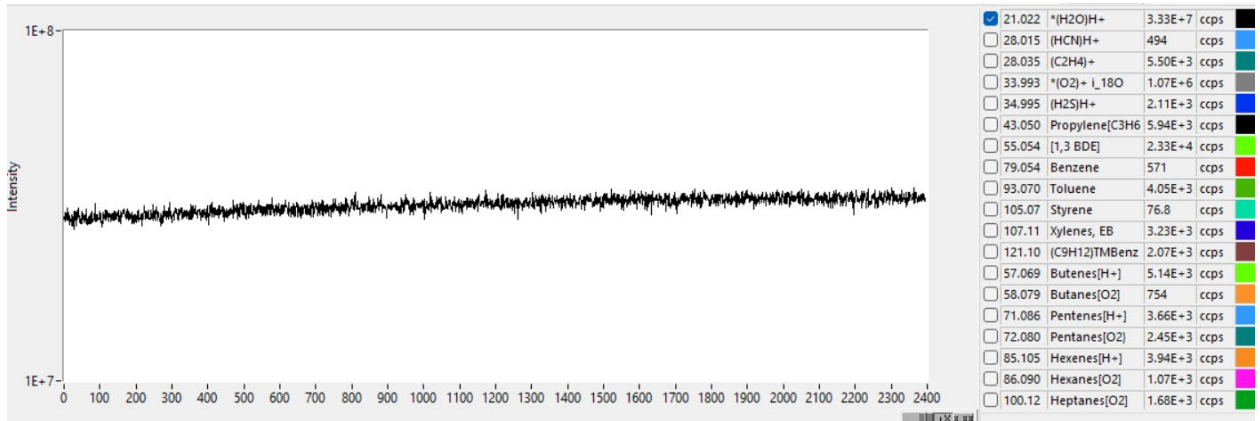
Mass Axis Calibration

    Cal Fine 15 sec

Mass	TimeBin		
<input type="text" value="21.0221"/>	<input type="text" value="25160"/>		a <input type="text" value="15023.5"/>
<input type="text" value="203.9400"/>	<input type="text" value="170832"/>		b <input type="text" value="-43717.1"/>
<input type="text" value="330.8500"/>	<input type="text" value="229549"/>		

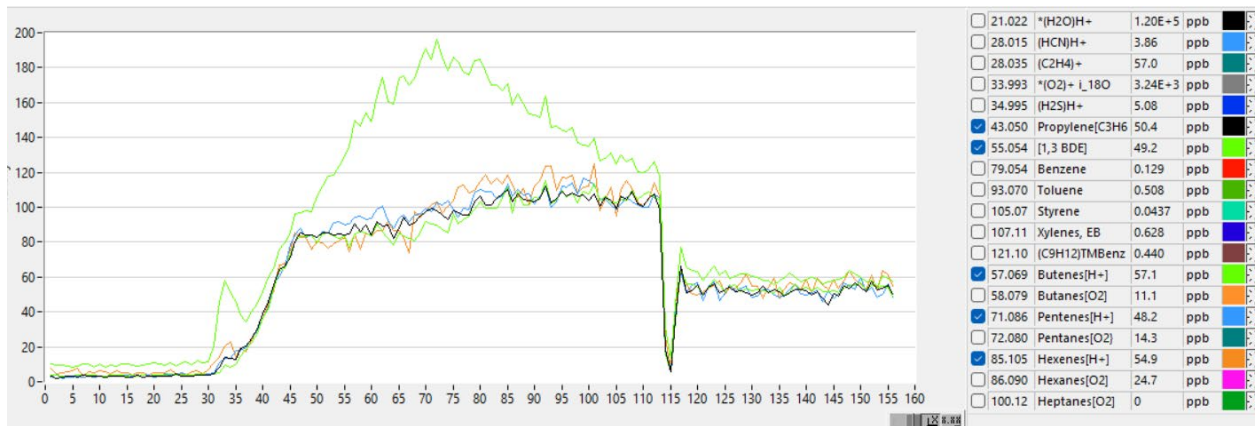
Acquisition Settings

CCND Mobile Monitoring Van 2025 Q2

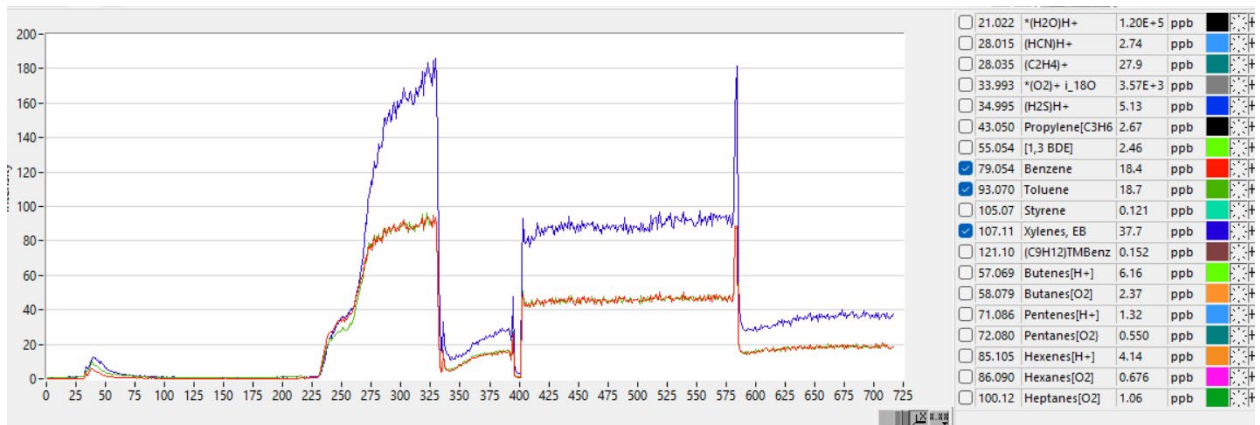


Hydronium Stability

Pre Calibration Checks

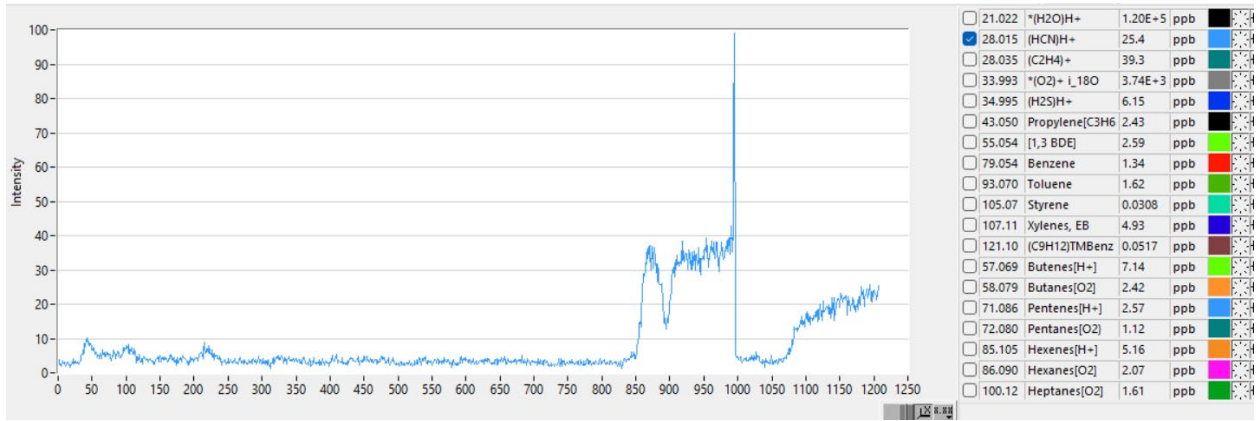


50 ppb Alkenes Check

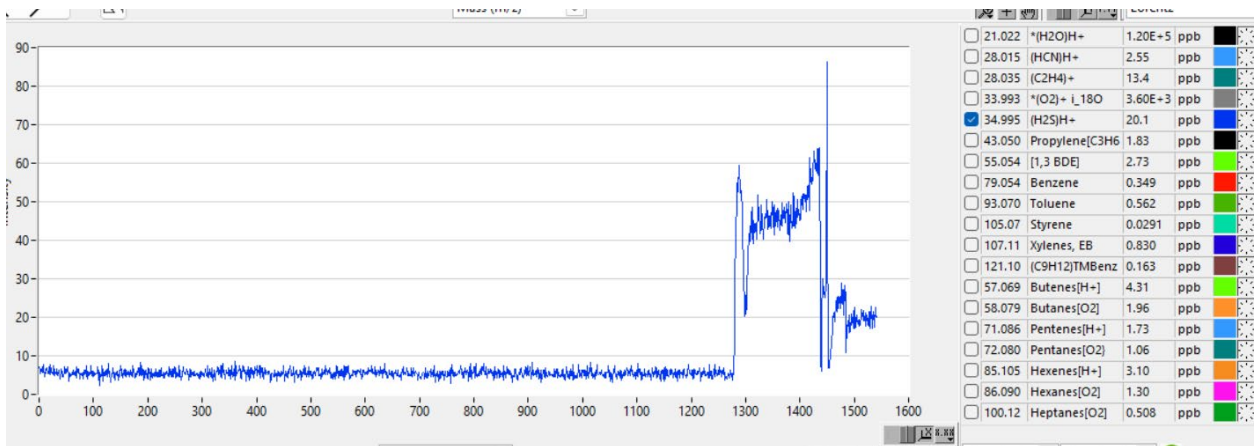


BTEX 50 and 20 ppb checks

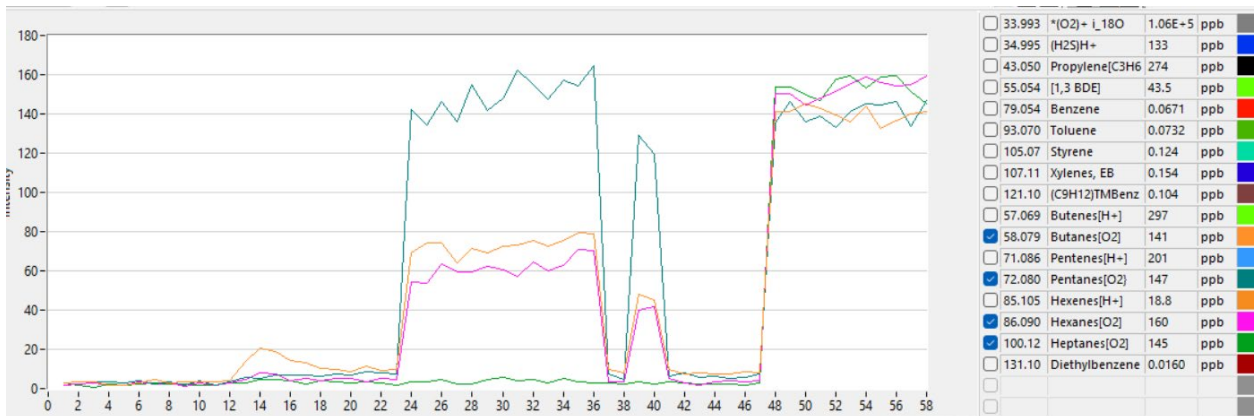
CCND Mobile Monitoring Van 2025 Q2



25 ppb HCN

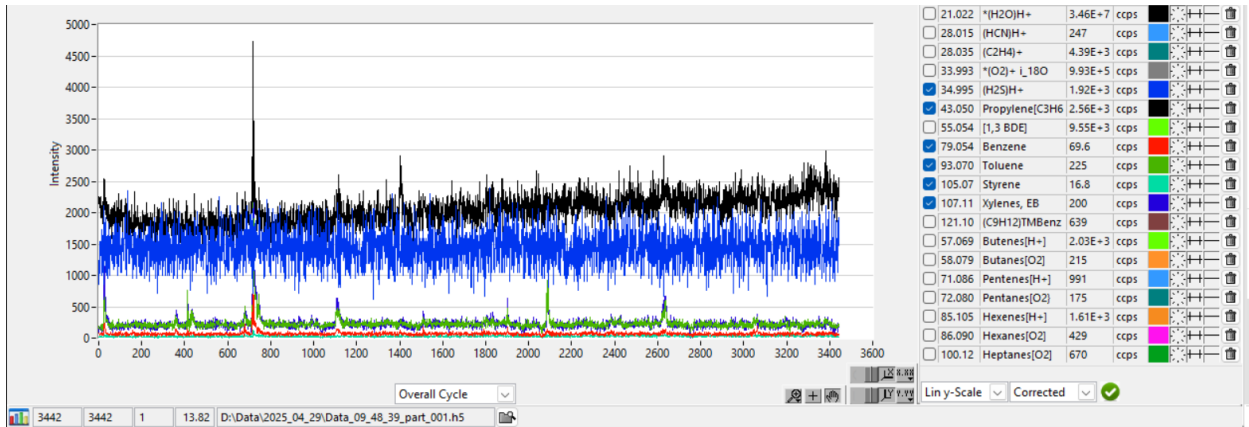


20 ppb H2S

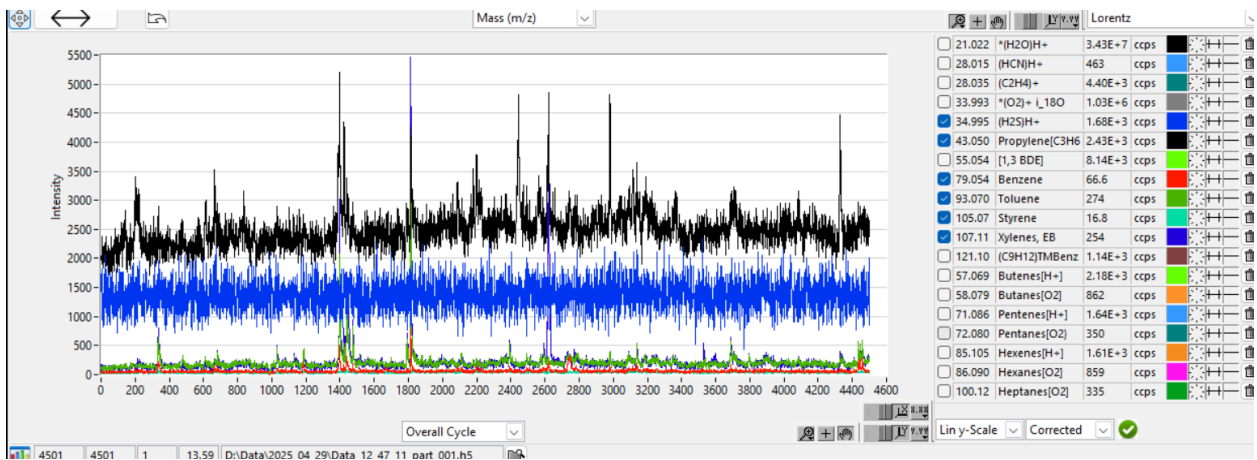


150 ppb Alkanes

CCND Mobile Monitoring Van
2025 Q2

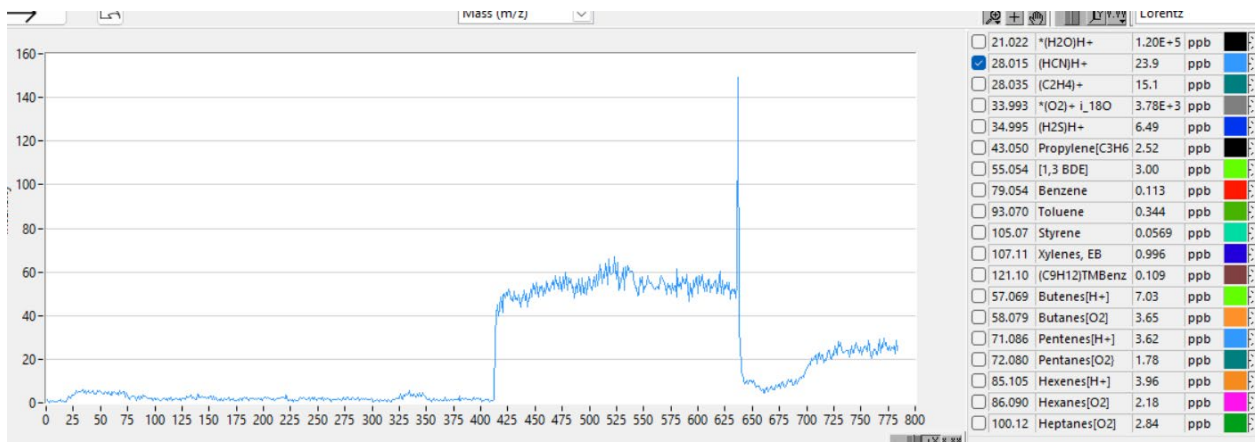


Western Hill Raw Data

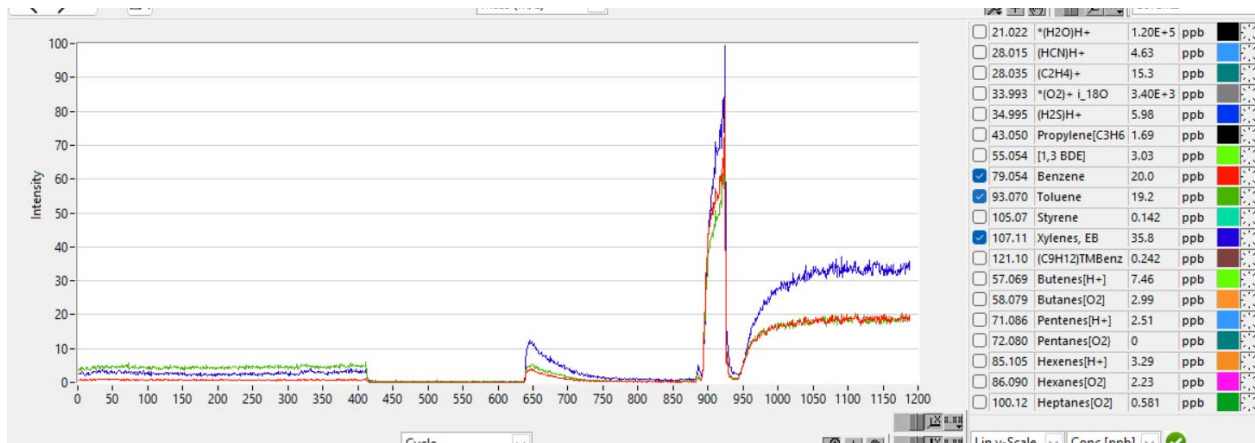


Swansea Raw Data

Post Calibration Checks

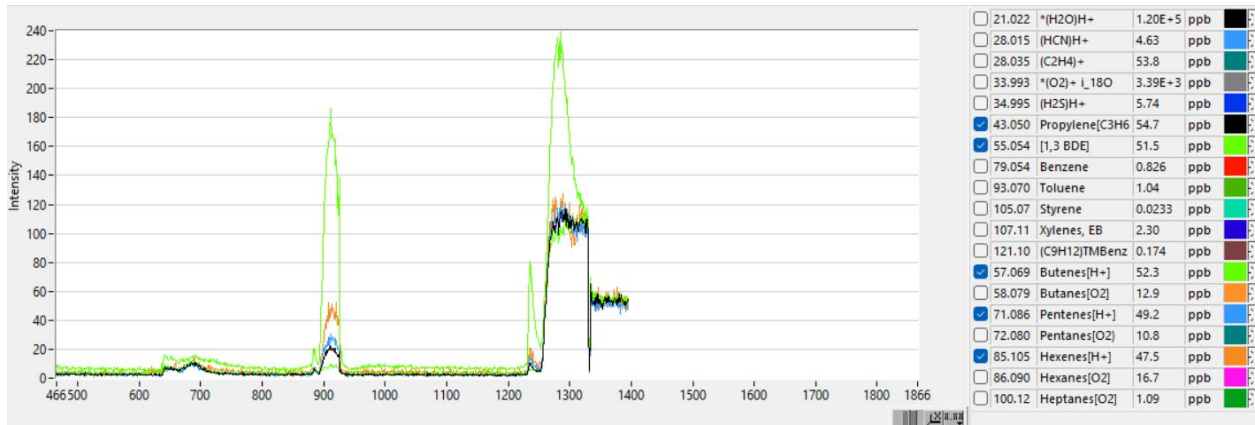


25 ppb HCN

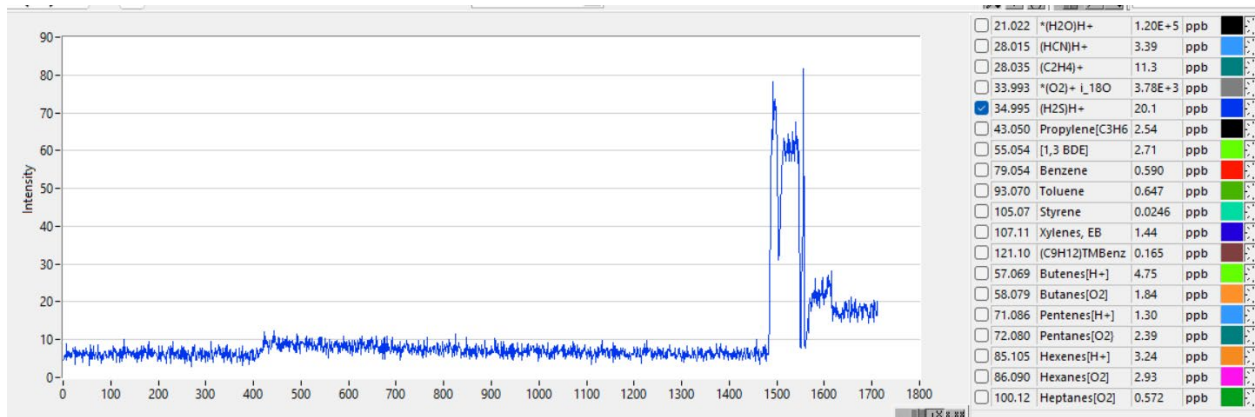


20 ppb BTEX

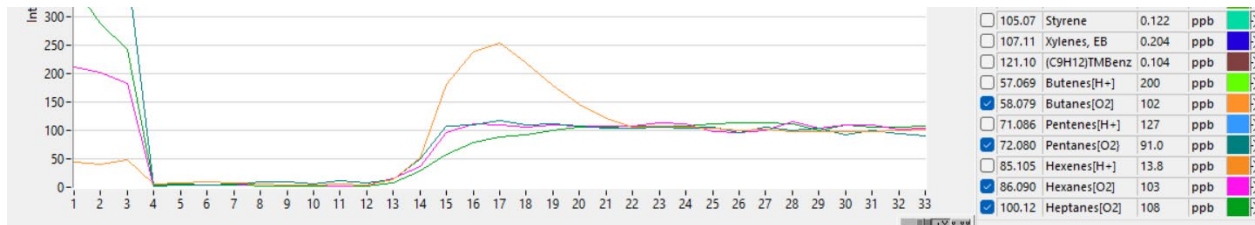
CCND Mobile Monitoring Van
2025 Q2



50 ppb Alkenes



20 ppb H2S



100 ppb Alkanes

CCND Mobile Monitoring Van
2025 Q2

PTR Screenshots
4/30/25 Dupont and Adams City

CCND Mobile Monitoring Van
2025 Q2

Setting		Odor	
Primary Ion		H3O+	
Transmission		DC	
	Man/Ctrl		Ctrl
PC	374.8		374.83 mbar
p Drift	2.30		2.27 mbar
TofLens			7.99E-5 mbar
TOF			7.45E-7 mbar
E/N			159.7 112.5 Td
Temps	79.80 °C		80.00 °C
SrcValve	50.0		
H2O	6.0		6.00 sccm
O2	0.0		0.00 sccm
NO	0.0		0.00 sccm
Ihc	4		4.0 mA
	On/Off		On
FCinlet	60.0		54.28 sccm
U	FU	°C	D→ D←
Us	150		145.0 V
Uso	80		78.6 V
Udrift	525		526.1 V

Production Settings

CCND Mobile Monitoring Van
2025 Q2

TPS *Changed*

Lens 1	10.0	11.0 V	All on	<input checked="" type="checkbox"/>
Lens 2	20.0	21.0 V	Lenses	<input checked="" type="checkbox"/>
Lens 3	20.0	21.0 V		
Lens 4	35.0	35.0 V		
Lens 5	120.0	120.0 V		
Lens 6	20.0	21.0 V		
Lens 7	12.0	13.0 V		
Push L	18.0	18.0 V	<input checked="" type="checkbox"/>	0 mA
Push H	790.0	790.0 V	<input checked="" type="checkbox"/>	0 mA
Pull L	117.0	117.0 V	<input checked="" type="checkbox"/>	0 mA
Pull H	900.0	900.0 V	<input checked="" type="checkbox"/>	0 mA
Grid	2000.0	1905 V	<input checked="" type="checkbox"/>	1 μ A
Cage	5000.0	4750 V	<input checked="" type="checkbox"/>	99 μ A
Refl. Grid	662.0	629.0 V	<input checked="" type="checkbox"/>	75 μ A
Refl. Back	900.0	855 V	<input checked="" type="checkbox"/>	167 μ A
MCP F	5500	5229.0 V	<input checked="" type="checkbox"/>	17 μ A
MCP B	2350	2253.0 V	<input checked="" type="checkbox"/>	197 μ A

Hex1		OP
OFF/ON	<input checked="" type="checkbox"/>	ON
Frequency	5.40	5.40Mhz
Amplitude	98.0	137.9V
Offset	- 0.10	-0.07V

TPS Voltages and Hex Settings

CCND Mobile Monitoring Van
2025 Q2

Defined Peaks

	Mass	Value	Unit
New_000	0.00000	0.00	
*(H2O)+	18.01000	0.00	
*(H3N)H+	18.03380	0.00	
*(H2O)H+	19.01780	0.00	
✓ *(H2O)H+	21.02210	0.00	
[HCN]+	27.02000	0.00	
*(N2)+	28.00600	0.00	
✓ (HCN)H+	28.01500	0.00	
✓ (C2H4)+	28.03508	0.00	
*(N2)H+	29.01340	0.00	
*(NO)+ i_18O	30.99450	0.00	

20 of 253 Peaks selected from
"HON MACT Additions.ipta"

Instrument

DataCollection

Description	Value	Unit
ACQ_SRV_SpecTime_ms_	1000.000	
ACQ_SRV_MassCal_a_Ac	1.502E+4	
ACQ_SRV_MassCal_b_Ac	-4.372E+4	
ACQ_SRV_AutoCalOnOf	1.000	
ACQ_SRV_AutoCalPerio	15.000	




Calculated Traces

Trace	Value	Unit
PI (total)	23.88	x1E6
H3O+	0.4376	%
H2O.H3O+ (Cluster)	3.986	%
NO+	15.59	%
O2+	79.99	%

calc_traces_O2%180181.iCT

Peaks and Traces

Acquisition **Idle**

Single Spec Time (ms) 1000

Extraction time (μs) 4.0 395.7 amu

max Flighttime(μs) 33.0 30.30 kHz


Data Save Settings

Spec Trace Raw

Time Duration ▼


02:00:00 Single File Duration

24 Number of Files To Store

D:\Data 





Add File Count Extension




New ACQ for new file

<year>_<month>_<day>\
Data_<hour>_<minute>_<second> 

2025_04_29\Data_15_38_23_part_XXX

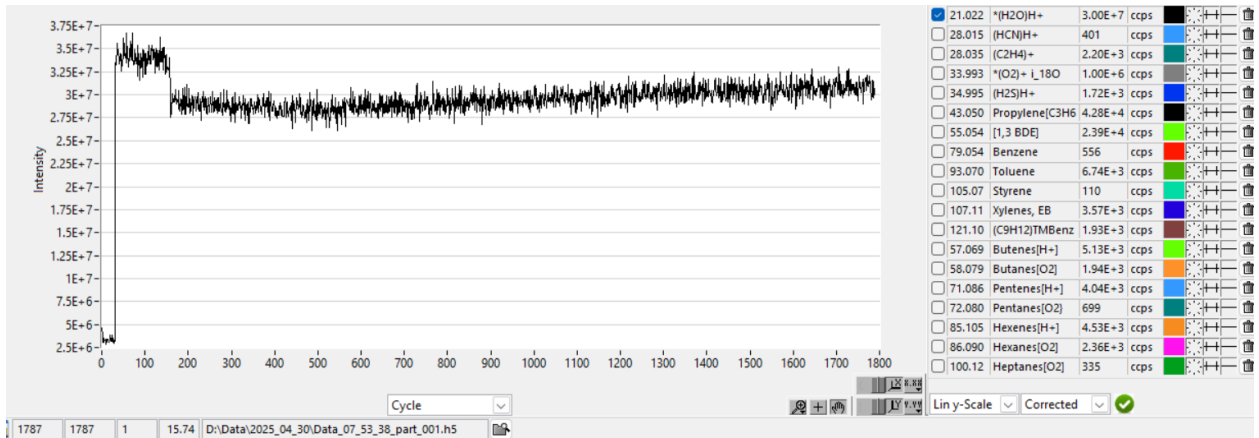
Mass Axis Calibration

    Cal Fine 15 sec

Mass	TimeBin		
21.0221	25167		a 15024.4
203.9400	170847		b -43715.2
330.8500	229568		

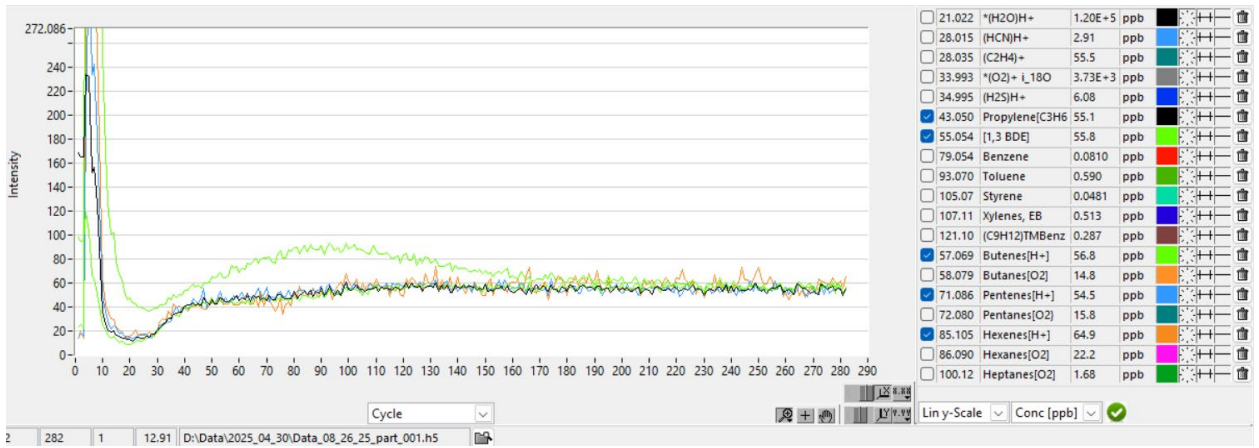
Acquisition Settings

CCND Mobile Monitoring Van 2025 Q2

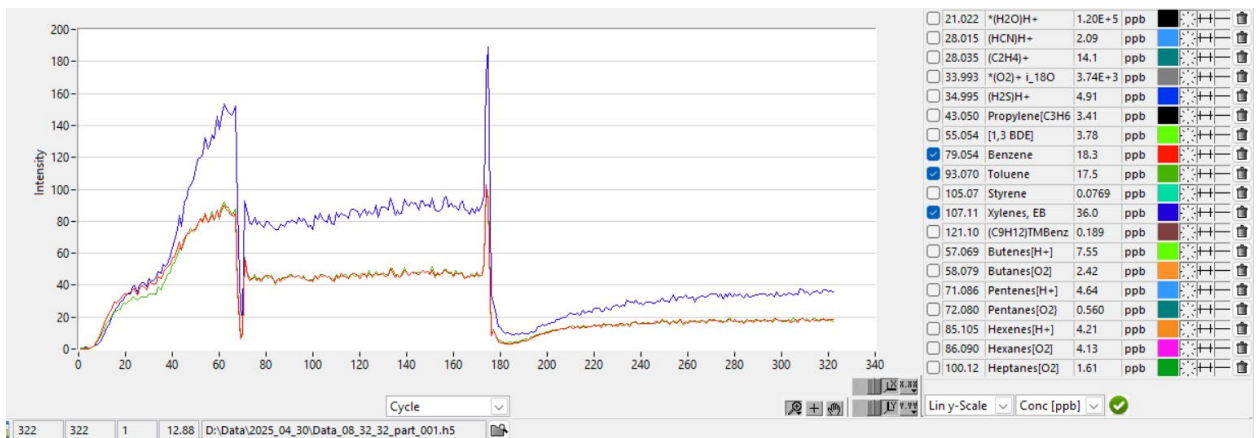


H30+ stability

Pre Calibration Checks

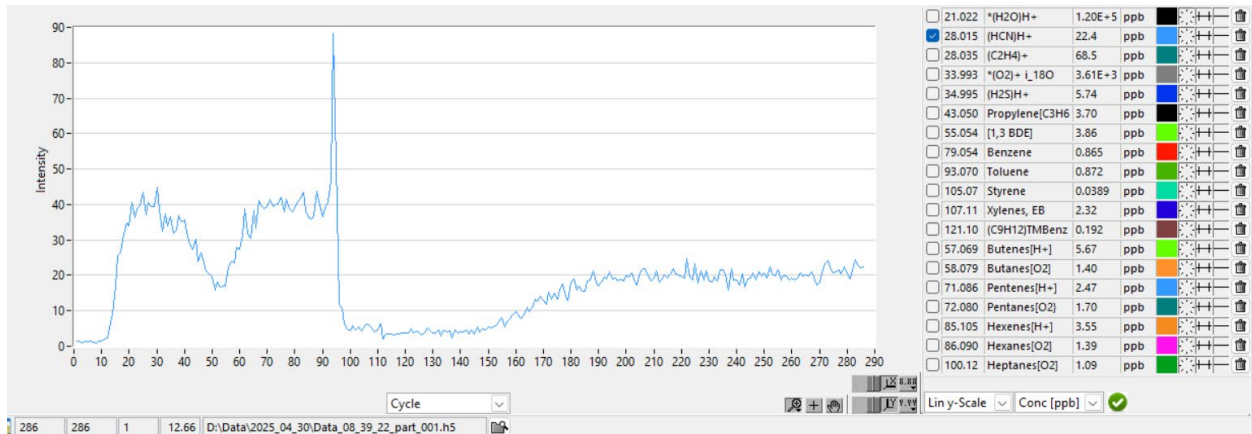


50 ppb Alkenes

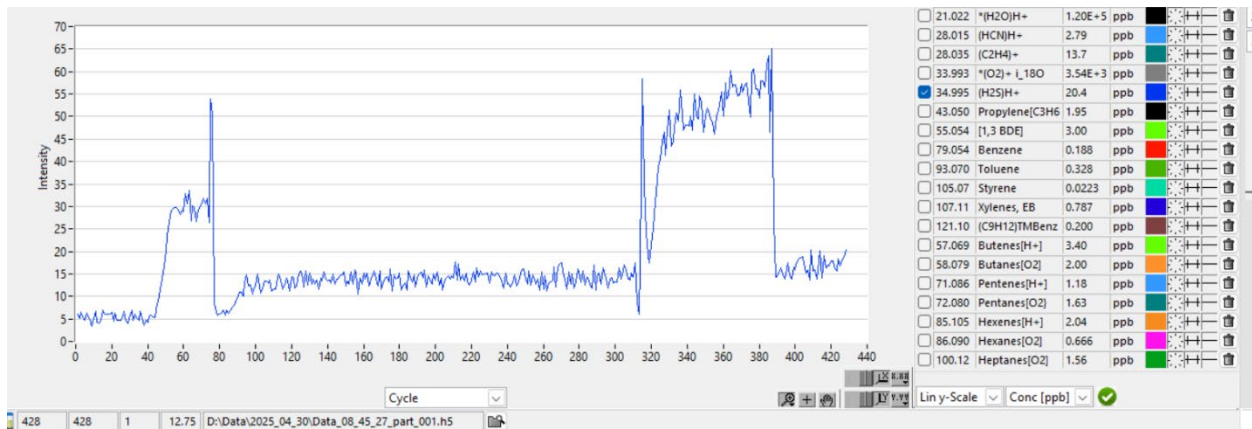


CCND Mobile Monitoring Van 2025 Q2

50 ppb and 20ppb BTEX

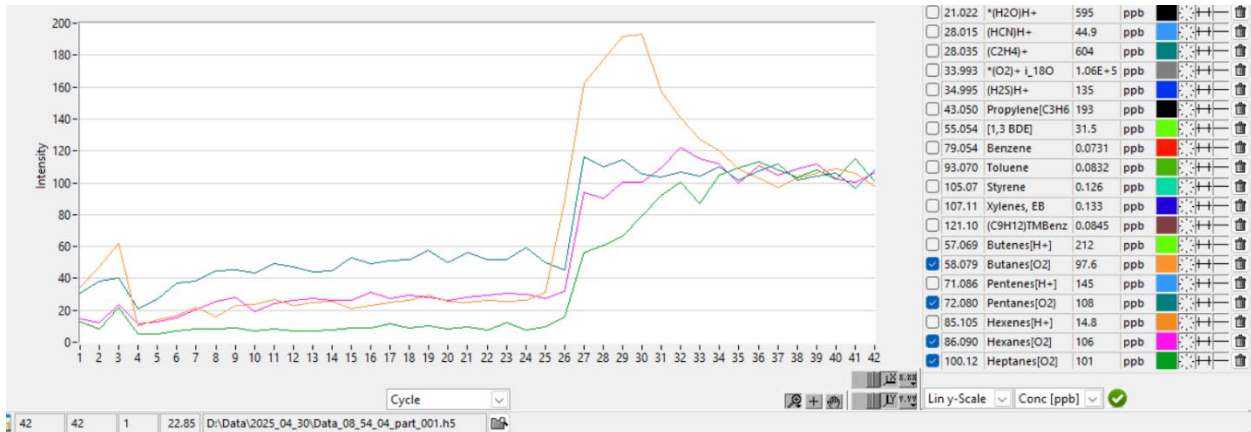


25 ppb HCN

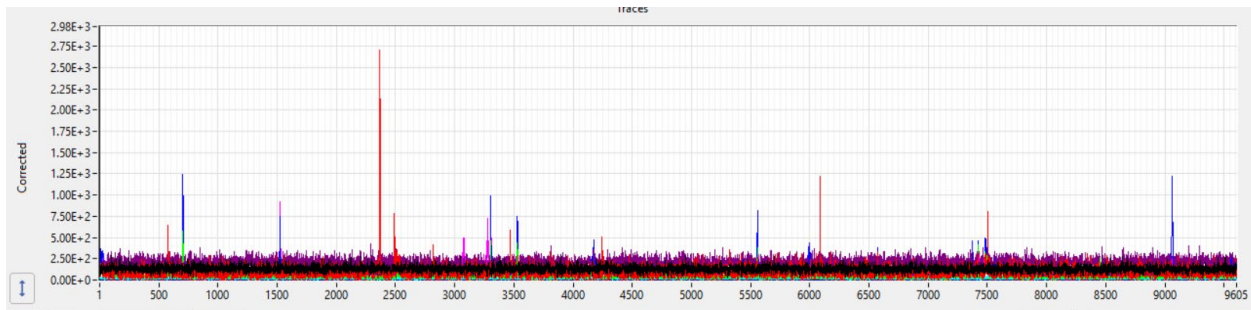


20 ppb H2S

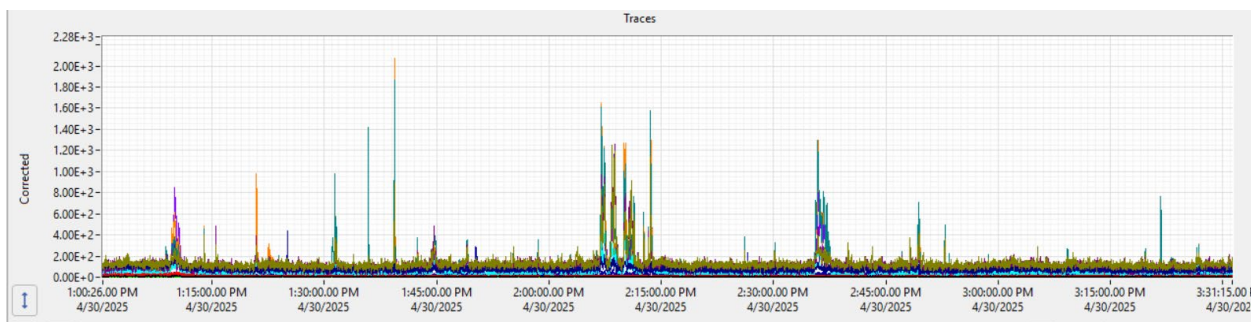
CCND Mobile Monitoring Van 2025 Q2



100ppb Alkanes



Dupont Raw Data



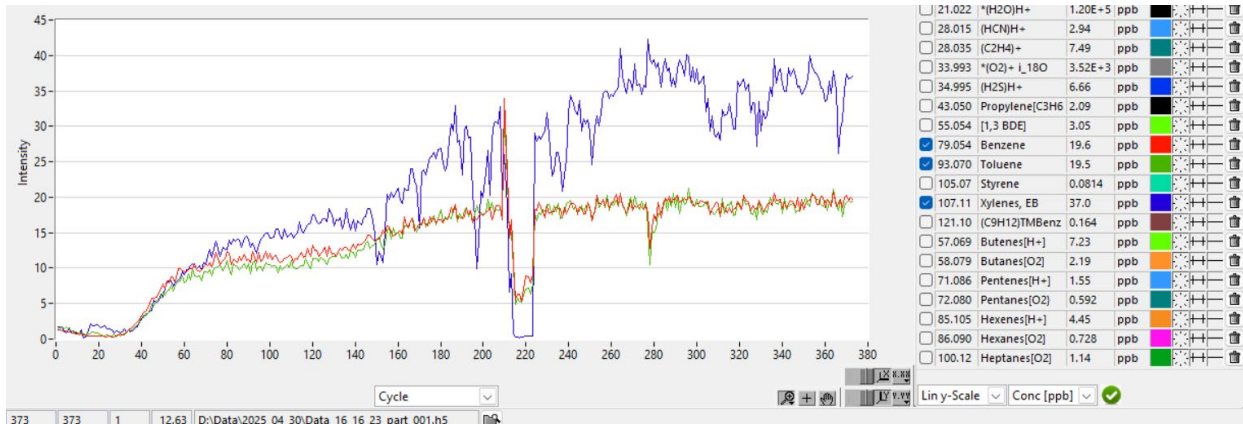
Adams City Raw Data

Post calibration checks

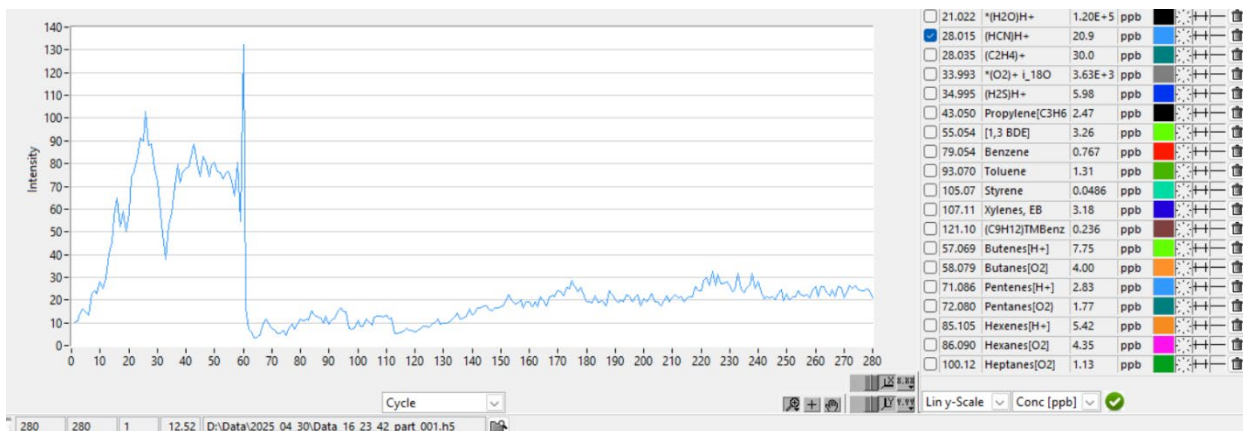
CCND Mobile Monitoring Van 2025 Q2



50 ppb Alkenes

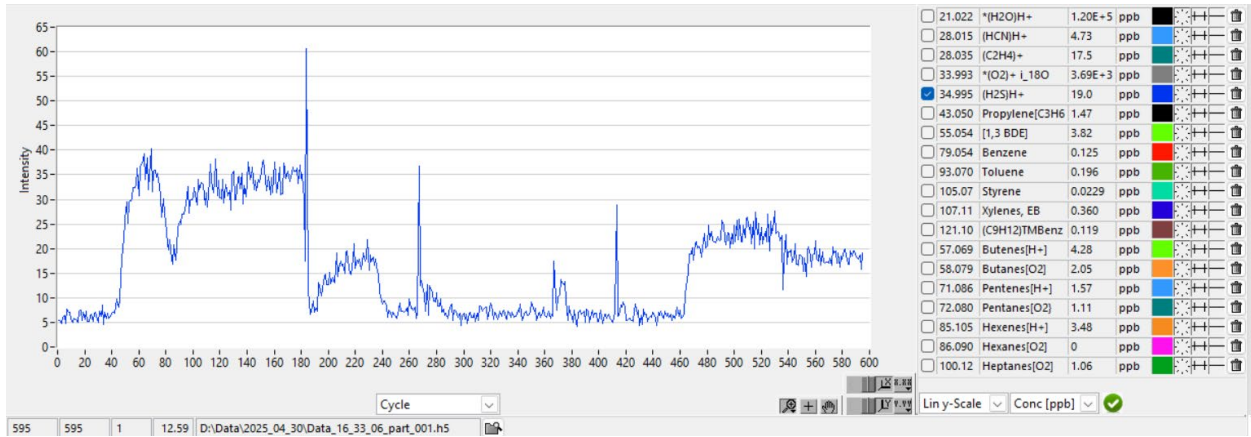


20 ppb BTEX

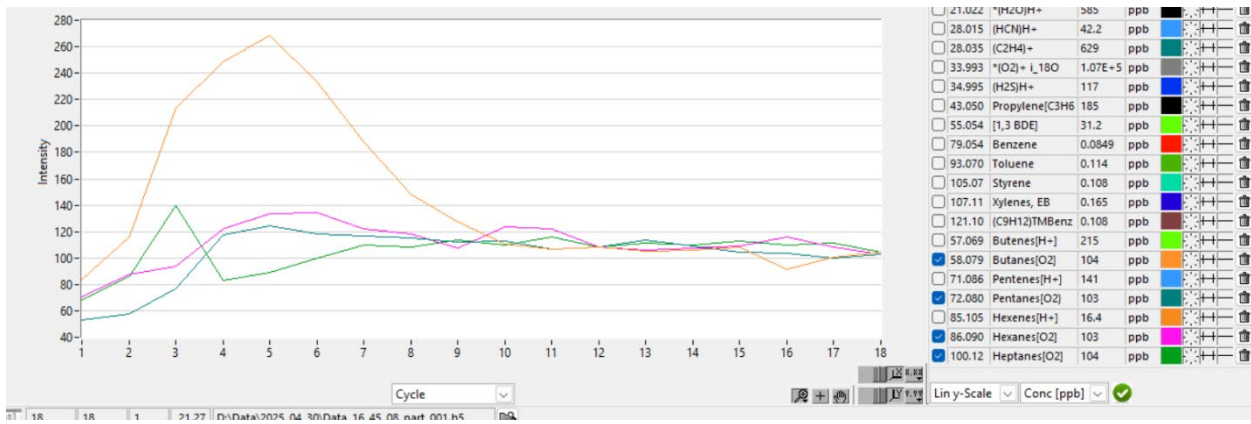


25 ppb HCN

CCND Mobile Monitoring Van 2025 Q2



20 ppb H2S







100 ppb Alkanes


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2025 Q2


PTR Screenshots
5/01/25 Pioneer Park

Acquisition ACQ active


Single Spec Time (ms) 


Extraction time (μs)  395.3 amu


max Flighttime(μs)  30.30 kHz

Data Save Settings

Spec Trace Raw


Time Duration  Single File Duration

 Number of Files To Store











Add File Count Extension

New ACQ for new file



Mass Axis Calibration AutoCAL done

    Cal 

Mass	TimeBin		
<input type="text" value="21.0221"/>	<input type="text" value="25203"/>		a <input type="text" value="15031.9"/>
<input type="text" value="203.9400"/>	<input type="text" value="170955"/>		b <input type="text" value="-43713.2"/>
<input type="text" value="330.8500"/>	<input type="text" value="229705"/>		

Acquisition Settings

CCND Mobile Monitoring Van
2025 Q2

Defined Peaks

	Mass	Value	Unit
New_000	0.00000	NaN	ccps
*(H2O)+	18.01000	7.52E+3	ccps
*(H3N)H+	18.03380	9.95E+4	ccps
*(H2O)H+	19.01780	4.29E+6	ccps
✓ *(H2O)H+	21.02210	2.93E+7	ccps
[HCN]+	27.02000	153.82	ccps
*(N2)+	28.00600	999.24	ccps
✓ (HCN)H+	28.01500	555.28	ccps
✓ (C2H4)+	28.03508	1.65E+4	ccps
*(N2)H+	29.01340	8.85E+3	ccps
*(NO)+ i_18O	30.99450	1.57E+5	ccps

20 of 253 Peaks selected from "HON MACT Additions.ipta"

Instrument

DataCollection

Description	Value	Unit
ACQ_SRV_SpecTime_ms_	1000.000	
ACQ_SRV_MassCal_a_Ac	1.503E+4	
ACQ_SRV_MassCal_b_Ac	-4.371E+4	
ACQ_SRV_AutoCalOnOf	1.000	
ACQ_SRV_AutoCalPerio	15.000	

Calculated Traces

Trace	Value	Unit
PI (total)	31.38	x1E6
H3O+	93.44	%
H2O.H3O+ (Cluster)	2.851	%
NO+	0.5001	%
O2+	3.211	%

calc_traces_O2%180181.iCT

Defined Peaks and Traces

TPS *Changed*

Lens 1	10.0	10.0 V	All on	<input checked="" type="checkbox"/>
Lens 2	20.0	20.0 V	Lenses	<input checked="" type="checkbox"/>
Lens 3	20.0	20.0 V		
Lens 4	35.0	35.0 V		
Lens 5	120.0	119.0 V		
Lens 6	20.0	20.0 V		
Lens 7	12.0	12.0 V		
Push L	18.0	18.0 V	<input checked="" type="checkbox"/>	3 mA
Push H	790.0	790.0 V	<input checked="" type="checkbox"/>	2 mA
Pull L	117.0	115.0 V	<input checked="" type="checkbox"/>	4 mA
Pull H	900.0	900.0 V	<input checked="" type="checkbox"/>	4 mA
Grid	2000.0	1904 V	<input checked="" type="checkbox"/>	1 μ A
Cage	5000.0	4750 V	<input checked="" type="checkbox"/>	98 μ A
Refl. Grid	662.0	629.0 V	<input checked="" type="checkbox"/>	73 μ A
Refl. Back	900.0	856 V	<input checked="" type="checkbox"/>	165 μ A
MCP F	5500	5228.0 V	<input checked="" type="checkbox"/>	16 μ A
MCP B	2350	2253.0 V	<input checked="" type="checkbox"/>	200 μ A

Hex1		OP
OFF/ON	<input checked="" type="checkbox"/>	ON
Frequency	5.40	5.40Mhz
Amplitude	98.0	121.3V
Offset	- 0.10	-0.07V

Lenses and HEX settings

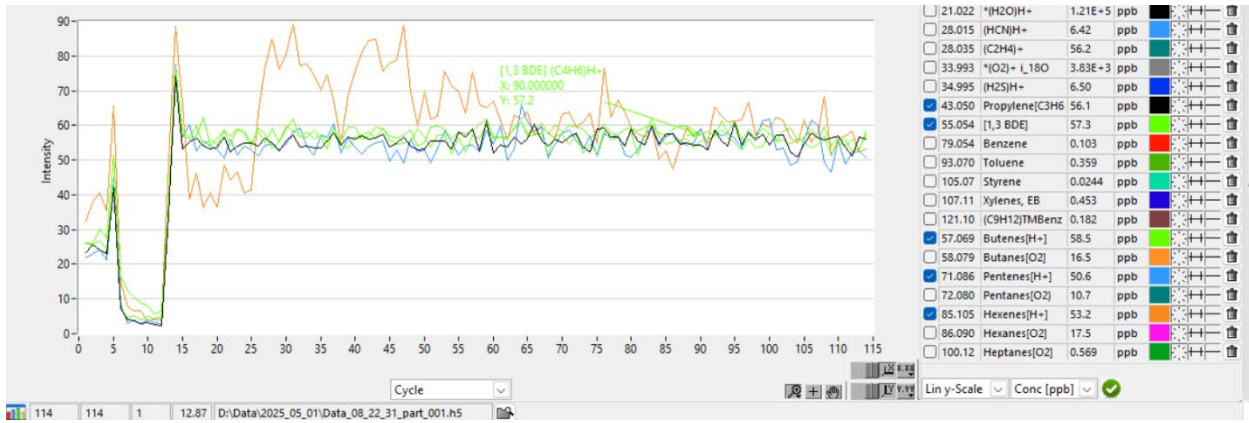
CCND Mobile Monitoring Van
2025 Q2

Setting		Odor	
Primary Ion		H3O+	
Transmission		DC	
	Man/Ctrl		Ctrl
PC	379.7		379.69 mbar
p Drift	2.30		2.29 mbar
TofLens			8.34E-5 mbar
TOF			7.74E-7 mbar
E/N			157.7 111.1 Td
Temps	79.80 °C		80.00 °C
SrcValve	50.0		
H2O	6.0		6.00 sccm
O2	0.0		0.00 sccm
NO	0.0		0.00 sccm
lhc	4		4.0 mA
	On/Off		On
FCinlet	60.0		60.02 sccm
U	FU	°C	☐→ ☐←
Us	150		145.3 V
Uso	80		78.6 V
Udrift	525		526.1 V

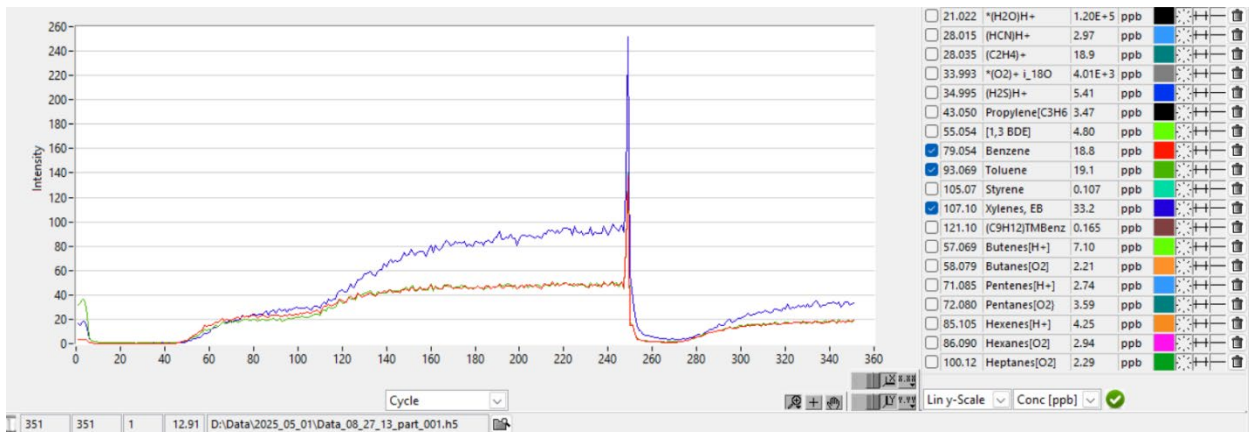
Production settings

CCND Mobile Monitoring Van 2025 Q2

Pre Calibration Checks

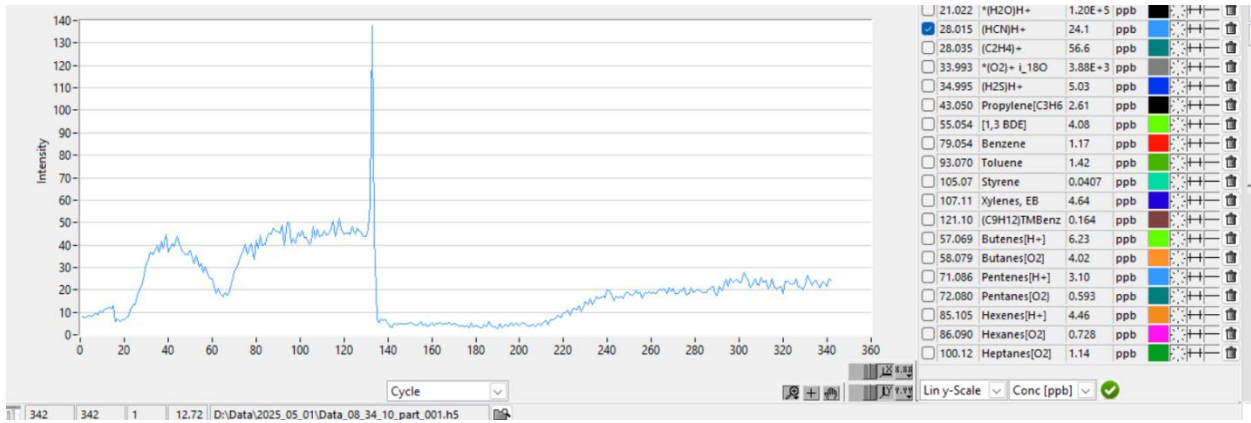


Alkenes 50 ppb

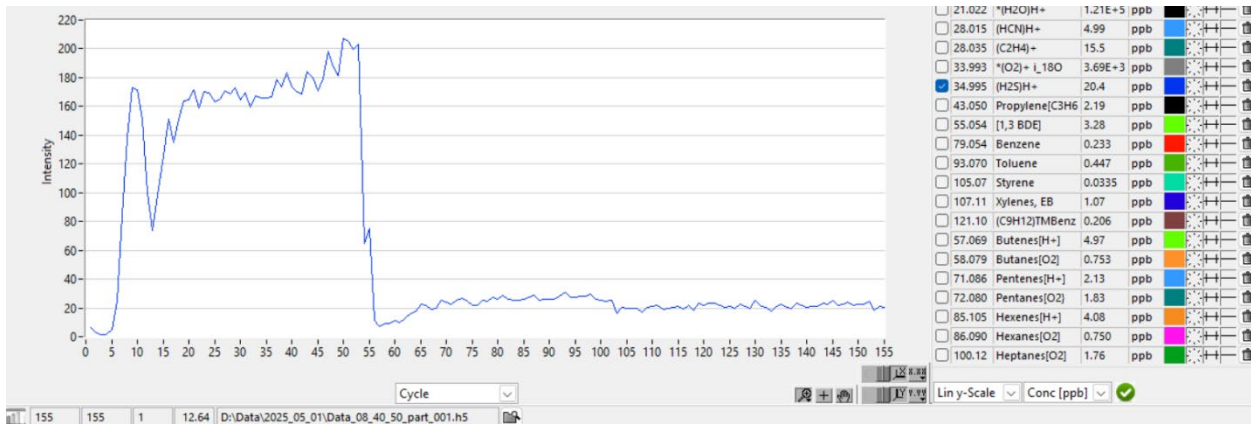


50 and 20 ppb BTEX

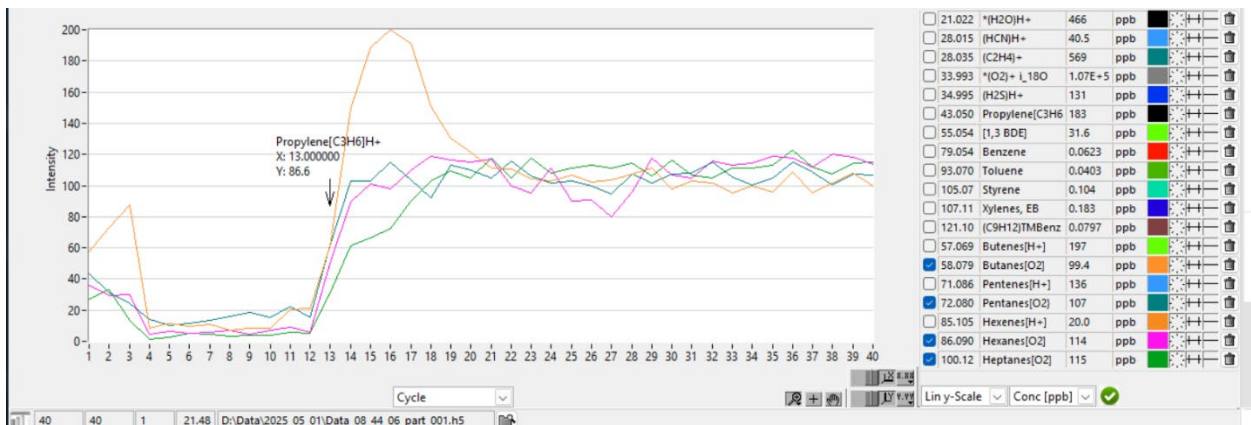
CCND Mobile Monitoring Van 2025 Q2



25 ppb HCN

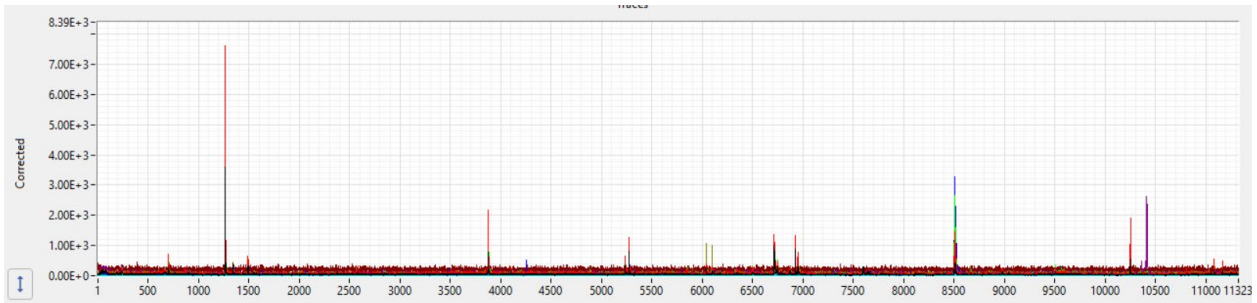


20 ppb H2S



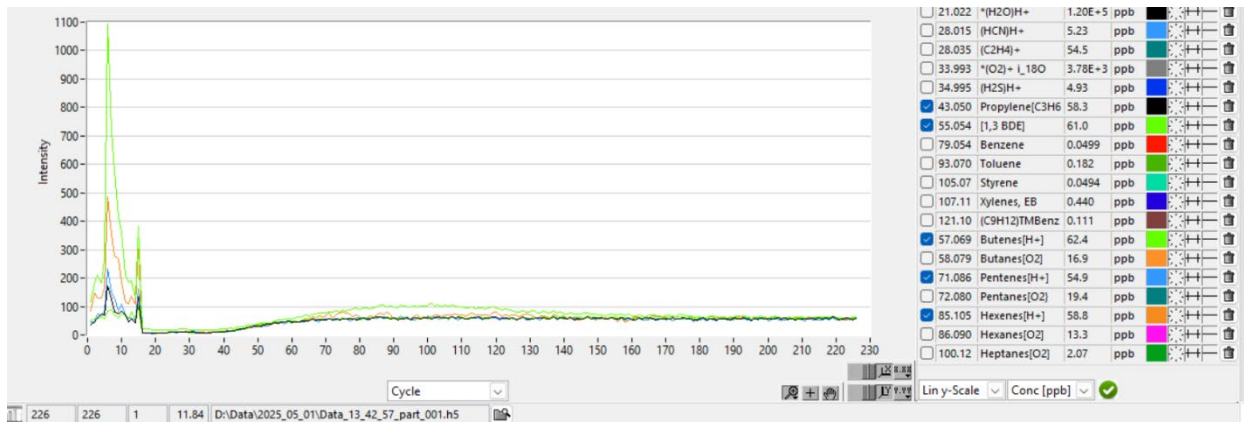
100ppb Alkanes

CCND Mobile Monitoring Van 2025 Q2



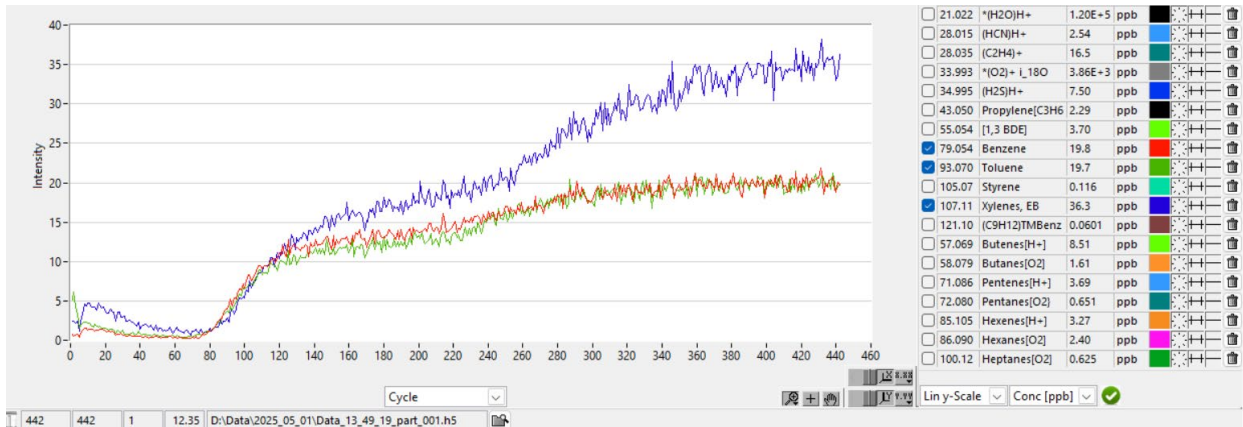
Pioneer Park Raw Data

Post Calibration Checks

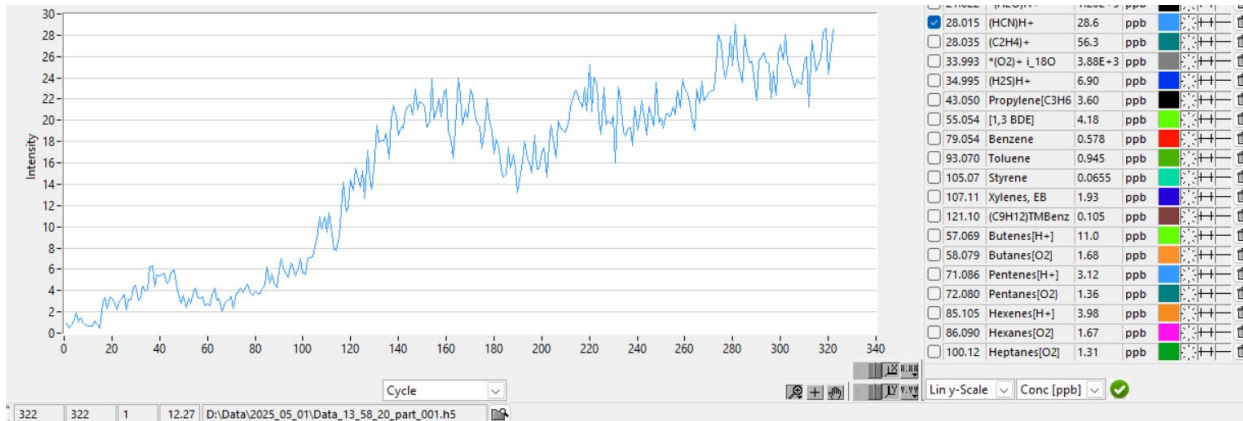


50 ppb Alkenes

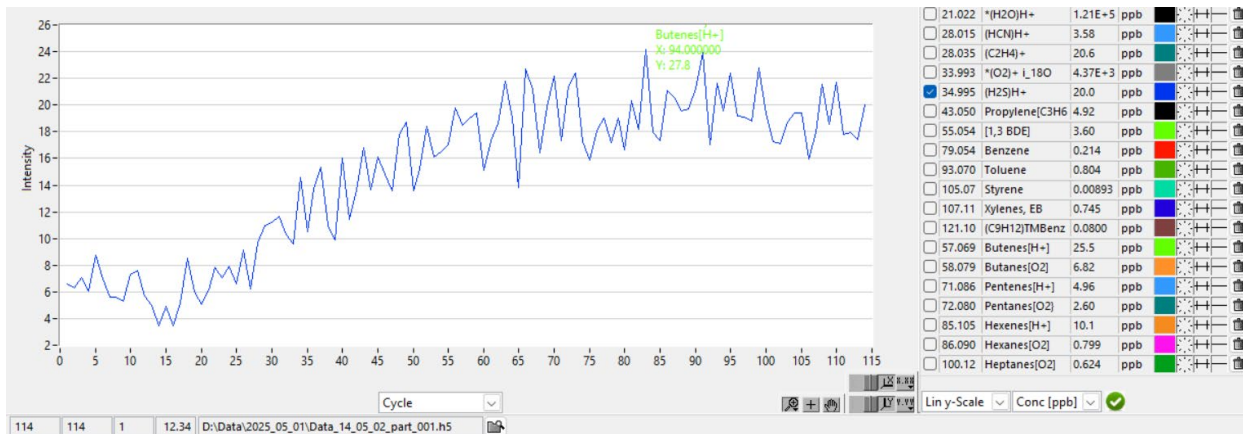
CCND Mobile Monitoring Van 2025 Q2



20ppb BTEX

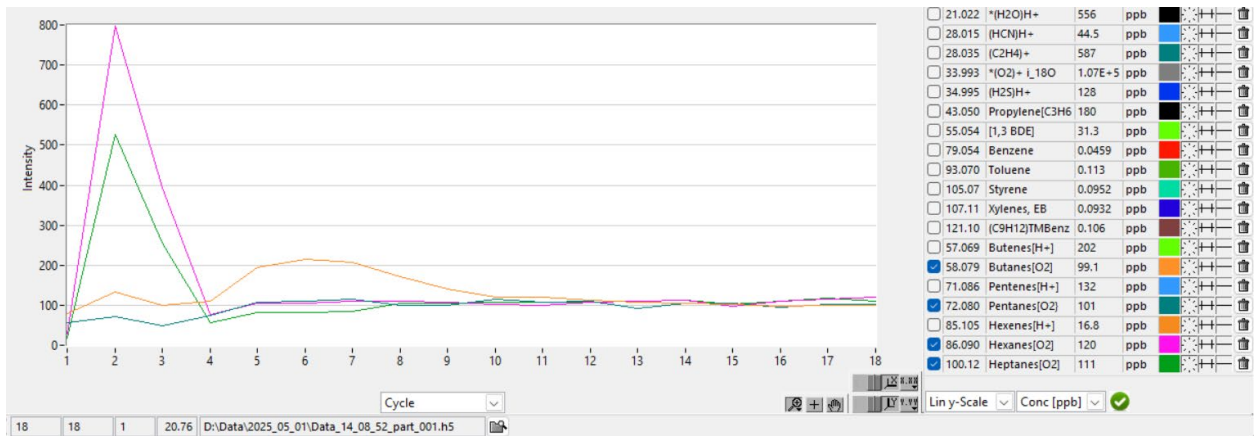


25 ppb HCN



20ppb H2S

CCND Mobile Monitoring Van
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100ppb Alkenes

CCND Mobile Monitoring Van
2025 Q2

CCND Community Monitoring Program
PTR-TOF-MS Detection Limits
Signal to Noise Standard Deviation Method
4/28/2025

Compound DL (ppb v)	4/28/2025 DL (ppb v)
Acetylene	0.110
Hydrogen Cyanide	0.031
Ethylene	0.297
Methanol	0.248
Hydrogen Sulfide	0.026
Propylene	0.088
1,3 Butadiene	0.008
Butenes	0.173
Butanes	0.115
Isoprene	0.042
Cyclopentane	0.030
Pentanes	0.015
Carbon Disulfide	0.013
Benzene	0.026
Hexenes	0.020
Hexanes	0.014
Toluene	0.037
Methylcyclohexanes	0.016
Heptanes	0.010
Styrene	0.015
Xylenes	0.031
Dimethylcyclohexanes	0.017
Octanes	0.011
Trimethylbenzenes	0.019
Nonanes	0.007
Diethylbenzenes	0.019
Decanes	0.009
Undecanes	0.016
Tetrachloroethylene	0.004
Dodecanes	0.005

CCND Mobile Monitoring Van
2025 Q2

Daily Calibration Results

Initial Instrument Calibration							
Date	Time	Calibration Gas Component	Calibration Value (ppb v)	Response (ppb v)	Difference (% of value)	Pass/Fail	
4/28/2025	8:44	Benzene	100	98.5	-1.5	Pass	
		Toluene	100	95.9	-4.1	Pass	
		Xylenes	200	203	1.5	Pass	
		Benzene	50	49.2	-1.6	Pass	
		Toluene	50	49.5	-1.0	Pass	
		Xylenes	100	100	0.0	Pass	
		Benzene	20	19.2	-4.0	Pass	
		Toluene	20	17.3	-13.5	Pass	
		Xylenes	40	38.2	-4.5	Pass	
	Benzene	5	4.81	-3.8	Pass		
	Toluene	5	4.85	-3.0	Pass		
	Xylenes	10	9.17	-8.3	Pass		
	11:22	Ethylene	100	97.2	-2.8	Pass	
			Propylene	100	102	2.0	Pass
			1-Butene	100	96.3	-3.7	Pass
1-Pentene			100	102	2.0	Pass	
1-Hexene			100	98.3	-1.7	Pass	
1,3-Butadiene			100	101	1.0	Pass	
Ethylene		50	46.8	-6.4	Pass		
		Propylene	50	52.8	5.6	Pass	
		1-Butene	50	51.7	3.4	Pass	
		1-Pentene	50	48.2	-3.6	Pass	
		1-Hexene	50	49.5	-1.0	Pass	
		1,3-Butadiene	50	53.8	7.6	Pass	
Ethylene		20	21.6	8.0	Pass		
		Propylene	20	20.7	3.5	Pass	
		1-Butene	20	21.6	8.0	Pass	
		1-Pentene	20	19.6	-2.0	Pass	
		1-Hexene	20	19.9	-0.5	Pass	
		1,3-Butadiene	20	20.9	4.5	Pass	
8:58	HCN	100	104	4.0	Pass		
	HCN	50	51.1	2.2	Pass		
	HCN	25	24.1	-3.6	Pass		
	HCN	10	10.5	5.0	Pass		

CCND Mobile Monitoring Van
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	11:08	H ₂ S	50	47.9	-4.2	Pass
		H ₂ S	20	21.2	6.0	Pass
		H ₂ S	10	10.2	2.0	Pass
		H ₂ S	5	5.16	3.2	Pass
	11:43	Butane	150	144	-4.0	Pass
		Pentane	150	140	-6.7	Pass
		Hexane	150	150	0.0	Pass
		Heptane	150	147	-2.0	Pass
		Butane	100	91.6	-8.4	Pass
		Pentane	100	95.1	-4.9	Pass
		Hexane	100	103	3.0	Pass
		Heptane	100	99.6	-0.4	Pass
		Butane	50	49.6	-0.8	Pass
		Pentane	50	47.8	-4.4	Pass
		Hexane	50	51.2	2.4	Pass
		Heptane	50	49.7	-0.6	Pass
		Butane	25	26.8	7.2	Pass
		Pentane	25	26.2	4.8	Pass
		Hexane	25	27.1	8.4	Pass
		Heptane	25	24.8	-0.8	Pass

Instrument Calibration Check						
Date	Time	Calibration Gas Component	Calibration Value (ppb v)	Response (ppb v)	Difference (% of value)	Pass/Fail
4-28-25 Post Globeville	17:33	HCN	25	25.6	2.4	Pass
	17:38	H ₂ S	20	21.5	7.5	Pass
	17:58	Butane	100	101	1.0	Pass
		Pentane	100	102	2.0	Pass
		Hexane	100	107	7.0	Pass
		Heptane	100	106	6.0	Pass
	17:49	Benzene	20	20.2	1.0	Pass
		Toluene	20	18.5	-7.5	Pass
		Xylenes	40	36.2	-9.5	Pass
	17:54	Ethylene	50	45.7	-8.6	Pass
		Propylene	50	51.9	3.8	Pass
		1-Butene	50	52.2	4.4	Pass
		1-Pentene	50	48.9	-2.2	Pass
		1-Hexene	50	49.3	-1.4	Pass
		1,3-Butadiene	50	54.8	9.6	Pass

CCND Mobile Monitoring Van
2025 Q2

Instrument Calibration Check						
Date	Time	Calibration Gas Component	Calibration Value (ppb v)	Response (ppb v)	Difference (% of value)	Pass/Fail
4/29/2025 Western Hills Swansea	8:21	Ethylene	50	45.2	-9.6	Pass
		Propylene	50	50.4	0.8	Pass
		1-Butene	50	57.1	14.2	Pass
		1-Pentene	50	48.2	-3.6	Pass
		1-Hexene	50	54.9	9.8	Pass
		1,3-Butadiene	50	49.2	-1.6	Pass
	8:27	Benzene	50	47.5	-5.0	Pass
		Toluene	50	46.8	-6.4	Pass
		Xylenes	100	94.8	-5.2	Pass
		Benzene	20	18.4	-8.0	Pass
		Toluene	20	18.7	-6.5	Pass
		Xylenes	40	37.7	-5.7	Pass
	8:39	HCN	25	25.4	1.6	Pass
	8:44	H ₂ S	20	20.4	2.0	Pass
		Butane	150	144	-4.0	Pass
		Pentane	150	145	-3.3	Pass
		Hexane	150	154	2.7	Pass
		Heptane	150	152	1.3	Pass
	15:54	HCN	25	23.9	-4.4	Pass
	16:09	H ₂ S	20	20.1	0.5	Pass
	16:13	Butane	100	102	2.0	Pass
		Pentane	100	91	-9.0	Pass
		Hexane	100	103	3.0	Pass
		Heptane	100	108	8.0	Pass
	16:00	Benzene	20	20	0.0	Pass
		Toluene	20	19.2	-4.0	Pass
		Xylenes	40	35.8	-10.5	Pass
	16:04	Ethylene	50	53.8	7.6	Pass
		Propylene	50	54.7	9.4	Pass
		1-Butene	50	52.3	4.6	Pass
		1-Pentene	50	49.2	-1.6	Pass
		1-Hexene	50	47.5	-5.0	Pass
		1,3-Butadiene	50	51.5	3.0	Pass

CCND Mobile Monitoring Van
2025 Q2

Instrument Calibration Check						
Date	Time	Calibration Gas Component	Calibration Value (ppb v)	Response (ppb v)	Difference (% of value)	Pass/Fail
4/30/2024	8:26	Ethylene	50	47.2	-5.6	Pass
Dupont		Propylene	50	53.4	6.8	Pass
Adam High		1-Butene	50	54	8.0	Pass
		1-Pentene	50	54.7	9.4	Pass
		1-Hexene	50	50	0.0	Pass
		1,3-Butadiene	50	57	14.0	Pass
	8:33	Benzene	50	49	-2.0	Pass
		Toluene	50	49.3	-1.4	Pass
		Xylenes	100	95.5	-4.5	Pass
	8:35	Benzene	20	18.3	-8.5	Pass
		Toluene	20	17.5	-12.5	Pass
		Xylenes	40	36	-10.0	Pass
	8:40	HCN	25	22.4	-10.4	Pass
	8:52	H ₂ S	20	20.4	2.0	Pass
	8:56	Butane	100	97.6	-2.4	Pass
		Pentane	100	101	1.0	Pass
		Hexane	100	101	1.0	Pass
		Heptane	100	104	4.0	Pass
	4:23	HCN	25	24.1	-3.6	Pass
	4:33	H ₂ S	20	19	-5.0	Pass
	4:45	Butane	100	104	4.0	Pass
		Pentane	100	103	3.0	Pass
		Hexane	100	103	3.0	Pass
		Heptane	100	104	4.0	Pass
	4:16	Benzene	20	19.6	-2.0	Pass
		Toluene	20	19.5	-2.5	Pass
		Xylenes	40	37	-7.5	Pass
	4:12	Ethylene	50	50.4	0.8	Pass
		Propylene	50	51.9	3.8	Pass
		1-Butene	50	51.9	3.8	Pass
		1-Pentene	50	49.3	-1.4	Pass
		1-Hexene	50	57	14.0	Pass
		1,3-Butadiene	50	54.8	9.6	Pass

CCND Mobile Monitoring Van
2025 Q2

Instrument Calibration Check						
Date	Time	Calibration Gas Component	Calibration Value (ppb v)	Response (ppb v)	Difference (% of value)	Pass/Fail
5/1/2025	8:22	Ethylene	50	56.2	12.4	Pass
		Propylene	50	56.1	12.2	Pass
		1-Butene	50	58.5	17.0	Pass
		1-Pentene	50	50.6	1.2	Pass
		1-Hexene	50	53.2	6.4	Pass
		1,3-Butadiene	50	57.3	14.6	Pass
8:27	8:27	Benzene	50	49.2	-1.6	Pass
		Toluene	50	49.4	-1.2	Pass
		Xylenes	100	95.7	-4.3	Pass
8:31	8:31	Benzene	20	18.8	-6.0	Pass
		Toluene	20	19.1	-4.5	Pass
		Xylenes	40	33.2	-17.0	Pass
8:34	8:34	HCN	25	24.1	-3.6	Pass
8:42	8:42	H ₂ S	20	20.4	2.0	Pass
8:45	8:45	Butane	100	99.4	-0.6	Pass
		Pentane	100	107	7.0	Pass
		Hexane	100	114	14.0	Pass
		Heptane	100	115	15.0	Pass
1:58	1:58	HCN	25	25.7	2.8	Pass
2:05	2:05	H ₂ S	20	20	0.0	Pass
2:08	2:08	Butane	100	101	1.0	Pass
		Pentane	100	103	3.0	Pass
		Hexane	100	107	7.0	Pass
		Heptane	100	111	11.0	Pass
1:49	1:49	Benzene	20	19.8	-1.0	Pass
		Toluene	20	19.7	-1.5	Pass
		Xylenes	40	36.3	-9.3	Pass
1:43	1:43	Ethylene	50	53.4	6.8	Pass
		Propylene	50	58.3	16.6	Pass
		1-Butene	50	55.7	11.4	Pass
		1-Pentene	50	52	4.0	Pass
		1-Hexene	50	55.4	10.8	Pass
		1,3-Butadiene	50	56.8	13.6	Pass

APPENDIX E CALIBRATION GAS CERTIFICATION SHEETS



Airgas Specialty Gases
Airgas USA LLC
6141 Easton Road
Plumsteadville, PA 18949
Airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: CERTIFIED STANDARD-SPEC

Customer:	MONTROSE AIR QUALITY SERVICES LLC	Reference Number:	160-402805384-1
Part Number:	X05NI99C15AC028	Cylinder Volume:	144.0 CF
Cylinder Number:	ALM-044156	Cylinder Pressure:	2015 PSIG
Laboratory:	124 - Plumsteadville - PA	Valve Outlet:	350
Analysis Date:	Aug 10, 2023		
Lot Number:	160-402805384-1		

Expiration Date: Aug 10, 2026

Product composition verified by direct comparison to calibration standards traceable to N.I.S.T. weights and/or N.I.S.T. Gas Mixture reference materials.

ANALYTICAL RESULTS

Component	Req Conc	Actual Concentration (Mole %)	Analytical Uncertainty
BENZENE	1.000 PPM	1.033 PPM	+/- 5%
ETHYL BENZENE	1.000 PPM	0.9830 PPM	+/- 5%
O XYLENE	1.000 PPM	1.016 PPM	+/- 5%
TOLUENE	1.000 PPM	1.021 PPM	+/- 5%
NITROGEN	99.9996 %	99.999595 %	+/- 5%

Notes: PO Number: PO-049252



Signature on file
Approved for Release

APEL-RIEMER ENVIRONMENTAL, INC

REFERENCE GASES AND ATMOSPHERIC CHEMISTRY

Certificate of Analysis

Gas-phase Calibration Standard

This gas-phase standard is intended to be used as a reference material for the calibration of instruments.

Statement about preparation and traceability:

Standards are gravimetrically prepared in high-pressure aluminum cylinders (Luxfer, Inc., Riverside, California). Cylinders are cleaned and treated to eliminate contamination and ensure inertness. Standards are prepared in N150 cylinders (~4000 Liters calibration gas), N033 cylinders (~800 Liters calibration gas) or N006 cylinders (~125 Liters calibration gas) at a pressure of 2000 psia UHP nitrogen. Valves are high purity stainless steel (Ceodeux, Lintgen, Luxembourg) with a CGA-350 or CGA-180 outlet fitting. Pure compounds as liquids and gases are obtained from a number of sources. All lot numbers are cataloged. The gravimetric preparation is performed using calibrated microbalances (Mettler-Toledo, Columbus, Ohio) and microsyringes (Hamilton, Reno, Nevada and SGE, Austin, Texas) for measuring the compounds and cylinder balances (Mettler-Toledo, Columbus, Ohio) for the balance gas. Balances are calibrated with NIST traceable weights.

We prepare each cylinder individually. Accuracy is better than +/- 5%. Analysis confirms the accuracy of the gravimetric preparation. We use a series of NIST, NIST-traceable, NPL, and in-house gravimetric standards to perform the instrument calibrations.

Stability varies depending on the compound, concentration, and cylinder size. Many compounds are stable for several years.

The calibration gas mixture in cylinder RR05620 is certified from the analysis date for 24 months.



Daniel D. Riemer, Ph.D.

March 1, 2025

Date

CCND Mobile Monitoring Van
2025 Q2

Cylinder RR05620 Page 2 of 2

Cylinder: RR05620
Cylinder Date: 2023/12
Valve: SS CGA350 23D364888
Lot No.: 25049.1
Cylinder Pressure: 2000 psia
Analysis Date: March 1, 2025

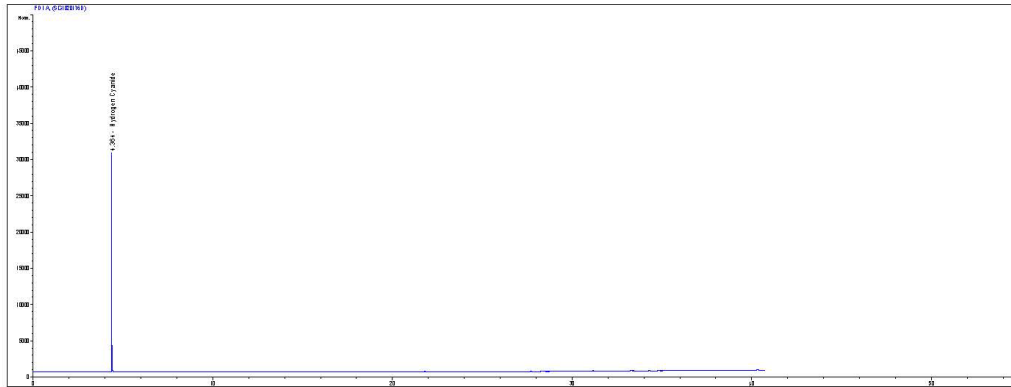
Single-component calibration mixture in ultra-pure nitrogen

Compound	CAS#	Concentration (ppb)	Uncertainty
Hydrogen Cyanide	74-90-8	960.7	±5%

Uncertainty is a conservative estimate of the combination of the uncertainties of the gravimetric preparation and analysis.

Chromatogram

100-meter DB-1, 0.25 mm id, 3.1 mL min⁻¹ Helium carrier gas – constant flow
Temperature Program: 35°C, 3.5 min → 4.5°C min⁻¹ → 180 °C, 6 min





Airgas Specialty Gases
Airgas USA LLC
616 Miller Cut Off Road
La Porte, TX 77571
Airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: CERTIFIED STANDARD-SPEC

Customer:	ANALYTICAL SYSTEMS INT - C196 LA PORTE, TX	Reference Number:	126-402998567-1A
Part Number:	X02NI99C15A3821	Cylinder Volume:	144.3 CF
Cylinder Number:	EB0145152	Cylinder Pressure:	2015 PSIG
Laboratory:	124 - La Porte Mix - TX	Valve Outlet:	330
Analysis Date:	May 22, 2024		
Lot Number:	126-402998567-1A		

Expiration Date: May 22, 2027

Product composition verified by direct comparison to calibration standards traceable to N.I.S.T. weights and/or N.I.S.T. Gas Mixture reference materials.

ANALYTICAL RESULTS

Component	Req Conc	Actual Concentration (Mole %)	Analytical Uncertainty
HYDROGEN SULFIDE	1.000 PPM	0.8760 PPM	± 5%
NITROGEN	Balance		

Notes:
PO NUMBER: PO-1421



Signature on file
Approved for Release



Airgas Specialty Gases
Airgas USA LLC
9810 BAY AREA BLVD
Pasadena, TX 77507
Airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: CERTIFIED STANDARD-SPEC

Customer:	MONTROSE AIR QUALITY SERVICES LLC	Reference Number:	163-403259014-1
Part Number:	X05NI99C15A00U7	Cylinder Volume:	144.3 CF
Cylinder Number:	ALM015719	Cylinder Pressure:	2015 PSIG
Laboratory:	124 - Pasadena (SG06) - TX	Valve Outlet:	350
Analysis Date:	Feb 25, 2025		
Lot Number:	163-403259014-1		

Expiration Date: Feb 25, 2028

Product composition verified by direct comparison to calibration standards traceable to N.I.S.T. weights and/or N.I.S.T. Gas Mixture reference materials.

ANALYTICAL RESULTS

Component	Req Conc	Actual Concentration (Mole %)	Analytical Uncertainty
N BUTANE	1.000 PPM	1.010 PPM	+/- 2%
N PENTANE	1.000 PPM	1.020 PPM	+/- 2%
HEXANE	1.000 PPM	1.000 PPM	+/- 2%
N HEPTANE	1.000 PPM	1.010 PPM	+/- 2%
NITROGEN	Balance		



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Airgas Specialty Gases
Airgas USA LLC
616 Miller Cut Off Road
La Porte, TX 77571
Airgas.com

CERTIFICATE OF ANALYSIS
Grade of Product: CERTIFIED STANDARD-SPEC

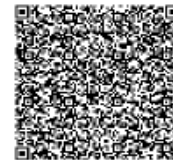
Customer:	MONTROSE AIR QUALITY SERVICES LLC - HENDERSON	
	, CA	
Part	X07NI99C15A00A9	Reference Number: 126-403259013-1A
Number:		
Cylinder	ALM050476	Cylinder Volume: 144.0 CF
Number:		
Laboratory:	124 - La Porte Mix - TX	Cylinder Pressure: 2015 PSIG
Analysis	Apr 25, 2025	Valve Outlet: 350
Date:		
Lot Number:	126-403259013-1A	
	Expiration Date: Apr 25, 2026	

Product composition verified by direct comparison to calibration standards traceable to N.I.S.T. weights and/or N.I.S.T. Gas Mixture reference materials.

ANALYTICAL RESULTS

Component	Req Conc	Actual Concentration (Mole %)	Analytical Uncertainty
1 BUTENE	1.000 PPM	1.134 PPM	+/- 10%
1 HEXENE	1.000 PPM	1.094 PPM	+/- 10%
1 PENTENE	1.000 PPM	1.125 PPM	+/- 10%
1,3 BUTADIENE	1.000 PPM	1.200 PPM	+/- 10%
ETHYLENE	1.000 PPM	1.198 PPM	+/- 10%
PROPYLENE	1.000 PPM	1.147 PPM	+/- 10%
NITROGEN	Balance		

Notes: MONTROSE AIR QUALITY SERVICES LLC
PO#: 62293



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