Element 12 – Specify Process for Evaluating Effectiveness

Element 12 is part of the Community Air Monitoring Plan (CAMP) that describes how the effectiveness of the air quality monitoring will be evaluated. The District is asking the Steering Committee for their comments on how that evaluation should be performed and what the Steering Committee views as success for the community air monitoring.

To help the Steering Committee provide comments, the District is providing this background from the Community Air Monitoring Blueprint, examples of monitoring plans for AB 617 communities, and monitoring plans for other programs. The discussion of what should be included in Element 12 is not limited to the material in the documents provided, and they are intended to serve as examples of what others have done.

Summary of Element 12:

This section of the CAMP should define how to determine whether air monitoring activities are meeting objectives in a timely fashion, including the types of evaluations that will be used. The element can describe whether the evaluation will be done on an overall basis, it can break the evaluation up by objectives, or it can use an alternative approach. Element 12 should describe the basis for evaluation and define milestones for the evaluation or ongoing actions to track progress and ensure air quality improvements continue.

Element 12 should define the endpoint for air monitoring. The endpoint can be based on progress toward meeting objectives, a set time period, or another basis. The element can define potential follow-up actions, including additional data gathering, new rules and regulations, incentive funding, or exposure mitigation.

Element 12 should describe what will be done when data do not meet data quality objectives defined in the CAMP.

This element should also describe the process for amending the CAMP. The CAMP can be revised to address emerging issues, when evaluation does not show progress toward meeting objectives, or for reasons defined in the CAMP.

Example Planning Documents:

Sac Metro AQMD has provided excerpts of the Imperial County APCD, San Diego APCD, and San Joaquin Shafter monitoring plan documents. Complete versions of the documents are linked below. The excerpts provide an example of what other districts have in their monitoring plans. The San Diego AB 617 community was a monitoring-only community when the CAMP was created. The Imperial and San Joaquin AB 617 communities are air monitoring and emission reduction program communities.

- Imperial County APCD CAMP (Element 12 begins on page 72[1]): https://c1b3e492-1448-4e62-b7f8-7aaf61550a90.filesusr.com/ugd/99eb03_4aacc3a0f9b34bbbbc9c908b8ba628bc.pdf
- San Diego Portside Community CAMP (Element 12 begins on page 112): https://www.sandiegocounty.gov/content/dam/sdc/apcd/PDF/AB_617/AB-617%20Elements%20and%20Required%20Criteria_San%20Diego_June%202019.pdf

[1] All page references are to the pdf page number.

- Shafter Community CAMP (Elements12 begins on page 21 [both versions]): http://community.valleyair.org/media/1306/shafter_camp_-v1_-2019_july.pdf (English), http://community.valleyair.org/media/1354/shafter-camp-v1-jly-2019-spanish.pdf (Español)

tasks. The plan will also describe communication and coordination steps to ensure field personnel know whom to contact for questions and how work products are delivered. Relevant safety considerations should also be documented.

How will Data be Used to Take Action?

Defining how the data will be evaluated and applied to the stated community-specific purpose and objectives is the final step towards ensuring that the results will meet the needs of the community and support actions to improve air quality. Plans need to include a process for evaluating effectiveness, for example monthly or quarterly meetings to review results and determine if adjustments are needed. Determining in advance how data will be analyzed and interpreted, for example trends analysis or identification of source impacts, or providing real-time information for health alerts, provides another opportunity to confirm that air monitoring methods and equipment will achieve the desired objectives. Finally, planning in advance how and when the air monitoring results will be communicated, for example in real-time on a webpage or in written reports on a periodic basis, helps communities and stakeholders understand where and when they will be able to access the information.

Specify Process for Evaluating Effectiveness

The purpose of this element is to designate a procedure that will serve as a check to ensure that the air monitoring objectives are being met in a timely fashion. The process to revise the monitoring plan or make corrections if it is not meeting the air monitoring objectives or timeline must be described in this element of the air monitoring plan. If issues arise during air monitoring and data quality objectives should be adjusted, describe the process that will be utilized to make alterations and how they will be documented.

The plan should address the planned duration of the monitoring, whether it is intended to be a long-term sustainable program or a shorter-term investigation, and the timeframe for demobilization of air monitoring when objectives are met. This should also include recommendations for any necessary ongoing actions to track progress and ensure air quality improvements continue.

San Diego APCD CAMP

Monitoring Plan Element 12: Process for Evaluation of Program Effectiveness

The goals of the air monitoring program are to document the air pollution levels in the Portside Communities and to document the effectiveness of emissions reduction strategies over time. This Element outlines the process for evaluating the effectiveness of the air monitoring program. Details for evaluating the effectiveness of the program are detailed in the following subsections.

12.1 Evaluation Process Used to Ensure that Air Monitoring Objectives Are Being Met

To establish a baseline, track trends, and measure the effects of emissions reduction actions, the air monitoring in the Portside Communities will be a multi-year endeavor. As stated in the NATTS and Chemical Speciation technical guidance documents, 5-years is the minimum duration, based on a 1:6 sampling frequency, to establish a high degree of confidence in the data for trends analyses. The District projects a minimum of 5-years to establish robust and reliable trends data for this program.

A list of monitoring project timelines is provided below:

- Establish monitoring by July 2019
- After 1-year, evaluate and compare the data collected at monitoring sites:
  - ✓ To other Portside sites.
  - ✓ To non-Portside sites, but still in the County.
  - ✓ To health standards, when applicable.
  - ✓ To traffic counts
  - ✓ Are there any reductions?
  - ✓ Is there a need for more coverage?
  - ✓ Is there a need for more parameters to be included?
- After 3-years, evaluate the continued viability of Portside sampling locations for:
  - ✓ Redundancy (can some sites be relocated)
  - ✓ Should a general area have more coverage, or less?
  - ✓ Should there be an expansion of the pollutant parameters?
  - ✓ Is there a reduction in concentrations and/or truck counts?

12.2 Description of how Issues will be Documented and Addressed

Air sampling issues that are left unresolved lead to suspect data at best and erroneous data at worst. It is the District's practice to not leave unresolved issues in the field. If monitoring equipment is near failing a QA check, it is immediately calibrated before the equipment fails and data is lost. The minimum frequency at which equipment must undergo QC and QA checks is shown in Table 12-1. In practice, this frequency is on a per run day/weekly cycle (i.e., station operators pay close attention to the monitoring equipment for issues that can affect the sampling data quality).

Table 12-1: Data Completeness Checks and Quality Control and Quality Assurance Functions

	Data Completeness	QC Issues	QA Issues
VOCs	Quarterly	Quarterly	Quarterly
Metals	Quarterly	Quarterly	Quarterly
Elemental C	Quarterly	Quarterly	Quarterly
Black C	Quarterly	Quarterly	Quarterly

n/a= not applicable

Any issues identified in these meetings will be investigated, a solution provided, and if data is affected, an AQDA is distributed.

12.3 Air Monitoring Decision Points

- As stated earlier, after 5-years, the sites will be evaluated for:
  - ✓ The same criteria as in the 3-year evaluation step above.
  - ✓ Are reductions permanent?
  - ✓ Can monitoring be decommissioned?
    - ➢ If not, how much longer are they to remain operational?
    - ➢ Are some sites to remain operational; if so, which ones and why?
      - o If not, in what order are the sites decommissioned?
    - ➢ If so, how can we ensure that emissions and truck counts don't ramp up after decommissioning?
- After 6-years, if sites are still operational, they will be evaluated annually for
  - ✓ The same criteria as in the steps above.

Imperial APCD CAMP

13 Element 12 – Specify Process for Evaluating Effectiveness

13.1 Element 12 Overview

A process for evaluating effectiveness serves as a check to ensure that air monitoring objectives are being met in a timely fashion. Additionally, it is necessary to understand how the monitoring plan will be revised or corrected if air monitoring objectives or the timeline are not being met.

13.2 Evaluating Effectiveness – Regulatory Monitors

As discussed in Chapter 5, one of the main air quality monitoring objectives of this Plan is to utilize the data collected by the regulatory monitors to track the progress of the Emissions Reduction Program. To ensure this objective is met, the Steering Committee has established benchmarks to evaluate effectiveness of this Plan as it relates to the regulatory monitors. These benchmarks and associated process of review will ultimately ensure that data from the regulatory monitors are available for the air quality data analyses that are outlined in Chapter 14.

The main indicator for effectiveness of the regulatory monitors is that the data is successfully collected and made available for analysis. Confirming that this benchmark has been reached will be an ongoing process that will entail regularly downloading monitoring data from USEPA's AQS, an online tool that provides access to ambient air quality data collected by federal, state, local, and tribal agencies from monitors all around the United States.[80] Through this tool, users can download annual summaries as well as daily average data from thousands of different regulatory monitors, including the two located within the Corridor. When data is initially collected by the monitors, it is not immediately uploaded into the AQS, but rather is made available through the "AirNow" program on USEPA's Outdoor Air Quality Data webpage.[81] Daily data here is updated frequently with the most recent monitoring results and is usually accessible within a few days of recording. It is used to calculate the local air quality index (AQI), a metric intended to provide simple, near real-time air quality data to the public. However, this data is not used to formulate or support regulation or any decision by USEPA until it has been verified and validated through quality assurance procedures. After that, the data is officially certified and added to the pre-generated data files accessible online via AQS.

For analyses to be conducted as part of the Monitoring Plan, the certified AQS data will be used. As discussed in Chapter 14, the analyses to be performed on this data will require annual average data for PM_{10} ambient concentrations at the El Centro and Calexico monitoring stations, as well as daily and annual average data for $PM_{2.5}$. To serve the efforts of the Monitoring Plan, daily PM_{10} and $PM_{2.5}$ data will be queried on a semi-annual basis. Newly available AQS data (i.e., data added since the previous query) will be added to a running log of AQS data for PM_{10} and $PM_{2.5}$ to be used for analysis. These regular checks will be used to confirm that data from the regulatory monitors is available for analysis, as appropriate. Chapter 14 of the Plan provides details on how and when this data will be analyzed to serve the goals of the Monitoring Plan.

[80] USEPA. Air Quality System (AQS). Available at: https://www.epa.gov/aqs. Accessed: September 2019.
[81] USEPA. Outdoor Air Quality Data: Download Daily Data. Available at: https://www.epa.gov/outdoor-air-quality-data/download-daily-data. Accessed: September 2019.

Any issues that may be encountered during data query (e.g., monitoring data needed for analysis is not certified in a timely manner) will be documented and addressed in an Annual Progress Report. In the event that certified data is not available from the AQS when desired, preliminary analyses may be conducted using AirNow data and later updated with the certified data. The utilization of regulatory monitor data will continue for five years, after which an assessment will be conducted to determine if this practice should continue for the purposes of the Monitoring Plan.

13.3 Evaluating Effectiveness – Community Monitors

As discussed in Chapter 5, the progress of the Plan will be assessed against some previously selected benchmarks. A subset of these benchmarks applies specifically to the AB 617 Community Monitors, each of which constitutes a way in which the monitors' effectiveness will be evaluated. These benchmarks are:

- Within six months of the completion of the Monitoring Plan, 50 percent of AB 617 Community Monitors will be installed and transmitting data.
- Within twelve months of the completion of the Monitoring Plan, 100 percent of AB 617 Community Monitors will be installed and transmitting data; and
- After collecting data from the AB 617 Community Monitors for six months, the placement of monitors and the need for further expansion of the network will be evaluated. Monitor placement will be re-evaluated every six months thereafter.

Successfully meeting these benchmarks is one way to ensure that the community monitors are sufficiently operational in number, timing, and location. Regarding the third point, placement of the monitors will be evaluated after six months to gauge whether the locations selected are appropriate and generating a dataset at the desired level of detail. If any placements are determined to be ineffective, rearrangement or installation of additional monitors will be considered by the Steering Committee. Evaluation and potential decisions to modify locations of community monitors will be supported by the data analysis described in Chapter 14.

Effectiveness of the monitors will also be evaluated by confirming that the data they produce is successfully collected and made available for analysis, similar to how the effectiveness of the regulatory monitors is to be evaluated. Specifically, the data availability of the community monitors will be considered effective as long as they maintain an up-time rate of 80 percent and a data completeness rate of 75 percent. Finally, operation of the AB 617 Community Monitors and analysis of the data produced will be maintained indefinitely so long as there remains interest and support among members of the Community.

San Joaquin Valley APCD Fresno CAMP

XII. EVALUATING MONITORING PLAN EFFECTIVENESS

Data from the South Central Fresno community monitoring campaign will be analyzed on an ongoing basis to ensure that data quality objectives are met and the data is able to meet all the community air monitoring objectives outlined in this community air monitoring plan. The real-time and final data will be evaluated to inform the public and allow the District and CARB to appropriately assess the local air quality in the South Central Fresno community. District staff will regularly assess data capture status, completeness, and validity. Any error that limits the District's ability to meet the community air monitoring plan objectives will be identified and the District will take the appropriate corrective actions.

XIII. ANALYZE AND INTERPRET DATA

As air quality data is collected from the South Central Fresno community air monitoring network, the District will conduct an extensive review and validation process to ensure the highest quality data possible. This data validation process will be subjected to multiple levels of review to maximize the quality assurance process. Interpretation and analysis of monitoring data will differ based on whether the dataset is laboratory-based or of a continuous nature.

Laboratory Data

For some VOC speciation and filter-based analyzers, the District will likely be contracting with laboratories to perform chemical analyses, as needed. District staff will post the results of the laboratory analysis on the District website after it has undergone the appropriate review process.

Continuous Data

Continuous monitoring data will be reported to the District website and the CARB AQ-View statewide data portal as preliminary data on an hourly basis. At the end of each month, the preliminary data will undergo multiple levels of review by District staff to ensure that the data is of the highest quality, and to ensure that the analyzers were operated in accordance with the vendor manuals and District protocols.

XIV. COMMUNICATE RESULTS TO SUPPORT ACTION

All collected preliminary and final data will be summarized and shared by the District through the following platforms:

- **District's website:** hourly for continuous data, quarterly for laboratory data
- **CARB's AQ View portal:** hourly for continuous data, quarterly for laboratory data