

# Proposal for EtO Ambient Air Monitoring

FY25-075

City of Laredo Health Department

Project number: 60766102

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**Prepared for:**

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## Table of Contents

Executive Summary .....	1
Task 1: Project Management and Planning .....	2
Task 2: Field Monitoring .....	3
Task 3: Laboratory Analysis.....	4
Task 4: Data Reporting and Communication .....	4
Project References.....	5
Budget.....	6

## Figures

Figure 1. EtO Sampling Gantt Chart Schedule .....	2
Figure 2. Nutech 2703 Sampler with Canister.....	3

## Tables

Table 1. Estimated EtO Sampling Study Costs .....	6
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# Executive Summary

AECOM Technical Services, Inc. (AECOM) is pleased to provide this proposal to the City of Laredo for environmental services focused on Ethylene Oxide (EtO) sampling via EPA Method 327. With over 50 years of leadership in air monitoring across Texas, AECOM brings extensive experience and proven expertise in measuring a wide range of air pollutants for communities and industrial clients throughout Texas.

Our team operates approximately 100 air monitoring stations, which include measurements of VOCs, hazard air pollutants (HAPs), EPA gaseous criteria pollutants, particulate matter, and meteorological parameters. Over the past decade, AECOM has collected, validated, and analyzed more than **16,000 VOC canisters**. AECOM also has specialized experience in EtO monitoring, utilizing both canister sampling and advanced real-time techniques such as cavity ringdown spectrometry and gas chromatography near industrial sources. Our commitment to high-quality data and community-focused service makes us a trusted partner for air quality initiatives throughout Texas.

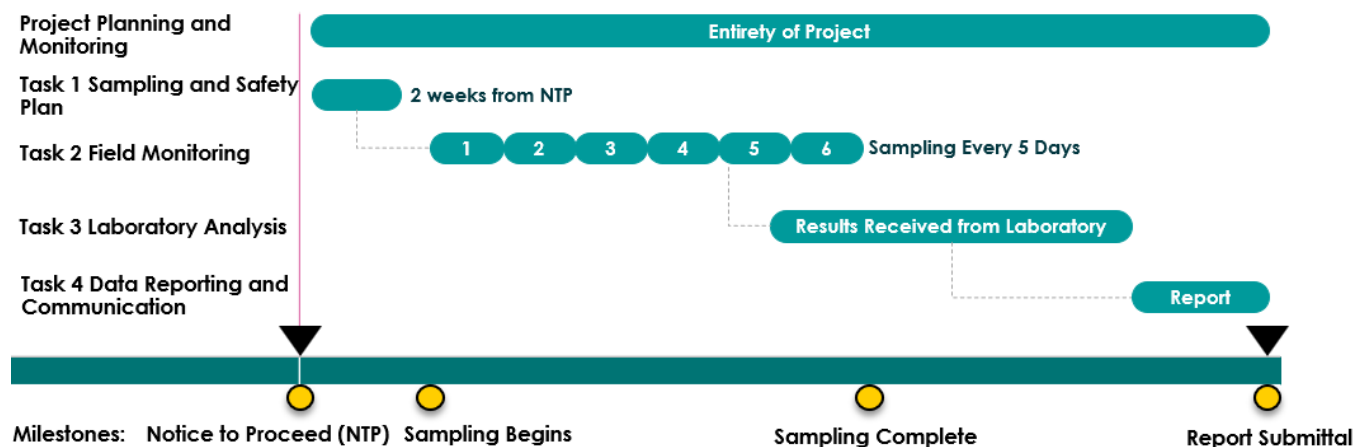
We are pleased to have the opportunity to support the City of Laredo Public Health Department in assessing air quality conditions related to EtO, with the goal of evaluating potential health risks and impacts on nearby communities and vulnerable populations. Below, we outline our comprehensive approach to planning and executing field sampling, analyzing collected data, and reporting findings to the City of Laredo Public Health Department.

# Task 1: Project Management and Planning

Upon the award and execution of a contract with the City of Laredo, AECOM will develop and submit a comprehensive monitoring plan consistent with EPA Method 327 detailing the sample collection schedule, protocol, equipment calibration requirements, QA/QC requirements, reporting timelines, and contingency actions. Through planning with the City of Laredo Health Department, AECOM will identify the monitoring locations based on the sources of EtO emissions, prevailing wind direction, and location of vulnerable receptors in relation to the source(s). Emphasis will be placed on vulnerable receptors including children and the elderly. The sampling plan will also address relocating the sampling locations, if necessary, to maximize coverage within a defined area and reduce sampling bias caused by limiting sampling data to a limited area. AECOM will collaborate with City of Laredo Health Department personnel to identify sampling locations, arrange site access agreements for the sampling locations, discuss logistical and safety concerns, and communicate potential scheduling conflicts or issues that arise.

The project will be managed by Mr. Mark Modrak, who has over 23 years of experience as an air quality scientist and currently manages similar projects that collect ambient air canister samples according to EPA Compendium Method TO-15. Mr. Modrak has experience writing sampling plans, project specific safety plans, and air monitoring summary reports. Mr. Modrak is also experienced in leading field staff for scheduling, preparing, deploying, and executing field sampling events for similar air monitoring projects within Texas.

**Figure 1. EtO Sampling Gantt Chart Schedule**



## Deliverables

The deliverables for this task will include the sampling plan, which will be developed and submitted to the City of Laredo Health Department for review and approval within two weeks after notice to proceed. The AECOM project manager will also create a site safety and access plan before any field work begins. As part of the project management plan, the project manager will create a communications management plan and stakeholder management plan to document and plan for when communications will be distributed to appropriate stakeholders.

The schedule of the project is anticipated to begin upon notice to proceed with the issuance of a signed contract and purchase order. The start of the analysis and report are dependent upon the laboratory analysis and delivery of the lab reports to AECOM. Once AECOM has received the laboratory reports (the typical turnaround time is 2-3 weeks from delivery to the lab), the AECOM data validation team will perform QA/QC checks on the data, analyze the results, and compare weather data at the time of the samples to determine the likely origination of EtO and analyze source attributes. The final report will also include a summary of the measured EtO concentrations, any exceedance flags, QA/QC summary of the canister results, and recommendations regarding health risks associated with the

measured EtO exposures on community receptors. The report will be delivered electronically to the City of Laredo Health Department after all data has been collected, validated, analyzed, and reviewed internally per AECOM's quality assurance requirements.

In addition to the final report, the AECOM project manager will provide bi-weekly progress report updates to the City of Laredo Health Department to notify them of sampling status, any encountered QC issues, and corrective actions taken to resolve them.

## Task 2: Field Monitoring

After the sampling plan has been reviewed and approved by the City of Laredo Health Department, the field sampling will begin. AECOM will perform six sampling events with samples collected on a 5-day sampling schedule. The locations of the samples will be defined in the sampling plan after consulting the City of Laredo Health Department to determine the ideal location of interest to determine EtO concentrations and impacts on community receptors. During each event, eight routine ambient samples will be collected plus a field blank, duplicate, and spike sample, totaling eleven canisters per event. Each sample will be collected over a 24-hour period. In total, sixty-six canisters will be collected and sent to the laboratory for analysis. The samples will be collected in fused-silica lined canisters using the Nutech 2703 automatic air sampling devices housed in the 2703S shelter boxes with backup batteries to protect sample integrity and improve security of the canisters and sampling devices. The samplers will be leak tested before each sampling event. The Nutech 2703 automatic air sampling devices are ideal for this project as they not only include an integrated timer for precise timed sampling but also provide flow control and monitoring, recorded pressure readings of the canister, leak checking, and auto QA/QC data that will be collected from the unit after each sample run. The Nutech 2703 automatic air sampling device is well suited to meet the EPA Method 327 flow control requirements.

Sampled canisters will be mailed to GD Air in Plano, TX for analysis. AECOM has a rich history of working with GD Air and Nutech, partnering with them for over 13 years on various VOC monitoring projects across the state of Texas. The AECOM field technician has over 30 years of experience in ambient air monitoring and VOC canister sampling. The AECOM field technician is highly experienced with proper VOC sampling and handling techniques to prevent contamination of the samples. They will complete each chain-of-custody and scan copies of the chain-of-custodies for project documentation. They will also document the deployment and sampling dates and leak check and flow rate verification data from each sampling device for each sample event.



**Figure 2. Nutech 2703 Sampler with Canister**

### Deliverables

As part of the field sampling task, the AECOM technician will document the field sampling logs for each event, collect the meta data from the Nutech 2703 samplers, and complete and document the chain-of-custody forms for each sampling event. If any incidents are encountered during the sampling events, an incident and maintenance log will be included in the field sampling log.

## Task 3: Laboratory Analysis

After each canister sample has been collected, the chain-of-custody will be completed and the sampling data from the Nutech 2703 will be collected. The canisters will then be carefully packaged in the fiber board box they were delivered in and returned to GD Air for analysis. This will be done following each sampling event and the cans will be delivered to the lab within eight days of sampling. GD Air is a Texas Commission on Environmental Quality (TCEQ) accredited lab under the National Environmental Laboratory Accreditation Program (NELAP) and can meet the MDL requirements of <20 pptv or 1/10th of 0.2  $\mu\text{g}/\text{m}^3$  (whichever is higher). GD Air will perform analysis by gas chromatography (GC) – mass spectrometry (MS) with analytical batch QA/QC. This will include calibration verification, method blanks, duplicate precision, and second-source calibration verification.

GD Air will deliver the analysis results to AECOM and the AECOM data validation team will perform additional QA/QC checks on the lab results. The QA/QC checks will verify that the Nutech 2703 samplers operated for the proper duration, that flow rates were properly recorded and free of anomalous flow events, and that the canisters sampled an adequate volume of air. The team will also confirm that the canisters retained acceptable vacuum levels at the end of the sampling event, and that the laboratory's QA/QC procedures were successfully completed and appropriately flagged.

### Deliverables

Appended to the report will be data files associated with the project, including but not limited to, the chain-of-custodies, laboratory analytical results, QA/QC reports from the lab (including SSCV, CCV, batch blanks, instrument calibration logs), and methodology documentation. The report will summarize the EtO measurements and calculate the difference between the highest and lowest concentrations collected (Delta C).

## Task 4: Data Reporting and Communication

After completion of each sample event, an AECOM field technician will collect the electronic sampling data from each Nutech 2703 sampling device and archive it within the AECOM project folders on a secure server. All metadata, logs, chain-of-custodies, calculations, and reports will be archived on the AECOM secured server for a minimum of five years. The electronic data deliverable (EDD) from the lab with the sample analytical results will be forwarded to the City of Laredo for review and documentation. These EDDs will not be validated at the time of delivery, but will be shared with the City for tracking and identifying any potential hot spots that could warrant future sampling efforts.

AECOM will provide up to eight hours of community outreach support to the City of Laredo for communication with community stakeholders and to help respond to regulatory and/or public inquiries. If an in-person visit is required, the City of Laredo will contact AECOM on how to proceed with a change order to cover necessary travel and labor expenses.

### Deliverables

The report will summarize the EtO measurement results and calculate the difference between the highest and lowest concentrations of EtO (Delta C) for each sampling event and an average rolling Delta C for the entire sampling project. The report will summarize the measured results against the EPA's action level of 0.2  $\mu\text{g}/\text{m}^3$  and highlight any measurements that surpassed this action level. The report will discuss spatial and temporal trends of EtO over the study period with a root cause analysis for any measured concentrations that surpassed EPA's action level. The report will also include recommendations on possible mitigation efforts and further actions based on the results of the measurement study. As mentioned previously, appended to the report will be data files associated with the project including the chain-of-custodies, laboratory analysis results, QA/QC reports from the lab (including SSCV, CCV, batch blanks, and instrument calibration logs), and methodology documentation.

# Project References

## Contracting Activity: North Texas Commission (NTC) via Texas Commission on Environmental Quality Air Quality Monitoring, Texas

**Contract Title:** NTC Air Quality Monitoring Network

**Period of Performance:** 2012 – Present

**Contracting/Program Officer:** Dawn Miller, 972.621.0400, dawn@ntc-dfw.org

### Scope of Work

- ✓ AECOM operates a 21-site ambient air quality monitoring network on behalf of the North Texas Commission. Funding is administered by the Texas Commission on Environmental Quality (TCEQ).
- ✓ The network consists of 13 sites featuring continuous automated gas chromatographs (GC) sampling hourly for 47 volatile organic compounds and 8 additional sites sampling for 24 hours on a 6-day sampling schedule for over 80 volatile organic compounds (VOC).
- ✓ AECOM performs data validation, QA/QC, and annual reporting on the results of air monitoring activities.

## Contracting Activity: Gulf Coast Growth Ventures Air Quality Monitoring

**Contract Title:** GCGV

**Period of Performance:** 2019-2025

**Contracting/Program Officer:** Sandy Rodriguez, 361.677.2351, sandy.rodriguez@exxonmobil.com

### Scope of Work

- ✓ AECOM operated two air monitoring stations for the Gulf Coast Growth Ventures in Portland and Gregory, Texas.
- ✓ Monitored for EtO via continuous gas chromatography (GC) and Cavity Ring Down Spectroscopy (CRDS), VOC canister samples for EtO on a 6-day sampling schedule, continuous total non-methane hydrocarbons (TNMHC), auto-GCs sampling hourly for 63 volatile organic compounds, continuous PM<sub>2.5</sub>, and meteorological parameters.
- ✓ AECOM performed data validation and routine QA/QC on the measurement data and the monitoring equipment.

## Contracting Activity: Houston Regional Monitoring (HRM) Corporation Ambient Air Monitoring Services, Houston, TX

**Contract Title:** Houston Regional Monitoring Program

**Period of Performance:** 1981 – Present

**Contracting/Program Officer:** Steve Smith, 832.679.8775 (o) | 281.635.4691 (m), steve.smith@lyb.com

### Scope of Work

- ✓ AECOM has provided HRM ambient air monitoring services for the past 40 years and conducted a wide range of specialty air monitoring studies.
- ✓ The HRM network is currently composed of 10 air monitoring sites, covering 144 square miles of urban and industrial areas in Houston. The network scope includes criteria pollutants (CO, O<sub>3</sub>, NO<sub>2</sub> as NO<sub>x</sub>/NO/NO<sub>2</sub>, NO<sub>y</sub>, and true NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>2.5</sub> and PM<sub>10</sub>, and lead), meteorology, H<sub>2</sub>S, and VOCs by canister sampling and continuous GC measurements.
- ✓ AECOM performs QA/QC, data validation, analysis, and reporting of ambient air quality and trends. AECOM also presents air quality monitoring summaries and analysis to various stakeholders.



# Budget

AECOM proposes to perform this work on a time and materials (T&M) basis for **\$58,614** (excluding the optional tasks for community outreach and post-study equipment purchase). AECOM will arrange for the lease of the eight Nutech 2703 samplers and 2703S sampler enclosures. If the City of Laredo is interested in continuing EtO sampling and would like to purchase the canister sampling equipment for future use, AECOM has arranged to sell the eight Nutech 2703 samplers and enclosures to the City of Laredo Health Department after deducting the costs incurred by leasing them. Details of the costs for the project are provided in the table below.

**Table 1. Estimated EtO Sampling Study Costs**

Description	Monitoring Plan	Field Monitoring	Analysis and Reporting	Optional – Community Outreach	Optional – Post-Study Purchase of Nutech Sampling Equipment
Labor	\$3,068	\$11,437	\$8,173	\$1,482	--
Travel and Shipping	--	\$3,758	--	--	--
Laboratory Costs	--	\$26,718	--	--	--
Sampling Equipment	--	\$5,460	--	--	\$32,760
Total	<b>\$58,614</b>			<b>\$1,482</b>	<b>\$32,760</b>

This proposal is submitted on the express condition that any final agreement is subject to the negotiation and execution of mutually acceptable terms and conditions. This proposal is valid for a term of 60 days after the date above, after which AECOM Technical Services, Inc. reserves the right to revise the cost estimate if needed to account for changes in the basis of the quote. It is assumed that this work will be completed before October 1, 2026.



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