



**BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT**

October 16, 2023

Michael Marlowe
Manager, Environmental Affairs
Martinez Refining Company, LLC
3485 Pacheco Boulevard
Martinez, CA 94553

RE: Disapproval of Regulation 12, Rule 15 Fenceline Air Monitoring Plan and Quality Assurance Project Plan

Dear Mr. Marlowe:

On September 1, 2023, Martinez Refining Company (MRC) submitted a revised fenceline air monitoring plan (AMP) and quality assurance project plan (QAPP) to the Bay Area Air Quality Management District (Air District). MRC submitted the AMP and QAPP in response to the Air District's July 19, 2023 Notice of Deficiency (NOD), as required by Air District Regulation 12-15-404.4.

Having reviewed the AMP and QAPP, the Air District has determined that MRC failed to correct all of the deficiencies with respect to Regulation 12-15 or the Air Monitoring Guidelines for Petroleum Refineries, which the Air District identified in the NOD; the specific deficiencies MRC failed to correct are discussed in Attachment 1 to this letter. These remaining deficiencies are fundamental to compliance with Regulation 12-15. As a result, the AMP and QAPP do not meet the requirements in Section 12-15-403. Therefore, pursuant to Section 12-15-404.4, the Air District hereby disapproves MRC's AMP and QAPP.

MRC must develop an approvable AMP and QAPP that complies with Regulation 12-15; the Air District looks forward to working with you on that effort. If you have any questions regarding this notification, please contact me at jbovee@baaqmd.gov.

Sincerely,

Jerry Bovee, P.E., QSTI
Air Quality Engineering Manager

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Attachment 1 - Basis for Disapproval of MRC's Fenceline Air Monitoring Plan and Quality Assurance Project Plan

1. With regard to quarterly reporting, the Air District's July 19, 2023 Notice of Deficiency (NOD) stated that the contents of the air monitoring plan (AMP) and quality assurance project plan (QAPP) were inconsistent with the procedures specified in our December 22, 2022 letter interpreting the Air Monitoring Guidelines for Petroleum Refineries (Guidelines) established pursuant to District Regulation 12-15-406 in April 2016. For example, statements that MRC would provide one-hour average concentration data to the Air District were inconsistent with the requirement to provide 5-minute average data. To resolve this issue, the NOD stated that the contents of attachments 2 and 3 to our December 22, 2022 letter must be included in the AMP, QAPP, or standard operating procedures (SOPs).¹

While MRC did incorporate the contents of attachments 2 and 3 to our December 22, 2022 letter into its QAPP as appendices A and B, MRC failed to revise the corresponding text in the main body of the AMP and QAPP. Both the AMP (p. 26) and QAPP (p. 26) still state, for example, that MRC will provide the Air District with one-hour average concentration data. The AMP and QAPP thus remain deficient in this regard.

2. With regard to quarterly reporting, the NOD identified statements in the AMP and QAPP that must be revised to clearly state that quarterly reports will be provided to the Air District no later than 60 days after the end of each calendar quarter.²

While MRC revised the relevant language in the QAPP, it failed to revise the corresponding language in the AMP (see p. 26). The AMP thus remains deficient in this regard.

3. With regard to quality assurance and quality control (QA/QC), the Guidelines (p. 10) require the AMP to include a QAPP that follows EPA guidelines and specifies methodologies for ensuring appropriate levels of QA/QC, data acceptance criteria, levels of data quality, data management issues and procedures, and data review and validation procedures. The NOD stated that the QAPP contained an insufficient level of detail regarding the methods and procedures that would be used to carry out maintenance on the hydrogen sulfide monitoring system.³ The NOD also stated that the AMP, QAPP, and standard operating procedures (SOPs) contain unclear and unacceptable provisions regarding the data management, validation, and reporting process.⁴ To address these deficiencies, the NOD stated that MRC must provide detailed standard operating procedures or other specific documentation in the QAPP to more fully describe all of these activities.

While MRC's September 1, 2023 submittal included numerous SOPs, the QAPP and SOPs still lack adequate detail. For example:

- The SOPs generally lack information about the personnel qualifications that are needed to perform various activities, the necessary equipment and supplies, the availability of spare parts and equipment, health and safety warnings that must be followed to prevent personal injury, and other precautions that must be followed to prevent equipment damage. All of this is information,

¹ See Attachment 1 to the July 19, 2023 NOD, issue number 3, pp. 1-2

² See Attachment 1 to the July 19, 2023 NOD, issue number 4, p. 2

³ See Attachment 1 to the July 19, 2023 NOD, issue number 7, p. 4

⁴ See Attachment 1 to the July 19, 2023 NOD, issue number 11, pp. 4-5

which should be included in SOPs according to guidance from the US Environmental Protection Agency (EPA).⁵

- Page 17 of the QAPP states that each measurement quality objective (MQO) will undergo assessment and revision during the “Internal System Audit Plan” and the “Annual Management Review.” These audits and reviews are not otherwise discussed in the QAPP or SOPs. As a result, details about them are unclear, as are details about the process by which each MQO will be assessed and revised.
- Internal references to various SOPs are inconsistent, and document numbers are missing. For example, the SOP titled, “Instrument Malfunction Error Code” includes a reference to the, “Continual Improvement Procedure” (document IMS-QLT-MAN-010). However, MRC’s submittal does not include a document with that name or reference number.
- The SOPs refer to multiple documents that were not provided with the QAPP (e.g., Monthly System Down and Alarm Records Form [FLM-QLT-FOR-001], Critical Spares Tracking List [FLM-QLT-REG-001], Non-conformance/Improvement form [IMS-QLT-FOR-001]).
- Certain SOPs refer to the collection of a “background” before going live. Details regarding the collection and use of the background are unclear.
- The “Data Validation Flags” SOP refers to [REDACTED] Details regarding the reference are unclear.
- Instructions in the “Monthly Validation of Field Data” SOP are unclear. For example, it is unclear what the SOP refers to when it says to use the “prior five-minute data set.” Also, where the SOP says to report, “the data point that has the lowest combined levels of precision and accuracy” it is unclear why all of the relevant data are not used to determine the precision and accuracy.
- The SOP titled “System Challenges of Open-path TDL Air Monitoring System” refers to [REDACTED] Details regarding [REDACTED] are unclear.
- The SOP titled “Minimum Detection Limit (MDL) Determination for Open-Path H₂S Monitoring System” describes a process whereby a series of 26 spectra are collected but only 25 spectra are analyzed for the target gas. Presumably that is because one is used for background measurements. However, the details of the process are unclear.
- The SOP titled “Minimum Detection Limit (MDL) Determination for Open-Path H₂S Monitoring System” describes a process whereby a series of 26 spectra are collected using an averaging time of 5 minutes. However, the sample data used in the SOP for illustrative purposes have time stamps which are inconsistent with data averaged over five minutes.
- The SOP titled “Open-Path Air Monitoring Systems - Precision” describes a process whereby hydrogen sulfide will be introduced into a multi-pass cell and 25 single-beam spectra of the target gas will be obtained. The SOP is unclear about the procedures for introducing the hydrogen sulfide gas into the cell and it is unclear whether the procedure uses raw measurements or measurements averaged over a period of time.
- The SOP titled “Open-Path Air Monitoring Systems - Accuracy” describes a procedure whereby a calibration gas with a known concentration is inserted into the beam path. The procedures for introducing the calibration gas into the beam path are unclear.
- The SOP titled “System Challenges of Open-path TDL Air Monitoring System Operation and Maintenance” contains a table with several maintenance activities including:

⁵ United States Environmental Protection Agency, (2007). Guidance for Preparing Standard Operating Procedures (SOPs) [QA/G-6]. Available at <https://www.epa.gov/quality/agency-wide-quality-program-documents>.

- o Visually inspecting the system;
- o Confirming alignment to verify there has not been significant movement;
- o Downloading data from the detectors and deleting old files;
- o Ensuring there are no obstructions between the detectors and the light source;
- o Verifying system settings;
- o Cleaning the optics on the detector and retroreflector;
- o Realigning the system after service;
- o Checking system performance indicators; and
- o Performing an annual service check.

The SOP is unclear about the details for performing these activities (e.g., scope, step-by-step procedures, personnel qualifications, equipment and supplies, availability of parts and equipment, health and safety warnings, and other precautions).

As the AMP, QAPP, and SOPs continue to lack sufficient detail regarding the procedures for maintenance activities, QA/QC activities, and data management, review, and validation, they are deficient. For guidance on the development of an adequate QAPP and SOPs, see EPA guidance document QA/G-5, *Guidance for Quality Assurance Project Plans*, and guidance document QA/G-6 *Guidance for Preparing Standard Operating Procedures (SOPs)*.

4. With regard to the accuracy of the hydrogen sulfide monitoring system, the NOD discussed a convention used in the AMP, QAPP, and SOPs where the word “accuracy” is used to represent the concept of “error.” For example, the formula used in the SOPs for quantifying the system “accuracy” actually represents the degree of error in the measurements. Because this convention may be confusing or misleading to readers of the AMP, QAPP, and associated SOPs, the NOD stated that MRC must restate the formula as the % Error of the system and revise the text of the AMP, QAPP, and any SOPs to accommodate the revised definition (for example, measurement quality objectives should be restated to say that the error must be less than or equal to 15%).^{6,7,8}

The AMP, QAPP, and SOPs remain deficient as MRC did not make the necessary changes.

⁶ See Attachment 2 to the July 19, 2023 NOD, issue number 1, p. 1

⁷ Although it was not stated in the NOD, the AMP, QAPP, and SOPs should take the same approach with respect to the concept of precision. For example, rather than stating that the precision must be less than or equal to 15%, the AMP, QAPP, and SOPs should instead say that that relative standard deviation or coefficient of variation must be less than 15%.

⁸ Also see, for example, National Institute of Standards and Technology Technical Note 1297, Appendix D1, which recommends that measures of uncertainty be used to quantify measurement accuracy.