Tricor Refining LLC

1134 Manor Street

Bakersfield, CA 93308

Rule 4460 Air Monitoring Plan

V.7

October 17, 2024

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List of Acronyms

ATSDR – Agency for Toxic Substances and Disease Registry (Minimal Risk Level for chronic exposure)

BTEX – Benzene, Toluene, Ethylbenzene, Xylene

CA/DIR – California Department of Industrial Relations (personal exposure limit)

CAL/OSHA – California Division of Occupational Safety and Health

CARB – California Air Resources Board

EPA – U.S. Environmental Protection Agency

H_2S – Hydrogen Sulfide

LDL – Lower Detection Limit

OEHHA – Office of Environmental Health Hazard Assessment

MET – Meteorological Station

NAAQS – National Ambient Air Quality Standards

NO – Nitric Oxide

PPB – Parts per Billion

QA/QC – Quality Assurance / Quality Control

QAPP – Quality Assurance Project Plan

REL – Recommended Exposure Limit

SJVAPCD – San Joaquin Valley Air Pollution Control District

SO_2 – Sulfur Dioxide

SOP – Standard Operating Procedure

UDL – Upper Detection Limit

Overview

On December 19, 2019, the San Joaquin Valley Air Pollution Control District (SJVAPCD) adopted Rule 4460 entitled "Petroleum Refinery Fence-line Air Monitoring." Rule 4460 was amended on October 20, 2022 by adding additional compounds to the fence line monitoring list. The amended rule requires real-time monitoring for the additional compounds, provided in Table 1 of the rule, with the following caveat:

"Should owner or operator of a petroleum refinery propose to not monitor one or more of the specified pollutants in Table 1, sufficient justification shall be included in the proposed fence-line air monitoring plan in accordance with the Rule 4460 Petroleum Refinery Fence-line Air Monitoring Plan Guidelines." Guidance provided by the SJVAPCD recommends that the maximum potential emissions based on equipment capacity should be used in the dispersion and risk modeling, instead of estimated actual emissions from the emissions inventory.

In a letter dated June 10, 2024, the SJVAPCD disapproved Tricor's March 4, 2024 air monitoring plan and asked Tricor to include an additional open-path UV DOAS monitor along the southwest fence line, or to provide justification for not doing so. SJVAPCD also asked Tricor to include the Aermod dispersion report and supporting files, and to include monitoring for sulfur dioxide and hydrogen sulfide. This Air Monitoring Plan includes the revisions requested by SJVAPCD as further described below.

This monitoring plan evaluates potential hazards to at-risk populations located near the refinery, describes the air monitoring systems to be used to measure the pollutant concentrations at the boundary of the refinery, and describes how the monitoring data will be made available to the public in real time.

- Section 1 presents an evaluation of emission sources and community impacts associated with emissions from Tricor Refining. This includes locating the individuals and organizations who might be considered sensitive receptors within one mile of the refinery, along with dispersion modeling and wind rose analysis to evaluate downwind impacts to receptors.
- Section 2 presents the proposed site locations for the fence line air monitoring systems at Tricor and describes how they detect refinery pollutants.
- Section 3 is an overview of the presentation of the fence line data to the public, including a real-time public access website.
- Section 4 presents the data management program including an outline of the Quality Assurance Project Plan to be developed after this plan is approved.

Section 1 – Evaluation of Emission Sources and Community Impact

1.1 Facility Description

Tricor Refining is in Bakersfield, California and produces asphalt and pavement emulsions. Tricor does not refine crude oil to produce fuels. As further described below, certain Rule 4460 compounds that are associated with refineries that do are neither stored nor emitted by Tricor.

1.2 Sensitive Receptors

Tricor identified the sensitive receptors within a one-mile boundary of the refinery. A real-time website will enable sensitive receptors as well as any person in the community to evaluate when a detection of pollutants from the fence line system is above normal background levels. This information can then be used by interested parties to take appropriate action to minimize exposure to refinery emissions. Table 1.1 lists the potential sensitive receptors based on direction from the refinery. Table 1.2 shows a list of sensitive receptors located within a mile of the fence line boundary of the refinery.

Table 1.1 – Potential Sensitive Receptors Based on Direction from Refinery

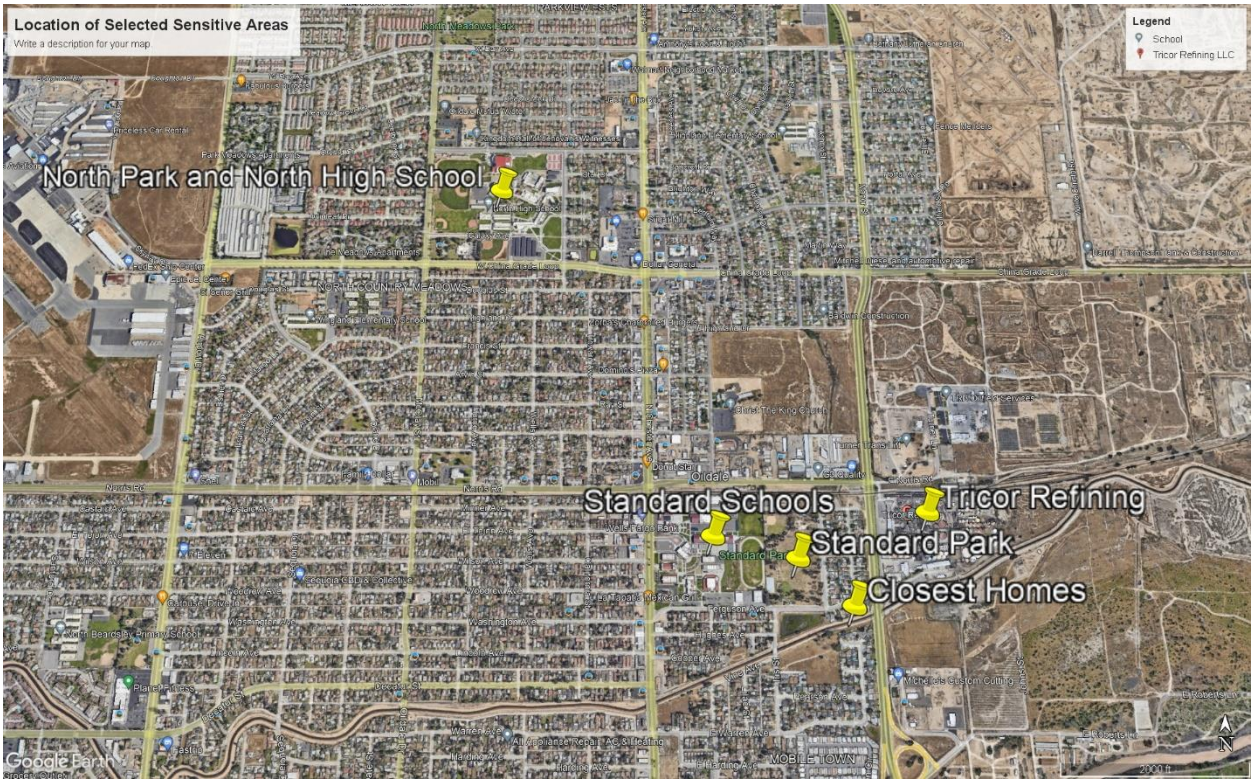
	Sensitive Receptors within a One-mile Area of the Bakersfield Refinery Fence Line			
Cardinal Direction from Fence Line	**Schools/Daycare**	**Recreation Areas**	**Hospitals/Adult Health Facilities**	**Residential**
North				x
Northwest	x	x		x
Northeast				
South				x
Southwest				x
Southeast		x		x
East				x
West	x	x		x

Table 1.2 – Tricor Sensitive Receptors within a mile (1,600 meters)

Name and Type	Distance
Residential Areas	50 to 1,600 meters to the north, south, east, and west
Standard Park	200 meters west
Standard Elementary School	400 meters west
Standard Middle School	400 meters west
Panorama Vista Preserve	1,000 meters southeast
North High School	1,500 meters northwest
North Park	1,500 meters northwest

Figure 1.1 shows the location of several types of sensitive receptors with respect to the refinery, including schools, residential areas, and a recreation area.

Figure 1.1 – Sensitive Receptors



1.3 Emission Sources

To determine the optimal locations for the fence line air monitoring equipment at Tricor, emissions of Rule 4460 pollutants were used for input into the Aermod dispersion model, using conservative inputs, to determine the maximum potential downwind impacts on sensitive receptors. The dispersion maps were generated by AirShed Planning Professionals using the Aermod program hosted by Trinity Consultants. The maps are based on emissions from non-combustion sources, primarily storage tanks and fugitives, and emissions due to maximum natural gas use by heaters and boilers. The Aermod maps indicate that the emitted compounds excluded from monitoring in this plan do not occur at concentrations above health-based standards at sensitive receptors (see, Section 1.3 below). Tricor's calculations and the Aermod report are provided to the District separately.

The emission rates from combustion and non-combustion sources were determined using the U.S. EPA AP-42 unit-specific emission factors. Total facility emissions used for the modeling, and the process of evaluating and determining their potential impact on downwind communities, followed guidelines outlined by the SJVAQMD. A GoogleEarth image of the emission sources at Tricor is shown in Figure 2.1. Met data from the Bakersfield Meadows Airport, from January 1, 2022 to February 14, 2024 provides the inputs for the Aermod dispersion model. The airport is 2.5 km to the WNW of Tricor. The results of the modeling are shown in Table 1.3. These pollutants may also be present during an unplanned release. The fence line system will include technologies that measure ambient concentrations of BTEX, naphthalene, sulfur dioxide, and hydrogen sulfide to determine potential impacts during maximum equipment

operation. In addition, volatile organic compounds will be monitored near the southwest fence line. Health standards are listed in Table 1.3.

Table 1.3 – Maximum Modeled Impacts of Rule 4460 Pollutants

Combustion sources comprise the bulk of the total emissions and include heaters 2, 4, and 145, and boilers 5 and 13, with stack heights between 30 and 100 feet. The emissions are produced by combustion of natural gas. The primary Rule 4460 pollutant are oxides of nitrogen, mostly NO. Other pollutants are emitted at lower mass rates. PM10 includes PM2.5; we used the mass rate of PM10 emissions as though all is PM2.5.

Rule 4460 Pollutant	Recommended Exposure Limit (ug/m3)	Source	Maximum Ground-Level Concentration (ug/m3)
Benzene	3	OEHHA	0.00156
Toluene	300	OEHHA	140
Ethylbenzene	260	ATSDR	50
Xylenes	700	OEHHA	185
Naphthalene	9	OEHHA	5.1
PAHs	0.002	OEHHA	0.000155
Sulfur Dioxide	660	OEHHA	1.10
Nitric Oxide	25,000	CAL/DIR	56
PM (2.5)	35	NAAQS	2.8
Acetaldehyde	140	OEHHA	0.0050
Ammonia	200	OEHHA	0.00224
Hydrogen Sulfide	1,045	AEGL-1	0.305
Formaldehyde	1,105	AEGL-1	0.020
Cadmium	0.5	OEHHA	0.0018
Manganese	0.3	OEHHA	0.00060
Nickel	0.014	OEHHA	0.00315

Concerning the pollutants that Tricor does not propose to measure, below is an explanation regarding the typical processes through which these compounds are usually generated, and the specific reasons why they are not emitted by Tricor.

Acetaldehyde. Acetaldehyde is emitted as a product of incomplete combustion by combustion sources at petroleum refineries, such as Tricor's heaters and boilers. Modeling indicates that the maximum ground-level concentration is much lower than the OEHHA exposure limit of 140 ug/m3.

Ammonia. Ammonia is used at refineries to neutralize acidic compounds and to convert stack emissions of NOx compounds to nitrogen and water vapor. Tricor does not store ammonia or use it any process. Tricor's ammonia emission evolve from wastewater treatment and from 20 storage tanks, with total emissions of less than one pound per year. The maximum concentration is much lower than the REL.

1,3-butadiene. At refineries, 1,3-butadiene is produced during ethylene steam cracking of naptha or gas oil feedstocks. Some butadiene is recovered from olefinic refinery gases, mainly from fluid catalytic crackers. Butadiene is recovered in the ethylene cracker in the crude C4 fraction. Tricor does not have these processes and does not produce or emit the compound.

Rule 4460 Metals. Cadmium, Nickel, and Manganese are emitted by refinery combustions processes, which includes Tricor's heaters and boilers. The emissions evolve from trace concentrations of the metals in natural gas. As shown in Table 1.3, the maximum ground levels concentrations are a factor of 10 or more lower than the RELs.

Diethanolamine. Refineries use diethanolamine to remove hydrogen sulfide from sour gas. Tricor does not have sufficient concentrations of hydrogen sulfide in sour gas to require removal with diethanolamine and does not store or use this compound.

Formaldehyde. Formaldehyde evolves as a product of incomplete combustion. Tricor's heaters and boilers, which combust natural gas, generate formaldehyde. As shown in Table 1.3, the highest ambient concentration is much lower than the REL.

Hydrogen Fluoride. Refineries use hydrogen fluoride in an alkylation process to produce gasoline. Tricor does not produce gasoline, and does not store the compound or use it in any process.

Nitrogen Oxide. NO is generated during the combustion of natural gas. The human health exposure limit is 25,000 ug/m3; as shown in Table 1.3, the maximum ambient concentration from Tricor's emissions is much lower than the REL. Tricor modeled its NOx emissions as though only NO is emitted.

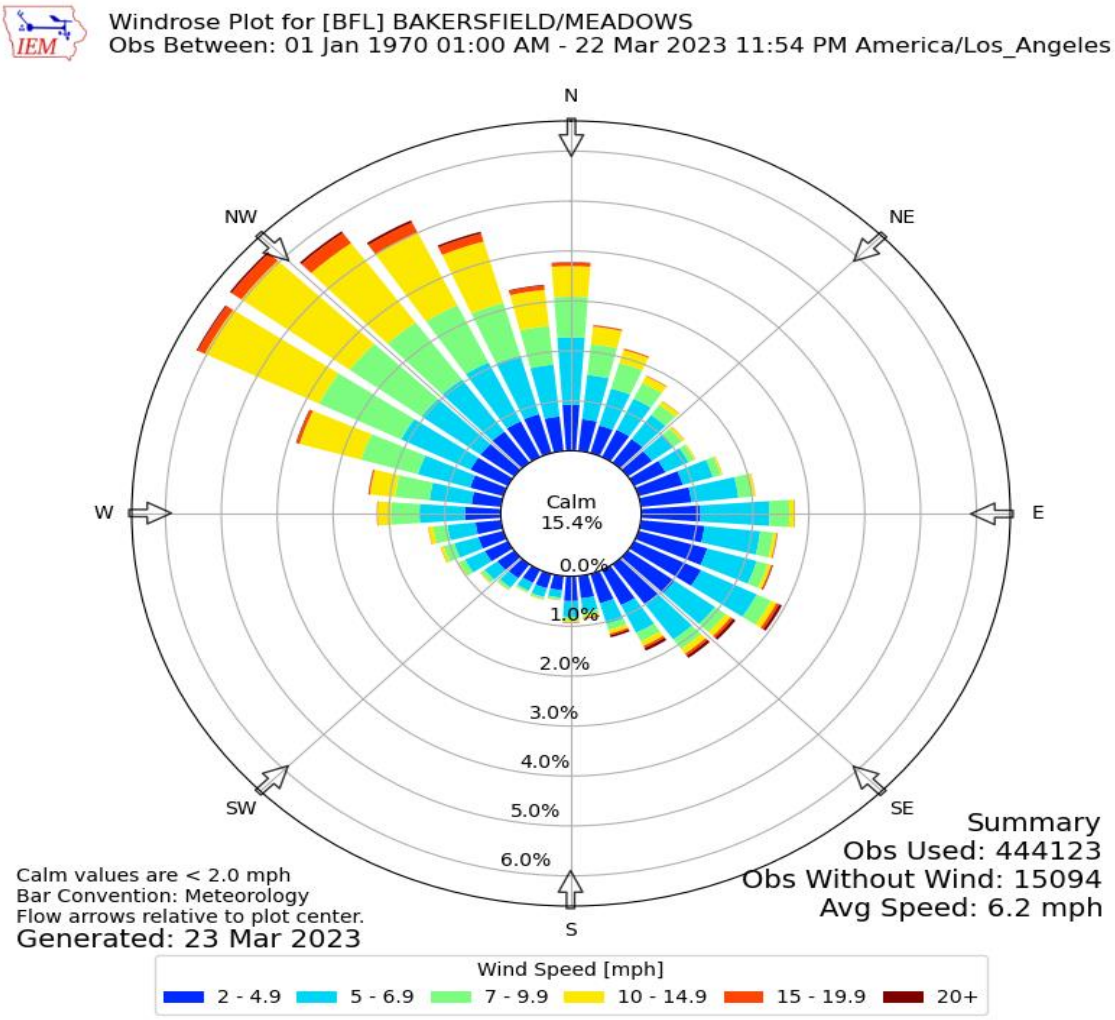
Polycyclic Aromatic Hydrocarbons. PAHs, including naphthalene, evolve from incomplete combustion. Tricor will measure the fence line concentrations of naphthalene. For the other PAHs, the public health risk benchmark is 0.002 ug/m3 (Rfc) based on benzo(a)pyrene, recommended by OEHHA as a surrogate marker for combined PAHs. Tricor's heaters and boilers emit PAHs. As shown in Tables 1.3, the ambient concentration is below the OEHHA limit of 0.002 ug/m3.

Particulate Matter. The primary source of particulate matter emissions from refineries is the Fluid Catalytic Cracking Unit. Lesser amounts are also produced by combustion of natural gas. Table 1.3 lists the ambient particulate matter concentration from Tricor's heaters and boilers as though all of the PM is PM2.5. The modeled maximum ambient concentration is lower than the NAAQS standard of 35 ug/m3.

Sulfuric Acid. Refineries use sulfuric acid as a catalyst to create high octane alkylate, which is blended to create higher octane gasoline. Tricor does not produce gasoline, and does not store, use or emit sulfuric acid.

1.4 Wind Rose

An annual windrose compiled from data recorded at the Bakersfield Meadows Airport is shown below.



Section 2 – Proposed Fence Line Monitoring Systems and Site Locations

Systems that can detect refinery emissions will be used as described below.

2.1 Monitoring Technology Descriptions

Open-path UV Air Monitoring Systems

The measurements of BTEX gases, naphthalene, and sulfur dioxide will be achieved using open-path UV DOAS air monitors which measure gas concentrations over a distance. The UV DOAS air monitors detect gases in real-time using beams of ultraviolet light. A beam of light is projected in the open air to a reflector at the other end of the beam path. The light beam is then transmitted back to the base unit where the light

spectra is analyzed. The system identifies gases by examining the wavelengths of UV light that have been absorbed by the gases present in the light beam. The exact distances of the light paths at Tricor will be finalized based on on-site testing of signal strength but will be on the order of 100 to 170 m. The amount of gas in the air is proportional to the amount of light absorbed at specific wavelengths.

The system uses a multivariate method to quantify data. This analytical approach ensures that false detections of gas do not occur. Each target gas has a spectral library of gases covering the concentration range of the analyzer. It also includes libraries of potential interfering gases such as oxygen and ozone. In addition, the system undergoes data and quality assurance checks in the field by using a sealed gas cell that contains the target gases. The length of time needed for routine maintenance will be less than four hours per month.

Table 2.1 – Monitoring Technology Detection Limits

100 meters	UV DOAS	
Gas	**LDL** (ppb)	**UDL** (ppb)
Benzene	0.9	5,483
Ethylbenzene	12	5,483
Toluene	2.8	2,742
Xylene	1.6	2,742
Naphthalene	1.0 (estimated)	Per test results
Sulfur Dioxide	2.1	2,202

Detection limits were determined using EPA Method TO-16 and may vary due to field conditions. The limits for naphthalene will be similar to the above ranges for benzene. The UDL for naphthalene is expected to be higher than the public health effects levels and will be determined during QA/QC testing before field deployment.

Hydrogen Sulfide Point Monitoring System

Hydrogen sulfide will be monitored at each UV DOAS path using a Teledyne/Advanced Pollution Instrumentation (Teledyne/API) T101 hydrogen sulfide analyzer. In the T101 analyzer, sulfur dioxide is removed from the sample gas in a scrubber. Hydrogen sulfide in the sample gas is then converted to sulfur dioxide in a molybdenum converter operating at 315 °C, designed to minimize conversion of reduced sulfur species other than hydrogen sulfide. Sulfur dioxide is then measured through excitation by ultraviolet (UV) light, where sulfur dioxide molecules absorb UV light and become excited at one wavelength, then decay to a lower energy state emitting UV light at a different wavelength. The emitted light is captured on a photomultiplier tube through a bandpass filter tuned to wavelengths emitted by excited sulfur dioxide molecules and is translated into a reading of hydrogen sulfide concentration. The instruments will be configured to collect and record data in five-minute averages. The LDL is 5 ppbV and the UDL is 500 ppbV.

Meteorological Station

A meteorological station will be installed at 10 m elevation in an open area of the refinery. The station will provide wind speed, wind direction, temperature, and relative humidity.

Backup Monitoring Equipment

In the event the UV DOAS system is offline for extended periods of time (> 96 hours), Tricor will provide temporary monitoring using 24-hr volatile organic compound (VOC) canister sampling upwind and downwind of the site.

2.2 Proposed Locations for Monitoring Equipment

Based on the modeling and windrose, emissions that may affect sensitive receptors are often transported from the refinery in southeastern and northwestern directions with significant lateral plume dispersion due to the numerous closely spaced storage tanks. For this reason, the locations of the monitoring equipment are intended to capture pollutants transported in these directions where a community or other sensitive receptors may be downwind of refinery emissions.

Figure 2.1 on the next page presents the proposed locations for the fence-line air monitoring systems at the refinery.

Figure 2.1 - Fence-Line Monitoring

Red lines are UV DOAS and H_2S locations, yellow thumbtacks are met (NE corner) and red thumbtack are source locations.

2.3 Generic Timeline for Tricor System Implementation (Figure 2.2)

TASK	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11	Wk 12	Wk 13	Wk 14	Wk 15	Wk 16	Wk 17	Wk 18	Wk 19	Wk 20
Generic Timeline for SJR																				
Instrument Procurement	■	■	■	■	■	■														
Integration							■	■												
Factory Acceptance Testing									■											
Shipment										■										
Installation											■									
Site Acceptance Test												■	■							
Physical Setup																				
Scope Out Trailer Design Elements	■	■																		
Procure Monitoring Station			■	■	■	■	■	■	■	■	■	■								
Deliver Monitoring Station													■							
Secure Foundation														■						
Install Electrical Panel															■	■				
Install Sample Train																	■			
Install Hardware																		■		
Site Acceptance Test																			■	■
Website																				
Website Development	■	■	■	■																
Testing					■	■	■	■												
Run Non-Public Website									■	■	■	■								

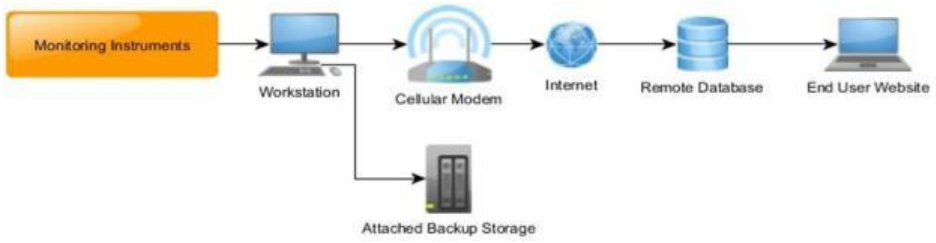
Table 2.3

Generic Timeline	Weeks
Instrument Procurement	6
Integration	2
Factory Acceptance Testing	1
Shipment	1
Installation	1
Site Acceptance Test	2
Physical Setup	**Weeks**
Install Electrical Panel	2
Install Hardware	1
Site Acceptance Test	2
Website	**Weeks**
Website Development	4
Testing	4
Run Non-Public Website	4

Section 3 – Data Presentation to the Public

The air monitoring equipment specified for the Tricor fence line system will collect data from the analyzers every five minutes and be transmitted to an Internet website where the real-time results can be viewed by the public. Figure 3.1 provides an example of how the monitoring data will be communicated.

Figure 3.1 - Data Communication System



The community website will include a message board to inform the public of relevant information as needed. For example, the message board may be updated when an analyzer is undergoing maintenance, QA/QC checks are being conducted, or other conditions where an analyzer is not in an operational state for an extended period. In addition, the public will be able to send E-mails suggesting enhancements to the public access website or any other issue of interest to the community. Data from the fence line monitors will be transmitted to an Internet website where the near-real-time results can be viewed.

General Description of the Community Website

As part of the fence line monitoring program, a public website will be created to educate the public on the information provided by the fence line monitoring system. The site will present air monitor readings

and is designed as an educational tool to inform the community, as well as answer questions about the air monitoring system used to capture these readings. The website will include four major sections:

- Learning Center
- Resources and Contacts
- Real-time Data
- Reports and Archives

Learning Center

The website will include a learning center to educate the public on the information provided on the site, which will include the following elements:

- Where the fence line monitors are located
- Why these locations were selected
- What chemicals are being monitored
- What equipment is being used
- Terms and definitions

Resources and Contacts

Resources and contact information will be provided for the public to inquire about this website, the monitoring program, and resources associated with the possible health effects of the pollutants being monitored. Resource links will include:

- The 24-hour phone number provided by Tricor
- The contractor operating and maintaining the fence line system
- The San Joaquin Valley Air Pollution Control District (SJVAPCD)
- The California EPA Air Resources Board (CARB)
- The California Division of Occupational Safety and Health (Cal/OSHA)
- The California Office of Environmental Health Hazard Assessment
- The U.S. Environmental Protection Agency
- The World Health Organization

Real-time Data Display

Data will be updated from the analyzers every five minutes and displayed as one-hour and eight-hour averages. In addition, the website will include a method for the general public to sign up for notifications that will give them status updates associated with the community website. These updates will include notifications when instrument readings are above preset levels, an instrument is offline or inoperable, when maintenance is being performed on the instruments, and when any other significant event

associated with the fence line monitoring programs occurs. The website will include the following:

- Information regarding the analyte measured and the measurement techniques
- Discussion of levels of concern for each measured analyte
- Definition of data QC flags
- Explaining any loss of data
- Links to additional sources of information
- Details of how the public can report experiences and provide comments and feedback for improvement of the website and other data dissemination tools and the monitoring activities in general

Reports and Archives

The public will be provided access to an archive of air quality monitoring reports gathered by the air quality monitoring system. Figures 3.2 through 3.4 present the website concept for the monitoring system.

Figure 3.2 – Tricor Refining Community Website Home Screen

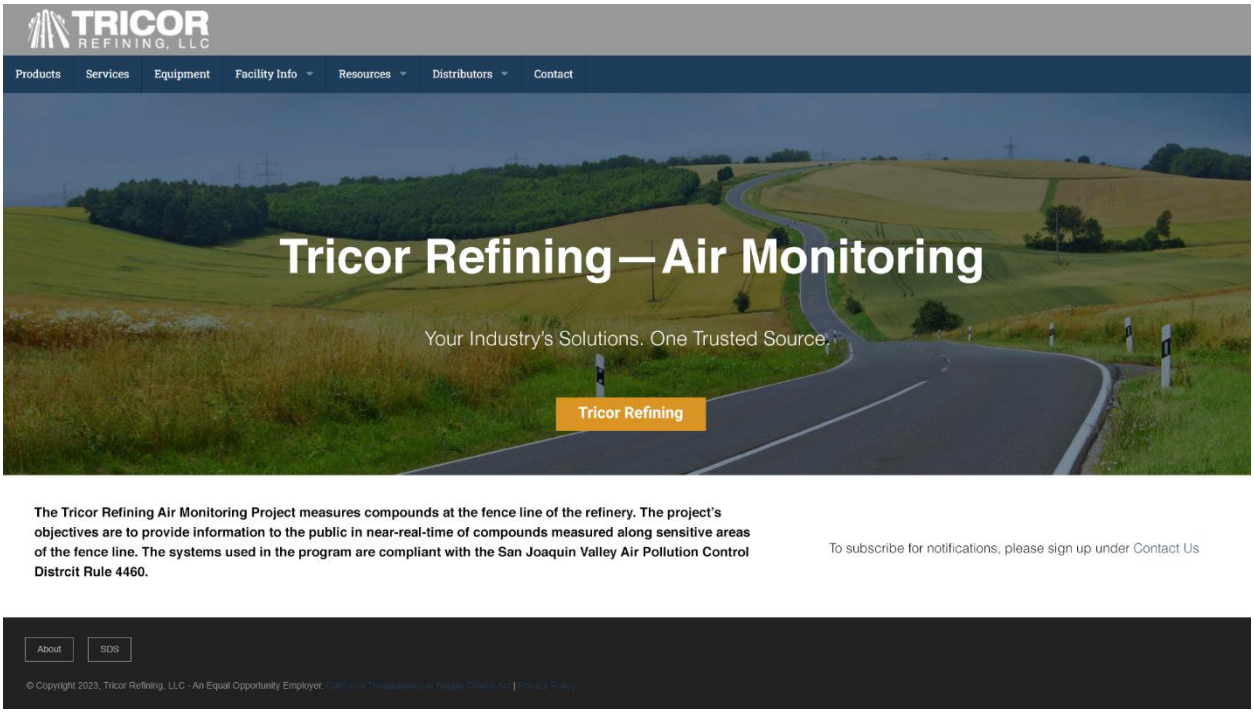
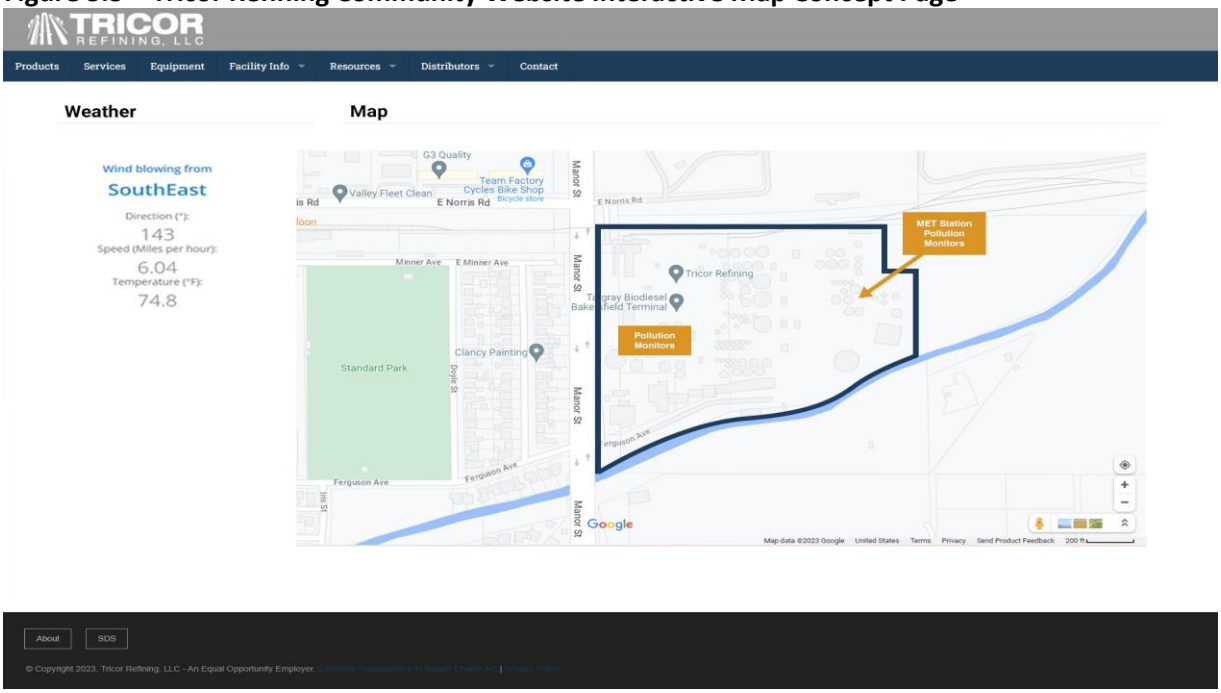


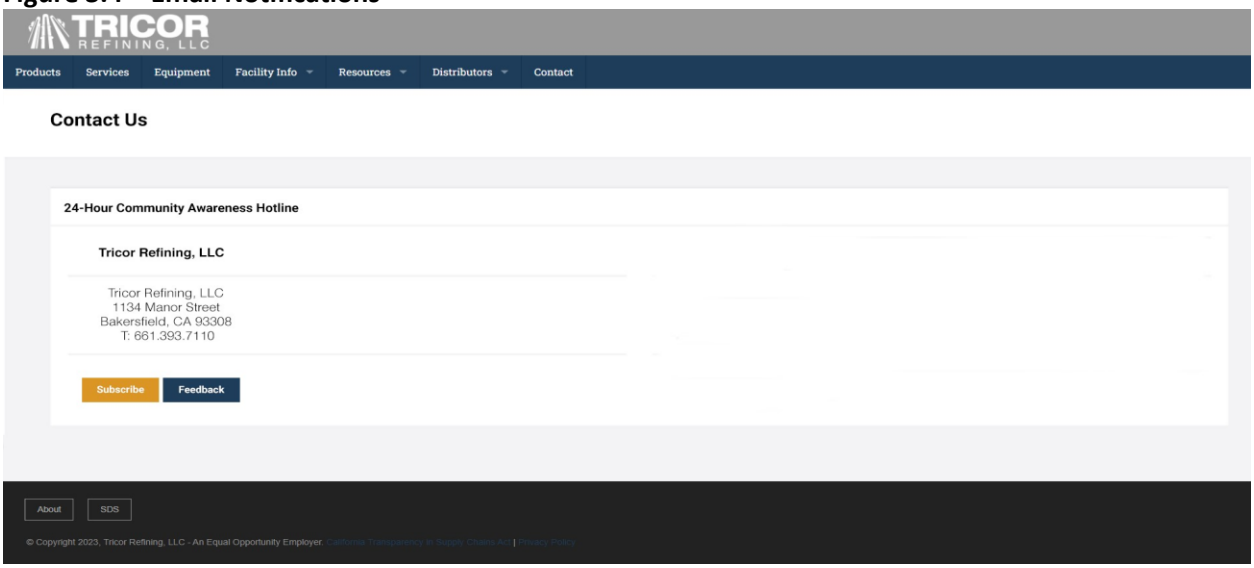
Figure 3.3 – Tricor Refining Community Website Interactive Map Concept Page



When the Tricor button is clicked, an interactive map will be seen that presents:

- UV DOAS monitors and MET, with labels
- An information box with an accompanying arrow to indicate wind direction and speed
- A consistently updating table below the map (not shown in this concept) that lists all the detectable gases, and their current detected concentrations

Figure 3.4 – Email Notifications



Alternative Communications Methods

Other methods of communicating the data to the public include the following:

- Automated email notification system
  - Click on the "subscribe" button on the Contact Us page.
  - Enter email for notifications.
- Published quarterly data summary reports

Section 4 – Data Management

Data generated by the fence line monitors will undergo review throughout the measurement and reporting process. Included in this process are automated QA/QC checks that occur before data is reported on the real-time website. Under normal circumstances, a measurement will appear on the website within 10 minutes of the end of the measurement period. All data generated by the monitors will be retained for a period of five years after collection.

The site will also make available a rolling 24-hour trend of the five-minute data for each gas reported. Table 4.1 lists the real-time automated data quality checks.

Table 4.1 – Real-time Data Quality Checks

Real-Time Check	Check	Action
Instrument Error Code	Instrument Error Code	Real-time website reports "offline" message. E-mail sent to Tricor and fence-line contractor. Website message board updated to inform community that analyzer troubleshooting underway. Website updated when system is back online.
Instrument Workstation Offline	Instrument Communication Check	Real-time website reports "offline" message. E-mail sent to Tricor and fence-line contractor. Website message board updated to inform community that computer workstation troubleshooting underway. Website updated when system is back online.
Internet Connection Lost	Backup Connection Enabled	E-mail sent to Tricor and fence-line contractor. Community is not notified because backup connection will be enabled.
High Detection	Valid Data Detection Above Threshold	Real-time website indicates detection above alarm threshold by color change for gas. Notification sent to Tricor and fence-line contractor. Contractor will examine raw data to validate detection. Tricor will initiate investigation into source. Message board on website will be updated with information.

The fence line system is continually monitored for system performance. This includes the instruments, workstations, and Internet communication hardware. If an element of the system fails to meet performance criteria, a message is generated and sent to key personnel at Tricor and the contractor who will begin activities to correct the problem. If an issue cannot be immediately corrected, the real-time website will be updated with a notification explaining the problem and the corrective action activities. Table 4.2 lists elements and the performance thresholds.

Table 4.2 - Real-time Instrument Performance Checks

Problem	Notification	Action
Analyzer offline	Notification sent to contractor and Tricor	Website updated with analyzer offline message. Technician dispatched to correct issue.
Workstation fails	Notification sent to contractor and Tricor	Website updated with analyzer offline message. Technician dispatched to correct issue.
Internet communication failure	Notification sent to contractor and Tricor	Backup Internet connection activated

In addition to the real-time data checks, data from the fence line system will be reviewed and validated monthly with the results stored in a separate portion of the monitoring database from the raw data. Data review and validation include but are not limited to the following:

- Non-field data such as calibration data
- Spurious data associated with power or mechanical issues

Data that has been flagged as non-valid will be retained along with a notation for the reason it was flagged. Table 4.3 summarizes the process by which monitoring data is reviewed and post processed.

Table 4.3 – Monthly Data Validation Checks

Post Process Data Check	Check	Action
Non-field Data Check	Maintenance logs and QA/QC logs will be checked to see when systems were not in normal operating mode.	Quality Assurance Manager will flag any data that meets these criteria. Data will be excluded from QA/QC report.
Spurious Data	Instrument error codes will be checked and flagged if instrument error codes are recorded.	Quality Assurance Manager will flag any data that meets these criteria. Data will be excluded from QA/QC report.

4.1 Quality Assurance Project Plan (QAPP) and Standard Operating Procedures (SOPs)

The QAPP and SOPs will be "living" documents that will be updated and revised as Tricor and its contractors gain experience operating, maintaining and managing their fence line monitoring system. These documents will be reviewed periodically and revised and reapproved as needed. This will include an annual review and five-year updates or more frequently if significant changes are made. The QAPP and SOPs will be submitted for review and approval by Tricor when the final equipment is selected for the fence line program. The plan will be reviewed by a third-party auditing process that will be reviewed by SJVAPCD. Finally, SJVAPCD may periodically audit the QAPP and SOPs. The following items will be included in the QAPP:

Outline - Quality Assurance Project Plan for Fence Line Monitoring Program

- Document Control Page
- Signatory Page
- Table of Contents
- Distribution List

Section #1 - Project Management

- Fence Line Monitoring Task Organization
- Key Refinery Personnel
- Key Contractor Personnel
- Contractor Program Manager
- Contractor Quality Assurance Manager
- Contractor Data Processing Manager
- Contractor Field Technician

Section #2 - Description of the Fence Line Program

- Objective of the monitoring program
- Site map
- Physical description of equipment location including GPS coordinates, elevations, and monitoring equipment
- Upper and lower detection limits for each pollutant

Section #3 – Description of Hardware

- Analyzer description
- Meteorological station
- Data collection equipment
- Workstations

- Routers
- Remote restart equipment
- Cloud-based data storage

Section #4 - Quality Management System

Instrument Quality Assurance Quality Control

Level 0 Continuous Real-time Operational Checks

- Monitor instrument error codes

Level 1 Monthly Checks

- Evaluate system noise
- Calibration checks

Level 2 Quarterly Checks

- Detection limit checks
- Precision, linearity, accuracy checks

Level 3 Annual Checks

- Annual servicing of instruments
- Preventive maintenance
- Validate systems are meeting original factory acceptance specifications

Data Management Quality Assurance Quality Control

Level 0 – Continuous Real-time Checks

- Real-time validation of the data using two methods for quantification

Level 1 – Daily Review of Data

- Operational staff daily review

Level 2 – Weekly Review Data

- Validation staff review considering historical and similar measurements

Level 3 – Monthly Review of Data

- Supervisor level review with consideration of interrelationships with other data

Monitoring Program Response

Level 0 – Real Time System Checks

- Real-time notification of instrument error code
- Real-time notification light signal from open-path monitoring

Level 1 – Daily System Checks

- Check community website each day

Level 2 – Monthly Report and Review of Operational Performance

- Review on-stream efficiency

Level 3 – Annual Audit

- Annual independent audit of fence line monitoring program

Section #5 - System Maintenance

- Maintenance and service based on real-time error code
- Monthly maintenance check of instruments
- Quarterly preventive maintenance
- Annual service from certified manufacture representative

Section #6 – Training

- Field work training
    - System alignment
    - Routine analyzer maintenance
    - QA checks on site
- Data analysis
    - Verification of detections
    - Data validation

Section #7 – Document Control

- Management and Organization
    - Quality Assurance Project Plan for Fence Line Monitoring Program
    - Organizational chart
    - Personnel and training
    - Support contract
- Site Information
    - Site maps
    - Equipment registers
- Field work
    - SOPs
    - Field notebooks
    - Sample handling check sheets
    - Maintenance check sheets
    - QA check sheets

- Raw data
    - Description of raw data files generated by instruments
- Data Reporting
    - Realtime website
    - Monthly reports

- Data Management
    - Database structure
    - Data management flowchart
    - Database backup plan
- Quality Assurance
    - Site audits
    - Corrective action reports
    - System audits
    - Data quality assessments

Appendix: Aermod Dispersion Report and Supporting Files (provided separately)