Summary of Public Comments on Rule 1180 Fenceline Air Monitoring Plans

General Description

Health and Safety Code section 42705.6 and South Coast AQMD Rule - Refinery Fenceline and Community Air Monitoring, require all major petroleum refineries in the South Coast Air Basin (Basin) to install and operate fenceline air monitoring systems to measure a comprehensive list of criteria pollutants and toxic air contaminants. Each refinery is required to submit a fenceline air monitoring plan for South Coast AQMD approval that provides detailed information about fenceline coverage, air monitoring instrumentation, maintenance and quality control procedures, backup systems, auditing, and data reporting methods. All fenceline air monitoring plans should be consistent with the Rule 1180 Refinery Fenceline Air Monitoring Plan Guidelines developed during the rulemaking process (http://www.aqmd.gov/docs/default-source/rule-book/support-documents/1180/rule-1180-guidelines.pdf) and approved by the South Coast AQMD Governing Board.

The seven major refineries affected by Rule 1180 are:

- Tesoro Refining and Marketing Company, LLC, Los Angeles Refinery - Carson Operations, Carson, CA;
- Tesoro Refining and Marketing Company, LLC, Los Angeles Refinery - Wilmington Operations, Wilmington, CA;
- Torrance Refining Company, LLC (formerly Exxon-Mobil), Torrance, CA;
- Chevron Products Company, Chevron El Segundo Refinery, El Segundo, CA;
- Phillips 66 Company, Carson, CA;
- Phillips 66 Company, Wilmington, CA;
- Valero Energy, Valero Wilmington Refinery, Wilmington, CA

Rule 1180 exempts petroleum refineries that have a maximum capacity to process less than 40,000 barrels per day from requirements of the rule. Paramount Petroleum (now owned and operated by Delek U.S. Holdings Inc.) voluntarily accepted a permit condition limiting its throughput of crude oil to no more than 39,500 barrels per day, thus meeting the requirements for exemption.

In August 2018 all refineries submitted their draft fenceline air monitoring plans to South Coast AQMD. Tesoro submitted one plan covering both the Wilmington and Carson refineries. Refinery fenceline air monitoring plans are required to provide information on fenceline air monitoring equipment; procedures for equipment maintenance and failures; procedures for implementing quality assurance; and methods for dissemination of fenceline air monitoring data. Upon the initial review of the plans, South Coast AQMD staff determined that all

submitted plans had major deficiencies. Staff worked with each refinery individually to improve the plans. As a result of this work, Chevron El Segundo, Tesoro, Phillips 66 Carson, Phillips 66 Wilmington, and Torrance refineries submitted revised draft fenceline air monitoring plans in November 2018. Valero refinery submitted its revised draft fenceline air monitoring plan in January 2019.

All fenceline air monitoring plans were made available for public review. All comments received by staff were carefully considered to determine if modifications of the draft plans should be made, prior to their official approval or disapproval.

The public comment period for the Chevron, Phillips 66, and Torrance refineries monitoring plans began on December 7, 2018, and for the Tesoro refinery plan on December 11, 2018. Initially, comment periods for those plans were to close on December 21, 2018 and December 25, 2018, respectively. However, due to the holiday season and multiple community requests, the comment period was extended to January 11, 2019. Due to delayed submission of the revised plan by the Valero Wilmington refinery, their fenceline air monitoring plan was released for public comment on January 23, 2019, with the comment period closing on February 6, 2019.

By the comment closing deadline of February 06, 2019, South Coast AQMD had received a total of 88 public comments from community organizations, private citizens, government organizations, school districts, and businesses, which are summarized in this document. Comments were submitted stating that plans should be modified and augmented prior to their approval. Other comments expressed the desire for the plans to be approved without modification, so that refinery monitoring can commence as soon as possible. Some commenters asked for an extension of the comment period, and for a public forum/workshop organized by South Coast AQMD to present and explain the details of each plan to the communities. A few commenters asked for clarification as to which facilities are required to establish Rule 1180 fenceline monitoring. Figure 1 summarizes the types of comments received for the Chevron, Phillips 66, Torrance, Tesoro, and Valero refineries.

Some of the comments were brief, addressing a single refinery, but a number of very detailed comments covering proposed monitoring, data display and notification requirements for every refinery were also received. Some comments were submitted by individuals, while others were submitted on behalf of groups and community members and were signed by multiple individuals. Figure 2 shows the number of comments received for each refinery plan.

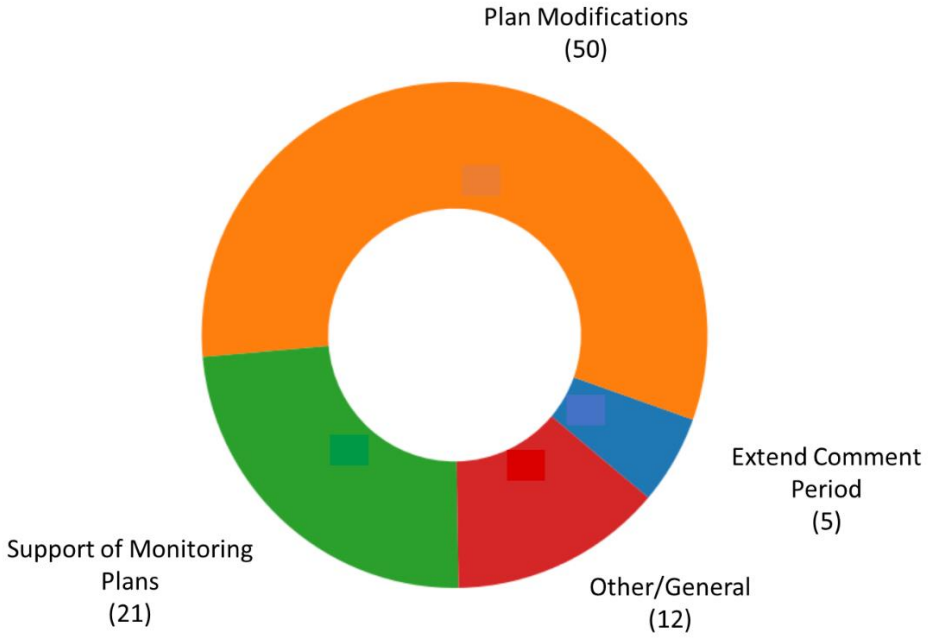

Figure 1. Type of public comments received for the fenceline air monitoring plans submitted by the Chevron, Tesoro, Phillips 66, Torrance, and Valero refineries.

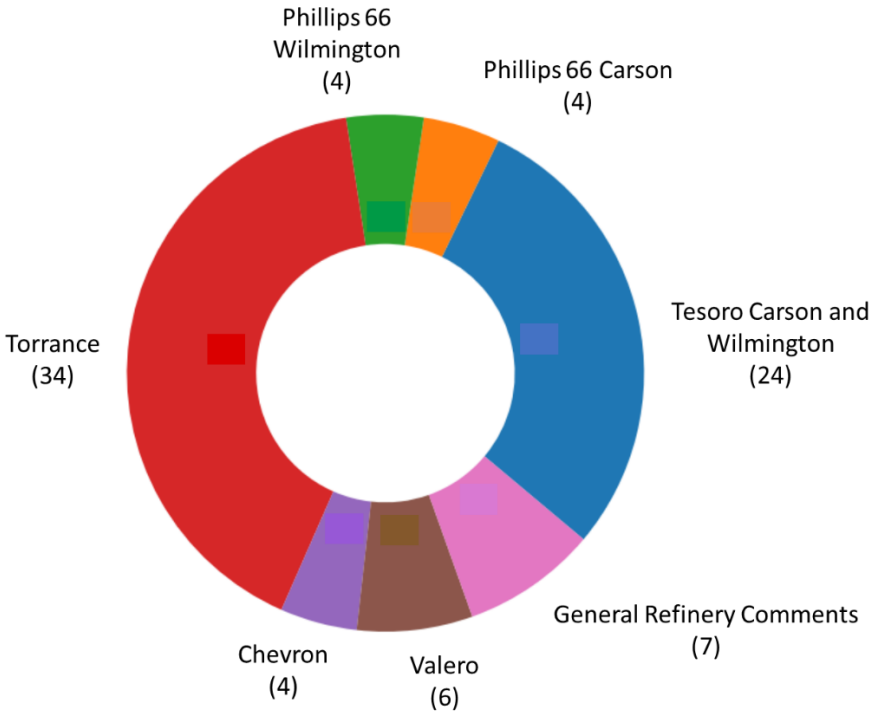

Figure 2. Number of comments received for each refinery. The comments addressing more than one refinery were included in a count for each corresponding refinery.

Following review and analysis of the public comments, staff worked with each refinery to modify their proposed fenceline coverage in order to address the concerns raised by the public. All refineries agreed to modify their proposed fenceline coverage by including additional open-path and point instruments, and South Coast AQMD staff determined that the revised fenceline coverages are adequate to satisfy the requirements of Rule 1180. Therefore, all refineries received partial approvals for the fenceline monitoring portion of the plans. South Coast AQMD staff will continue working with all refineries on all other elements of the fenceline monitoring plans, namely: back-up monitoring and maintenance, data presentation to the public, public notifications and notification thresholds, and quality assurance/quality control (QA/QC). All elements of refinery plans will be in operation by the January 1, 2020 deadline in Health and Safety Code section 42705.6 for the fenceline air monitoring system.

A summary of the public comments received on the South Coast AQMD Rule 1180 refinery air monitoring plans and South Coast AQMD staff responses are presented below. Staff would like to thank everyone who provided feedback on the plans for their thoughtful comments and suggestions. South Coast AQMD staff will continue to consider these comments while working with refineries to improve all elements of their fenceline air monitoring plans.

Major Comments

- Recirculate the revised plans for an additional comment period prior to final approval and schedule a public meeting to present and explain the fenceline air-monitoring plans to the communities.
    - ***South Coast AQMD Staff Response****: Staff is concerned that another round of public comments will delay implementation of the fenceline monitoring plans and could result in failure to meet the implementation deadline in Health and Safety Code section 42705.6. One or more public meetings to present and explain the details of each fenceline air-monitoring plan would be beneficial to the public. All refineries received partial approvals only, so public meetings will be scheduled after the fenceline air monitoring portion of the refinery plans have been fully approved. Staff will continue to work with the refineries to improve other portions of the plans (e.g. notification thresholds, data display and notifications, QA/QC, and back up monitoring).*
- All refineries must explain and justify all gaps in fenceline monitoring coverage. In particular, Tesoro, Phillips 66, Valero, and Chevron Plans require additional fenceline air monitoring coverage by open-path instruments. More detailed comments are listed below:
    - Phillips 66 Wilmington lacks coverage on the SE portion, where the refinery's modeling shows elevated concentrations of ammonia, benzene, cyclohexane and propylene. Mormon Island and other portions of the Port of Los Angeles (POLA) will be affected by these emissions.
        - ***South Coast AQMD Staff Response:*** *South Coast AQMD had contracted UCLA Department of Atmospheric and Oceanic Sciences to develop and implement an "optical tent" for continuous monitoring of benzene, toluene, ethylbenzene and xylenes (BTEX) at the Phillips 66 Wilmington refinery. This optical tent will be able to detect elevated levels of pollutants moving towards the SE boundary of the refinery.*

Additionally, staff will conduct periodic mobile optical remote sensing (ORS) surveys around each refinery. If the optical tent or mobile ORS measurements indicate elevated pollutant levels near the SE boundary of Phillips 66 Wilmington refinery, staff will require installation of additional paths along that portion of the facility under provision (d)(5)(C) of the Rule 1180.

- Absence of sensitive receptors along a certain portion of the refinery does not absolve refineries from monitoring along that fenceline because the purpose of the rule is not only to provide information of air pollution impacts, but also measure "routine emissions," "detecting leaks," and documenting "unplanned releases from refinery equipment and other sources of refinery-related emissions."
    - ***South Coast AQMD Staff Response:*** *South Coast AQMD evaluated the refineries fenceline monitoring plans taking into consideration the location of potential emission sources, the location of sensitive receptors, and environmental parameters including meteorology. Based on this information, and further dialogue with the refineries, staff believes that the partially approved plans contain fenceline air monitoring coverage that is adequate to satisfy the requirements of Rule 1180.*
- Tesoro must provide fenceline coverage along all portions of the fencelines of both refineries and elaborate in detail of any structural or roadway constraints that would prevent implementation of full fenceline coverage.
    - ***South Coast AQMD Staff Response:*** *The partially approved fenceline air monitoring plan for Tesoro includes additional fenceline coverage. This additional fenceline coverage is adequate to satisfy the requirements of Rule 1180.*
- Chevron must add fenceline monitoring paths along the western boundary to accommodate for off-shore wind conditions in order to protect beach-goers who potentially can be exposed to refinery emissions. Chevron must also add or extend monitoring paths to cover the gap between the proposed paths 1 and 2 in order to provide coverage sensitive receptors located ¼ mile north of the gap.
    - ***South Coast AQMD Staff Response:*** *Chevron had already proposed one monitoring path along the western boundary where a residential community is located. There are no residences or other sensitive receptors along the remaining portion of the western boundary, and it is also outside of the predominant wind direction. As a result, staff will not require Chevron to install additional monitoring paths along that portion of the facility. The partially approved fenceline air monitoring plan for Chevron includes an additional monitoring path to cover the gap between paths 1 and 2.*
- Valero lacks any fenceline monitoring in the northern segment of the refinery facing the Terminal Island freeway. Also, sampling system 1 should incorporate an additional path to provide coverage on the western portion of the refinery edge. Finally, Valero should consider additional coverage in the southern part of the refinery adjacent to the Terminal Island freeway.
    - ***South Coast AQMD Staff Response:*** *South Coast AQMD staff required Valero to add additional monitoring paths to achieve near-full fenceline coverage of the refinery. The remaining gaps in coverage are the result of a challenging facility layout and presence of multiple obstructions. Staff conducted multiple refinery visits to walk*

through the facility fenceline, and can confirm that installation of open-path instrumentation along those portions of the facility is impracticable.

- All refineries must monitor along all light paths at all times and not alternate one open-path instrument between two retro-reflectors.
    - ***South Coast AQMD Staff Response****: The installation of open path equipment on motorized stages offers the ability to quickly and remotely re-align monitoring system(s) if misalignment to a retroreflector occurs. This will result in larger data recovery. Staff determined that using one UV or IR light source alternating between two retroreflectors would still provide adequate and meaningful time resolution for fenceline monitoring to meet all requirements in the Rule 1180 guidelines.*
- All refineries must install additional H_2S and black carbon (BC) monitors. Specifically:
    - Refineries should add point monitors along each open path segment.
    - The current placement of BC and H_2S monitors for Phillips 66 Carson does not provide sufficient coverage of the residential area west of the facility, where the dispersion maps show elevated concentrations of air toxic pollutants.
    - Valero should move the locations of the H_2S analyzers and BC aethalometers to locations predominantly downwind of sources of H_2S and diesel exhaust particulate sources (shown in Figure 2-13 and 2-14).
        - ***South Coast AQMD Staff Response:*** *In addition to point monitors, H_2S will be continuously monitored by all OP-FTIR instrumentation installed at the fenceline. The OP-FTIR has less detection capability for H_2S than point monitors. However, open path instruments will provide a broader fenceline coverage, therefore complimenting information from point monitors. Staff will require refineries to report H_2S concentrations measured by both point and open path instruments. Staff also evaluated specific comments regarding the placement of point monitors at each refinery, and requested all refineries include additional H_2S and BC point monitors, and to relocate some of the monitors.*
- All plans must justify the choice of lengths for monitoring paths, and how the length of open-path monitoring paths may affect data quality.
    - ***South Coast AQMD Staff Response:*** *Staff requested refineries to expand the path-length selection discussion, and how it may affect data quality. All submitted plans contain expected performance metrics (e.g. detection limits) for the fenceline systems. Additionally, staff required all refineries to include estimates of detection limits for the shortest and the longest proposed paths. Staff also required refineries to verify that this performance is achieved by the monitoring equipment during the first 6 months of operation. In addition, all refineries will limit the length of each patch of their fenceline system(s) to a maximum value of approximately 500m, which is a nominal path-length identified in the Rule 1180 guidelines. Staff exercised independent judgment to allow for longer path-lengths on certain paths of Valero, Tesoro, and Phillips 66 Wilmington refineries, with a commitment from the refineries to install additional monitoring paths if instrumentation does not perform as expected.*

Other Comments

- All plans should propose installation of fans and heaters for retroreflectors to minimize effects of the environment on data recovery.
    - ***South Coast AQMD Staff Response:*** *Some refineries included installation of fans and heaters on retroreflectors as optional. At this stage staff will not seek modifications to the fenceline monitoring plans to include installation of fans and heaters for retroreflectors. Staff is working with optical remote sensing contractors to determine if installation on fans and heaters will result in increased data recovery. Requirements for the installation of fans and heater may be included in the quality assurance sections of the plan. A decision on this matter will be made when the refinery QAPPs are finalized.*
- All plans must provide detailed information on equipment maintenance procedures that will be put in place.
    - ***South Coast AQMD Staff Response:*** *Details of maintenance procedures and practices will be included in the quality assurance elements of the plans. Staff will work with all refineries to finalize and approve the QA/QC portions of all plans prior to the start of fenceline monitoring.*
- The Tesoro, Valero and Phillips 66 plans must provide GPS coordinates and heights for all proposed monitoring stations
    - ***South Coast AQMD Staff Response:*** *As part of the partial approval letter staff required all monitoring plans to include GPS coordinates of all proposed monitoring equipment.*

- All plans must provide GPS coordinates for all sensitive receptors, present them on the map, and identify their distance to the refinery and fenceline monitoring equipment. Specifically:
    - Phillips 66 Carson's report does not quantify the distances to the closest sensitive receptors. Furthermore, Phillips 66 Carson and Tesoro Carson omitted some nearby schools, parks or other highly-sensitive areas in the list of sensitive receptors.
    - Valero must not limit its discussion of sensitive receptors to schools, and must include identification and map of other types of receptors (e.g. hospitals, daycare centers, recreational facilities, etc.); and Valero must reassess the location of sensitive receptors in the area and identify these receptors accurately in its plan. Valero's claim that the closest residential uses are approximately 740 meters from the northwest boundary of the Refinery is inaccurate.
        - ***South Coast AQMD Staff Response****: Staff required modifications to the fenceline monitoring plans to include complete lists of sensitive receptors and residences around each refinery.*
- All plans must discuss the impacts of out of the ordinary meteorological conditions, such as Santa Ana Winds, calm days, inversion layers, etc.
    - ***South Coast AQMD Staff Response:*** *Staff will not require a discussion of unusual meteorology because the coverage of all fenceline monitoring systems for all refineries are complete or near-complete, and adequate to cover all critical portions*

of the refineries. As a part of Rule 1180 implementation, all refineries will be conducting meteorological measurements, therefore allowing the ability to differentiate between different meteorological conditions.

- In addition to annual-averaged dispersion modeling, refineries should also conduct short-term modeling in order to evaluate the impacts on communities and to be consistent with short-term notification system.
    - ***South Coast AQMD Staff Response:*** *Notification systems will be designed to notify of exceedances based on well-established relative exposure limits and air quality standards that will be clearly identified and defined. South Coast AQMD staff is already working to develop a consistent notification system for all refineries.*
- All refineries must discuss recent South Coast AQMD optical remote sensing studies that found the measured emissions are often greater than inventories, and use these updated emission factors in the modeling exercises.
    - ***South Coast AQMD Staff Response:*** *Staff will not require refineries to conduct modeling based on emission rates measured by FluxSense (South Coast AQMD's contractor), as these emission estimates have been obtained during a technology demonstration study that was conducted during a five week period in 2015. Additional measurements are underway to refine these emission estimates for most of the refineries. The fenceline monitoring systems implemented under Rule 1180 will further our understanding of refinery emissions.*
- All refineries must specify selected air monitoring equipment.
    - ***South Coast AQMD Staff Response***: *This is not necessary for the partial approvals of the plans. However, all refineries were required to commit to use instrumentation that can achieve proper detection limits for the species of interest. All refineries are required to include projected instrument performance (e.g. detection limits) in their plans, to demonstrate that their monitoring equipment is achieving those detection limits, and to provide mitigation plans (e.g. installation of additional monitoring equipment) if these detection limits are not met during the first 6 months of operation.*
- Phillips 66 must add monitoring of NOx.
    - ***South Coast AQMD Staff Response****: Staff required Phillips 66 to add this pollutant to the list of compounds for monitoring.*
- All refineries must conduct monitoring for additional air pollutants resulting from refinery operations beyond what is identified in Rule 1180 list of pollutants [Note: Comments on this topic ranged from general requirements for all Hazardous Air Pollutants (HAPS) and Toxic Air Contaminants (TACs), Polycyclic Aromatic Hydrocarbons (PAHs), and Polycyclic Organic Matter (POMs), to specific requests for the addition of methanol and other compounds at specific refineries].
    - ***South Coast AQMD Staff Response****: The list of Rule 1180 pollutants was adopted after an extensive public process, which included input from public comments and multiple working group meetings. Monitoring of additional air pollutants is optional but not required under this rule.*
- Phillips 66 must include sensitive receptors as another criterion for selection of fenceline monitoring paths.

- ***South Coast AQMD Staff Response****: The Phillips 66 Carson and Wilmington monitoring plans state that receptors were taken into account during the plan's development without providing information to substantiate this claim. As a result, staff required the refinery to expand the discussion and include a comprehensive list of sensitive receptors.*

- All plans lack or have an incomplete discussion on QA/QC. All QAPP and SOP must be completed before the plans are approved and presented for public review.
  - ***South Coast AQMD Staff Response:*** *At this stage, all approvals of the fenceline monitoring plans are partial. Final approvals will be pending the South Coast AQMD guidance on public notification thresholds, data presentation to the public, and submissions by refineries (and South Coast AQMD approval) of a QAPP and associated SOPs. The QAPP will be submitted to South Coast AQMD after the refinery finalizes its vendor and instrument selection and <u>before</u> beginning fenceline monitoring. Staff will take into account public comments and suggestions while working with refineries on finalizing QAPPs and SOPs. South Coast AQMD envisions that the QAPP and SOPs will be living documents to be updated and revised as refineries and their contractors gain experience operating, maintaining and managing their fenceline monitoring systems. These documents will be reviewed, revised, and reapproved by South Coast AQMD as needed.*
- All plans must include an implementation schedule.
  - ***South Coast AQMD Staff Response:*** *Staff required all plans to include an implementation schedule.*
- All plans must include public notification thresholds. Notification thresholds must be harmonized between all plans.
  - ***South Coast AQMD Staff Response****: Staff agrees with the requests to harmonize public notifications and notification thresholds for all refineries, and is working to develop recommended notification thresholds. Due to the aggressive Rule 1180 implementation timeline, initial approvals of the refinery fenceline monitoring plans will be partial and for the fenceline monitoring coverage only. This is to allow for installation of measurement equipment so that all refineries can meet the regulatory deadline for fenceline monitoring. Staff will work to harmonize the notifications thresholds among all refineries.*
- Valero proposed notification levels are too high.
  - ***South Coast AQMD Staff Response****: See response to the previous comment.*
- All plans must be revised to include an outline of public outreach and education programs.
  - ***South Coast AQMD Staff Response****: Section 5 of Rule 1180 guidelines highlights the value and importance of a robust public outreach and education program. All plans will be required to include these two elements and staff will work with the refineries to harmonize education and outreach activities between all facilities.*
- Communities wish to have a singular website and app for the data from all fenceline monitoring systems
  - ***South Coast AQMD Staff Response:*** *At the initial implementation stage, South Coast AQMD Rule 1180 monitoring pages will contain links to all refineries' fenceline air*

monitoring pages. Staff will then work with the refineries and their contractors to explore how to consolidate all fenceline reporting onto one platform.

- Data should be presented in multiple languages spoken in the LA Basin. This could be met by adhering to the 2018 Election Language Assistance Requirements of the California Secretary of State (https://www.sos.ca.gov/administration/news-releases-and-advisories/2018-news-releases-and-advisories/six-new-languages-added-2018-election-language-assistance-requirements/).
    - ***South Coast AQMD Staff Response****: The South Coast AQMD is not subject to the 2018 Election Language Assistance Requirements of the California Secretary of State, which applies specifically only to elections. However, the South Coast AQMD will consider language access when the data display and notification portions of the fenceline monitoring plans are submitted for approval.*
- Torrance and Valero refineries must explain the distinction between HF and MHF, including different additives for MHF and how they affect vapor pressure.
    - ***South Coast AQMD Staff Response****: From an air monitoring equipment perspective, there is no difference between monitoring for HF or MHF. However, for purposes of public education, staff will request that an explanation of the difference between HF and MHF is included in the final plan.*
- Back-up monitoring equipment should be approved by South Coast AQMD.
    - ***South Coast AQMD Staff Response****: Back-up monitoring will be used if fenceline monitor(s) are offline and cannot be repaired within 24 hours. While such repairs take place, a refinery will be required to conduct alternative/back-up monitoring. Staff will require all refineries to expand a description of back-up monitoring, and work with the refineries to develop common and appropriate approaches for back-up monitoring activities.*
- Valero's description of backup and failure protocols are inadequate, the refinery should have a more robust plan regarding monitoring equipment failure.
    - ***South Coast AQMD Staff Response****: Please see response to the previous comment.*
- All plans must include a discussion of how refinery emissions would be differentiated from other pollution sources in the area.
    - ***South Coast AQMD Staff Response****: Data from community air monitoring stations will complement fenceline measurements conducted by the refineries. By combining two datasets, staff should be able to separate and differentiate contributions from various sources.*
- All plans must specify independent contractor/party oversight prior to the plan's approval.
    - ***South Coast AQMD Staff Response:*** *As a part of Rule 1180 implementation, staff will determine the most appropriate way to provide oversight for the refineries fenceline systems, which may include a qualified independent contractor. South Coast AQMD has internal subject-matter experts, and will also be conducting periodic audits of all fenceline air monitoring systems.*
- The final design of the public notification systems must be created prior to the plan's approval.
    - ***South Coast AQMD Staff Response:*** *Public notification systems for all refineries are intended be finalized prior to final approvals of the plans, and prior to the beginning of monitoring. The partial approvals are necessary to allow for installation of the fenceline monitoring system prior to the statutory deadline of January 1, 2020.*

- All plans must offer real-time data reporting displaying with one-minute and 5-minute averages; and plans must not provide rolling time averages of the 5-minute data.
    - ***South Coast AQMD Staff Response:*** *Open-path fenceline equipment is capable of measuring path-integrated concentration of pollutants with approximately 5-minute time resolution. Thus, one-minute average data cannot be measured and reported. In order to provide a health context to the measured data, staff will require all refineries to provide 1-hr, 8-hr, and 24-hr rolling averages, updated every 5- or 10-minutes. This is in addition to the near real time (5-minute average) information. Staff will also work with refineries and other stakeholders on developing appropriate educational materials to help members of the public understand the potential impacts of elevated concentrations of pollutants (as measured at the refinery fenceline).*
- Data display must show several days in order to offer more representative trends in the data.
    South Coast AQMD Staff Response*: Staff agrees with this comment and will seek to modify the plans to include real-time data display of 2-3 days.*
- Plans do not effectively address public alert and communication mechanisms in a manner coincident with first response systems should a threshold exceedance occur.
    - ***South Coast AQMD Staff Response:*** *Followed the partial approval of the plan, staff will work with the refineries to develop the notification system.*
- Phillips 66 must provide the location and citing configuration for the on-site meteorological station.
    - ***South Coast AQMD Staff Response:*** *Staff required Phillips 66 to add this information to the fenceline monitoring plans for their Carson and Wilmington facilities.*
- OP-FTIR upper or maximum detection limits for HF are too low. Monitors should be capable of detecting chemicals up to hundreds or thousands of ppm (depending on a compound) in order to quantify larger releases.
    - ***South Coast AQMD Staff Response****: OP-FTIR fenceline monitoring instruments have lower detection limits of a few ppb, therefore allowing detection of very small amounts of HF at the fenceline. For larger leaks, with concentrations reaching ppb levels, sensors already installed and operated inside the refinery will notify South Coast AQMD before elevated concentrations are detected at the fenceline.*
- Torrance refinery should monitor HF at all concentration ranges (below 1 ppm, 1-100 ppm, and 100-10000 ppm level). Monitoring must also be conducted at location(s) where MHF additive is separated out and collected. Also, HF/MHF should be monitored in/near Settler Tanks, HF/MHF transfer areas, pipelines and flanges used to transport HF/MHF. Valero needs to measure HF/MHF in areas downwind of locations where HF/MHF are present. Measurements should be done within 8 feet of the ground and Multiple Hydrogen Fluoride Monitoring Poles (HFMP) should be placed at each Valero refinery Fenceline Monitoring Position, up to 25 m vertical height and lateral spacing of less than 100 meters, to have a real-time emergency assessment of any offsite ground-hugging hydrogen fluoride cloud release.; and every refinery boundary (N, S, E, W) should have HF monitors providing full coverage at the fenceline so no HF plume can drift out undetected.
    - ***South Coast AQMD Staff Response****: Most commercial OP-FTIR systems are capable of continuous monitoring of HF with detection limits of a few ppb, allowing detection of very small amounts of HF at the fenceline. Rule 118O requires installation of air monitoring systems at the refinery fenceline only. The sensors currently installed and*

operating in proximity to potential HF sources inside the refinery will notify South Coast AQMD before elevated concentrations are detected at the fenceline. Staff also confirmed with OP-FTIR contractors that certain modifications in spectral analysis are possible in order to increase maximum detection range capabilities. Staff will require refineries to include this explanation in the QA/QC portions of the plan.

- Torrance and Valero refineries must monitor HF at different heights. E.g. from the ground level to up to 25 meters (based on the Goldfish Test).
    - ***South Coast AQMD Staff Response:*** *South Coast AQMD is working on Proposed Rule 1410 – Hydrogen Fluoride Storage and Use at Petroleum Refineries that would further address the unique concerns with HF/MHF management, use, monitoring and safety http://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/proposed-rule-1410.*
- Torrance and Valero refineries must conduct HF monitoring at the fenceline itself or immediately outside along the entire refinery boundary.
    - ***South Coast AQMD Staff Response:*** *Torrance and Valero refinery fenceline monitoring plans propose monitoring of HF using OP-FTIR along all light paths stretching along nearly the entire refinery fencelines. Small gaps in fenceline coverage are outside of predominant wind directions for both refineries, and away from the nearest residential and sensitive receptors.*
- South Coast AQMD must use the historical complaint database (maintained by South Coast AQMD) in addition to the "routine" emissions associated with annual emissions reporting to determine the placement of fenceline monitors. This approach would add additional information on "upset" emissions.
    - ***South Coast AQMD Staff Response:*** *This is a good suggestion and staff will take it into consideration when selecting locations for Rule 1180 Community Monitoring Stations. It should be noted that the partially approved fenceline monitoring plans offer near-complete coverage, which would provide up to date information on air quality around refineries after the fenceline systems will become operational.*
- The odor "nuisance" issues must be addressed, even though for some pollutants (e.g. H_2S) odors would be below their reference exposure levels (RELs).
    - ***South Coast AQMD Staff Response:*** *Staff agrees with this comment and for this reason all refineries are required to install point monitors for H_2S, as their detection limit is superior to that of available open-path instruments.*
- Phillips 66 Carson and Tesoro Carson must include information on RELs and other exposure limits in order to help the public understand the potential effects of exposure to the pollutants, including pollutant threshold values.
    - ***South Coast AQMD Staff Response:*** *Staff will require refineries to include information on RELs and other exposure limits.*
- South Coast AQMD must postpone approvals of Rule 1180 fenceline air monitoring plans until AB 617 Community Plans have been completed so that all these requirements can be incorporated into the fenceline air monitoring plans.
    - ***South Coast AQMD Staff Response:*** *This request cannot be satisfied. Rule 1180 and Health and Safety Code section 42705.6 have specific and defined fenceline air monitoring requirements for refineries, and aggressive timelines.*

- All plans must insure 90% instrument uptime requirement.
    - ***South Coast AQMD Staff Response****: Performance of open-path fenceline air monitoring equipment may be affected by environmental conditions, such as fog or rain. Installation of fans and heaters at the retroreflectors may, in some instances, minimize these affects. However, these measures are unlikely to be effective during thick fog and, therefore, cannot fully guarantee and ensure an instrument uptime of 90% or above. Staff will work with the refineries to outline a robust back-up plan. As required by the rule, refineries should notify South Coast AQMD of equipment failures lasting longer than 24 hours; and submit an updated fenceline monitoring plan if equipment failure lasts more than 30 days.*

- All plans must post flaring emission information.
    - ***South Coast AQMD Staff Response:*** *South Coast AQMD Rule 1118 – Control of Emissions from Refinery Flares, requires refineries to provide notifications for planned and unplanned flaring events, and to report flaring emissions. Community members can sign-up for flaring notification events on South Coast AQMD Rule 1118 pages: http://www.aqmd.gov/home/rules-compliance/compliance/r1118.*
- Draft Plans do not include requirements or penalties if increasing emissions trends are observed.
    - ***South Coast AQMD Staff Response:*** *The refinery plans describe how refineries will conduct monitoring, and provide notification of emissions at the fenceline. The monitoring could help inform refinery leak detection and repair programs and other refinery compliance efforts.*
- All plans must identify data security features, such as encryption protocols, for monitoring data to be protected from hackers and other intrusions. All plans should insure that raw monitoring data is archived, and cannot be altered.
    - ***South Coast AQMD Staff Response:*** *Staff will require all refineries to provide a description of data security and data integrity measures as a part of the QAPP.*
- All plans should disclose if equipment calibration will comply with USEPA FEM/FRM instruments.
    - ***South Coast AQMD Staff Response:*** *All refineries are required to develop and submit for South Coast AQMD review and approval a detailed QAPP. Some of the fenceline monitoring instruments (e.g. OP-FTIR and UV-DOAS) are not designated as FRM/FEM by the EPA. As the result, most FRM/FEM calibration procedures will not apply.*
- Quarterly reports must include information on any exceedances that occurred during quarter and resulting mitigation steps.
    - ***South Coast AQMD Staff Response:*** *Staff will require refineries to include a description of exceedances in the quarterly reports, as outlined in the Rule 1180 guidelines. Staff will also work with refineries to disclose the resulting mitigation steps in the quarterly reports.*
- Plans must identify all emission control equipment identified in Title V permits.
    - ***South Coast AQMD Staff Response:*** *This is not required by Rule 1180. As indicated, the information can be found in the Title V permits, which are public documents.*
- Plans must include identification of equipment malfunctions, breakdowns, and power failures previously occurred at the refinery, as well as include information on all NOV's.

- ***South Coast AQMD Staff Response:*** *This is outside of the requirements of Rule 1180.*

- All equipment failures and malfunctions must be remedied within one hour.
  - ***South Coast AQMD Staff Response:*** *All plans include back-up contingencies for instrument malfunctions/breakdowns. It is impossible to guarantee that all malfunctions can be repaired within one hour. However, staff will require all refineries to include a maintenance and failure plan with a committeemen to remedy equipment issues as soon as practicably feasible.*
- Mobile back-up monitoring proposed by Phillips 66 must commence within 5 min of equipment breakdown if mobile system is on-site, and within one hour, if system is off-site.
  - ***South Coast AQMD Staff Response:*** *Based on staff's experience with operating and maintaining stationary and mobile air monitoring equipment, such rapid response requirements are impractical and infeasible. However, Phillips 66 will be required to include a detailed description of the proposed mobile monitoring, and begin back-up monitoring as soon as practicably feasible.*
- Plans must include information on where and how chemicals are used in manufacturing and in consumer products.
  - ***South Coast AQMD Staff Response:*** *This is outside of the requirements of Rule 1180.*
- Plans must address how fenceline air monitoring equipment can be affected by animals (e.g. insects, birds).
  - ***South Coast AQMD Staff Response:*** *Staff will require refineries to take appropriate steps to ensure that animals will not interfere with the operation of the fenceline air monitoring equipment. This will be described in the QA/QC portions of the plans.*
- Local residents of Carson and Wilmington, a community organization in Wilmington, and a business in El Segundo encouraged South Coast AQMD to approve Tesoro and Chevron fenceline monitoring plans as soon as possible because they would like Rule 1180 to be implemented as soon as possible. Additionally, a non-profit organization located in San Pedro offered support for Tesoro plan, stating that it complies with the Rule 1180 requirements and will provide valuable real-time data that will lead to reduction in emissions.
  - ***South Coast AQMD Staff Response:*** *Certain elements of the plans (i.e. back-up monitoring, notification thresholds and QA/QC) require further development before they can be completely approved. Rule 1180 has specific deadlines for the full implementation of Tesoro's and Chevron's fenceline air monitoring plans. Partial approval of the fenceline air monitoring plans has allowed refineries to begin implementation of Rule 1180 requirements.*
- South Coast AQMD must make it clear that AltAir/Delek U.S. Holdings facility in Paramount is exempt from Rule 1180 fenceline air monitoring requirements.
  - ***South Coast AQMD Staff Response:*** *Staff will add this clarification on its Rule 1180 website.*
- Several Wilmington residents expressed concerns about finalizing the fenceline monitoring plans without public input.
  - ***South Coast AQMD Staff Response:*** *The plans were posted for public comment prior to partial approval and an extended period of public review was granted. Based on the public comments received, additional review, and further discussion with refineries, staff partially approved plans (for fenceline coverage only). The approved*

fenceline coverage layout for each refinery are posted online along with the corresponding partial approval letter.

- For all Rule 1180 pollutants, Valero refinery must include information on average daily values stored/produced and released. Maximum total amounts for releases of each chemical should also be reported, and specific emergency response plan should be developed for each large-scale release.
    - ***South Coast AQMD Staff Response:*** *This is outside of the requirements of Rule 1180.*
- Dispersion modeling for the Valero refinery is based on the AB2588 and HRA analysis submitted in 2009 for the 2006-2007 inventory year:
    - Emission inventory is outdated, modeling must be conducted with data 2016 or later.
    - Valero must discuss similarities and current emissions and the ones used for the analysis. Emission and modeling must be updated if there are substantial differences.
    - The Valero refinery should show dispersion modeling results from multiple compounds that are emitted from their facilities to better substantiate the placement of air monitors.
        - ***South Coast AQMD Staff Response:*** *The partial approval of the Valero Fenceline air monitoring plan includes a condition that if Valero wishes to utilize 2006-2007 emissions inventory and 2009 HRA information they should demonstrate that their refinery emissions and/or meteorological parameters remained unchanged since then. Otherwise, Valero must to conduct additional modeling, using updated emissions and modeling tools recommended in the Rule 1180 guidelines. The Valero refinery had agreed to these conditions for the partial approval of their plan.*
- All plans must include information on various health impacts.
    - ***South Coast AQMD Staff Response:*** *Staff will evaluate whether health impacts can be incorporated into the notification system, in consultation with public health and other experts.*
- South Coast AQMD should work with OEHHA to apply all known health and safety values in the OEHHA report to emissions at the refinery's fencelines.
    - ***South Coast AQMD Staff Response:*** *Staff will evaluate if the OEHHA health and safety values can be incorporated into the notification system, in consultation with public health and other experts.*
- Plans must include additional point monitors to measure pollutants other than H_2S and BC to cover time periods when open-path instruments are not affective due to atmospheric conditions (e.g. fog).
    - ***South Coast AQMD Staff Response:*** *Staff concurs that open path instruments can be affected by fog or rain. However, the impact of unfavorable environmental conditions does not last for more than a few hours at the most. Staff will not require refineries to maintain a redundant monitoring system using point instruments, as this would be unnecessary.*
- All plans should also describe currently ongoing benzene fenceline measurements for the EPA rule.
    - ***South Coast AQMD Staff Response:*** *Some plans already included this description. However, the benzene monitoring conducted under Rule 1180 will provide more robust time resolved measurements of benzene than that the current EPA rule requires. Staff did not require all facilities to add information on passive benzene sampling to their plans.*

- The data reporting systems should be color coded in a way that indicates the severity of emissions; for example, green, yellow, red, and black.
    - ***South Coast AQMD Staff Response:*** *Staff will keep this comment in mind when working on recommendations for the data display and notification system.*
- The website should allow users to subscribe to email notifications not only when emission thresholds are exceeded, but also when there are instrument failures, power outages, planned flaring, or new reports.

    South Coast AQMD Staff Response: *Please see response above.*
- Valero should add two open-path monitors to evaluate the impact of refinery emissions on motorists on the Terminal Island Freeway.
    - ***South Coast AQMD Staff Response:*** *This would be beyond the requirements of Rule 1180.*
- South Coast AQMD should be working with the first responders to insure adequate response in case of chemical release.
    - ***South Coast AQMD Staff Response:*** *In case of chemical release, the information provided by the fenceline and community monitoring systems that will be developed through the implementation of Rule 1180 will guide the activities of South Coast AQMD's Incident Response team. Additionally, staff has been working with the CalEPA Interagency Refinery Task Force to insure that Rule 1180 data will help and support the goals outlined in the Refinery Emergency Air Monitoring Assessment Report (REAMAR) document.*
- Plans should include monitoring of emissions from all sources, including chemical delivery, loading/unloading not only along the refinery fenceline, but also throughout the facility.
    - ***South Coast AQMD Staff Response:*** *This is beyond the requirements of Rule 1180.*

Editorial comments

- Torrance refinery must add a concentration scale to figures A-127 to A-135, and must specify that the figures are from HF, which emanates from MHF. Refinery must conduct additional fenceline modeling with HF/MHF release concentrations for various scenarios: 50,000 lbs, 10,000 lbs, 1,000 lbs, 100 lbs, and 10lbs of HF/MHF released over the course of 3 minutes, 10 minutes, 30 minutes, 1 hour or 8 hours.
    - ***South Coast AQMD Staff Response****: The modeling proposed by the commenter does not appear to have a relationship with the fenceline monitoring requirements of Rule 1180.*
- Torrance refinery statement that MHF/HF is "*carefully controlled and monitored to prevent any unplanned releases to the atmosphere*" is deceptive and must be stricken from the Plan.
    - ***South Coast AQMD Staff Response****: Staff will ask the Torrance refinery to remove this statement from their plan. South Coast AQMD Proposed Rule 1410 may also have additional monitoring and reporting requirements that may help address the commenter's concern.*
- Torrance refinery statement that "*Hydrofluoric Acid is used for industrial purposes like glass etching, metal cleaning and rust removal, some of which are used by refineries*" must be stricken from the Plan as refineries a higher amount of HF than those industries.
    - ***South Coast AQMD Staff Response****: This statement will not be included in the plan.*

- Torrance refinery statement that "Although there are no hydrogen fluoride emissions from the refinery and the refinery has never had an off-site modified hydrogen fluoride release," is misleading and should be stricken from the document.
    - ***South Coast AQMD Staff Response****: This statement will not be included in the plan.*
- Torrance refinery claim that Ball Metal Beverage Container Corp. is a "major source" of HF emissions must be substantiated by references and timetables of release or otherwise stricken from the plan. The Torrance refinery emissions of HF should be added to Fig. 5-13 Locations of nearby major sources of HF emissions, page 48. The Torrance refinery statement that "There are no estimated emissions of hydrogen fluoride because its process use is closed loop" (footnote 9, page 11) is a false concept as refinery brings in fresh MHF at a rate of 4 trucks per month. Commenter also provided a graph of the refinery's self-reported HF emission from 1987 to 2015 show yearly releases of HF.
    - ***South Coast AQMD Staff Response:*** *Staff will require the Torrance refinery to identify itself as a potential source of HF emissions. South Coast AQMD Proposed Rule 1410 may also have additional reporting requirements that may help address the commenter's concern.*
- Phillips 66 Carson states in Table 2.1 that ethyl benzene does not present a specific health risk. However CARB Table of OEHHA/ARB indicates that ethyl benzene presents a chronic and cancer risk.
    - ***South Coast AQMD Staff Response:*** *Ethyl benzene is identified as a chemical presenting a health risk in Table 2.1, page 13 of the plan.*
- Tesoro Carson must add an explanation and a legend to Figure 1 of the Plan.
    - ***South Coast AQMD Staff Response:*** *Staff will require the refinery to make these changes.*
- Tesoro Carson Crude Terminal was not included in the plan.
    - ***South Coast AQMD Staff Response:*** *Tesoro Crude Terminal is not a part of the refinery operations.*