

08-16-2019

Memo: SAG Comments on the 2019 Annual Report and Work Plan

From: The SAG

To: Dan Canfield, California Department of Parks and Recreation

Gary Willey, APCO, San Luis Obispo County Air Pollution Control District

CC: CARB

This memo provides a review of the 2019 Annual Report and Work Plan (ARWP) prepared by the California Department of Parks and Recreation, Off-Highway Motor Vehicle Recreation Division (OHMVR Division). The ARWP is required to comply with Condition 4 of the Stipulated Order of Abatement (SOA) approved by the San Luis Obispo County Air Pollution Control District (SLOAPCD) Hearing Board in April 2018 (Case No. 17-01). SOA Condition 4 requires the OHMVR Division to prepare and submit to the SLOAPCD and the Oceano Dunes SVRA PMRP Scientific Advisory Group (SAG) an Annual Report and Work Plan by August 1 of each year from 2019 to 2022. The ARWP was received by the SAG on August 1, 2019.

This memo provides a combination of higher-level (i.e., overview) as well as detailed comments on specific aspects of the ARWP.

Overview Comments:

The ARWP is clear overall, and it generally follows the terms of the SOA and the PRMP. Several components expected to be included in the ARWP at the due date (August 1, 2019) are not included in the version received. These are:

- 1) A clear statement of the progress achieved and the progress to be gained with the 2019 and 2020 actions in place, with respect to the SOA stated goal of reducing the mean 24-hr PM₁₀ baseline emissions (as currently defined) by 50%.
- 2) SOA Condition 4.e states that the ARWP should contain a SAG evaluation for all proposed dust control measures at the due date of the ARWP.
- 3) There are no reported actions/activities with respect to the following PMRP components: i) restoring additional backdune areas to natural vegetation as necessary, ii) monitoring of crystalline silica, iii) identification of other PM sources, iv) the carbon/Scripps study, v) baseline topographic mapping and aerial photography from unmanned aerial system (UAS) structure-from-motion methods required for foredune restoration project, and vi) educational outreach campaign.

Specific Comments:

The following comments identify components of the ARWP that require clarification:

1. Several components of PMRP-defined actions should be acknowledged as being completed in the 2019 ARWP including:

Actions to reduce reducible uncertainties in the modeling:

a) ODSVRA erodibility data and the emission grid were updated with PI-SWERL measurements made in 2019,

b) a network of meteorological and particulate matter instruments with spatial and temporal resolution equivalent to the 2013 network was established, and

c) a site-specific upper air measurement capability was added with the installation of the Arizona State University SODAR. SAG recognizes that access to the SODAR data is compromised by contractual issues, but will be forthcoming in 2020, pending future contractual billing cycles. SAG does not anticipate that this will affect air quality modeling efforts, only delay their timeline.

2. It is not straightforward to trace the PMRP Evaluation Metrics (see Attachment 8 in the June 2019 “Particulate Matter Reduction Plan Attachments”) to the progress described in Section 2 of the ARWP. The SAG requests the inclusion of an itemized assessment of the progress so far in terms of the 20 “Outcome” metrics (O1-O20) and the 29 “Implementation” metrics (I1-I29) included among the overall list of Evaluation Metrics in the PMRP. Condition 4 of the SOA requires the ARWP to compare previous 12-month achievements with PMRP tracking metrics, and to do the same for goals set for the upcoming 12-month period. The absence of metric targets and an evaluation of meeting the target, not meeting the target, or an account of progress towards meeting the target for the PMRP-established metrics prevents the SAG from determining the adequacy of both past and future progress toward SOA and SAG-recommended goals.

3. Although many of the elements of the Proposed Implementation Schedule are reflected in the tables in Section 3 and Section 5 of the ARWP, it is not straightforward to trace the PMRP Proposed Implementation Schedule (see Attachment 9 in the June 2019 “Particulate Matter Reduction Plan Attachments”) to the plans described in the ARWP, Section 3.

4. The ARWP refers to the need to revisit the baseline scenario for defining “success” for the proposed particulate matter mitigation actions. However, the description in Sec. 3.1.7 is insufficient to evaluate the process by which the governing baseline scenario will be decided upon. Please provide additional information on this point. The SAG recognizes that there has been a lack of discussion on this aspect and recommends that the SAG, PARKS, APCD, and CARB begin to address this shortcoming as quickly as possible.

5. The ARWP states that the “OHMVR Division will proceed with development of an approximately 23-acre foredune project, which will take several years to monitor and successfully complete.” The SAG, in its February 25, 2019 comments on the Draft PMRP, recommended a foredune restoration project totaling approximately 48 acres. The larger area recommended by the SAG places the seaward boundary approximately 230 feet (70 meters) closer to the shoreline than the seaward boundary of the 23-acre proposed project. If Parks chooses to limit itself to the development of a 23-acre vegetated foredune, it should explain in the ARWP why it disagreed with the SAG recommendation for a 48-acre foredune project. The SAG provided Parks in their Evaluation Report of the PMRP a detailed rationale why 23 acres of foredune restoration is at risk of failure (<https://storage.googleapis.com/slocleanair-org/images/cms/upload/files/SAG%20response%20to%20revised%20PMRP.pdf>).

In the SAG Evaluation Report of the PMRP dated 17 May, 2019, the SAG argued, based on the available science related to foredune restoration and with reference to analogue foredune sites nearby, a 48 acre

restoration project is likely required to achieve a viable foredune complex at the identified location in the ODSVRA. The SAG recommends that foredune restoration success be defined as a fully functioning, sustainable foredune ecosystem that can maintain morphology and plant diversity similar to that of nearby analogue foredunes near Oso Flaco Lake. The presence of a sustainable foredune will have the best chance to maximize its associated dust mitigation properties. It is the opinion of the SAG that the extent and location of the foredune restoration project as described in the ARWP is insufficient to develop a fully functioning and sustainable foredune. The SAG recommends that the ARWP be updated to reflect that the PMRP-accepted adaptive management strategy be applied to the foredune restoration project. As such, the ARWP should acknowledge that the 23 acre foredune project is only an initial step toward achieving a viable foredune complex and that more area may be required for future restoration phases than is indicated in the ARWP and multiple-year restoration activity will be required to achieve a successful restoration. It is the opinion of the SAG that a 23 acre project will be insufficient to meet this goal.

Furthermore, Table 3-5 shows monitoring activities (to be undertaken) for the foredune restoration project but it does not indicate any baseline data collection/interpretation, such as sand transport studies or land surveying for development of a basemap Digital Elevation Model (DEM) from which effectiveness and performance metrics can be quantified and their progress tracked. Planting vegetation without these baseline studies will make it difficult to assess the effectiveness and success of the restoration project. The SAG recommends that baseline data collection be added to Table 3-5. These baseline data should be collected prior to any planting efforts at the foredune restoration site.

Related, key baseline measurements for foredune restoration were provided in the SAG Response to the PMRP report (e.g., Section 8.5, re: topographic and sediment budget monitoring at foredune restoration site, see also point on Table 3-5 above). For a successful restoration process, it will be necessary to describe how key baselines will be established (e.g., typical sand flux before and after foredune restoration, or a baseline DEM of the foredune restoration site prior to any restoration or enclosure activities). This needs to be accompanied by a seasonal monitoring program to quantify progress and performance (e.g., reductions in sand flux and dust emissions, changes in boundary layer airflow dynamics, changes in topography or sand storage volume derived from repeat UAS-derived DEMs).

6. PMRP-identified actions that are addressed in part, or not addressed, that should be acknowledged, include the following:

Actions to reduce reducible uncertainties in the modeling: 1) assumptions of wind profiles over rough terrain, 2) assumption of steady state emissions, 3) effect of moisture conditions on erodibility and emissivity, and 4) a sensitivity analysis on emissions rates of increasing the level of effort for each mitigation technique in subsequent years (SOA Condition 4.f).

For (4), any ARWP should include a projection of what may still be needed in terms of controls to achieve the SOA air quality goal of 50% reduction from (currently-defined) baseline conditions.

Additional actions necessary to fill in gaps in information or resource availability

The following are SAG suggestions:

Complete wind climatology analyses of the available data in the vicinity of the ODSVRA to aid in baseline condition discussions.

Perform in situ calibration of MetOne Particle Profilers with a Federal Equivalence Measurement PM₁₀ instrument under conditions of high PM₁₀ concentration to provide increased confidence in the representativeness of the PM measurements made within the ODSVRA using non-FEM instruments.

Explore the use of dynamic-downscaling for more accurate modeling of wind fields.

Examine the utility of an updated topographic data base for emission and dispersion modeling.

The SAG notes that the specific roles of vehicle activity on the potential creation of particulate matter and in the subsequent wind- and saltation-driven emission of particulate dust are not yet fully understood. To inform adaptive management of particulate matter reduction actions, SAG suggests that the ARWP include general plans for further scientific studies, to be performed in partnership with SAG, APCD, and CARB, to better understand the underlying effects of vehicle activity on dust emissions. The SAG recommends that discussions begin as soon as possible to identify and evaluate critical gaps in information that will inform management decisions that can further mitigate dust emissions from the ODSVRA.