2025 Q3 MOBILE MONITORING VAN COMMERCE CITY NORTH DENVER COMMUNITY AIR MONITORING NETWORK COMMERCE CITY, COLORADO

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MONTROSE
AIR QUALITY SERVICES

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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 (SO_2), hydrogen sulfide (H_2S), nitrogen dioxide (NO_2), 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 third quarter of 2025, the mobile monitoring van collected 53,915 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 94% 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 (SO_2), hydrogen sulfide (H_2S), nitrogen dioxide (NO_2), 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 July 21-23, 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 provides 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 analysis capabilities.

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 MONITORED[1]

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
Butenes	1-Butene	***Xylenes***	Ethyl Benzene
	cis-2-Butene		o-Xylene
	trans-2-Butene		m-Xylene
			p-Xylene
Butanes	iso-Butane		
	n-Butane	***Dimethylcyclohexanes***	Ethylcyclohexane
			cis-1,3-Dimethylcyclohexane
Cyclopentanes	Cyclopentane		trans-1,2-Dimethylcyclohexane
	1-Pentene		
	2-Methyl-2-butene		trans-1,3-Dimethylcyclohexane
	cis-2-Pentene		
	trans-2-Pentene	***Octanes***	n-Octane
			2-Methylheptane
Pentanes	iso-Pentane		3-Methylheptane
	n-Pentane		2,2,4-Trimethylpentane
	neo-Pentane		2,3,4-Trimethylpentane
Hexenes	1-Hexene	***Trimethylbenzenes***	Cumene
	Cyclohexane		1,2,4-Trimethylbenzene
	Methylcyclopentane		o-Ethyltoluene
			m-Ethyltoluene
Hexanes	n-Hexane		p-Ethyltoluene
	2-Methylpentane		n-Propylbenzene
	3-Methylpentane		1,3,5-Trimethylbenzene
	2,2-Dimethylbutane		
	2,3-Dimethylbutane	***Diethylbenzenes***	o-Diethylbenzene
			m-Diethylbenzene
Heptanes	n-Heptane		p-Diethylbenzene
	2-Methylhexane		All other $C_{10}H_{14}$ Isomers
	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	7/21/2025	13:10	15:29	8,342	4,815
Dupont	1.4	7/22/2025	12:22	14:55	9,170	5,643
Elyria-Swansea	1.2	7/23/2025	11:31	13:51	8,414	4,887
Globeville	0.44	7/23/2025	9:03	11:21	8,304	4,777
Pioneer Park	1.7	7/21/2025	9:49	12:39	10,170	6,643
Western Hills	1.6	7/22/2025	9:13	11:52	9,515	5,988

*Data completeness threshold set at 98%

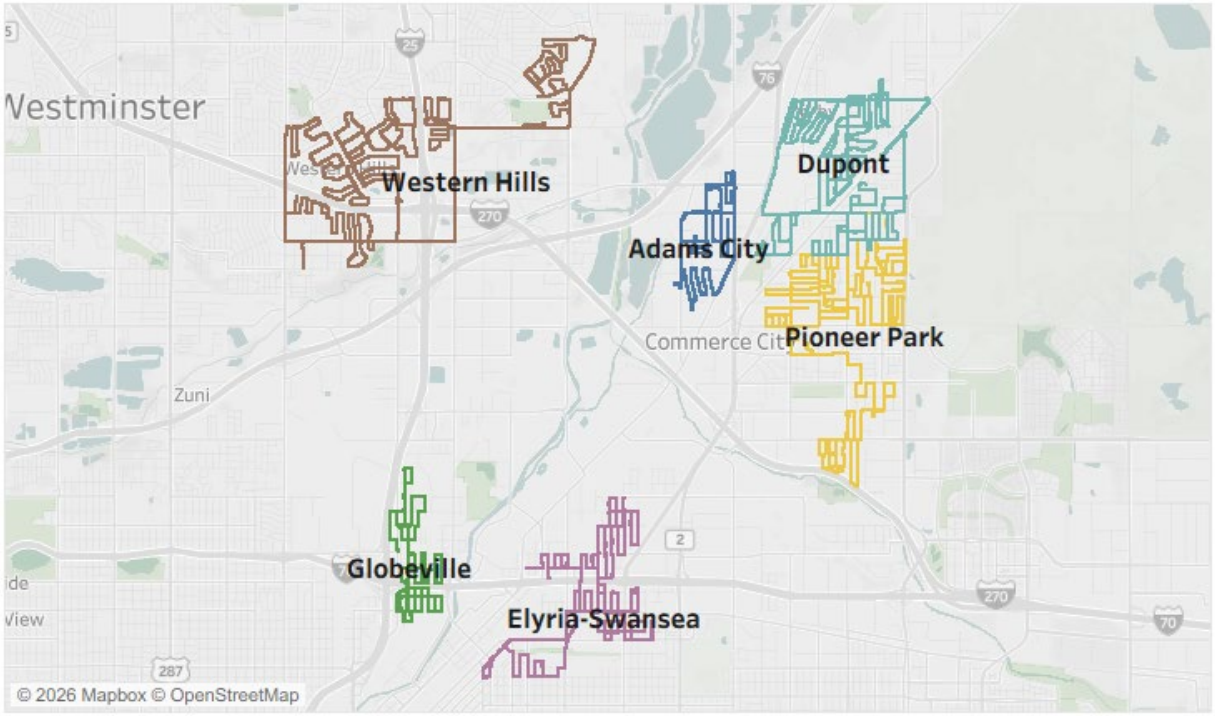
2.2 Mobile Monitoring Van Air Sampling Methods

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

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

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 reference levels excluding it 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 reading (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, 32,753 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 rolling 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 upon exposure that occurs for an hour up to 14 days (an 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

$$Hazard\ Index\ (HI) = \sum_{i} HQ_i$$

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-populations[6]. 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 three 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 53,915 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 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 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

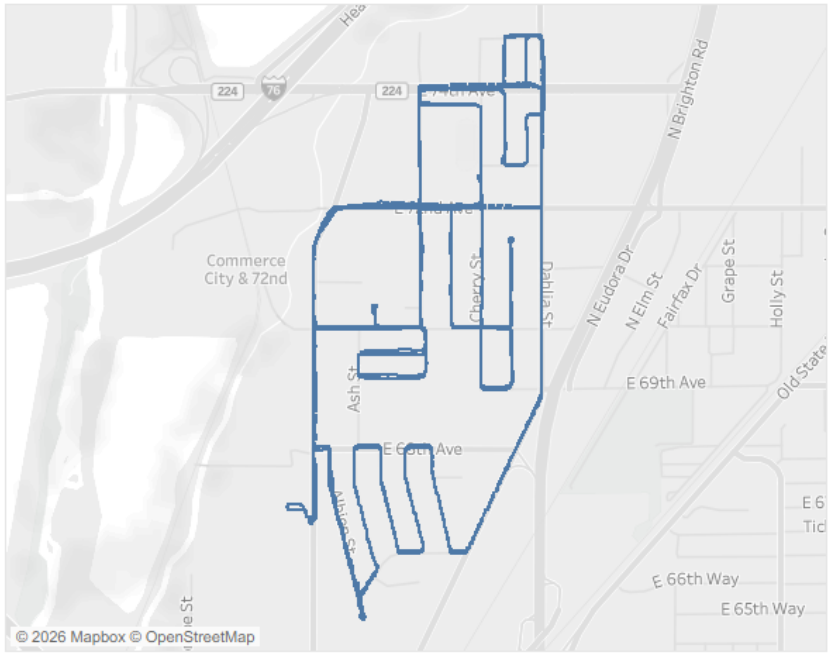
chemical was below its respective acute RL in all six neighborhoods (Figures 2 through 7).

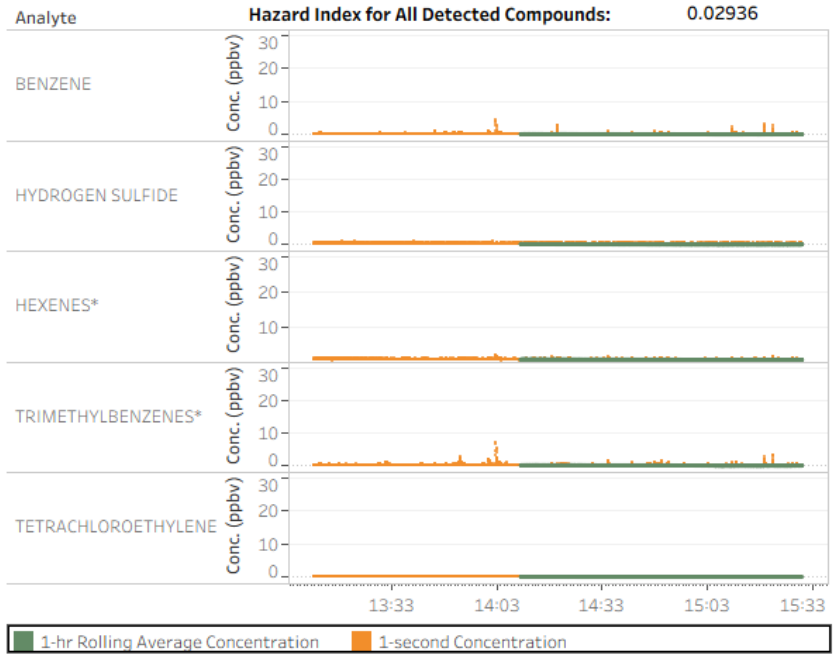
- In this quarter, benzene, tetrachloroethylene, hydrogen sulfide, hexene group, trimethylbenzene group, and hydrogen cyanide were the chemicals or isomer groupings resulting in the highest HQ in each neighborhood, accounting for over 94% of the total calculated HI values. However, all HI values calculated 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: JULY 21, 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	4.47	4,815	0.18	0.19	52,000	9	0.02155
HYDROGEN SULFIDE	1.00	4,815	0.15	0.18	510	70	0.00264
HEXENES*	2.04	4,815	0.81	0.85	NR	500	0.00170
TRIMETHYLBENZENES*	6.91	4,815	0.20	0.23	NR	250	0.00092
TETRACHLOROETHYLENE	0.04	4,815	0.00	0.00	35,000	6	0.00062

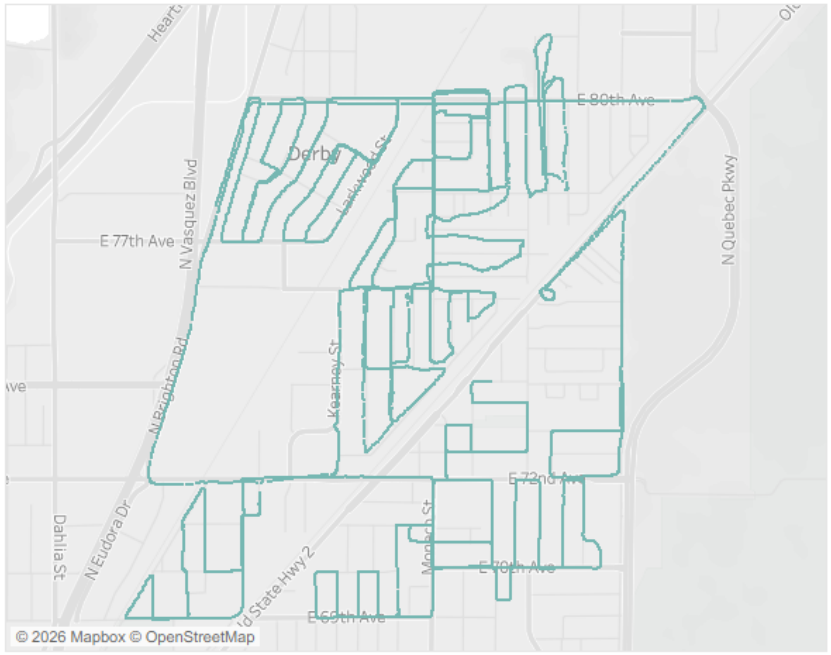


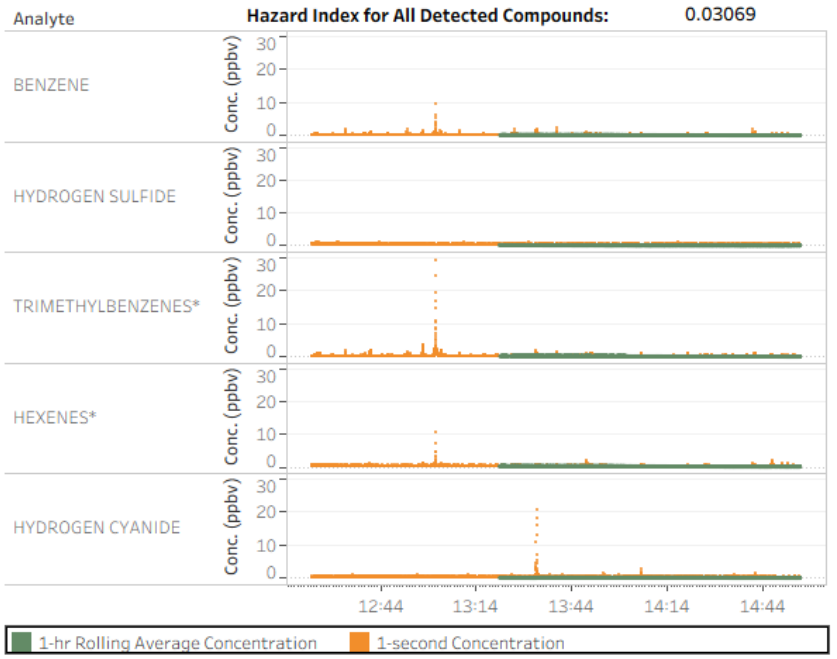


*The top 5 hazard quotients are reported in this dashboard. The hazard index represents cumulative risks including all unlisted analytes. The hazard quotient was calculated by comparing the acute health reference level to the maximum 1-hour rolling average. The comparative AEGL value is shown for comparison 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: JULY 22, 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	9.45	5,643	0.19	0.23	52,000	9	0.02506
HYDROGEN SULFIDE	0.91	5,643	0.12	0.15	510	70	0.00220
TRIMETHYLBENZENES*	28.91	5,643	0.11	0.18	NR	250	0.00073
HEXENES*	10.46	5,643	0.25	0.30	NR	500	0.00061
HYDROGEN CYANIDE	20.32	5,643	0.12	0.14	2,000	308	0.00044

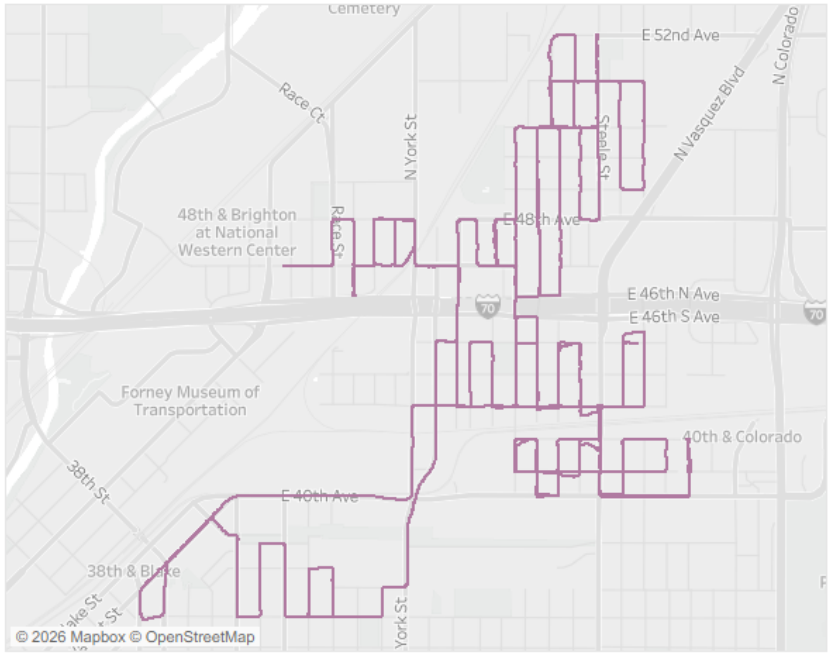


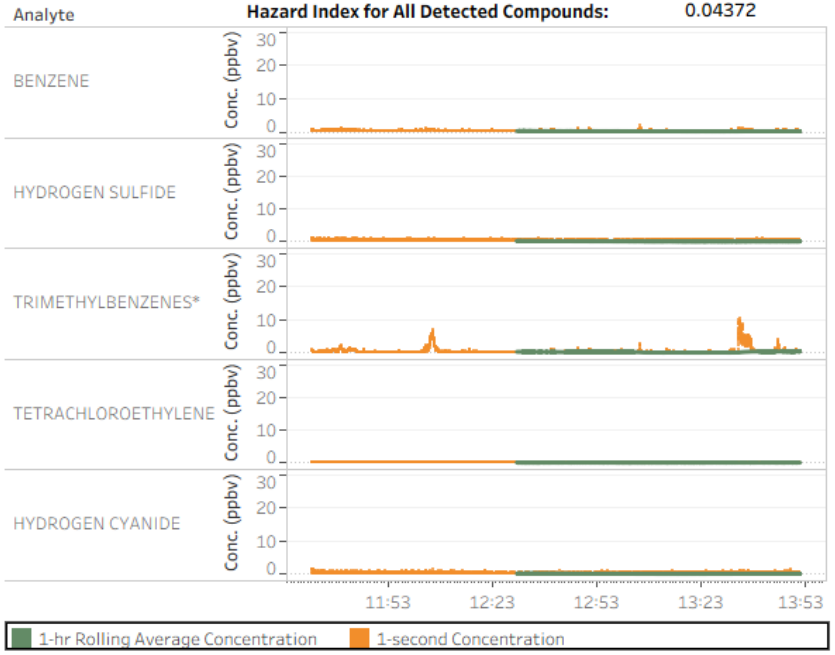


*The top 5 hazard quotients are reported in this dashboard. The hazard index represents cumulative risks including all unlisted analytes. The hazard quotient was calculated by comparing the acute health reference level to the maximum 1-hour rolling average. The comparative AEGL value is shown for comparison 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: JULY 23, 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	1.74	4,887	0.26	0.31	52,000	9	0.03422
HYDROGEN SULFIDE	1.20	4,887	0.18	0.25	510	70	0.00356
TRIMETHYLBENZENES*	10.32	4,887	0.33	0.55	NR	250	0.00220
TETRACHLOROETHYLENE	0.04	4,887	0.00	0.00	35,000	6	0.00079
HYDROGEN CYANIDE	1.43	4,887	0.12	0.18	2,000	308	0.00057

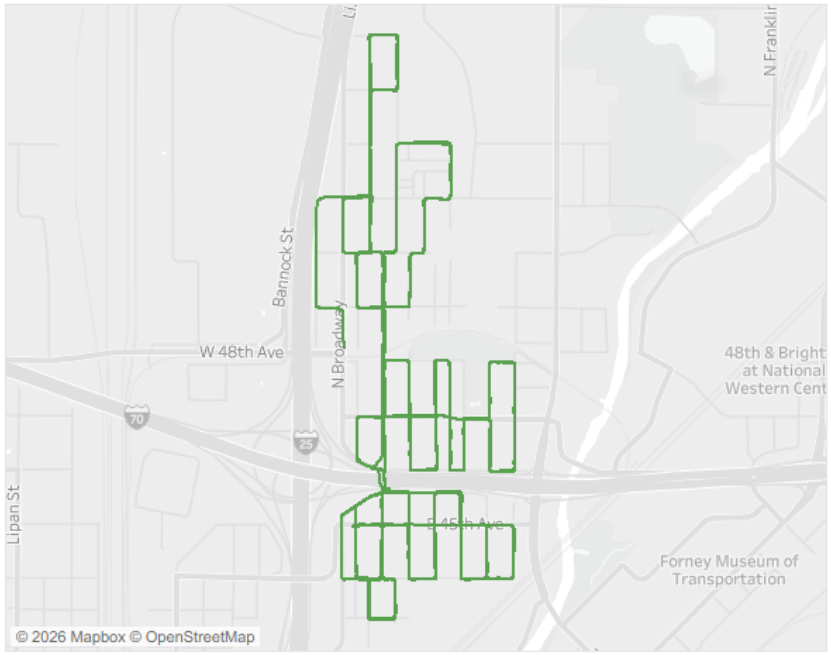


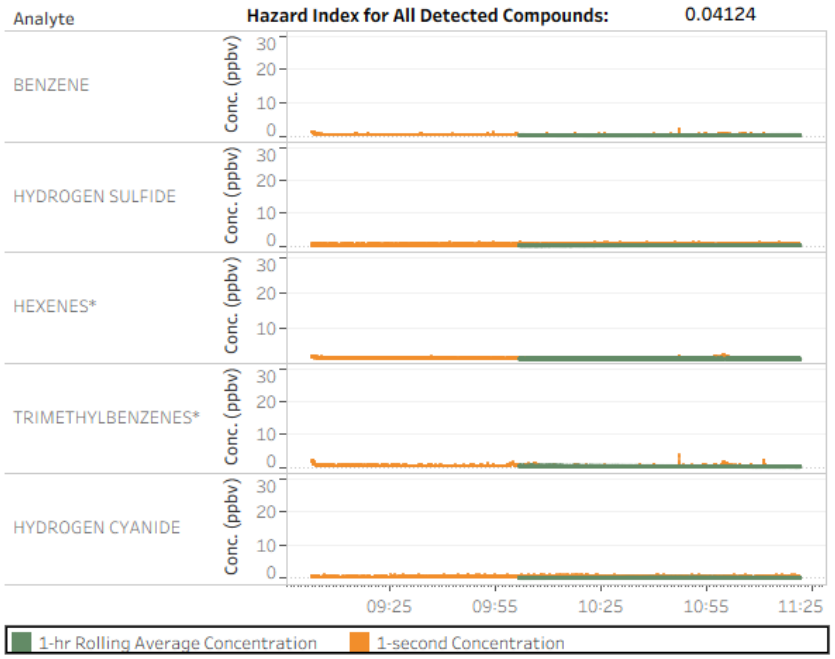


*The top 5 hazard quotients are reported in this dashboard. The hazard index represents cumulative risks including all unlisted analytes. The hazard quotient was calculated by comparing the acute health reference level to the maximum 1-hour rolling average. The comparative AEGL value is shown for comparison 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: JULY 23, 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	2.15	4,777	0.26	0.28	52,000	9	0.03107
HYDROGEN SULFIDE	1.05	4,777	0.21	0.23	510	70	0.00331
HEXENES*	2.32	4,777	1.32	1.35	NR	500	0.00270
TRIMETHYLBENZENES*	3.57	4,777	0.28	0.35	NR	250	0.00141
HYDROGEN CYANIDE	1.11	4,777	0.17	0.19	2,000	308	0.00063

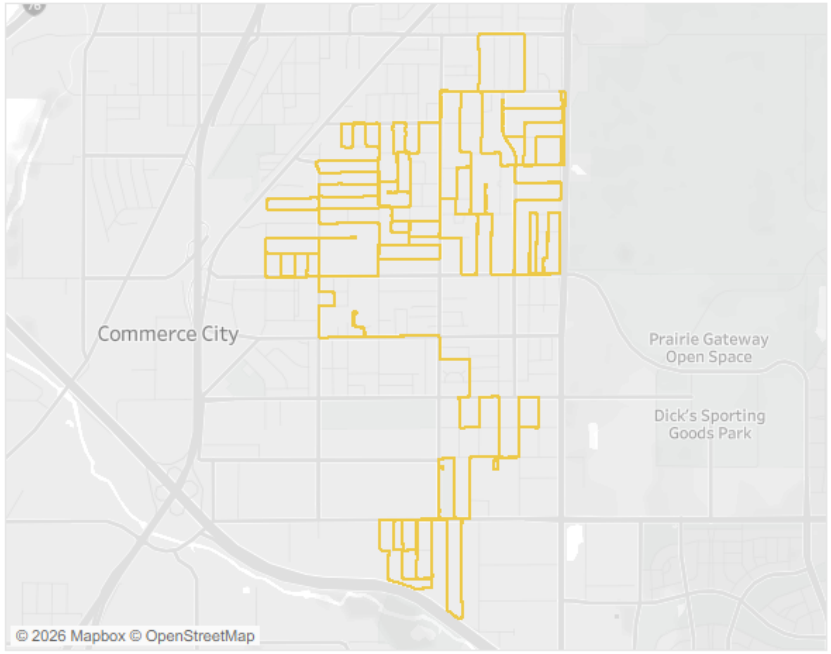


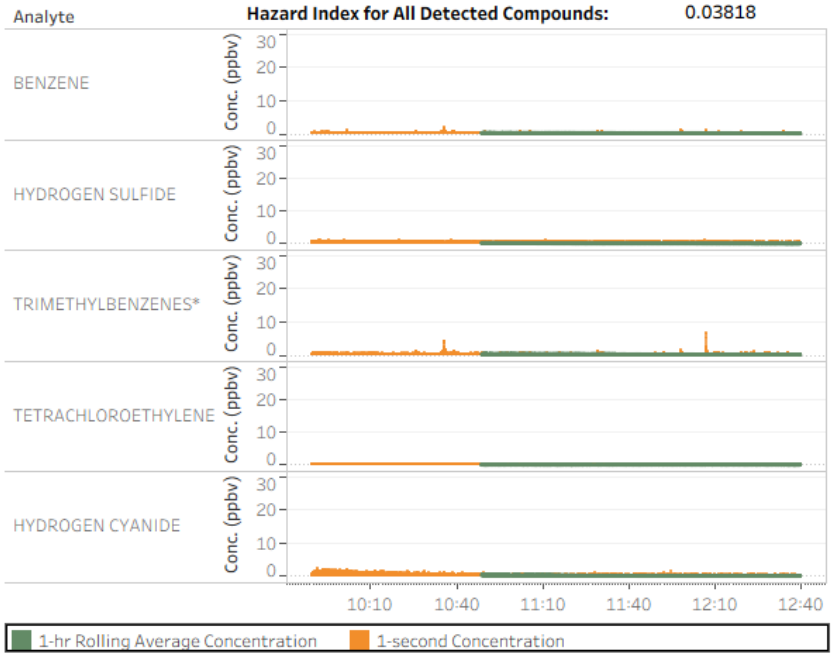


*The top 5 hazard quotients are reported in this dashboard. The hazard index represents cumulative risks including all unlisted analytes. The hazard quotient was calculated by comparing the acute health reference level to the maximum 1-hour rolling average. The comparative AEGL value is shown for comparison 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: JULY 21, 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	1.81	6,643	0.24	0.27	52,000	9	0.02968
HYDROGEN SULFIDE	1.03	6,643	0.15	0.19	510	70	0.00272
TRIMETHYLBENZENES*	6.56	6,643	0.24	0.30	NR	250	0.00118
TETRACHLOROETHYLENE	0.04	6,643	0.01	0.01	35,000	6	0.00111
HYDROGEN CYANIDE	2.22	6,643	0.09	0.31	2,000	308	0.00099

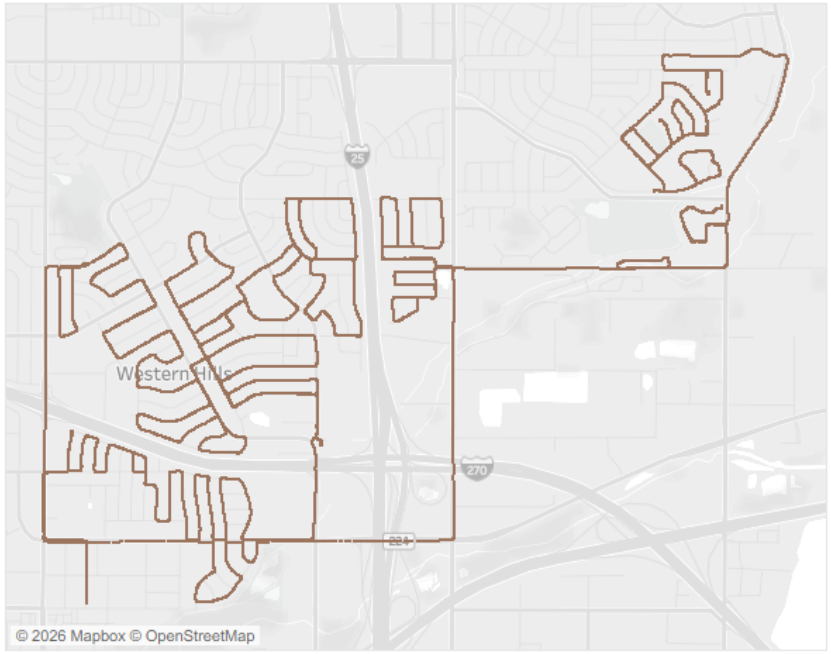


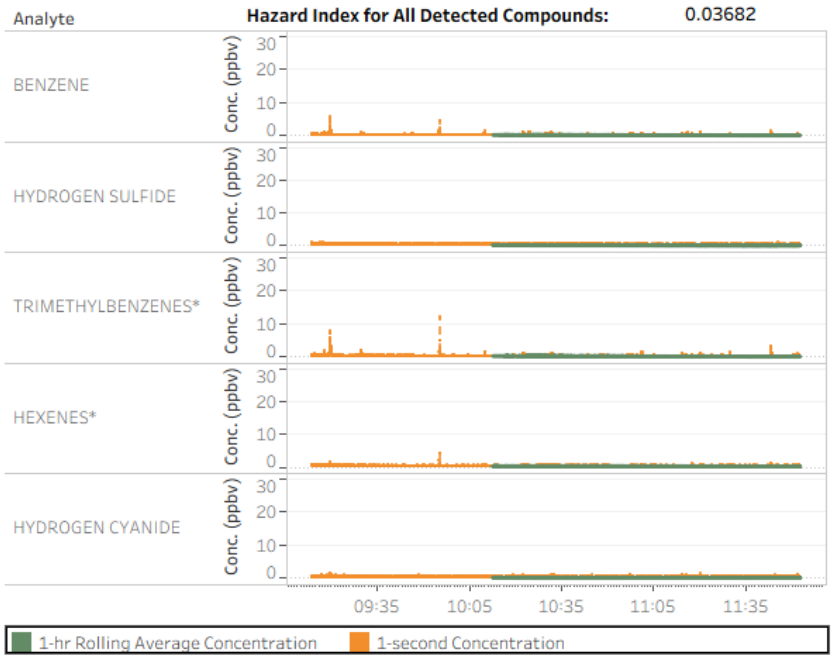


*The top 5 hazard quotients are reported in this dashboard. The hazard index represents cumulative risks including all unlisted analytes. The hazard quotient was calculated by comparing the acute health reference level to the maximum 1-hour rolling average. The comparative AEGL value is shown for comparison 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: JULY 22, 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	5.75	5,988	0.22	0.27	52,000	9	0.03034
HYDROGEN SULFIDE	0.90	5,988	0.12	0.14	510	70	0.00206
TRIMETHYLBENZENES*	12.09	5,988	0.22	0.33	NR	250	0.00131
HEXENES*	4.06	5,988	0.25	0.29	NR	500	0.00059
HYDROGEN CYANIDE	1.37	5,988	0.11	0.13	2,000	308	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).*

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

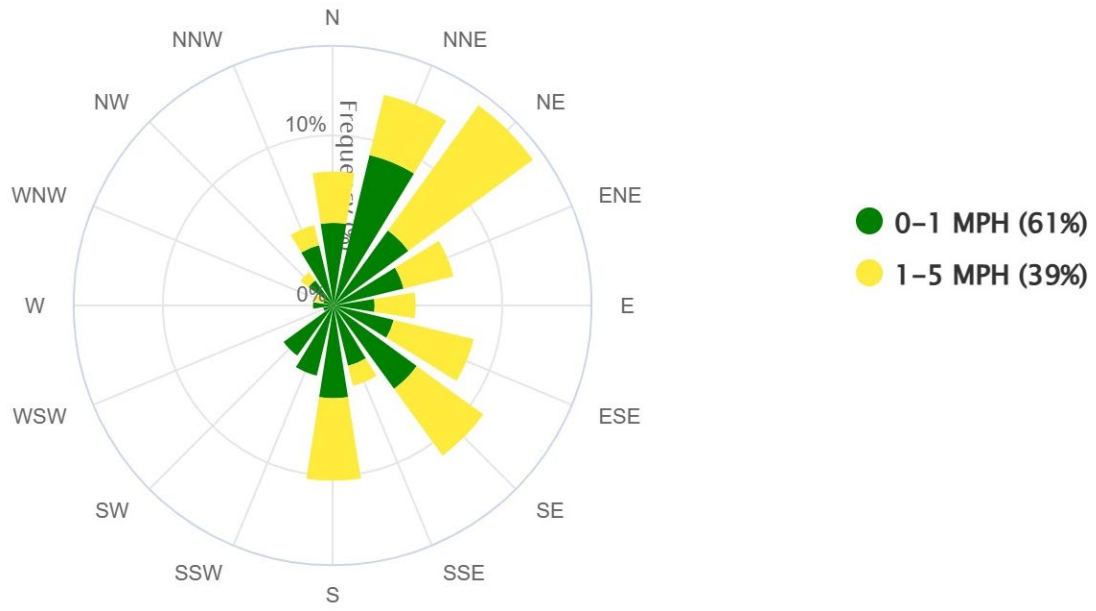
In a real-time PTR-TOF analysis, it is not possible to speciate isomers, or chemical compounds that have the same molecular weight. For example, n-hexane, 2-methyl pentane and 2,2-dimethyl butane all have a molecular mass of 86.178 g/mol. In order to provide the most conservative determination of concentration 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
Butenes	1-Butene
	cis-2-Butene
	trans-2-Butene
Butanes	iso-Butane
	n-Butane
Cyclopentanes	Cyclopentane
	1-Pentene
	2-Methyl-2-butene
	cis-2-Pentene
	trans-2-Pentene
Pentanes	iso-Pentane
	n-Pentane
	neo-Pentane
Hexenes	1-Hexene
	Cyclohexane
	Methylcyclopentane
Hexanes	n-Hexane
	2-Methylpentane
	3-Methylpentane
	2,2-Dimethylbutane
	2,3-Dimethylbutane
Heptanes	n-Heptane
	2-Methylhexane
	3-Methylhexane
	2,3-Dimethylpentane
	2,4-Dimethylpentane

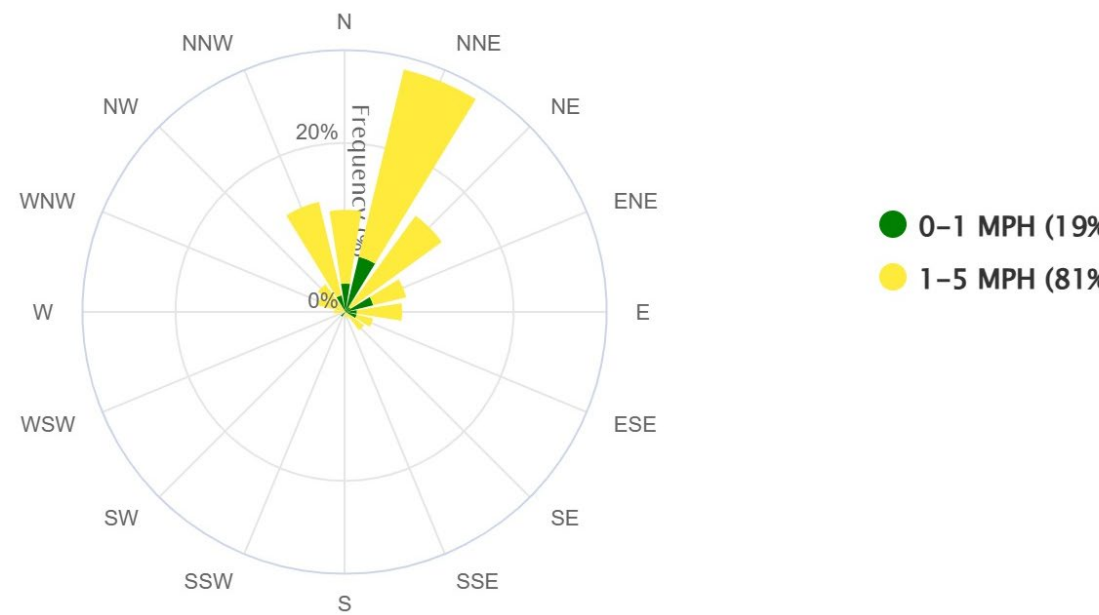
Group Name	Specific Isomers
Xylenes	Ethyl Benzene
	o-Xylene
	m-Xylene
	p-Xylene
Dimethylcyclohexanes	Ethylcyclohexane
	cis-1,3-Dimethylcyclohexane
	trans-1,2-Dimethylcyclohexane
	trans-1,3-Dimethylcyclohexane
Octanes	n-Octane
	2-Methylheptane
	3-Methylheptane
	2,2,4-Trimethylpentane
	2,3,4-Trimethylpentane
Trimethylbenzenes	Cumene
	1,2,4-Trimethylbenzene
	o-Ethyltoluene
	m-Ethyltoluene
	p-Ethyltoluene
	n-Propylbenzene
	1,3,5-Trimethylbenzene
Diethylbenzenes	o-Diethylbenzene
	m-Diethylbenzene
	p-Diethylbenzene
	All other $C_{10}H_{14}$ Isomers

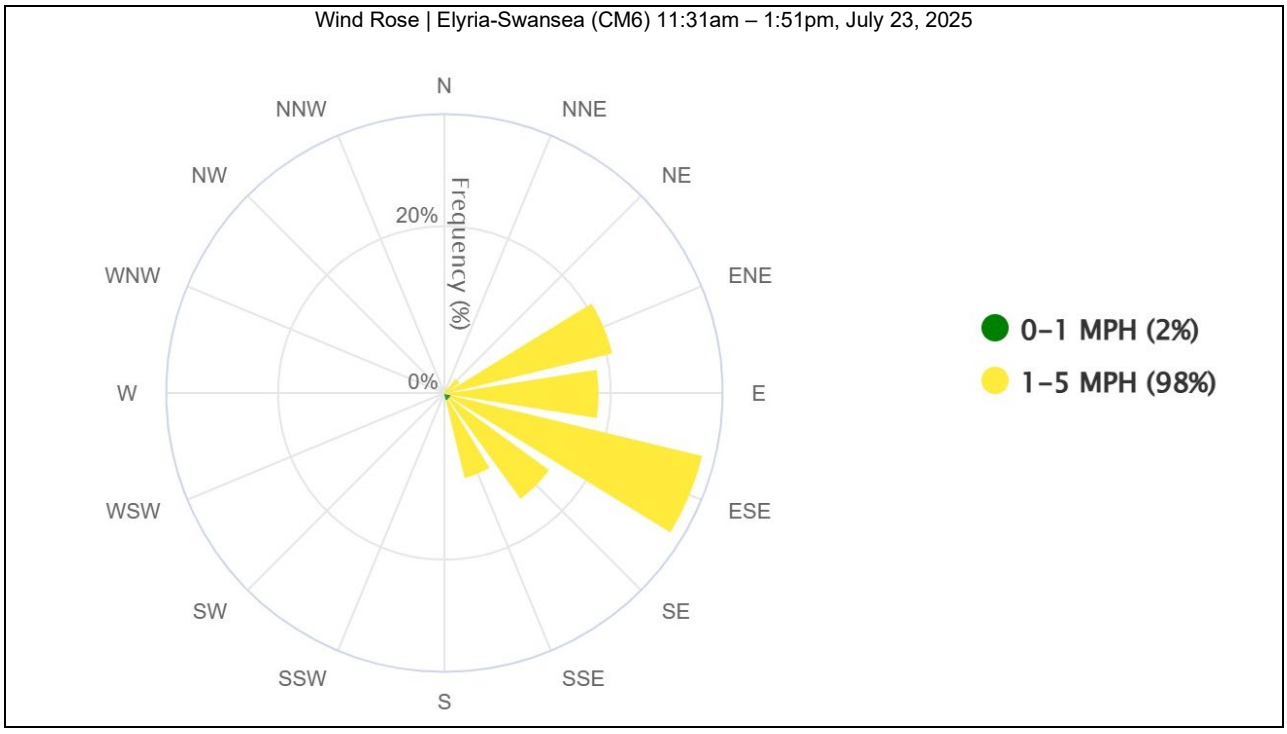
APPENDIX B DAILY WIND ROSES

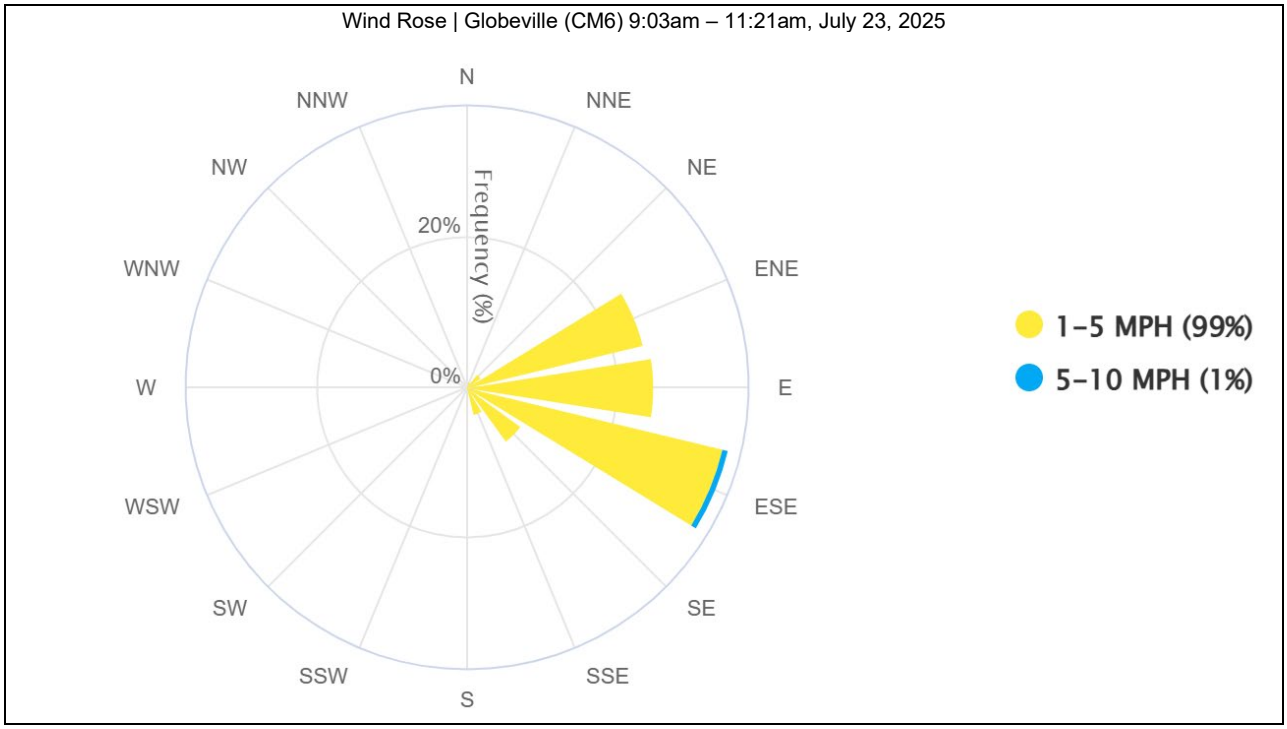
Wind Rose | Pioneer Park (CM7) 9:49am – 12:39pm, July 21, 2025

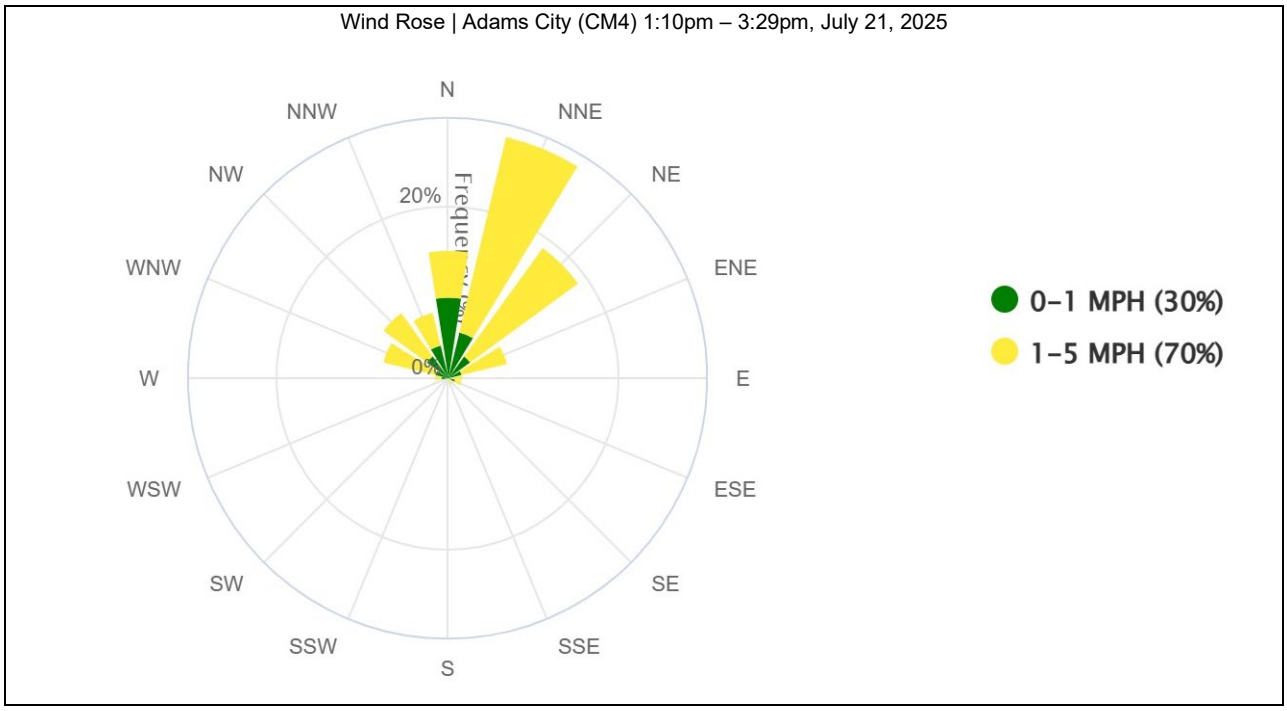


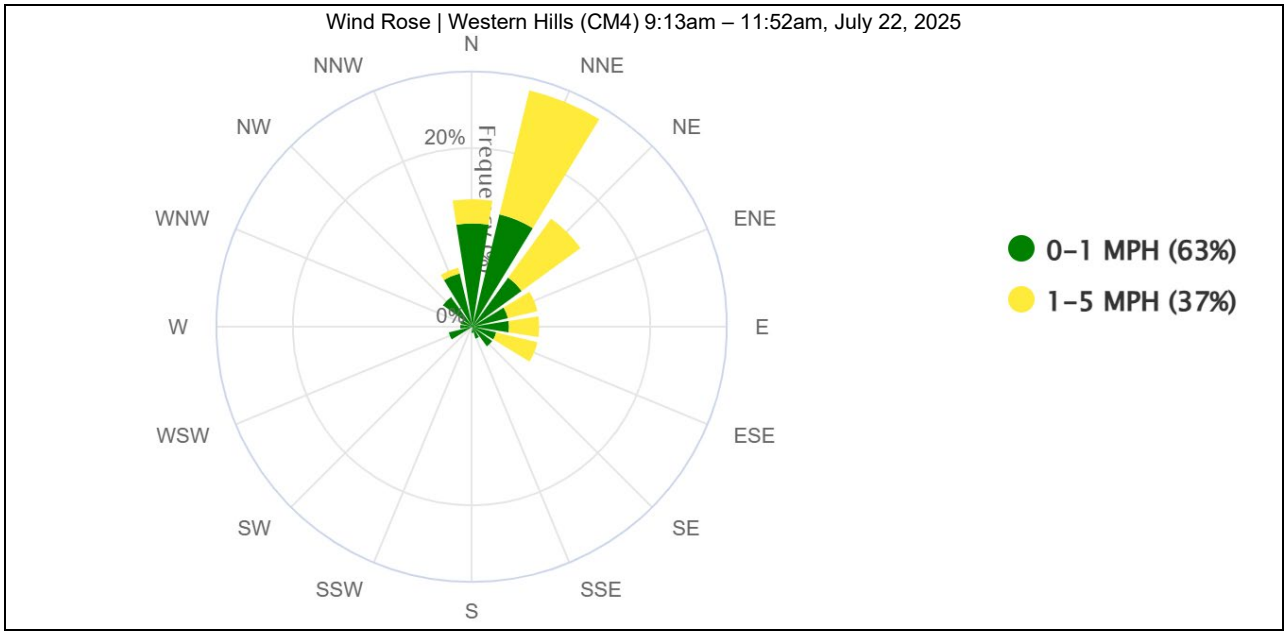
Wind Rose | Dupont (CM3) 12:22pm – 2:55pm, July 22, 2025




Wind Rose | Elyria-Swansea (CM6) 11:31am – 1:51pm, July 23, 2025
N
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
20%
0%
Frequency (%)
0–1 MPH (2%)
1–5 MPH (98%)


Wind Rose | Globeville (CM6) 9:03am – 11:21am, July 23, 2025
N
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
20%
0%
Frequency (%)
1–5 MPH (99%)
5–10 MPH (1%)


Wind Rose | Adams City (CM4) 1:10pm – 3:29pm, July 21, 2025
N
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
20%
0%
0–1 MPH (30%)
1–5 MPH (70%)


Wind Rose | Western Hills (CM4) 9:13am – 11:52am, July 22, 2025
N
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
20%
0%
0–1 MPH (63%)
1–5 MPH (37%)

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

Mobile Laboratory Sampling Data Summary and Risk Assessment

Adams City Neighborhood | July 21, 2025

Analyte	Cas No	Count of 1-second Concentrations (#)	Count of 1-hr Rolling Averages Derived (#)	Method Detection Limit (ppbv)	Maximum 1-second Concentration (ppbv)	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	8,342	4,815	0.005	0.12	0.01	0.01	670,000	298	OEHHA Acute REL	0.00004
ACETYLENE	74-86-2	8,342	4,815	0.168	0.86	0.17	0.23	NR	25,000	TCEQ Short-Term AMCV Health	0.00001
BENZENE	71-43-2	8,342	4,815	0.034	4.47	0.18	0.19	52,000	9	ATSDR Acute MRL	0.02155
BUTANES*	75-28-5	8,342	4,815	0.097	1.70	1.53	1.54	NR	33000	TCEQ Short-Term AMCV Health	0.00005
BUTENES*	590-18-1	8,342	4,815	0.393	8.34	1.02	1.21	NR	15000	TCEQ Short-Term AMCV Health	0.00008
CARBON DISULFIDE	75-15-0	8,342	4,815	0.016	0.06	0.01	0.01	13,000	1,991	OEHHA Acute REL	0.00001
CYCLOPENTANES*	287-92-3	8,342	4,815	0.133	3.41	0.35	0.40	NR	5,900	TCEQ Short-Term AMCV Health	0.00007
DECANES	124-18-5	8,342	4,815	0.016	0.15	0.02	0.02	NR	1,000	TCEQ Short-Term AMCV Health	0.00002
DIETHYLBENZENES*	141-93-5	8,342	4,815	0.018	0.29	0.06	0.07	NR	450	TCEQ Short-Term AMCV Health	0.00016
DIMETHYLCYCLOHEXANES*	638-04-0	8,342	4,815	0.022	0.23	0.07	0.08	NR	4,000	CDPHE	0.00002
DODECANES	112-40-3	8,342	4,815	0.004	0.07	0.00	0.00	NR	1720	CDPHE	0.00000
ETHYLENE	74-85-1	8,342	4,815	0.286	64.24	5.98	6.92	NR	500,000	TCEQ Short-Term AMCV Health	0.00001
HEPTANES*	142-82-5	8,342	4,815	0.034	0.35	0.19	0.19	NR	8,300	TCEQ Short-Term AMCV Health	0.00002
HEXANES*	110-54-3	8,342	4,815	0.024	0.47	0.40	0.41	NR	5,400	TCEQ Short-Term AMCV Health	0.00008
HEXENES*	592-41-6	8,342	4,815	0.114	2.04	0.81	0.85	NR	500	TCEQ Short-Term AMCV Health	0.00170
HYDROGEN CYANIDE	74-90-8	8,342	4,815	0.049	3.25	0.12	0.15	2,000	308	OEHHA Acute REL	0.00048
HYDROGEN SULFIDE	7783-06-4	8,342	4,815	0.064	1.00	0.15	0.18	510	70	ATSDR Acute MRL	0.00264
ISOPRENE	78-79-5	8,342	4,815	0.027	1.23	0.24	0.25	NR	1,400	TCEQ Short-Term AMCV Health	0.00018
METHANOL	67-56-1	8,342	4,815	0.211	11.70	4.48	4.70	530,000	21,366	OEHHA Acute REL	0.00022
METHYLCYCLOHEXANE	108-87-2	8,342	4,815	0.024	0.18	0.02	0.03	NR	4,000	TCEQ Short-Term AMCV Health	0.00001
NONANES	111-84-2	8,342	4,815	0.008	0.05	0.01	0.01	NR	3,000	TCEQ Short-Term AMCV Health	0.00000
OCTANES*	111-65-9	8,342	4,815	0.042	0.27	0.02	0.03	NR	4,100	TCEQ Short-Term AMCV Health	0.00001
PENTANES*	109-66-0	8,342	4,815	0.025	0.25	0.20	0.20	NR	68,000	TCEQ Short-Term AMCV Health	0.00000
PROPYLENE	115-07-1	8,342	4,815	0.158	4.10	0.45	0.47	NR	NA	NE	
STYRENE	100-42-5	8,342	4,815	0.01	1.12	0.06	0.07	20,000	5,000	ATSDR Acute MRL	0.00001
TETRACHLOROETHYLENE	127-18-4	8,342	4,815	0.002	0.04	0.00	0.00	35,000	6	ATSDR Acute MRL	0.00062
TOLUENE	108-88-3	8,342	4,815	0.039	9.34	0.30	0.35	67,000	2,000	ATSDR Acute MRL	0.00018
TRIMETHYLBENZENES*	622-96-8	8,342	4,815	0.023	6.91	0.20	0.23	50,000	250	TCEQ Short-Term AMCV Health	0.00092
UNDECANES	1120-21-4	8,342	4,815	0.01	0.30	0.05	0.06	NR	550	TCEQ Short-Term AMCV Health	0.00011
XYLENES*	1330-20-7	8,342	4,815	0.056	9.80	0.31	0.36	130,000	2,000	ATSDR Acute MRL	0.00018
										Hazard Index	0.02936

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.

Mobile Laboratory Sampling Data Summary and Risk Assessment

Dupont Neighborhood | July 22, 2025

Analyte	Cas No	Count of 1-second Concentrations (#)	Count of 1-hr Rolling Averages Derived (#)	Method Detection Limit (ppbv)	Maximum 1-second Concentration (ppbv)	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	9,170	5,643	0.005	0.17	0.01	0.01	670,000	298	OEHHA Acute REL	0.00005
ACETYLENE	74-86-2	9,170	5,643	0.168	1.10	0.15	0.22	NR	25,000	TCEQ Short-Term AMCV Health	0.00001
BENZENE	71-43-2	9,170	5,643	0.034	9.45	0.19	0.23	52,000	9	ATSDR Acute MRL	0.02506
BUTANES*	75-28-5	9,170	5,643	0.097	4.14	3.51	3.51	NR	33000	TCEQ Short-Term AMCV Health	0.00011
BUTENES*	590-18-1	9,170	5,643	0.393	25.32	1.33	1.53	NR	15000	TCEQ Short-Term AMCV Health	0.00010
CARBON DISULFIDE	75-15-0	9,170	5,643	0.016	0.07	0.01	0.01	13,000	1,991	OEHHA Acute REL	0.00000
CYCLOPENTANES*	287-92-3	9,170	5,643	0.133	15.96	0.35	0.42	NR	5,900	TCEQ Short-Term AMCV Health	0.00007
DECANES	124-18-5	9,170	5,643	0.016	0.04	0.01	0.01	NR	1,000	TCEQ Short-Term AMCV Health	0.00001
DIETHYLBENZENES*	141-93-5	9,170	5,643	0.018	0.47	0.06	0.08	NR	450	TCEQ Short-Term AMCV Health	0.00017
DIMETHYLCYCLOHEXANES*	638-04-0	9,170	5,643	0.022	0.35	0.03	0.03	NR	4,000	CDPHE	0.00001
DODECANES	112-40-3	9,170	5,643	0.004	0.02	0.00	0.00	NR	1720	CDPHE	0.00000
ETHYLENE	74-85-1	9,170	5,643	0.286	50.16	8.41	9.51	NR	500,000	TCEQ Short-Term AMCV Health	0.00002
HEPTANES*	142-82-5	9,170	5,643	0.034	0.42	0.02	0.02	NR	8,300	TCEQ Short-Term AMCV Health	0.00000
HEXANES*	110-54-3	9,170	5,643	0.024	0.09	0.02	0.03	NR	5,400	TCEQ Short-Term AMCV Health	0.00000
HEXENES*	592-41-6	9,170	5,643	0.114	10.46	0.25	0.30	NR	500	TCEQ Short-Term AMCV Health	0.00061
HYDROGEN CYANIDE	74-90-8	9,170	5,643	0.049	20.32	0.12	0.14	2,000	308	OEHHA Acute REL	0.00044
HYDROGEN SULFIDE	7783-06-4	9,170	5,643	0.064	0.91	0.12	0.15	510	70	ATSDR Acute MRL	0.00220
ISOPRENE	78-79-5	9,170	5,643	0.027	2.45	0.08	0.10	NR	1,400	TCEQ Short-Term AMCV Health	0.00007
METHANOL	67-56-1	9,170	5,643	0.211	6.17	3.40	3.51	530,000	21,366	OEHHA Acute REL	0.00016
METHYLCYCLOHEXANE	108-87-2	9,170	5,643	0.024	0.36	0.02	0.03	NR	4,000	TCEQ Short-Term AMCV Health	0.00001
NONANES	111-84-2	9,170	5,643	0.008	0.04	0.01	0.01	NR	3,000	TCEQ Short-Term AMCV Health	0.00000
OCTANES*	111-65-9	9,170	5,643	0.042	2.34	0.03	0.04	NR	4,100	TCEQ Short-Term AMCV Health	0.00001
PENTANES*	109-66-0	9,170	5,643	0.025	0.63	0.56	0.56	NR	68,000	TCEQ Short-Term AMCV Health	0.00001
PROPYLENE	115-07-1	9,170	5,643	0.158	11.41	0.29	0.35	NR	NA	NE	
STYRENE	100-42-5	9,170	5,643	0.01	0.66	0.05	0.07	20,000	5,000	ATSDR Acute MRL	0.00001
TETRACHLOROETHYLENE	127-18-4	9,170	5,643	0.002	0.04	0.00	0.00	35,000	6	ATSDR Acute MRL	0.00042
TOLUENE	108-88-3	9,170	5,643	0.039	36.09	0.29	0.36	67,000	2,000	ATSDR Acute MRL	0.00018
TRIMETHYLBENZENES*	622-96-8	9,170	5,643	0.023	28.91	0.11	0.18	50,000	250	TCEQ Short-Term AMCV Health	0.00073
UNDECANES	1120-21-4	9,170	5,643	0.01	0.08	0.01	0.01	NR	550	TCEQ Short-Term AMCV Health	0.00002
XYLENES*	1330-20-7	9,170	5,643	0.056	40.65	0.31	0.40	130,000	2,000	ATSDR Acute MRL	0.00020
										Hazard Index	0.03069

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.

Mobile Laboratory Sampling Data Summary and Risk Assessment

Elyria-Swansea Neighborhood | July 23, 2025

Analyte	Cas No	Count of 1-second Concentrations (#)	Count of 1-hr Rolling Averages Derived (#)	Method Detection Limit (ppbv)	Maximum 1-second Concentration (ppbv)	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	8,414	4,887	0.005	0.22	0.01	0.01	670,000	298	OEHHA Acute REL	0.00005
ACETYLENE	74-86-2	8,414	4,887	0.168	1.23	0.21	0.28	NR	25,000	TCEQ Short-Term AMCV Health	0.00001
BENZENE	71-43-2	8,414	4,887	0.034	1.74	0.26	0.31	52,000	9	ATSDR Acute MRL	0.03422
BUTANES*	75-28-5	8,414	4,887	0.097	4.44	2.62	2.66	NR	33000	TCEQ Short-Term AMCV Health	0.00008
BUTENES*	590-18-1	8,414	4,887	0.393	4.77	1.19	1.26	NR	15000	TCEQ Short-Term AMCV Health	0.00008
CARBON DISULFIDE	75-15-0	8,414	4,887	0.016	0.09	0.01	0.01	13,000	1,991	OEHHA Acute REL	0.00001
CYCLOPENTANES*	287-92-3	8,414	4,887	0.133	3.19	1.84	1.88	NR	5,900	TCEQ Short-Term AMCV Health	0.00032
DECANES	124-18-5	8,414	4,887	0.016	0.05	0.01	0.01	NR	1,000	TCEQ Short-Term AMCV Health	0.00001
DIETHYLBENZENES*	141-93-5	8,414	4,887	0.018	0.44	0.08	0.10	NR	450	TCEQ Short-Term AMCV Health	0.00021
DIMETHYLCYCLOHEXANES*	638-04-0	8,414	4,887	0.022	0.10	0.03	0.04	NR	4,000	CDPHE	0.00001
DODECANES	112-40-3	8,414	4,887	0.004	0.03	0.00	0.00	NR	1720	CDPHE	0.00000
ETHYLENE	74-85-1	8,414	4,887	0.286	43.81	4.56	5.51	NR	500,000	TCEQ Short-Term AMCV Health	0.00001
HEPTANES*	142-82-5	8,414	4,887	0.034	0.18	0.02	0.02	NR	8,300	TCEQ Short-Term AMCV Health	0.00000
HEXANES*	110-54-3	8,414	4,887	0.024	0.26	0.18	0.19	NR	5,400	TCEQ Short-Term AMCV Health	0.00003
HEXENES*	592-41-6	8,414	4,887	0.114	1.06	0.24	0.27	NR	500	TCEQ Short-Term AMCV Health	0.00053
HYDROGEN CYANIDE	74-90-8	8,414	4,887	0.049	1.43	0.12	0.18	2,000	308	OEHHA Acute REL	0.00057
HYDROGEN SULFIDE	7783-06-4	8,414	4,887	0.064	1.20	0.18	0.25	510	70	ATSDR Acute MRL	0.00356
ISOPRENE	78-79-5	8,414	4,887	0.027	0.83	0.23	0.25	NR	1,400	TCEQ Short-Term AMCV Health	0.00018
METHANOL	67-56-1	8,414	4,887	0.211	10.10	5.78	6.04	530,000	21,366	OEHHA Acute REL	0.00028
METHYLCYCLOHEXANE	108-87-2	8,414	4,887	0.024	0.15	0.10	0.10	NR	4,000	TCEQ Short-Term AMCV Health	0.00003
NONANES	111-84-2	8,414	4,887	0.008	0.05	0.01	0.01	NR	3,000	TCEQ Short-Term AMCV Health	0.00000
OCTANES*	111-65-9	8,414	4,887	0.042	0.22	0.03	0.03	NR	4,100	TCEQ Short-Term AMCV Health	0.00001
PENTANES*	109-66-0	8,414	4,887	0.025	0.66	0.59	0.59	NR	68,000	TCEQ Short-Term AMCV Health	0.00001
PROPYLENE	115-07-1	8,414	4,887	0.158	2.28	0.19	0.27	NR	NA	NE	
STYRENE	100-42-5	8,414	4,887	0.01	0.52	0.17	0.18	20,000	5,000	ATSDR Acute MRL	0.00004
TETRACHLOROETHYLENE	127-18-4	8,414	4,887	0.002	0.04	0.00	0.00	35,000	6	ATSDR Acute MRL	0.00079
TOLUENE	108-88-3	8,414	4,887	0.039	3.38	0.33	0.39	67,000	2,000	ATSDR Acute MRL	0.00020
TRIMETHYLBENZENES*	622-96-8	8,414	4,887	0.023	10.32	0.33	0.55	50,000	250	TCEQ Short-Term AMCV Health	0.00220
UNDECANES	1120-21-4	8,414	4,887	0.01	0.08	0.01	0.01	NR	550	TCEQ Short-Term AMCV Health	0.00002
XYLENES*	1330-20-7	8,414	4,887	0.056	5.74	0.38	0.49	130,000	2,000	ATSDR Acute MRL	0.00024
										Hazard Index	0.04372

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.

Mobile Laboratory Sampling Data Summary and Risk Assessment

Globeville Neighborhood | July 23, 2025

Analyte	Cas No	Count of 1-second Concentrations (#)	Count of 1-hr Rolling Averages Derived (#)	Method Detection Limit (ppbv)	Maximum 1-second Concentration (ppbv)	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	8,304	4,777	0.005	0.15	0.00	0.01	670,000	298	OEHHA Acute REL	0.00002
ACETYLENE	74-86-2	8,304	4,777	0.168	1.28	0.22	0.28	NR	25,000	TCEQ Short-Term AMCV Health	0.00001
BENZENE	71-43-2	8,304	4,777	0.034	2.15	0.26	0.28	52,000	9	ATSDR Acute MRL	0.03107
BUTANES*	75-28-5	8,304	4,777	0.097	2.21	2.01	2.02	NR	33000	TCEQ Short-Term AMCV Health	0.00006
BUTENES*	590-18-1	8,304	4,777	0.393	4.20	0.96	1.04	NR	15000	TCEQ Short-Term AMCV Health	0.00007
CARBON DISULFIDE	75-15-0	8,304	4,777	0.016	0.06	0.01	0.01	13,000	1,991	OEHHA Acute REL	0.00001
CYCLOPENTANES*	287-92-3	8,304	4,777	0.133	4.08	1.57	1.63	NR	5,900	TCEQ Short-Term AMCV Health	0.00028
DECANES	124-18-5	8,304	4,777	0.016	0.07	0.02	0.02	NR	1,000	TCEQ Short-Term AMCV Health	0.00002
DIETHYLBENZENES*	141-93-5	8,304	4,777	0.018	0.21	0.07	0.08	NR	450	TCEQ Short-Term AMCV Health	0.00017
DIMETHYLCYCLOHEXANES*	638-04-0	8,304	4,777	0.022	0.13	0.03	0.03	NR	4,000	CDPHE	0.00001
DODECANES	112-40-3	8,304	4,777	0.004	0.02	0.00	0.00	NR	1720	CDPHE	0.00000
ETHYLENE	74-85-1	8,304	4,777	0.286	44.08	4.71	4.88	NR	500,000	TCEQ Short-Term AMCV Health	0.00001
HEPTANES*	142-82-5	8,304	4,777	0.034	0.08	0.02	0.02	NR	8,300	TCEQ Short-Term AMCV Health	0.00000
HEXANES*	110-54-3	8,304	4,777	0.024	0.20	0.13	0.14	NR	5,400	TCEQ Short-Term AMCV Health	0.00003
HEXENES*	592-41-6	8,304	4,777	0.114	2.32	1.32	1.35	NR	500	TCEQ Short-Term AMCV Health	0.00270
HYDROGEN CYANIDE	74-90-8	8,304	4,777	0.049	1.11	0.17	0.19	2,000	308	OEHHA Acute REL	0.00063
HYDROGEN SULFIDE	7783-06-4	8,304	4,777	0.064	1.05	0.21	0.23	510	70	ATSDR Acute MRL	0.00331
ISOPRENE	78-79-5	8,304	4,777	0.027	0.80	0.10	0.13	NR	1,400	TCEQ Short-Term AMCV Health	0.00010
METHANOL	67-56-1	8,304	4,777	0.211	8.15	6.19	6.33	530,000	21,366	OEHHA Acute REL	0.00030
METHYLCYCLOHEXANE	108-87-2	8,304	4,777	0.024	0.09	0.02	0.02	NR	4,000	TCEQ Short-Term AMCV Health	0.00001
NONANES	111-84-2	8,304	4,777	0.008	0.04	0.01	0.01	NR	3,000	TCEQ Short-Term AMCV Health	0.00000
OCTANES*	111-65-9	8,304	4,777	0.042	0.10	0.02	0.03	NR	4,100	TCEQ Short-Term AMCV Health	0.00001
PENTANES*	109-66-0	8,304	4,777	0.025	0.19	0.12	0.12	NR	68,000	TCEQ Short-Term AMCV Health	0.00000
PROPYLENE	115-07-1	8,304	4,777	0.158	3.55	0.33	0.36	NR	NA	NE	
STYRENE	100-42-5	8,304	4,777	0.01	4.73	0.10	0.14	20,000	5,000	ATSDR Acute MRL	0.00003
TETRACHLOROETHYLENE	127-18-4	8,304	4,777	0.002	0.03	0.00	0.00	35,000	6	ATSDR Acute MRL	0.00040
TOLUENE	108-88-3	8,304	4,777	0.039	4.14	0.37	0.47	67,000	2,000	ATSDR Acute MRL	0.00024
TRIMETHYLBENZENES*	622-96-8	8,304	4,777	0.023	3.57	0.28	0.35	50,000	250	TCEQ Short-Term AMCV Health	0.00141
UNDECANES	1120-21-4	8,304	4,777	0.01	0.14	0.05	0.05	NR	550	TCEQ Short-Term AMCV Health	0.00010
XYLENES*	1330-20-7	8,304	4,777	0.056	5.15	0.38	0.52	130,000	2,000	ATSDR Acute MRL	0.00026
										Hazard Index	**0.04124**

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.

Mobile Laboratory Sampling Data Summary and Risk Assessment

Pioneer Park Neighborhood | July 21, 2025

Analyte	Cas No	Count of 1-second Concentrations (#)	Count of 1-hr Rolling Averages Derived (#)	Method Detection Limit (ppbv)	Maximum 1-second Concentration (ppbv)	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	10,170	6,643	0.005	0.24	0.01	0.02	670,000	298	OEHHA Acute REL	0.00005
ACETYLENE	74-86-2	10,170	6,643	0.168	1.10	0.26	0.30	NR	25,000	TCEQ Short-Term AMCV Health	0.00001
BENZENE	71-43-2	10,170	6,643	0.034	1.81	0.24	0.27	52,000	9	ATSDR Acute MRL	0.02968
BUTANES*	75-28-5	10,170	6,643	0.097	3.09	2.48	2.56	NR	33000	TCEQ Short-Term AMCV Health	0.00008
BUTENES*	590-18-1	10,170	6,643	0.393	5.35	1.60	1.73	NR	15000	TCEQ Short-Term AMCV Health	0.00012
CARBON DISULFIDE	75-15-0	10,170	6,643	0.016	0.12	0.01	0.01	13,000	1,991	OEHHA Acute REL	0.00001
CYCLOPENTANES*	287-92-3	10,170	6,643	0.133	4.66	1.02	1.05	NR	5,900	TCEQ Short-Term AMCV Health	0.00018
DECANES	124-18-5	10,170	6,643	0.016	0.10	0.03	0.03	NR	1,000	TCEQ Short-Term AMCV Health	0.00003
DIETHYLBENZENES*	141-93-5	10,170	6,643	0.018	0.24	0.10	0.10	NR	450	TCEQ Short-Term AMCV Health	0.00022
DIMETHYLCYCLOHEXANES*	638-04-0	10,170	6,643	0.022	0.11	0.04	0.05	NR	4,000	CDPHE	0.00001
DODECANES	112-40-3	10,170	6,643	0.004	0.03	0.00	0.00	NR	1720	CDPHE	0.00000
ETHYLENE	74-85-1	10,170	6,643	0.286	59.41	8.28	8.71	NR	500,000	TCEQ Short-Term AMCV Health	0.00002
HEPTANES*	142-82-5	10,170	6,643	0.034	0.13	0.08	0.08	NR	8,300	TCEQ Short-Term AMCV Health	0.00001
HEXANES*	110-54-3	10,170	6,643	0.024	0.20	0.13	0.14	NR	5,400	TCEQ Short-Term AMCV Health	0.00003
HEXENES*	592-41-6	10,170	6,643	0.114	1.58	0.33	0.35	NR	500	TCEQ Short-Term AMCV Health	0.00070
HYDROGEN CYANIDE	74-90-8	10,170	6,643	0.049	2.22	0.09	0.31	2,000	308	OEHHA Acute REL	0.00099
HYDROGEN SULFIDE	7783-06-4	10,170	6,643	0.064	1.03	0.15	0.19	510	70	ATSDR Acute MRL	0.00272
ISOPRENE	78-79-5	10,170	6,643	0.027	1.18	0.11	0.15	NR	1,400	TCEQ Short-Term AMCV Health	0.00011
METHANOL	67-56-1	10,170	6,643	0.211	15.20	5.57	6.14	530,000	21,366	OEHHA Acute REL	0.00029
METHYLCYCLOHEXANE	108-87-2	10,170	6,643	0.024	0.11	0.03	0.04	NR	4,000	TCEQ Short-Term AMCV Health	0.00001
NONANES	111-84-2	10,170	6,643	0.008	0.05	0.01	0.01	NR	3,000	TCEQ Short-Term AMCV Health	0.00000
OCTANES*	111-65-9	10,170	6,643	0.042	0.10	0.03	0.03	NR	4,100	TCEQ Short-Term AMCV Health	0.00001
PENTANES*	109-66-0	10,170	6,643	0.025	0.20	0.13	0.13	NR	68,000	TCEQ Short-Term AMCV Health	0.00000
PROPYLENE	115-07-1	10,170	6,643	0.158	2.88	0.23	0.33	NR	NA	NE	
STYRENE	100-42-5	10,170	6,643	0.01	0.35	0.07	0.08	20,000	5,000	ATSDR Acute MRL	0.00002
TETRACHLOROETHYLENE	127-18-4	10,170	6,643	0.002	0.04	0.01	0.01	35,000	6	ATSDR Acute MRL	0.00111
TOLUENE	108-88-3	10,170	6,643	0.039	4.49	0.42	0.50	67,000	2,000	ATSDR Acute MRL	0.00025
TRIMETHYLBENZENES*	622-96-8	10,170	6,643	0.023	6.56	0.24	0.30	50,000	250	TCEQ Short-Term AMCV Health	0.00118
UNDECANES	1120-21-4	10,170	6,643	0.01	0.09	0.02	0.02	NR	550	TCEQ Short-Term AMCV Health	0.00004
XYLENES*	1330-20-7	10,170	6,643	0.056	5.58	0.55	0.61	130,000	2,000	ATSDR Acute MRL	0.00030
										Hazard Index	0.03818

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.

Mobile Laboratory Sampling Data Summary and Risk Assessment

Western Hills Neighborhood | July 22, 2025

Analyte	Cas No	Count of 1-second Concentrations (#)	Count of 1-hr Rolling Averages Derived (#)	Method Detection Limit (ppbv)	Maximum 1-second Concentration (ppbv)	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	9,515	5,988	0.005	0.15	0.01	0.01	670,000	298	OEHHA Acute REL	0.00003
ACETYLENE	74-86-2	9,515	5,988	0.168	1.30	0.20	0.25	NR	25,000	TCEQ Short-Term AMCV Health	0.00001
BENZENE	71-43-2	9,515	5,988	0.034	5.75	0.22	0.27	52,000	9	ATSDR Acute MRL	0.03034
BUTANES*	75-28-5	9,515	5,988	0.097	2.85	2.60	2.62	NR	33000	TCEQ Short-Term AMCV Health	0.00008
BUTENES*	590-18-1	9,515	5,988	0.393	12.34	1.26	1.39	NR	15000	TCEQ Short-Term AMCV Health	0.00009
CARBON DISULFIDE	75-15-0	9,515	5,988	0.016	0.06	0.01	0.01	13,000	1,991	OEHHA Acute REL	0.00000
CYCLOPENTANES*	287-92-3	9,515	5,988	0.133	8.21	1.84	1.91	NR	5,900	TCEQ Short-Term AMCV Health	0.00032
DECANES	124-18-5	9,515	5,988	0.016	0.04	0.01	0.01	NR	1,000	TCEQ Short-Term AMCV Health	0.00001
DIETHYLBENZENES*	141-93-5	9,515	5,988	0.018	0.30	0.07	0.07	NR	450	TCEQ Short-Term AMCV Health	0.00016
DIMETHYLCYCLOHEXANES*	638-04-0	9,515	5,988	0.022	0.16	0.03	0.03	NR	4,000	CDPHE	0.00001
DODECANES	112-40-3	9,515	5,988	0.004	0.03	0.00	0.00	NR	1720	CDPHE	0.00000
ETHYLENE	74-85-1	9,515	5,988	0.286	66.95	4.34	4.63	NR	500,000	TCEQ Short-Term AMCV Health	0.00001
HEPTANES*	142-82-5	9,515	5,988	0.034	0.12	0.02	0.02	NR	8,300	TCEQ Short-Term AMCV Health	0.00000
HEXANES*	110-54-3	9,515	5,988	0.024	0.28	0.18	0.18	NR	5,400	TCEQ Short-Term AMCV Health	0.00003
HEXENES*	592-41-6	9,515	5,988	0.114	4.06	0.25	0.29	NR	500	TCEQ Short-Term AMCV Health	0.00059
HYDROGEN CYANIDE	74-90-8	9,515	5,988	0.049	1.37	0.11	0.13	2,000	308	OEHHA Acute REL	0.00041
HYDROGEN SULFIDE	7783-06-4	9,515	5,988	0.064	0.90	0.12	0.14	510	70	ATSDR Acute MRL	0.00206
ISOPRENE	78-79-5	9,515	5,988	0.027	1.54	0.10	0.16	NR	1,400	TCEQ Short-Term AMCV Health	0.00011
METHANOL	67-56-1	9,515	5,988	0.211	7.78	5.61	5.84	530,000	21,366	OEHHA Acute REL	0.00027
METHYLCYCLOHEXANE	108-87-2	9,515	5,988	0.024	0.17	0.02	0.02	NR	4,000	TCEQ Short-Term AMCV Health	0.00001
NONANES	111-84-2	9,515	5,988	0.008	0.05	0.01	0.01	NR	3,000	TCEQ Short-Term AMCV Health	0.00000
OCTANES*	111-65-9	9,515	5,988	0.042	0.71	0.03	0.03	NR	4,100	TCEQ Short-Term AMCV Health	0.00001
PENTANES*	109-66-0	9,515	5,988	0.025	0.64	0.58	0.58	NR	68,000	TCEQ Short-Term AMCV Health	0.00001
PROPYLENE	115-07-1	9,515	5,988	0.158	5.93	0.14	0.22	NR	NA	NE	
STYRENE	100-42-5	9,515	5,988	0.01	1.09	0.06	0.07	20,000	5,000	ATSDR Acute MRL	0.00001
TETRACHLOROETHYLENE	127-18-4	9,515	5,988	0.002	0.04	0.00	0.00	35,000	6	ATSDR Acute MRL	0.00040
TOLUENE	108-88-3	9,515	5,988	0.039	16.84	0.36	0.53	67,000	2,000	ATSDR Acute MRL	0.00027
TRIMETHYLBENZENES*	622-96-8	9,515	5,988	0.023	12.09	0.22	0.33	50,000	250	TCEQ Short-Term AMCV Health	0.00131
UNDECANES	1120-21-4	9,515	5,988	0.01	0.07	0.01	0.01	NR	550	TCEQ Short-Term AMCV Health	0.00002
XYLENES*	1330-20-7	9,515	5,988	0.056	19.44	0.35	0.50	130,000	2,000	ATSDR Acute MRL	0.00025
										Hazard Index	0.03682

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.

APPENDIX D PTR CALIBRATION AND QA/QC DATA

Observations During Mobile Van Monitoring

3rd Qtr. 2025 CCND Notable Events Log

7-21-25 Pioneer Park

10:35 E 69th and Quebec: BTEX, hexenes, Car exhaust
11:28 68th and Ivy: BTEX, unknown source
11:57 67th and Kearney: BTEX, Hexenes, car exhaust at intersection
12:07 59th and Olive: BTEX, hexenes, alkanes, car exhaust at intersection

7-21-25 Adams City

13:15 68th and Colorado: BTEX, trimethylbenzenes, heavy construction equipment
13:17 68th and Ash: BTEX intersection
13:29 74th and Birch: BTEX, hexenes, truck exhaust
13:52 72nd and Carnation: BTEX, open gas container in driveway
14:00 68th and Colorado: BTEX, trimethylbenzenes, heavy construction equipment
14:34 E 69th and Ash: BTEX, unknown
15:19 70th and Clermont: BTEX, intersection
15:21 E 72nd and Birch: BTEX, intersection, exhaust

7-22-25 Western Hills

09:18 72nd and Pecos: BTEX, hexenes, car exhaust at intersection
09:20 Pecos and El Paso: BTEX car exhaust at intersection
09:30 Hilltop and Erie: BTEX, hexenes, car exhaust at intersection
09:55 Fernando and Drake: large BTEX, car repair in street
11:16 E 78th and York: BTEX, unknown
11:42 Cleo and High St: BTEX unknown

7-22-25 Dupont

13:01 E 80th Ave and Niagara, BTEX, hexenes, intersection, exhaust
13:12 E 78th and Kimberly: BTEX, small lawnmower exhaust in yard
13:40-41 E 78th and Landon: BTEX, hexenes, unknown
13:52 78th and Monaco: TEX, unknown, no benzene
13:57 78th and Monaco: BTEX, car exhaust at intersection
14:01 E 80th Ave and Niagara: BTEX, car exhaust at intersection
14:40 70th and Monaco: BTEX, intersection
14:48 E 69th and Forest: BTEX intersection

CCND Mobile Monitoring Van
2025 Q3

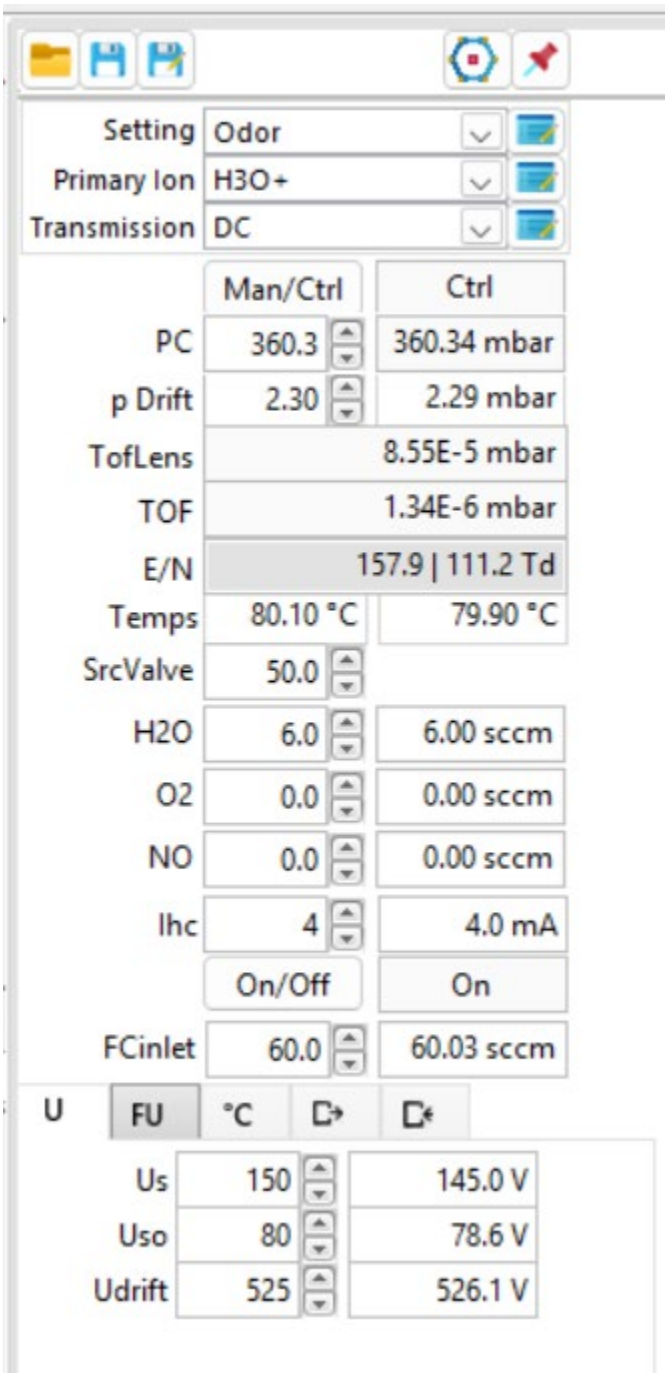
7-23-25 Globeville

10:00 53rd and Sherman: Toluene spike near truck painting shop
10:10 52nd Ave and Logan: Styrene spike
10:26 46th and Logan: BTEX, hexenes car exhaust at intersection
10:47 44th and Pennsylvania: BTEX intersection

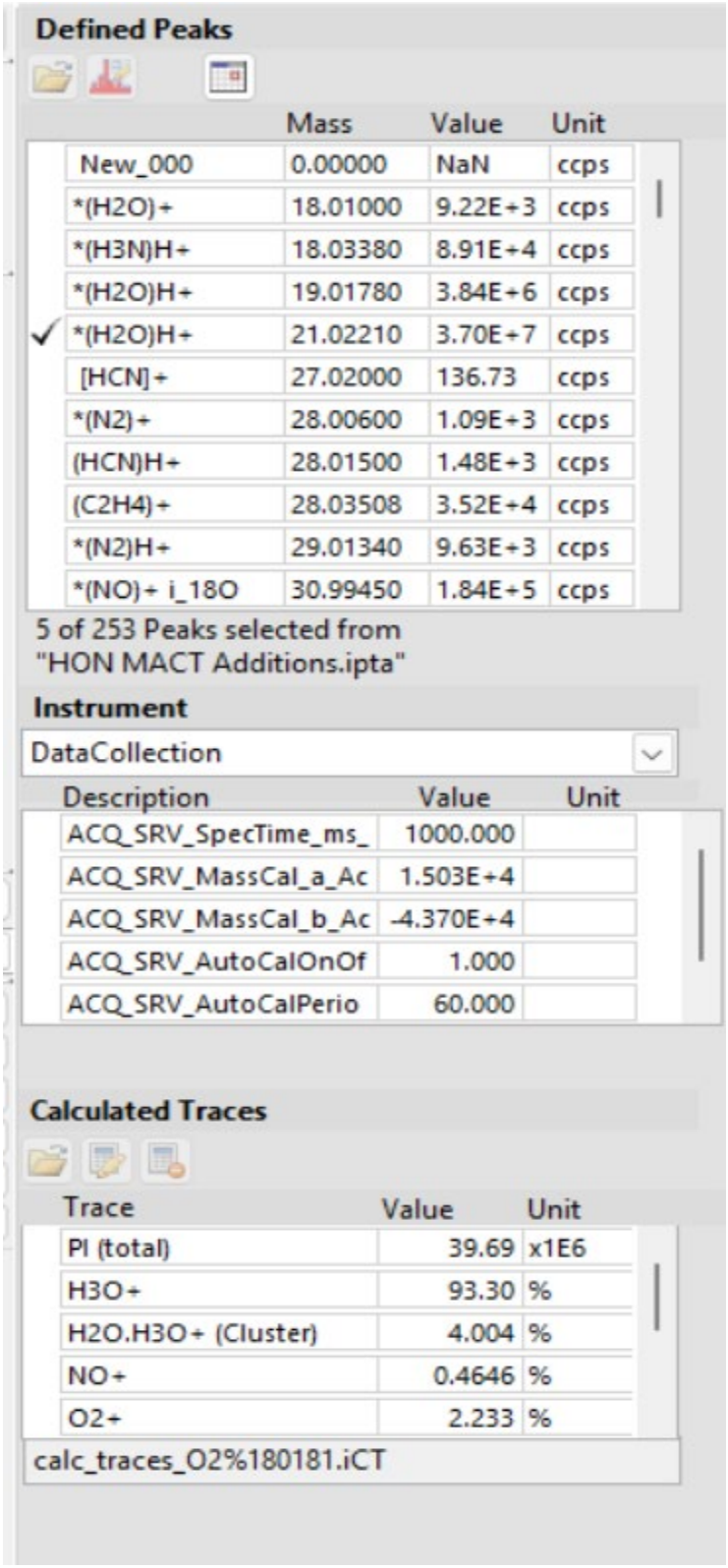
7-23-25 Elyria-Swansea

11:39 48th Ave and N Gaylord St: Ethylbenzene/xylene spike, tank company
12:03 40th and Monroe: Ethylbenzene/xylene spike, unknown
12:06 42nd and Monroe: Ethylbenzene/xylene spike, unknown
13:04 51st and State" BTEX hexenes, car exhaust at intersection
13:33 42nd and Monroe: Xylenes only near empty green warehouse
13:47 40th and State: BTEX, hexenes, car exhaust at intersection

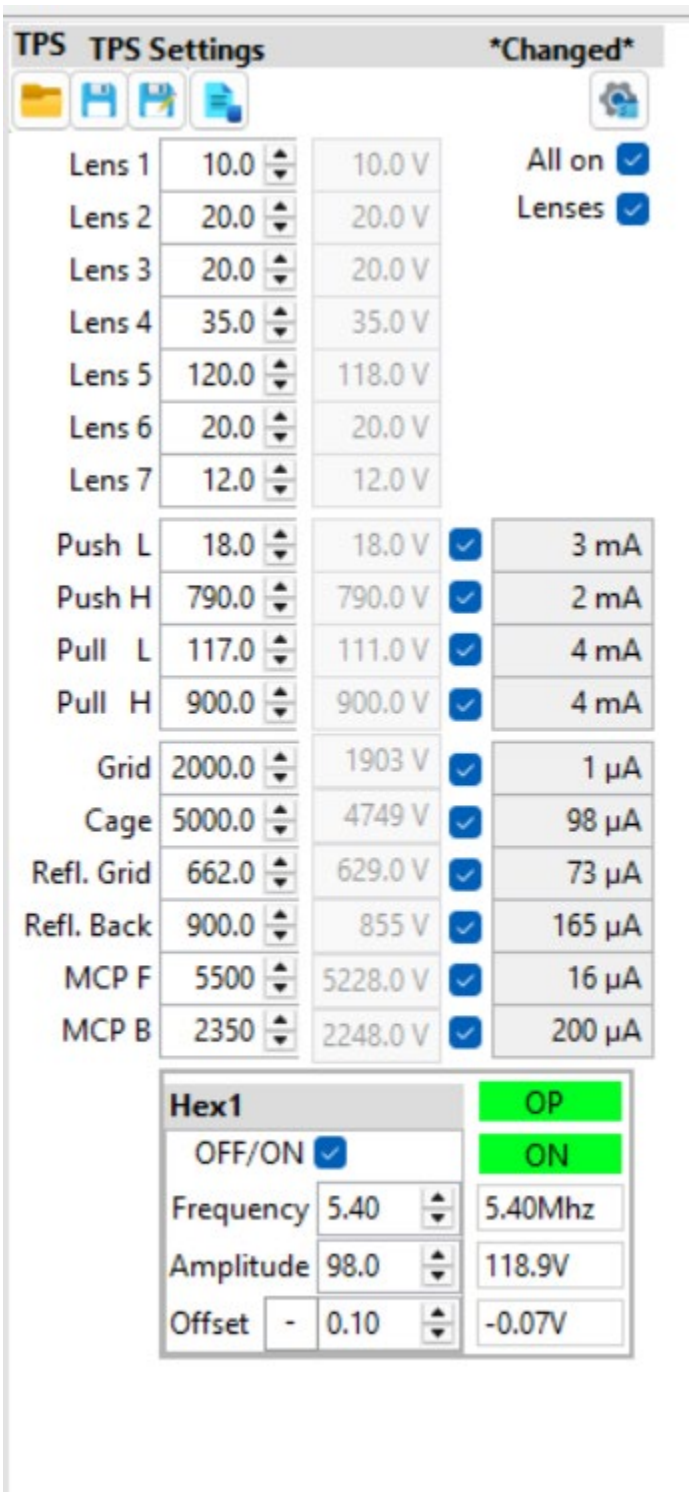
CCND 3rd Quarter 2025 PTR Screenshots
7-20-25



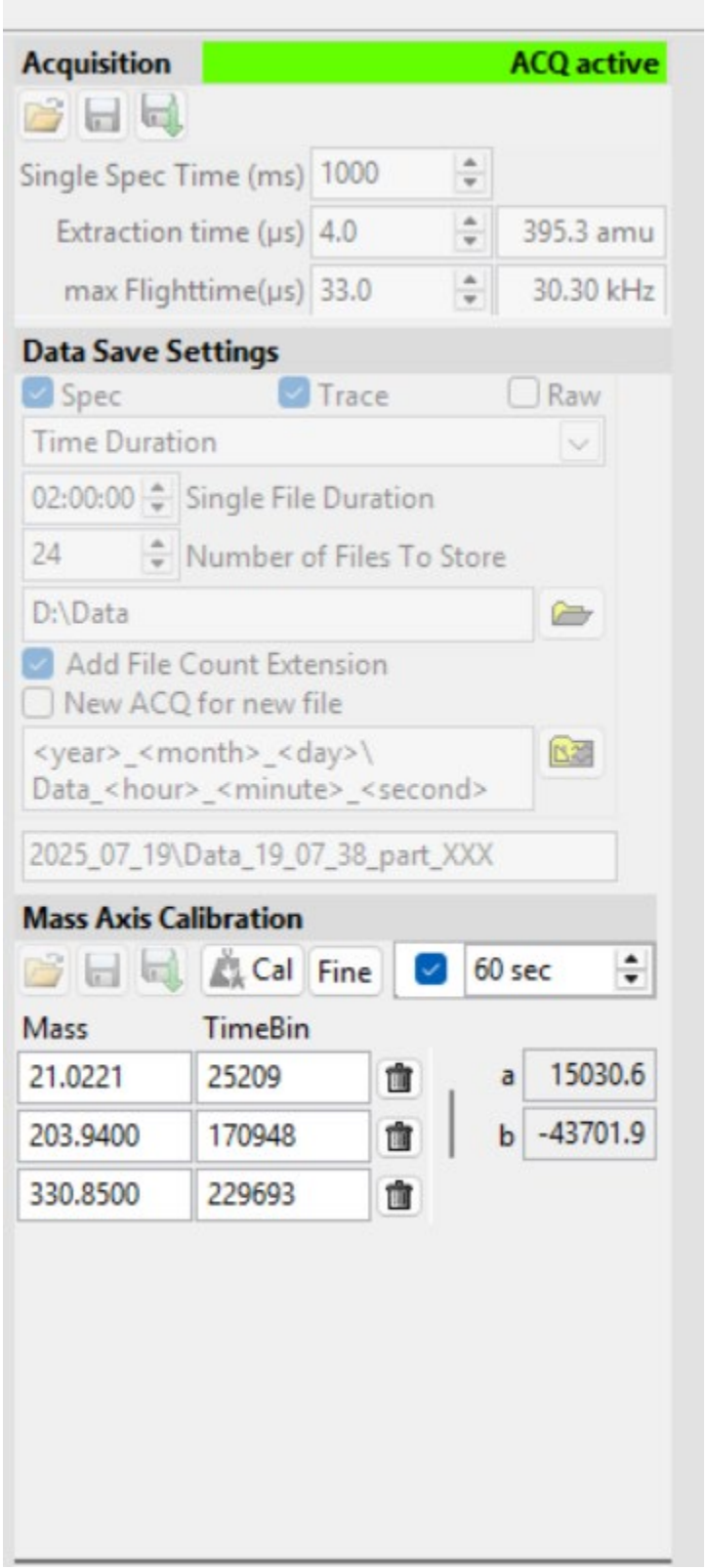
Production Settings



Peaks and Traces

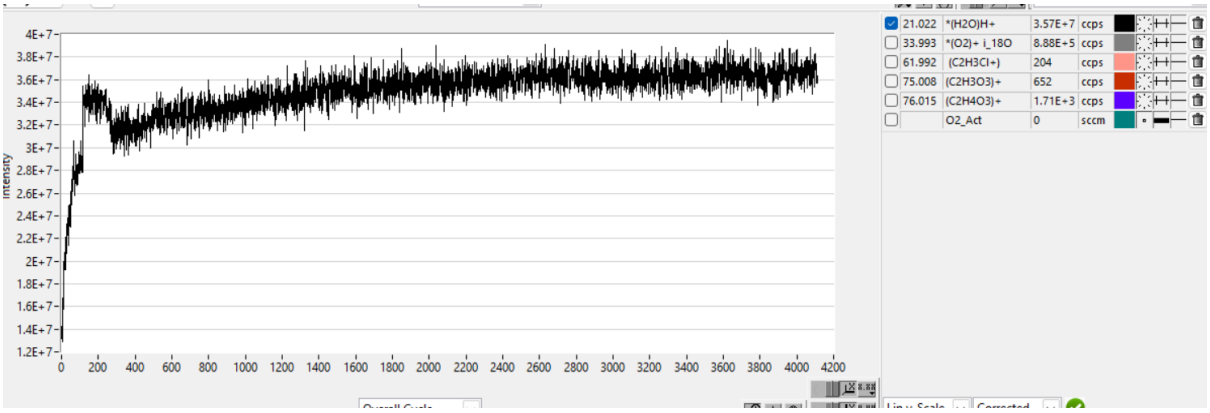


TPS and Hex Settings

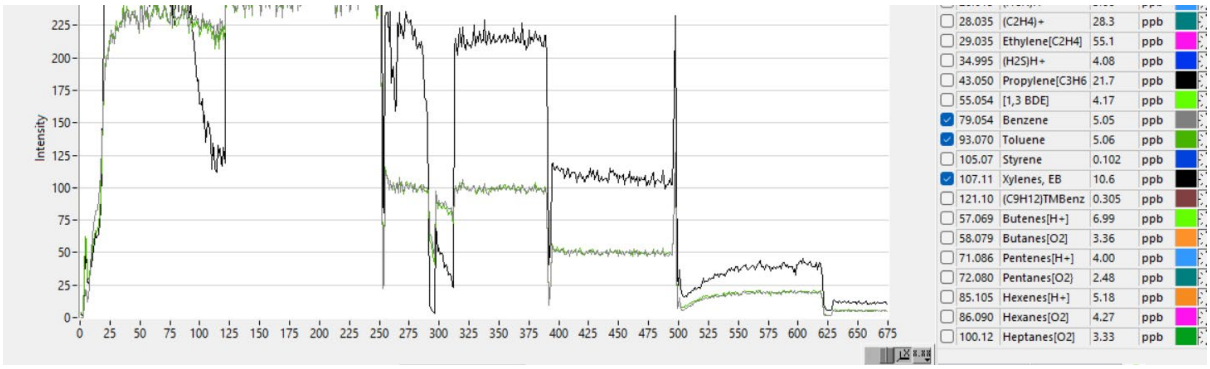


Acquisition Parameters

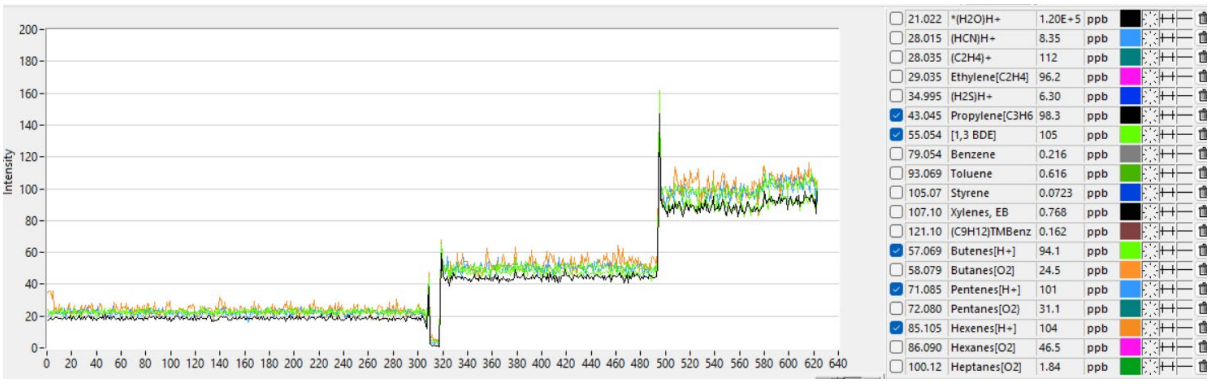
Initial Calibrations 7-20-25



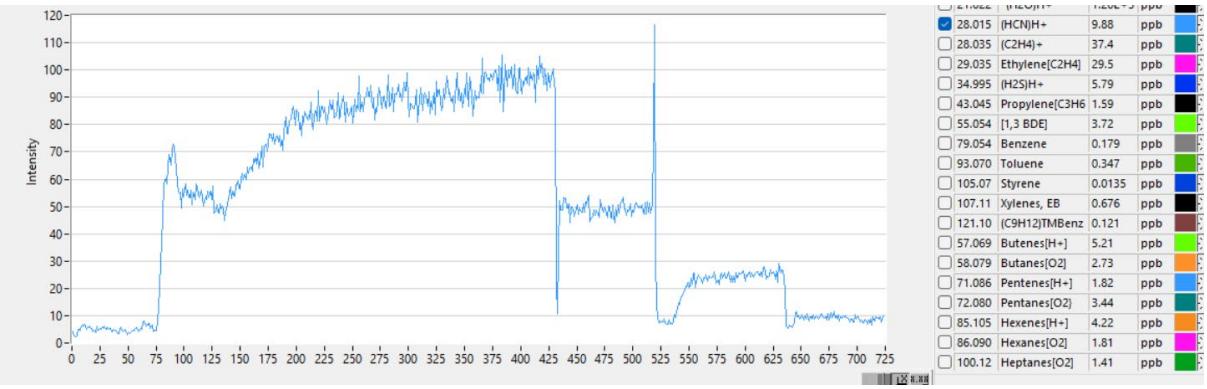
Hydronium Stability



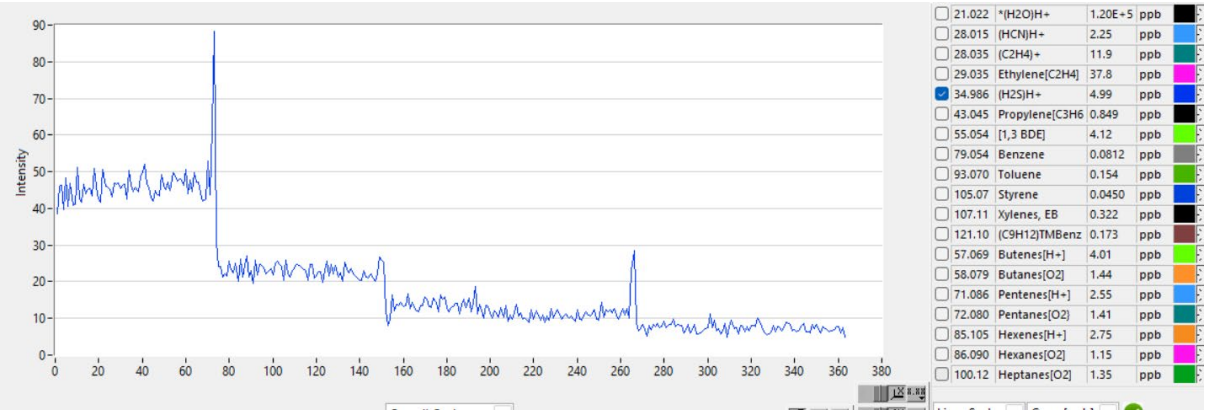
100, 50, 20 AND 5 ppb BTEX



100, 50 and 20 ppb Alkenes



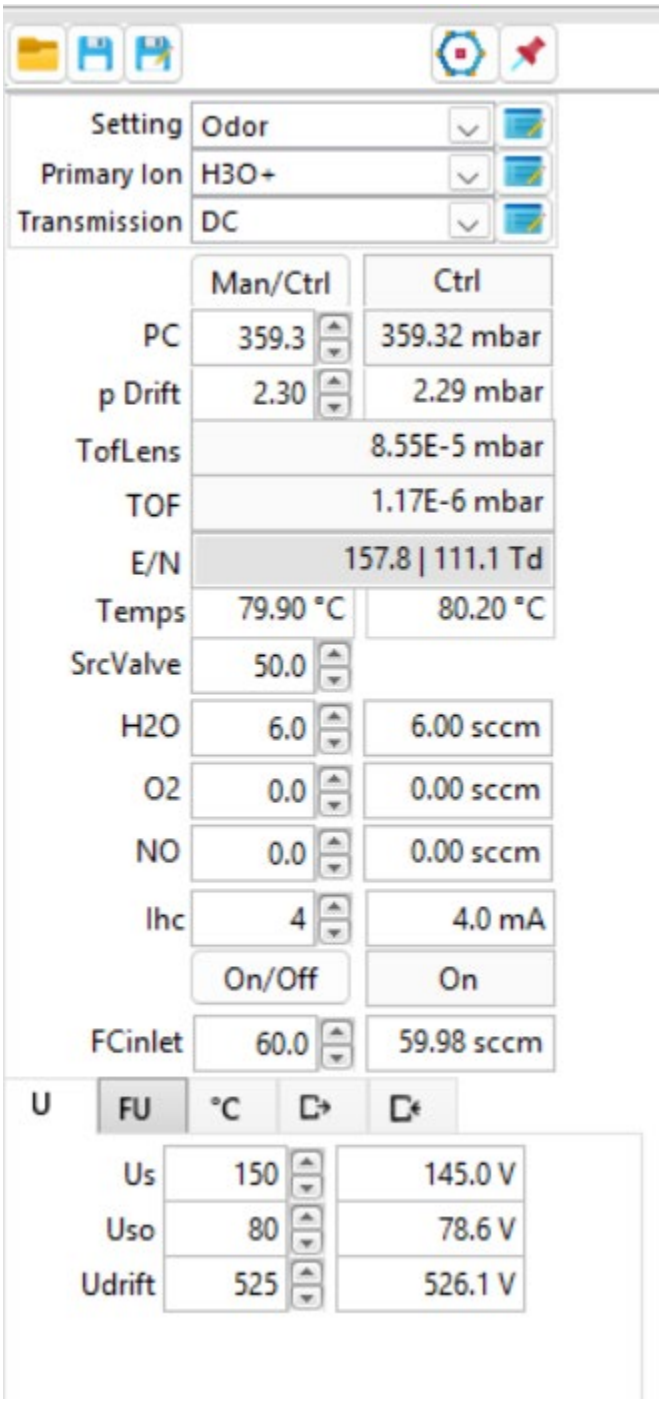
100, 50, 20 and 10 ppb HCN



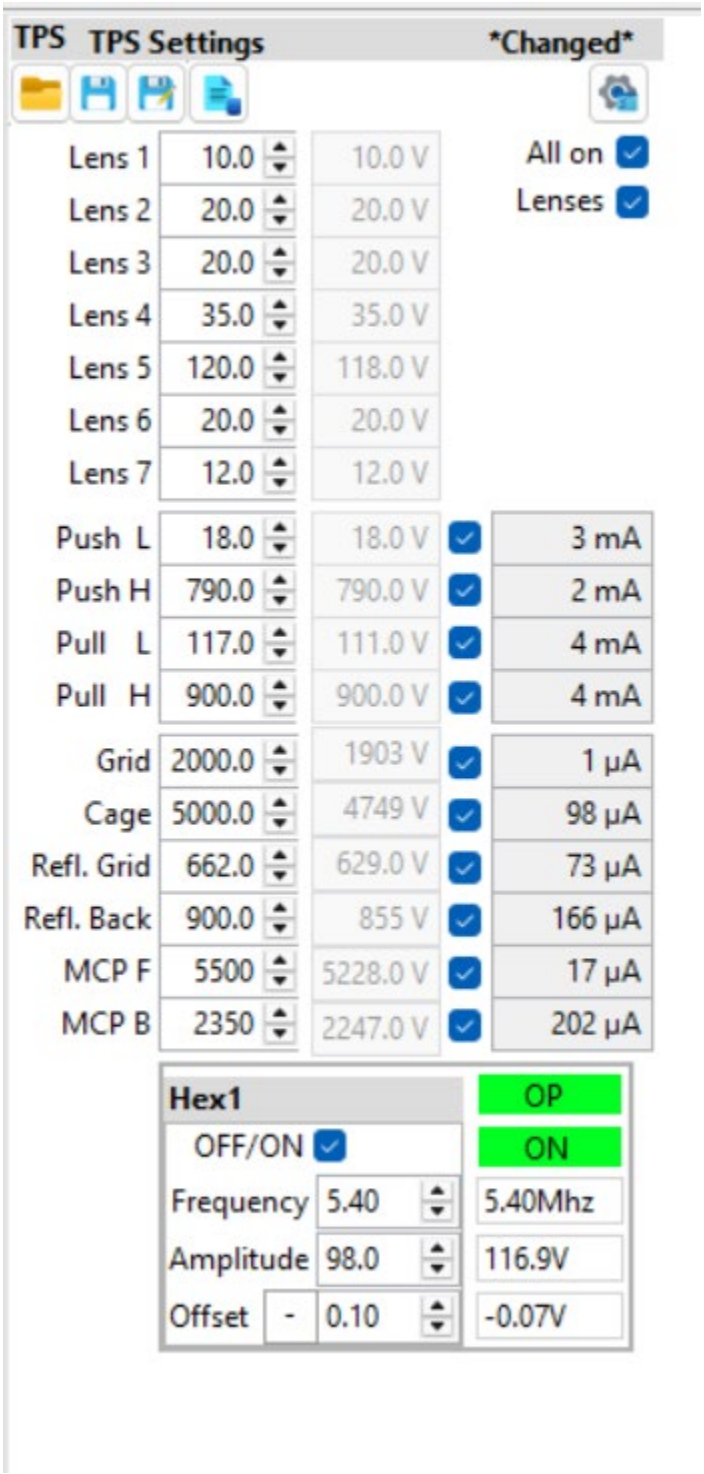
50, 20, 10 and 5 ppb H2S

25,50,100 and 150 ppb Alkanes

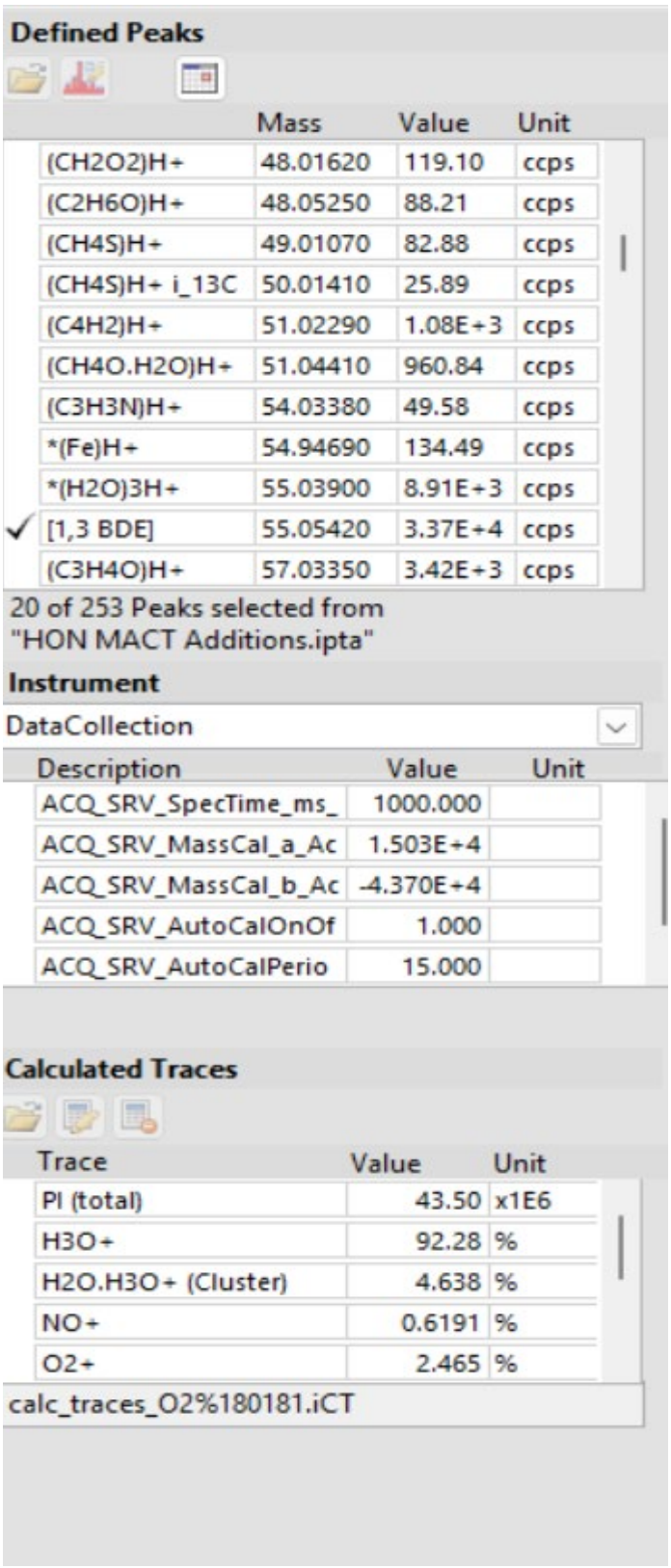
CCND Neighborhood Testing
Pioneer Park and Adams City
7-21-25



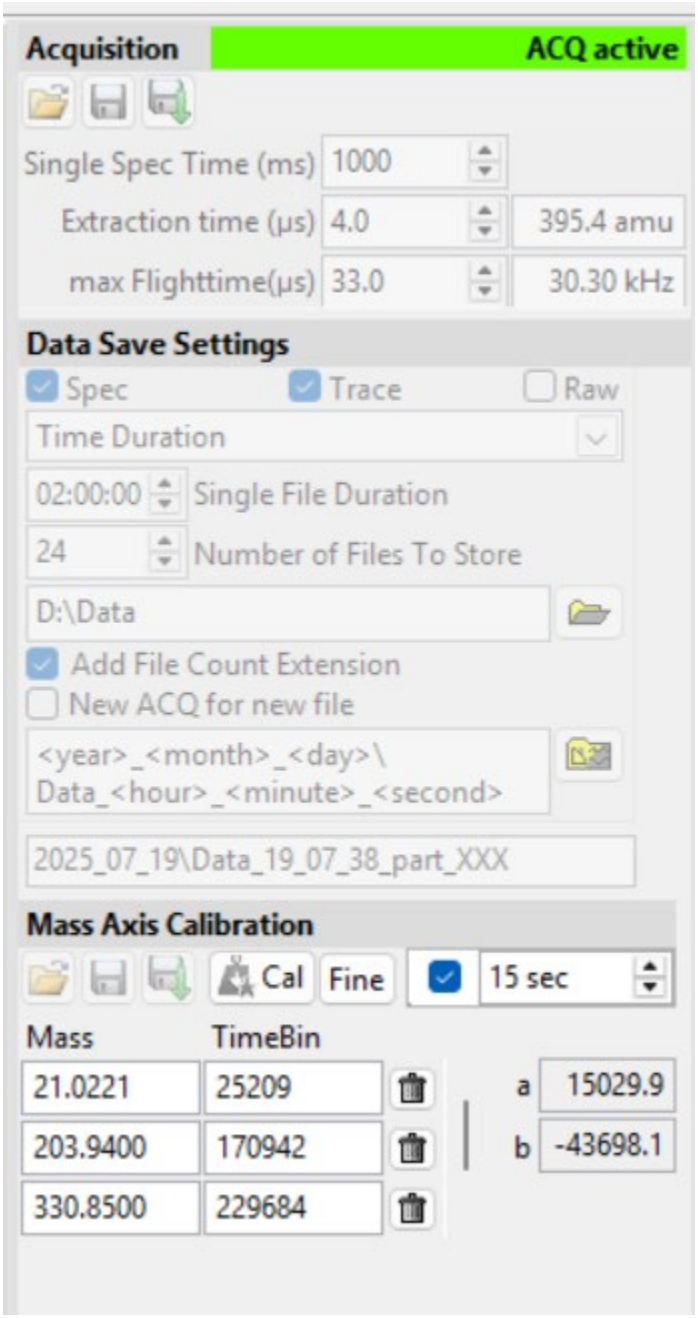
Productions Settings



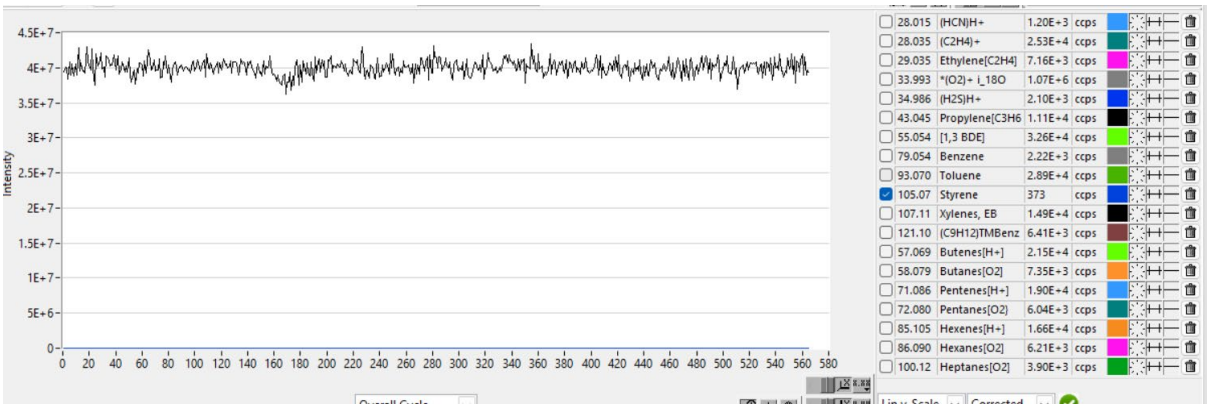
TOF and Lenses



Peaks and Traces

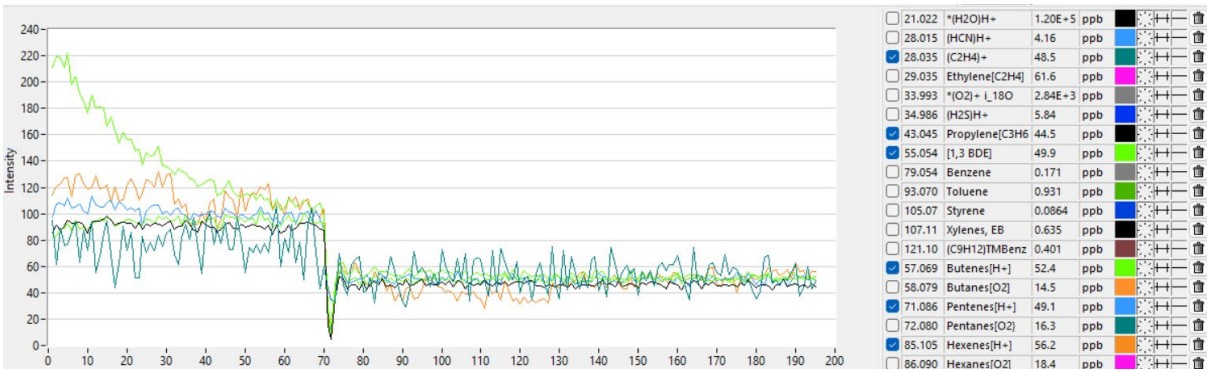


Acquisition Settings

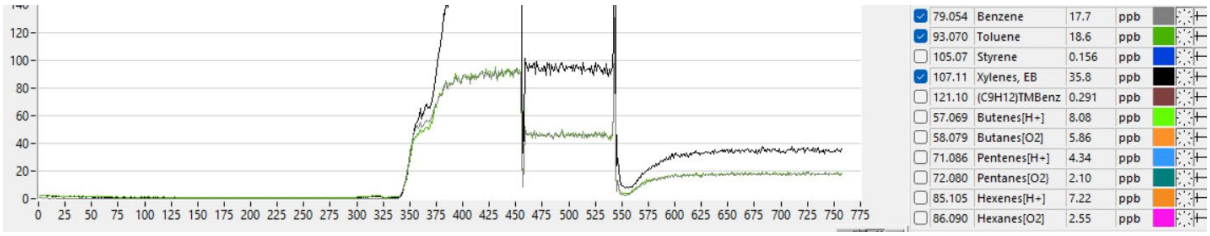


Hydronium stability

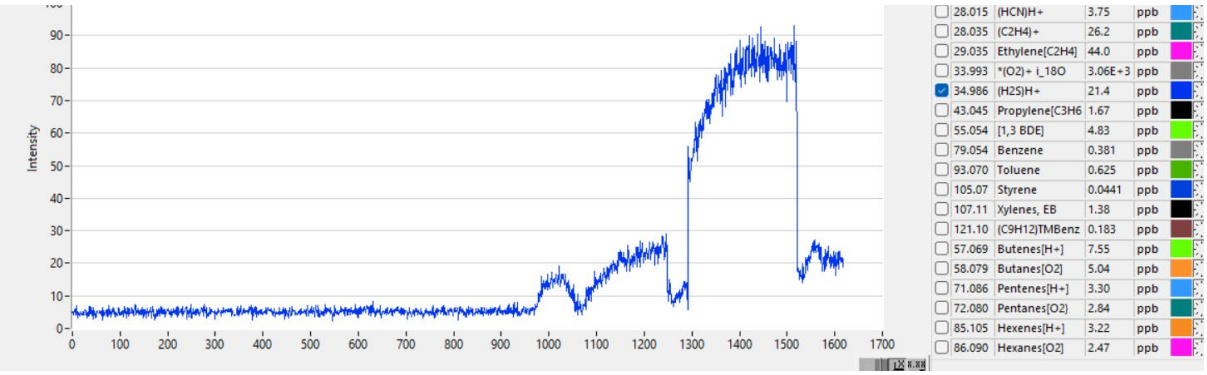
Pre Testing Check Standards



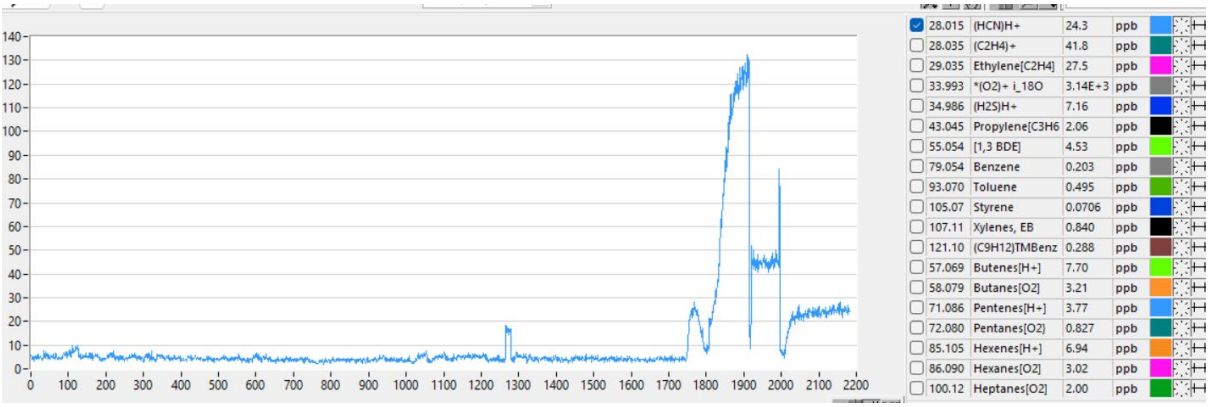
50 ppb alkenes



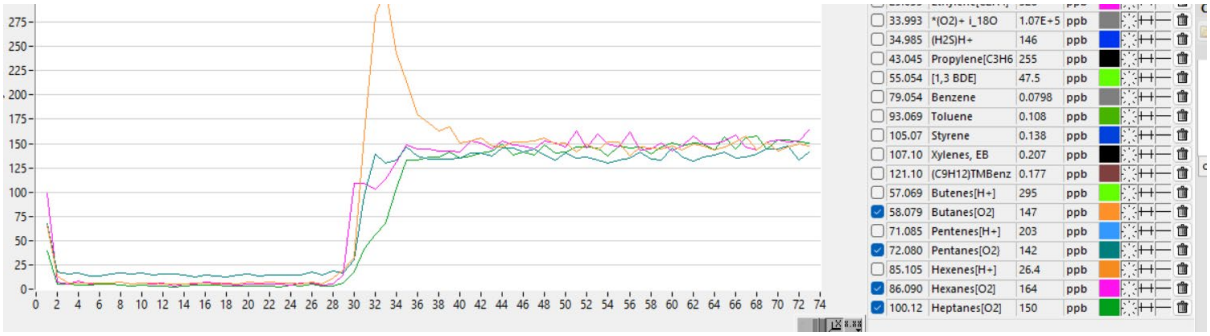
50 and 20 ppb BTEX



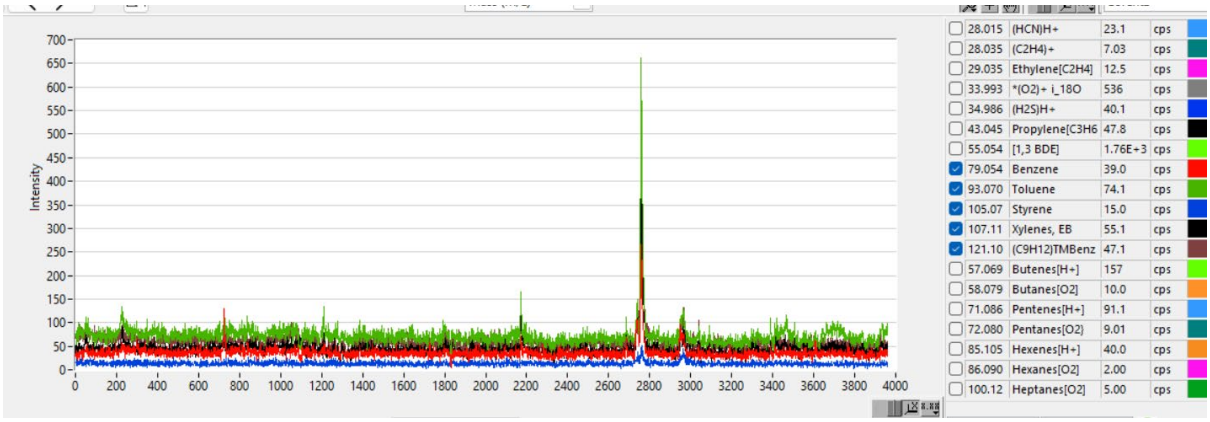
20 ppb H_2S



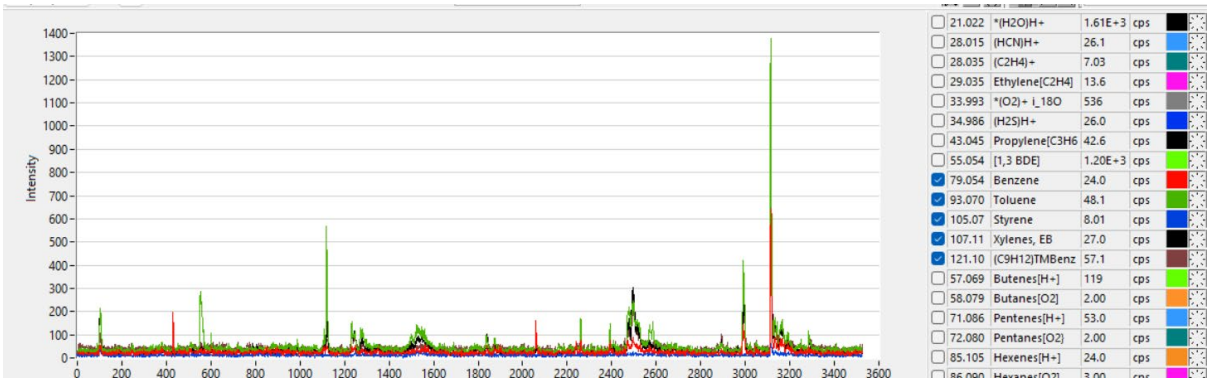
25 ppb HCN



150 ppb Alkanes

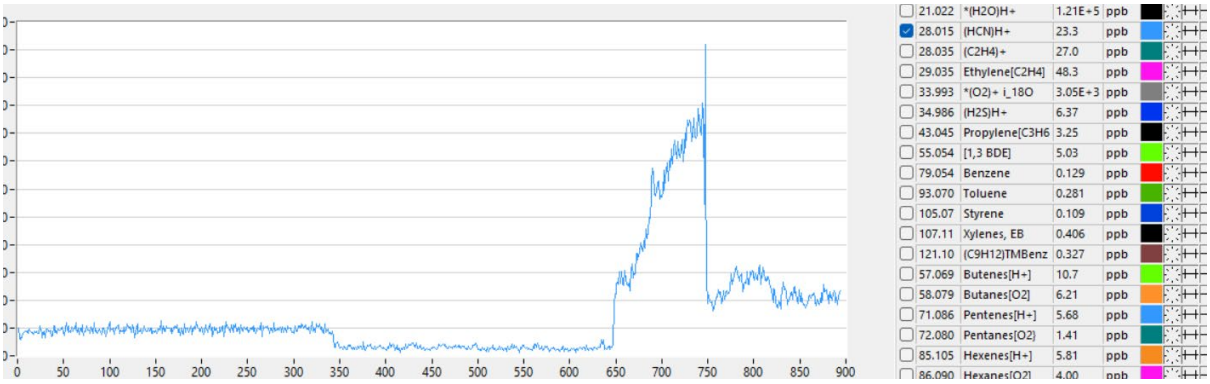


Pioneer Park Raw Data

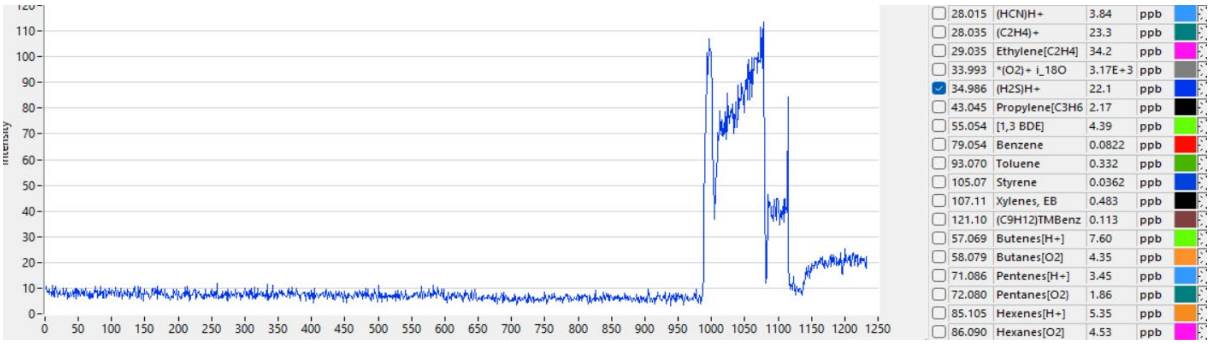


Adams City Raw Data

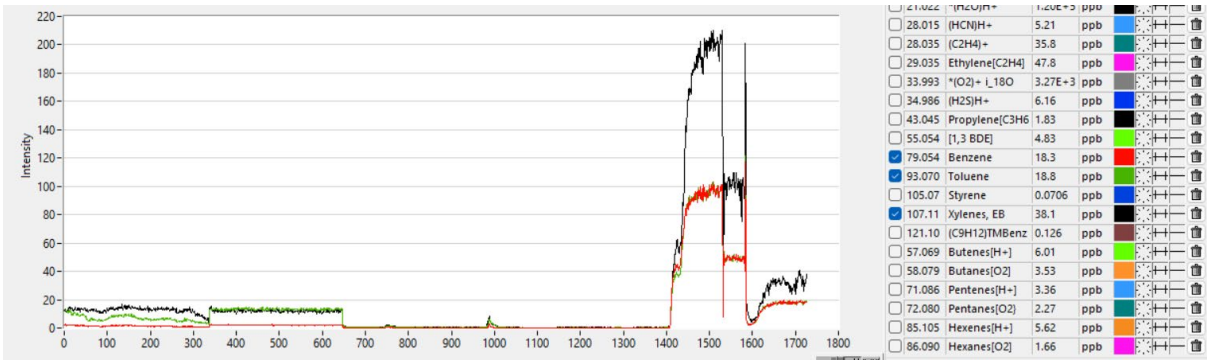
Post Testing Checks



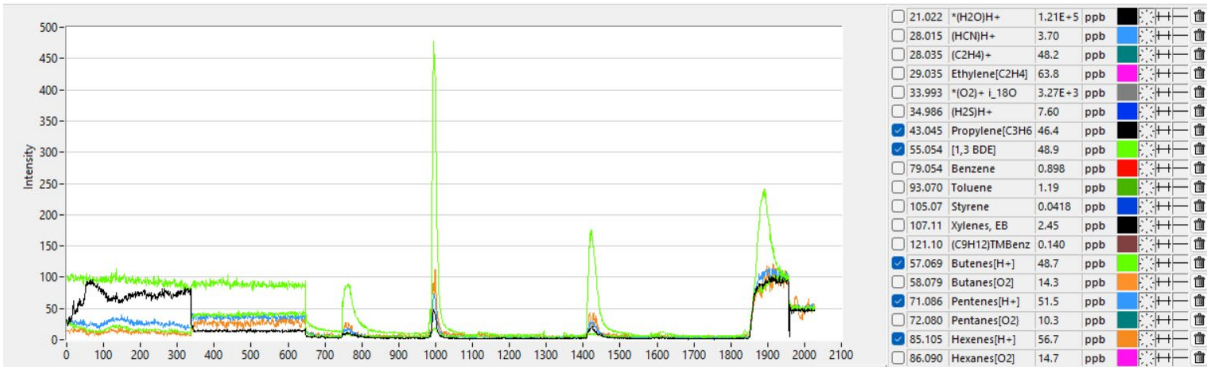
25 ppb HCN



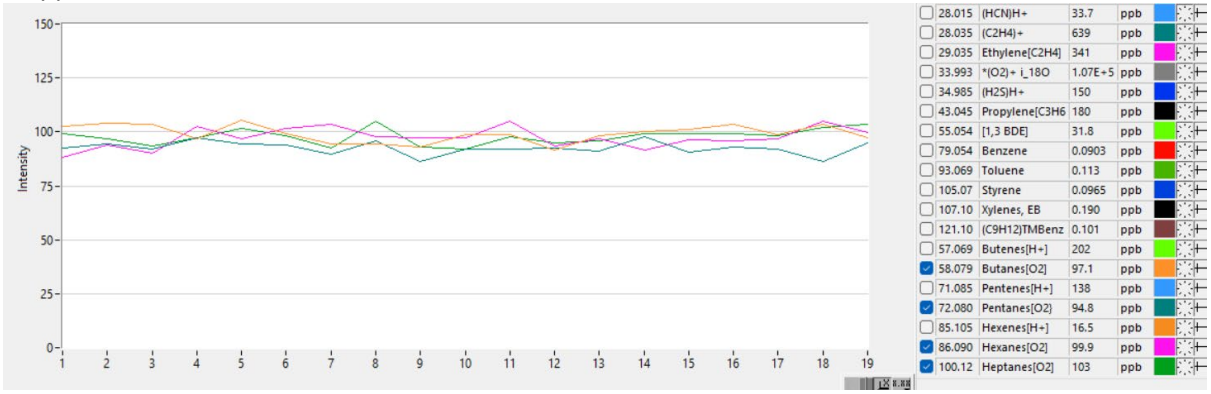
20 ppb H_2S



20 ppb BTEX

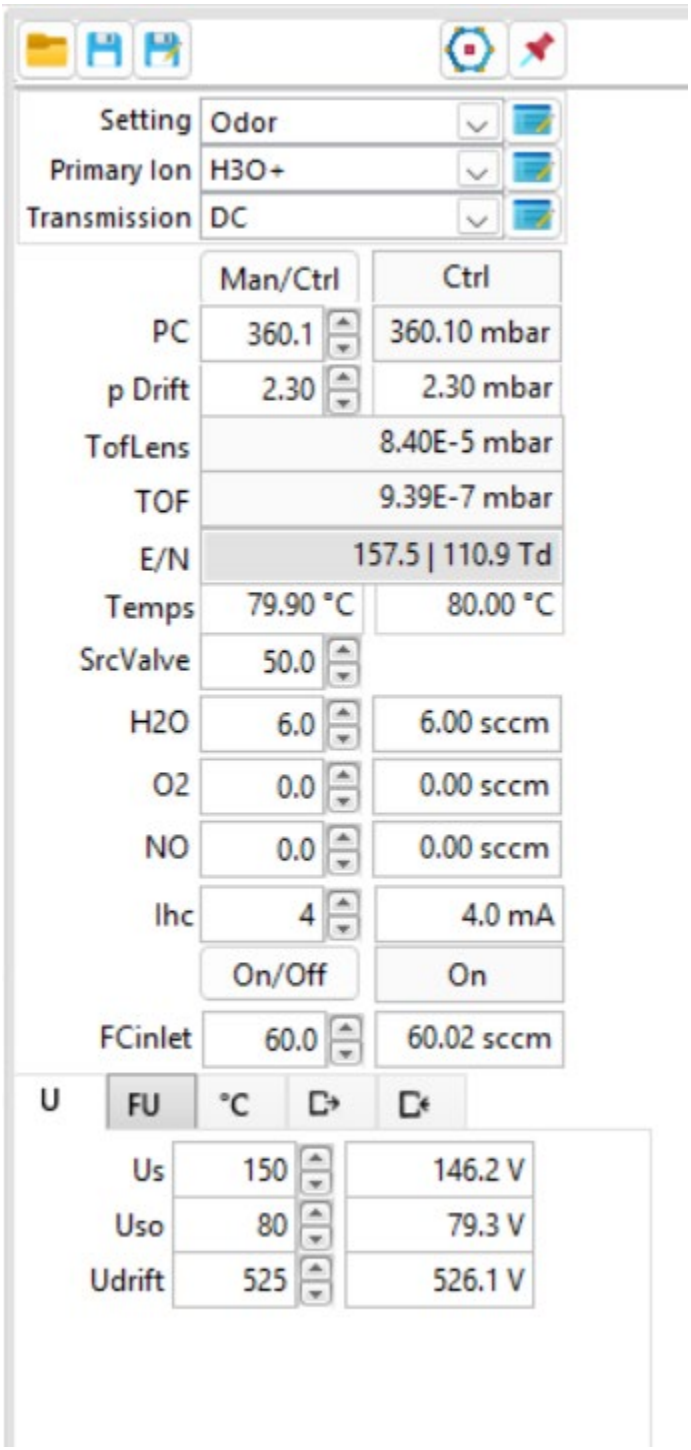


50 ppb Alkenes

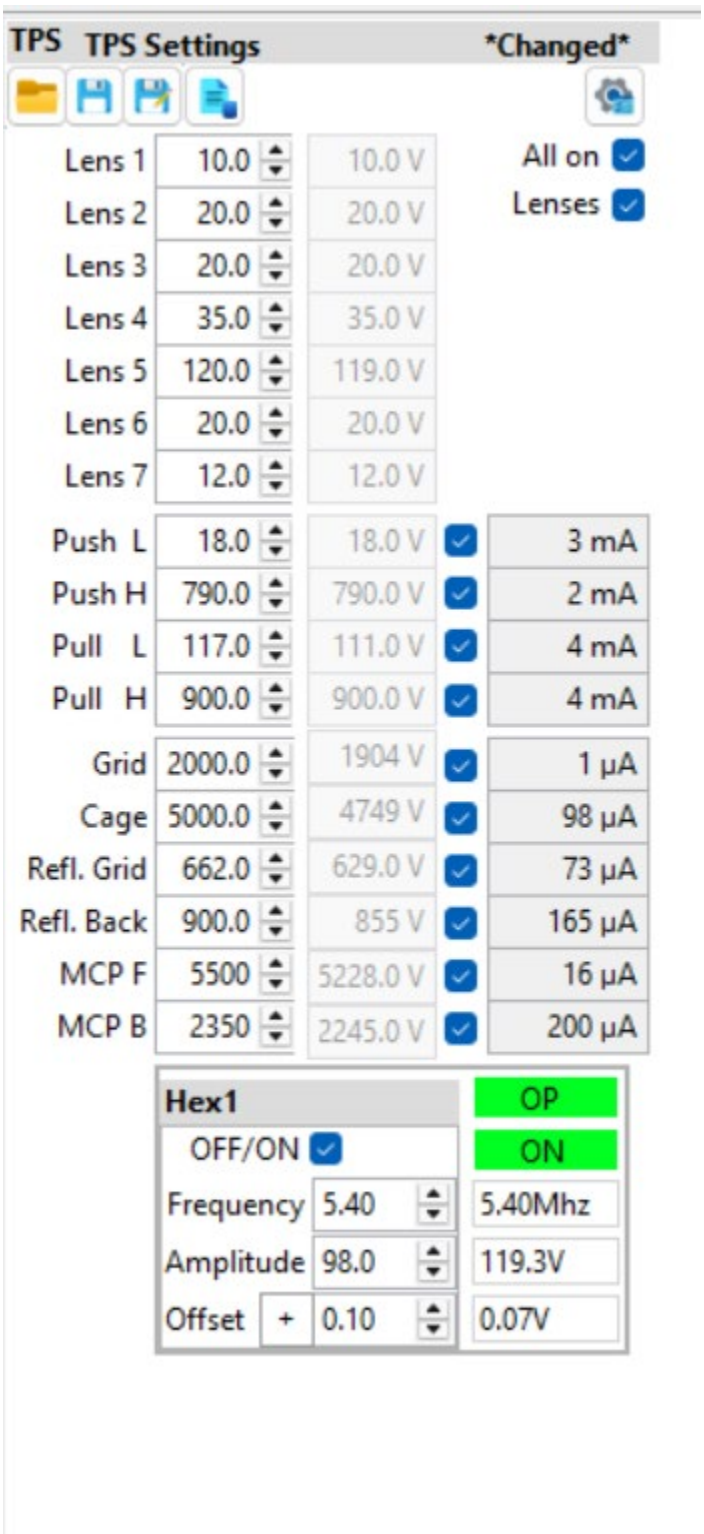


100 ppb Alkanes

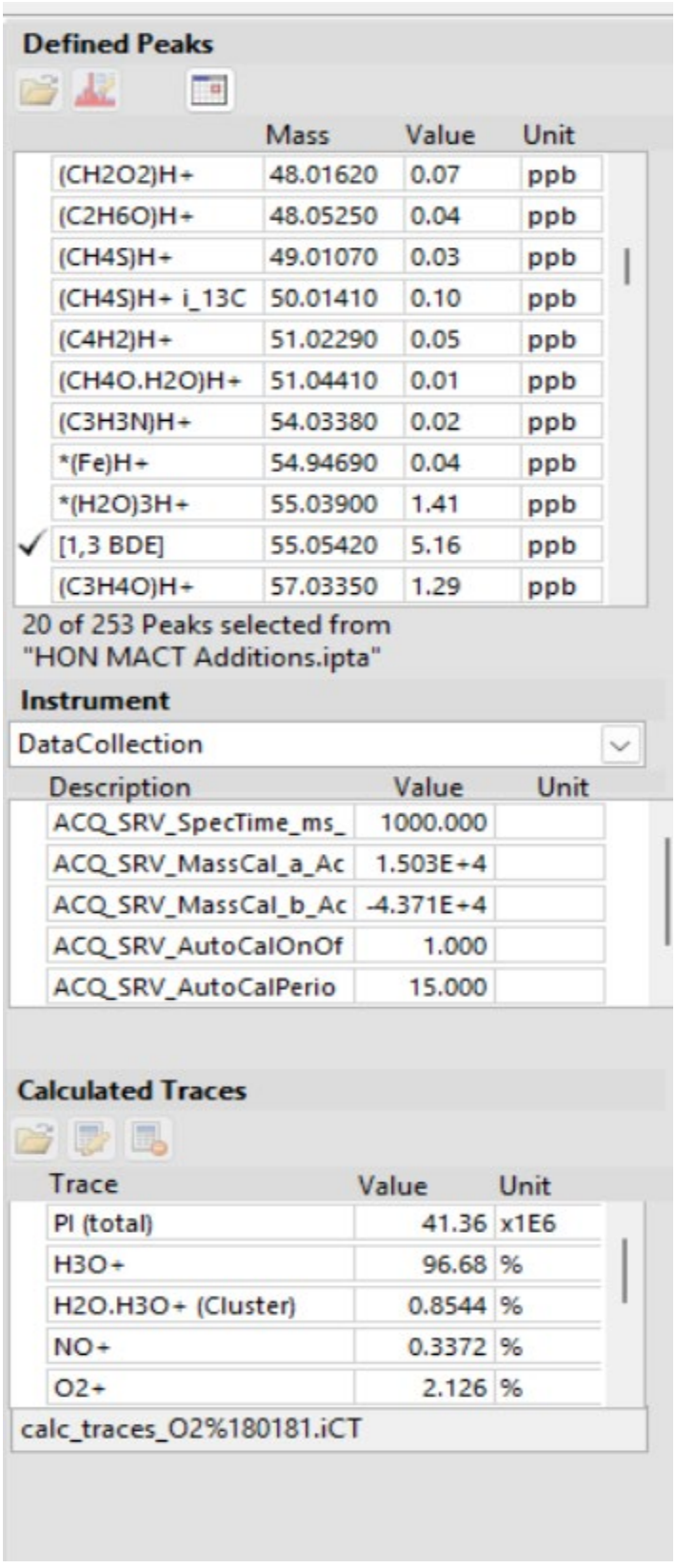
7-22-2025
Western Hills and Dupont



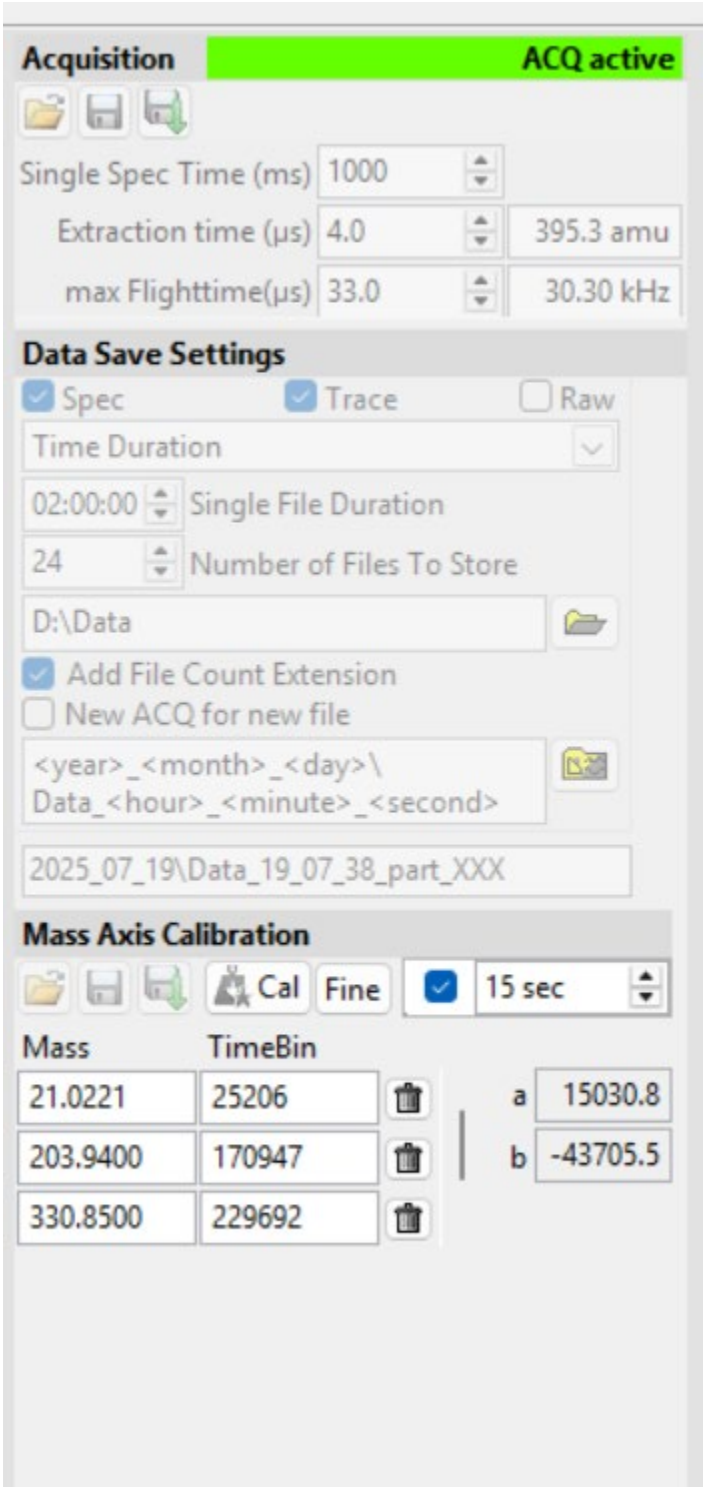
Production Settings



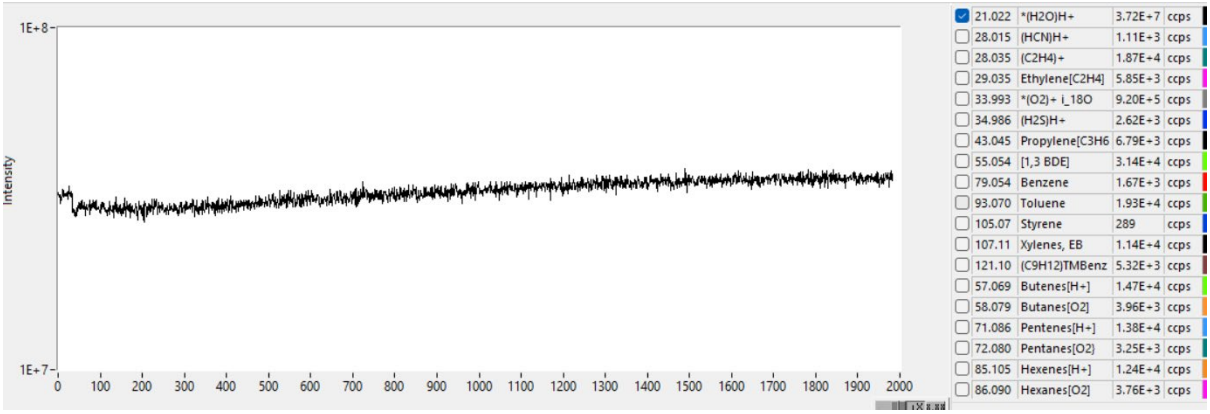
TPS and HEX settings



Peaks and Traces

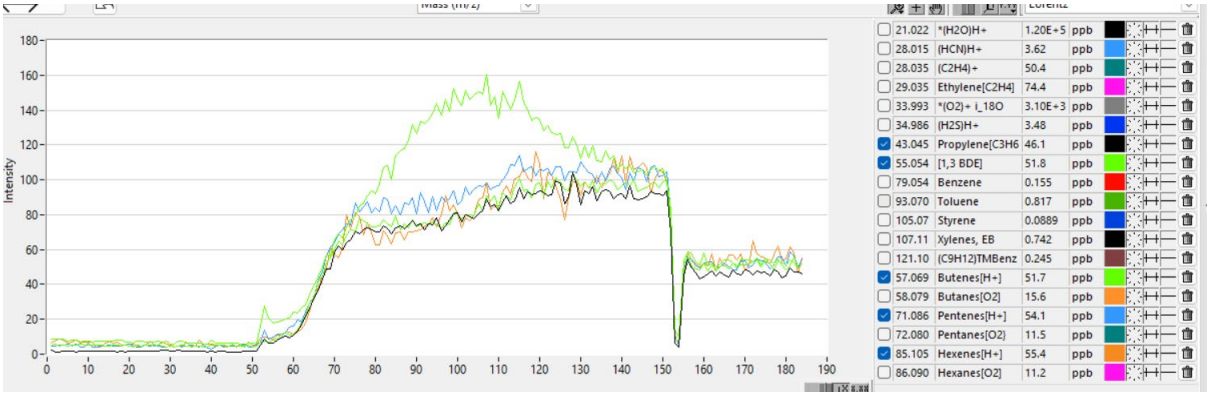


Acquisition Settings

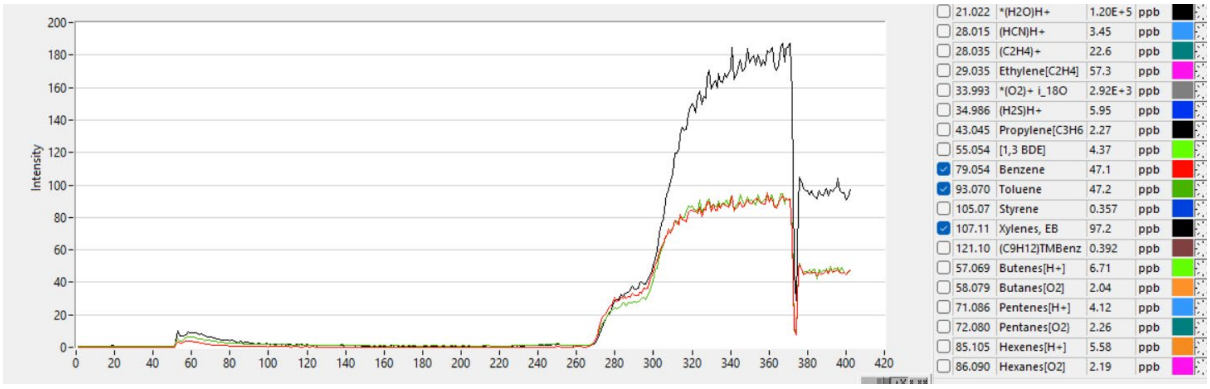


Hydronium Stability

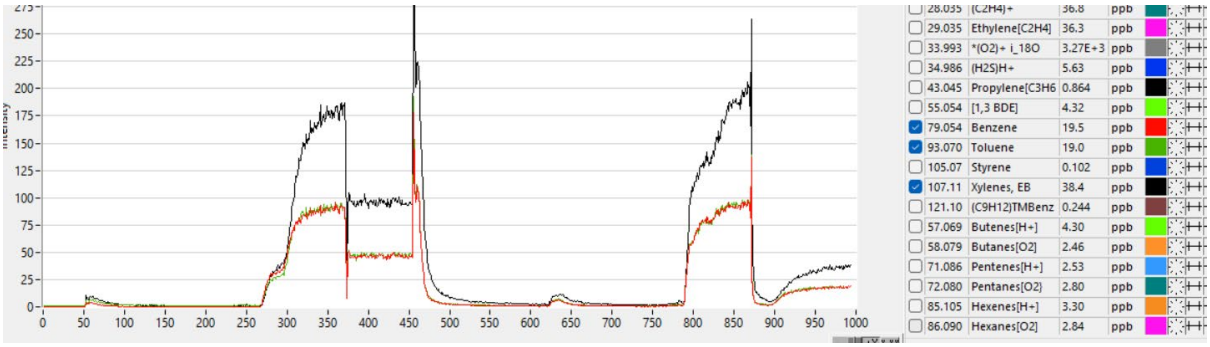
Pre Testing Calibration Checks



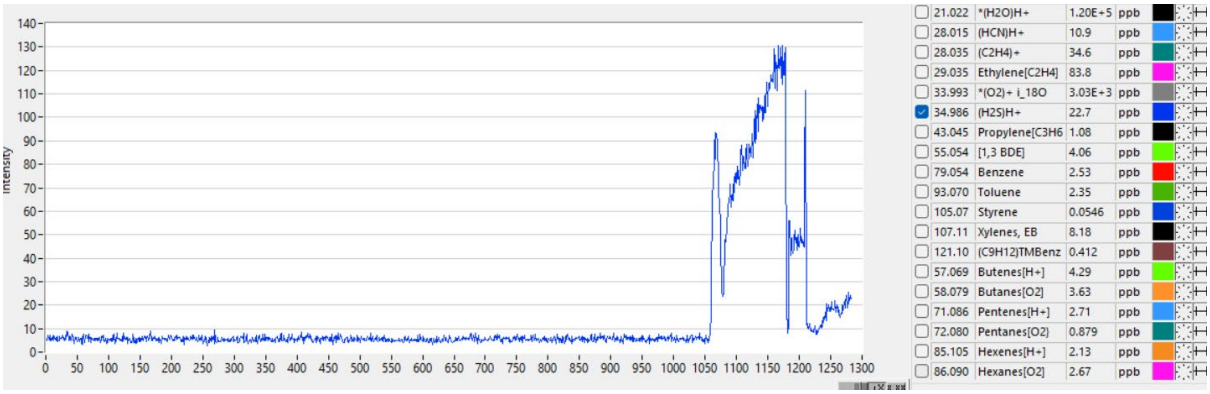
50 ppb Alkenes



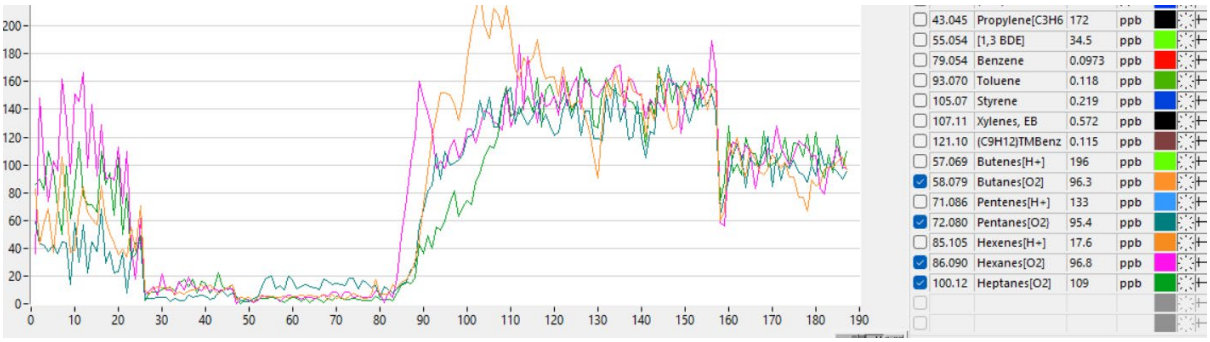
50 ppb BTEX



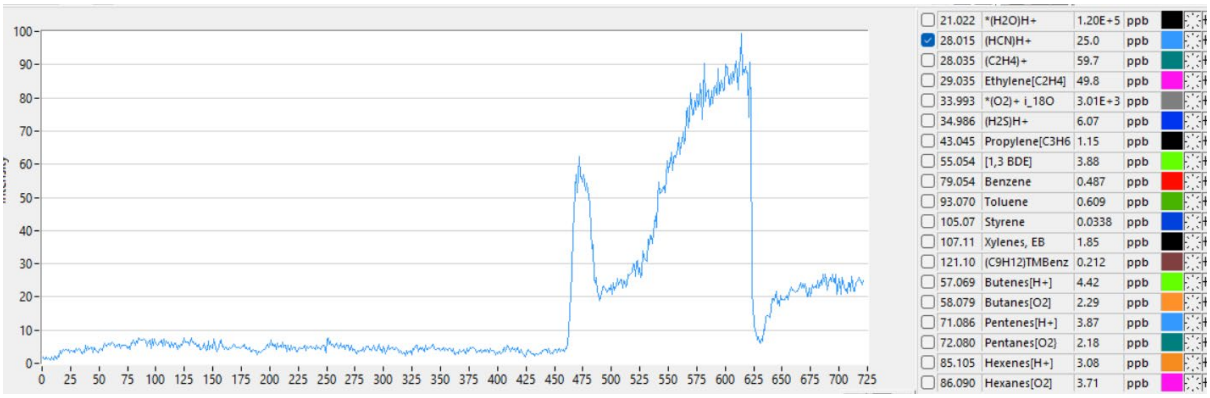
20 ppb BTEX



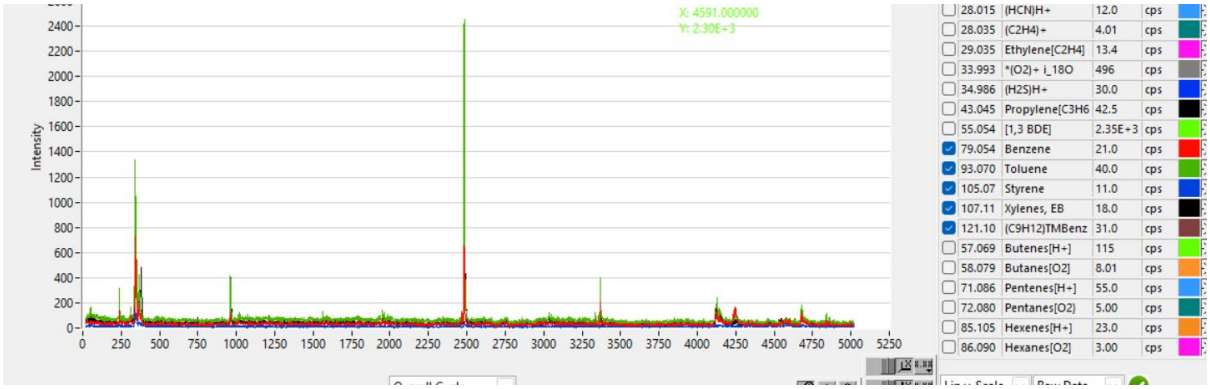
20 ppb H_2S



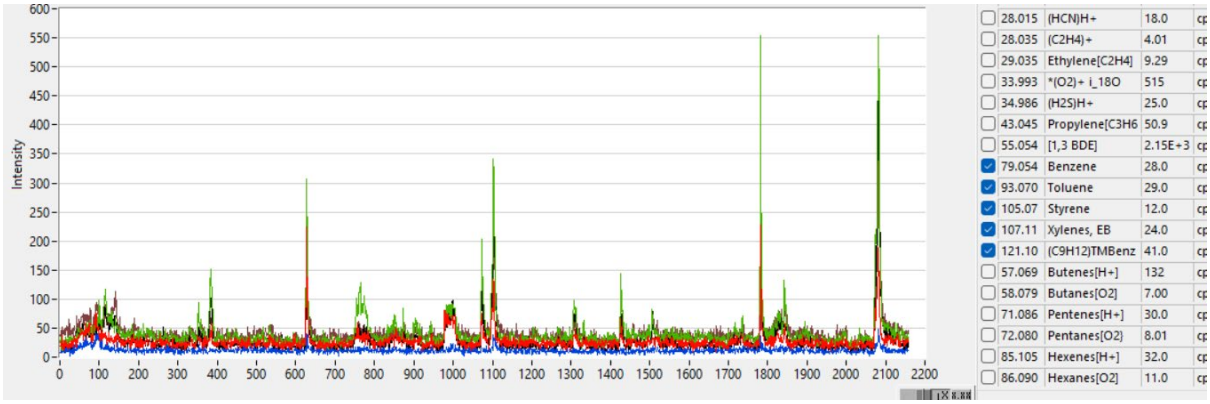
100 ppb alkanes



25 ppb HCN

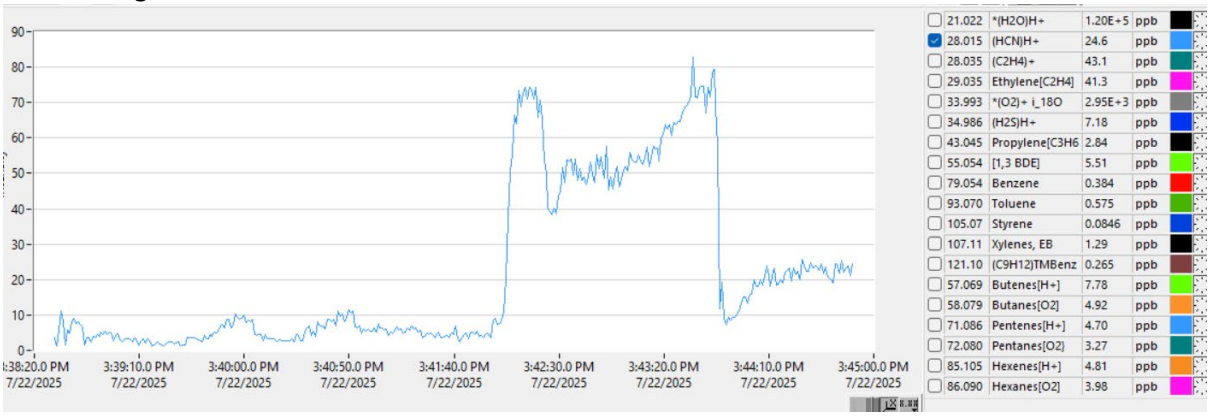


Western Hills Raw Data

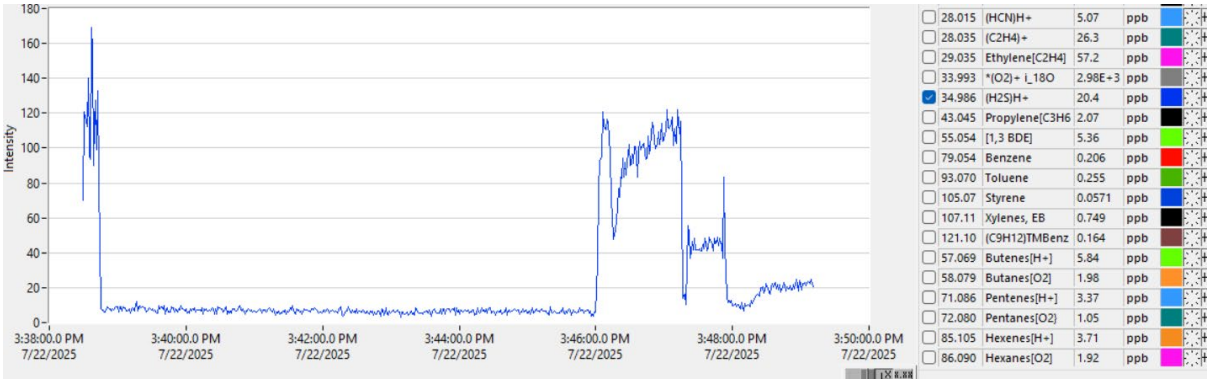


Dupont Raw Data

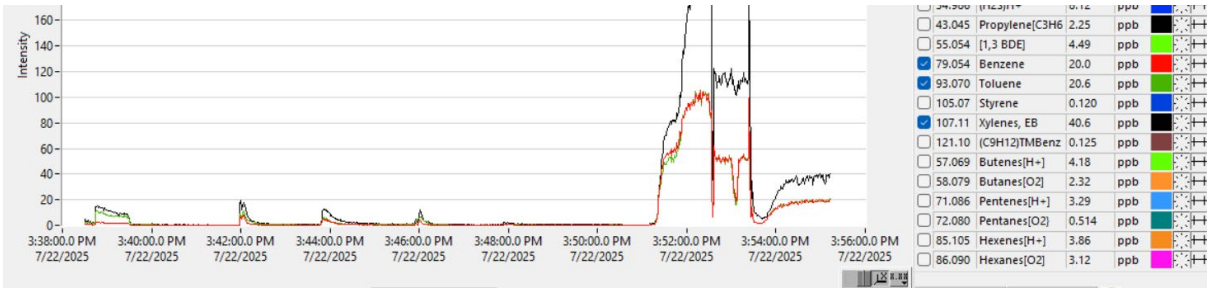
Post Testing Calibration Checks



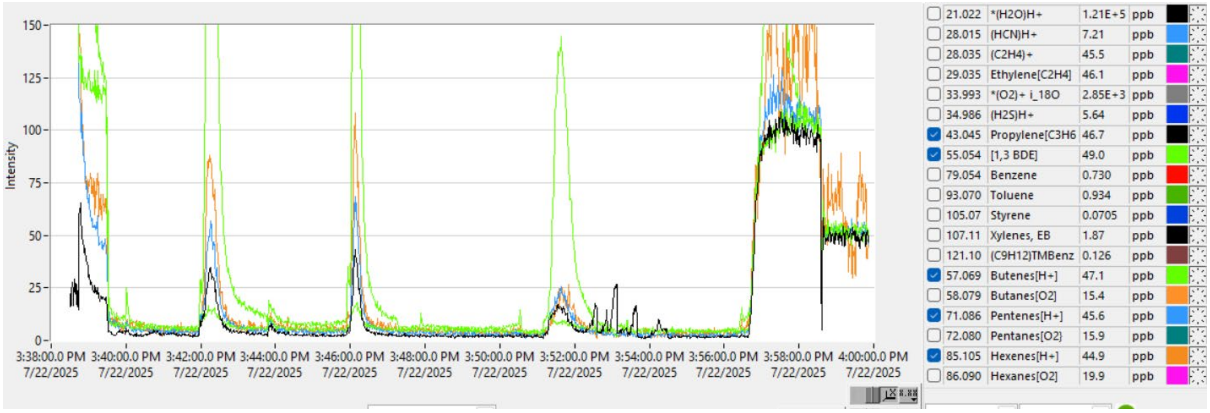
25 ppb HCN



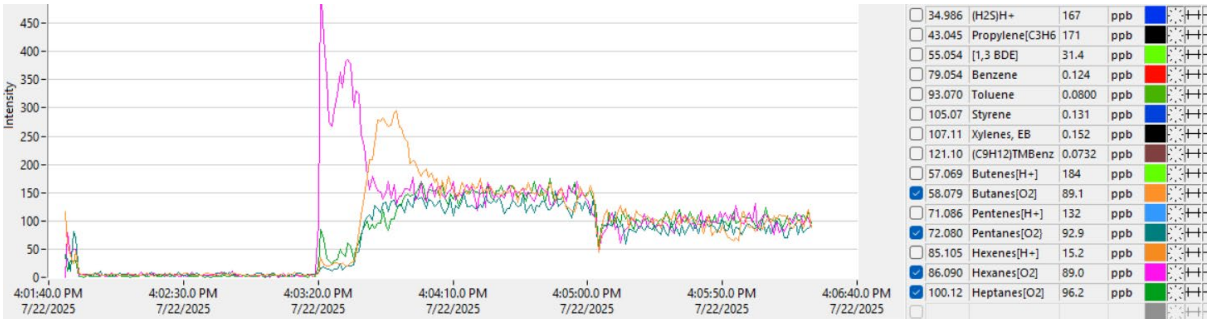
20 ppb H_2S



20 ppb BTEX

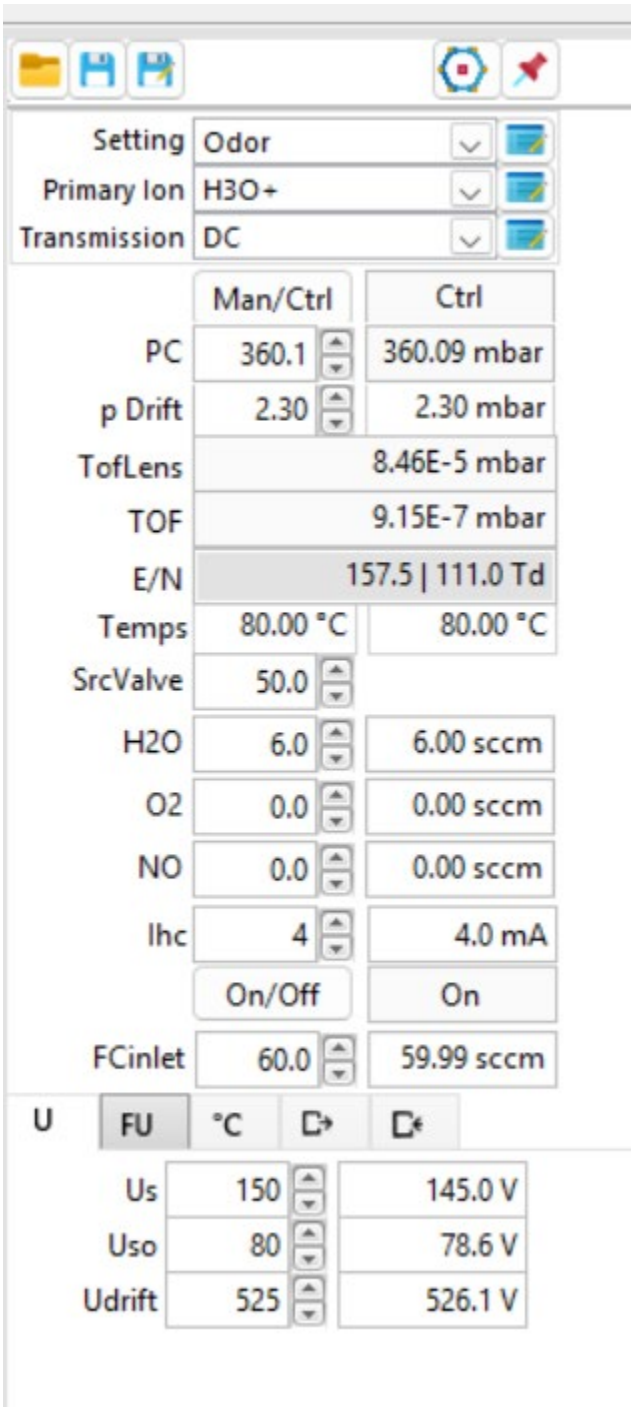


50 ppb Alkenes

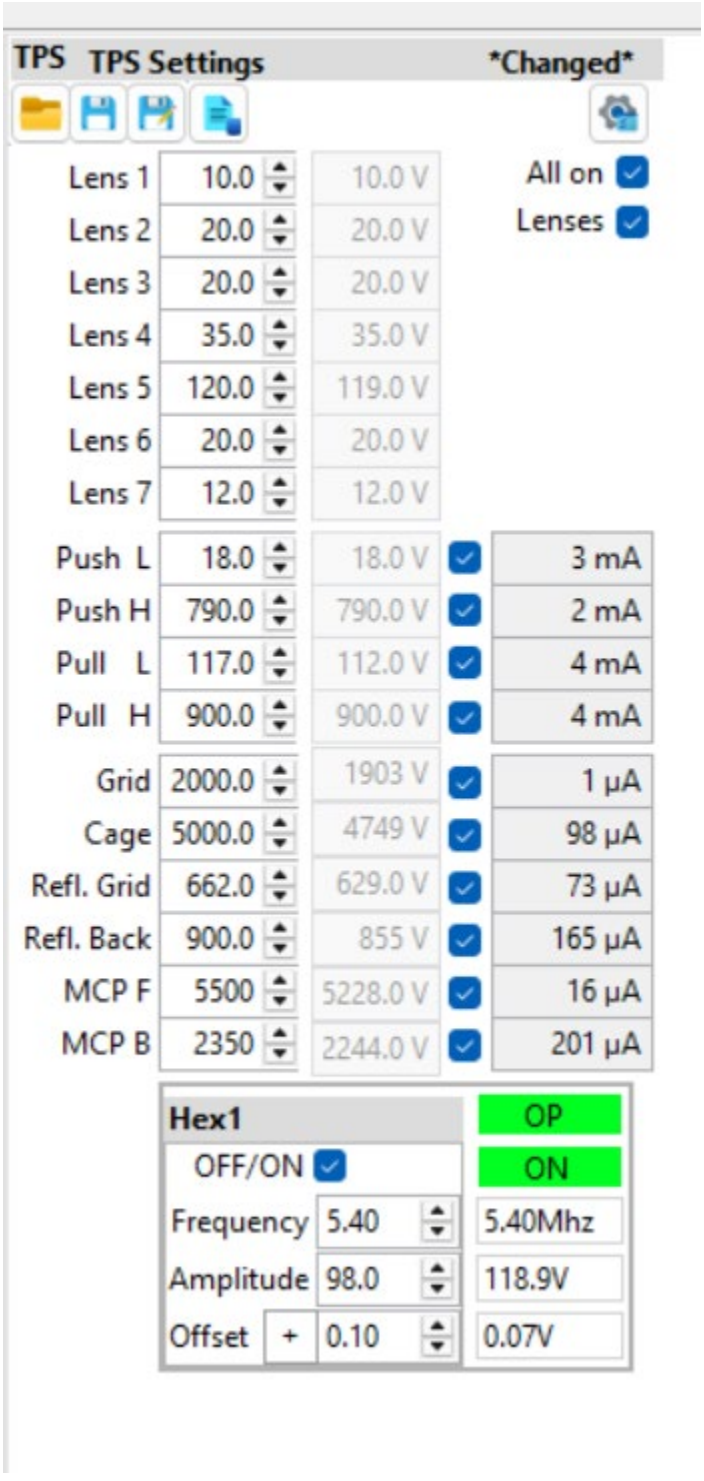


100 ppb Alkanes

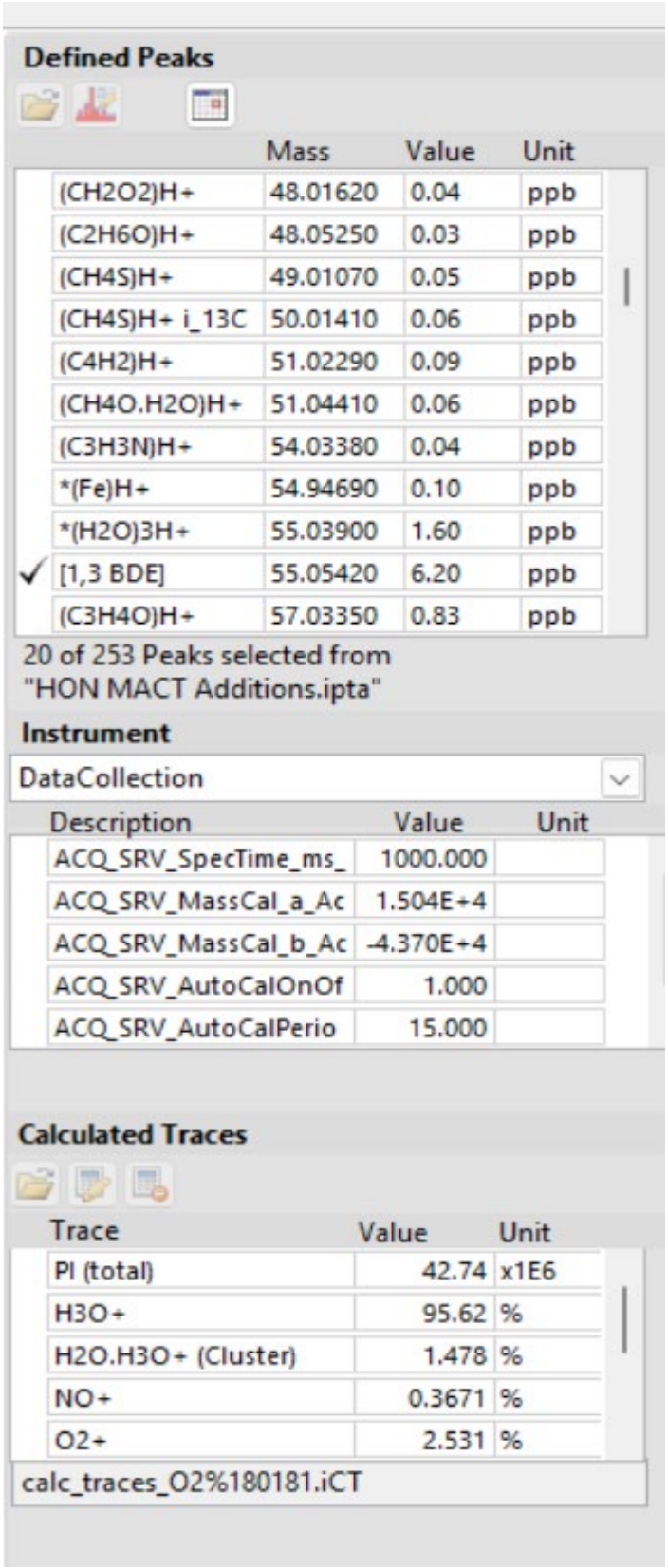
7-23-25 CCND
Globeville and Elyria-Swansea



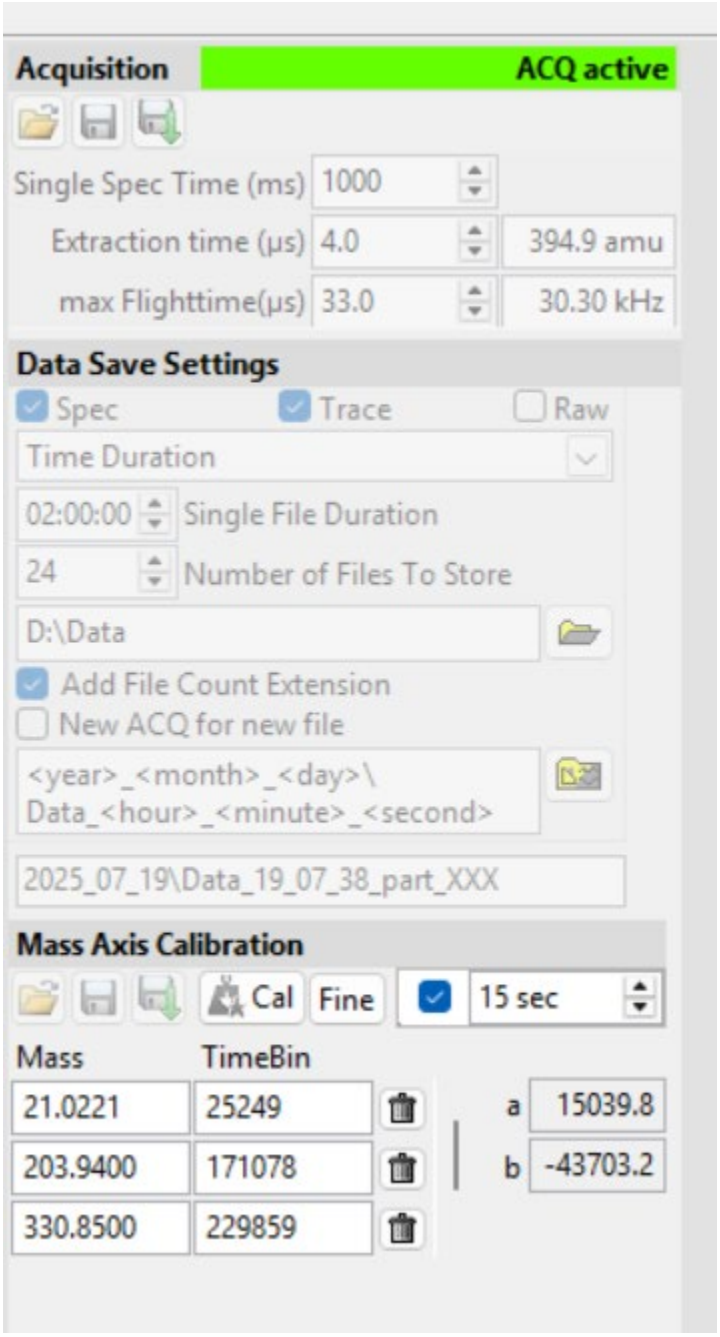
Production Settings



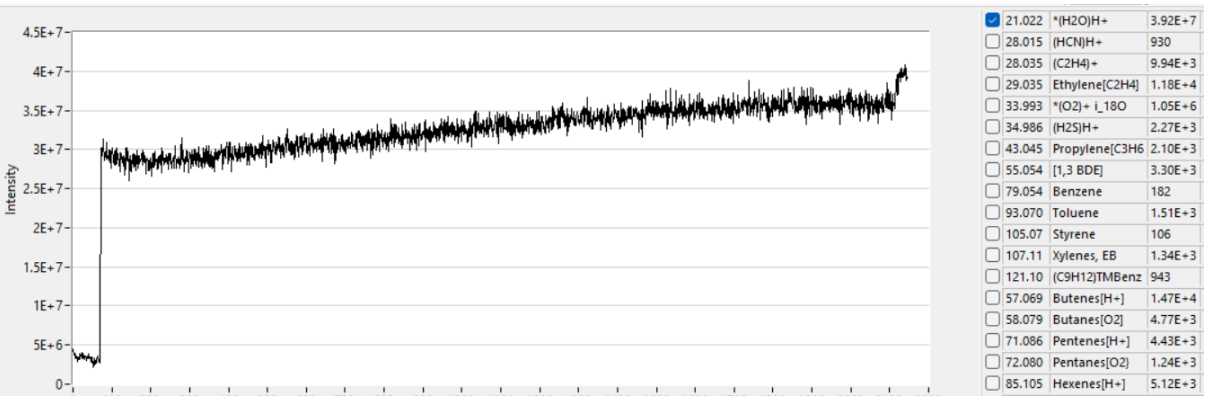
TPS and HEX settings



Peaks and Traces

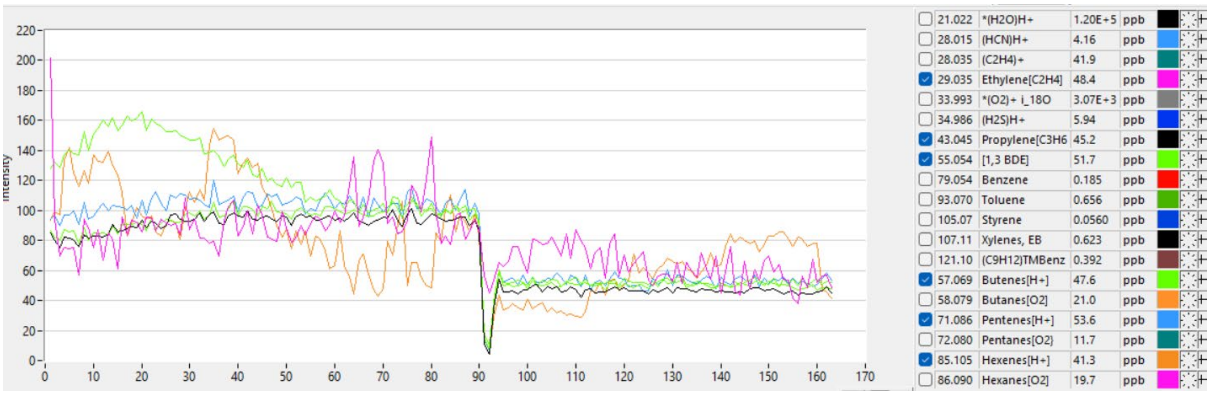


Acquisition Settings

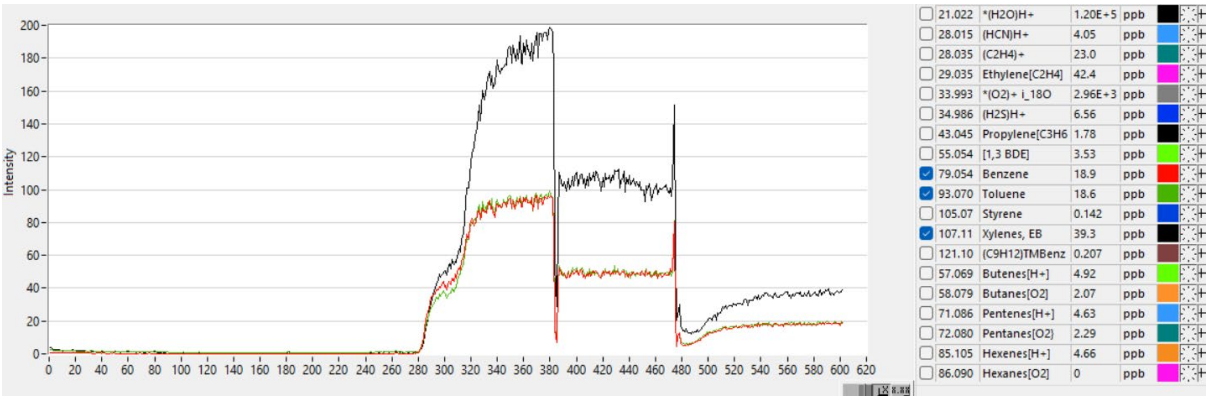


Hydronium Stability

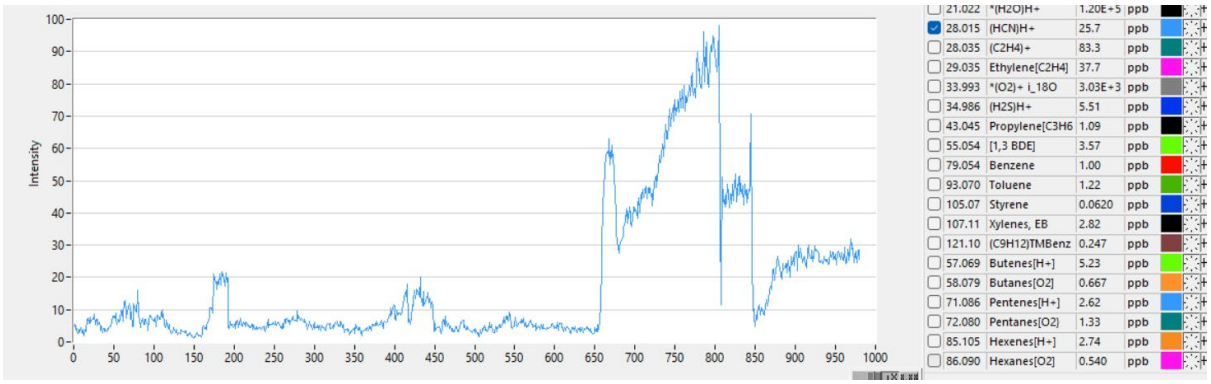
Pre Testing Calibration Checks



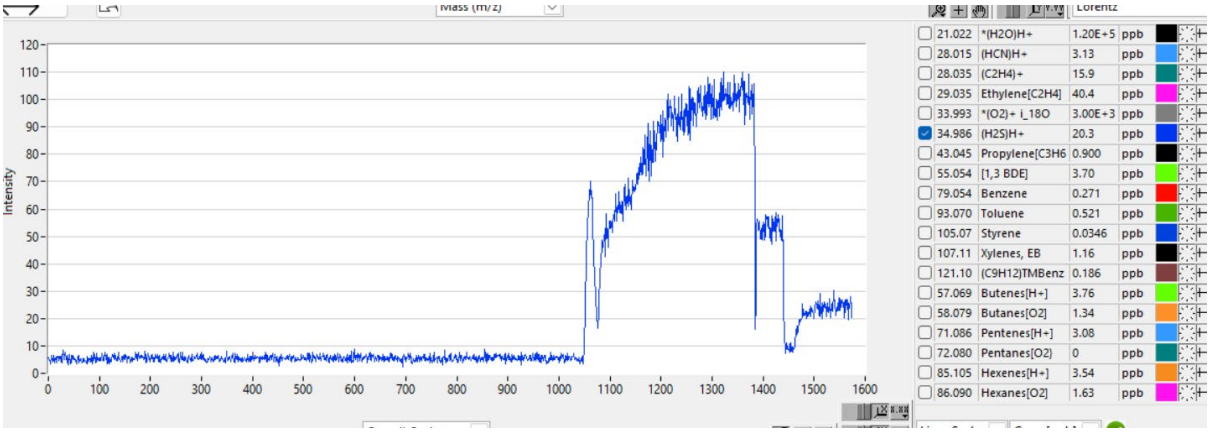
50 ppb Alkenes



50 and 20 ppb BTEX

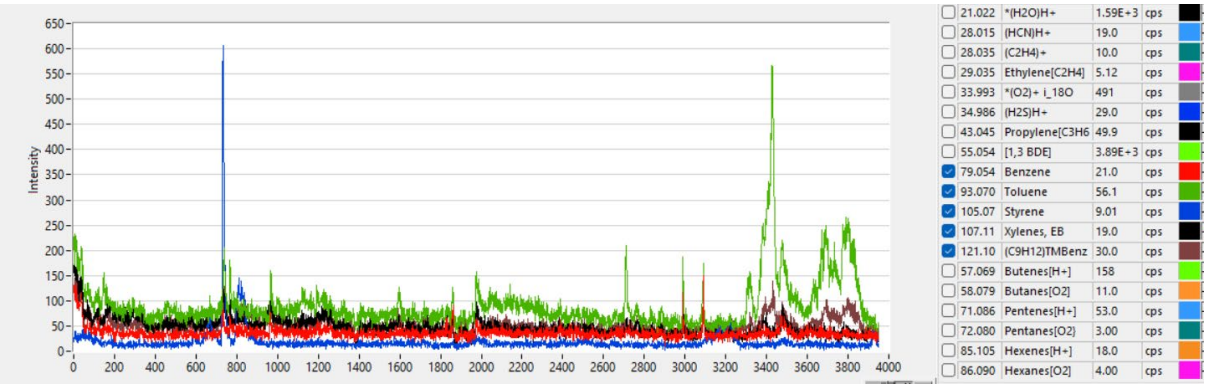


25 ppb HCN

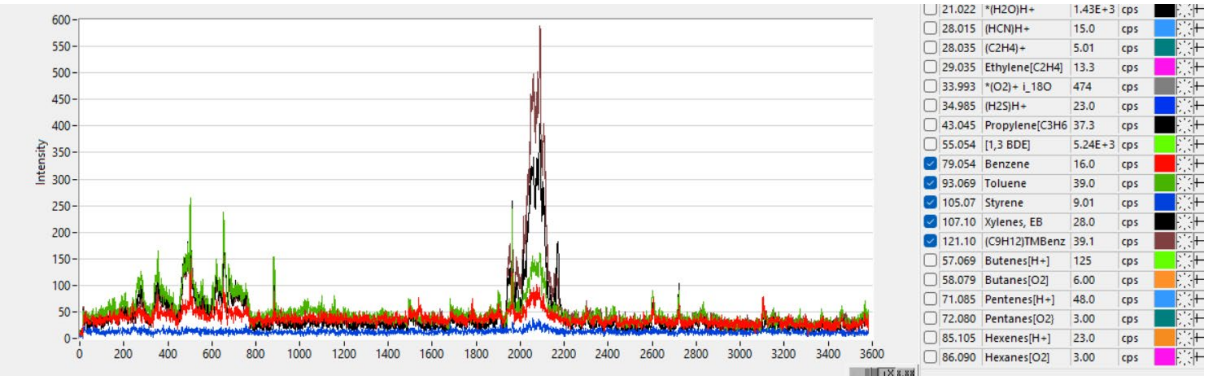


20 ppb H_2S

100 ppb Alkanes

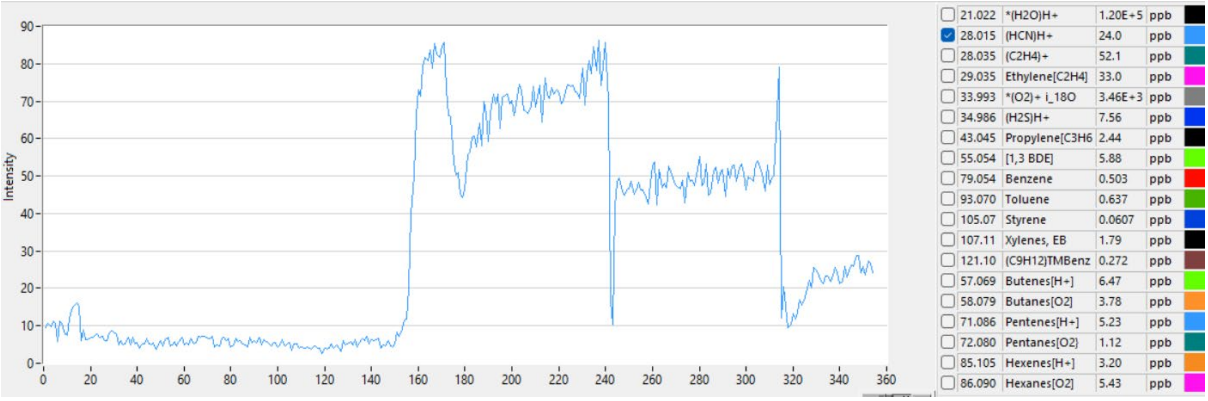


Globeville Raw Data

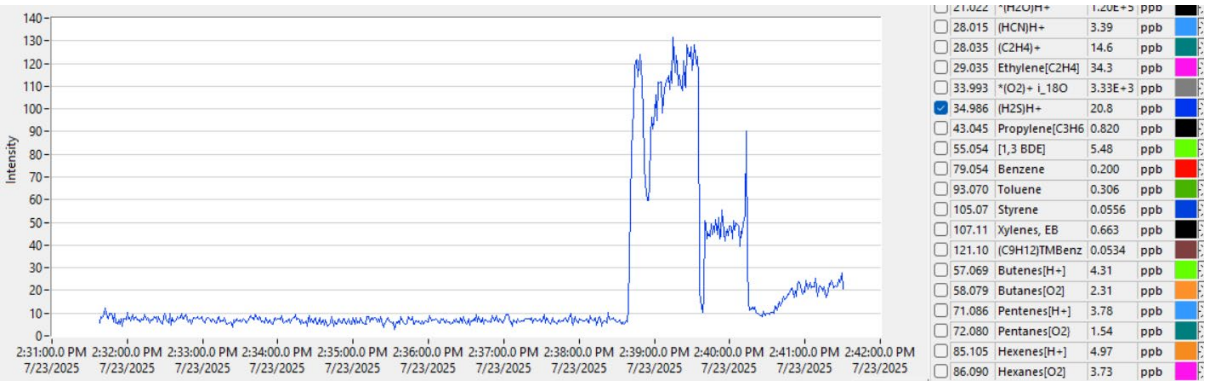


Elyria-Swansea Raw Data

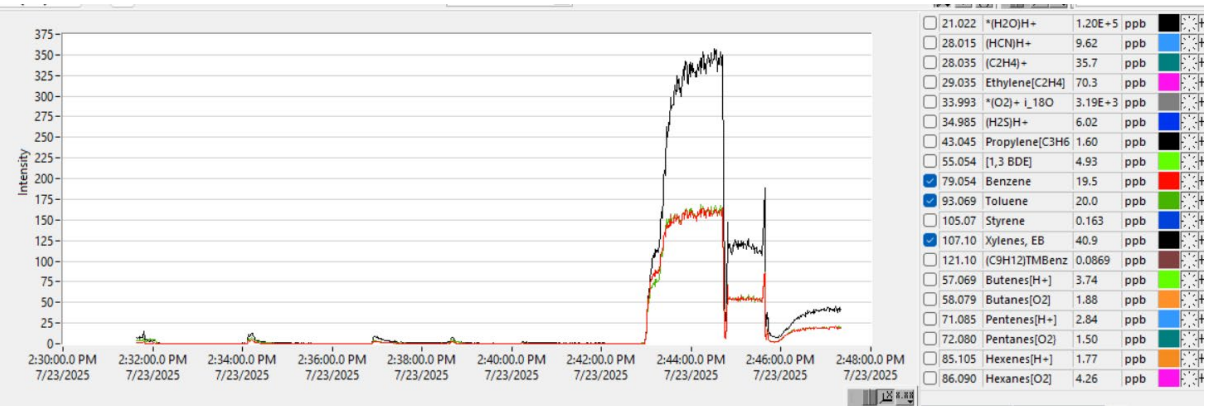
Post Testing Calibration Checks



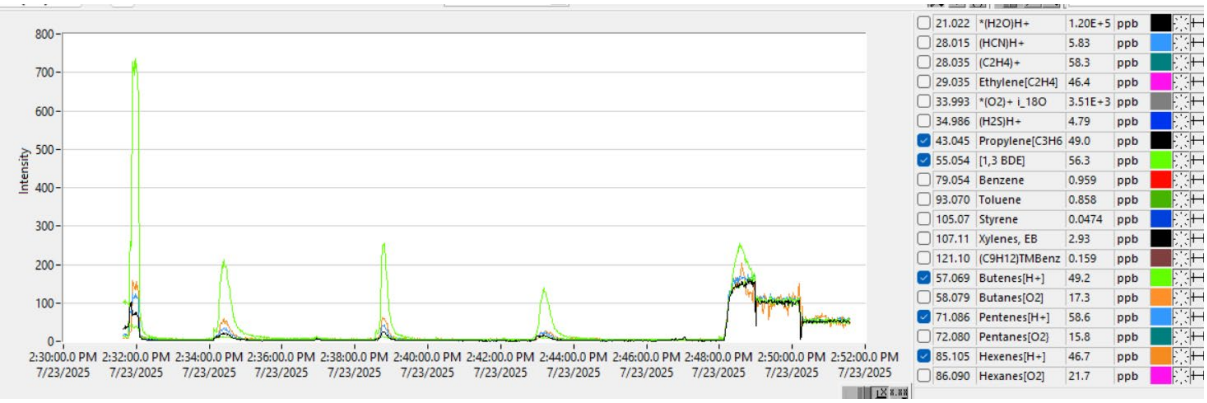
25 ppb HCN



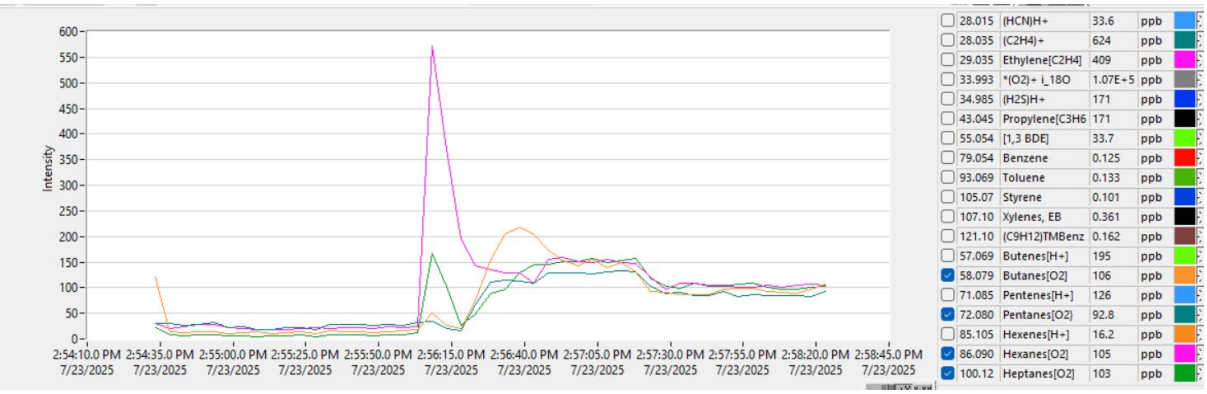
20 ppb H2S



20 ppb BTEX



50 ppb Alkenes



100 ppb Alkanes

CCND Community Monitoring Program
PTR-TOF-MS Detection Limits
Signal to Noise Standard Deviation Method
7/21/2025

Compound DL (ppb v)	7/21/2025 DL (ppb v)
Acetylene	0.168
Hydrogen Cyanide	0.049
Ethylene	0.286
Methanol	0.211
Hydrogen Sulfide	0.064
Propylene	0.158
1,3 Butadiene	0.005
Butenes	0.393
Butanes	0.097
Isoprene	0.027
Cyclopentane	0.133
Pentanes	0.025
Carbon Disulfide	0.016
Benzene	0.034
Hexenes	0.114
Hexanes	0.024
Toluene	0.039
Methylcyclohexanes	0.024
Heptanes	0.034
Styrene	0.010
Xylenes	0.056
Dimethylcyclohexanes	0.022
Octanes	0.042
Trimethylbenzenes	0.023
Nonanes	0.008
Diethylbenzenes	0.018
Decanes	0.016
Undecanes	0.010
Tetrachloroethylene	0.002
Dodecanes	0.004

Initial Instrument Calibration						
Date	Time	Calibration Gas Component	Calibration Value (ppb v)	Response (ppb v)	Difference (% of value)	Pass/Fail
7/20/2025	10:41	Benzene	100	98.8	-1.2	Pass
		Toluene	100	102	2.0	Pass
		Xylenes	200	204	2.0	Pass
	10:43	Benzene	50	51.8	3.6	Pass
		Toluene	50	49.6	-0.8	Pass
		Xylenes	100	102	2.0	Pass
	10:45	Benzene	20	19.7	-1.5	Pass
		Toluene	20	19.5	-2.5	Pass
		Xylenes	40	41.3	3.2	Pass
	10:46	Benzene	5	5.05	1.0	Pass
		Toluene	5	5.06	1.2	Pass
		Xylenes	10	10.6	6.0	Pass
	11:21	Ethylene	100	96.2	-3.8	Pass
		Propylene	100	98.3	-1.7	Pass
		1-Butene	100	94.1	-5.9	Pass
		1-Pentene	100	101	1.0	Pass
		1-Hexene	100	104	4.0	Pass
		1,3-Butadiene	100	105	5.0	Pass
	11:17	Ethylene	50	45.9	-8.2	Pass
		Propylene	50	45.9	-8.2	Pass
		1-Butene	50	47.7	-4.6	Pass
		1-Pentene	50	46.9	-6.2	Pass
		1-Hexene	50	47.7	-4.6	Pass
		1,3-Butadiene	50	48.9	-2.2	Pass
	11:15	Ethylene	20	21.7	8.5	Pass
		Propylene	20	19.8	-1.0	Pass
		1-Butene	20	21.8	9.0	Pass
		1-Pentene	20	22.7	13.5	Pass
		1-Hexene	20	20.9	4.5	Pass
		1,3-Butadiene	20	21.9	9.5	Pass
	11:33	HCN	100	102	2.0	Pass
	11:34	HCN	50	51	2.0	Pass
	11:36	HCN	25	25.2	0.8	Pass
	11:39	HCN	10	9.89	-1.1	Pass
	12:10	H_2S	50	48.2	-3.6	Pass
	12:13	H_2S	20	21.4	7.0	Pass
	12:16	H_2S	10	11.2	12.0	Pass
	12:17	H_2S	5	4.99	-0.2	Pass
	12:53	Butane	150	160	6.7	Pass
		Pentane	150	147	-2.0	Pass
		Hexane	150	152	1.3	Pass
		Heptane	150	159	6.0	Pass
	12:49	Butane	100	105	5.0	Pass
		Pentane	100	98.6	-1.4	Pass
		Hexane	100	101	1.0	Pass
		Heptane	100	98.9	-1.1	Pass
	12:47	Butane	50	50.8	1.6	Pass
		Pentane	50	50.5	1.0	Pass
		Hexane	50	53.6	7.2	Pass
		Heptane	50	54.1	8.2	Pass
	12:45	Butane	25	28.5	14.0	Pass
		Pentane	25	27.6	10.4	Pass
		Hexane	25	28.9	15.6	Pass
		Heptane	25	24.9	-0.4	Pass

Instrument Calibration Check						
		Calibration	Calibration Value	Response	Difference	
Date	Time	Gas Component	(ppb v)	(ppb v)	(% of value)	Pass/Fail
7/21/2025	7:55	Ethylene	50	48.5	-3.0	Pass
Pioneer Park		Propylene	50	44.5	-11.0	Pass
Adams City		1-Butene	50	52.4	4.8	Pass
		1-Pentene	50	49.1	-1.8	Pass
		1-Hexene	50	56.2	12.4	Pass
		1,3-Butadiene	50	49.9	-0.2	Pass
	8:00	Benzene	50	46.8	-6.4	Pass
		Toluene	50	48.1	-3.8	Pass
		Xylenes	100	95.9	-4.1	Pass
	8:05	Benzene	20	17.7	-11.5	Pass
		Toluene	20	18.6	-7.0	Pass
		Xylenes	40	35.8	-10.5	Pass
	8:27	HCN	25	24.3	-2.8	Pass
	8:19	H_2S	20	21.4	7.0	Pass
	8:36	Butane	150	147	-2.0	Pass
		Pentane	150	142	-5.3	Pass
		Hexane	150	164	9.3	Pass
		Heptane	150	150	0.0	Pass
			.			
	16:21	HCN	25	23.3	-6.8	Pass
	16:29	H_2S	20	22.1	10.5	Pass
	16:55	Butane	100	97.1	-2.9	Pass
		Pentane	100	94.8	-5.2	Pass
		Hexane	100	99.9	-0.1	Pass
		Heptane	100	103	3.0	Pass
	16:38	Benzene	20	18.3	-8.5	Pass
		Toluene	20	18.8	-6.0	Pass
		Xylenes	40	38.1	-4.8	Pass
	16:42	Ethylene	50	48.2	-3.6	Pass
		Propylene	50	46.4	-7.2	Pass
		1-Butene	50	48.7	-2.6	Pass
		1-Pentene	50	51.5	3.0	Pass
		1-Hexene	50	56.7	13.4	Pass
		1,3-Butadiene	50	48.9	-2.2	Pass

Instrument Calibration Check						
		Calibration	Calibration Value	Response	Difference	
Date	Time	Gas Component	(ppb v)	(ppb v)	(% of value)	Pass/Fail
7/22/2025	7:47	Ethylene	50	50.4	0.8	Pass
Western Hills		Propylene	50	46.1	-7.8	Pass
Dupont		1-Butene	50	51.7	3.4	Pass
		1-Pentene	50	54.1	8.2	Pass
		1-Hexene	50	55.4	10.8	Pass
		1,3-Butadiene	50	51.8	3.6	Pass
	7:51	Benzene	50	47.1	-5.8	Pass
		Toluene	50	47.2	-5.6	Pass
		Xylenes	100	97.2	-2.8	Pass
	8:03	Benzene	20	19.5	-2.5	Pass
		Toluene	20	19	-5.0	Pass
		Xylenes	40	38.4	-4.0	Pass
	7:58	HCN	25	25	0.0	Pass
	8:06	H_2S	20	22.7	13.5	Pass
	8:12	Butane	100	96.3	-3.7	Pass
		Pentane	100	95.4	-4.6	Pass
		Hexane	100	96.8	-3.2	Pass
		Heptane	100	108	8.0	Pass
			.			
	15:44	HCN	25	24.6	-1.6	Pass
	15:49	H_2S	20	20.4	2.0	Pass
	16:05	Butane	100	89.1	-10.9	Pass
		Pentane	100	92.9	-7.1	Pass
		Hexane	100	89	-11.0	Pass
		Heptane	100	96.2	-3.8	Pass
	15:55	Benzene	20	20	0.0	Pass
		Toluene	20	20.6	3.0	Pass
		Xylenes	40	40.6	1.5	Pass
	15:59	Ethylene	50	45.1	-9.8	Pass
		Propylene	50	46.7	-6.6	Pass
		1-Butene	50	47.1	-5.8	Pass
		1-Pentene	50	45.6	-8.8	Pass
		1-Hexene	50	44.9	-10.2	Pass
		1,3-Butadiene	50	49	-2.0	Pass

Instrument Calibration Check						
		Calibration	Calibration Value	Response	Difference	
Date	Time	Gas Component	(ppb v)	(ppb v)	(% of value)	Pass/Fail
7/23/2025	7:38	Ethylene	50	48.4	-3.2	Pass
Globeville		Propylene	50	45.2	-9.6	Pass
Swansea		1-Butene	50	47.6	-4.8	Pass
		1-Pentene	50	53.6	7.2	Pass
		1-Hexene	50	41.3	-17.4	Pass
		1,3-Butadiene	50	51.7	3.4	Pass
	7:41	Benzene	50	49.9	-0.2	Pass
		Toluene	50	48.5	-3.0	Pass
		Xylenes	100	99.8	-0.2	Pass
	7:44	Benzene	20	18.6	-7.0	Pass
		Toluene	20	18.8	-6.0	Pass
		Xylenes	40	39.3	-1.8	Pass
	7:51	HCN	25	25.7	2.8	Pass
	8:01	H_2S	20	20.3	1.5	Pass
	8:08	Butane	100	86.2	-13.8	Pass
		Pentane	100	91	-9.0	Pass
		Hexane	100	102	2.0	Pass
		Heptane	100	105	5.0	Pass
			.			
	14:37	HCN	25	24	-4.0	Pass
	14:41	H_2S	20	20.8	4.0	Pass
	14:59	Butane	100	106	6.0	Pass
		Pentane	100	92.8	-7.2	Pass
		Hexane	100	105	5.0	Pass
		Heptane	100	103	3.0	Pass
	14:47	Benzene	20	19.5	-2.5	Pass
		Toluene	20	20	0.0	Pass
		Xylenes	40	40.9	2.3	Pass
	14:51	Ethylene	50	46.4	-7.2	Pass
		Propylene	50	49	-2.0	Pass
		1-Butene	50	49.2	-1.6	Pass
		1-Pentene	50	58.6	17.2	Pass
		1-Hexene	50	46.7	-6.6	Pass
		1,3-Butadiene	50	56.3	12.6	Pass

APPENDIX E CALIBRATION GAS CERTIFICATION SHEETS

Airgas
an Air Liquide company

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		
Part Number:	X05NI99C15AC028	Reference Number:	160-402805384-1
Cylinder Number:	ALM-044156	Cylinder Volume:	144.0 CF
Laboratory:	124 - Plumsteadville - PA	Cylinder Pressure:	2015 PSIG
Analysis Date:	Aug 10, 2023	Valve Outlet:	350
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 %	

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

1295 NW 163rd Street, Miami, Florida 33169 USA
Telephone: 786-925-6201 / Fax: 786-364-1591
Email: info@apelriemerenvironmental.com

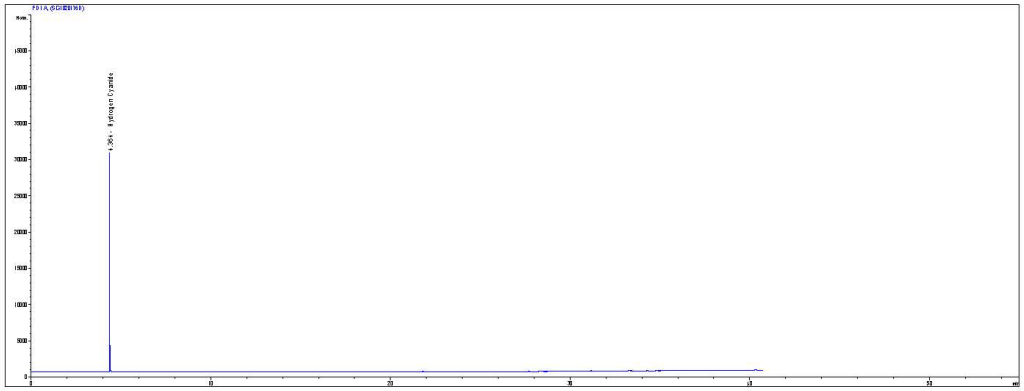
Cylinder: RR05620
Cylinder Date: 2023/12
Valve: SS CGA350 23D364888
Lot No.: 25049.1
Cylinder Pressure: 2000 psia
Analysis Date: March 1, 2025

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
an Air Liquide company

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

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Airgas
an Air Liquide company

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		
Part Number:	X05NI99C15A00U7	Reference Number:	163-403259014-1
Cylinder Number:	ALM015719	Cylinder Volume:	144.3 CF
Laboratory:	124 - Pasadena (SG06) - TX	Cylinder Pressure:	2015 PSIG
Analysis Date:	Feb 25, 2025	Valve Outlet:	350
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
an Air Liquide company

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 Number:	X07NI99C15A00A9	Reference Number:	126-403259013-1A
Cylinder Number:	ALM050476	Cylinder Volume:	144.0 CF
Laboratory:	124 - La Porte Mix - TX	Cylinder Pressure:	2015 PSIG
Analysis Date:	Apr 25, 2025	Valve Outlet:	350
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

Signature on file
Approved for Release

Page 1 of 1

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