



Air Pollution Control District
San Luis Obispo County

August 24, 2021

Sarah Miggins
Deputy Director, OHMVR Division
California Department of Parks and Recreation
P.O. Box 942896
Sacramento, CA 94296-0001

SUBJECT: California Department of Parks and Recreation's August 2, 2021, Oceano Dunes SVRA Draft 2021 Annual Report and Work Plan in Response to Stipulated Order of Abatement Number 17-01

Dear Ms. Miggins:

We are in receipt of your Draft 2021 Annual Report and Work Plan (ARWP) for the Oceano Dunes SVRA, dated August 2, 2021. Thank you for submitting the Draft ARWP by the deadline specified in the Stipulated Order of Abatement (SOA). Comments on the document from the Scientific Advisory Group (SAG) were received on time on August 21, 2021.

The Draft ARWP documents the substantial effort by State Parks to understand and control windblown dust emissions from the Oceano Dunes State Vehicular Recreation Area (ODSVRA) over the last year. For the 2021-2022 planning cycle, it proposes an ambitious research agenda and a significant expansion of dust control efforts. Despite these strengths, we cannot approve the ARWP in its current form. Please see our detailed comments, attached.

Based on the timelines required by the SOA, State Parks has 21 days or until September 14, 2021, to make the corrections and submit those changes for SAG and District review. After receipt of a provisionally approvable ARWP as required by the SOA, the APCD will schedule a public workshop. As we did last fall, the District plans to schedule the public workshop concurrently with a planned October 14, 2021, Hearing Board public meeting. This meeting will be held at 9:00 a.m. and will likely be held remotely using ZOOM. Feel free to contact me with any questions.

Respectfully,

A handwritten signature in blue ink, appearing to read "Gary E. Willey", is written over a light blue horizontal line.

GARY E. WILLEY
Air Pollution Control Officer

Enclosures

cc: Jon O'Brien, CA DPR, APCD Hearing Board, APCD District Board, APCD District Counsel, Coastal Commission Staff & SAG

General Comments

Workplan for 2021-2022

The Draft 2021 Annual Report and Work Plan (ARWP),¹ prepared by State Parks and received by the San Luis Obispo County Air Pollution Control District (District) on August 2, 2021, documents the substantial effort by State Parks to understand and control windblown dust emissions from the Oceano Dunes State Vehicular Recreation Area (ODSVRA) over the last year. For the 2021-2022 planning cycle, it proposes an ambitious research agenda and a significant expansion of dust control efforts. Like the previous year's ARWP,² the Draft 2021 ARWP proposes 90 acres of new dust controls within the ODSVRA, bringing the total area of the ODSVRA dedicated to dust control from 322.7 to 412.7 acres. Expanding the areal extent of ODSVRA dust controls by 90 acres/year makes steady progress toward implementing 500 acres of controls by the expiration of the Stipulated Order of Abatement in Case No. 17-01 (SOA).³ Specifically, an additional 87 acres of controls would be needed in the 2022-2023 cycle to reach a total of 500 acres by mid-2023. In reviewing the current and previous ARWPs, the District has used 500 acres of dust controls as a proxy for compliance with the Stipulated Order of Abatement's (SOA) emissions reduction target of 50%, since a 500-acre scenario is the only mitigation scenario modeled by State Parks (so far) which achieves this target.⁴

The Draft 2021 ARWP also proposes converting 40 to 45 acres of temporary dust controls (wind fences and straw) to permanent revegetation, as well as maintaining existing wind fencing and performing supplemental planting within approximately 30 acres of previously revegetated areas. In addition to these mitigation efforts, the proposed monitoring and research projects are expected to yield valuable information for informing future dust control measures, this is especially true of the "State of the Science" document, to be prepared by the Scientific Advisory Group (SAG). The District is also encouraged that coordination with the California Coastal Commission (CCC) is explicitly considered in the ARWP. Finally, the District appreciates the inclusion of Attachment 01, which depicts the evolution of dust control measures at the ODSVRA from 2011 to 2021 and standardizes

¹ California Department of Parks and Recreation, Off-Highway Motor Vehicle Recreation Division, "Oceano Dunes State Vehicular Recreation Area Dust Control Program: Draft 2021 Annual Report and Work Plan," August 2, 2021. Available online: https://storage.googleapis.com/slocleanair-org/images/cms/upload/files/DRAFT%202021%20ODSVRA%20ARWP_w%20attachments.pdf

² California Department of Parks and Recreation, Off-Highway Motor Vehicle Recreation Division, "Oceano Dunes State Vehicular Recreation Area Dust Control Program: 2020 Annual Report and Work Plan – Fourth Draft," September 30, 2020. Available online: https://storage.googleapis.com/slocleanair-org/images/cms/upload/files/2020ARWP_4thDraft_20200930_reduced.pdf

³ San Luis Obispo County Air Pollution Control District Hearing Board, "Stipulated Order of Abatement, Case No. 17-01," May 4, 2018. Available online: <https://storage.googleapis.com/slocleanair-org/images/cms/upload/files/Filed%20%26%20Approved%20SOA%20Case%2017-01%20Apr-30-18.pdf>

⁴ San Luis Obispo County Air Pollution Control District, "Comments on August 1, 2020 Draft ARWP," September 4, 2020. Available online: https://storage.googleapis.com/slocleanair-org/images/cms/upload/files/SLOAPCD%20Comments_2020_Draft%20ARWP_Dated%20Aug%201%202020%20sent%209-4-20.pdf

the nomenclature for referring to the various treatments. The figures bring clarity to an issue which has been difficult to track and will surely prove valuable in future discussions.

Despite these strengths, the initial Draft 2021 ARWP requires some additional specification and revision in order to be provisionally approvable. The following deficiencies must be addressed in the next draft of the 2021 ARWP if it is to be approved:

- **The 90 acres of new dust controls must be fully specified.** Section 3.1.1 of the ARWP presents two options (Figures 3-1A and 3-1B) but defers choosing between them until later. Furthermore, exactly what these new controls will be is completely unspecified. The revised ARWP must choose a scenario and specify whether the controls will be fencing, straw, revegetation, etc. If a combination of control strategies is proposed, the ARWP must include a map depicting where each treatment type will go. Choice of one option over the other should be fully explained and must consider the results of modeling the emissions and concentration reductions of the options. Finally, as with last year's approved ARWP, the revised ARWP must specify that these treatment areas are to be fenced off to vehicles and camping by March 31, 2022, and that the treatments are to be fully installed no later than April 15, 2022.
- **The expected impacts of the new dust controls on PM₁₀ mass emissions and downwind concentrations must be modeled.** Section 4.d of the SOA states that ARWPs "shall propose dust control activities to be undertaken or completed in the next year together with analyses of expected outcomes, mitigation effectiveness, and potential emissions reductions" and section 4.g states "Each [ARWP] will estimate, using air quality modeling, the benefits downwind of the ODSVRA and, specifically, the anticipated reduction in PM₁₀ concentrations in populated areas due east of the ODSVRA on the Nipomo Mesa." These estimates must be included in the revised ARWP.
- **An estimate of the total extent of dust controls needed to achieve the SOA goals must be included.** As noted in ARWP Section 3.2.1, "In consultation with CDPR and the SAG, DRI will estimate the additional magnitude of dust controls needed to achieve SOA goals by 09/01/21." This must be included in the revised ARWP.
- **The locations being converted from straw bales to vegetation must be fully specified.** Section 3.1.2 of the ARWP "proposes to convert approximately 20 to 25 acres of straw installed in 2020 to native dune vegetation" but exactly which areas that would be converted is not fully specified. (Adding to the confusion, the text states that the acres to be converted were installed in 2020, but the treatment areas that are listed are prefixed with "2021" (e.g., 2021-SB-01), which suggests the targeted areas were installed in 2021. If this is a typo, please correct; if this is accurate, please clarify.) The revised ARWP must contain a map showing exactly which straw bale areas will be converted to vegetation.
- **The ARWP must include measures to avoid delays in implementation.** The dust controls approved in the 2020 ARWP were to be fully installed by April 15, 2021; however, as of

mid-June some treatments remained incomplete. These delays were caused by equipment issues, western snowy plovers nesting in or near treatment areas, and the failure to obtain the necessary authorizations from the CCC in a timely fashion. To avoid similar delays in the future:

- The District encourages State Parks to coordinate closely and early with the CCC. Section 3.1.9 of the Draft 2021 ARWP states “CDPR will submit a formal CDP application to the California Coastal Commission in early November, pending APCD approval of the ARWP by October 31, 2021. CDPR will coordinate weekly with the representative from Coastal Commission to track the progress of this application and answer questions or concerns that arise during the review of the application materials. The goal is to have an approved CDP for the 2021 ARWP projects no later than February 2022.” This is an improvement over the previous ARWP; however, “early November” is vague—an exact deadline for submitting the CDP application must be included in the revised ARWP. Furthermore, the District encourages State Parks staff to begin working with CCC staff *prior to* submitting the CDP application in order to obtain informal feedback on the proposed projects.
 - The implementation schedule must prioritize completing treatments in the areas most likely to be impacted by western snowy plovers. This is likely the area around the “Eucalyptus Tree” and “Tabletop” vegetation islands, which is included in both Options 1 and 2. In the revised ARWP, State Parks must determine the treatments most likely to be impacted by western snowy plover nests and specify that these be completed by March 15, 2022.
 - If State Parks plans to rely on its mechanical straw blowing equipment, then the revised ARWP must include a schedule for maintaining and testing it. Should the equipment fail again, State Parks must be prepared to use alternative means to distribute straw by the deadlines specified in the final, approved ARWP.
- **Attachment 08 to the Draft 2021 ARWP (“UCSB-ASU 2020-2021 ODSVRA Foredune Restoration UAS Survey Report”) must be included in the revised ARWP.**

SAG Comments

The SAG submitted comments on the Draft 2021 ARWP to State Parks and the District on August 16, 2021.⁵ This was 10 business days after State Parks submitted the ARWP to the District and conforms with the timeline defined in the Order to Modify Existing Stipulated Order of Abatement in Case No. 17-01.⁶ The District endorses the comments of the SAG.

Regarding the “Reporting on Air Quality Progress” section on page 3 of the SAG’s letter, the District offers the following comments: It is not specified in the SOA whether “baseline emissions” refers to

⁵ Scientific Advisory Group, “Memo: SAG Review of CDPR “DRAFT 2021 ODSVRA ARWP” (dated August 2, 2021),” August 16, 2021. Available online at <https://www.slcleanair.org/air-quality/oceano-dunes-efforts.php>.

⁶ San Luis Obispo County Air Pollution Control District Hearing Board, “Order to Modify Existing Stipulated Order of Abatement, Case No. 17-01,” December 9, 2019. Available online: https://storage.googleapis.com/slcleanairorg/images/cms/upload/files/AMENDED%20Order%20of%20Abatement%2011-18-19_FILED_12.pdf

emissions from the riding areas of the ODSVRA, the entire ODSVRA, the entire Oceano Dunes District including the Dune Preserve and Pismo State Beach, or the greater dunes area upwind of the Nipomo Mesa. As the District wrote in a comment letter on State Parks' initial draft of their Particulate Matter Reduction Plan (PMRP),^{7,8}

"The baseline emissions scenario should only include emissions from the riding area. As noted in the PMRP, "SOA Condition 2.c does not specify the geographic boundary to be associated with the maximum 24-hour PM10 baseline emission day." The SOA is premised on the principle that OHV activity increases the emissivity of the Oceano Dunes, resulting in higher downwind PM10 concentrations than there would otherwise be in the absence of OHV activity. It therefore makes sense to focus on emissions from the open riding area, since current emissions from non-riding areas are already likely to be similar to what they would be in the absence of OHV."

In retrospect, it would have been more accurate to use the term "vehicular activity" instead of "OHV activity." Nonetheless, the District maintains that the emissions reduction target should be 50% of baseline riding area emissions. Baseline riding area emissions are estimated to be 182.2 metric tons/day (Draft 2021 ARWP Attachment 11), so the SOA emissions reduction target is thus 91.1 metric tons/day; however, where the 91.1 metric tons/day of emissions reduction come from is not restricted to the riding area. Thus, emission reductions from dust controls outside of the riding area can be "credited" against the target of 91.1 metric tons/day, and likewise such reductions should be included when modeling PM₁₀ concentrations downwind of the ODSVRA.

Specific Comments

Attaining the SOA 2.c Target

As already noted, the SOA sets an emissions reduction target of 50% of baseline emissions. According to the modeling submitted by State Parks last year,⁹ with 312.7 acres of dust controls in place after the implementation of the approved 2020 ARWP, emissions are estimated to be 78% of

⁷ San Luis Obispo County Air Pollution Control District, "Re: California Department of Parks and Recreation's February 1, 2017, Oceano Dunes SVRA Concept Draft Particulate Matter Reduction Plan in Response to Stipulated Order of Abatement Number 17-01," February 25, 2019. Available online:

<https://storage.googleapis.com/slocleanair-org/images/cms/upload/files/Feb%2025%202019%20APCD%20Response%20to%20SP-Feb%201%202019%20PMRP%20%28Signed%29%20%281%29.pdf>

⁸ California Department of Parks and Recreation, Off-Highway Motor Vehicle Recreation Division, "Oceano Dunes State Vehicular Recreation Area Draft Particulate Matter Reduction Plan," June 2019. Available online at https://storage.googleapis.com/slocleanair-org/images/cms/upload/files/Draft_PMRP_20190606.pdf. The draft version that the comment letter in Reference 8 was responding is also available online:

https://storage.googleapis.com/slocleanair-org/images/cms/upload/files/PrelimConcept_DraftPMRP_20190221_%20to%20APCD.pdf

⁹ Jon O'Brien, "2020 ARWP 90-acre Option," November 11, 2020. Available online as an enclosure to the San Luis Obispo Air Pollution Control District's Conditional Approval of 90 Acres of Dust Controls:

https://storage.googleapis.com/slocleanair-org/images/cms/upload/files/District_Conditional%20Approval_of_90_acres-Final.pdf

the baseline—a reduction of 22%.¹⁰ (ARWP Table 2-4 gives slightly different values, as it appears to exclude mitigation projects that are outside of the riding area.) Preliminary modeling received by the District after the submission of the Draft 2021 ARWP appears to show that with Option 1, emissions will be reduced by 28.6% from the baseline, and with Option 2, emissions will be reduced by 28.2%.

The PRMP modeling demonstrated attaining the 50% emissions reduction goal with a 500-acre mitigation scenario. After installation of either Option 1 or 2, there will be 412.7 acres of dust controls within the ODSVRA, which is 82.5% of 500 acres. In terms of achieving the 50% target, these options are 57.2% or 56.4% of the way there, respectively. Based on the current modeling methods, the impact of the mitigation strategy appears to be falling short of the initial 50% reduction target. In other words, at the current emissivity rates, 500 acres may not meet the goal of the SOA and more acreage could be required.

The emissions reduction target of 50% is described in the SOA as an “initial target,” and per SOA Condition 2.d it can be modified. The District recognizes that, in accordance with this provision, State Parks and the SAG are exploring alternatives (see ARWP Sections 2.4.4 and 3.1.7.1 and Attachment 12). The District supports this effort. Currently, though, no alternative has been approved or even proposed, so compliance with the original Condition 2.c target of 50% remains the guiding principle; as noted above, the current mitigation strategy does not appear to be on track to attain compliance by the expiration of the SOA.

Moving forward, State Parks (with input from SAG) must prioritize bridging this gap. The District recognizes that addressing this in a revised 2021 ARWP is likely not possible, but it must be fully addressed in the 2022 ARWP. Efforts that should be prioritized include:

- **Computational Fluid Dynamics (CFD) modeling.** As discussed in the 2020 ARWP and Sections 2.3.4 and 3.2.2 of the Draft 2021 ARWP, CFD modeling is expected to capture secondary effects of the foredunes on dust emissions, and thus show increased emissions reductions. Completion of the CFD modeling, will likely thus give more “credit” toward the 50% emissions reduction goal than the current modeling does.
- **Quantifying vehicular impacts on emissivity.** It has long been appreciated that the history of vehicular activity at the ODSVRA has made the area significantly more emissive than it otherwise would be.¹¹ Exactly how much vehicular activity increases emissivity of open sand sheets, and how quickly their emissivity returns to baseline levels after such activities cease are open questions. Previous PI-SWERL studies suggest that riding areas of the ODSVRA are, on average, more emissive than the non-riding areas by a factor of 5.2 at a moderate wind speed (23 mph at 10 meters above ground level) and by a factor of 2.4 higher wind speeds

¹⁰ According to the Draft 2021 ARWP (e.g., Attachment 01, Figure A01-12), 322.7 acres of mitigations are currently in place, but the modeling submitted in support of the 2020 ARWP mitigations (see Reference 9, above) cites only 312.7 acres (224.049 + 91.756 acres). State Parks should clarify this difference in the revised ARWP.

¹¹ See for example, San Luis Obispo County Air Pollution Control District, “Frequently Asked Questions: Air Quality and the Temporary Closure of Oceano Dunes,” June 30, 2020, and the references therein. Available online: <https://storage.googleapis.com/slocleanair-org/images/cms/upload/files/June2020FAQ-42.pdf>

(36 mph).¹² Allowing riding to resume in the snowy plover enclosure area after a 7-month closure was estimated to increase emissivity by a factor of 2 to 3.¹³ The Draft 2021 ARWP includes the Desert Research Institute (DRI) report “Examining Dust Emissions and OHV Activity at the ODSVRA” as Attachment 13; this report analyzes PI-SWERL and wind power density data from 2020 and concludes that “The station data from 2020 suggest that the removal of OHV activity in April allowed the dune system to move to a different emissive state that was approximately 50% lower following the passage of four months of time. This correlates with the observed reduction in emissivity in 2020 as measured with the PI-SWERL.”

The District agrees with the SAG’s sense (expressed in their comments on the ARWP) that it is probably premature to assign a specific percent reduction in PM₁₀ concentration to the removal of vehicular activity. Nonetheless, it would be very valuable to have a reasonable quantitative estimate of how emissivity evolves when vehicular disturbance ceases, and such an estimate seems to be within reach. ARWP Sections 3.1.6.1 and 3.1.6.2 propose additional wind, particulate matter, and PI-SWERL studies for the next year, and these should be designed to yield this estimate.

Such an estimate would allow State Parks to take “credit” for emissions reductions resulting from long-term closures of riding areas. On March 18, 2021, the CCC revised the base coastal development permit for the ODSVRA (CDP 4-82-300) to (among other things) permanently close the 300-acre snowy plover enclosure to vehicles and seasonally close the area west of the 48-acre foredune restoration project. The revisions also permanently ban vehicular access to the ODSVRA after January 1, 2024 and encourage State Parks to begin incrementally phasing out vehicular access prior to this deadline.¹⁴ Closures in response to this revision to CDP 4-28-300 will also reduce dust emissions from the ODSVRA; with a reasonable estimate of expected emissivity changes, the reductions could be credited toward the SOA 2.c target.

- **Explore alternatives to the SOA 2.c emissions reduction target.** As already noted, State Parks and the SAG are exploring alternatives to the emissions reduction target of 50%. The overall objective of the SOA (as stated in Condition 2.b) is to attain the state and federal air quality standards—the 50% reduction in emissions is simply an “initial target” based on an

¹² Desert Research Institute, “2013 Intensive Wind Erodibility measurements at and Near the Oceano Dunes State Vehicular Recreation Area: Report of Findings,” July 20, 2015. Available online: https://storage.googleapis.com/slocleanair-org/images/cms/upload/files/APCD%20Exhibit%205%20-%202013_PI-SWERL_Report%20of%20Findings_07_2015_Final.pdf

¹³ Desert Research Institute, “Updated Wind Erodibility Measurements at and Near the Oceano Dunes State Vehicular Recreation Area: Draft Overview of Findings,” March 30, 2016. Available online: https://storage.googleapis.com/slocleanair-org/images/cms/upload/files/64%20Write-up_PI-SWERL_measurements_01_2016_Update_DRAFT_7.pdf

¹⁴ California Coastal Commission, Item Th20a: “Oceano Dunes Coastal Development Permit 4-82-300 Review,” prepared July 30, 2021, for August 12, 2021, hearing. Available online: <https://documents.coastal.ca.gov/reports/2021/8/Th20a/th20a-8-2021-report.pdf>

initial estimate of what it would take to reduce the number of exceedances of the state PM₁₀ standard to the number observed downwind of a comparable non-riding area.⁴ If a more refined analysis demonstrated that the standards could be attained with less than a 50% reduction in emissions, the District would likely support revising the emissions reduction target accordingly.

- **Plan for more than 500 total acres of dust controls.** If completed, the above activities are likely to demonstrate that with 82.5% of 500 acres of dust controls in place in the ODSVRA, State Parks is more than 57.2% or 56.4% of the way toward abating the excess PM₁₀ emissions from the park. Nonetheless, it is likely that somewhat more than 500 total acres of control will be needed to fully comply with the SOA, so State Parks should begin planning accordingly.

ARWP Section 2.2.2: Report On Progress Towards 50% Mass Emissions Reduction

This section seems to only consider controls installed in the riding area. As discussed in the SAG Comments section above, the emissions reduction target should be based on riding area emissions, but emissions reductions from both the riding and non-riding areas can be credited toward achieving that target. Thus, instead of or in addition to Table 2-4, a table should be included showing the same parameters, but calculated for both riding and non-riding area controls.

ARWP Section 2.4.6: Public Relations Campaign

Please note, the District is willing to provide feedback on potential public relations campaign materials, especially those that pertain directly to air quality.

ARWP Section 3.3.1: Install 90 Acres Of New, Temporary Dust Control Measures

In addition to the deficiencies already noted above, the District notes the following: Some of the areas proposed for mitigation are outside of the riding area—specifically, those proposed along the eastern edge of the La Grande Tract. The District supports installing these controls, as this area appears have relatively high emissions; however, regarding the specific type of treatment used in this area, the District cannot support and will not approve a simple vehicle enclosure, since this area is already closed to vehicles.

In general, simple vehicle enclosures are the District's least-preferred dust control measure because they are the least effective control option. According to the DRI studies noted previously, excluding vehicles from an area for half of a year seems to reduce emissions by a factor of 2 or perhaps 3. On the other hand, sand flux measurements suggest that wind fence arrays can reduce saltation by more than 80% as soon as they are installed, and vegetation can be more than 90% effective. For these reasons, the use of simple vehicle enclosures should be minimized.

ARWP Section 3.1.9: Coastal Commission Coordination

As noted above, the District is encouraged that coordination with the CCC is explicitly included in the Draft 2021 ARWP. While this section contemplates amending CDP 3-12-050, the District notes that CDP 4-82-300, as revised on March 18, 2021, already authorizes “Dune restoration and protection of ESHA to address coastal resource degradation associated with overuse (e.g., for permanent dust control purposes) ... in all dune areas, including in identified use areas.”¹⁴ Thus, a CDP application may not even be needed. State Parks should reach out to the CCC *prior to* submitting any CDP application to obtain guidance about whether an application is even necessary and/or which CDP (3-12-050 or 4-82-300) should be amended.

ARWP Section 5: Implementation Schedule

Table 5-6 states that no PI-SWERL studies are proposed in the 2021 ARWP, but Section 3.1.6.2 does contemplate additional studies, and at its July meeting the SAG endorsed continuing PI-SWERL work. While a timeline for such studies may not be available, the revised ARWP should not erroneously state that no such studies are planned.

Typos

ARWP Section 2.3.1: Meteorological And Pm Monitoring

Figure 2-3 in this section depicts CDF has hosting only “met”; however, this site hosts a 10-meter tower with met as well as PM₁₀ and PM_{2.5} BAMs.

ARWP Section 2.3.2.2: Foredune Restoration Area Saltation Flux Measurements

This section refers to Figure 2.7; however, there is no such figure in the document.

ARWP Section 2.3.4: Computational Fluid Dynamics

The last sentence of the of the first paragraph refers to “CDF” when it means “CFD”.