Quarterly Report for Goodrich Corporation Fenceline Monitoring Plan-Q3 2025

Prepared For:
Goodrich Corporation
50 William White Blvd
Pueblo, CO 81001

Prepared By:
Montrose Air Quality Services, LLC
5270 Joyce Dr. Unit B
Golden, CO 80403

For Submission To:
Colorado Department of Public Health and Environment
4300 Cherry Creek S Dr.
Denver, Colorado 80246

Document Number: 317AA-057122-RT-1066
Submittal Date: October 24, 2025

MONTROSE
AIR QUALITY SERVICES

Table of Contents

Table of Figures

Table of Tables

I. Goodrich Corporation Fenceline Monitoring Plan Quarterly Report - Q3 2025

II. Executive Summary

This report summarizes the findings related to the Goodrich Corporation fenceline monitoring plan during the period of July 1st of 2025 to September 30th of 2025 (Q3 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

For any questions related to this report please contact:
-David Andreaccio (David.Andreaccio@collins.com) and
-Michael Young (Michael.Young@collins.com)

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.

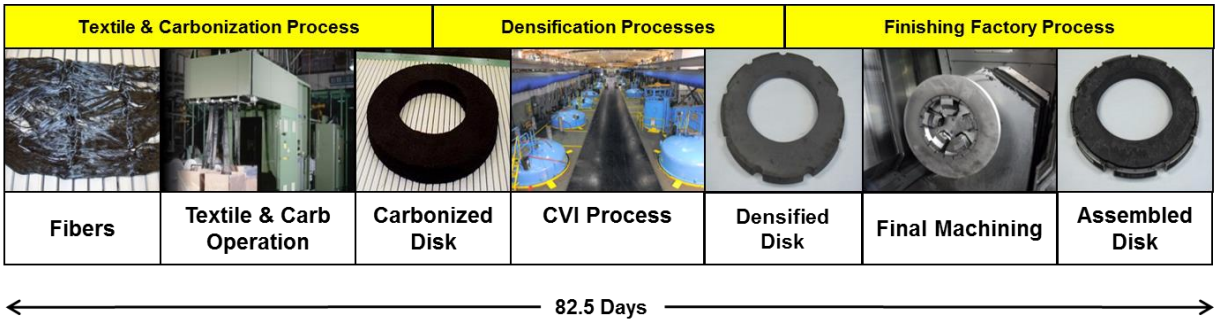

Figure 1. The Goodrich Carbon Brake Manufacturing Process

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 process 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 or 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 achieving 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 utilizing 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 real time measurements continuously. 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 updated every five minutes.

[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 number. Path numbers 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.

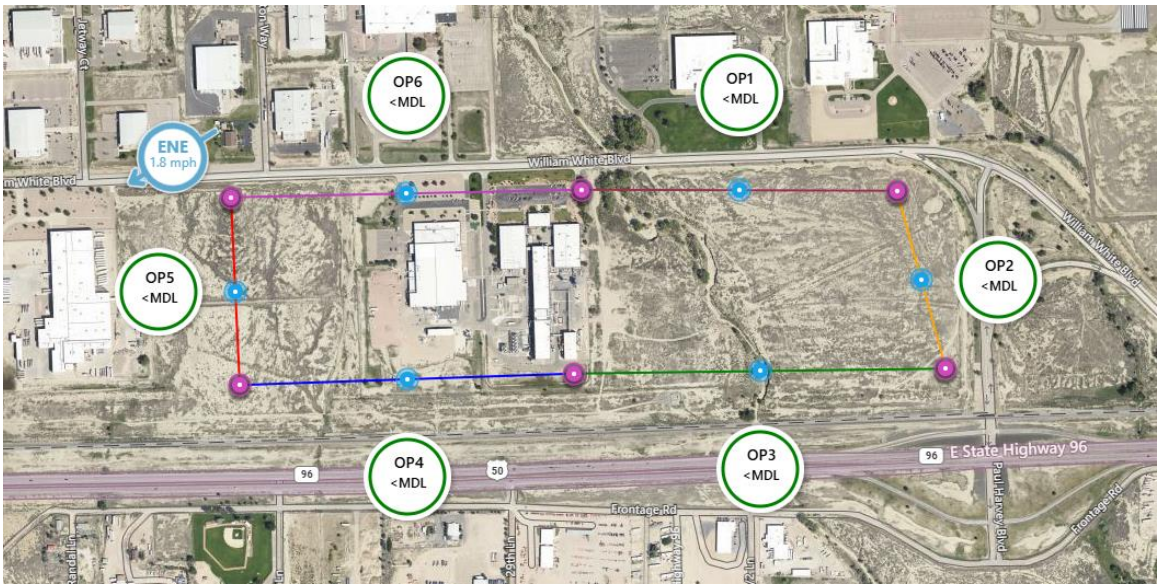

Figure 2. Approximate Layout of the Goodrich Corporation FLMP

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 Exceedances[1]	0th[2]	25th[2]	50th[2]	75th[2]	100th[2]	Avg	Pct Detect[3]	Pct Valid[4]	Median 1hr DL[5]
Jul-25	1	Benzene	0	0.1	0.3	0.6	1.0	3.6	0.7	0.00%	100.00%	0.8
Aug-25	1	Benzene	0	0.2	0.4	0.6	1.1	331.2	1.0	0.00%	99.41%	0.8
Sep-25	1	Benzene	0	0.1	0.7	1.1	1.5	4.9	1.2	0.00%	98.89%	1.5
Jul-25	1	H2S	0	1.6	9.9	14.6	22.4	70.2	17.4	1.20%	88.15%	20.8
Aug-25	1	H2S	0	0.4	10.0	16.2	23.5	57.1	17.9	0.84%	89.63%	23.1
Sep-25	1	H2S	0	2.4	9.9	16.2	25.8	60.3	19.0	1.00%	84.60%	23.2
Jul-25	1	HCN	0	0.0	0.1	0.1	0.3	2.4	0.2	0.00%	88.15%	0.2
Aug-25	1	HCN	0	0.0	0.1	0.1	0.3	1.4	0.2	0.00%	89.63%	0.1
Sep-25	1	HCN	0	0.0	0.1	0.1	0.3	1.6	0.2	0.00%	84.60%	0.2
Jul-25	2	Benzene	0	0.2	0.4	0.5	0.8	6.5	0.6	0.10%	99.89%	0.7
Aug-25	2	Benzene	0	0.2	0.5	0.7	1.1	28.7	1.0	0.03%	99.15%	1.0
Sep-25	2	Benzene	0	0.2	0.5	0.7	0.9	3.5	0.8	0.00%	98.89%	1.0
Jul-25	2	H2S	0	1.4	13.1	20.4	34.3	117.4	27.2	0.90%	89.44%	29.0
Aug-25	2	H2S	0	1.9	16.3	25.7	43.7	132.5	32.3	2.11%	84.55%	36.6
Sep-25	2	H2S	0	1.3	16.6	25.2	41.0	143.0	31.3	2.77%	83.33%	35.6
Jul-25	2	HCN	0	0.0	0.3	0.6	1.0	4.3	0.8	0.00%	98.73%	0.8
Aug-25	2	HCN	0	0.0	0.3	0.5	0.9	4.5	0.7	0.11%	99.24%	0.7
Sep-25	2	HCN	0	0.0	0.3	0.4	0.8	5.6	0.7	0.00%	99.47%	0.6
Jul-25	3	Benzene	0	0.1	0.3	0.4	0.5	3.1	0.5	0.00%	99.47%	0.6
Aug-25	3	Benzene	0	0.2	0.3	0.5	0.6	42.8	0.7	0.12%	99.43%	0.6
Sep-25	3	Benzene	0	0.1	0.4	0.5	0.7	6.9	0.6	0.00%	98.90%	0.7
Jul-25	3	H2S	0	0.5	4.8	9.8	15.9	55.5	11.5	0.00%	91.74%	14.0
Aug-25	3	H2S	0	0.4	3.7	8.1	17.0	58.5	11.6	0.25%	97.36%	11.6

Sep-25	3	H2S	0	0.2	2.6	4.4	8.7	43.2	6.8	0.45%	98.35%	6.3
Jul-25	3	HCN	0	0.0	0.0	0.1	0.3	5.7	0.2	0.00%	95.80%	0.1
Aug-25	3	HCN	0	0.0	0.0	0.1	0.4	3.5	0.3	0.06%	98.82%	0.1
Sep-25	3	HCN	0	0.0	0.0	0.1	0.3	3.3	0.2	0.00%	99.05%	0.2
Jul-25	4	Benzene	0	0.1	0.2	0.3	0.4	127.8	0.4	0.00%	98.91%	0.5
Aug-25	4	Benzene	0	0.1	0.2	0.3	0.4	7.3	0.4	0.00%	99.54%	0.5
Sep-25	4	Benzene	0	0.1	0.2	0.3	0.4	5.4	0.4	0.00%	98.89%	0.5
Jul-25	4	H2S	0	0.3	5.1	11.0	20.0	56.9	13.8	0.20%	90.13%	15.8
Aug-25	4	H2S	0	0.2	4.8	9.4	16.9	55.7	12.0	0.23%	92.58%	13.5
Sep-25	4	H2S	0	0.1	2.6	4.7	8.0	49.4	6.5	0.06%	97.73%	6.7
Jul-25	4	HCN	0	0.0	0.1	0.2	0.2	12.6	0.3	0.31%	90.62%	0.2
Aug-25	4	HCN	0	0.0	0.1	0.2	0.3	4.6	0.2	0.00%	98.49%	0.2
Sep-25	4	HCN	0	0.0	0.1	0.2	0.4	7.9	0.3	0.28%	98.99%	0.3
Jul-25	5	Benzene	0	0.2	0.4	0.5	0.8	4.9	0.6	0.00%	99.60%	0.8
Aug-25	5	Benzene	0	0.2	0.5	0.7	0.9	15.4	0.8	0.00%	99.55%	1.0
Sep-25	5	Benzene	0	0.1	0.5	0.7	1.0	5.4	0.9	0.00%	98.22%	1.0
Jul-25	5	H2S	0	0.6	10.1	21.3	39.0	116.3	27.1	0.97%	93.67%	30.0
Aug-25	5	H2S	0	1.0	10.4	20.3	37.1	154.2	27.2	2.75%	89.63%	28.1
Sep-25	5	H2S	0	0.4	5.2	11.6	24.4	104.4	17.4	0.49%	97.49%	16.5
Jul-25	5	HCN	0	0.0	0.2	0.4	0.8	40.2	1.3	0.91%	98.14%	0.6
Aug-25	5	HCN	0	0.0	0.2	0.4	0.7	30.7	0.9	0.10%	94.23%	0.5
Sep-25	5	HCN	0	0.1	0.4	1.1	3.7	41.7	3.6	1.36%	99.50%	1.5
Jul-25	6	Benzene	0	0.1	0.3	0.5	0.7	3.4	0.6	0.30%	99.57%	0.7
Aug-25	6	Benzene	0	0.2	0.4	0.6	0.8	19.0	0.7	0.11%	99.13%	0.8
Sep-25	6	Benzene	0	0.2	0.5	0.7	0.9	2.5	0.7	0.18%	98.89%	1.0
Jul-25	6	H2S	0	0.0	0.0	0.0	0.6	33.8	0.8	1.03%	62.21%	0.1
Aug-25	6	H2S	0	0.0	0.0	0.0	0.9	17.2	0.9	1.47%	94.23%	0.0
Sep-25	6	H2S	0	0.0	0.0	0.0	0.1	15.8	0.4	0.53%	97.46%	0.0
Jul-25	6	HCN	0	0.0	0.0	0.0	0.1	1.8	0.1	0.02%	67.16%	0.1
Aug-25	6	HCN	0	0.0	0.0	0.1	0.1	1.6	0.1	0.01%	99.12%	0.1
Sep-25	6	HCN	0	0.0	0.1	0.1	0.2	1.3	0.2	0.00%	99.47%	0.1

[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_Q3 2025”. All 5min 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 6 for the period of July 2025 with an average valid data percentage of approximately 65%. The higher invalidation rate is related to the higher MDLs that 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 Q3 of 2025 for any of the compounds. For benzene the average median MDL value was around 0.8 ppb, for H2S the average median MDL value was approximately 17.3 ppb, and for HCN the corresponding average median MDL was around 0.4 ppb.

E. Summary Plots

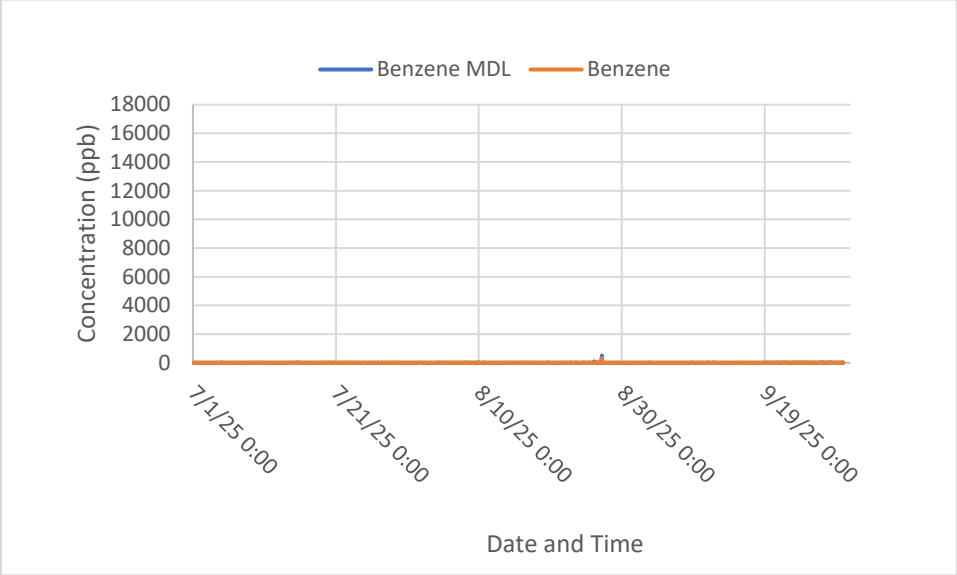

Figure 3. Timeseries of Benzene Path 1

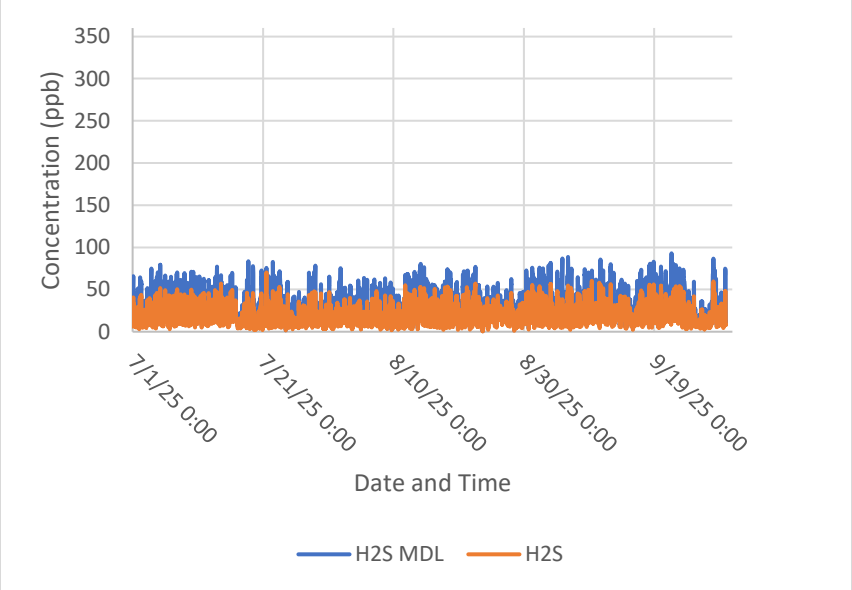

Figure 4. Timeseries of H_2S Path 1

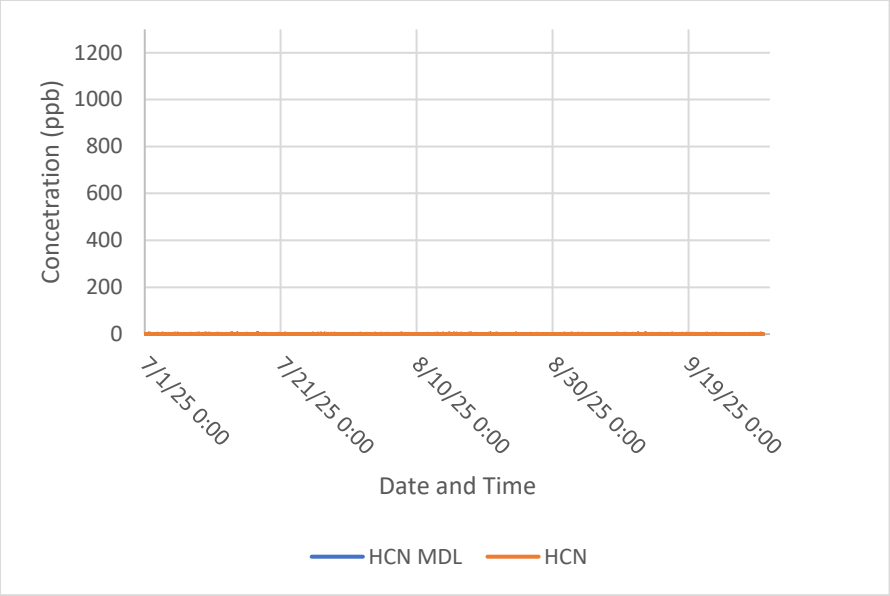

Figure 5. Timeseries of HCN Path 1

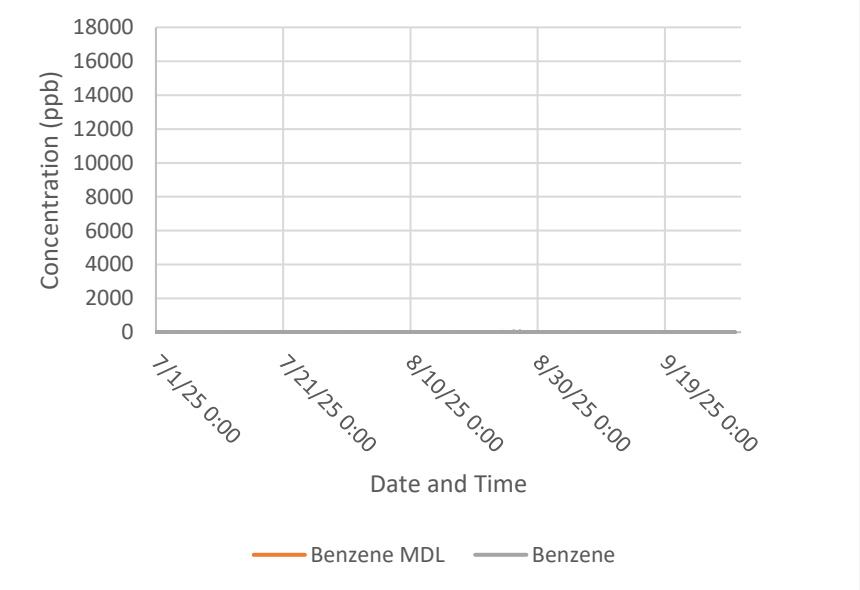

Figure 6. Timeseries of Benzene Path 2

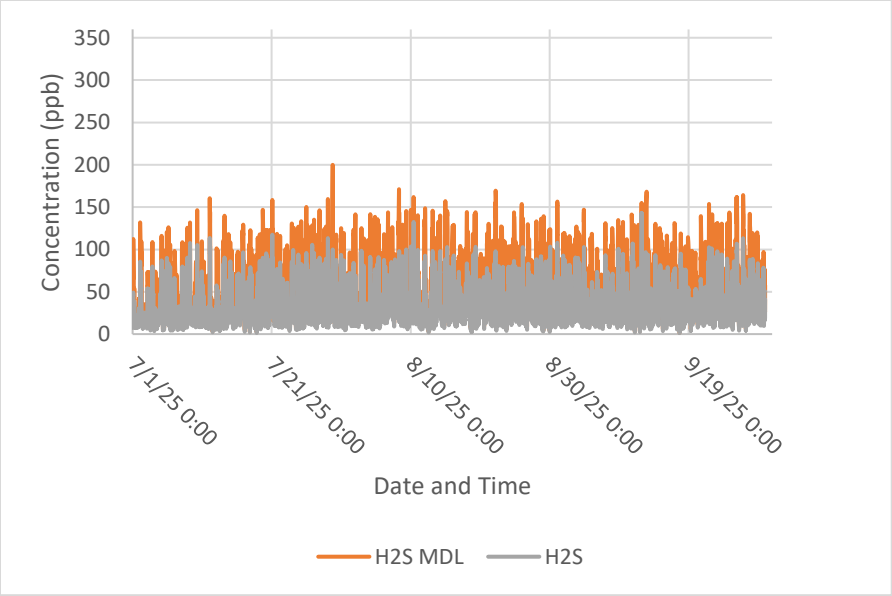

Figure 7. Timeseries of H_2S Path 2

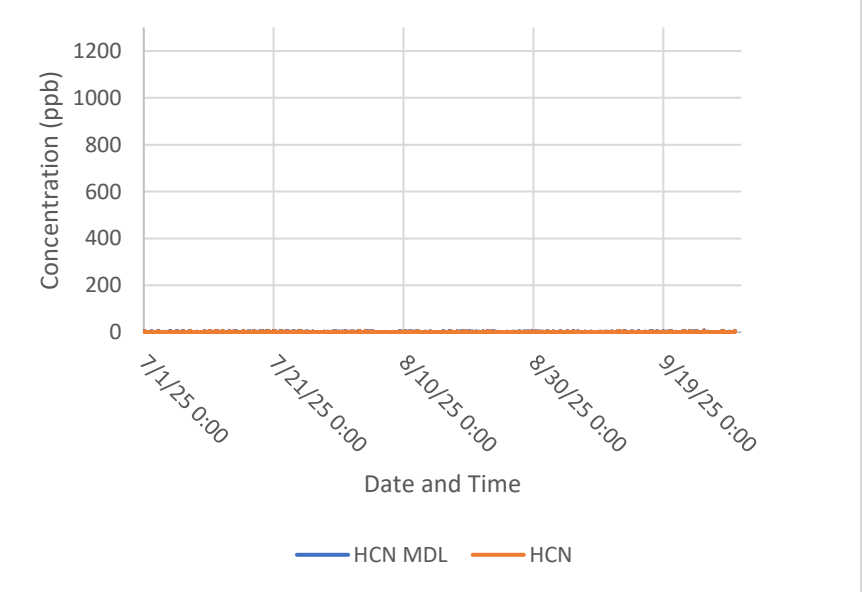

Figure 8. Timeseries of HCN Path 2

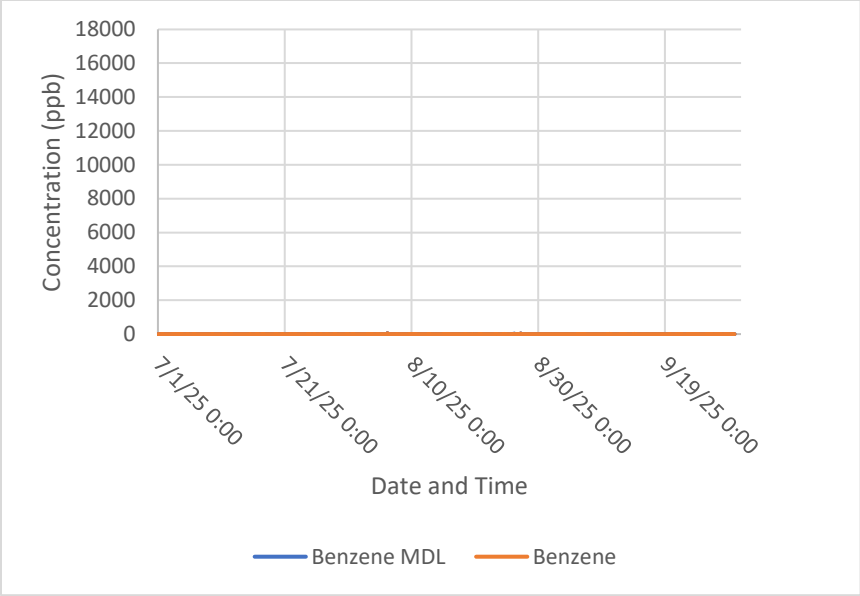

Figure 9. Timeseries of Benzene Path 3

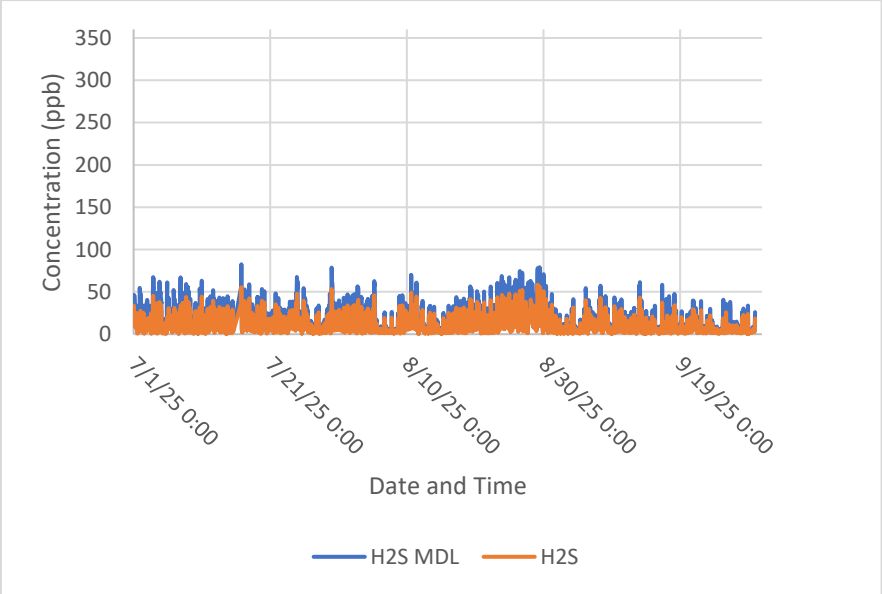

Figure 10. Timeseries of H2S Path 3

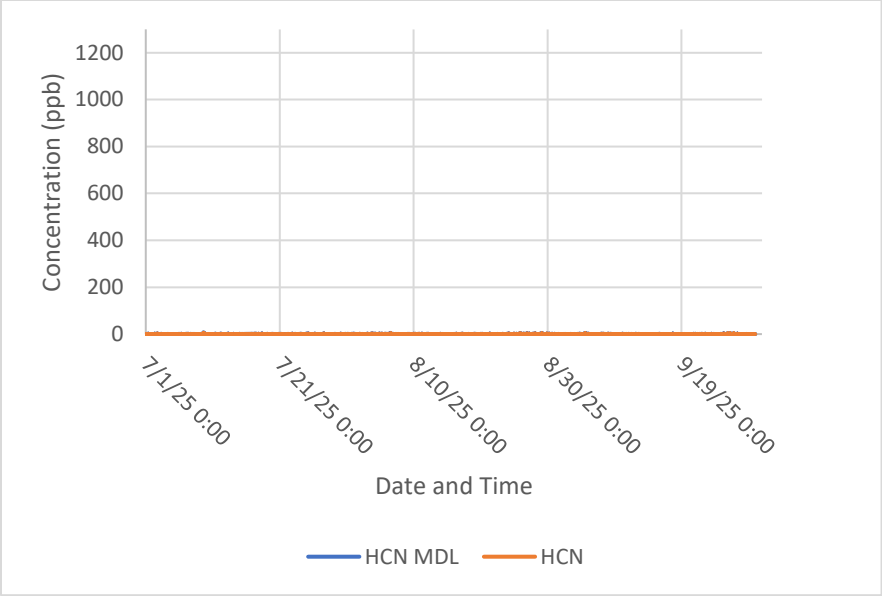

Figure 11. Timeseries of HCN Path 3

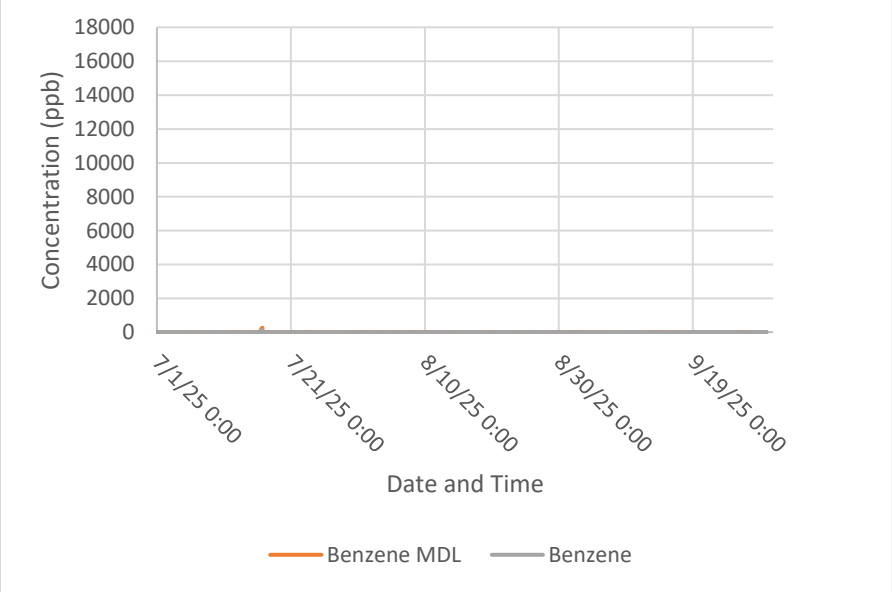

Figure 12. Timeseries of Benzene Path 4

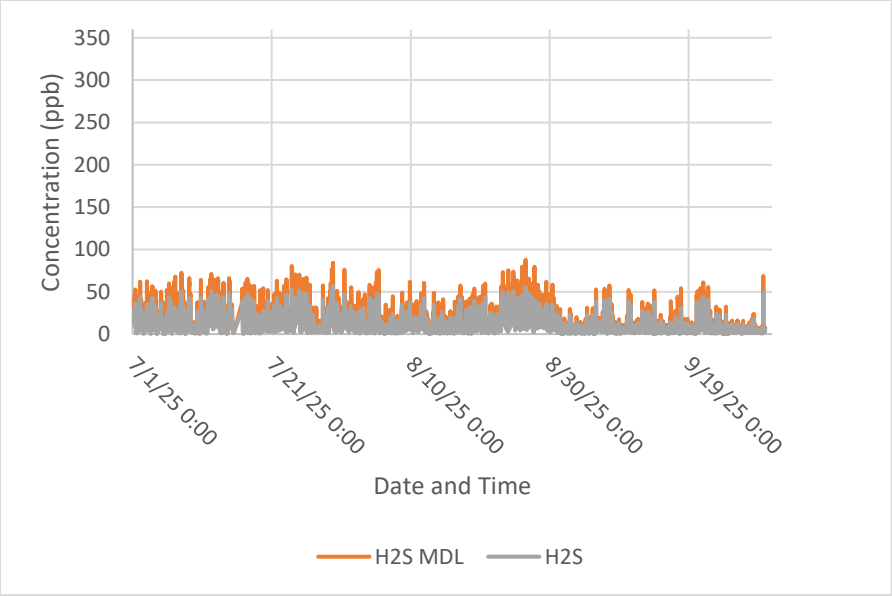

Figure 13. Timeseries of H2S Path 4

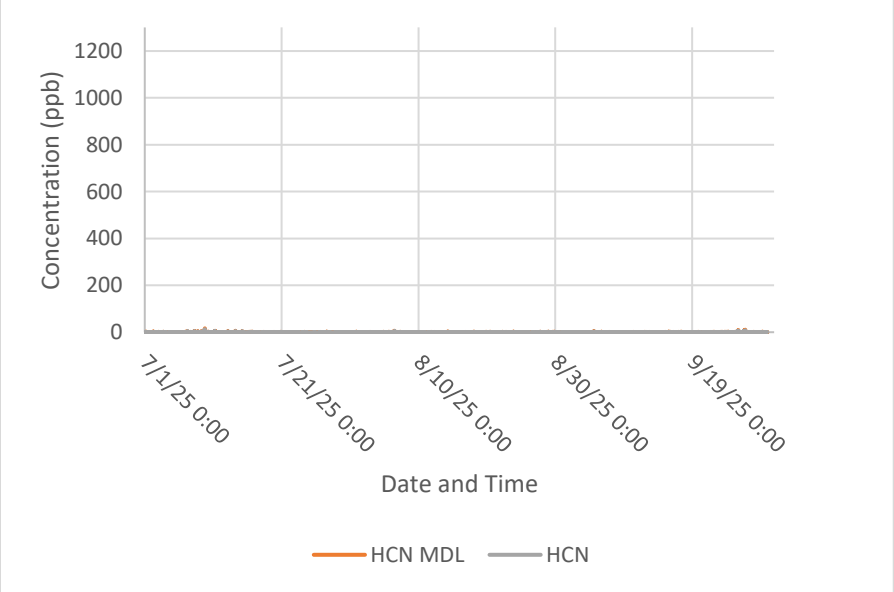

Figure 14. Timeseries of HCN Path 4

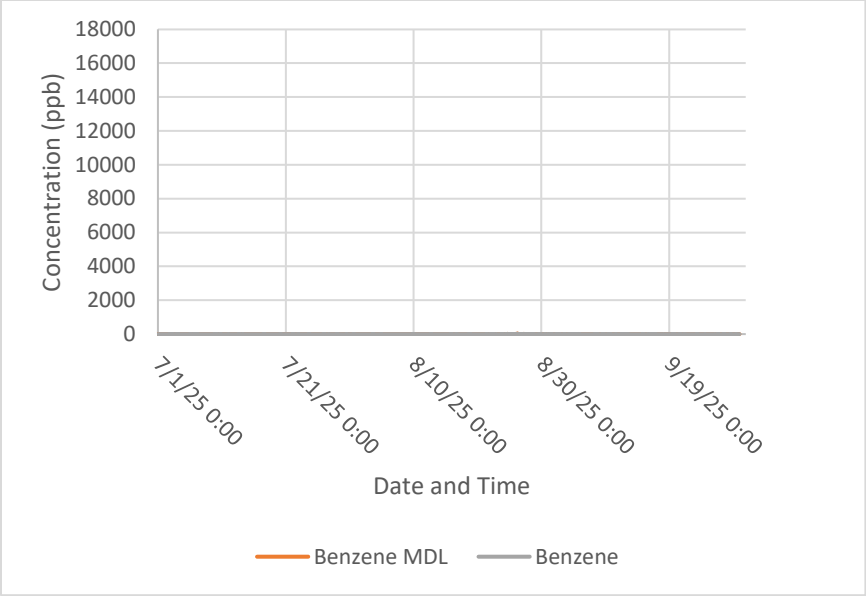

Figure 15. Timeseries of Benzene Path 5

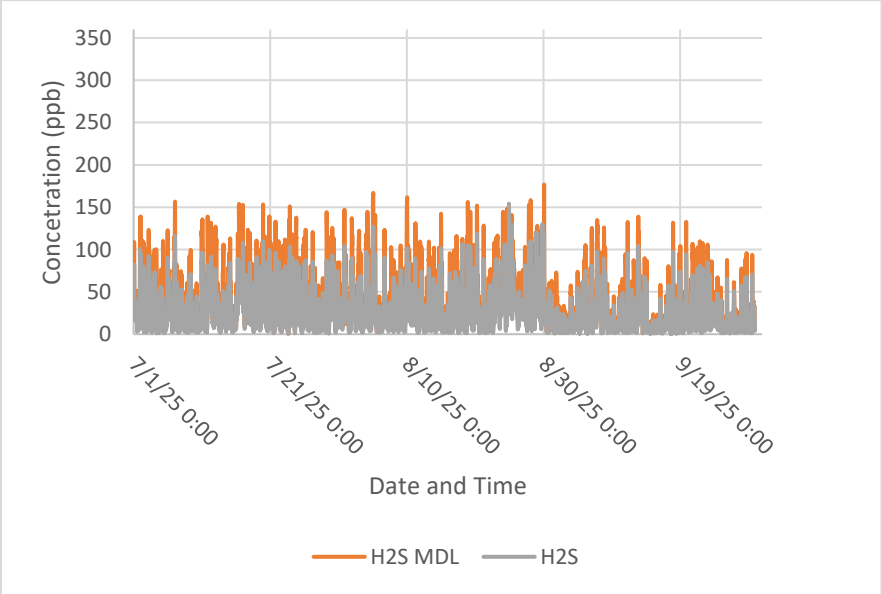

Figure 16. Timeseries of H2S Path 5

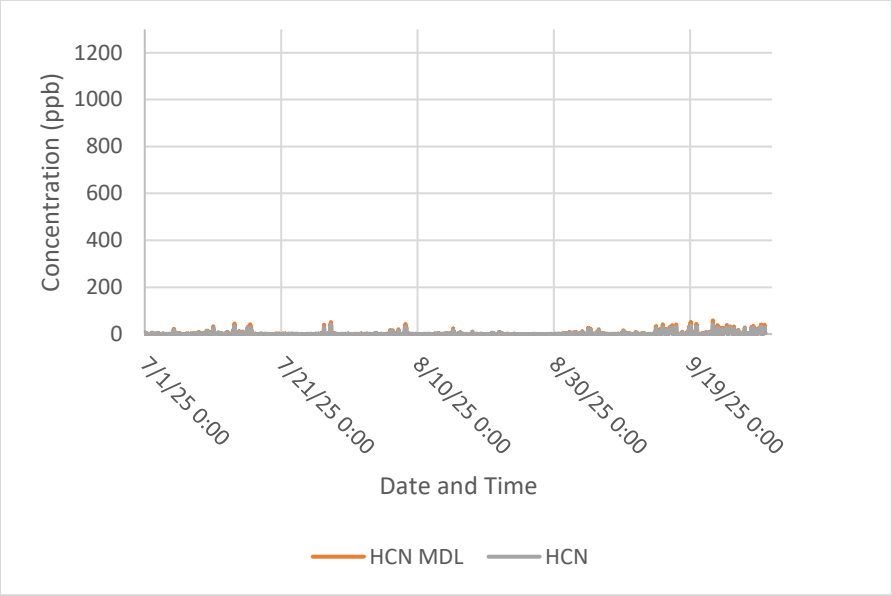

Figure 17. Timeseries of HCN Path 5

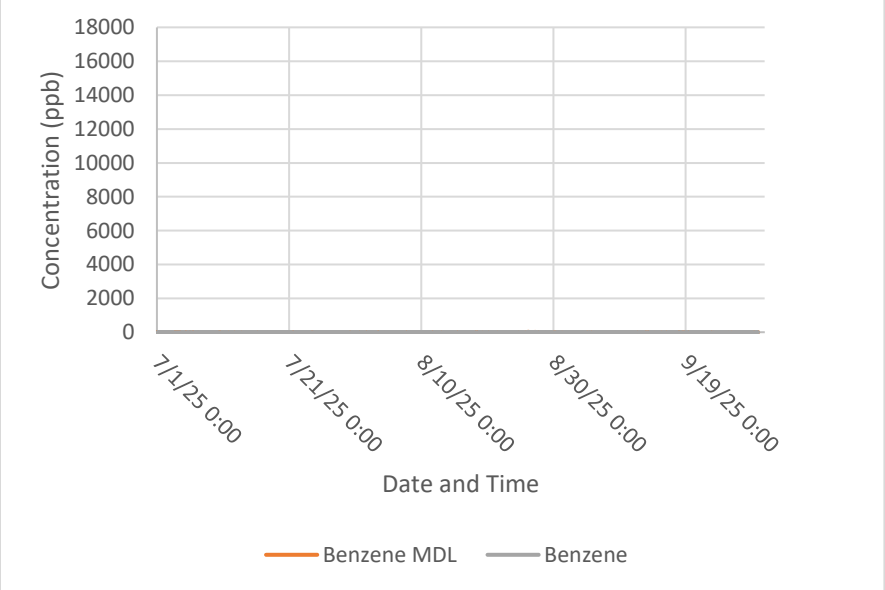

Figure 18. Timeseries of Benzene Path 6

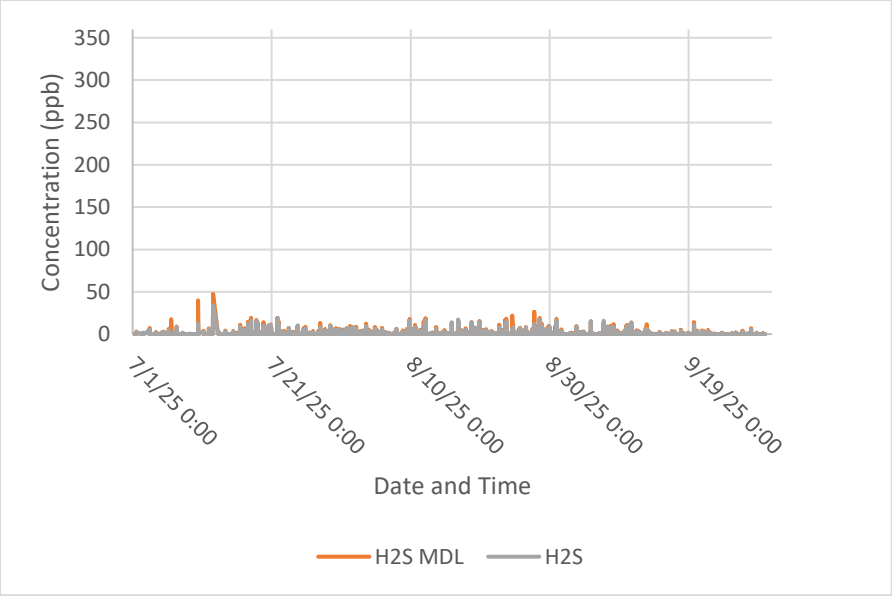

Figure 19. Timeseries of H2S Path 6

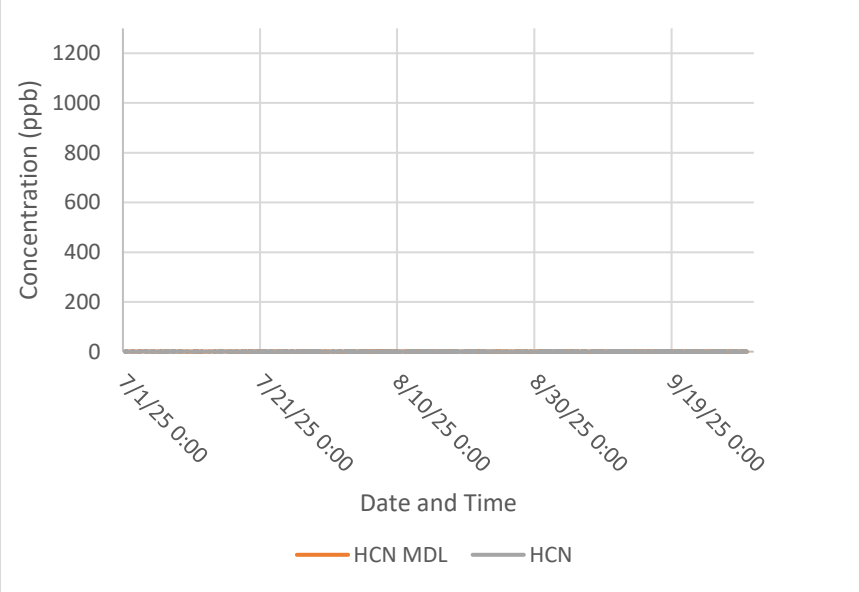

Figure 20. Timeseries of HCN Path 6

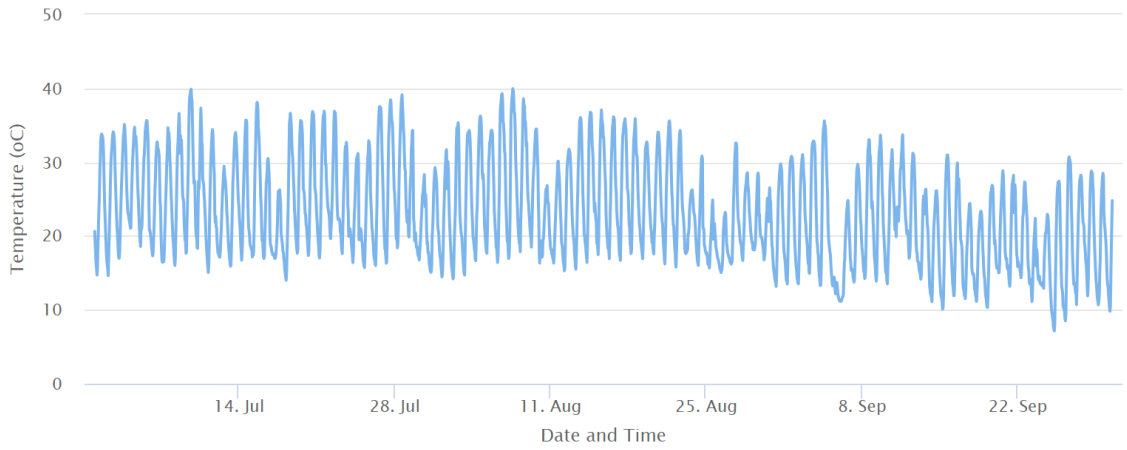

Figure 21. Temperature Timeseries (2025)

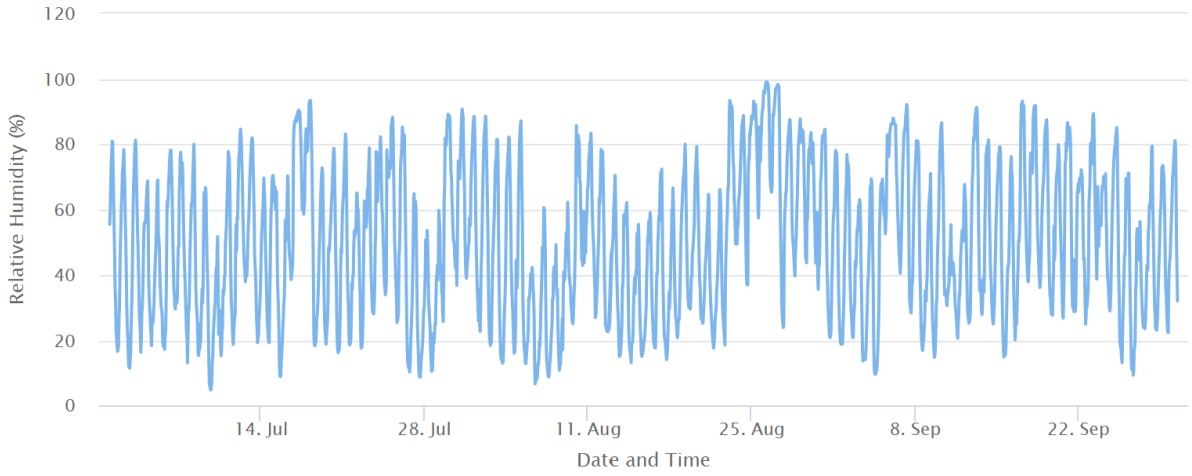

Figure 22. Relative Humidity Timeseries (2025)

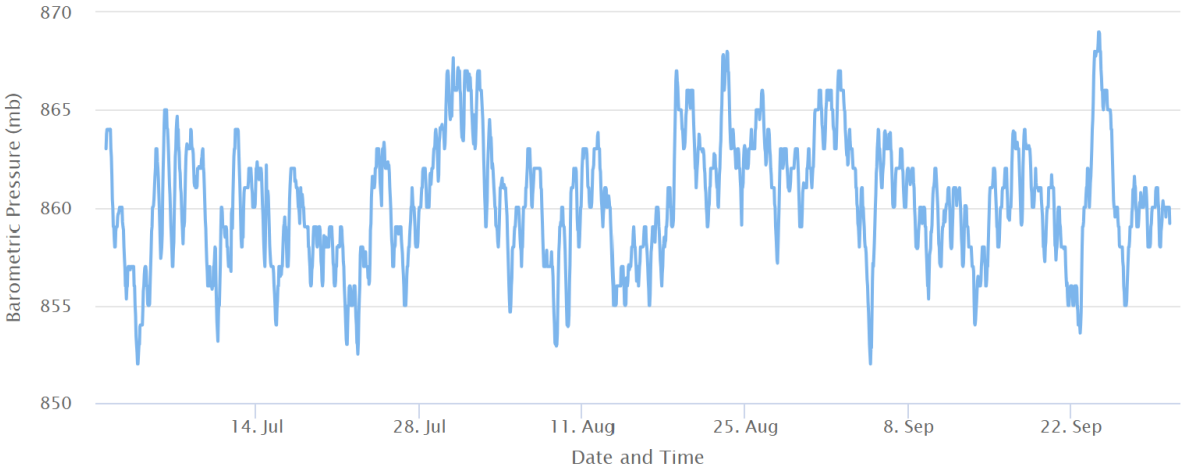

Figure 23. Barometric Pressure Timeseries (2025)

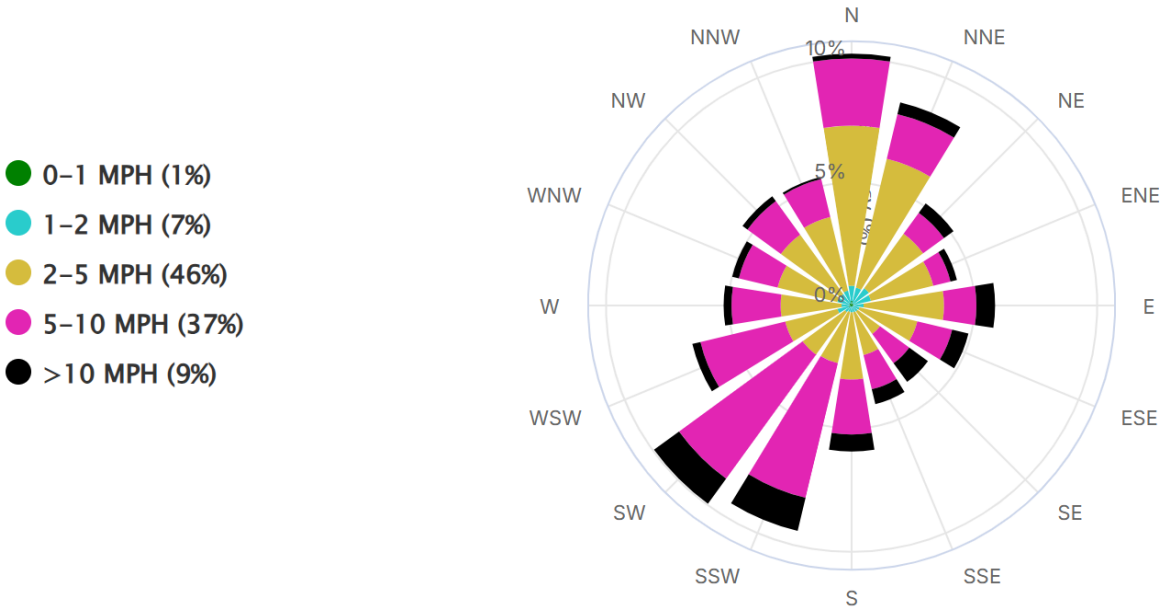

Figure 24. Wind Rose Plot

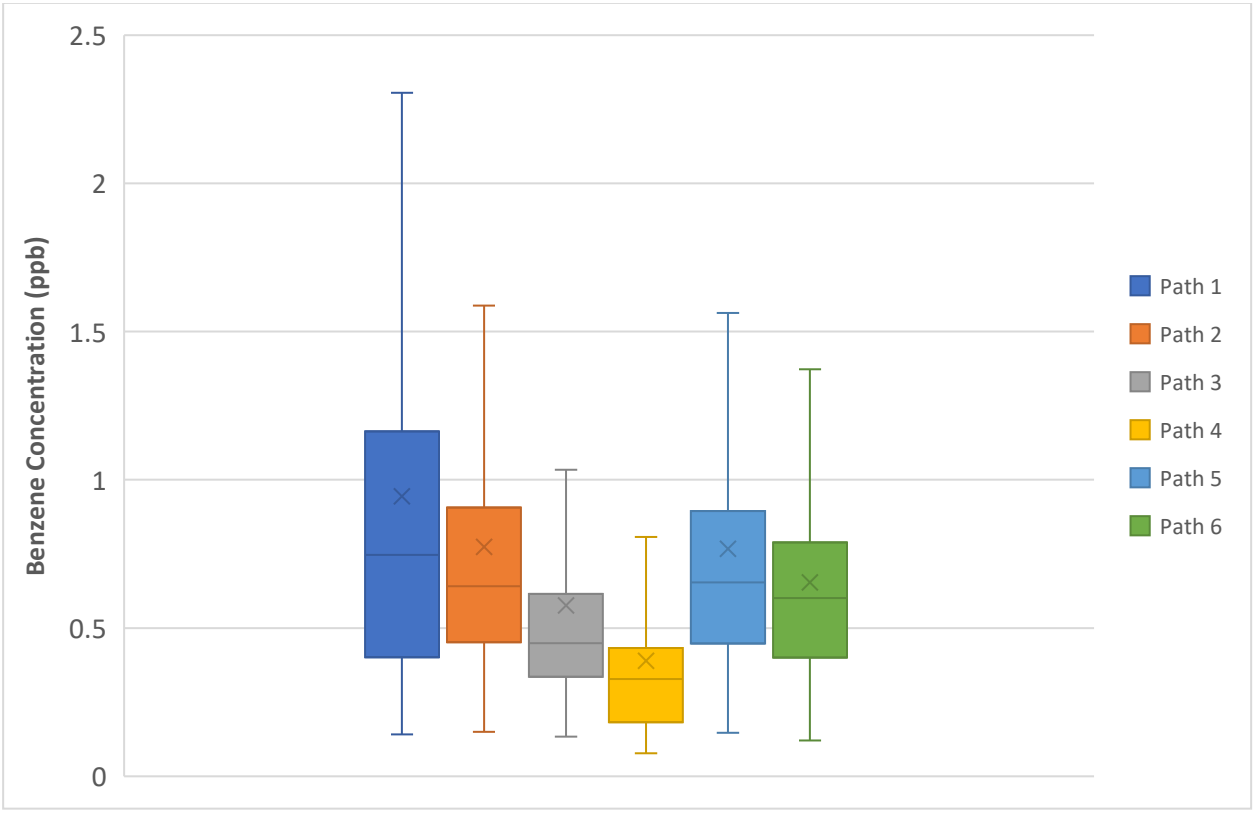

Figure 25. Benzene Box Plots for Paths 1 to 6.

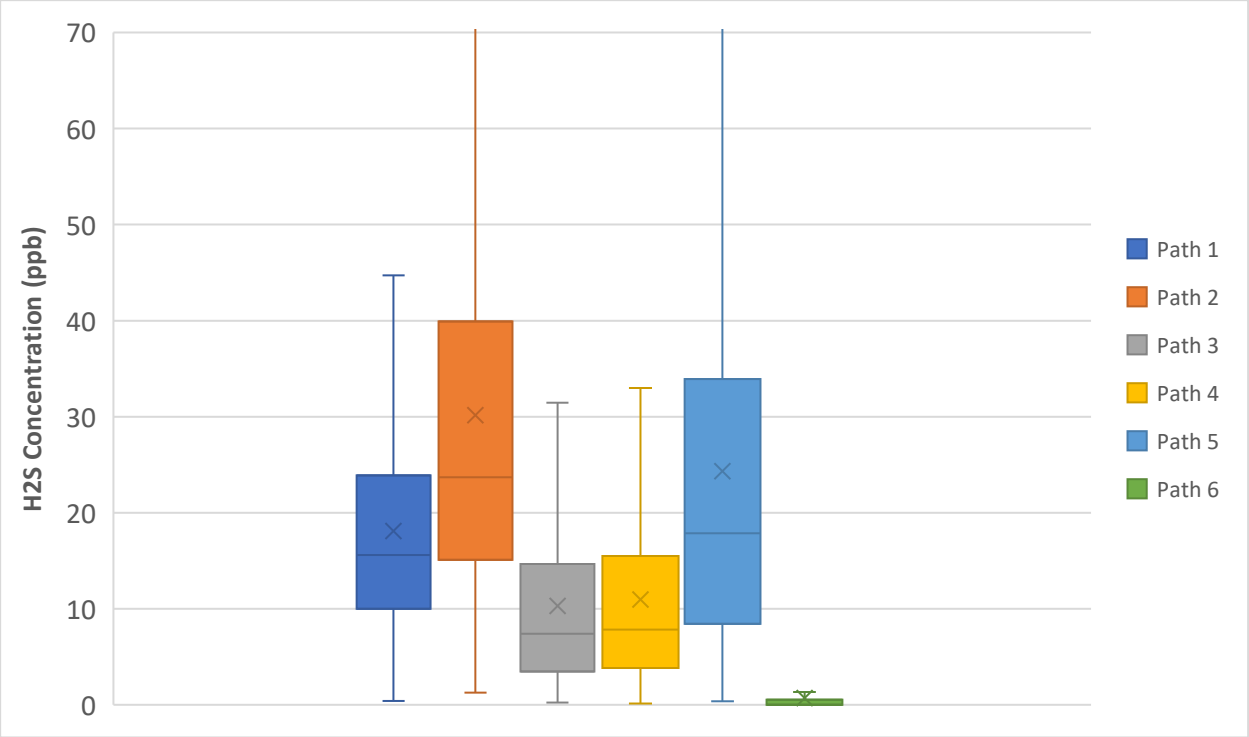

Figure 26. H_2S Box Plots for Paths 1 to 6.

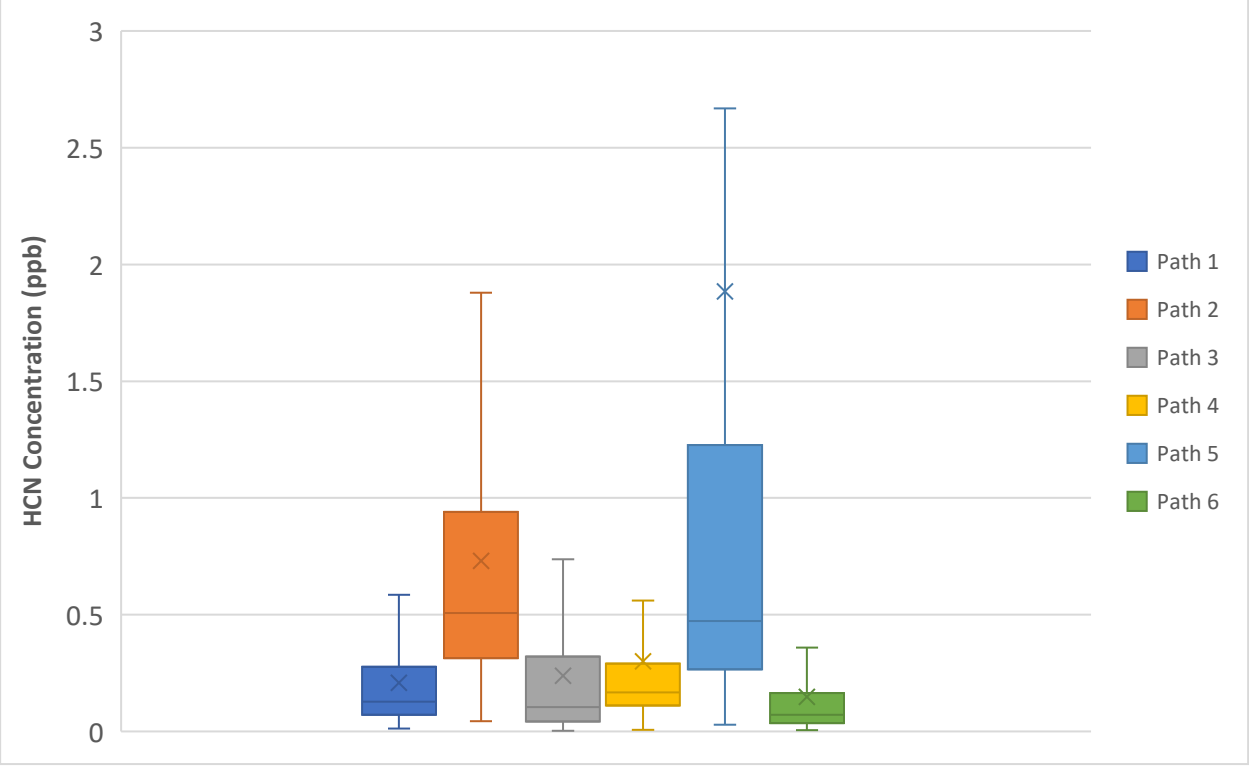

Figure 27. HCN Box Plots for Paths 1 to 6.

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 35^{o}C instead of the 39^{o}C 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

Date	Type of Verification	Path	Path Length[1]	Analyzer	Compound	Expected Concentration	Measured Concentration	Accuracy (%)	Precision (%)
9/18/2025	Bump test	1	613	UVDOAS	Benzene	100	87	12.8	8.3
9/18/2025	Bump test	1	613	UVDOAS	Benzene	200	206	5.6	6.8
9/18/2025	Bump test	2	566	UVDOAS	Benzene	100	78	21.6	13.8
9/18/2025	Bump test	2	566	UVDOAS	Benzene	200	181	9.9	2.9
9/18/2025	Bump test	3	613	UVDOAS	Benzene	100	111	11.4	7.3
9/18/2025	Bump test	3	613	UVDOAS	Benzene	200	186	6.8	2.8
9/18/2025	Bump test	4	566	UVDOAS	Benzene	100	119	18.6	6.2
9/18/2025	Bump test	4	566	UVDOAS	Benzene	200	233	16.3	7.6
9/18/2025	Bump test	5	594	UVDOAS	Benzene	100	82	18.4	17.7
9/18/2025	Bump test	5	594	UVDOAS	Benzene	200	190	5.1	3.1
9/18/2025	Bump test	6	569	UVDOAS	Benzene	100	96	11.2	14.7
9/18/2025	Bump test	6	569	UVDOAS	Benzene	200	164	17.9	10.5
9/18/2025	Audit Module	1	1116	TDL	H2S	500 ppmm	536	19.5	20.7
9/18/2025	Audit Module	1	1116	TDL	H2S	625 ppmm	576	11.5	13.6
9/18/2025	Audit Module	2	566	TDL	H2S	500 ppmm	536	7.1	4.6
9/18/2025	Audit Module	2	566	TDL	H2S	625 ppmm	708	13.3	5.1
9/18/2025	Audit Module	3	1226	TDL	H2S	500 ppmm	376	24.9	3.7
9/18/2025	Audit Module	3	1226	TDL	H2S	625 ppmm	472	24.4	1.6
9/18/2025	Audit Module	4	1132	TDL	H2S	500 ppmm	367	26.6	1.6
9/25/2025	Audit Module	4	1132	TDL	H2S	625 ppmm	558	10.8	1.4
9/18/2025	Audit Module	5	594	TDL	H2S	500 ppmm	526	5.3	2.7
9/18/2025	Audit Module	5	594	TDL	H2S	625 ppmm	626	2.1	2.6
9/18/2025	Audit Module	6	1138	TDL	H2S	500 ppmm	550	9.9	4.7
9/18/2025	Audit Module	6	1138	TDL	H2S	625 ppmm	570	8.8	2.7
9/18/2025	Audit Module	1	1116	TDL	HCN	1010 ppmm	970	4	0.1
9/18/2025	Audit Module	1	1116	TDL	HCN	420 ppmm	446	6.1	0.5
9/18/2025	Audit Module	2	566	TDL	HCN	1010 ppmm	975	3.5	0.2
9/18/2025	Audit Module	2	566	TDL	HCN	420 ppmm	444	5.6	0.4
9/18/2025	Audit Module	3	1226	TDL	HCN	1010 ppmm	996	1.4	0.2
9/18/2025	Audit Module	3	1226	TDL	HCN	420 ppmm	476	13.3	0.8
9/18/2025	Audit Module	4	1132	TDL	HCN	1010 ppmm	988	2.1	0.2
9/18/2025	Audit Module	4	1132	TDL	HCN	420 ppmm	442	5.3	1.1
9/18/2025	Audit Module	5	594	TDL	HCN	1010 ppmm	1000	0.1	0.1
9/18/2025	Audit Module	5	594	TDL	HCN	420 ppmm	468	11.3	0.4
9/18/2025	Audit Module	6	1138	TDL	HCN	1010 ppmm	982	2.7	0.1
9/18/2025	Audit Module	6	1138	TDL	HCN	420 ppmm	460	9.6	0.4

[1]path length in meters

Table 8: Percent Recovery for Meteorological Parameters

Parameter	Percent Data Recovery
Wind Speed	50%
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

12:15 PM 7/23/25 MONTROSE ONSITE CF

DATA BACKUP UV 1 & 2

11:19 AM 8/7/2025 Montrose Onsite ML

Switched arduino port on UV path 2

12:00 PM 8/20/25 MONTROSE ONSITE CF

REPLACED OZONE FILTER PATH 1 & 2 UVs, REALIGNED

3:22 PM 9/17/2025 Montrose onsite CF

TDL Calibration

3:42 PM 9/18/2025 Montrose onsite ML CN

UV path 1 & 2 bump tests

12:15 PM 7/23/25 MONTROSE ONSITE CF

SWAP PORT @ UV 3 FOR SENSOR DATA

DUSTED SHELTER

1:01 PM 8/20/25 MONTROSE ONSITE CF

REPLACE OZONE FILTERS PATH 4, REALIGNED

1:21 PM 9/17/2025 Montrose Onsite CF

TDL Calibration

12:25 PM 9/18/2025 Montrose Onsite ML CN

UV path 3 & 4 bump tests

9:13 AM 9/25/2025 Montrose onsite CF

Calibrated tdl path 4

replaced wind sendor part at met station

aligned & cleaned retro h2s path 3

12:15PM 7/23/25 MONTROSE ONSITE CF

DATA BACKUP FOR UV 5 & 6

1:45 PM 7/29/2025 Montrose Onsite TC

Aligned TDL Path 6 HCN and H2S

12:45 8/20/25 MONTROSTE ONSITE CF

REPLACE OZONE FILTERS PATH 5 & 6 UVs, REALIGNED

12:30 PM 8/26/2025 Montrose onsite ML

Aligned HCN and HS2 Path 5

Grabbed External Hard drive

12:42 PM 9/18/2025 Montrose onsite ML CN

UV path 5 & 6 bump tests

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

Form Title: Non-Conformance Report
Document Number: 331AA-QMS-FM-13
Revision Number: R0
Implementation Date: February 07, 2024
Form Owner (Department): MAQS
Form Approval: AHeitmann

Non-Conformance Report

Project: PROJ-057122	**Month: September 2025**

LOCATION/SITE: Goodrich Corporation	**Parameter(s) Affected: Wind Speed**
Begin Date and Time (LST): 08/10/2025 2am	**End Date and Time (LST): 9/25/2025 10am**
Equipment: Met Station	**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).

Wind speed sensor broke.

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).

Sensor was broken since Aug 10th but it was noticed by the technician on September 19th 2025.

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

New sensor was ordered and replaced the broken one.

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** _x____ **No**_____If so, **date__91/8/25____**

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

Additional notes on Data Validity Status: Invalid wind speed data from August 10th to September 25th. There were no exceedances during that time in any of the compounds so we did not need to use the data from the met station.

Originator's Signature: A.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): 9/18/25

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	420	16
2	500	628	25.6
3	500	600	20
4	500	606	21.2
5	500	426	14.8
Averages	500	536	19.5

	Calculated Values	Expected Values
Overall Percent Precision	79.3%	**≥ 80%**
Overall Percent Error	19.5%	**≤ 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	**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): 9/18/2025

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	480	23.2
2	625	638	2.1
3	625	670	7.2
4	625	598	4.3
5	625	496	20.6
Averages	625	576	11.5

	Calculated Values	Expected Values
Overall Percent Precision	86.4 %	**≥ 80%**
Overall Percent Error	11.5%	**≤ 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	**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): 9/18/2025

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	568	13.6
2	500	546	9.2
3	500	522	4.4
4	500	508	1.6
5	500	534	6.8
Averages	500	536	7.1

	Calculated Values	Expected Values
Overall Percent Precision	95.4%	**≥ 80%**
Overall Percent Error	7.1%	**≤ 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	**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): 9/18/2025

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	710	13.6
2	625	712	13.9
3	625	756	21
4	625	692	10.7
5	625	670	7.2
Averages	625	708	13.3

	Calculated Values	Expected Values
Overall Percent Precision	94.9	**≥ 80%**
Overall Percent Error	13.3	**≤ 30%**

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

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): 9/18/25

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	370	26
2	500	362	27.6
3	500	406	18.8
4	500	360	28
5	500	380	24
Averages	500	376	24.9

	Calculated Values	Expected Values
Overall Percent Precision	96.3%	**≥ 80%**
Overall Percent Error	24.9%	**≤ 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

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): 9/18/2025

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	490	21.6
2	625	468	25.1
3	625	466	25.4
4	625	472	24.5
5	625	466	25.4
Averages	625	472	24.4

	Calculated Values	Expected Values
Overall Percent Precision	98.4 %	**≥ 80%**
Overall Percent Error	24.4 %	**≤ 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): 9/18/25

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	368	26.4
2	500	354	29.2
3	500	372	25.6
4	500	366	26.8
5	500	374	25.2
Averages	500	367	26.6

	Calculated Values	Expected Values
Overall Percent Precision	98.4%	**≥ 80%**
Overall Percent Error	26.6%	**≤ 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

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): 9/25/25

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	544	13
2	625	568	9
3	625	558	11
4	625	556	11
5	625	562	10
Averages	625	558	10.8

	Calculated Values	**Expected Values**
Overall Percent Precision	98.6%	**≥ 80%**
Overall Percent Error	10.8%	**≤ 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): 9/18/25

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	524	4.8
2	500	524	4.8
3	500	526	5.2
4	500	510	2
5	500	548	9.6
Averages	500	526	5.3

	Calculated Values	**Expected Values**
Overall Percent Precision	97.3%	**≥ 80%**
Overall Percent Error	5.3%	**≤ 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): 

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): 9/18/25

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	636	1.8
2	625	644	3
3	625	618	1.1
4	625	630	0.8
5	625	602	3.7
Averages	625	626	2.1

	Calculated Values	Expected Values
Overall Percent Precision	97.4%	**≥ 80%**
Overall Percent Error	2.1%	**≤ 30%**

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

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): 9/18/25

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	532	6.4
2	500	586	17.2
3	500	548	9.6
4	500	556	11.2
5	500	526	5.2
Averages	500	550	9.9

	Calculated Values	**Expected Values**
Overall Percent Precision	95.3 %	**≥ 80%**
Overall Percent Error	9.9%	**≤ 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

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): 9/18/25

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	546	12.6
2	625	564	9.8
3	625	590	5.6
4	625	582	6.9
5	625	568	9.1
Averages	625	570	8.8

	Calculated Values	Expected Values
Overall Percent Precision	97.3%	**≥ 80%**
Overall Percent Error	8.8%	**≤ 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): 9/18/25

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	446	6.2
2	420	446	6.2
3	420	442	5.2
4	420	448	6.7
5	420	446	6.2
Averages	420	446	6.1

	Calculated Values	Expected Values
Overall Percent Precision	99.5%	**≥ 80%**
Overall Percent Error	6.1%	**≤ 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

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): 9/18/25

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	972	3.8
2	1010	968	4.2
3	1010	970	4
4	1010	970	4
5	1010	970	4
Averages	1010	970	4

	Calculated Values	Expected Values
Overall Percent Precision	99.9%	**≥ 80%**
Overall Percent Error	4%	**≤ 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): 9/18/25

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	444	5.7
2	420	444	5.7
3	420	442	5.2
4	420	442	5.2
5	420	446	6.2
Averages	420	444	5.6

	Calculated Values	**Expected Values**
Overall Percent Precision	99.6%	**≥ 80%**
Overall Percent Error	5.6%	**≤ 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	**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): 9/18/25

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	974	3.5
2	1010	974	3.5
3	1010	974	3.5
4	1010	978	3.2
5	1010	974	3.5
Averages	1010	975	3.5

	Calculated Values	**Expected Values**
Overall Percent Precision	99.8%	**≥ 80%**
Overall Percent Error	3.5%	**≤ 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	**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): 9/18/25

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	480	14.3
3	420	472	12.4
4	420	476	13.3
5	420	474	12.9
Averages	420	476	13.3

	Calculated Values	Expected Values
Overall Percent Precision	99.2%	**≥ 80%**
Overall Percent Error	13.3%	**≤ 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): 9/18/25

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	998	1.2
2	1010	994	1.6
3	1010	996	1.4
4	1010	994	1.6
5	1010	996	1.4
Averages	1010	996	1.4

	Calculated Values	**Expected Values**
Overall Percent Precision	99.8%	**≥ 80%**
Overall Percent Error	1.4%	**≤ 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): 9/18/25

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	442	5.2
2	420	438	4.3
3	420	450	7.1
4	420	440	4.8
5	420	442	5.2
Averages	420	442	5.3

	Calculated Values	**Expected Values**
Overall Percent Precision	98.9%	**≥ 80%**
Overall Percent Error	5.3%	**≤ 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): 9/18/25

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	986	2.4
2	1010	988	2.2
3	1010	990	2
4	1010	990	2
5	1010	988	2.2
Averages	1010	988	2.1

	Calculated Values	Expected Values
Overall Percent Precision	99.8%	**≥ 80%**
Overall Percent Error	2.1%	**≤ 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	**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): 9/18/25

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)	420 PPMM

File #	**Compound Concentration (PPMM)**	**Measured Concentration (PPMM)**	**Error (% Reading)**
1	420	466	11
2	420	470	11.9
3	420	468	11.4
4	420	468	11.4
5	420	466	11
Averages	420	468	11.3

	Calculated Values	**Expected Values**
Overall Percent Precision	99.6%	**≥ 80%**
Overall Percent Error	11.3%	**≤ 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): 9/18/25

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	1000	0.1
2	1010	1000	0.1
3	1010	1002	0.8
4	1010	1000	0.1
5	1010	1000	0.1
Averages	1010	1000	0.1

	Calculated Values	**Expected Values**
Overall Percent Precision	99.9%	**≥ 80%**
Overall Percent Error	0.1%	**≤ 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

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): 9/18/25

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)	420 PPMM

File #	Compound Concentration (PPMM)	Measured Concentration (PPMM)	Error (% Reading)
1	420	462	10
2	420	460	9.5
3	420	460	9.5
4	420	458	9
5	420	462	10
Averages	420	460	9.6

	Calculated Values	Expected Values
Overall Percent Precision	99.6%	**≥ 80%**
Overall Percent Error	9.6%	**≤ 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	**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): 9/18/25

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	984	2.6
2	1010	982	2.8
3	1010	982	2.8
4	1010	982	2.8
5	1010	982	2.8
Averages	1010	982	2.7

	Calculated Values	Expected Values
Overall Percent Precision	99.9%	**≥ 80%**
Overall Percent Error	2.7 %	**≤ 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

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): 9/18/25

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

Instrument Parameters	
Optical Path Length (meters)	613 m/ 0.00235m
Maximum Intensity (%)	97
Integration Time (ms)	30

Standard Information	
Benzene Standard Concentration (PPM)	100

File #	**Benzene Concentration (PPM)**	**Measured Concentration (PPM)**	**Error (%)**
1	100	84	16
2	100	92	8
3	100	86	14
4	100	98	2
5	100	76	24
Averages	100	87	12.8

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

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	91.7	**≥ 75%**
Overall Percent Error	12.8	**≤ 30%**

Notes:
Calibration verification passed.

Operator's Signature Katia Liangou

Witness's Signature James Garrett

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

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): 9/18/2025

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

Instrument Parameters	
Optical Path Length (meters)	613 m/ 0.0235m
Maximum Intensity (%)	97
Integration Time (ms)	30

Standard Information	
Benzene Standard Concentration (PPM)	200

File #	**Benzene Concentration (PPM)**	**Measured Concentration (PPM)**	**Error (%)**
1	200	203	1.5
2	200	196	2
3	200	191	4.5
4	200	217	8.5
5	200	223	11.5
Averages	200	206	5.6

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	93.2	**≥ 75%**
Overall Percent Error	5.6	**≤ 30%**

Notes:
Calibration verification passed.

Operator's Signature Katia Liangou

Witness's Signature James Garrett

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

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): 9/18/25

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

Instrument Parameters	
Optical Path Length (meters)	566 m/ 0.047m
Maximum Intensity (%)	86
Integration Time (ms)	60

Standard Information	
Benzene Standard Concentration (PPM)	100

File #	**Benzene Concentration (PPM)**	**Measured Concentration (PPM)**	**Error (%)**
1	100	84	16
2	100	86	14
3	100	86	14
4	100	54	46
5	100	82	18
Averages	100	78	21.6

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

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	86.2	**≥ 75%**
Overall Percent Error	21.6	**≤ 30%**

Notes:
Calibration verification passed.

Operator's Signature Katia Liangou

Witness's Signature James Garrett

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

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): 9/18/25

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

Instrument Parameters	
Optical Path Length (meters)	566 m/ 0.047m
Maximum Intensity (%)	86
Integration Time (ms)	60

Standard Information	
Benzene Standard Concentration (PPM)	200

File #	**Benzene Concentration (PPM)**	**Measured Concentration (PPM)**	**Error (%)**
1	200	177	11.5
2	200	187	6.5
3	200	177	11.5
4	200	174	13
5	200	186	7
Averages	200	181	9.9

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

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	97.1	**≥ 75%**
Overall Percent Error	9.9	**≤ 30%**

Notes:
Calibration verification passed.

Operator's Signature Katia Liangou

Witness's Signature James Garrett

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

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): 9/18/25

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

Instrument Parameters	
Optical Path Length (meters)	613 m/ 0.0235m
Maximum Intensity (%)	80
Integration Time (ms)	40

Standard Information	
Benzene Standard Concentration (PPM)	100

File #	**Benzene Concentration (PPM)**	**Measured Concentration (PPM)**	**Error (%)**
1	100	113	13
2	100	99	1
3	100	111	11
4	100	113	13
5	100	119	19
Averages	100	111	11.4

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

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	92.7	**≥ 75%**
Overall Percent Error	11.4	**≤ 30%**

Notes:
Calibration verification passed.

Operator's Signature Katia Liangou

Witness's Signature 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): 9/18/25

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

Instrument Parameters	
Optical Path Length (meters)	613 m/ 0.0235m
Maximum Intensity (%)	80
Integration Time (ms)	40

Standard Information	
Benzene Standard Concentration (PPM)	200

File #	**Benzene Concentration (PPM)**	**Measured Concentration (PPM)**	**Error (%)**
1	200	178	11
2	200	184	8
3	200	190	5
4	200	188	6
5	200	192	4
Averages	200	186	6.8

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

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	97.2	**≥ 75%**
Overall Percent Error	6.8	**≤ 30%**

Notes:
Calibration verification passed.

Operator's Signature Katia Liangou

Witness's Signature James Garrett

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

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): 9/18/2025

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

Instrument Parameters	
Optical Path Length (meters)	566 m/ 0.0235m
Maximum Intensity (%)	86
Integration Time (ms)	30

Standard Information	
Benzene Standard Concentration (PPM)	100

File #	**Benzene Concentration (PPM)**	**Measured Concentration (PPM)**	**Error (%)**
1	100	121	21
2	100	119	19
3	100	109	9
4	100	118	18
5	100	126	26
Averages	100	119	18.6

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

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	93.8	**≥ 75%**
Overall Percent Error	18.6	**≤ 30%**

Notes:
Calibration verification passed.

Operator's Signature Katia Liangou

Witness's Signature James Garrett

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

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): 9/18/2025

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

Instrument Parameters	
Optical Path Length (meters)	566 m/ 0.0235m
Maximum Intensity (%)	86
Integration Time (ms)	30

Standard Information	
Benzene Standard Concentration (PPM)	200

File #	**Benzene Concentration (PPM)**	**Measured Concentration (PPM)**	**Error (%)**
1	200	228	14
2	200	221	10.5
3	200	254	27
4	200	218	9
5	200	242	21
Averages	200	233	16.3

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

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	92.4	**≥ 75%**
Overall Percent Error	16.3	**≤ 30%**

Notes:
Calibration verification passed.

Operator's Signature Katia Liangou

Witness's Signature James Garrett

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

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): 9/18/25

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

Instrument Parameters	
Optical Path Length (meters)	594 m/ 0.047m
Maximum Intensity (%)	91
Integration Time (ms)	20

Standard Information	
Benzene Standard Concentration (PPM)	100

File #	**Benzene Concentration (PPM)**	**Measured Concentration (PPM)**	**Error (%)**
1	100	98	2
2	100	58	42
3	100	68	32
4	100	89	11
5	100	95	5
Averages	100	82	18.4

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

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	82.3	**≥ 75%**
Overall Percent Error	18.4	**≤ 30%**

Notes:
Calibration verification passed.

Operator's Signature Katia Liangou

Witness's Signature James Garrett

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

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): 9/18/25

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

Instrument Parameters	
Optical Path Length (meters)	594 m/ 0.047m
Maximum Intensity (%)	91
Integration Time (ms)	20

Standard Information	
Benzene Standard Concentration (PPM)	200

File #	**Benzene Concentration (PPM)**	**Measured Concentration (PPM)**	**Error (%)**
1	200	187	6.5
2	200	182	9
3	200	188	6
4	200	196	2
5	200	196	2
Averages	200	190	5.1

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

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	96.9	**≥ 75%**
Overall Percent Error	5.1	**≤ 30%**

Notes:
Calibration verification passed.

Operator's Signature Katia Liangou

Witness's Signature James Garrett

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

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): 9/18/25

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

Instrument Parameters	
Optical Path Length (meters)	569 m/ 0.0235m
Maximum Intensity (%)	69
Integration Time (ms)	80

Standard Information	
Benzene Standard Concentration (PPM)	100

File #	**Benzene Concentration (PPM)**	**Measured Concentration (PPM)**	**Error (%)**
1	100	102	2
2	100	84	16
3	100	102	2
4	100	113	13
5	100	77	23
Averages	100	96	11.2

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

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	85.3	**≥ 75%**
Overall Percent Error	11.2	**≤ 30%**

Notes:
Calibration verification passed.

Operator's Signature Katia Liangou

Witness's Signature James Garrett

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

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): 9/18/25

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

Instrument Parameters	
Optical Path Length (meters)	569 m/ 0.0235m
Maximum Intensity (%)	69
Integration Time (ms)	80

Standard Information	
Benzene Standard Concentration (PPM)	200

File #	**Benzene Concentration (PPM)**	**Measured Concentration (PPM)**	**Error (%)**
1	200	131	34.5
2	200	183	8.5
3	200	158	21
4	200	169	15.5
5	200	180	10
Averages	200	164	17.9

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

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	89.5	**≥ 75%**
Overall Percent Error	17.9	**≤ 30%**

Notes:
Calibration verification passed.

Operator's Signature Katia Liangou

Witness's Signature James Garrett