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October 8, 2026

Subject: Response to SAG Memo Dated September 22, 2026

Executive summary:

The September 22 memo makes three claims.

First, it says the SOA compliance model predicts surface emissions from the ODSVRA, not concentrations at CDF or Mesa2, so the ocean need not be quantified.

Second, it acknowledges a marine contribution but argues, from coastal-to-inland percentages and a landward-increasing gradient, that the dominant source at the monitors is open sand in the ODSVRA.

Third, it treats any sea salt (or other sea spray particles…for ease of this letter all will be called sea salt) deposited on sand and later resuspended — including the fraction entrained by the PI-SWERL instrument — as part of ODSVRA emissions, notes that air-quality standards apply to total PM10 regardless of source, presumes marine contributions in the 1930s were comparable to today, and credits the planting program for the improving trend.

Each claim raises a problem the memo does not resolve:

Concession without quantification. The memo concedes the ocean→sand→air pathway. Once deposited sea salt is resuspended by saltation and counted in PI-SWERL emissivity, marine material is inside the "surface emissions" the model predicts. Calling it irrelevant to the model and, in the same memo, counting it in the model cannot both be right without a speciated split the memo does not provide.

Material, not marginal. The speciation the memo cites confirms a large marine share. In the peer-reviewed DRI analysis of the April–October 2021 campaign at CDF (Wang et al., Atmosphere 2023), the mean exceedance-day attribution was 43.1% mineral dust and 25.0% sea salt, with 20.4% unidentified; on non-exceedance days sea salt (fresh plus aged) was the largest component at 40.5%, followed by mineral dust at 24.2% and organic matter at 22.4%. The SAG memo's own DRI figure — sea salt 22.4% ± 11.7% of PM10 — points the same way. **A contribution of roughly a quarter on exceedance days and two-fifths on ordinary days is not a trace to be dismissed; it is a term that must be carried through the compliance arithmetic.**

Friends of Oceano Dunes is a 501(c)(3) California Not-for-Profit Public Benefit Corporation formed in 2001 to represent those who enjoy beach camping and Off-Road recreation primarily as well as others who enjoy the benefits of Public Access through Responsible Recreation at the Oceano Dunes State Vehicular Recreation Area (ODSVRA). We want to maintain Access For All!

Still unresolved. The SAG's own scientist called the central split unresolved. On October 27, 2022, Dr. Jack Gillies — a SAG member and DRI scientist — wrote to State Parks that the 2021 speciation showed about 22% sea salt on exceedance days and posed the unresolved question of how much arrived directly from the ocean versus how much was previously deposited salt released by saltation, proposing sand-transect and PI-SWERL speciation work to test whether a sea-salt component could be subtracted when judging "excess" PM10 over the pre-disturbance level. The September 2026 memo, signed by Dr. Gillies among others, neither mentions that e-mail nor reports that study. The conundrum remains unresolved by the SAG's own account.
2019 vs. 2026. The SAG has changed position. In its February 25, 2019 report the SAG supported studying sea salt and microorganisms in sea spray as potential PM10 sources and described that study as merited. The 2026 memo calls FRIENDS's sea-spray arguments "misplaced" and "spurious." **A move from "study it" to "it is not relevant" requires evidence gathered in between; the memo cites none that closes the gap.**

Assumed constancy. The pre-disturbance comparison rests on an assumption. The memo adopts as a null hypothesis that marine processes and sea-spray contributions in the 1930s were comparable to today. No 1930s speciation exists, and no modern ocean-and-sand speciation program is reported to test the assumption. **A null hypothesis is a starting point for testing, not a finding**.

Friends of Oceano Dunes therefore asks for four things, set out in full at the end of this response:
(1) documented proof correlating PI-SWERL surface measurements to measured downwind PM10 at CDF and Mesa2;
(2) a documented OHV-specific contribution, rather than assignment of all particles to the ODSVRA;
(3) a pre-disturbance model updated for changes in the ocean since the 1930s; and
(4) ocean and sand sampling for speciation analysis to resolve the direct-versus-deposited sea-salt split. Until those are done, "sea spray is not relevant" is a conclusion the record does not support.

1 SAG concedes the mechanism FRIENDS identified

The memo states that wave breaking in the surf zone generates sea spray, that onshore winds advect some of it to shore, that an unknown fraction is deposited on open sand and on vegetation — most concentrated near the beach and decreasing inland — and that this residue sits as thin films on sand grains until a saltation event releases it as PM10. It further states that such latent salt deposits become part of the emissions measured by the PI-SWERL instrument.

That is the mechanism FRIENDS described: the ocean delivers salt (and the organic and biological material sea spray carries) to the dune surface on ordinary days, and high-wind saltation spends that banked material on exceedance days. The peer-reviewed speciation reaches the same limit from the chemistry side. Wang et al. separate fresh from aged sea salt but state plainly that the chemistry does not resolve the route — direct spray versus previously deposited, resuspended salt — and that this separation remains unresolved. If the salt is predominantly direct spray, the authors note, that contribution will remain uncontrolled by dune measures; if a

significant fraction is resuspended deposit, reducing saltation would also reduce that fraction. Both branches matter for policy, and the memo chooses neither, because the measurement that would choose between them has not been reported.

Two consequences follow. First, the sea-salt share measured on exceedance days is a floor on the total marine contribution, not a ceiling: it counts salt however it arrived, and the speciation cannot say how much more marine material sits in the unidentified fraction or arrived as marine organics. On non-exceedance days the same study found organic matter at 22.4% alongside 40.5% sea salt, so the full marine-associated share on ordinary days is larger than the salt figure alone. Second, deposited salt is not inert. Aeolian work at Oceano has found that salt exposure promotes the breakdown of feldspar grains into fine, suspendable dust, so yesterday's marine deposit can contribute to tomorrow's "mineral dust" as well as to tomorrow's salt. The dune surface and the ocean are one coupled system; the memo's concession establishes that, even where its conclusions do not follow it.

2 "The model only predicts surface emissions" does not answer the question

The memo's central defense is that the SOA model "calculates how much 'dust' is released from the ODSVRA land surface" relative to a pre-disturbance state, and does not predict concentrations at CDF or Mesa2 — so there is "no need to directly monitor, estimate, or predict PM10 contributions from the ocean." Three difficulties undercut that defense.

Compliance endpoint. SOA compliance is ultimately judged in the air people breathe. The SOA (Case 17-01, approved April 2018; amended November 2019 and October 2022) pairs an emissions-reduction goal with the goal of eliminating excess emissions that contribute to violations of the PM10 standards. The CDF monitor, roughly a mile downwind of the ODSVRA, is where those violations are recorded. A framework that claims credit for improving air quality at the monitors when PM10 falls cannot disclaim the monitors when the composition of that PM10 is questioned. **If downwind concentrations are irrelevant to the model, then downwind trends cannot validate the model either.**

Inside, not outside. By the memo's own account, marine salt is inside the surface-emission measurement. PI-SWERL emissivity is measured by driving saltation on the sand as it lies — including its banked marine films. The "surface emissions" term therefore already contains an unquantified marine component, in both the current and the modelled pre-disturbance states. The ocean is not external to the model; it is an unlabelled ingredient of its central input. **What is missing is not relevance but apportionment: what fraction of measured emissivity is resuspended ocean, and did planting reduce that fraction, the mineral fraction, or both?**

Baseline inheritance. Pre-disturbance modelling inherits the same gap. The amended SOA asks for emissions reduced to a level consistent with a modelled pre-disturbance (1939-era) scenario. That scenario is a model of a sand surface, its vegetation, and its emissivity — a surface that, in the 1930s as today, was receiving marine deposition. If the modern PI-SWERL calibration folds marine salt into "dune emissions," the pre-disturbance reconstruction does too, at an unknown rate. Comparing two totals that both contain an unmeasured marine term, and attributing the

difference to disturbance and vehicles, assumes the marine terms are equal. Section 8 returns to that assumption.

FRIENDS's original claim was that State Parks is ignoring the ocean's contribution to PM10 downwind of the SVRA. Reformulated after the memo, the claim is more precise and harder to dismiss: the compliance framework uses a surface-emission quantity that admittedly includes resuspended marine material, compares it to a pre-disturbance quantity that does the same, and attributes the difference to ODSVRA disturbance — without ever speciating the marine share in either term. **That is not a spurious argument; it is a request for a mass balance.**

3 The speciation numbers confirm a large marine share

The memo cites Chow et al. (1996) for marine contributions of 55–63% of PM10 at two coastal sites, falling to 18–23% further inland where vehicle and road-dust sources dominate, and presents those figures as consistent with DRI measurements in the ODSVRA. Cited fairly, those numbers help FRIENDS as much as they help the SAG. They establish that at exposed coastal sites the marine fraction can exceed half of PM10, and that even "inland" shares near a fifth are normal where competing sources are strong. The Nipomo Mesa is not an urban road-dust environment; importing the urban inland figure as the expectation for CDF needs justification the memo does not supply.

The local measurements are the ones that matter, and they are not small. Wang et al. (2023), analyzing 24-hour FRM filter samples collected at CDF from April to October 2021 (eight exceedance days, 39 non-exceedance days), report a mean exceedance-day attribution of 43.1% (±15.3%) mineral dust, 25.0% (±14.5%) sea salt, and 20.4% (±2.9%) unidentified — with the authors arguing that much of the unidentified fraction is likely unmeasured mineral oxides and carbonate, which would raise the mineral share toward 63.5%. FRIENDS does not quarrel with mineral dust being the largest single component on exceedance days; the point is that sea salt at a quarter of the mass, on the very days that drive compliance, is a first-order term. On non-exceedance days the ordering reverses: sea salt 40.5% (±24.0%), mineral dust 24.2% (±14.6%), organic matter 22.4% (±16.6%), unidentified just 6.6%. The SAG memo's own summary — DRI sea salt at 22.4% ± 11.7% — sits squarely in this range. **Three independent ways of stating the result agree: the marine contribution at CDF is roughly a quarter on high days and roughly two-fifths on ordinary days.**

The memo then argues from spatial pattern: PM10 loadings near the beach (the North Foredune site) are well below loadings farther inland, especially downwind of the riding area, and the marine contribution decreases inland while total loadings increase — "together, these observations indicate that the dominant source of PM10 within the ODSVRA is not of marine origin." The gradient is real, but it does not carry that conclusion by itself. A landward increase is exactly what the coupled system predicts even with a large marine input: sea spray deposits along the fetch, saltation strengthens over open sand, and each meter of fetch adds resuspended banked salt and abraded mineral grains to air that arrived already carrying direct spray. Rising totals inland show that the dune surface adds PM10; **they do not show that what it adds is non-marine, because — per the memo's own concession — part of what the surface adds is**

marine material it received earlier. Gradient evidence apportions nothing until the added mass is speciated, and the one speciation that exists (at CDF) finds a quarter of it is salt.

What would settle this section is straightforward and is requested below: a speciated transect — beach, foredune, riding area, CDF, Mesa2 — on matched high-wind days, reporting absolute concentrations of mineral dust, fresh and aged sea salt, and marine organics at each point. Percentages alone mislead; the policy question is how many micrograms per cubic meter at CDF are marine, and how that absolute marine load varies with wind, season, and the state of the controls.

4 The Gillies conundrum the memo omits

The most significant omission in the September 2026 memo is a document written by one of its own signatories. On October 27, 2022, Dr. Jack Gillies of the Desert Research Institute — SAG member and co-author of the 2023 speciation — wrote to State Parks about the 2021 results. As FRIENDS's October 6, 2026 letter to the APCD Hearing Board records, Dr. Gillies noted sea salt at about 22% on exceedance days and framed the open question in terms FRIENDS adopts here (quoted briefly, as evidence):

"what proportion of the sea salt came directly from the ocean on those days … or came from saltation-driven emissions releasing NaCl particles that were previously deposited to the sand" — Gillies to State Parks, Oct. 27, 2022

Dr. Gillies did not treat that question as rhetorical. He proposed a concrete study — sand transects and PI-SWERL testing with speciated (VSCC) analysis — designed to determine, in the paraphrase FRIENDS carried to the Hearing Board, whether Parks would have a basis for subtracting a sea-salt component when evaluating PM10 in excess of the pre-disturbance level. That is precisely the adjustment the September 2026 memo declares unnecessary. The memo, signed by Dr. Gillies, does not cite the e-mail, does not report whether the proposed study was funded, performed, or abandoned, and does not explain why a question worth a dedicated study design in 2022 had become "spurious" by 2026 without the study being done.

FRIENDS asks that the study be done or its abandonment explained on the record. The design already exists; it was written by the scientist best placed to execute it. A finding that most exceedance-day salt is direct spray would cap what dune controls can achieve at CDF and require the compliance target to reckon with an uncontrolled natural term. A finding that most is resuspended deposit would strengthen the controls rationale — but would also confirm that a share of counted "dune emissions" is ocean material in transit, which the pre-disturbance comparison must then handle symmetrically. Either result improves on the present position, which is to proceed as if the split did not matter while one's own expert has said it is unresolved.

5 From "merited" in 2019 to "spurious" in 2026

On February 25, 2019, the SAG reported in support of studying sea salt and microorganisms contained in sea spray as potential PM10 sources at the ODSVRA, and described that line of study as merited. That was the scientifically appropriate response to a coastal monitor whose

filters kept showing marine tracers: measure it. FRIENDS's four letters in 2026 — March 2, two of August 19, and September 15 — asked, in substance, for the fruits of that merited study: **what does sea spray contribute downwind, in absolute terms, on exceedance and ordinary days, directly and via the sand?**

The September 2026 answer — that the contribution need not be monitored, estimated, or predicted, and that pressing the question is "misplaced" and "spurious" — is a change of scientific position. Changes of position are legitimate when new evidence compels them. The memo identifies no new sea-spray study between 2019 and 2026 that resolved the contribution downward; the major speciation in that interval (2021 campaign, published 2023) resolved it upward, to roughly a quarter of exceedance-day mass, and left the direct-versus-deposited split explicitly unresolved. If other evidence drove the change — the APCD's November 2022 critique of earlier Scripps/UCSD sampling, for example — the memo should say so and engage it, rather than dismiss the question. FRIENDS notes the APCD critique fairly: the District argued that earlier high sea-salt estimates reflected sampling artifacts. But the 2023 DRI study used FRM samplers and collocated BAM comparison precisely to answer that class of objection and still found 25%. **The artifact debate cannot be invoked against numbers produced by the method the critics preferred.**

6 The water's-edge monitor

FRIENDS's October 6, 2026 letter drew the Hearing Board's attention to the Northern Foredune (NFRA) monitoring site at the water's edge, which recorded high PM10 with fresh sea salt arriving directly off the ocean. The significance is locational. At the water's edge, upwind of the foredune, the riding area, and every control measure, the air already carries a marine PM10 load in its fresh, unaged form — before saltation over managed sand can add, subtract, or transform anything. That is direct evidence of the marine source term the compliance model declines to estimate.

The September 2026 memo does not address the NFRA observation. Its spatial argument — low loadings at the North Foredune site relative to inland sites — is not a substitute, because the two observations describe different quantities: a site can show lower total PM10 than CDF on average while still, on high-wind days, demonstrating that a substantial marine load enters the system at its western boundary. What enters at the boundary must be in the budget at CDF unless deposition in route is measured to remove it — which is the next section's problem. FRIENDS asks that the NFRA high-PM10, fresh-salt events be analyzed and published: concentrations, wind conditions, and the fresh-to-aged salt ratio, so the marine input term is a measurement rather than a debating point.

7 Unevidenced claims in the 2026 ARWP

The provisional final 2026 Annual Report and Work Plan, as FRIENDS's letter notes, asserts without supporting evidence that the contribution of near-shore PM10 "diminishes" as it advects downwind, and invokes beach saltation as a supply mechanism. Both assertions need data the ARWP does not present.

"Diminishes" downwind. If near-shore marine PM10 diminished strongly in transit, the marine fraction at CDF — two miles inland — should be small. The 2021 speciation found 25% sea salt on exceedance days and 40.5% on ordinary days at that inland monitor. Either the diminishment is modest, or it is offset by in-transit resuspension of previously deposited salt — the coupled mechanism the SAG memo itself concedes. **The ARWP cannot have strong diminishment and the measured CDF salt share without quantifying the resuspension that reconciles them, and it quantifies neither.**

Beach saltation. Beach saltation requires a dry, loose, sand-supplying surface. The Oceano beach is regularly wetted by tides, swash, and marine-layer moisture and is, as FRIENDS's letter observes, rarely dry enough for sustained saltation across the fetch the ARWP implies. If beach saltation is to carry explanatory weight, the ARWP should show saltation measurements (or PI-SWERL emissivity) from the wet-beach surface under the wind conditions of exceedance days, not assume a dry-beach emissivity.

These are not peripheral sentences. The ARWP is the document through which the SOA program reports progress and plans work; unevidenced transport claims in it propagate into Hearing Board findings. **FRIENDS asks that both claims be supported with measurements or withdrawn in the final ARWP.**

8 The pre-disturbance baseline cannot rest on a null hypothesis

Addressing FRIENDS's Letters #2 and #4 — which cited shoreline development, population growth, recreational intensity, and industrial facilities as reasons the ocean's PM10 contribution might differ between the pre-disturbance era and today — the memo responds that there is little to no evidence any of these changes altered potential PM10 loadings, that effluents and wastewater outflows are strictly regulated, and that "the null hypothesis is that marine processes and sea spray contributions in the 1930s are comparable to those today."

FRIENDS accepts two parts of that answer and rejects the conclusion drawn from them. It accepts that regulated effluent, as such, is not shown to have changed sea-salt production — treated wastewater is fresher than seawater and a diffuser discharge dilutes rather than concentrates salt — and FRIENDS does not rest its case on outfalls manufacturing salt. It also accepts that no one has yet quantified a 1930s-to-present change in the marine term. The rejection is of the inference: absence of evidence for change is not evidence of constancy, especially for a term that has never been measured in either era. Sea-spray production depends on wind history, wave height, sea state, **and the organic content of the surface microlayer**; those depend in turn on shoreline configuration, kelp and algal ecology, nutrient loading (natural and from outside sources), and a century of coastal change. **Some of those drivers plausibly raised the marine organic load, some lowered it, and the honest statement is that the sign and size are unknown.**

A null hypothesis is the statement a study is designed to test, with the data that would reject it specified in advance. Adopting it as the working assumption of a compliance model — one that sets how much emission reduction Parks must achieve against a 1939 reconstruction — converts an untested premise into a regulatory burden. The burden of demonstration sits with the party

asserting the baseline, not with the party asking how it was derived. **FRIENDS's ask (Section 13, item 3) is correspondingly modest: update the pre-disturbance model to account for changes in the ocean since the 1930s, or state openly that the marine term is held constant by assumption and carry that assumption into the uncertainty reported for the excess-emissions goal.**

9 Moisture and the PI-SWERL protocol

On moisture (FRIENDS Letter #3), the memo argues that PI-SWERL characterization is performed only during extended dry periods, that teasing out moisture effects requires day-by-day correlation of rainfall and fog with high- and low-dust events, and that dust emissions are event-dependent rather than driven by annual moisture regimes. The last two points are correct as far as they go, and FRIENDS does not contend that an annual rainfall total explains an individual exceedance. The contention is about the multi-year trend and the emissivity baseline, where the memo's answer does not reach.

Standardizing PI-SWERL sampling to dry periods makes surface tests comparable to each other; it does not make the ambient trend at CDF moisture-free. Antecedent moisture governs how quickly a surface returns to emissive condition after rain or fog, how much salt and fine material has been leached, crusted, or redistributed, and how vegetation — the control measure itself — grows. A program that samples emissivity only in extended dry windows will, by construction, report the dry-state emissivity of both riding and non-riding surfaces and cannot detect a climate-driven drift in how often, or how strongly, the real surface occupies that state. The wet winter of 2016–17, the dry years and statewide drought of 2020–2022, and the very wet 2023 season all sit inside the window over which improvement is claimed. Event-dependence is the mechanism, not a rebuttal: **if events are the unit, then the frequency, duration, and moisture context of events must be in the trend model, year by year, at CDF and the control sites alike. FRIENDS asks that they be put there.**

10 Total-PM10 regulation is not source attribution

The memo observes that EPA and CARB air-quality regulations "apply to total PM10 concentrations in the air, regardless of the particulate matter's source or composition." That is true of the standards themselves, and FRIENDS does not argue that a microgram of sea salt counts less toward an exceedance than a microgram of quartz. But the SOA is not the standard; it is an allocation of responsibility for the standard. As amended, it asks Parks to eliminate emissions in excess of natural emissions and to reach a pre-disturbance-consistent level — both of which are source-attribution tests. "Natural," "excess," and "pre-disturbance" have no meaning without apportioning the total into sources. Invoking the source-blindness of the ambient standard to resist source apportionment in a source-specific abatement order proves too much: on that logic, the entire pre-disturbance modelling exercise is unnecessary, and so is the distinction between riding and non-riding emissivity on which the program rests.

The practical stakes are concrete. If roughly a quarter of exceedance-day PM10 at CDF is sea salt and some further share is marine organic matter — much of it, on the direct-spray branch of the unresolved split, uncontrolled by any dune measure — then the mass Parks can actually abate

by managing sand is smaller than the total the monitor records, and a fixed percentage reduction of a modelled surface-emission total may be unattainable, or attainable only by over-controlling the controllable fraction. Federal practice recognizes the underlying point through exceptional-events and natural-background provisions; **California's framework likewise distinguishes what an operator caused from what the coast supplied. The SOA should do the same, explicitly, with numbers.**

11 Crediting the planting program requires speciating the decline

The memo closes by crediting "the dust mitigation efforts undertaken by State Parks in its planting program" as the primary control on the improving air-quality trend. Planting may well deserve substantial credit; vegetation roughens the surface, shelters sand, and suppresses saltation. But the trend in total PM10, without speciation, cannot distinguish two mechanisms with opposite implications: (a) vegetation reduced wind energy at the sand surface, suppressing saltation and mineral dust; or (b) vegetation interposed between the ocean and the monitor filtered sea spray and marine aerosol from onshore flow before it reached CDF. Both lower the total at CDF; only the first is a reduction in dune dust emission. **If the second is doing material work, part of the celebrated improvement is natural background combed out by foliage — real cleaner air at the monitor, but not a reduction in ODSVRA dust, and not evidence about OHV disturbance at all.**

The published numbers leave the question open in a pointed way. Pre-controls APCD-era studies put sea salt at roughly 5–10% of PM10 on high days at CDF; the post-controls 2023 speciation finds 25% on exceedance days (different campaigns and methods, so the comparison is a question, not a proof). If mineral dust fell while the marine background held roughly steady, the salt share rises arithmetically; the absolute marine load is what matters, and absolute component trends — micrograms per cubic meter of mineral dust, salt, and marine organics, before versus after, on harmonized methods — have not been published. Until they are, "the primary control appears to be the planting program" attributes an un-speciated decline to a preferred mechanism. FRIENDS's companion challenge to the APCD's difference-in-differences analysis develops the related design problems (peak-year baseline, the non-significant Mesa2 result, activity confounding, and the modelled 74 $\mu g/m^3$ counterfactual) and is incorporated by reference; this response adds only that no trend attribution at CDF is complete until it is a trend attribution of components.

12 The PI-SWERL-to-monitor link must be documented

The program's causal chain runs: OHV disturbance raises sand emissivity; higher emissivity raises downwind PM10; controls lower emissivity; monitors improve. The first link is measured — DRI reports riding-area emissivity two to three times non-riding emissivity at above-threshold winds. The second link, from surface emissivity to concentrations at CDF and Mesa2 under real, varying winds and fetch, is the one the SOA's goals actually turn on, and it is routinely asserted through modelling rather than documented as a validated correlation: paired PI-SWERL campaigns and downwind concentrations, across seasons and wind sectors, with the transfer function and its uncertainty stated.

Friends of Oceano Dunes is a 501(c)(3) California Not-for-Profit Public Benefit Corporation formed in 2001 to represent those who enjoy beach camping and Off-Road recreation primarily as well as others who enjoy the benefits of Public Access through Responsible Recreation at the Oceano Dunes State Vehicular Recreation Area (ODSVRA). We want to maintain Access For All!

A recent observation sharpens the need. FRIENDS's October 6 letter reports that a tractor towing a beach rake digging some eight inches into the sand showed no measurable difference in emissions. A rake is not an OHV, and one observation is not a study; but if eight inches of mechanical disturbance by heavy equipment does not measurably change emissivity, the assignment of the dominant emissivity role to lightweight OHV traffic demands more, not less, direct documentation — disturbance depth, passes, speed, and moisture controlled, with OHV-specific increments separated from the wind's own work on an already-loose surface. **At present, the risk is that "all particles are assigned to the ODSVRA, and within the ODSVRA to riding," when the measured quantity is a whole-surface emissivity that includes marine films, natural loose sand, and every disturbance together.**

FRIENDS therefore asks for the correlation to be shown, not cited in general terms: the dataset, the wind-sector and fetch treatment, the goodness of fit at CDF and at Mesa2 separately (the two monitors have not moved together, and a validated transfer function should say why), and the sensitivity of the excess-emissions goal to that function's uncertainty.

13 Requests for the record — FRIENDS's four asks

Friends of Oceano Dunes respectfully requests that the following be undertaken and reported to the OHMVR Commission and the APCD Hearing Board. Each ask corresponds to a gap the September 2026 memo leaves open, and the first and fourth implement study designs the SAG itself has previously endorsed or authored.

PI-SWERL correlation. Produce documented proof correlating PI-SWERL surface emissivity measurements to actual measured downwind PM10 at CDF and Mesa2 — paired data, transfer function, sector-by-sector fit, and uncertainty — so the surface-to-monitor link on which SOA compliance rests is demonstrated rather than assumed.

OHV-specific share. Document the OHV-specific contribution to emissivity and to downwind PM10, separated from natural wind work on loose sand, from non-OHV mechanical disturbance, and from resuspended marine material — rather than assigning all particles measured downwind, or all emissivity measured at the surface, to the ODSVRA riding area.

Pre-disturbance ocean. Update the pre-disturbance model to account for changes in the ocean since the 1930s — or state explicitly that the marine term is held constant by assumption, identify that assumption in every presentation of the excess-emissions goal, and carry it through the reported uncertainty. The 1930s ocean cannot be speciated retroactively; it can be bounded by modern analogue sampling and sensitivity analysis, and the bounds should be published.

Ocean and sand speciation. Sample the ocean and the sand for speciation analysis to resolve the Gillies conundrum: fresh versus aged salt and marine organics in surf-zone water, in sand along beach-to-monitor transects (including the NFRA water's-edge site), in PI-SWERL emissions with speciated analysis, and at CDF and Mesa2 on matched high-wind days — reporting absolute concentrations, so the direct-spray and deposited-resuspension shares are measured and any warranted sea-salt treatment in the excess-PM10 evaluation is evidence-based.

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Pending completion, FRIENDS asks that presentations of program progress (i) describe trend figures as trends in total PM10, not as demonstrated reductions in OHV-attributable dust; (ii) state the marine fraction from the 2021 speciation alongside any CDF trend; and (iii) identify the 2026 ARWP's "diminishes downwind" and beach-saltation statements as unsupported until the measurements above are reported.

Conclusion

The September 22 memo and this response agree on more than either side's rhetoric suggests: sea spray is generated in the surf zone, carried onshore, deposited on sand and vegetation, incorporated into PI-SWERL-measured emissions, and resuspended as PM10 during saltation; mineral dust is the largest single component on exceedance days; and total PM10 at CDF has fallen from its 2017 peak. The disagreement is about what remains unknown and who must measure it. On the SAG's own prior positions — the 2019 judgement that sea-spray study was merited, and Dr. Gillies's 2022 design for resolving the direct-versus-deposited split — the unknown is a research program, not a dismissal. **Friends of Oceano Dunes asks the Commission, Parks, and the District to run that program and report it, so that the SOA's excess-emissions goal rests on a mass balance that includes the ocean the dunes have always stood in front of.**

Friends of Oceano Dunes (Friends) was created in 2001 to preserve and promote recreational uses, including beach camping and off-highway vehicle recreation, at the Oceano Dunes State Vehicular Recreation Area (ODSVRA). ODSVRA attracts over 1.5 million annual visitors and contributes over $500M to the local economy.

Sincerely,



Jim Suty
President, Friends of Oceano Dunes

Cc: Friends BOD & Legal Counsel

Sources and notes

Speciation. Wang, X., Gillies, J.A., Kohl, S., Furtak-Cole, E., Tupper, K.A. & Cardiel, D.A. (2023). Quantifying the Source Attribution of PM10 Measured Downwind of the Oceano Dunes State Vehicular Recreation Area. Atmosphere, 14(4), 718. https://doi.org/10.3390/atmos14040718 — FRM speciation at CDF, Apr.–Oct. 2021: exceedance-day means 43.1% mineral dust, 25.0% sea salt, 20.4% unidentified; non-exceedance-day means 40.5% sea salt, 24.2% mineral dust, 22.4% organic matter; direct-versus-deposited sea-salt separation stated as unresolved.

SAG documents. Scientific Advisory Group (2026). Memo: Sea Spray (Sept. 22, 2026), to Jon O'Brien, CDPR — the document answered here; and Scientific Advisory Group report of Feb. 25, 2019, supporting study of sea salt and microorganisms in sea spray as merited.

Gillies e-mail. Gillies, J. (DRI) to California State Parks, e-mail of Oct. 27, 2022 — ~22% sea salt on exceedance days; direct-versus-previously-deposited split posed as the open question; sand-transect and PI-SWERL speciation study proposed (as recorded in FRIENDS to APCD Hearing Board, Oct. 6, 2026). Quoted briefly in Section 4.

SOA. Stipulated Order of Abatement, SLO County APCD Hearing Board Case 17-01 (approved Apr. 2018; amended Nov. 2019 and Oct. 2022) — dual goals of achieving PM10 standards and eliminating emissions in excess of natural/pre-disturbance levels; SAG established thereunder.

APCD review. SLO County APCD (2022). Comments on Scripps/UCSD Interim Report (updated Nov. 2, 2022) — District critique of earlier sea-salt sampling as artefactual; noted in Section 5 with the FRM response embodied in Wang et al. (2023).

FRIENDS letters. Friends of Oceano Dunes Letters #1–#4 to OHMVR Commissioners (Mar. 2, 2026; Aug. 19, 2026 ×2; Sept. 15, 2026) and FRIENDS to APCD Hearing Board (Oct. 6, 2026) — NFRA water's-edge observation, 2026 ARWP "diminishes" and beach-saltation passages, beach-rake observation, and the four asks carried into Section 13.

Note. Standards note: California's 24-hour PM10 standard is 50 µg/m³ and its annual standard is 20 µg/m³; the federal 24-hour standard is 150 µg/m³. Nothing in this response disputes exceedance counts as recorded; it disputes source attribution of the recorded mass. Where percentages are cited, absolute concentrations control the policy question, and their publication is requested.

Friends of Oceano Dunes is a 501(c)(3) California Not-for-Profit Public Benefit Corporation formed in 2001 to represent those who enjoy beach camping and Off-Road recreation primarily as well as others who enjoy the benefits of Public Access through Responsible Recreation at the Oceano Dunes State Vehicular Recreation Area (ODSVRA). We want to maintain Access For All!