Quarterly Report for Goodrich Corporation Fenceline Monitoring Plan-Q4 2025

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II. Executive Summary

This report summarizes the findings related to the Goodrich Corporation fenceline monitoring plan during the period of October 1st of 2025 to December 31st of 2025 (Q4 of 2025). The data collected during this period were validated following all procedures described in the Goodrich Corporation fenceline monitoring plan. This report includes tables with the validated and invalidated data, statistical analysis results and timeseries of the compounds of interest and meteorological parameters.

III. Contact Information

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IV. Methods

A. Site Description

Goodrich operates an aircraft brakes manufacturing facility at 50 William White Blvd, Pueblo, CO 81001. The carbon brake manufacturing process is a series of seven operational steps: the textile of preforms, carbonization of preforms, chemical vapor deposition (CVD) of preforms, intermediate machining of preforms, an additional CVD cycle, final dimensional machining, and final assembly.

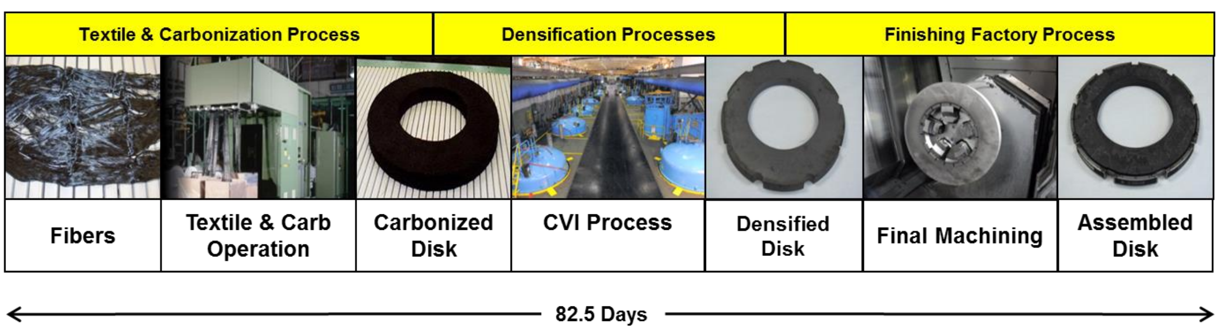

Figure 1. The Goodrich Carbon Brake Manufacturing Process

These specific processes can be more generally separated into four manufacturing areas: textile, furnace operations, machining, and finishing. The textile process transforms raw polyacrylonitrile (PAN) fibers into a three-dimensional matrix or brake preform. Brake preforms are then batch processed in high-temperature, low-pressure reactors (furnaces). The two major processes completed are carbonization and densification. Carbonization converts the raw PAN preforms to a carbon fiber preform and removes impurities. The densification process cracks a feed hydrocarbon stream to infiltrate and sequester molecular carbon on the carbon fiber preform. The machining of preforms is completed in two stages: once in the middle of the densification and once following densification. After the final machining operations, the final assembly operations include application of an oxidation protection system and hardware installation. Additionally, the carbon brake manufacturing process requires extensive chemical processing infrastructure including waste heat recovery, steam generation, cooling water systems, gas purification, and gas storage and delivery systems

B. Instrument Description

1. Open-Path Monitors

The Goodrich Corporation fenceline air monitoring system includes both open-path tunable diode laser spectrometers (TDLAS), and open-path ultraviolet Doppler optical absorption spectrometers (UVDOAS). Open-path monitors operate by projecting a beam of light through open air to retroreflectors that reflect the light back to the monitor where spectral absorption characteristics are measured. As the light travels along the path length a certain amount of this light will be absorbed by the various chemical species present in the air. Because all gases absorb light differently according to their own unique spectral characteristics, it is possible to use measurements of absorption intensity at specific wavelengths as a proxy for measuring a target gas' concentration in the air.

Therefore, along a known path length, an absorption measurement taken at the appropriate wavelength for the target molecule can easily be used to solve for its average concentration over the length of the beam.

The Goodrich Corporation system will consist of three TDL analyzers and six UVDOAS analyzers at the locations shown in Figure 2 and as outlined in Table 2. The light is transmitted to a retroreflector and back to a detector co-located with the transmitter. The analyzer software will provide five-minute and hourly-average concentration measurements for each path.

- ***Open Path (OP) Ultraviolet Differential Optical Absorption Spectroscopy (UVDOAS)***

For the monitoring of benzene, the Goodrich Corporation facility uses Open Path (OP) Ultraviolet Differential Optical Absorption Spectroscopy (UVDOAS). This technology quantifies concentrations of gaseous compounds by measuring the absorption of ultraviolet light by chemical compounds in the air and applying the Beer-Lambert Law. UVDOAS typically uses unique absorptions of specific wavelengths of ultraviolet light in a wavelength range of 245 to 380 nanometers (nm). Benzene peaks are found close to the 253 nm wavelength.

Open path UVDOAS instrumentation consists of a light source, transmitting and receiving optics (telescopes), a spectrometer, a reflector or receiver, a detector, and a data processing computer. A Xenon light source provides light, which is focused in a collimated beam before it is sent through a transmitting telescope and into the measurement path. A receiving telescope collects the light and directs it to the spectrometer which diffracts the light onto the detector. The detector is typically a solid-state array such as a charge-coupled device (CCD). This allows the detector to collect light of different wavelengths without moving parts. The spectra bands can be extracted from the spectrum and compared to reference spectra to determine which compounds were present along the path and at what concentrations.

A combination of monostatic and bistatic open path instruments have been selected to reduce the need for substantial power at the retroreflector sites and improve detection limits by increasing effective path lengths.

The Goodrich Corporation facility uses the UV Sentry Open Path Multi-Gas Analyzer (UV Sentry) manufactured by Cerex Monitoring Solutions, LLC for the monitoring of benzene. The UV Sentry should not fail nor require calibration due to having no moving parts, therefore keeping maintenance and consumables to a minimum. The UV Sentry has an on-board computer and saves raw spectral data independent of calibration. These spectra may be used at any time to verify real time measurements. Additionally, the UV Sentry records signal intensity and minimum detection limits (MDLs) for benzene in real time as data quality indicators. Real time MDL output supports both American Society for Testing and Materials (ASTM) and U.S. Environmental Protection Agency (USEPA) methods. The UV Sentry also has a flow through calibration cell to allow for regular QA audits and bump tests.

- ***Open Path (OP) Tunable Diode Laser Absorption Spectroscopy (TDLAS)***

For the monitoring of Hydrogen Sulfide and Hydrogen Cyanide[1], an Open Path (OP) Tunable Diode Laser Absorption Spectroscopy (TDLAS) is used. OP-TDLAS offers some significant operational and cost advantages over other measurement technologies such as Fourier Transform Infrared Spectroscopy (FTIR). Tunable diode lasers (TDL) are designed to focus on single absorption wavelengths specific to a compound of concern in the gaseous form. They are capable of low detection limits and are generally interferent-free. Similar to UVDOAS, quantitative measurements in direct gas phase laser absorption spectroscopy are based on the Beer-Lambert Law. A TDL uses a diode to generate light within a narrow frequency range that contains a relatively unique absorption wavelength of the chemical of interest. The laser frequency is “tuned” by changing the temperature of the diode or the current being fed to the diode or both so that it matches the spectral absorption line of interest.

Similar to the UVDOAS system, the OP-TDLAS system consists of a light source, a spectrometer, a reflector, a photodiode detector, and a data processing computer. Monostatic (as opposed to bistatic) open path instruments have been selected to reduce the need for substantial power at the retroreflector sites and improve detection limits by increasing effective path lengths.

The Goodrich Corporation facility uses the LasIR™ Fence Line Monitoring Gas Analyzer manufactured by Unisearch Associates Inc. for the monitoring of Hydrogen Sulfide and Hydrogen Cyanide.[1] The LasIR™ allows one laser to send beams at two different wavelengths down each path length (one for each compound). Additionally, the beam can be split allowing it to monitor two path lengths with one laser. The controller uses a near infrared (NIR) Tunable Diode Laser Absorption Spectrometer System which uses a single mode laser mounted in a thermoelectric cooler. A Windows based software package displays the data on a host laptop PC. The LasIR™ also has a flow through calibration cell to allow for regular QA audits and bump tests.

2. Meteorological Monitors

The meteorological monitoring tower is located at the northwest end of the Goodrich Corporation property. This tower is outfitted with high quality meteorological instruments, as outlined in Table 1, and are capable of accurate and continuous real time measurements. All sensors will be connected to a datalogger which will store the data, as well as broadcast it out to a cellular modem so that data can be viewed or downloaded at any time, from anywhere. The specific meteorological instruments chosen meet EPA specifications for accuracy, range and resolution (Table 1) and have been deemed appropriate for use in the fenceline monitoring system. Data from these sensors will be used to calculate 1-hour rolling averages which are updated every five minutes.

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[1] Hydrogen sulfide is not used, stored at, nor emitted from the Goodrich Corporation. Therefore, the facility does not have the potential to emit this compound, which comprise “Covered Air Toxics” under HB21-1189.

Table 1: Performance Specifications for Installed Meteorological Sensors

Parameter	Sensor Make and model	Reporting units	Accuracy	Range
Horizontal wind speed	Met One 010C	Meters per second (m/s)	± 0.1	0 to 55
Horizontal wind direction	Met One 020D	Degrees (°)	± 3	0 to 360
Temperature	Met One 065	Degrees of Celsius (°C)	± 0.15	-30 to +50
Relative humidity	Met One 083F/0/35	Percentage (%)	± 2	0 to 100
Barometric pressure	Met One 0192	Atmospheres (atm)	± 0.001	0.3 to 1.09

C. System Design

The fenceline monitoring system will utilize three primary shelters to house the open path analyzers. Shelters 1 and 6 (Figure 2) will house one (1) monostatic open-path tunable diode laser (TDL) analyzer, one (1) monostatic open-path ultraviolet differential optical absorption (UV-DOAS) analyzer and one (1) bistatic open-path UV-DOAS receiver. Shelter 3 will house one (1) monostatic open-path TDL analyzer, and two (2) bistatic open-path UV-DOAS receivers.

Each open-path analyzer location will have multiple paths, where each path is measured continuously. At the end of each path there will be a retroreflector opposite the analyzer for the monostatic systems and a receiver opposite the analyzer for the bistatic systems. Each path ID consists of a numberwhich range from 1 to 6 (Figure 2, Table 2). The specific locations for all open path equipment were selected to provide coverage of all facility emission sources within the constraints of the facility footprint.

This monitoring program also includes meteorological monitoring as required in HB21-1189. Meteorological monitoring is necessary to characterize wind patterns for understanding movement of the three target compounds and potential sources of emissions, whether they originate from the site or a neighboring facility. A meteorological tower will be installed near Shelter 6 (Figure 2) so that power can be shared.

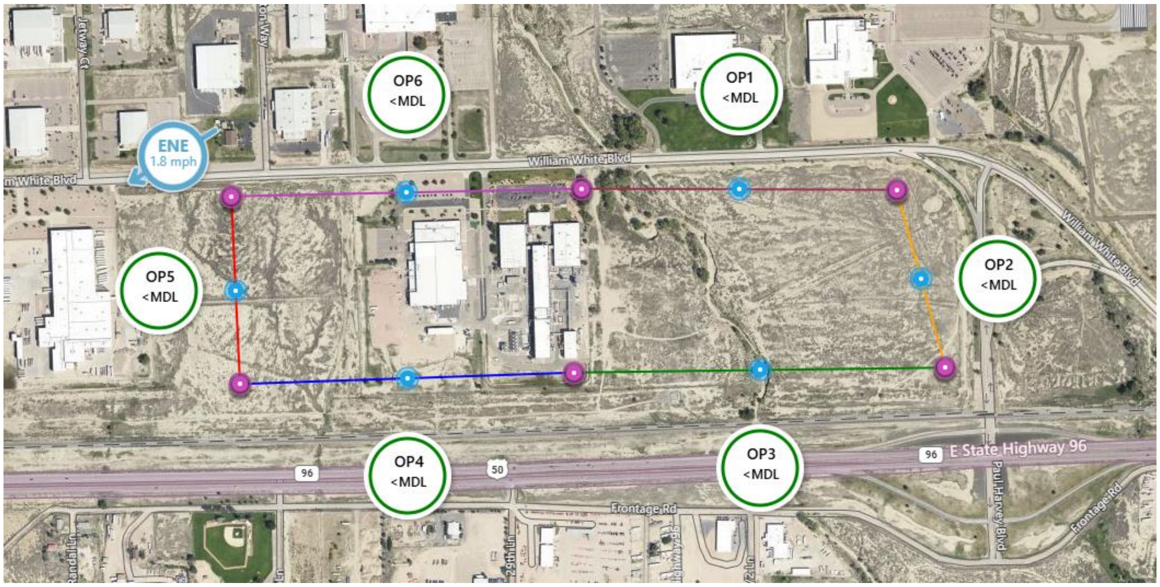

Figure 2. Approximate Layout of the Goodrich Corporation FLMP

Table 2: Descriptions of Each Individual Path

Path	Path Length (one way)	Compounds
1	558 meters	Hydrogen sulfide Hydrogen cyanide Benzene
2	283 meters	Hydrogen sulfide Hydrogen cyanide Benzene
3	613 meters	Hydrogen sulfide Hydrogen cyanide Benzene
4	566 meters	Hydrogen sulfide Hydrogen cyanide Benzene
5	297 meters	Hydrogen sulfide Hydrogen cyanide Benzene
6	569 meters	Hydrogen sulfide Hydrogen cyanide Benzene

D. Data Validation and QA/QC Procedures

-Automated Quality Control Procedures

Many Quality Control procedures for the fenceline monitoring network are integrated directly into the AirSense data platform and are outlined as follows. These automated procedures allow for the ability to screen data not suitable for public display due to atmospheric or operational issues. These automated quality control checks include:

- Inspection of daily reports generated by the AirSense platform which summarize data recovery for each analyzer/sensor and suspect data flags;
- Monitoring of real time alerts and daily reports generated by the AirSense data platform that flag:
    - No data;
    - Data sticking – if values are repeated for a number of sampling intervals (does not apply to data below the detection limit);
    - Range exceedances – if values are outside a reasonable minimum or maximum value;
    - Data recovery;
    - Monitoring instrument parameters that may indicate equipment degradation/failure or a need for maintenance and/or cleaning;
    - Signal intensity (open path instruments);
    - Instrument or sensor alarms or error codes;
    - Analyzer and shelter temperatures; and
    - Laser parameters (TDL instruments)

Table 3: List of Automated Quality Control Parameters and Corresponding Evaluation Criteria

Instrument	Automated Quality Control Parameter	Definition	Units	Evaluation criteria
UV-DOAS	MDL	Minimum detection limit	PPB	< 25% of alert threshold
	R^2	Percentage peak match	%	> 64
	Signal intensity	Signal intensity at full scale	%	> 40
	UV spectrometer temperature		ºC	35
TDL	MDL	Minimum detection limit	PPB	< 25% of alert threshold for paths 1,3,4,6 <50% of alert threshold

				for H2S paths 2 and 4
	Absolute Signal	Detector Signal	mA	> 0.1
	Laser temperature stability	Absolute value of (laser temperature- laser temperature in long average) *100/ laser temperature in long average	%	< 5
	R	Peak correlation		> 0.8

-***Instrument Quality Control Checks***

Both the UV-DOAS and TDL systems are designed to require only modest service and maintenance. Section 5.4 of the FLMP summarizes the UV-DOAS and TDL maintenance activities as recommended by the manufacturer. These activities will help ensure data integrity and maximize up-time. For the UV-DOAS system, a calibration verification bump test is performed on a quarterly basis using a flow through cell. For the UV-DOAS system, precision is calculated by evaluating the variance of pollutant concentrations during a period of low atmospheric variability. Five-minute data are selected when concentrations are well above the minimum detection limit (MDL) during periods of low variability. The precision can then be determined by calculating the coefficient of variation (CV). For the UV-DOAS, robustness can be determined by calculating the desired signal intensity in order for the benzene minimum detection limit to be lower than 25% of the notification threshold. If the measured signal intensity is found to be below the desired value, corrective action will be required (e.g., replace light source, instrument alignment, etc.). The QC checks for the UVDOAS are summarized in Table 4.

Table 4: UV DOAS QC Checks

QA/QC Check	Frequency	Acceptance Criteria
Accuracy and precision (Bump Test)	Quarterly	Accuracy: ≤ 30% of reference gas value Precision: ± 25%
Baseline Stability	Continuous	± 5%
Signal intensity	Continuous	>60%
Robustness	Continuous	Compound MDL lower than 25% of notification threshold

For the TDL system, a calibration verification bump test is performed on a quarterly basis. The bump test simulates system-observed gas content at the required path average concentration and is used to verify that the system can detect concentrations at or below the levels of concern. For the TDL system, precision will be calculated by evaluating the variance of pollutant concentrations during a period of low atmospheric variability. Five-minute data will be selected when concentrations are well above the minimum detection limit during periods of low variability. The precision can then be determined by calculating the coefficient of variation (CV). If there are no periods of low variability with concentrations above the minimum detection limit, bump test data will be used for the precision determination. For the TDL system, robustness can be determined by calculating the desired signal intensity for the hydrogen sulfide and hydrogen cyanide minimum detection limit to be lower than 25% (and 50% for H2S Paths 2 and 5) of the corresponding notification thresholds. If the measured signal intensity is found to be below the desired value, corrective action will be required (e.g., replace laser, instrument alignment, etc.). The QC checks for the TDL are summarized in the table as follows.

Table 5: TDL QC Checks

QA/QC Check	Frequency	Acceptance Criteria
Accuracy and precision (Bump Test)	Quarterly	Accuracy: ≤ 30% of reference gas value Precision: ± 25%
Baseline Stability	Continuous	± 5%
Signal intensity (Absolute Power)	Continuous	>0.1 mA
Robustness	Continuous	Compound MDL < 25% of alert threshold for paths 1,3,4,6 and Compound MDL <50% of alert threshold for H2S paths 2 and 4

Wind speed, wind direction, temperature, relative humidity and barometric pressure measurement systems will be aligned, tested and calibrated at the time of installation and at six-month intervals thereafter using test equipment traceable to NIST or other authoritative standards and following standard operating procedures. Calibrations are performed immediately following scheduled semi-annual meteorological audits and performance of scheduled preventive and/or corrective maintenance for the monitoring instruments. Following initial startup calibrations and continuing throughout the monitoring program, the field operator performs quarterly site checks on the meteorological monitoring systems. During these checks, sensors will be observed for proper operation. The monitoring instruments and support equipment are visually inspected to confirm operational integrity. The current data logger readings are assessed for agreement with prevailing conditions.

-Data Quality Assurance

All continuous data from the monitoring equipment are transferred to the cloud-based servers every five minutes. Each business day, a data technician checks the data files to ensure that all data were successfully transmitted and stored in the database. If data are missing, they are manually retrieved from the computers that control each piece of equipment or the on-site data logger for the meteorological equipment. This data is the raw data collected from the instrument computers or data logger and is considered “Level 1” data. These data are used to monitor instrument operations on a regular basis but are not used for reporting until subject to further review and validation. Level 1 (raw) data files are kept intact and unedited. These data are not subject to reduction or reformatting.

“Level 1” data are “raw” data; i.e., data obtained directly from the instrument computers or data logger that have not yet been subjected to quality assurance review. Electronic files of the raw data record are archived "as is"; no alteration is made to the raw data files. All data processing, editing and validation work is accomplished by working with copies of the raw data files produced by the data management system software upon request. Level 1 data are manually reviewed for reasonableness and completeness. Initial (daily) review of the data occurs no more than four days after sample acquisition because of weekends and holidays. Daily data review includes checking for status or event flags, reasonableness of reported averaged data values (out-of-range, inconsistent or excessive transition values) and any missing data periods. The operating status of each instrument is also reviewed (e.g., sample flow rates; other internal operating parameters). Meteorological data are reviewed for agreement with local seasonal and prevailing conditions and internal consistency. These daily reviews support “Level 2” validation of the data and provide a decision basis for investigative actions, instrument adjustment and calibration. The data analyst annotates the separate data processing file (i.e., an electronic copy of the original raw data file) and produces a summary report of any suspect data or out-of-tolerance operating conditions. Any situation requiring investigative and/or corrective action is immediately brought to the attention of the Project Manager and Technical Lead. A “Non-Conformance / Corrective Action” (NC/CA) report documenting all pertinent information regarding suspect data, a non-conformance event or out-of-tolerance operating condition is generated and updated with further information as it becomes available until the problem is fully resolved.

All data reporting forms and activity logs completed during the previous month are stored in Montrose’s local Denver office and are reviewed against the electronic data record on a monthly basis in support of data processing and validation. Monthly review of the field monitoring documentation will include:

- All completed routine site check forms;
- Documentation of the QC tests performed on the monitors during the previous month;
- Documentation of any maintenance activities performed on the monitors during the previous month;
- Documentation of any quality assurance audits performed on the meteorological sensors during the previous month; and
- Documentation of any Non-Conformance/Corrective Action (NC/CA) events that occurred during the previous month.

During “Level 2” data validation, the data file of each continuously-monitored parameter is processed at monthly intervals to develop an initial data report to be reviewed for completeness and correctness. Any corrections or additions to the raw “Level 1” data file are annotated in the processing data file with explanatory comments. Any hours incorporating a test, calibration or other quality control check, corrective or preventive maintenance, instrument malfunction, power failures, weather event, etc. are removed from the data set and annotated with the appropriate null data code (for detail on null data codes and corresponding descriptions see Table 11 of Appendix F). Results of this review, including any data losses equal to or greater than one hourly block average, are documented and dated by the data technician in “Level 2” data files. The data technician enters and annotates any null data codes or corrections required in the “Level 2” electronic data file. When all entries or corrections are complete, the data are designated as “Level 2 - Final” data and are archived for subsequent final data validation review.

“Level 3” data validation review is performed by senior project personnel other than the data processing analyst. During the Level 3 data validation process, data losses due to activity or instrument malfunction are corroborated against documentation noted by the station field operators on completed field forms. The field form record identifying data affected by these activities and events are inter-compared with corresponding status flags entered by the operator in the digital data record. Documented results of QA/QC checks performed on each analyzer are evaluated with respect to relevant acceptance and performance criteria outlined in the fenceline monitoring plan. Reports documenting unacceptable operating conditions or non-conformance/corrective action (NC/CA) events that may have adversely impacted data quality are also reviewed. If discrepancies or questionable data values are identified during the validation process, the entire data record is reviewed (including all annotated corrections made for Level 2 data). Any additional corrections or revisions made to the data report file during the data validation review are documented, dated and signed by the validation reviewer. The corrections are then entered into the electronic data file and re-processed. A separate file containing the corrections is checked for accuracy against the documented corrections. When all corrections are complete and checked, a final “Level 3 - Validated” data file is produced.

V. Results

A. Monthly Data Summary

Table 6: Monthly Data Summary

Month	Path	Compound	Number of Exceedances1	0th2	25th2	50th2	75th2	100th2	Avg	Pct Detect3	Pct Valid4	Median 1hr DL5
Oct-25	1	Benzene	0	0.3	1.0	1.6	2.2	31.6	1.7	0.00%	98%	2.3
Nov-25	1	Benzene	0	0.2	0.5	0.8	1.3	57.5	1.0	0.00%	98.54%	1.1
Dec-25	1	Benzene	0	0.2	0.8	1.4	2.8	223.2	3.0	0.00%	95.91%	2.0
Oct-25	1	H2S	0	1.8	7.6	11.2	18.1	57.8	14.0	0.27%	94.32%	16.0
Nov-25	1	H2S	0	1.0	6.8	9.5	13.0	45.4	10.5	0.33%	95.17%	13.4
Dec-25	1	H2S	0	0.3	7.7	11.1	15.6	49.8	12.5	0.00%	58.80%	15.7
Oct-25	1	HCN	0	0.0	0.2	0.3	0.6	3.0	0.5	0.07%	96.82%	0.4
Nov-25	1	HCN	0	0.1	0.4	0.9	1.5	7.0	1.0	0.00%	94.98%	1.3
Dec-25	1	HCN	0	0.0	0.9	1.3	1.8	6.1	1.4	0.16%	59.28%	1.8
Oct-25	2	Benzene	0	0.2	0.5	0.7	0.9	34.6	0.8	0.59%	98.36%	1.0
Nov-25	2	Benzene	0	0.2	0.4	0.6	0.8	22.4	0.7	0.72%	97.98%	0.8
Dec-25	2	Benzene	0	0.2	0.5	0.8	1.1	51.5	1.1	0.00%	95.75%	1.1
Oct-25	2	H2S	0	2.0	15.6	22.7	37.3	112.7	28.9	0.90%	90.03%	32.0
Nov-25	2	H2S	0	1.5	13.1	19.5	28.6	101.6	23.3	1.08%	95.65%	27.5
Dec-25	2	H2S	0	2.3	13.4	20.8	32.7	103.5	25.7	1.09%	76.44%	29.4
Oct-25	2	HCN	0	0.0	0.4	0.7	1.3	26.1	1.3	1.42%	95.50%	1.0
Nov-25	2	HCN	0	0.2	1.0	2.7	5.6	46.6	3.9	9.71%	95.47%	3.2
Dec-25	2	HCN	0	0.1	0.7	2.2	6.6	31.9	4.2	10.39%	74.95%	2.5
Oct-25	3	Benzene	0	0.1	0.3	0.3	0.5	11.2	0.4	0.41%	98.40%	0.5
Nov-25	3	Benzene	0	0.1	0.2	0.3	0.5	47.8	0.5	0.09%	98.97%	0.5
Dec-25	3	Benzene	0	0.2	1.1	96.2	140.4	1234.6	87.8	0.00%	95.96%	135.8
Oct-25	3	H2S	0	0.4	2.9	4.6	7.6	48.5	6.4	0.90%	95.09%	6.6

Nov-25	3	H2S	0	0.4	3.0	4.4	6.2	40.7	5.1	0.08%	98.56%	6.2
Dec-25	3	H2S	0	0.4	2.8	4.3	6.1	25.4	5.0	0.06%	53.62%	6.1
Oct-25	3	HCN	0	0.0	0.1	0.3	0.9	15.5	0.8	1.89%	94.81%	0.4
Nov-25	3	HCN	0	0.0	0.2	0.8	1.8	13.1	1.4	5.27%	93.56%	1.1
Dec-25	3	HCN	0	0.1	0.7	1.0	1.6	7.8	1.3	6.13%	50.02%	1.3
Oct-25	4	Benzene	0	0.1	0.4	0.5	0.7	146.1	0.7	0.15%	91.41%	0.7
Nov-25	4	Benzene	0	0.1	0.3	0.4	0.6	82.2	0.6	0.00%	98.76%	0.6
Dec-25	4	Benzene	0	0.1	0.4	0.6	0.8	78.4	1.0	0.00%	96.55%	0.8
Oct-25	4	H2S	0	0.2	2.3	3.8	5.5	66.5	4.7	0.38%	90.41%	5.4
Nov-25	4	H2S	0	0.2	2.5	3.5	5.0	41.1	4.4	0.00%	98.12%	4.9
Dec-25	4	H2S	0	0.4	2.3	3.6	5.4	38.2	4.4	0.00%	91.39%	5.2
Oct-25	4	HCN	0	0.0	0.3	0.4	1.1	16.7	1.0	3.77%	86.65%	0.6
Nov-25	4	HCN	0	0.1	0.4	1.0	1.9	10.9	1.4	8.54%	90.58%	1.2
Dec-25	4	HCN	0	0.1	0.8	1.7	2.6	9.3	1.9	14.78%	68.54%	1.8
Oct-25	5	Benzene	0	0.1	0.4	0.5	0.6	25.9	0.5	0.00%	98.14%	0.7
Nov-25	5	Benzene	0	0.2	0.5	0.8	1.6	110.7	1.6	0.00%	91.84%	1.1
Dec-25	5	Benzene	0	0.1	0.4	0.6	1.0	65.7	1.3	0.00%	97.25%	0.8
Oct-25	5	H2S	0	0.2	3.7	7.8	14.4	92.8	11.6	0.10%	98.13%	11.2
Nov-25	5	H2S	0	0.2	2.7	6.4	11.3	84.6	8.1	0.00%	99.06%	9.2
Dec-25	5	H2S	0	0.2	4.7	9.4	15.7	94.7	11.6	0.00%	89.14%	13.3
Oct-25	5	HCN	0	0.1	1.1	2.4	5.0	35.3	4.1	1.51%	98.66%	3.3
Nov-25	5	HCN	0	0.1	1.1	2.2	3.7	105.2	3.0	1.25%	98.20%	3.1
Dec-25	5	HCN	0	0.1	0.8	2.2	3.4	16.2	2.4	0.30%	87.64%	3.1
Oct-25	6	Benzene	0	0.2	0.5	0.7	0.9	16.5	0.7	0.54%	98.23%	0.9
Nov-25	6	Benzene	0	0.1	0.4	0.6	0.8	12.7	0.7	0.25%	98.91%	0.8
Dec-25	6	Benzene	0	0.1	0.5	0.7	1.0	136.4	1.1	0.81%	96.18%	0.9
Oct-25	6	H2S	0	0.2	1.8	3.6	6.5	48.3	5.3	0.00%	98.86%	5.1
Nov-25	6	H2S	0	0.1	2.5	4.3	6.3	39.3	5.1	0.00%	98.49%	6.1
Dec-25	6	H2S	0	0.1	3.8	5.7	8.1	39.5	6.5	0.00%	88.73%	8.1
Oct-25	6	HCN	0	0.0	0.1	0.2	0.5	3.4	0.3	0.38%	98.22%	0.2
Nov-25	6	HCN	0	0.0	0.1	0.3	0.6	2.7	0.4	0.61%	98.61%	0.5

Dec-25	6	HCN	0	0.0	0.1	0.3	0.6	3.6	0.4	0.60%	88.73%	0.4

[1] number of 1-hour measurements above the notification threshold value
[2] data quartiles = the value at which a defined percentage of data existing below this value (valid data only)
[3] the percentage of hourly averages above the detection limit (DL) as compared to the total possible hourly averages (excluding data collected during QA/QC activities, calibration, or maintenance).
[4] the proportion of the 1h measurements that pass all data verification measures compared to the possible hourly averages.
[5] the median 1-hr detection limit observed across validated measurements per compound for the month specified.

B. Summary of Invalidated Data

The invalidated data can be found in file “Goodrich Corporation FLMP Data Packet_Q4 2025”. All 5 min data have been validated based on the procedures described in the Goodrich Corporation fenceline monitoring plan.

C. Discussion of Invalidated Data

The data was validated based on the procedures mentioned in the fenceline monitoring plan. During this quarter of the fenceline monitoring program operation, there was a relatively high invalidation rate for H2S and HCN Path 3 for the period of December 2025, with an average valid data percentage of approximately 52%. The higher invalidation rate is related to the higher MDLs that were observed during this period. Goodrich is not emitting nor storing H2S but there is a nearby H2S source related to a pumping station. All other compounds had high validation rates exceeding 95% in most cases.

D. Discussion of Results

As shown in the summary plots, the concentration of the three compounds of interest was below detection limit in most cases. There were no threshold exceedances during Q4 of 2025 for any of the compounds. For benzene the average median MDL value was around 8.5 ppb, for H2S the average median MDL value was approximately 12.3 ppb, and for HCN the corresponding average median MDL was around 1.5 ppb.

E. Summary Plots

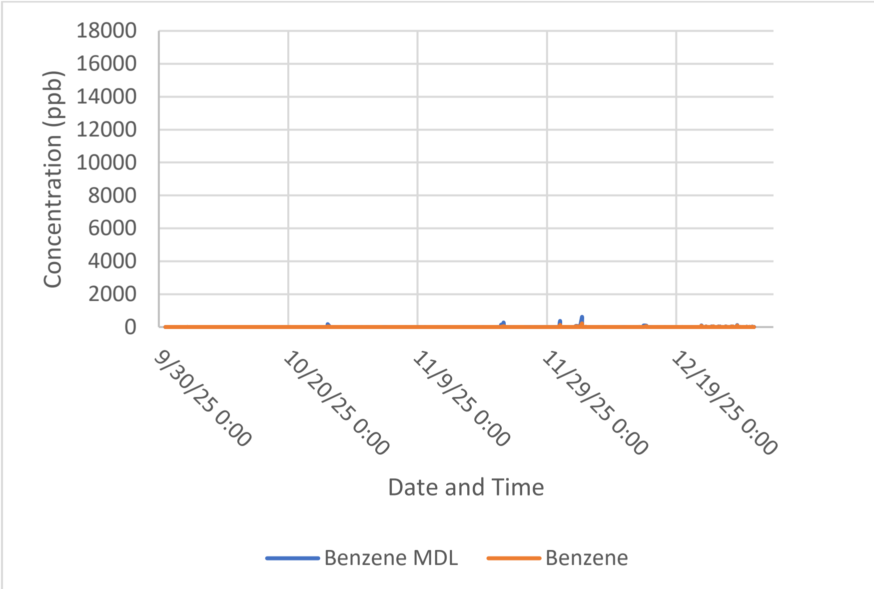

Figure 3. Timeseries of Benzene Path 1

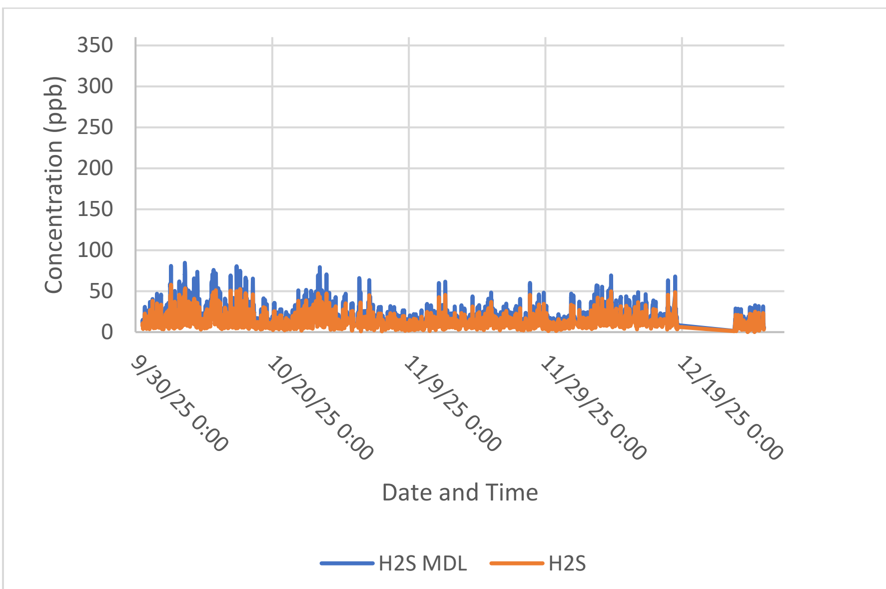

Figure 4. Timeseries of H_2S Path 1

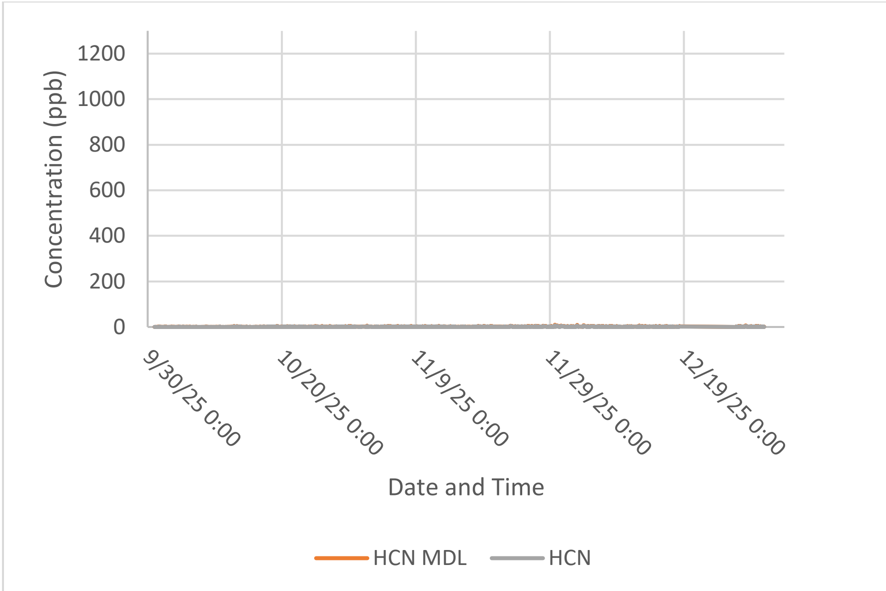

Figure 5. Timeseries of HCN Path 1

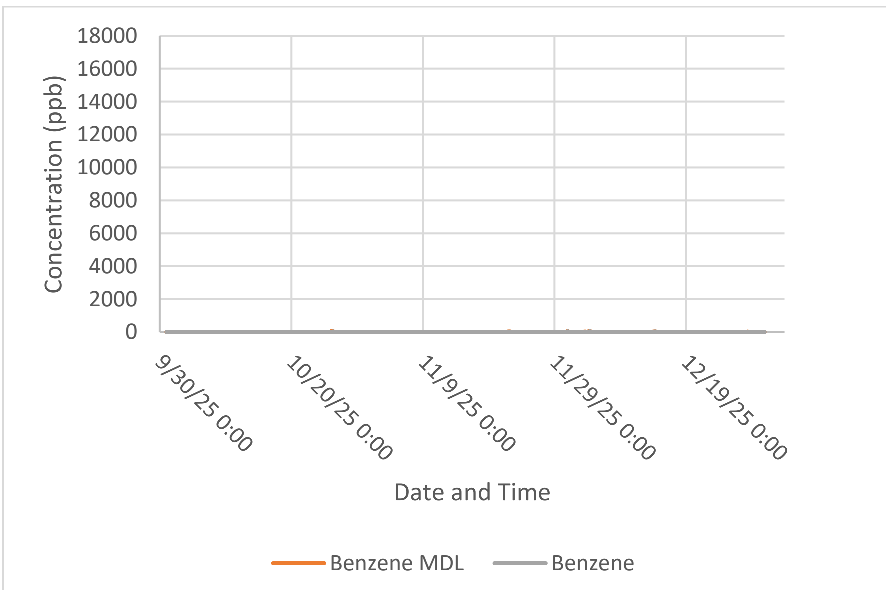

Figure 6. Timeseries of Benzene Path 2

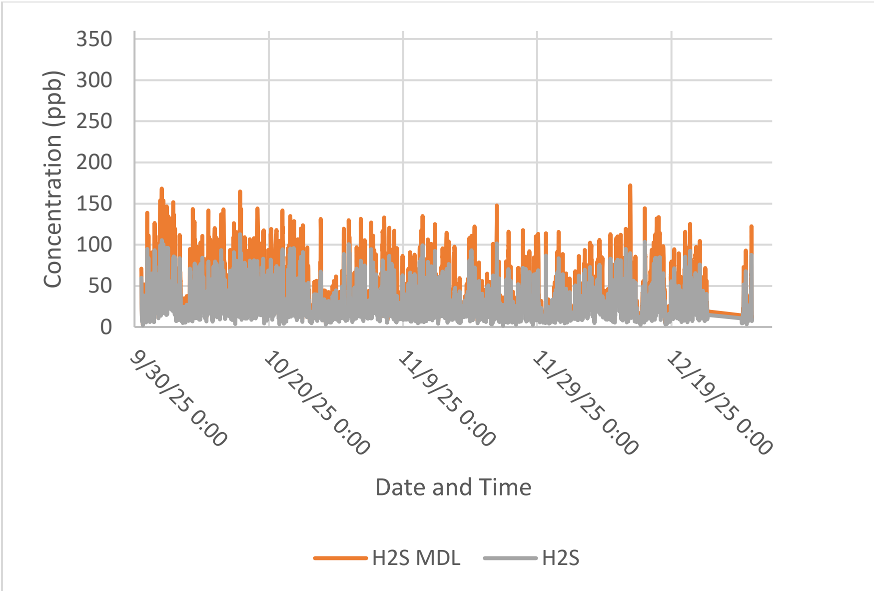

Figure 7. Timeseries of H_2S Path 2

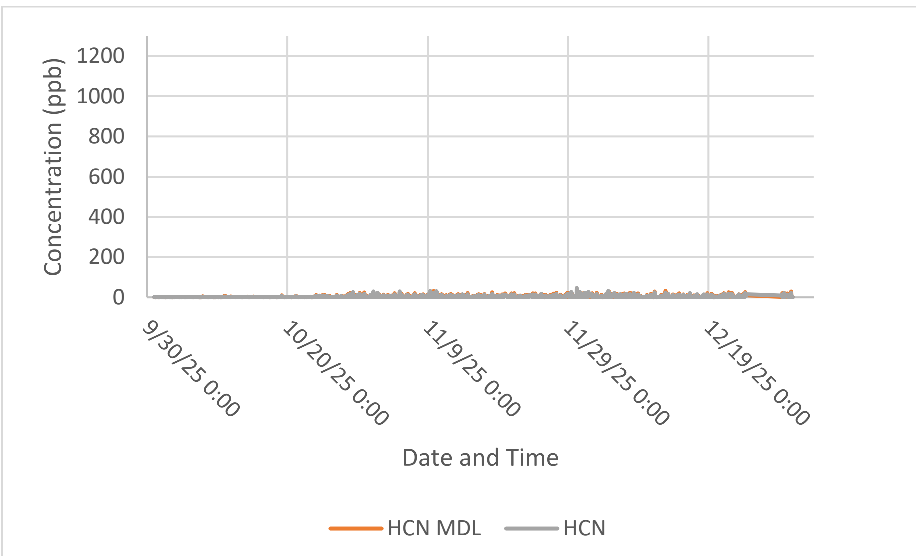

Figure 8. Timeseries of HCN Path 2

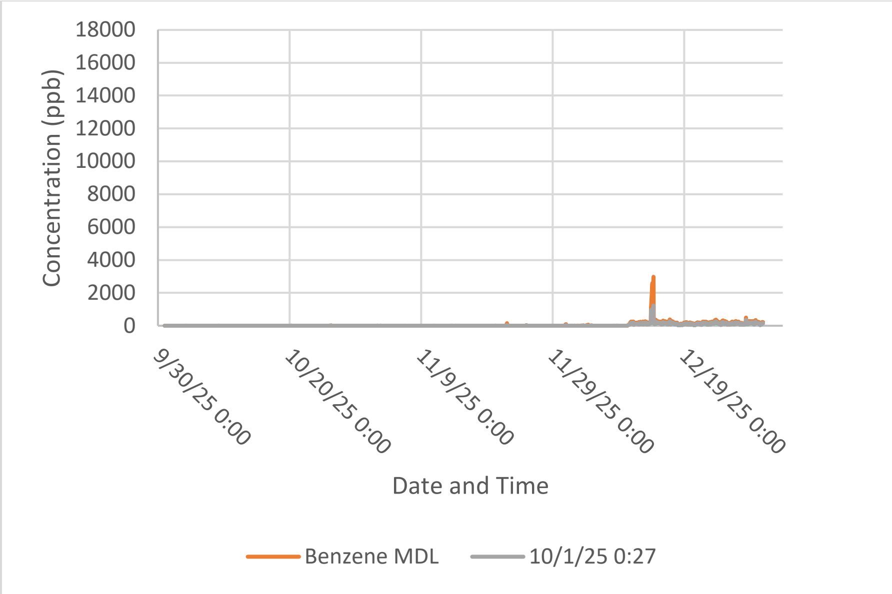

Figure 9. Timeseries of Benzene Path 3

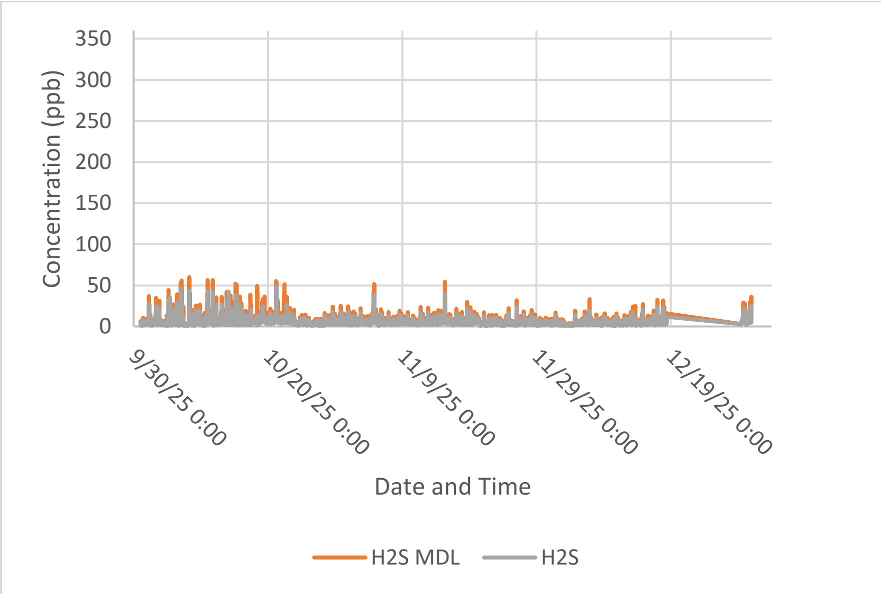

Figure 10. Timeseries of H2S Path 3

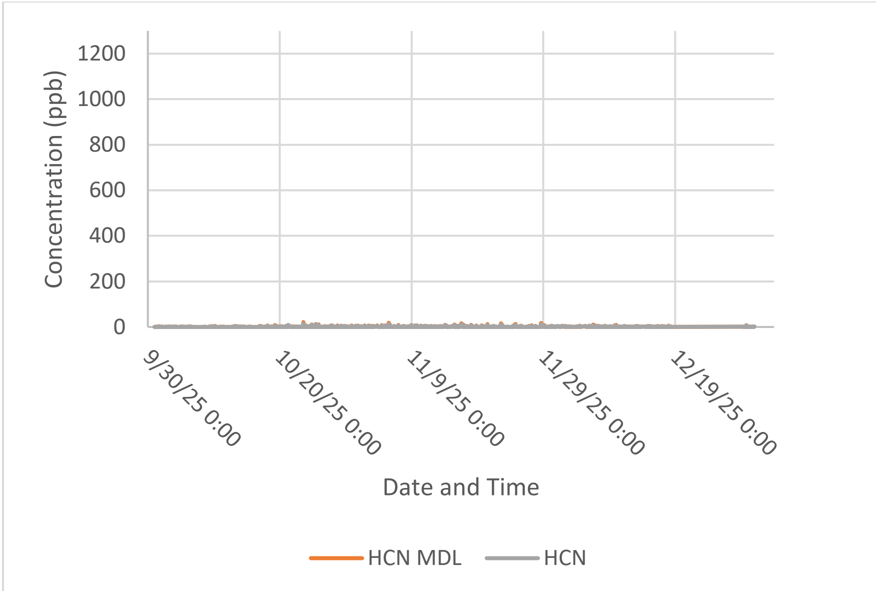

Figure 11. Timeseries of HCN Path 3

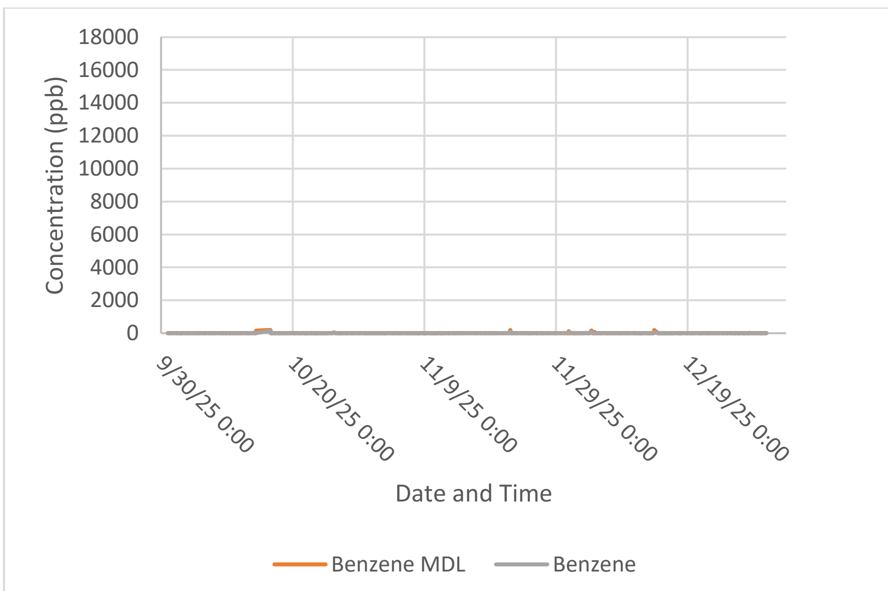

Figure 12. Timeseries of Benzene Path 4

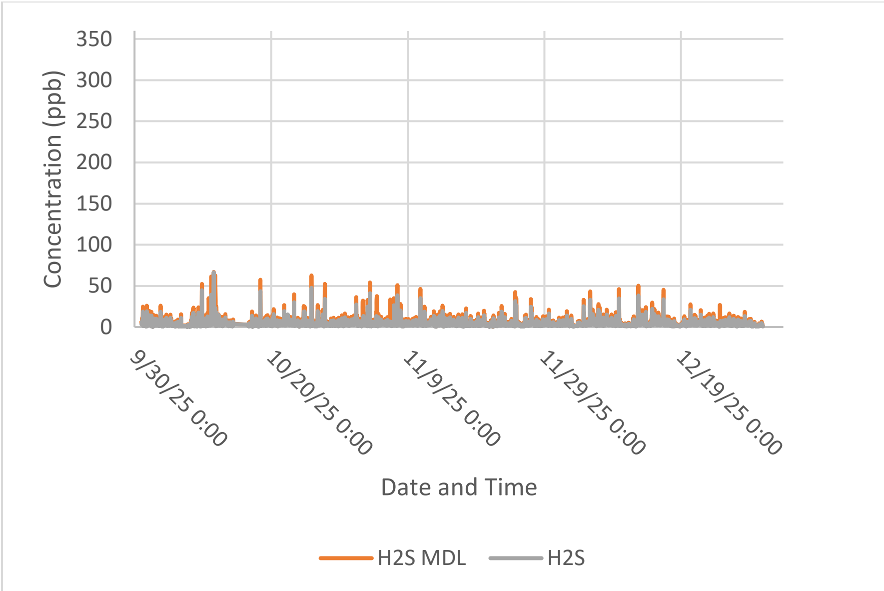

Figure 13. Timeseries of H2S Path 4

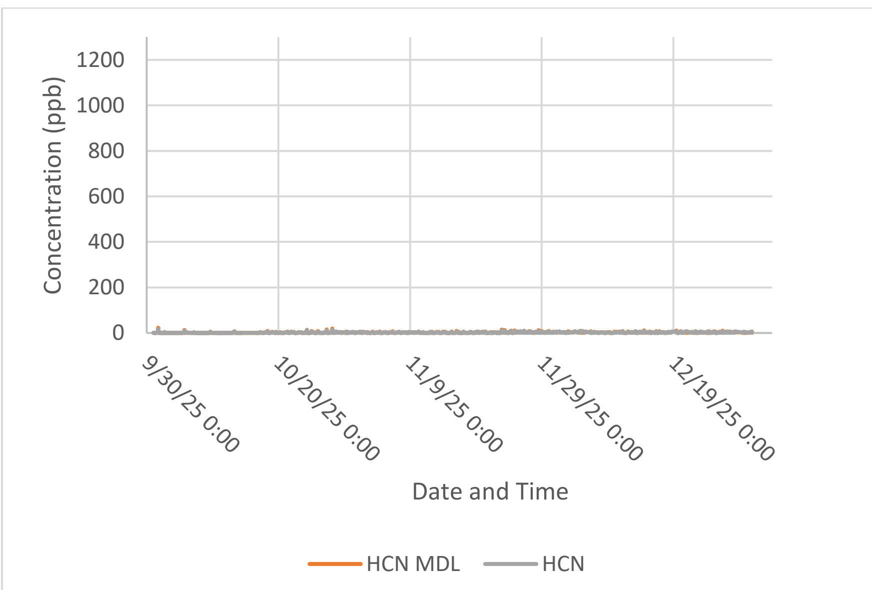

Figure 14. Timeseries of HCN Path 4

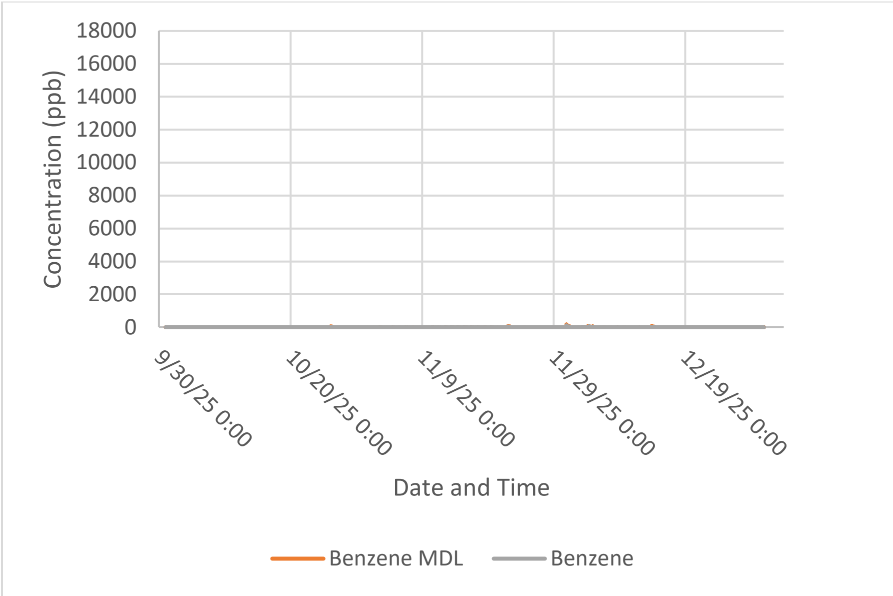

Figure 15. Timeseries of Benzene Path 5

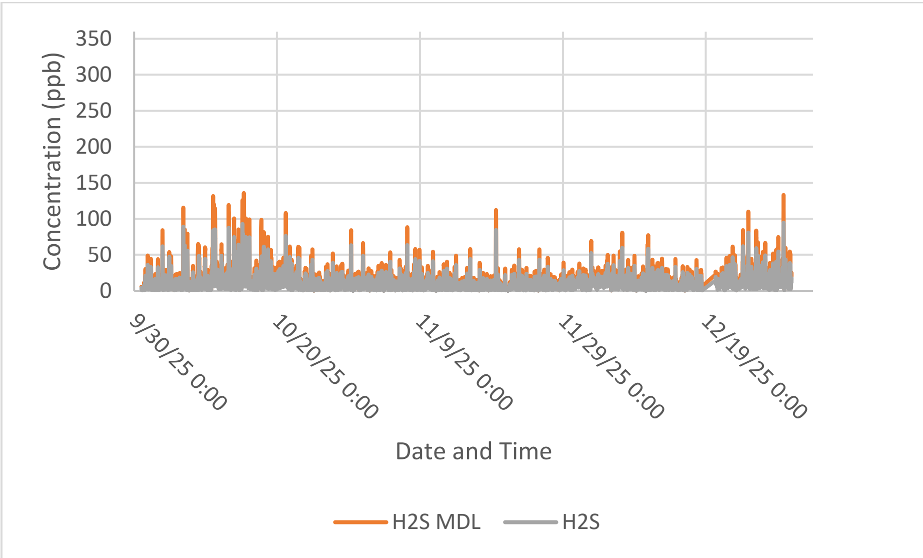

Figure 16. Timeseries of H2S Path 5

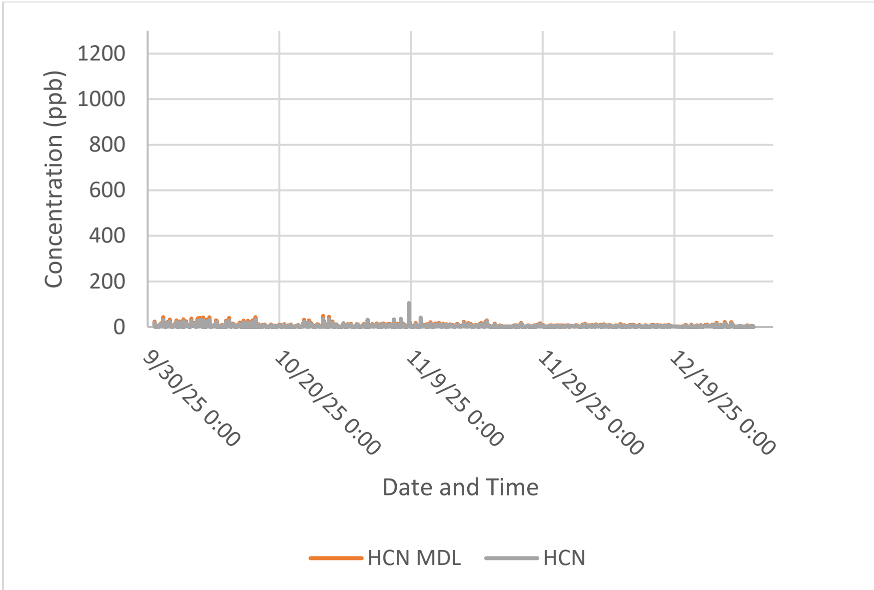

Figure 17. Timeseries of HCN Path 5

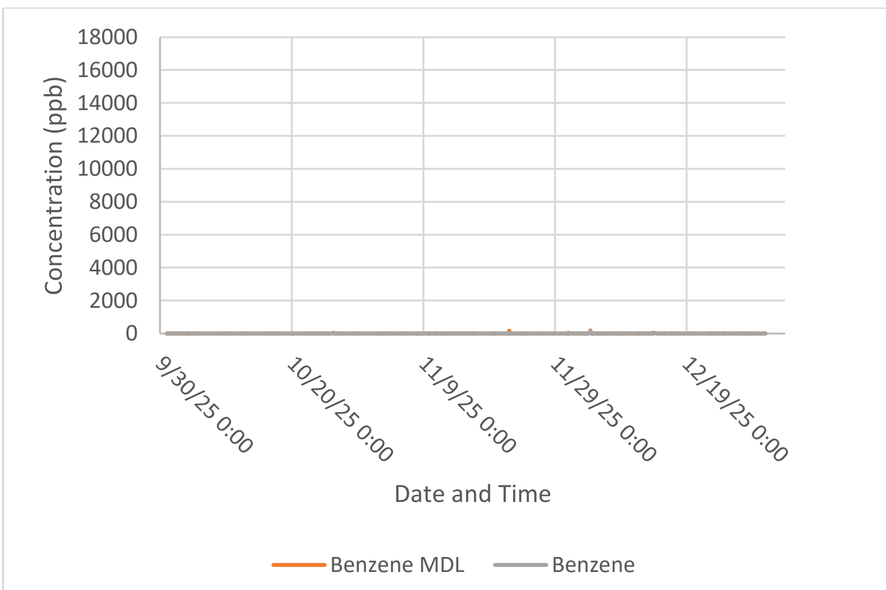

Figure 18. Timeseries of Benzene Path 6

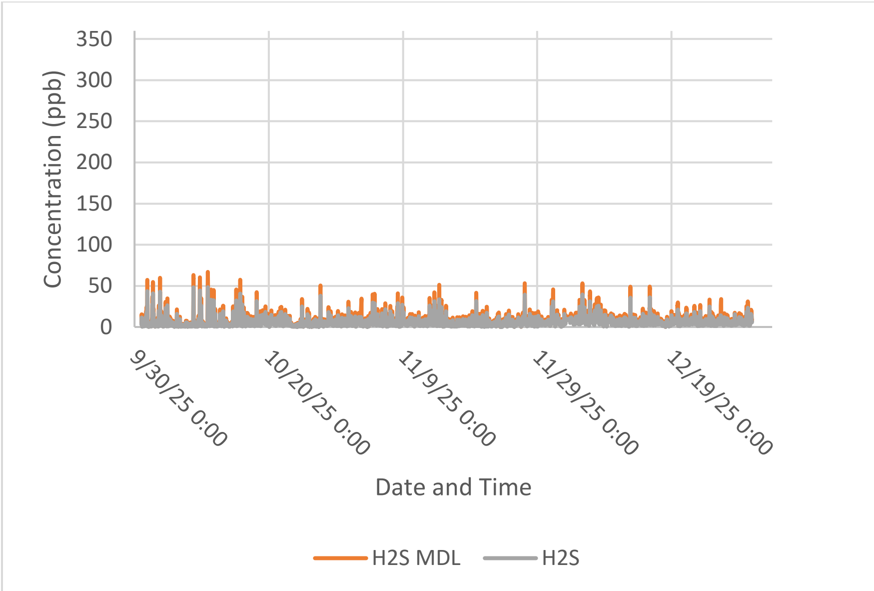

Figure 19. Timeseries of H2S Path 6

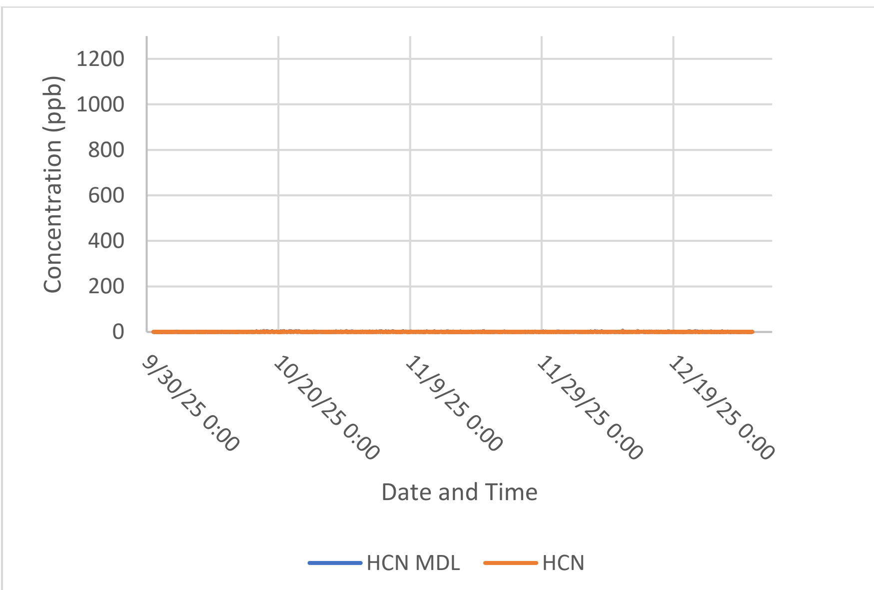

Figure 20. Timeseries of HCN Path 6

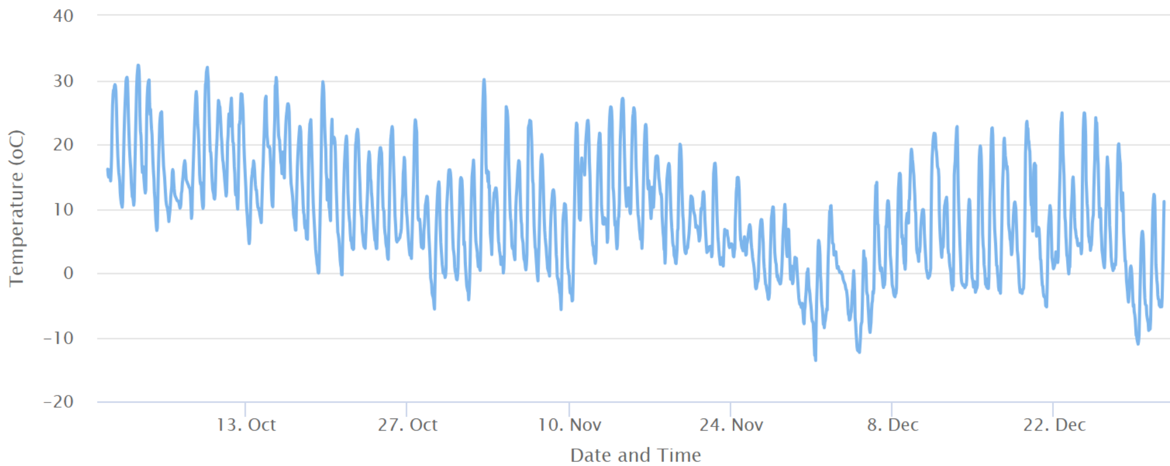

Figure 21. Temperature Timeseries (2025)

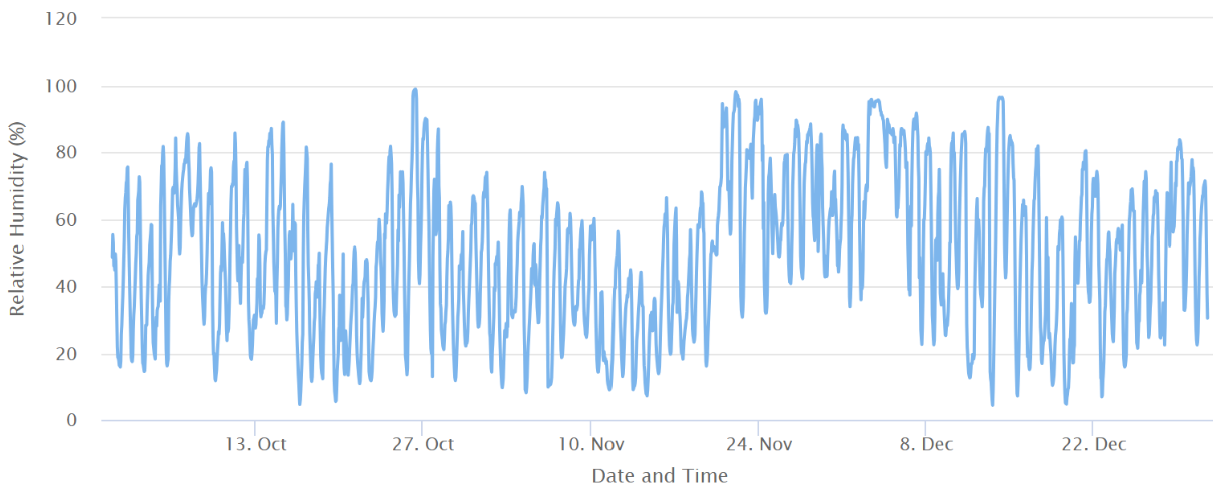

Figure 22. Relative Humidity Timeseries (2025)

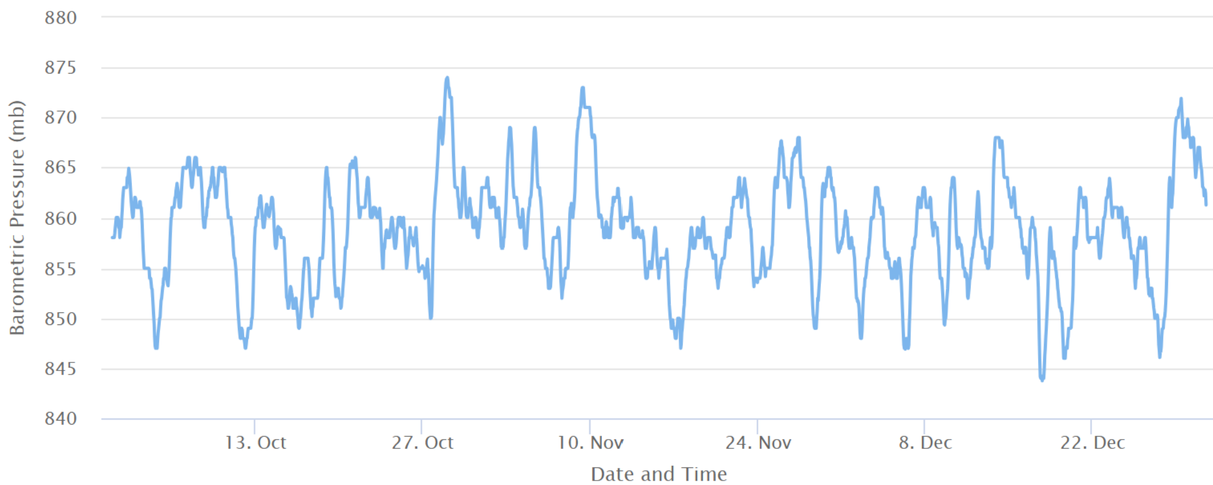

Figure 23. Barometric Pressure Timeseries (2025)

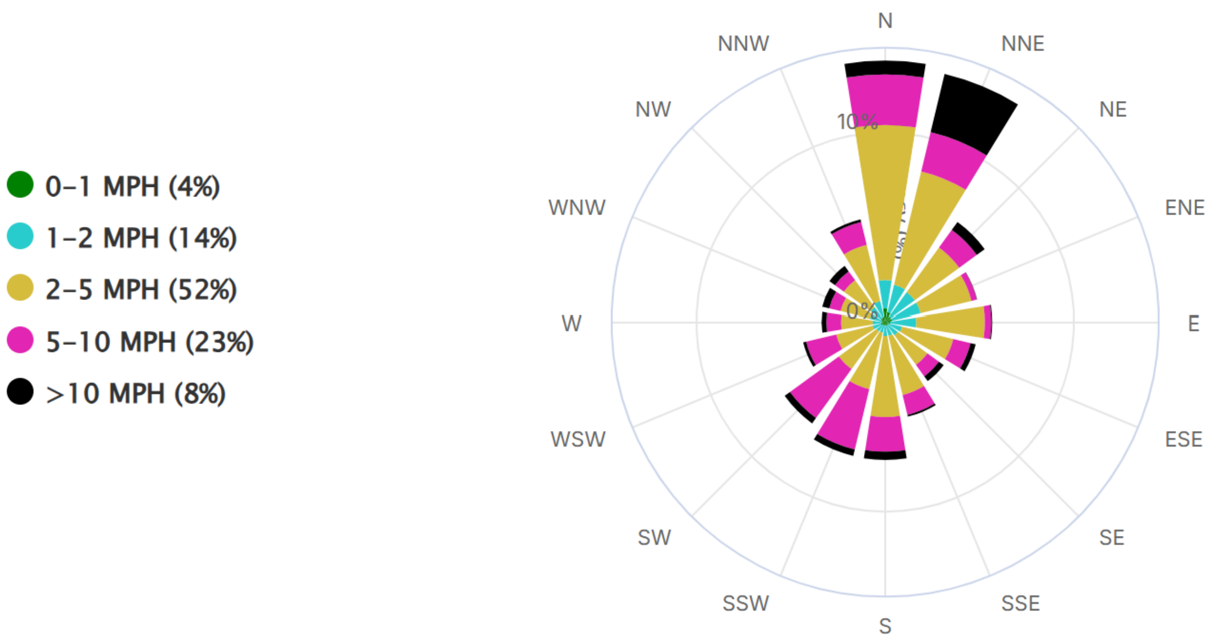

Figure 24. Wind Rose Plot

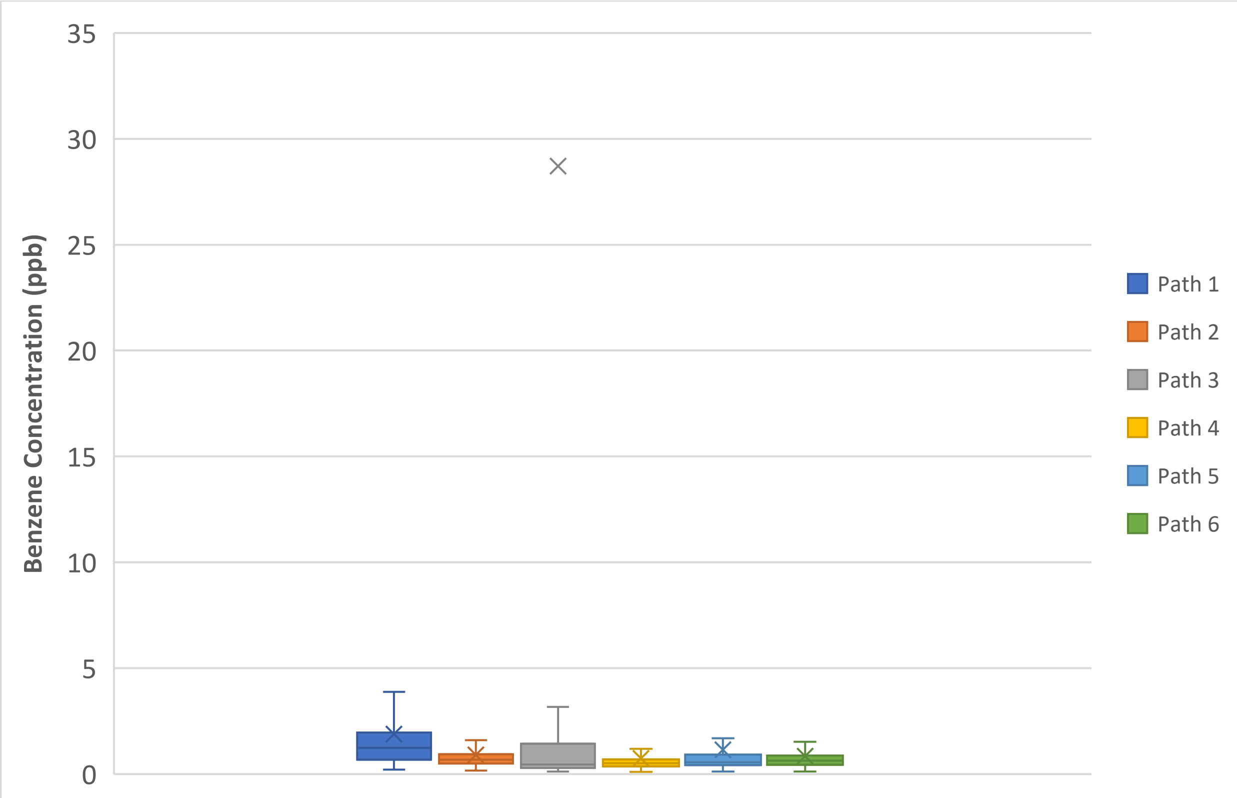

Figure 25. Benzene Box Plots for Paths 1 to 6.

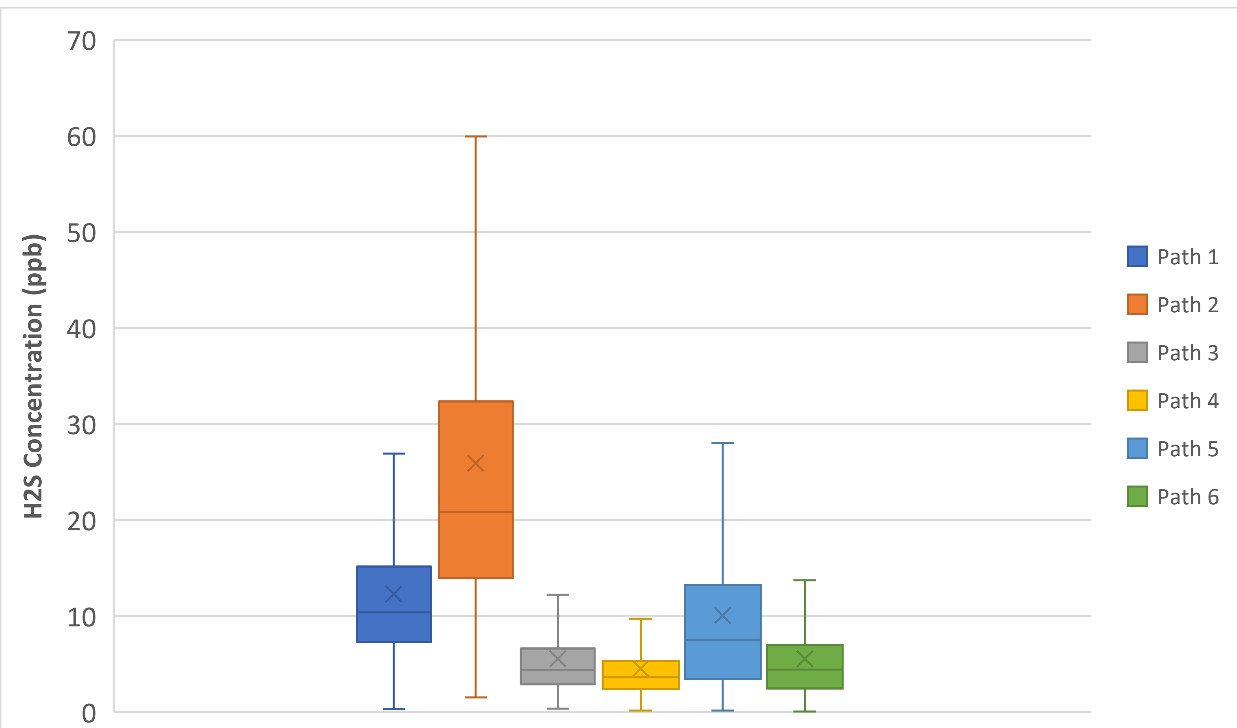

Figure 26. H_2S Box Plots for Paths 1 to 6.

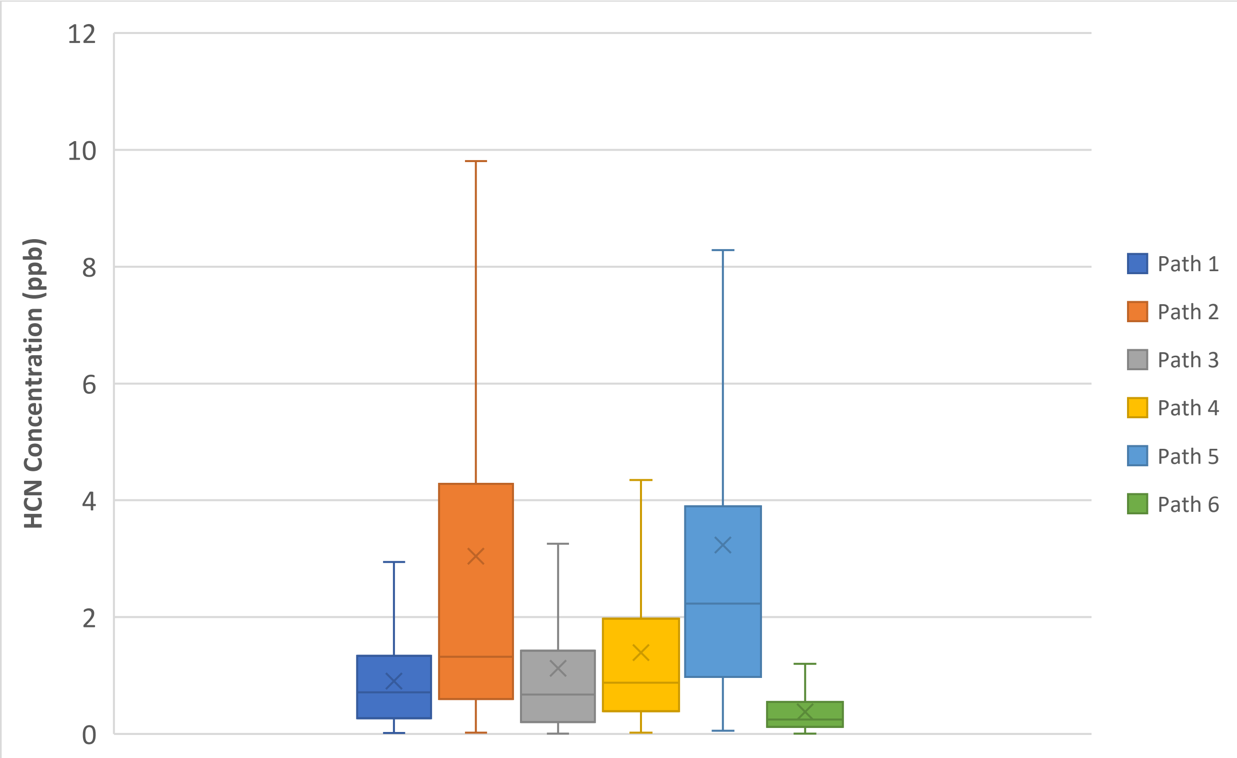

Figure 27. HCN Box Plots for Paths 1 to 6.

F. Discussion of Changes to Monitoring System, Operations and/or Procedures

Three main changes were performed to the fenceline monitoring plan procedures which are related with the automated QA/QC checks:

1. UV spectrometer temperature: the UV spectrometers were calibrated by the manufacturer at 35ºC instead of the 39ºC that the older models used to be calibrated at. Thus, for the automated QA/QC checks, we changed the acceptance criteria to accommodate the updated spectrometer calibration conditions.
2. TDL signal intensity: the manufacturer recommended to monitor the absolute detector power instead of the signal intensity. The reason was related to the fact that the laser signal intensity is affected by multiple instrument parameters (I/O Gain, Signal Gain, signal collimation etc.). Due to these interferences, the signal intensity values that are reported by the analyzer could potentially not be representative of the actual signal power that is measured by the detector. To avoid these issues, we replaced the “signal intensity” parameter on the automated QA/QC checks with the parameter “absolute detector power”. The criteria for the data to be considered valid is the absolute detector power to be >0.1 mA.
3. H2S MDL: For the purposes of the data validation, the H2S MDL threshold was increased from 25% to 50% of the alert threshold for Paths 2 and 5. This change was related to the fact that these two paths are shorter compared to the rest which causes them to have higher MDL values. The fenceline monitoring plan has been

updated to reflect those changes and has been submitted to the Division for review.

VI. Appendices

A. Appendix A: Calibration and QA/QC Data

Table 7. Verification Activities

Type of Verification	Path	Path Length[1]	Analyzer	Compound	Expected Concentration	Measured Concentration	Accuracy (%)	Precision (%)
Bump test	1	613	UVDOAS	Benzene	100	117	17.2	3
Bump test	1	613	UVDOAS	Benzene	200	235	17.5	3.8
Bump test	2	566	UVDOAS	Benzene	100	124	24.2	3.2
Bump test	2	566	UVDOAS	Benzene	200	226	12.9	0.7
Bump test	3	613	UVDOAS	Benzene	100	116	16.4	11.5
Bump test	3	613	UVDOAS	Benzene	200	231	15.6	3.9
Bump test	4	566	UVDOAS	Benzene	100	115	25.4	23.8
Bump test	4	566	UVDOAS	Benzene	200	237	18.5	4.5
Bump test	5	594	UVDOAS	Benzene	100	117	23.6	23.1
Bump test	5	594	UVDOAS	Benzene	200	195	2.5	3.5
Bump test	6	569	UVDOAS	Benzene	100	84	17.4	16.4
Bump test	6	569	UVDOAS	Benzene	200	227	15.3	11.9
Audit Module	1	1116	TDL	H2S	500 ppmm	425	15	6.4
Audit Module	1	1116	TDL	H2S	625 ppmm	580	8.5	8.5
Audit Module	2	566	TDL	H2S	500 ppmm	555	11	2.8
Audit Module	2	566	TDL	H2S	625 ppmm	534	14.6	0.5
Audit Module	3	1226	TDL	H2S	500 ppmm	500	7	8.2
Audit Module	3	1226	TDL	H2S	625 ppmm	503	19.5	1.6
Audit Module	4	1132	TDL	H2S	500 ppmm	616	23.1	2.9
Audit Module	4	1132	TDL	H2S	625 ppmm	551	11.9	2.1
Audit Module	5	594	TDL	H2S	500 ppmm	497	1.3	1.9
Audit Module	5	594	TDL	H2S	625 ppmm	568	9.2	2.2
Audit Module	6	1138	TDL	H2S	500 ppmm	461	7.8	1.8
Audit Module	6	1138	TDL	H2S	625 ppmm	550	11.9	0.9
Audit Module	1	1116	TDL	HCN	1010 ppmm	992	1.8	0.1
Audit Module	1	1116	TDL	HCN	420 ppmm	448	6.7	0.4
Audit Module	2	566	TDL	HCN	1010 ppmm	1004	0.6	0.2
Audit Module	2	566	TDL	HCN	420 ppmm	455	8.4	0.3
Audit Module	3	1226	TDL	HCN	1010 ppmm	1026	1.5	0.2
Audit Module	3	1226	TDL	HCN	420 ppmm	477	13.6	0.3
Audit Module	4	1132	TDL	HCN	1010 ppmm	1011	0.1	0.2
Audit Module	4	1132	TDL	HCN	420 ppmm	469	11.7	0.7
Audit Module	5	594	TDL	HCN	1010 ppmm	1001	0.9	0.3
Audit Module	5	594	TDL	HCN	420 ppmm	456	8.5	0.4
Audit Module	6	1138	TDL	HCN	1010 ppmm	1008	0.2	0.2
Audit Module	6	1138	TDL	HCN	420 ppmm	490	16.7	0.4

[1]path length in meters

Table 8: Percent Recovery for Meteorological Parameters

Parameter	Percent Data Recovery
Wind Speed	100%
Wind Direction	100%
Temperature	100%
Humidity	100%
Pressure	100%

B. Appendix B: Qualifier Codes

Table 9: List of Data Invalidation Codes

Qualifier Code	AQS Definition *(additional information added in parentheses)	Type or Related Action
AB	Technician Unavailable. **(use if this affects scheduled QA/QC or necessary maintenance)*	Null Data Qualifier
AD	Shelter Storm Damage.	Null Data Qualifier
AG	Sample Time out of Limits. **(e.g., use if integration time is out of manufacturer recommended range and signal intensity and MDL cannot meet the critical criteria mentioned in the FLMP)*	Null Data Qualifier
AI	Insufficient Data. (cannot calculate)	Null Data Qualifier
AL	Voided by Operator. **(e.g., Datum rejected by data validators)*	Null Data Qualifier
AM	Miscellaneous Void.	Null Data Qualifier
AN	Machine Malfunction **(can be used for issues such as an instrument being out of alignment, or an analyzer being offline due to connection problems or instrument failure)*	Null Data Qualifier
AO	Bad Weather. **(Use if weather impacts open-path instrument operation/function)*	Null Data Qualifier
AP	Vandalism. **(Use if vandalism impacts open-path instrument operation/function)*	Null Data Qualifier
AQ	Collection Error. **(use specifically for low analyzer signal events, or when a low analyzer signal prevents the reported data from meeting the critical criteria, while the calculated MDL is lower than 25% of notification threshold)*	Null Data Qualifier
AT	Calibration.	Null Data Qualifier
AU	Monitoring Waived.	Null Data Qualifier
AV	Power Failure.	Null Data Qualifier
AW	Wildlife Damage. **(Use if damage impacts open-path instrument operation/function)*	Null Data Qualifier
AX	Precision Check.	Null Data Qualifier
AY	QC Control Points (zero/span).	Null Data Qualifier
AZ	QC Audit.	Null Data Qualifier
BA	Maintenance/Routine Repairs.	Null Data Qualifier
BH	Interference/co-elution/misidentification.	Null Data Qualifier

BJ	Operator Error.	Null Data Qualifier
BK	Site computer/data logger down.	Null Data Qualifier
BL	QA Audit.	Null Data Qualifier
BM	Accuracy check.	Null Data Qualifier
DA	Aberrant Data (Corrupt Files, Spikes, Shifts).	Null Data Qualifier
DL	Detection Limit Analyses.	Null Data Qualifier
EC	Exceeds Critical Criteria. **(use when data exceeds critical criteria, such as for MDL)*	Null Data Qualifier
IA	African Dust. **(use for any dust event)*	Informational
IT	Wildfire-U.S. **(use for any wildfire event)*	Informational
J	Construction/Repairs in Area.	Informational
LJ	Identification of Analyte Is Acceptable; Reported Value Is An Estimate.	Quality Assurance Qualifier
MD	Value less than MDL.	Quality Assurance Qualifier
NS	Influenced by nearby sources. **(e.g., in the event of emissions influenced by nearby sources)*	Quality Assurance Qualifier
QP	Pressure Sensor Questionable. **(e.g., use if cell pressure is out of range, indicating malfunction)*	Quality Assurance Qualifier
QT	Temperature Sensor Questionable. **(e.g., use if cell temperature is out of range, indicating malfunction)*	Quality Assurance Qualifier
QV	Quality Control Multi-point Verification.	Null Data Qualifier
QX	Does not meet QC criteria. **(e.g., data exceeds automatic criteria for rejection)*	Quality Assurance Qualifier
SC	Sampler Contamination.	Null Data Qualifier
ST	Calibration Verification Standard.	Null Data Qualifier
TC	Component Check & Retention Time Standard. **(use this code for additional instrument checks, e.g., a robustness tests)*	Null Data Qualifier

C. Appendix C: Field Data Sheets

11:17 AM 10/7/2025 Montrose Onsite ML

Cleaned retro reflector path 1 tdl

Aligned TDL H2S path 2

11:33 AM 10/23/2025 Montrose Onsite ML

Aligned HCN path 1

Aligned H2S & HCN Path 2

12:34 PM 10/30/2025 MOntrose onsite CN

uv bulb replacement

11:30 AM 11/12/25 MONTROSE ONSITE CF

SWAPPED ARDUINO CABLE UV 2, NO SENSOR DATA

ISSUE NOT RESOLVED

12:45 11/20/25 montrose onsite CF

Swapped Arduino board & micro usb cable

resoved sensro datat issue

11:37 AM 11/25/25 Montroe Onsite ML

Aligned TDL HCN path 1

1:35 PM 12/10/25 Montrose Onsite ML CN

Quarterly Calibration UV path 1 & 2

9:32 AM 10/7/2025 Montrose Onsite ML

ALigned TDL H_2S & HCN path 4

11:26 AM 10/16/25 Montrose onsite CF

Aligned Path 3 H_2S & HCN, cleaned retro

All intruments on Path 4 blocked onsite by

facility storage container. No alignments/adjustments

made, retro cleaned.

10:03 AM 10/22/2025 Montrose Onsite ML

Aligned H_2S and HCN Path 3

10:35 AM 10/30/2025 Montrose Onsite CN

uv bulb replacements

11:30 AM 11/12/25 MONTROSE ONSITE CF

ALIGN PATH 4 UV

SWAP ARDUINO CABLE ON UV 5

9:56 AM 11/25/25 Montrose Onsite ML

Aligned H_2S path 4 TDL

11:33 AM 12/10/25 Montrose Onsite ML CN

Quarterly Calibration UV Path 3 & 4

Aligned TDL Path 4 HCN & H_2S

11:17 AM 10/23/2025 Montrose onsite

ML Aligned TDL PAth 5 H_2S & HCN

Aligned TDL path 6 H_2S & HCN

D. Appendix D: Non-Conformance/Corrective Action Data Sheets

Form Title: Non-Conformance Report	**Implementation Date:** February 07, 2024
Document Number:	**Form Owner (Department):** MAQS
Revision Number: R0	**Form Approval:** AHeitmann

Non-Conformance Report

Project: PROJ-062625	**Month: December 2025**

LOCATION/SITE: Goodrich Corporation, Pueblo,CO	**Parameter(s) Affected: H_2S and HCN Path 2**
Begin Date and Time (LST): December 19, 2025 at 10:30am	**End Date and Time (LST): Dec 29, 2025 at 10am**
Equipment: TDL Path 2	**S/N#: N/A**

Description of Malfunction or Problem: Make specific reference to Assignable Cause(s). All tests results should be documented on appropriate form(s).

Data stopped being collected due to high signal power

Investigative Actions: Describe Assignable Cause(s). Make specific reference to all dates, times and performance test results. All tests results should be documented on appropriate form(s).

I/O Gain was out of range.

Corrective Action Taken: Make specific reference to all dates, times and performance test results.

I/O Gain was set to normal range

Is Problem Fully Resolved? **Yes** _x___ **No** _____ If "NO", Describe Further Action Required: (File updated NC/CA Report when problem is fully resolved)

Additional Attachments or Information? **Yes** _____ **No**__x__ Client Notified? **Yes** __**No**___x__If so, **date**_______

Field Operator's Assessment of Data Status: (Check One)	☐ **Valid**	☐ **Suspect**	☒ **Invalid**

Additional notes on Data Validity Status: Data during this period was lost.

Originator's Signature: K.Liangou

QA Review: Aricia Boyd

E. Appendix E: Calibration verification forms

TDL Calibration Form

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/18/25

Instrument Model: H2S Path 1 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path separation(meters-one-way)	558 m
Compound (H2S/HCN)	H2S

Standard Information	
Compound External Audit Cell Concentration (PPMM)	500 PPMM

File #	**Compound Concentration (PPMM)**	**Measured Concentration (PPMM)**	**Error (% Reading)**
1	500	472	5.6
2	500	440	12
3	500	418	16.4
4	500	404	19.2
5	500	390	22
Averages	500	425	15

	Calculated Values	**Expected Values**
Overall Percent Precision	93.6%	**≥ 80%**
Overall Percent Error	15%	**≤ 30%**

TDL Calibration Form

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Notes:
Calibration verification passed.

Operator Signature(s): ______________________ Witness Signature(s): James Garrett

Montrose Air Quality Services
5120 Northshore Dr. North Little Rock, AR 72218
T: (501-)900-6400
www.montrose-env.com

TDL Calibration Form

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/18/2025

Instrument Model: H2S Path 1 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path separation(meters-one-way)	558 m
Compound (H2S/HCN)	H2S

Standard Information	
Compound External Audit Cell Concentration (PPMM)	625 PPMM

File #	**Compound Concentration (PPMM)**	**Measured Concentration (PPMM)**	**Error (% Reading)**
1	625	636	1.8
2	625	570	8.8
3	625	634	1.4
4	625	530	15
5	625	528	15
Averages	625	580	8.5

	Calculated Values	**Expected Values**
Overall Percent Precision	91.5 %	**≥ 80%**
Overall Percent Error	8.5%	**≤ 30%**

TDL Calibration Form

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Notes:
Calibration verification passed.

Operator Signature(s): ____________________ Witness Signature(s): James Garrett ____________________

TDL Calibration Form

Form Title: TDL Calibration Form
Document Number: 331AA-OPS-FM-15
Revision Number: Rev. 1
Implementation Date: August 8, 2024
Form Owner (Department): MAQS
Form Approval: Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/18/2025

Instrument Model: H2S Path 2 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path separation(meters-one-way)	283 m
Compound (H2S/HCN)	H2S

Standard Information	
Compound External Audit Cell Concentration (PPMM)	500 PPMM

File #	Compound Concentration (PPMM)	Measured Concentration (PPMM)	Error (% Reading)
1	500	566	13.2
2	500	562	12.4
3	500	564	12.8
4	500	550	10
5	500	532	6.4
Averages	500	555	11

	Calculated Values	Expected Values
Overall Percent Precision	97.2%	**≥ 80%**
Overall Percent Error	11%	**≤ 30%**

TDL Calibration Form

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Notes:
Calibration verification passed.

Operator Signature(s): ______________________ Witness Signature(s): James Garrett

TDL Calibration Form

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/18/2025

Instrument Model: H2S Path 2 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path separation(meters-one-way)	283 m
Compound (H2S/HCN)	H2S

Standard Information	
Compound External Audit Cell Concentration (PPMM)	625 PPMM

File #	Compound Concentration (PPMM)	Measured Concentration (PPMM)	Error (% Reading)
1	625	536	14.2
2	625	538	13.9
3	625	530	15.2
4	625	532	14.9
5	625	532	14.9
Averages	625	534	14.6

	Calculated Values	Expected Values
Overall Percent Precision	99.5	**≥ 80%**
Overall Percent Error	14.6	**≤ 30%**

TDL Calibration Form

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Notes:
Calibration verification passed.

Operator Signature(s): ____________________ Witness Signature(s): James Garrett

MONTROSE AIR QUALITY SERVICES

TDL Calibration Form

Form Title: TDL Calibration Form
Document Number: 331AA-OPS-FM-15
Revision Number: Rev. 1
Implementation Date: August 8, 2024
Form Owner (Department): MAQS
Form Approval: Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/18/25

Instrument Model: H2S Path 3 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path separation(meters-one-way)	613 m
Compound (H2S/HCN)	H2S

Standard Information	
Compound External Audit Cell Concentration (PPMM)	500 PPMM

File #	**Compound Concentration (PPMM)**	**Measured Concentration (PPMM)**	**Error (% Reading)**
1	500	452	9.6
2	500	462	7.6
3	500	520	4
4	500	522	4.4
5	500	546	9.2
Averages	500	500	7

	Calculated Values	**Expected Values**
Overall Percent Precision	91.8%	**≥ 80%**
Overall Percent Error	7%	**≤ 30%**

TDL Calibration Form

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Notes:
Calibration verification passed.

Operator Signature(s): ______________________ Witness Signature(s): James Garrett

TDL Calibration Form

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/18/2025

Instrument Model: H2S Path 3 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path separation(meters-one-way)	613 m
Compound (H2S/HCN)	H2S

Standard Information	
Compound External Audit Cell Concentration (PPMM)	625 PPMM

File #	Compound Concentration (PPMM)	Measured Concentration (PPMM)	Error (% Reading)
1	625	494	21
2	625	496	20.6
3	625	502	19.7
4	625	504	19.4
5	625	520	16.8
Averages	625	503	19.5

	Calculated Values	Expected Values
Overall Percent Precision	98.4 %	≥ 80%
Overall Percent Error	19.5 %	≤ 30%

TDL Calibration Form

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Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Notes:
Calibration verification passed.

Operator Signature(s): ____________________ Witness Signature(s): James Garrett

TDL Calibration Form

Form Title: TDL Calibration Form
Document Number: 331AA-OPS-FM-15
Revision Number: Rev. 1

Implementation Date: August 8, 2024
Form Owner (Department): MAQS
Form Approval: Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/18/25

Instrument Model: H2S Path 4 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path separation(meters-one-way)	566 m
Compound (H2S/HCN)	H2S

Standard Information	
Compound External Audit Cell Concentration (PPMM)	500 PPMM

File #	Compound Concentration (PPMM)	Measured Concentration (PPMM)	Error (% Reading)
1	500	620	24
2	500	596	19.2
3	500	606	21.2
4	500	624	24.8
5	500	632	26.4
Averages	500	616	23.1

	Calculated Values	Expected Values
Overall Percent Precision	97.1%	**≥ 80%**
Overall Percent Error	23.1%	**≤ 30%**

TDL Calibration Form

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Notes:
Calibration verification passed.

Operator Signature(s): ____________________ Witness Signature(s): James Garrett

TDL Calibration Form

Form Title: TDL Calibration Form
Document Number: 331AA-OPS-FM-15
Revision Number: Rev. 1
Implementation Date: August 8, 2024
Form Owner (Department): MAQS
Form Approval: Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/18/25

Instrument Model: H2S Path 4 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path separation(meters-one-way)	566 m
Compound (H2S/HCN)	H2S

Standard Information	
Compound External Audit Cell Concentration (PPMM)	625 PPMM

File #	Compound Concentration (PPMM)	Measured Concentration (PPMM)	Error (% Reading)
1	625	538	13.9
2	625	536	14.2
3	625	558	10.7
4	625	558	10.7
5	625	564	9.8
Averages	625	551	11.9

	Calculated Values	Expected Values
Overall Percent Precision	97.9%	**≥ 80%**
Overall Percent Error	11.9%	**≤ 30%**

TDL Calibration Form

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Notes:
Calibration verification passed.

Operator Signature(s): ________________________ Witness Signature(s): James Garrett

TDL Calibration Form

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Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/18/25

Instrument Model: H2S Path 5 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path separation(meters-one-way)	297 m
Compound (H2S/HCN)	H2S

Standard Information	
Compound External Audit Cell Concentration (PPMM)	500 PPMM

File #	**Compound Concentration (PPMM)**	**Measured Concentration (PPMM)**	**Error (% Reading)**
1	500	498	4
2	500	496	8
3	500	482	3.6
4	500	506	1.2
5	500	504	0.8
Averages	500	497	1.3

	Calculated Values	**Expected Values**
Overall Percent Precision	98.1%	**≥ 80%**
Overall Percent Error	1.3%	**≤ 30%**

TDL Calibration Form

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Notes:
Calibration verification passed.

Operator Signature(s): ______________________ Witness Signature(s): James Garrett

TDL Calibration Form

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/18/25

Instrument Model: H2S Path 5 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path separation(meters-one-way)	297 m
Compound (H2S/HCN)	H2S

Standard Information	
Compound External Audit Cell Concentration (PPMM)	625 PPMM

File #	**Compound Concentration (PPMM)**	**Measured Concentration (PPMM)**	**Error (% Reading)**
1	625	546	12.6
2	625	578	7.5
3	625	570	8.8
4	625	580	7.2
5	625	564	9.8
Averages	625	568	9.2

	Calculated Values	**Expected Values**
Overall Percent Precision	97.8%	**≥ 80%**
Overall Percent Error	9.2%	**≤ 30%**

TDL Calibration Form

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Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Notes:
Calibration verification passed.

Operator Signature(s): ______________________ Witness Signature(s): James Garrett

TDL Calibration Form

Form Title: TDL Calibration Form
Document Number: 331AA-OPS-FM-15
Revision Number: Rev. 1
Implementation Date: August 8, 2024
Form Owner (Department): MAQS
Form Approval: Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/18/25

Instrument Model: H2S Path 6 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path separation(meters-one-way)	569 m
Compound (H2S/HCN)	H2S

Standard Information	
Compound External Audit Cell Concentration (PPMM)	500 PPMM

File #	Compound Concentration (PPMM)	Measured Concentration (PPMM)	Error (% Reading)
1	500	476	4.8
2	500	456	8.8
3	500	454	9.2
4	500	458	8.4
5	500	462	7.6
Averages	500	461	7.8

	Calculated Values	Expected Values
Overall Percent Precision	98.2 %	**≥ 80%**
Overall Percent Error	7.8%	**≤ 30%**

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Notes:
Calibration verification passed.

Operator Signature(s): ______________ Witness Signature(s): James Garrett

TDL Calibration Form

Form Title: TDL Calibration Form
Document Number: 331AA-OPS-FM-15
Revision Number: Rev. 1
Implementation Date: August 8, 2024
Form Owner (Department): MAQS
Form Approval: Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/18/25

Instrument Model: H2S Path 6 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path separation(meters-one-way)	569 m
Compound (H2S/HCN)	H2S

Standard Information	
Compound External Audit Cell Concentration (PPMM)	625 PPMM

File #	Compound Concentration (PPMM)	Measured Concentration (PPMM)	Error (% Reading)
1	625	552	11.7
2	625	554	11.4
3	625	556	11
4	625	542	13.3
5	625	548	12.3
Averages	625	550	11.9

	Calculated Values	Expected Values
Overall Percent Precision	99.1%	≥ 80%
Overall Percent Error	11.9%	≤ 30%

TDL Calibration Form

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Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Notes:
Calibration verification passed.

Operator Signature(s): [signature] Witness Signature(s): James Garrett

TDL Calibration Form

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/18/25

Instrument Model: HCN Path 1 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path separation(meters-one-way)	558 m
Compound (H2S/HCN)	HCN

Standard Information	
Compound External Audit Cell Concentration (PPMM)	420 PPMM

File #	**Compound Concentration (PPMM)**	**Measured Concentration (PPMM)**	**Error (% Reading)**
1	420	450	7.1
2	420	450	7.1
3	420	448	6.7
4	420	448	6.7
5	420	446	6.2
Averages	420	448	6.7

	Calculated Values	**Expected Values**
Overall Percent Precision	99.6%	**≥ 80%**
Overall Percent Error	6.7%	**≤ 30%**

TDL Calibration Form

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
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Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Notes:
Calibration verification passed.

Operator Signature(s): ______________________ Witness Signature(s): James Garrett

TDL Calibration Form

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Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/18/25

Instrument Model: HCN Path 1 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path separation(meters-one-way)	558 m
Compound (H2S/HCN)	HCN

Standard Information	
Compound External Audit Cell Concentration (PPMM)	1010 PPMM

File #	**Compound Concentration (PPMM)**	**Measured Concentration (PPMM)**	**Error (% Reading)**
1	1010	990	2
2	1010	992	1.8
3	1010	992	1.8
4	1010	994	1.6
5	1010	992	1.8
Averages	1010	992	1.8

	Calculated Values	**Expected Values**
Overall Percent Precision	99.9%	**≥ 80%**
Overall Percent Error	1.8%	**≤ 30%**

TDL Calibration Form

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Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Notes:
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Operator Signature(s): ________________________ Witness Signature(s): James Garrett

TDL Calibration Form

Form Title: TDL Calibration Form
Document Number: 331AA-OPS-FM-15
Revision Number: Rev. 1
Implementation Date: August 8, 2024
Form Owner (Department): MAQS
Form Approval: Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/18/25

Instrument Model: HCN Path 2 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path separation(meters-one-way)	283 m
Compound (H2S/HCN)	HCN

Standard Information	
Compound External Audit Cell Concentration (PPMM)	420 PPMM

File #	Compound Concentration (PPMM)	Measured Concentration (PPMM)	Error (% Reading)
1	420	454	8.1
2	420	456	8.6
3	420	454	8.1
4	420	456	8.6
5	420	456	8.6
Averages	420	455	8.4

	Calculated Values	Expected Values
Overall Percent Precision	99.7%	≥ 80%
Overall Percent Error	8.4%	≤ 30%

TDL Calibration Form

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
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Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Notes:
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Operator Signature(s): ________________________ Witness Signature(s): James Garrett

TDL Calibration Form

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Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/18/25

Instrument Model: HCN Path 2 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path separation(meters-one-way)	283 m
Compound (H2S/HCN)	HCN

Standard Information	
Compound External Audit Cell Concentration (PPMM)	1010 PPMM

File #	Compound Concentration (PPMM)	Measured Concentration (PPMM)	Error (% Reading)
1	1010	1006	0.4
2	1010	1002	0.8
3	1010	1002	0.8
4	1010	1002	0.8
5	1010	1006	0.4
Averages	1010	1004	0.6

	Calculated Values	Expected Values
Overall Percent Precision	99.8%	**≥ 80%**
Overall Percent Error	0.6%	**≤ 30%**

TDL Calibration Form

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Notes:
Calibration verification passed.

Operator Signature(s): ______________ Witness Signature(s): James Garrett

Montrose Air Quality Services
5120 Northshore Dr. North Little Rock, AR 72218
T: (501-)900-6400
www.montrose-env.com

TDL Calibration Form

Form Title: TDL Calibration Form
Document Number: 331AA-OPS-FM-15
Revision Number: Rev. 1
Implementation Date: August 8, 2024
Form Owner (Department): MAQS
Form Approval: Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/18/25

Instrument Model: HCN Path 3 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path separation(meters-one-way)	613 m
Compound (H2S/HCN)	HCN

Standard Information	
Compound External Audit Cell Concentration (PPMM)	420 PPMM

File #	Compound Concentration (PPMM)	Measured Concentration (PPMM)	Error (% Reading)
1	420	478	13.8
2	420	478	13.8
3	420	476	13.3
4	420	476	13.3
5	420	478	13.8
Averages	420	477	13.6

	Calculated Values	Expected Values
Overall Percent Precision	99.7%	**≥ 80%**
Overall Percent Error	13.6%	**≤ 30%**

TDL Calibration Form

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Notes:
Calibration verification passed.

Operator Signature(s): ____________________ Witness Signature(s): James Garrett

TDL Calibration Form

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Revision Number: Rev. 1
Implementation Date: August 8, 2024
Form Owner (Department): MAQS
Form Approval: Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/18/25

Instrument Model: HCN Path 3 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path separation(meters-one-way)	613 m
Compound (H2S/HCN)	HCN

Standard Information	
Compound External Audit Cell Concentration (PPMM)	1010 PPMM

File #	Compound Concentration (PPMM)	Measured Concentration (PPMM)	Error (% Reading)
1	1010	1024	1.4
2	1010	1024	1.4
3	1010	1026	1.6
4	1010	1026	1.6
5	1010	1028	1.8
Averages	1010	1026	1.5

	Calculated Values	Expected Values
Overall Percent Precision	99.8%	**≥ 80%**
Overall Percent Error	1.5%	**≤ 30%**

TDL Calibration Form

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Notes:
Calibration verification passed.

Operator Signature(s): ______________________ Witness Signature(s): James Garrett

Montrose Air Quality Services
5120 Northshore Dr. North Little Rock, AR 72218
T: (501-)900-6400
www.montrose-env.com

TDL Calibration Form

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Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/18/25

Instrument Model: HCN Path 4 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path separation(meters-one-way)	566 m
Compound (H2S/HCN)	HCN

Standard Information	
Compound External Audit Cell Concentration (PPMM)	420 PPMM

File #	Compound Concentration (PPMM)	Measured Concentration (PPMM)	Error (% Reading)
1	420	470	11.9
2	420	470	11.9
3	420	470	11.9
4	420	472	12.4
5	420	464	10.5
Averages	420	469	11.7

	Calculated Values	Expected Values
Overall Percent Precision	99.3%	**≥ 80%**
Overall Percent Error	11.7%	**≤ 30%**

TDL Calibration Form

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Operator Signature(s): ______________________ Witness Signature(s): James Garrett

TDL Calibration Form

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Form Owner (Department): MAQS
Form Approval: Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/18/25

Instrument Model: HCN Path 4 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path separation(meters-one-way)	566 m
Compound (H2S/HCN)	HCN

Standard Information	
Compound External Audit Cell Concentration (PPMM)	1010 PPMM

File #	Compound Concentration (PPMM)	Measured Concentration (PPMM)	Error (% Reading)
1	1010	1010	0
2	1010	1010	0
3	1010	1010	0
4	1010	1014	0.4
5	1010	1010	0
Averages	1010	1011	0.1

	Calculated Values	Expected Values
Overall Percent Precision	99.8%	**≥ 80%**
Overall Percent Error	0.1%	**≤ 30%**

TDL Calibration Form

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
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Notes:
Calibration verification passed.

Operator Signature(s): ______________________ Witness Signature(s): James Garrett

TDL Calibration Form

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/24/25

Instrument Model: HCN Path 5 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path separation(meters-one-way)	297 m
Compound (H2S/HCN)	HCN

Standard Information	
Compound External Audit Cell Concentration (PPMM)	420 PPMM

File #	Compound Concentration (PPMM)	Measured Concentration (PPMM)	Error (% Reading)
1	420	456	8.6
2	420	456	8.6
3	420	454	8.1
4	420	454	8.1
5	420	458	9
Averages	420	456	8.5

	Calculated Values	Expected Values
Overall Percent Precision	99.6%	**≥ 80%**
Overall Percent Error	8.5%	**≤ 30%**

TDL Calibration Form

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
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Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Notes:
Calibration verification passed.

Operator Signature(s): ____________________ Witness Signature(s): James Garrett

TDL Calibration Form

Form Title: TDL Calibration Form
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Revision Number: Rev. 1
Implementation Date: August 8, 2024
Form Owner (Department): MAQS
Form Approval: Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/18/25

Instrument Model: HCN Path 5 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path separation(meters-one-way)	297 m
Compound (H2S/HCN)	HCN

Standard Information	
Compound External Audit Cell Concentration (PPMM)	1010 PPMM

File #	Compound Concentration (PPMM)	Measured Concentration (PPMM)	Error (% Reading)
1	1010	1002	0.8
2	1010	1002	0.8
3	1010	998	1.2
4	1010	1004	0.6
5	1010	998	1.2
Averages	1010	1001	0.9

	Calculated Values	Expected Values
Overall Percent Precision	99.7%	≥ 80%
Overall Percent Error	0.9%	≤ 30%

TDL Calibration Form

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
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Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Notes:
Calibration verification passed.

Operator Signature(s): ______________________ Witness Signature(s): James Garrett

TDL Calibration Form

Form Title: TDL Calibration Form
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Revision Number: Rev. 1

Implementation Date: August 8, 2024
Form Owner (Department): MAQS
Form Approval: Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/24/25

Instrument Model: HCN Path 6 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path separation(meters-one-way)	569 m
Compound (H2S/HCN)	HCN

Standard Information	
Compound External Audit Cell Concentration (PPMM)	420 PPMM

File #	Compound Concentration (PPMM)	Measured Concentration (PPMM)	Error (% Reading)
1	420	490	16.7
2	420	488	16.2
3	420	490	16.7
4	420	492	17.1
5	420	492	17.1
Averages	420	490	16.7

	Calculated Values	Expected Values
Overall Percent Precision	99.6%	≥ 80%
Overall Percent Error	16.7%	≤ 30%

TDL Calibration Form

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Notes:
Calibration verification passed.

Operator Signature(s): ________________________ Witness Signature(s): James Garrett

TDL Calibration Form

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/18/25

Instrument Model: HCN Path 6 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path separation(meters-one-way)	569 m
Compound (H2S/HCN)	HCN

Standard Information	
Compound External Audit Cell Concentration (PPMM)	1010 PPMM

File #	Compound Concentration (PPMM)	Measured Concentration (PPMM)	Error (% Reading)
1	1010	1010	0
2	1010	1006	0.4
3	1010	1008	0.2
4	1010	1008	0.2
5	1010	1010	0
Averages	1010	1008	0.2

	Calculated Values	Expected Values
Overall Percent Precision	99.8%	**≥ 80%**
Overall Percent Error	0.2 %	**≤ 30%**

TDL Calibration Form

Form Title: TDL Calibration Form	**Implementation Date:** August 8, 2024
Document Number: 331AA-OPS-FM-15	**Form Owner (Department):** MAQS
Revision Number: Rev. 1	**Form Approval:** Katia Liangou

Notes:
Calibration verification passed.

Operator Signature(s): ________________________ Witness Signature(s): James Garrett

UVDOAS Calibration Form

Form Title: UVDOAS Calibration Form	**Implementation Date:** July 10, 2024
Document Number: 331AA-OPS-FM-13	**Form Owner (Department):** MAQS
Revision Number: Rev. 0	**Form Approval:** Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/10/25

Instrument Model: UV Bi Path 1 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path Length (meters)	613 m/ 0.00235m
Maximum Intensity (%)	75
Integration Time (ms)	80

Standard Information	
Benzene Standard Concentration (PPM)	100

File #	Benzene Concentration (PPM)	Measured Concentration (PPM)	Error (%)
1	100	118	18
2	100	121	21
3	100	116	16
4	100	118	18
5	100	113	13
Averages	100	117	17.2

UVDOAS Calibration Form

Form Title: UVDOAS Calibration Form	**Implementation Date:** July 10, 2024
Document Number: 331AA-OPS-FM-13	**Form Owner (Department):** MAQS
Revision Number: Rev. 0	**Form Approval:** Katia Liangou

	Calculated Values	Expected Values
Overall Percent Precision	97	**≥ 75%**
Overall Percent Error	17.2	**≤ 30%**

Notes:
Calibration verification passed.

Operator's Signature .... Katia Liangou

Witness's Signature .... James Garrett

Form Title: UVDOAS Calibration Form
Document Number: 331AA-OPS-FM-13
Revision Number: Rev. 0
Implementation Date: July 10, 2024
Form Owner (Department): MAQS
Form Approval: Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/10/2025

Instrument Model: UV Bi Path 1 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path Length (meters)	613 m/ 0.0235m
Maximum Intensity (%)	75
Integration Time (ms)	80

Standard Information	
Benzene Standard Concentration (PPM)	200

File #	Benzene Concentration (PPM)	Measured Concentration (PPM)	Error (%)
1	200	228	14
2	200	239	19.5
3	200	239	19.5
4	200	226	13
5	200	243	21.5
Averages	200	235	17.5

Form Title: UVDOAS Calibration Form	**Implementation Date:** July 10, 2024
Document Number: 331AA-OPS-FM-13	**Form Owner (Department):** MAQS
Revision Number: Rev. 0	**Form Approval:** Katia Liangou

	Calculated Values	**Expected Values**
Overall Percent Precision	96.2	**≥ 75%**
Overall Percent Error	17.5	**≤ 30%**

Notes:
Calibration verification passed.

Operator's Signature Katia Liangou ……………………………………

Witness's Signature James Garrett ……………………………………

UVDOAS Calibration Form

Form Title: UVDOAS Calibration Form
Document Number: 331AA-OPS-FM-13
Revision Number: Rev. 0

Implementation Date: July 10, 2024
Form Owner (Department): MAQS
Form Approval: Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/10/25

Instrument Model: UV Mono Path 2 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path Length (meters)	566 m/ 0.047m
Maximum Intensity (%)	79
Integration Time (ms)	90

Standard Information	
Benzene Standard Concentration (PPM)	100

File #	**Benzene Concentration (PPM)**	**Measured Concentration (PPM)**	**Error (%)**
1	100	120	20
2	100	125	25
3	100	122	22
4	100	126	26
5	100	128	28
Averages	100	124	24.2

Form Title: UVDOAS Calibration Form	**Implementation Date:** July 10, 2024
Document Number: 331AA-OPS-FM-13	**Form Owner (Department):** MAQS
Revision Number: Rev. 0	**Form Approval:** Katia Liangou

	Calculated Values	**Expected Values**
Overall Percent Precision	96.8	**≥ 75%**
Overall Percent Error	24.2	**≤ 30%**

Notes:
Calibration verification passed.

Operator's Signature ...Katia Liangou...

Witness's Signature ...James Garrett...

Form Title: UVDOAS Calibration Form
Document Number: 331AA-OPS-FM-13
Revision Number: Rev. 0
Implementation Date: July 10, 2024
Form Owner (Department): MAQS
Form Approval: Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/10/25

Instrument Model: UV Mono Path 2 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path Length (meters)	566 m/ 0.047m
Maximum Intensity (%)	79
Integration Time (ms)	90

Standard Information	
Benzene Standard Concentration (PPM)	200

File #	Benzene Concentration (PPM)	Measured Concentration (PPM)	Error (%)
1	200	226	13
2	200	224	12
3	200	226	13
4	200	228	14
5	200	225	12.5
Averages	200	226	12.9

Form Title: UVDOAS Calibration Form	**Implementation Date:** July 10, 2024
Document Number: 331AA-OPS-FM-13	**Form Owner (Department):** MAQS
Revision Number: Rev. 0	**Form Approval:** Katia Liangou

	Calculated Values	**Expected Values**
Overall Percent Precision	99.3	**≥ 75%**
Overall Percent Error	12.9	**≤ 30%**

Notes:
Calibration verification passed.

Operator's Signature ....Katia Liangou....

Witness's Signature ....James Garrett....

UVDOAS Calibration Form

Form Title: UVDOAS Calibration Form
Document Number: 331AA-OPS-FM-13
Revision Number: Rev. 0

Implementation Date: July 10, 2024
Form Owner (Department): MAQS
Form Approval: Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/10/25

Instrument Model: UV Bi Path 3 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path Length (meters)	613 m/ 0.0235m
Maximum Intensity (%)	92
Integration Time (ms)	59

Standard Information	
Benzene Standard Concentration (PPM)	100

File #	Benzene Concentration (PPM)	Measured Concentration (PPM)	Error (%)
1	100	103	3
2	100	112	12
3	100	111	11
4	100	124	24
5	100	132	32
Averages	100	116	16.4

Form Title: UVDOAS Calibration Form
Document Number: 331AA-OPS-FM-13
Revision Number: Rev. 0
Implementation Date: July 10, 2024
Form Owner (Department): MAQS
Form Approval: Katia Liangou

	Calculated Values	Expected Values
Overall Percent Precision	88.5	**≥ 75%**
Overall Percent Error	16.4	**≤ 30%**

Notes:
Calibration verification passed.

Operator's Signature ....Katia Liangou........

Witness's Signature ....James Garrett........

UVDOAS Calibration Form

Form Title: UVDOAS Calibration Form
Document Number: 331AA-OPS-FM-13
Revision Number: Rev. 0
Implementation Date: July 10, 2024
Form Owner (Department): MAQS
Form Approval: Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/10/25

Instrument Model: UV Bi Path 3 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path Length (meters)	613 m/ 0.0235m
Maximum Intensity (%)	92
Integration Time (ms)	59

Standard Information	
Benzene Standard Concentration (PPM)	200

File #	Benzene Concentration (PPM)	Measured Concentration (PPM)	Error (%)
1	200	226	13
2	200	234	17
3	200	230	15
4	200	243	21.5
5	200	223	11.5
Averages	200	231	15.6

Form Title: UVDOAS Calibration Form	**Implementation Date:** July 10, 2024
Document Number: 331AA-OPS-FM-13	**Form Owner (Department):** MAQS
Revision Number: Rev. 0	**Form Approval:** Katia Liangou

	Calculated Values	**Expected Values**
Overall Percent Precision	96.1	**≥ 75%**
Overall Percent Error	15.6	**≤ 30%**

Notes:
Calibration verification passed.

Operator's Signature .... Katia Liangou

Witness's Signature .... James Garrett

UVDOAS Calibration Form

Form Title: UVDOAS Calibration Form
Document Number: 331AA-OPS-FM-13
Revision Number: Rev. 0

Implementation Date: July 10, 2024
Form Owner (Department): MAQS
Form Approval: Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/10/2025

Instrument Model: UV Bi Path 4 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path Length (meters)	566 m/ 0.0235m
Maximum Intensity (%)	89
Integration Time (ms)	31

Standard Information	
Benzene Standard Concentration (PPM)	100

File #	**Benzene Concentration (PPM)**	**Measured Concentration (PPM)**	**Error (%)**
1	100	75	25
2	100	114	14
3	100	127	27
4	100	135	35
5	100	126	26
Averages	100	115	25.4

Form Title: UVDOAS Calibration Form
Document Number: 331AA-OPS-FM-13
Revision Number: Rev. 0
Implementation Date: July 10, 2024
Form Owner (Department): MAQS
Form Approval: Katia Liangou

	Calculated Values	Expected Values
Overall Percent Precision	76.2	**≥ 75%**
Overall Percent Error	25.4	**≤ 30%**

Notes:
Calibration verification passed.

Operator's Signature ....Katia Liangou........

Witness's Signature ....James Garrett........

Form Title: UVDOAS Calibration Form	**Implementation Date:** July 10, 2024
Document Number: 331AA-OPS-FM-13	**Form Owner (Department):** MAQS
Revision Number: Rev. 0	**Form Approval:** Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/10/2025

Instrument Model: UV Bi Path 4 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path Length (meters)	566 m/ 0.0235m
Maximum Intensity (%)	89
Integration Time (ms)	31

Standard Information	
Benzene Standard Concentration (PPM)	200

File #	Benzene Concentration (PPM)	Measured Concentration (PPM)	Error (%)
1	200	245	22.5
2	200	224	12
3	200	231	15.5
4	200	243	21.5
5	200	242	21
Averages	200	237	18.5

Form Title: UVDOAS Calibration Form
Document Number: 331AA-OPS-FM-13
Revision Number: Rev. 0
Implementation Date: July 10, 2024
Form Owner (Department): MAQS
Form Approval: Katia Liangou

	Calculated Values	Expected Values
Overall Percent Precision	95.5	**≥ 75%**
Overall Percent Error	18.5	**≤ 30%**

Notes:
Calibration verification passed.

Operator's Signature ....Katia Liangou....

Witness's Signature ....James Garrett....

UVDOAS Calibration Form

Form Title: UVDOAS Calibration Form
Document Number: 331AA-OPS-FM-13
Revision Number: Rev. 0

Implementation Date: July 10, 2024
Form Owner (Department): MAQS
Form Approval: Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/10/25

Instrument Model: UV Mono Path 5 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path Length (meters)	594 m/ 0.047m
Maximum Intensity (%)	97
Integration Time (ms)	77

Standard Information	
Benzene Standard Concentration (PPM)	100

File #	Benzene Concentration (PPM)	Measured Concentration (PPM)	Error (%)
1	100	84	16
2	100	128	28
3	100	113	13
4	100	114	14
5	100	147	47
Averages	100	117	23.6

Form Title: UVDOAS Calibration Form	**Implementation Date:** July 10, 2024
Document Number: 331AA-OPS-FM-13	**Form Owner (Department):** MAQS
Revision Number: Rev. 0	**Form Approval:** Katia Liangou

	Calculated Values	Expected Values
Overall Percent Precision	76.9	**≥ 75%**
Overall Percent Error	23.6	**≤ 30%**

Notes:
Calibration verification passed.

Operator's Signature Katia Liangou ....

Witness's Signature James Garrett ....

Form Title: UVDOAS Calibration Form	**Implementation Date:** July 10, 2024
Document Number: 331AA-OPS-FM-13	**Form Owner (Department):** MAQS
Revision Number: Rev. 0	**Form Approval:** Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/10/25

Instrument Model: UV Mono Path 5 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path Length (meters)	594 m/ 0.047m
Maximum Intensity (%)	97
Integration Time (ms)	77

Standard Information	
Benzene Standard Concentration (PPM)	200

File #	Benzene Concentration (PPM)	Measured Concentration (PPM)	Error (%)
1	200	184	8
2	200	194	3
3	200	198	1
4	200	200	0
5	200	201	0.5
Averages	200	195	2.5

Form Title: UVDOAS Calibration Form
Document Number: 331AA-OPS-FM-13
Revision Number: Rev. 0

Implementation Date: July 10, 2024
Form Owner (Department): MAQS
Form Approval: Katia Liangou

	Calculated Values	Expected Values
Overall Percent Precision	96.5	**≥ 75%**
Overall Percent Error	2.5	**≤ 30%**

Notes:
Calibration verification passed.

Operator's Signature ……Katia Liangou……

Witness's Signature ……James Garrett……

Form Title: UVDOAS Calibration Form	**Implementation Date:** July 10, 2024
Document Number: 331AA-OPS-FM-13	**Form Owner (Department):** MAQS
Revision Number: Rev. 0	**Form Approval:** Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/10/25

Instrument Model: UV Bi Path 6 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path Length (meters)	569 m/ 0.0235m
Maximum Intensity (%)	98
Integration Time (ms)	50

Standard Information	
Benzene Standard Concentration (PPM)	100

File #	Benzene Concentration (PPM)	Measured Concentration (PPM)	Error (%)
1	100	99	1
2	100	79	21
3	100	68	32
4	100	104	4
5	100	71	29
Averages	100	84	17.4

Form Title: UVDOAS Calibration Form
Document Number: 331AA-OPS-FM-13
Revision Number: Rev. 0

Implementation Date: July 10, 2024
Form Owner (Department): MAQS
Form Approval: Katia Liangou

	Calculated Values	Expected Values
Overall Percent Precision	83.6	**≥ 75%**
Overall Percent Error	17.4	**≤ 30%**

Notes:
Calibration verification passed.

Operator's Signature ………………………………… Katia Liangou

Witness's Signature ………………………………… James Garrett

Form Title: UVDOAS Calibration Form
Document Number: 331AA-OPS-FM-13
Revision Number: Rev. 0
Implementation Date: July 10, 2024
Form Owner (Department): MAQS
Form Approval: Katia Liangou

Operator Name(s): Katia Liangou Test Date (YYYY/MM/DD): 12/10/25

Instrument Model: UV Bi Path 6 Instrument Serial Number: ____________________

Instrument Parameters	
Optical Path Length (meters)	569 m/ 0.0235m
Maximum Intensity (%)	98
Integration Time (ms)	50

Standard Information	
Benzene Standard Concentration (PPM)	200

File #	Benzene Concentration (PPM)	Measured Concentration (PPM)	Error (%)
1	200	216	8
2	200	234	17
3	200	249	24.5
4	200	191	4.5
5	200	245	22.5
Averages	200	227	15.3

Form Title: UVDOAS Calibration Form	**Implementation Date:** July 10, 2024
Document Number: 331AA-OPS-FM-13	**Form Owner (Department):** MAQS
Revision Number: Rev. 0	**Form Approval:** Katia Liangou

	Calculated Values	**Expected Values**
Overall Percent Precision	88.1	**≥ 75%**
Overall Percent Error	15.3	**≤ 30%**

Notes:
Calibration verification passed.

Operator's Signature .... Katia Liangou

Witness's Signature .... James Garrett