At this time, the JPR process has not been completed. The IS/MND conditions a determination of no adverse effects on "successful completion of the JPR process."[60] An e-mail from a GIS Technician with the Coachella Valley Association of Governments ("CVAG") to USFWS and CDFW staff provided a November 30, 2018 deadline for comments from those agencies, which would be needed to finalize the JPR and which would occur at some unknown later time, potentially after further Project review by the County.[61] Because the JPR has not been finalized, additional changes to the Project may be mandated by USFWS or CDFW in order to be certain there will be consistency with the CVMSHCP and its take authorization. If the JPR process cannot be completed successfully, premature consideration and approval of the Project will have significant unmitigated impacts to habitats and species. 3-14 (cont)

Without a finalized JPR, the Project fails to provide an accurate or stable project description, rendering the consistency analysis with the CVMSHCP unreliable. The IS/MND must be withdrawn and recirculated with correct information from after the JRP process.

All phases of the Project — the "whole of an action" — must be evaluated in a single EIR. Accordingly, the County must revise and recirculate the environmental document to include a description of the Project transporting components to and from the Project site.

IV. THE IS/MND VIOLATES CEQA'S PROHIBITION ON PIECEMEAL ENVIRONMENTAL REVIEW

A public agency may not segment a large project into two or more smaller projects in order to mask serious environmental consequences. CEQA prohibits such a "piecemeal" approach and requires review of a project's impacts as a whole.[62] CEQA mandates "that environmental considerations do not become submerged by chopping a large project into many little ones – each with a minimal potential impact on the environment – which cumulatively may have disastrous 3-15

[60] IS/MND, p. 37.
[61] E-mail from Oscar Vizcarra to Heather Pert, KBAEZ@rivco.org, Jenness McBride, and Applicant (Oct. 31, 2018), **Exhibit G.**
[62] 14 CCR § 15378(a); *Burbank- Glendale-Pasadena Airport Authority v. Hensler* (1991) 233 Cal.App.3d 577, 592.

consequences."[63] Before approving a project, a lead agency must assess the environmental impacts of all reasonably foreseeable phases of a project.[64]

The IS/MND notes that there may not be sufficient habitat needed to mitigate impacts to the Coachella Valley Jerusalem Cricket within the Upper Mission Creek/Big Morongo Conservation Area.[65] The CVMSHCP allows for a Transfer of Conservation Goals; however, it is subject to subsequent approval by USFWS and CDFW. [66]

This future part of the Project will occur if the JPR does not find adequate habitat within the existing Conservation Area and will require further discretionary approval by the CVCC. Without a completed JPR process, it is impossible to determine whether this action will occur, what areas it will impact, or whether it will even be approved. There may be potential significant impacts from future actions to provide sufficient habitat for this Project to conform to the CVMSHCP take permits, or no sufficient habitat available to reduce the impact from the Project to a less-than-significant level.

3-15 (cont)

The IS/MND also notes that there must be a Restoration Plan to revegetate the Project site and restore habitat.[67] This plan will be submitted to the CVCC and County prior to any site disturbance for approval. This plan is part of this Project and needed to be disclosed and analyzed prior to Project approval to prevent fragmenting the analysis, limiting the amount of revegetation that will occur, and to ensure that revegetation will happen.

The proposed Restoration Plan must be developed and disclosed to the public prior to consideration by the County. The IS/MND must be withdrawn and a revised analysis must be recirculated for public review once the analysis is complete, disclosed to the public and adequate mitigation has been identified.

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[63] *Bozung v. Local Agency Formation Commission* (1975) 13 Cal.3d 263, 283-84; *City of Santee v. County of San Diego* (1989) 214 Cal.App.3d 1438, 1452.
[64] *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 396-397 (EIR held inadequate for failure to assess impacts of second phase of pharmacy school's occupancy of a new medical research facility).
[65] IS/MND, p. 34.
[66] HCP, p. 6-52.
[67] IS/MND, p. 34.

V. THE IS/MND FAILS TO ADEQUATELY ESTABLISH THE EXISTING ENVIRONMENTAL SETTING AGAINST WHICH THE COUNTY IS REQUIRED TO ANALYZE THE PROJECT'S POTENTIALLY SIGNIFICANT IMPACTS

The IS/MND describes the existing environmental setting inaccurately and incompletely, thereby skewing the County's impact analysis. The existing environmental setting is the starting point from which the lead agency must measure whether a proposed Project may cause a significant environmental impact.[68] CEQA defines the environmental setting as the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, from both a local and regional perspective.[69]

Describing the environmental setting accurately and completely for each environmental condition in the vicinity of the Project is critical to an accurate and meaningful evaluation of environmental impacts. The importance of having a stable, finite and fixed environmental setting for purposes of an environmental analysis was recognized decades ago.[70] Today, the courts are clear that "[b]efore the impacts of a Project can be assessed and mitigation measures considered, an [EIR] must describe the existing environment. It is only against this baseline that any significant environmental effects can be determined."[71] 3-16

An EIR must also describe the existing environmental setting in sufficient detail to enable a proper analysis of project impacts.[72] The CEQA Guidelines provide that "[k]nowledge of the regional setting is critical to the assessment of environmental impacts."[73] This level of detail is necessary to "permit the significant effects of the project to be considered in the full environmental context."[74]

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[68] *See, e.g., Communities for a Better Env't v. S. Coast Air Quality Mgmt. Dist.* (March 15, 2010) 48 Cal.4th 310, 316; *Fat v. City of Sacramento* (2002) 97 Cal.App.4th 1270, 1278, *citing* Remy, et al.; Guide to the Calif. Environmental Quality Act (1999) p. 165.
[69] CEQA Guidelines §15125, subd. (a); *Riverwatch v. City of San Diego* (1999) 76 Cal.App.4th 1428, 1453.
[70] *City of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185.
[71] *City of Amador v. El Dorado City Water Agency* (1999) 76 Cal.App.4th 931, 952.
[72] *Galante Vineyards v. Monterey Peninsula Water Mgmt. Dist.* (1997) 60 Cal.App.4th 1109, 1121-22.
[73] CEQA Guidelines § 15125, subd. (d).
[74] *Id.*

The IS/MND fails to accurately and adequately describe the environmental setting to enable the County to properly assess transportation, air and public health impacts from the Project. Decision makers cannot determine the Project's impacts, and in turn, apply appropriate mitigation for those impacts, without an accurate description of the environmental setting. The County must gather the relevant data and revise the IS/MND to include an accurate and complete description of the existing environmental setting. 3-16 (cont)

A. The IS/MND Fails to Establish the Environmental Setting for Traffic, the Air Basin, and Sensitive Receptors Along the Blade Transit Route

As stated above, the IS/MND is silent on how the Project will transport 213-feet-long wind turbine blades to the Project site.[75] What is also lacking is an adequate description of existing traffic patterns, the air basin, and sensitive receptors along the route so that there can be a comparison between the existing setting and effects on traffic and air quality from the Project on sensitive receptors.[76] Since the IS/MND fails to describe existing traffic patterns, the air basin and sensitive receptors, the County failed to establish the existing setting and cannot make an effective determination of the Project's impacts and mitigation required to address those impacts.[77] 3-17

The Response Memorandum suggests that the analysis is complete because the County estimated impacts from standard haul truck trips on Highways 10 and 62.[78] As explained above, this does not cover the full scope of the Project, since turbine blades cannot be sourced locally. The IS/MND analysis wrongly assumes standard haul trucks will be used, instead of the uniquely large equipment that may have a difficult time navigating existing routes that are needed to deliver the turbine blades to the site.

[75] Fox Comments, p. 11.
[76] Fox Comments, p. 11.
[77] Fox Comments, p. 11.
[78] Response Memo, p. 4.

B. The IS/MND Underestimates the Amount of Habitat the Project Will Disturb

The Bio Memorandum suggests that our previous comment letter is not supported by substantial evidence.[79] This is incorrect, as our comment letter was supported by Ms. Owens' expert opinion, which determined after reviewing the IS/MND and cited materials that total lands disturbed were underestimated.[80]

The IS/MND states that the Project will only permanently disturb 2.59 acres of land but does not support this claim.[81] Construction of new access roads and widening of existing access roads to accommodate the larger turbines and cranes, a new laydown yard, and new turbine pads will all disturb the Project site. Ms. Owens' estimate based on the information provided by the County and the Applicant suggests that the actual area of permanently disturbed land may be closer to 20 acres.[82]

3-18

First, several miles of access roads will be expanded from 8 or 16 feet wide to 36 feet wide, disturbing 4.36 acres per mile.[83] Second, new access roads will be constructed to towers 2, 3, 13, and 14.[84] Third, the laydown yard itself will disturb over 5 acres.[85] Fourth, the IS/MND uses an unreasonably conservative estimate for turbine construction zones.[86] Finally, the IS/MND does not discuss the disturbance related to decommissioning of the existing 291 wind turbines.[87]

The areas that will be disturbed are, or are surrounded by, native habitat that may be occupied by sensitive species.[88] While the IS/MND suggests that disturbed areas will be revegetated, the County never discloses the potentially significant impacts, the extent of the potentially significant impacts and the

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[79] Bio Memo, p. 1.
[80] Owens' Response, p. 7.
[81] Owens' Comments, p. 4.
[82] Owens' Comments, p. 6.
[83] Owens' Comments, p. 6.
[84] Owens' Comments, p. 6.
[85] Owens' Comments, p. 6.
[86] Owens' Comments, p. 6.
[87] Owens' Comments, p. 7.
[88] Owens' Comments, pp. 6-7.

proposed mitigation for those impacts, including, but not limited to, potential revegetation, making potentially significant impacts undisclosed, unanalyzed and permanent.[89]

Additionally, the IS/MND fails to address the Project's potentially significant indirect impacts to biological resources, such as indirect impacts to wildlife from noise, dust, or vehicles.[90]

Overall, the County's failure to accurately describe the acreage that will be disturbed by the Project renders it impossible to analyze the Project's potentially significant impacts to biological resources, as required by CEQA. State law requires the County to prepare a revised environmental review document that accurately describes where and how the Project will disturb lands and any impacts resulting therefrom and to recirculate the document for public review and comment.

The Bio Memorandum alleges that the JPR process fully addresses the impacts to disturbed lands; however, it ignores that the JPR process is not complete and would occur outside of the public review process, pursuant to CEQA.[91] Determinations of impacts, including the number of permanently disturbed lands, could change through the JPR process.[92] Additionally, the JPR process only looks at habitat loss, not direct impacts to species, such as those identified by Ms. Owens that may occur during construction or operation of the Project.[93]

3-18 (cont)

C. The IS/MND Fails to Describe the Existing Levels of Impacts to Avian Species on the Project Site

The IS/MND cursorily and summarily concludes that the replacement of 291 existing wind turbines with 14 new, larger wind turbines will lead to less impacts to birds.[94] As Ms. Owens notes, this claim is unsupported by the evidence, since larger

3-19

[89] Owens' Comments, pp. 5-6; *see* below, Section VII.
[90] Owens' Comments, p. 7.
[91] Bio Memo, p. 1.
[92] Owens' Response, p. 7.
[93] Owens' Response, p. 7.
[94] IS/MND, p. 35.

wind turbine blades can lead to increased impacts.[95] Any actual determination as to whether there will be increased or decreased impacts to birds is impossible, however, since the County provided no data on avian mortality from the existing project. The County must revise its environmental review document to include actual data on existing avian mortality, studies that model existing avian mortality or some other valid substantial evidence for public review before the County can even consider concluding that the Project would result in no significant impacts to birds.

The Bio Memorandum suggests that previous studies and the CVMSHCP address a baseline for this Project. However, the CH2M Hill Survey, cited in Appendix C, was provided for a different project and only concluded that the other project was designed to avoid impacts to avian species and that risk from collision would decrease, making no such claims for this Project.[96] Also, the CH2M Hill Survey never made any conclusions regarding mortality rates, nor did it provide the mortality rates. Further, the CH2M Hill Survey was unscientific and based off another survey that is too old and insufficient, as described below. 3-19 (cont)

The CVMSHCP provides an assessment of impacts from habitat loss to species but does not evaluate the direct impacts to species from construction and operation of the Project.[97] It also is limited in the number of species it covers, leaving out ~~other special-status birds~~ found in ~~the site, migratory birds, and~~ bats.[98] No substantial evidence is provided, such as a decrease in avian mortality per turbine or kilowatt-hour, for this Project by which to determine that there is a decrease in impacts, as the IS/MND claims.

D. The IS/MND Fails to Adequately Survey and Describe Onsite Biological Resources

The IS/MND does not include any relevant, recent focused or protocol surveys for any special-status species that have a moderate to high potential to occur on the 3-20

[95] Owens' Comments, pp. 2-3.
[96] IS/MND, Appendix D of Appendix C, p. 7.
[97] Owens' Response, p. 9.
[98] Owens' Response, p. 9.

Project site.[99] The Bio Memorandum contends that our comment ignores the surveys cited as substantial evidence that the County has determined the extent of species at the Project site.[100] The IS/MND relies on the CH2M Hill Survey for a completely different project, which was based on a National Renewable Energy Laboratory ("NREL") survey. In fact, the only survey conducted was a general, one-day field study in March of 2018.[101]

Ms. Owens found that at least 30 different plant and animal species, protected at both the state and federal level, could occur at the Project site and must be assessed and disclosed in a revised environmental review document.[102] For example, the IS/MND completely omits any data on bats in the area and any discussion of the Project's potentially significant impacts to bats.[103]

By failing to require the necessary surveys, the County lacks substantial evidence to support its conclusions in the IS/MND. The County cannot possibly determine whether the Project would result any impacts to biological resources, much less determine whether those impacts are significant and what mitigation is required. The County must require the Applicant to conduct proper surveys and provide actual data on biological resources and must revise and recirculate the environmental review document to the public.

3-20 (cont)

i. The Cited CH2M Hill Survey Does Not Provide an Environmental Setting for the Project

The CH2M Hill Survey, which the IS/MND cites as evidence that avian use at the Project site is low, is too old and unscientific to constitute substantial evidence.[104] Ms. Owens found that the age of the survey leaves it irrelevant for establishing a baseline for this project.[105] After review, Ms. Owens concludes that

3-21

[99] Owens' Comments, p. 7.
[100] Bio Memo, p. 2.
[101] Owens' Comments, p. 7.
[102] Owens' Comments, pp. 7-8.
[103] Owens' Comments, pp. 13-15.
[104] Owens' Response, p. 16.
[105] Owens' Response, p. 16.

the CH2M Hill Survey is merely a summary of other surveys and not a CH2M Hill Survey of the Project site, as claimed by the IS/MND.[106]

The CH2M Hill Survey takes incompatible data from numerous other surveys and improperly treats their data as equitable in order to support its analysis.[107] The CH2M Survey also relies on unscientifically vague determinations, such as describing levels of avian use of the San Gorgonio Pass as "low," despite other surveys providing quantitative data showing otherwise.[108]

Ms. Owens determined that the CH2M Hill Survey contains numerous errors, comes to an erroneous conclusion, and would not be accepted in a peer-reviewed journal.[109] The CH2M Hill Survey lacks scientific rigor, and the County cannot rely on it for substantial evidence to support any determinations of environmental setting or impacts in the IS/MND.

3-21 (cont)

ii. The NREL Survey is Insufficient to Determine the Existing Environmental Setting for This Project

The NREL Survey cited by the Bio Memorandum and relied on by the CH2M Hill Survey does not support the IS/MND claims that risk of avian mortality is low. The NREL Survey concludes that it was not designed to provide data for standardized estimates of avian mortality and subject to high levels of uncertainty.[110] The NREL Survey also relies on flawed analysis, as Ms. Owens notes in her response.[111] Ms. Owens concludes that the NREL Survey would not be accepted in a peer-reviewed journal due to flawed statistics.[112] Any reliance on the NREL Survey is invalid, and the survey does not provide substantial evidence about the existing environmental setting or avian mortality at the Project site.

3-22

[106] Owens' Response, p. 16.
[107] Owens' Response, pp. 16-17.
[108] Owens' Response, pp. 17-18.
[109] Owens' Response, pp. 16-19.
[110] Owens' Response, p. 14.
[111] Owens' Response, pp. 14-15.
[112] Owens' Response, p. 15.

E. The IS/MND Ignores and Fails to Survey Migratory Birds Protected Under California Law

The IS/MND does not provide any analysis for migratory birds, except those included in the insufficient special-status survey or CVMSHCP, citing recent USFWS determinations that the Migratory Bird Treaty Act ("MBTA") does not apply to incidental take.[113] This ignores that migratory birds identified in the MBTA are still subject to incidental take prohibitions under California law.[114] This position has recently been affirmed by Attorney General Xavier Becerra, noting in his memo on the MBTA that "[California Department of Fish and Wildlife] and the Attorney General will continue to enforce California law to protect these birds."[115] 3-23

California law regarding the MBTA did not change with the USFWS opinion cited in the IS/MND. The IS/MND thus fails to properly consider whether the Project may contribute to the take of migratory birds in the area.[116] The IS/MND must be withdrawn and recirculated with studies determining the extent to which birds covered under the MBTA may be present in the area and with existing levels of mortality for migratory birds.

F. The IS/MND Relies on an Outdated and Improperly Conducted Survey for Golden Eagles

The abundance of research supports the fact that wind turbines can kill Golden Eagles, which are fully protected under California law.[117] As a result, proper studies are needed to determine if the Project will lead to eagle mortality. 3-24

[113] IS/MND, p. 34.
[114] Fish and Game Code § 3513.
[115] California Department of Fish and Wildlife and Attorney General Xavier Becerra, Advisory Affirming California's Protections for Migratory Birds (Nov. 29, 2018), p. 3.
[116] Owens' Response, p. 13.
[117] Fish and Game Code § 3511(b)(7).

i. The January 11, 2012 Wildlife Research Institute, Inc. Survey is Too Old, Does Not Cover the Project Site, and Was Improperly Conducted and Cannot Provide an Adequate Description of the Existing Environmental Setting

The County references a Wildlife Research Institute, Inc. survey for Golden Eagles in the IS/MND, but the survey does not accurately inventory habitat and potential impacts to eagles for numerous reasons. The survey data is too old to represent current conditions for the Golden Eagle.[118] More recent data is needed since breeding status for a nest territory is based on whether it is being used in the current year.[119] All breeding sites in an area with eagles demonstrating pair bonding activities are deemed occupied.[120] A seven year old study cannot possibly determine whether breeding Golden Eagles are present at the proposed Project site; a focused study must be completed.[121] 3-25

The IS/MND lacks any detail on Golden Eagle prey on or near the Project site.[122] Golden Eagle presence is highly correlated with prey abundance, further limiting the description of Golden Eagle habitat at the site.[123]

The study referenced is too limited in scope to be adequate to assess the Project's potentially significant impacts. Admittedly, it does not provide complete coverage of the Project site.[124] Admittedly, it failed to follow the United States Fish and Wildlife Service Protocol Guidelines.[125]

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[118] Owens' Comments, p. 8.
[119] Owens' Comments, p. 8.
[120] Owens' Comments, p. 9.
[121] Owens' Comments, pp. 8-9.
[122] Owens' Comments, p. 9.
[123] Owens' Comments, p. 9.
[124] Owens' Comments, p. 10.
[125] Owens' Comments, p. 10.

The survey provided is technically invalid, since the author of the study, Dave Bittner, was working without a California state permit since 2000.[126] The memo notes that Mr. Bittner lied to probation officials, failed to provide required data to wildlife agencies, and accepted $600,000 in payment from wind facilities developers.[127] Mr. Bittner conducted an unpermitted helicopter study of eagle nests in 2011, which may be the study cited in the IS/MND.[128]

Because the study cited in the IS/MND is too old to assess impacts to this species, is invalid and lacks relevance, among other problems, the County's IS/MND lacks any evidence to support its description of existing Golden Eagle activity at or near the Project site. The County must revise and recirculate the document with accurate studies to determine whether Golden Eagle habitat is present at the Project site.

3-25 (cont)

The Bio Memorandum argues that our previous comment does not provide evidence that impacts to Golden Eagles *will be* significant.[129] This misstates the law. As stated above, an EIR is required when there is substantial evidence that a project *may* have a potentially significant impact. The Golden Eagle is a California Fully Protected Species and no take may be authorized[130]; the take of one Golden Eagle would be significant. We provided evidence, based on expert observation, that Golden Eagles are present near the Project site, that raptors prefer flying heights that would place them within the rotor-swept area of the Project, and that the IS/MND does not provide substantial evidence to support a claim that there will be no Golden Eagle take.[131]

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[126] East County Magazine, Eagle Expert Bittner Sentenced to Probation, Ordered to Turn Over Missing Data (Aug. 2013) *available at* https://www.eastcountymagazine.org/eagle-expert-bittner-sentenced-probation-ordered-turn-over-missing-data.
[127] *Id.*
[128] *Id.*
[129] Bio Memo, p. 2.
[130] Fish and Game Code § 3511.
[131] *See* Owens' Comment.

VI. SUBSTANTIAL EVIDENCE SUPPORTS A FAIR ARGUMENT THAT THE PROJECT MAY RESULT IN SIGNIFICANT IMPACTS THAT REQUIRE THE COUNTY TO PREPARE AN EIR

Under CEQA, a lead agency must prepare an EIR whenever substantial evidence in the whole record before the agency supports a fair argument that a project may have a significant effect on the environment.[132] The fair argument standard creates a "low threshold" favoring environmental review through an EIR, rather than through issuance of a negative declaration.[133] An agency's decision not to require an EIR can be upheld only when there is no credible evidence to the contrary.[134] Substantial evidence can be provided by technical experts or members of the public.[135] "If a lead agency is presented with a fair argument that a project may have a significant effect on the environment, the lead agency shall prepare an EIR even though it may also be presented with other substantial evidence that the project will not have a significant effect."[136] 3-26

A. The IS/MND Fails to Adequately Disclose, Analyze and Mitigate the Project's Potentially Significant Public Health Risks.

The IS/MND fails as an information disclosure document under CEQA by failing to adequately disclose, analyze, and mitigate the Project's public health 3-27

[132] Pub. Resources Code § 21082.2; CEQA Guidelines § 15064(f), (h); *Laurel Heights II, supra,* 6 Cal. 4th at p. 1123; *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal. 3d 68, 75, 82; *Stanislaus Audubon Society, Inc. v. County of Stanislaus* (1995) 33 Cal.App.4th 144, 150-151; *Quail Botanical, supra,* 29 Cal.App.4th at pp. 1601-1602.

[133] *Citizens Action to Serve All Students v. Thornley* (1990) 222 Cal.App.3d 748, 754.

[134] *Sierra Club v. County of Sonoma* (1992) 6 Cal.App.4th, 1307, 1318; *see also Friends of B Street, supra,* 106 Cal.App.3d at p. 1002 ("If there was substantial evidence that the proposed project might have a significant environmental impact, evidence to the contrary is not sufficient to support a decision to dispense with preparation of an [environmental impact report] and adopt a negative declaration, because it could be 'fairly argued' that the project might have a significant environmental impact").

[135] See, e.g., *Citizens for Responsible and Open Government v. City of Grand Terrace* (2008) 160 Cal.App.4th 1323, 1340 (substantial evidence regarding noise impacts included public comments at hearings that selected air conditioners are very noisy); *see also Architectural Heritage Assn. v. County of Monterey,* 122 Cal.App.4th 1095, 1117-1118 (substantial evidence regarding impacts to historic resource included fact-based testimony of qualified speakers at the public hearing); *Gabric v. City of Rancho Palos Verdes* (1977) 73 Cal.App.3d 183, 199.

[136] CEQA Guidelines § 15062(f).

impacts. The County concludes that "the toxics impact related to construction would be less than significant."[137] The County lacks substantial evidence to support this conclusion. Instead, Dr. Fox provides substantial evidence that the public health risk may be significant.[138]

CEQA requires lead agencies to prepare risk assessments to evaluate the nature and extent of the health hazards posed by exposure to toxic materials released by a project. CEQA Guidelines section 15126.2(a) expressly requires a CEQA document to discuss the "health and safety problems caused by the physical changes that a project will precipitate."[139] Numerous cases have held that CEQA must analyze human health impacts. For example, in *Communities for a Better Environment v. South Coast Air Quality Management District*,[140] the Supreme Court held that a Mitigated Negative Declaration for a refinery was inadequate for failure to analyze nitrogen oxide emissions, pollutants known to have significant effects on human health.[141]

3-27 (cont)

The Courts of Appeal have repeatedly held that a CEQA document must analyze impacts of projects on human health. In *Communities for a Better Environment v. City of Richmond*, the court held that a CEQA document is inadequate where it "does not address the public health or other environmental consequences of processing heavier crude [thereby emitting Toxic Air Contaminants ("TAC")], let alone analyze, quantify, or propose measures to mitigate those impacts."[142] In *Bakersfield Citizens for Local Control v. City of Bakersfield*,[143] the court held that an EIR for a commercial shopping center was inadequate because it failed to correlate adverse air quality impacts to resulting adverse health impacts on surrounding communities. The court explained:

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[137] DEIR, § 4.2, p. 31.
[138] Fox Comments, p. 2.
[139] CEQA Guidelines, § 15126.2(a).
[140] *Communities for a Better Environment v. South Coast Air Quality Management District*, (2010) 48 Cal. 4th 310, 317.
[141] 48 Cal.4th at 317.
[142] *Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 82. *See also Californians for Alternatives to Toxics v. Cal. Dep't of Food & Agric.* (2006) 136 Cal.App.4th 1, 16, (EIR on statewide application of pesticide was inadequate when it failed to independently evaluate risks of toxic exposure.)
[143] (2004) 124 Cal.App.4th 1184, 1219-20 ("on remand, the health impacts resulting from the adverse air quality impacts must be identified and analyzed in the new EIR's.").

> [The] City's failure to...correlate the adverse air quality impacts to resulting adverse health consequences, cannot be dismissed as harmless or insignificant defects. As a result of these omissions, meaningful assessment of the true scope of numerous potentially serious adverse environmental effects was thwarted. No discrete or severable aspects of the projects are unaffected by the omitted analyses; the defects relate to the shopping centers in their entirety, not just to one specific retailer. These deficiencies precluded informed public participation and decision making.[144]

In *Berkeley Keep Jets Over the Bay Com. v. Bd. of Port Comrs.*,[145] the court held that an EIR must include a "human health risk assessment."[146] In *Berkeley Jets*, the Port of Oakland approved a development plan for the Oakland International Airport. The EIR admitted that the Project would result in an increase in the release of TACs, which were known to cause both carcinogenic and adverse noncarcinogenic health effects.[147] The EIR adopted mitigation measures to reduce TAC emissions but failed to perform a health risk assessment to quantify the Project's impacts on human health. The court held that the mitigation measures alone were insufficient, and that the Port had a duty to analyze the health risks associated with exposure to TACs: 3-27 (cont)

> The Port has not cited us to any reasonably conscientious effort it took either to collect additional data or to make further inquiries of environmental or regulatory agencies having expertise in the matter. These failures flout the requirement that the lead agency consult "with all responsible agencies and with any other public agency which has jurisdiction by law over natural resources affected by the project . . . ." (§ 21080.3, subd. (a).) At the very least, the documents submitted by the public raised substantial questions about the project's effects on the environment and the unknown health risks to the area's residents...the Port has not offered any justification why more definitive information could not have been provided....The EIR's approach of simply labeling the effect "significant" without accompanying analysis of the project's impact on the health of the Airport's employees and nearby

[144] *Id.*, at 1220-21.
[145] *Berkeley Keep Jets Over the Bay Com. v. Bd. of Port Comrs.* ("*Berkeley Jets*") (2001) 91 Cal.App.4th 1344.
[146] *Id.*, at 1369.
[147] *Id.*, at 1364.

residents is inadequate to meet the environmental assessment requirements of CEQA.[148]

Here, the County is required to conduct an assessment of the Project's potentially significant public health impacts. As in *Berkeley Jets*, there is no dispute that the Project will use off-road diesel construction equipment and on-road heavy-duty diesel trucks that generate Diesel Particulate Matter ("DPM") emissions.[149] The IS/MND identifies DPM as the main TAC of concern.[150] Construction would occur near sensitive receptors[151] over a period of approximately 18 months.[152] There is also no dispute that the County did not prepare an assessment of the health risks associated with that exposure. This violates CEQA's requirement that the lead agency correlate the adverse air quality impacts generated by a project to their resulting adverse health consequences.[153]

3-27 (cont)

The courts may not look for "perfection" in a CEQA document, but do expect "adequacy, completeness, and a good faith effort at full disclosure [in an EIR]."[154] The County has failed to meet these requirements. Dr. Fox explains that health risk assessments are routinely performed for construction projects and due to the proximity to sensitive receptors and duration of construction.[155] The failure to prepare a health risk assessment is a glaring omission. The County must prepare a health risk assessment to adequately disclose, analyze, and mitigate the Project's public health risks and disclose those significant risks in a revised and recirculated document.

The Response Memorandum suggests that Dr. Fox did not provide evidence to show a need for a health risk assessment by arguing that the South Coast Air Quality Management District ("SCAQMD") does not have a recommendation or

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[148] *Id.* at 1370-71.
[149] Fox Comments, p. 2.
[150] Fox Comments, p. 2.
[151] Fox Comments, p. 2 (some sensitive receptors are less than 25 meters from excavation work).
[152] DEIR, § 4.2, p. 31.
[153] *Berkeley Jets*, 91 Cal.App.4th at 1370-71; DEIR, § 4.2, pp. 23-24 (identifying significant unmitigated construction emissions)
[154] CEQA Guidelines, § 15151.
[155] Fox Comments, p. 5.

threshold at which a health risk assessment should be performed.[156] This suggestion, however, ignores Dr. Fox's previous comments citing the Office of Environmental Health Hazard Assessment's ("OEHHA") guidance for determining when a health risk assessment must be completed.[157] Further, since 2002 SCAQMD guidance has also recommended that mobile source health risk assessments should be prepared for all projects involving vehicular trips. SCAQMD's *Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Emissions* explain that "in the event that the proposed project generates or attracts vehicular trips, especially heavy-duty diesel-fueled vehicles, it is recommended that the lead agency perform a mobile source health risk assessment." The SCAQMD mobile source guidance does not create any exception for projects that comply with CARB regulations.[158]

The Response Memorandum cites a "screening health risk assessment," which provides an estimate of impacts below SCAQMD's thresholds for cancer impacts.[159] Dr. Fox notes that OEHHA requires a formal health risk assessment, not a "screening health risk assessment."[160] Dr. Fox also finds that the assessment in the Response Memorandum was not publicly evaluated, uses improper model inputs, only evaluated DPM and no other TACs, used inappropriate risk factors, did not include acute exposure, and did not address cumulative impacts.[161]

Dr. Fox did prepare an assessment using OEHHA procedures which determined that there is a medium to high cancer risk from construction activities on the Project site, thus meeting the OEHHA threshold to require a formal health risk assessment, which the County was required to provide prior to Project approval.[162]

3-27 (cont)

[156] Response Memo, p. 1.
[157] Fox Response, p. 1.
[158] *See* "Mobile Source Toxics Analysis," SCAQMD, (Aug. 2002) *available at:* http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mobile-source-toxics-analysis.
[159] Response Memo, p. 1.
[160] Fox Response, p. 2.
[161] Fox Response, pp. 2-4.
[162] Fox Response, p. 4.

B. The IS/MND Fails to Adequately Disclose, Analyze and Mitigate the Project's Potentially Significant Odor Impacts.

Rather than conduct an adequate analysis of odor impacts from construction, the IS/MND merely concludes that odor impacts would be less than significant. The County's conclusion is flawed for several reasons.

First, CEQA requires a lead agency to identify all potentially significant environmental effects. Significant effects may be "both short-term and long-term."[163] Thus, even temporary Project impacts may have significant effects on the environment that require mitigation.[164] CEQA does not permit the County to dismiss odor impacts on the basis that they are "temporary."

Second, the County lacks substantial evidence to support its less-than-significant impact conclusion. Project construction will result in diesel exhaust.[165] As Dr. Fox explains, the odors associated with diesel exhaust "are characterized by offensive odors."[166] Yet, the IS/MND does not contain any analysis at all to support its conclusion that odor impacts would not be significant.[167] The only way to conclude that odor impacts are insignificant is to use air dispersion modeling to estimate ambient concentrations of DPM at nearby sensitive receptors and compare the resulting concentrations to DPM odor thresholds.[168] In any case, the County conducted no analysis whatsoever. Thus, the IS/MND fails as an informational document under CEQA and the County lacks substantial evidence to support its conclusion. 3-28

Whereas the IS/MND lacks substantial evidence to support its conclusion, Dr. Fox provides substantial evidence based on her expert opinion that odor impacts will be significant.[169] The County admits that the primary source of odor anticipated from the construction of the proposed Project would be exhaust emissions from the diesel equipment. Dr. Fox comments, "[b]ased on my personal

[163] CEQA Guidelines, § 15126.2(a).
[164] CEQA Guidelines, § 15126.2(a).
[165] Fox Comments, p. 5.
[166] Fox Comments, p. 6.
[167] Fox Comments, p. 6.
[168] Fox Comments, p. 7.
[169] CEQA Guidelines, § 15384.

experience at construction sites, residential areas are close enough to Project construction sites for residents to smell noxious diesel and other exhaust fumes."[170] Furthermore, mitigation is available and should be required to reduce the significant odor impact from all construction within at least 1,000 feet of sensitive receptors.[171] For example, the construction equipment can be equipped with diesel oxidation catalysts, which eliminate odors.[172]

The IS/MND fails as an information disclosure document by failing to adequately analyze and disclose the Project's potentially significant odor impacts. Consequently, the County must revise and recirculate the analysis in a draft EIR to adequately disclose, analyze and mitigate the Project's significant odor impact.

The Response Memorandum suggests that odors were analyzed in accordance with the CEQA Guidelines and SCAQMD's thresholds of significance.[173] However, the IS/MND does not contain any odor analysis at all.[174] The Response Memorandum identifies various uncited studies to argue that sulfur oxides are the primary source of odors from diesel engines, and that sulfur oxide emissions have been greatly reduced.[175] Dr. Fox counters this unfounded assertion with a published study that shows that aldehydes are the primary source of odor from diesel engines.[176] Rules cited by SCAQMD and the California Air Resources Board are also inapposite since they do not apply until after emissions occur, or do not account for running emissions, respectively.[177]

3-28 (cont)

C. The IS/MND Underestimates Potentially Significant Construction Emissions

The IS/MND contains numerous flaws in its air quality analysis, rendering the analysis unreliable and the impacts underestimated. The County must revise

3-29

[170] Fox Comments, p. 6.
[171] Fox Comments, p. 8.
[172] Fox Comments, p. 8.
[173] Response Memo, p. 2.
[174] Fox Response, p. 4.
[175] Response Memo, p. 2.
[176] Fox Response, p. 5.
[177] Fox Response, p. 5.

the air quality analysis to account for all sources of construction emissions and operational emissions in a recirculated environmental document.

The IS/MND omits highly relevant information from its air quality analysis. As a result, the IS/MND underestimates construction emissions. Dr. Fox explains that the CalEEMod fails to account for all sources of PM10 and PM2.5 construction emissions.

First, CalEEMod omits windblown dust from graded areas and storage piles and fugitive dust from off-road travel.[178] As Dr. Fox explains, these emissions must be separately calculated using a different tool, the U.S. EPA Compilation of Air Pollution Emissions Factors AP-42.[179] Once separately calculated, those emissions must be added to the CalEEMod total.[180] Dr. Fox provides substantial evidence that windblown dust from graded areas and storage piles and fugitive dust from off-road travel can be the major sources of PM10 and PM2.5 emissions from construction projects.[181]

3-29 (cont)

Dr. Fox adds that dust emissions during construction are unique to individual sites. Here, the Project is sited on desert land in Coachella Flats, which will create greater particulate matter emissions than default conditions.[182] As such, the default conditions should have been calibrated to reflect the actual site.[183]

The IS/MND omits sources of emissions from cutting up and dismantling 291 existing wind turbines. The only source of emissions from decommissioning listed in the IS/MND addresses off-road construction impacts. A major source of emissions has been left out of decommissioning from fibers that can be released during cutting up of turbine blades, and any industrial equipment used during decommissioning.[184]

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[178] Fox Comments, p. 12.
[179] Fox Comments, p. 12.
[180] Fox Comments, p. 12.
[181] Fox Comments, p. 12.
[182] Fox Comments, p. 13.
[183] Fox Comments, p. 13.
[184] Fox Comments, p. 13.

The IS/MND states that the existing turbine blades will be recycled. No analysis is provided including the emissions from disposal of the cut-up blades.[185] If they can be recycled, then the IS/MND must determine emissions of moving the material to the recycling center.[186]

Finally, the IS/MND severely underestimates emissions from moving the large new turbines to the site. These turbines would require non-standard heavy-duty transportation, including ships, barges, rail, trucks, or a combination thereof.[187] No analysis is attempted to determine the impacts from this activity.[188]

This underestimation of construction emissions fails to provide the public with accurate information regarding the scope and severity of potentially significant impacts to air quality. The County must correct its analysis and recirculate the revised analysis to reflect these potentially significant impacts.

3-29 (cont)

The Response Memorandum argues that the CalEEMod analysis used includes Santa Ana wind gusts up to 50 mph and that SCAQMD's Fugitive Dust rules apply.[189] It continues to assert that the IS/MND includes fugitive dust emissions from work on unpaved roads.[190]

Dr. Fox notes that the CalEEMod analysis used for the project assumed a 7.5 mph wind speed, ~~which is well below~~ gusts up to ~~50 mph.~~[191] ~~The SCAQMD~~ rules do not apply until wind speeds reach 25 mph, therefore impacts from gusts between 7.5 and 25 mph were not included.[192] The IS/MND ignores the fact that the CalEEMod explicitly states that fugitive dust from construction is not included.[193] Dr. Fox has provided substantial evidence that the model also does not include decommissioning

[185] Fox Comments, pp. 13-14.
[186] Fox Comments, p. 14.
[187] Fox Comments, p. 14.
[188] Fox Comments, p. 14.
[189] Response Memo, p. 2.
[190] Response Memo, p. 3.
[191] Fox Response, p. 6.
[192] Fox Response, pp. 5-6.
[193] Fox Response, p. 6.

of the existing facilities.[194] The IS/MND does not include all sources of emission, and thus underestimates impacts. 3-29 (cont)

D. The IS/MND Underestimates the Project's Potentially Significant Valley Fever Impacts and Lacks Appropriate Mitigation

The IS/MND summarily dismisses the Project's threat of Valley Fever to workers and sensitive receptors in the project area, while failing to implement feasible mitigation measures to lessen its impact. Valley Fever is a disease that can spread when people are exposed to spores during ground disturbance, such as this Project's construction.[195] Impacts to human health are severe, including possible death, and there is no known cure.[196] Sensitive receptors near the Project site, including workers and those who live nearby are at risk from exposure from disturbed dust, both during construction and during high-wind events.[197]

Despite this risk, the IS/MND does not include any mitigation to protect the public.[198] Dr. Fox has identified several mitigation measures that can feasibly be implemented to reduce the Project's potentially significant public health impacts from Valley Fever, including: 3-30

1) Reevaluating and updating the Injury and Illness Prevention Program to ensure Valley Fever safeguards are included,

2) Training all employees on Valley Fever related issues,

3) Controlling dust exposure,

4) Preventing transporting deadly spores out of endemic areas, and

[194] Fox Response, p. 6.
[195] Fox Comments, p. 20.
[196] Fox Comments, p. 22.
[197] Fox Comments, p. 21.
[198] Fox Comments, pp. 24-25.

5) Improving medical surveillance for all employees.[199]

The County's lack of adequate analysis of potentially significant impacts from the Project exposing people to Valley Fever and feasible mitigation for Valley Fever renders the IS/MND insufficient under CEQA. The County must revise and recirculate an EIR to disclose and mitigate these serious impacts.

The Response Memorandum contends that Riverside County is not "highly endemic" for Valley Fever, compliance with SCAQMD rules would reduce exposure, and that general regulations on exposure from the California Department of Industrial Relations ("CDIR") would sufficiently protect workers.[200]

Dr. Fox provides substantial evidence that it does not matter how endemic Riverside County is to risk exposing workers to Valley Fever, but that simply being endemic is sufficient.[201] The County has no evidence to support the claim that there will not be exposure of Valley Fever to workers. Regardless, in this case, an EIR is required because substantial evidence shows a significant impact may occur. SCAQMD fugitive dust rules cited only address PM 2.5 and 10, which are larger than Valley Fever spores, and thus insufficient.[202] Dr. Fox also found that CDIR regulations have been in existence on numerous other sites where Valley Fever exposure occurred, thus demonstrating that they are insufficient to fully protect workers.[203] Dr. Fox has provided feasible mitigation measures to protect workers, which must be applied to this project.

3-30 (cont)

E. The IS/MND Incorrectly Assumes No Potentially Significant Impacts to Birds and Bats from Taller Wind Turbines

As stated above, the County in the IS/MND fails to describe the existing environmental setting for avian and bat mortality. Instead, the County concludes, without any evidence, that a smaller number of turbines means less impacts. Ms.

3-31

[199] Fox Comments, pp. 25-27.
[200] Response Memo, pp. 3-4.
[201] Fox Response, p. 7.
[202] Fox Response, p. 7.
[203] Fox Response, pp. 7-8.

Owens explains that the County's statement is unsupported and incorrect since other repowering projects have resulted in increased impacts to species.[204]

Although the IS/MND does not provide substantial evidence to support its claim. Ms. Owens provides substantial evidence based on data and her expert opinion that the Project's impacts from avian and bat mortality may be significant. There is an increase in mortality with an increase in wind turbine hub heights.[205] Many raptors, including Golden Eagles, prefer higher flight paths between 300-600 feet, which would be above the height of the existing wind turbines, but directly in the range of the proposed Project's wind turbines.[206] Because Golden Eagles are fully protected under the Fish and Game code, take of just one would be significant, thus the increased collision risk from the new turbines is potentially significant.

Bat mortality can also vary greatly depending on which species are present because of differences in foraging and migrating.[207] The County cannot support its claim in the IS/MND that there will not be any impacts to bats, since the County never analyzed any bat species which could occur near the Project.

The Bio Memorandum suggests that our previous comments do not provide evidence that the project may have a potentially significant impact to bats. Ms. Owens has provided expert evidence that the Project will cause bat mortality. Bats can be present at the Project site because they fly, forage, and migrate through the area.[208] Bats are attracted to lights, which must be installed on the Project.[209]

Ms. Owens provides additional expertise that turbine siting is critical for limiting impacts to species.[210] Specifically, birds tend to return to places of birth for future breeding.[211] If turbines are sited closer to nests, instinct of birds to avoid human activities can adversely impact their success at breeding in their traditional

3-31 (cont)

[204] Owens' Comments, p. 2.
[205] Owens' Comments, p. 2.
[206] Owens' Comments, p. 3.
[207] Owens' Comments, p. 3.
[208] Owens' Response, p. 24.
[209] Owens' Response, p. 24.
[210] Owens' Response, p. 9.
[211] Owens' Response, p. 9.

homes.[212] The Project proposes new turbines further north than before, into the foothills.[213] No analysis has been done to determine any impacts from turbines being located in these areas. [214]

The County in the IS/MND fails to provide the public with accurate information regarding the scope and severity of the Project's potentially significant impacts from avian and bat mortality. The County must provide analysis supported by substantial evidence and must recirculate the revised analysis to disclose, analyze and mitigate these potentially significant impacts.

3-31 (cont)

F. The IS/MND Fails to Adequately Disclose, Analyze and Mitigate the Project's Potentially Significant Impacts to Special-Status Species

The County lacks any data to support its claims in the IS/MND that the Project will not impact sensitive species that may occur at or near the Project site, since the County never actually analyzed whether those species may exist on the Project site or impacted area. Instead, the County only suggests that the Project would be consistent with the CVMSHCP, which does not address every special status species that may be found on the site.[215]

Ms. Owens notes that a Biological Technical Report is normally provided with an environmental review document, prepared pursuant to CEQA, since the environmental review document is required to contain detailed analyses of species that may occur and a baseline from which to determine a Project's potentially significant impacts.[216] Without a biological technical report that covers all special-status species that may occur on the Project site, there is no substantial evidence to support the County's conclusion that the Project will not have potentially significant impacts to the many sensitive plant and animal species that are found near the site.

3-32

[212] Owens' Response, p. 10.
[213] Owens' Response, p. 9.
[214] Owens' Response, p. 10.
[215] Owens' Comments, p. 12.
[216] Owens' Comments, p. 12.

The Bio Memorandum responds by suggesting that Appendix C is a Biological Technical Report that complies with CEQA.[217] This report did not actually conduct any focused surveys on species or habitat present on the project site, nor did it provide any specific data to support its claims.[218] Ms. Owens points out that the California Natural Diversity Database ("CNDD") identifies 145 sensitive species that can occur in the region, however Appendix B only lists 43 species.[219]

The Bio Memorandum also states that the adherence to the CVMSHCP will ensure that impacts to sensitive species are reduced to a less-than-significant level.[220] As stated above, the JPR process has not concluded, so this determination could not have been made at the time of Project approval. Additionally, the CVMSHCP only addresses impacts to habitat for certain species, while Ms. Owen's research and the CNDD provide evidence that more species may be present, and those species may be harmed by project construction and operation.

Under CEQA, the burden is on the County to investigate a Project's impacts to species when the County is made aware that there are endangered species and suitable habitat at the Project site.[221] The County must conduct focused surveys to determine the extent to which the project may impact special-status species, independent of the single day survey that was conducted.[222]

In addition to avian and bat mortality, Ms. Owens' expert opinion supported by data provides substantial evidence that there may be potentially significant impacts to special-status species, such as Coachella Fringe-Toed Lizards, Swainson's Hawk, and Burrowing Owls, particularly during Project construction.[223] Noise, dust, and vehicles can kill or harass sensitive species that are found at or

3-32 (cont)

[217] Bio Memo, pp. 2-3.
[218] Owens' Comments, pp. 11-12
[219] Owens' Comments, p. 11; IS/MND at Appendix B of Appendix C.
[220] Bio Memo, pp. 2-3.
[221] *Napa Citizens for Honest Govt. v. Napa Co. Bd. Of Supervisors* (Aug. 3, 2001) 91 Cal.App.4th 342, 384-385.
[222] Owens' Response, pp. 8-9.
[223] Owens' Comments, p. 7

near the Project site.[224] Because the CVMSHCP only address loss of habitat, not direct impacts, further analysis must be done.

As explained above, the Bio Memorandums claim that the public does not provide evidence that taller turbines can have greater impact is false. As stated, without substantial evidence to determine existing mortality, and reliable studies to determine Project mortality, no comparison can be made to support the IS/MND claim that harm can occur. Therefore, the IS/MND fails to comply with CEQA as a matter of law. 3-32 (cont)

G. The IS/MND Fails to Adequately Disclose, Analyze and Mitigate the Project's Potentially Significant Impacts to Migratory Birds

Because the County misstates the law regarding the MBTA, it never provided studies or determinations whether the Project will take migratory birds. Ms. Owens has provided substantial evidence that numerous migratory birds are present at the Project site and may be significantly impacted by the Project.[225] Any take of migratory birds is prohibited, unless a permit has been granted by the Secretary of the Interior.[226]

Because the County has not provided a baseline, nor conducted any surveys on migratory birds, and asserts, contrary to the law, that they do not have to, the County fails to provide substantial evidence that the Project will not have a potentially significant impact. Ms. Owens' expert opinion provides substantial evidence that migratory birds are present at the site and may be significantly impacted, citing a study that identifies that 217 of the 535 bird species in California have been found in the San Gorgonio Pass, with a greater percentage of those species being migratory birds.[227] The County must conduct further analysis to disclose, analyze, and mitigate potentially significant impacts to migratory birds. 3-33

[224] Owens' Comments, p. 7.
[225] Owens' Response, p. 13.
[226] Fish and Game Code § 3513.
[227] Owens' Response, p. 13.

Since the County in the IS/MND does not adequately disclose, analyze, or mitigate the Project's potentially significant impacts to species present at the Project site, the IS/MND fails as an informational document. The County must revise and recirculate the analysis to adequately disclose, analyze, and mitigate the Project's potentially significant impacts on biological resources, including special-status species and migratory birds. 3-33 (cont)

VII. THE MITIGATION MEASURES IN THE IS/MND FAIL TO ADEQUATELY MITIGATE IMPACTS TO BIOLOGICAL RESOURCES

An MND must include all mitigation measures included in the project to avoid potentially significant effects.[228] The IS/MND concludes that compliance with the CVMSHCP is adequate mitigation. The CVMSHCP does not address every species, and the IS/MND does not detail what specific guidelines from the CVMSHCP are being adopted as conditions of Project approval.[229] Thus, the County fails to require in the IS/MND specific, enforceable, and in some cases any, mitigation for the Project's potentially significant impacts on many species. The County must revise and recirculate the analysis to identify adequate mitigation for the Project's significant biological resources impacts. 3-34

VIII. THE IS/MND IMPROPERLY RELIES ON "DESIGN FEATURES" AND NONBINDING MITIGATION MEASURES

The County in the IS/MND suggests that following construction, revegetation of the area will occur.[230] However, the County fails completely to disclose the actual potentially significant impact in order for the public and decisionmakers to be able to determine whether the mitigation will actually reduce impacts. Therefore, the County improperly applies mitigation before actually disclosing the extent of the significant impact.[231] Furthermore, revegetation is non-binding and, as Ms. Owens suggests, unlikely to occur.[232] 3-35

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[228] Pub. Res. Code § 21080(c); 14 CCR § 15071(e).
[229] Owens' Comments, pp. 12-13.
[230] IS/MND, p. 6.
[231] IS/MND, p. 6.
[232] Owens' Comments, p. 5.

A. Failure to Disclose Potentially Significant Impacts Prior to Mitigation.

The County's application of mitigation to the Project's unmitigated impacts violates CEQA's requirement that the lead agency must first determine the extent of a project's impacts before it may apply mitigation measures to reduce those impacts.[233] Moreover, the CEQA Guidelines define "measures which are proposed by project proponents to be included in the project" as "mitigation measures" within the meaning of CEQA.[234]

As described under CEQA Guidelines Section 15370, "Mitigation" includes:

(a) Avoiding the impact altogether by not taking a certain action or parts of an action.

(b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.

(c) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.

(d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.

(e) Compensating for the impact by replacing or providing substitute resources or environments.

3-36

Lotus v. Department of Transportation[235] clarified the requirements of CEQA Guideline 15370. In *Lotus*, the court held that "avoidance, minimization and/or mitigation measures," are not "part of the project."[236] Rather, they are mitigation measures designed to reduce or eliminate environmental impacts of the Project and must be treated as such. Mitigation measures cannot be incorporated in an EIR's

[233] 14 CCR § 15370; *Lotus v. Dep't of Transp.* (2014) 223 Cal.App.4th 645, 651-52.
[234] 14 CCR 15126.4(a)(1)(A).
[235] *Lotus v. Dept. of Transportation* (2013) 223 Cal.App.4th 650.
[236] *Id.* at 656.

initial calculation of the Project's unmitigated impacts because the analysis of unmitigated impacts, by definition, must accurately assess such impacts before any mitigation measures to reduce those impacts are applied.[237]

Because CEQA and *Lotus* prohibit the compressing of a mitigation measure with the Project, the IS/MND's lack of analysis of impacts caused by the Project's impacts from land disturbance, violates CEQA. The analysis should be revised to disclose the severity of all potentially significant impacts prior to mitigation.

3-36 (cont)

B. Failure to Require Enforceable Mitigation.

i. Proposed Revegetation Plan

Mitigation measures must be enforceable through conditions of approval, contracts or other means that are legally binding.[238] This requirement is intended to ensure that mitigation measures will actually be implemented, not merely adopted and then ignored.[239] The IS/MND reliance on revegetation fails to meet this threshold requirement because the measures are not incorporated as binding mitigation measures for the Project. This plan will be created after the JPR process, well after project approval. As a result, the IS/MND fails to include any details or binding mechanism to ensure that the Applicant will be required to implement these measures for the Project.

3-37

ii. Bird Diverters

The Applicant mentioned during the November 28, 2018 Planning Commission hearing that they will install bird diverters on guy wires for meteorological towers in order to limit impact to birds. This mitigation measure was never included as a condition of the project and is not enforceable and may lead to unmitigated significant impacts.

3-38

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[237] *Id.* at 651 - 52.
[238] PRC § 21081.6(b); 14 CCR § 15126.4(a)(2); *Lotus v. Dep't of Transp.* (2014) 223 Cal. App. 4th 645, 651-52.
[239] *Fed'n of Hillside & Canyon Ass'n v. City of Los Angeles* (2000) 83 Cal. App. 4th 1252, 1261; *Anderson First Coal. v. City of Anderson* (2005) 130 Cal.4th 1173, 1186.

Without an enforceable mechanism, the Restoration Plan for revegetation and installation of bird diverters may not happen, and the IS/MND's conclusions that the Project's impacts will be less than significant with these measures incorporated are unsupported. The County must include the Restoration Plan with revegetation of disturbed lands from the Project as a binding mitigation requirement.

3-38 (cont)

The Bio Memorandum asserts that the public does not have evidence that mitigation measures will not be implemented.[240] This is an unfounded legal opinion which does not show that the Project has complied with CEQA's mandate to include binding mitigation measures.

IX. THE IS/MND IMPROPERLY DEFERS MITIGATION OF SIGNIFICANT IMPACTS

It is generally improper to defer the formulation of mitigation measures.[241] An exception to this general rule applies when the agency has committed itself to specific performance criteria for evaluating the efficacy of the measures to be implemented in the future, and the future mitigation measures are formulated and operational before the project activity that they regulate begins.[242] As the courts have explained, deferral of mitigation may be permitted only where the lead agency: (1) undertakes a complete analysis of the significance of the environmental impact; (2) proposes potential mitigation measures early in the planning process; and (3) articulates specific performance criteria that would ensure that adequate mitigation measures were eventually implemented.[243]

3-39

A. The IS/MND Defers Mitigation of Significant Impacts for Coachella Valley Jerusalem Cricket Habitat Loss

As noted above, the IS/MND has determined that impacts to the Coachella Valley Jerusalem Cricket are significant and that mitigation will require acquiring habitat, however there is not suitable habitat in place within the Conservation

3-40

[240] Bio Memo, p. 3.
[241] 14 CCR § 15126.4(a)(1)(B); *POET v. CARB*, 218 Cal.App.4th at 735.
[242] *POET*, 218 Cal.App.4th at 738.
[243] *Comtys. for a Better Env't v. City of Richmond* (2010) 184 Cal.App.4th 70, 95; *Cal. Native Plant Socy' v. City of Rancho Cordova* (2009) 172 Cal.App.4th 603, 621.

Area. Properly mitigating this habitat may require future actions by USFWS and CDFW, who may not approve plans to provide mitigation. Deferral of this mitigation makes it uncertain whether habitat is available, or if the USFWS and CDFW will approve it, potentially leaving the impact unmitigated.

Mitigation will require revegetation of disturbed lands, the details which is not to be revealed until a future Restoration Plan is approved by the CVCC and County. The IS/MND says but provides no assurances that this will be completed prior to any ground disturbance.[244] Approval of the Restoration Plan should occur with or before project approval, not after. This future action may not occur or may be insufficient to fully mitigate the significant impacts, as required. If impacts cannot be fully mitigated, it will be too late to change the Project to reduce impacts to a less-than-significant level.

This deferral of mitigation will have impacts to the region and its workers because the Project without mitigation will exceed Rough Step for the Coachella Valley. This will prevent the County from approving any other projects that may impact the Coachella Valley Jerusalem Cricket until this mitigation is completed.[245]

3-40 (cont)

The Bio Memorandum argues that our previous comments had no basis to allege that the County will not adhere to mitigation requirements.[246] First, as stated above, this is an unfounded legal opinion. Second, mitigation measures are improperly deferred when they are not formulated and not held to certain performance criteria. Without a completed JPR and Restoration Plan, it cannot be determined by the County or the public that the Project's mitigation was adequate, because the County and public would have no assurances what the mitigation measures were or what their impact would be, or whether they will actually reduce significant impacts to a less-than-significant level.

The IS/MND must be withdrawn and recirculated with appropriate mitigation measures identified and required with the project approval, not at a later time as was done here.

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[244] Is/MND, p. 34.
[245] *See* Coachella Valley Conservation Commission, Draft Joint Project Review (JPR) (Oct. 30, 2018), p. 3., **Exhibit G.**
[246] Bio Memo, p. 3.

X. CONCLUSION

Substantial evidence supports more than a fair argument that the Project may result in potentially significant adverse public health, transportation, odor and biological resource impacts that were not identified in the IS/MND, and thus have not been adequately analyzed or mitigated. The IS/MND also fails to comply with CEQA as a matter of law. We urge the County to fulfill its responsibilities under CEQA by granting this appeal, withdrawing the IS/MND and preparing a legally adequate EIR to rectify the legal errors and address the potentially significant impacts described in this comment letter and the attached letters from Dr. Fox and Ms. Owens. This is the only way the County and the public will be able to ensure that the Project's potentially significant environmental impacts are mitigated to less than significant levels. 3-41

Sincerely,

Kyle Jones

KCJ:ljl

Attachments

EXHIBIT A

Comments

on the

Initial Study/Mitigated Negative Declaration

for the

Painted Hills Wind Energy Repowering Project

Riverside County,
California

November 26, 2018

Phyllis Fox, PhD, PE

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1. INTRODUCTION

Painted Hills Wind, LLC (the Applicant) proposes to decommission and remove approximately 291 existing antiquated wind turbines and install up to 14 new wind turbines and related infrastructure, up to 500 feet in height, with a per turbine generating capacity of between 2.0 and 4.2 megawatts (MW) within the Wind Energy Resource (W-E) Zone (the Project).

I reviewed the Initial Study/Mitigated Negative Declaration (IS/MND)[1] and supporting Variance Application (Application).[2] The Public Hearing Notice refers to this collection of information as a "Mitigated Negative Declaration" or MND.[3] My analysis of this information indicates that:

- construction health risks were not evaluated and are potentially significant;
- construction odor impacts were not evaluated and are potentially significant;
- construction emissions are not adequately supported, significantly underestimated, and potentially significant when corrected;
- waste disposal impacts were not evaluated and are potentially significant;
- worker health and safety issues were not evaluated and are potentially significant;
- traffic impacts were not evaluated and are potentially significant; and
- Valley Fever impacts were not evaluated and are potentially significant.

In sum, in my opinion the Initial Study/Mitigated Negative Declaration and supporting Application are substantially deficient. An IS and/or an MND can be prepared only when there is no substantial evidence in light of the whole record before the lead agency that the project will not have a significant effect on the environment. An environmental impact report (EIR) must be prepared when there is substantial evidence in the record that supports a fair argument that significant impacts may occur. My analysis below indicates that there is substantial evidence that the Project will result in significant impacts, requiring that an EIR be prepared. Further, the IS/MND does not fulfill its mandate as an informational document under CEQA to inform the public of potential impacts, lacks substantial evidence to support its conclusions, fails to identify significant impacts, and fails to require adequate mitigation for significant impacts. 3-42

My resume is included in Exhibit 1 to these Comments. I have over 40 years of experience in the field of environmental engineering, including air emissions and air pollution control; greenhouse gas (GHG) emission inventory and control; water quality and water supply

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[1] County of Riverside, Environmental Assessment Form: Initial Study.

[2] Dudek, WECS and Zoning Variance Application Packages for the Painted Hills Wind Energy Repowering Project, Prepared for County of Riverside, Planning Department, June 2018 (Application).

[3] Notice of Public Hearing and Intent to Adopt a Mitigated Negative Declaration, November 28, 2018; available at: https://planning.rctlma.org/Portals/0/hearings/pc/2018/11-28-18%20WCS180001%20PC_1.pdf?ver=2018-11-09-083619-600.

investigations; hazardous waste investigations; risk of upset modeling; environmental permitting; nuisance investigations (odor, noise); environmental impact reports (EIRs), including CEQA/NEPA documentation; risk assessments; and litigation support. I have M.S. and Ph.D. degrees in environmental engineering from the University of California at Berkeley. I am a licensed professional engineer in California.

I have prepared comments, responses to comments and sections of CEQA and NEPA documents on air quality, greenhouse gas emissions, water supply, water quality, hazardous waste, public health, risk assessment, worker health and safety, odor, risk of upset, noise, land use, and other areas for well over 500 CEQA and NEPA documents. This work includes EIRs, EISs, Initial Studies (ISs), Negative Declarations (NDs), and Mitigated Negative Declarations (MNDs). My work has been specifically cited in two published CEQA opinions: *Berkeley Keep Jets Over the Bay Committee, City of San Leandro, and City of Alameda et al. v. Board of Port Commissioners* (2001) 111 Cal. Rptr. 2d 598, and *Communities for a Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal. 4th 310; and has supported the record in many other CEQA and NEPA cases.

2. CONSTRUCTION HEALTH RISKS WERE NOT EVALUATED

The Application reports significance thresholds for Toxic Air Contaminants (TACs)[4] and identifies the major TAC of concern, diesel particulate matter (DPM),[5] but fails to conduct any analysis to determine if TAC emissions are below the significance thresholds. The IS and Application indicate the nearest sensitive receptor land use, an existing residential use, is located about 600 feet from the closest area of construction disturbance[6] and the nearest receptor distance is about 328 feet.[7] Further, many residences are within 2 miles of the Project site.[8]

3-42 (cont)

Without conducting a health risk assessment (HRA), the IS/MND concluded that construction health impacts of TACs to these nearby residents would be insignificant. Instead, it relied on the SCAQMD localized significance thresholds (LSTs), which do not address health risk to local receptors, but only compliance with ambient air quality standards.[9] This is inconsistent with the Office of Environmental Health Hazard Assessment's (OEHHA's) risk assessment guidelines for short-term construction exposures,[10] which require a formal health

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[4] Application, pdf 442, Table 4.

[5] Application, pdf 422.

[6] IS, pdf 26; Application, pdf 443, 456.

[7] IS, pdf 26.

[8] Application, Exhibit M, pdf 267.

[9] IS, pdf 26-28 and Application, pdf 442.

[10] Office of Environmental Health Hazard Assessment (OEHHA), Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments, February 2015 (OEHHA 2015), Section 8.2.10: Cancer Risk Evaluation of Short Term Projects, pp. 8-17/18; available at https://oehha.ca.gov/air/crnr/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-0.

risk assessment, not an LST lookup table based on ambient air quality impacts rather than public health impacts. This is inadequate and incorrect.

First, the IS/MND and Application fail to identify all relevant TACs that would be emitted during construction.[11] TACs would include diesel particulate matter (DPM), a potent carcinogen, aldehydes, and benzene and unidentified pollutants from cutting up turbine components on site. See Comment 7.1.

Second, the IS/MND and Application fail to quantify the amount of TACs that would be emitted, which means that health impacts cannot be assessed.

Third, the IS/MND and Application fail to convert TAC emissions into ambient TAC concentrations that exposed residents and construction workers would breathe. Health impacts cannot be assessed without comparing ambient concentrations that would be breathed by residents and workers with acute, chronic, and cancer significance criteria.[12]

Fourth, the IS/MND and Application fail to identify the duration of construction and the fleet composition operating in the vicinity of each residence. The durations of construction of the various Project components are long enough to trigger a formal health risk assessment under OEHHA risk assessment guidance.

Fifth, even if all exposures were short term, significance criteria -- acute reference exposure levels (RELs) -- exist for short-term (1-hour) exposures. The short-term REL for diesel exhaust, for example, is 5 ug/m^3,[13] a very small value commonly present in the vicinity of construction sites. Project construction will emit significant amounts of diesel particulate matter (DPM), which is a potent human carcinogen.[14]

3-42 (cont)

OEHHA guidance on construction requires that construction health risks be evaluated. OEHHA risk assessment guidance requires a health risk assessment for construction projects lasting longer than 2 months, and further recommends using a lower cancer risk significance threshold[15] than cited in the IS/MND and Application.[16] The conceptual construction schedule indicates that construction will last for about 18 months.[17] Six project components last 2 months or longer—including first phase turbine decommissioning (5 months); site preparation/grading

[11] DPM is discussed generically in the Application at pdf 422, but is not identified as a TAC that would be emitted by Project construction equipment.

[12] See OEHHA, Air Toxics Hot Spots; available at: https://oehha.ca.gov/air/air-toxics-hot-spots.

[13] OEHHA, OEHHA Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary, June 28, 2016; available at: https://oehha.ca.gov/air/general-info/oehha-acute-8-hour-and-chronic-reference-exposure-level-rel-summary.

[14] OEHHA, Hot Spots Unit Risk and Cancer Potency Values, p. A-3, diesel exhaust; available at: https://oehha.ca.gov/media/CPFs042909.pdf.

[15] OEHHA 2015) Section 8.2.10: Cancer Risk Evaluation of Short Term Projects, pp. 8-17/18.

[16] Application, Table 4, pdf 442 (10 in 1 million).

[17] Application, pdf 189.

(3 months); excavation/collector lines (3 months); foundations (2 months); installation (3 months); and second phase turbine decommissioning (7 months).[18] The OEHHA risk assessment guidelines, which are used throughout California for assessing health risks under CEQA, state:

> Due to the uncertainty in assessing cancer risk from very short-term exposures, we do not recommend assessing cancer risk for projects lasting less than two months at the MEIR. We recommend that exposure from projects longer than 2 months but less than 6 months be assumed to last 6 months (e.g., a 2-month project would be evaluated as if it lasted 6 months). Exposure from projects lasting more than 6 months should be evaluated for the duration of the project. In all cases, for assessing risk to residential receptors, the exposure should be assumed to start in the third trimester to allow for the use of the ASFs (OEHHA, 2009). Thus, for example, if the District is evaluating a proposed 5-year mitigation project at a hazardous waste site, the cancer risks for the residents would be calculated based on exposures starting in the third trimester through the first five years of life.
>
> For the MEIW, we recommend using the same minimum exposure requirements used for the residential receptor (i.e., no evaluation for projects less than 2 months; projects longer than 2 months but less than 6 months are assumed to last 6 months; projects longer than 6 months would be evaluated for the duration of the project). Although the off-site worker scenario assumes that the workers are 16 years of age or older with an Age-Sensitivity Factor of 1, another risk management consideration for short-term project cancer assessment is whether there are women of child bearing age at the worksite and whether the MEIW receptor has a daycare center. In this case, the Districts may wish to treat the off-site MEIW in the same way as the residential scenario to account for the higher susceptibility during the third trimester of pregnancy, and for higher susceptibility of infants and children.
>
> Finally, the risk manager may want to consider a lower cancer risk threshold for risk management for very short-term projects. Typical District guidelines for evaluating risk management of Hot Spots facilities range around a cancer risk of 1 per 100,000 exposed persons as a trigger for risk management. Permitting thresholds also vary for each District. There is valid scientific concern that the rate of exposure may influence the risk – in other words, a higher exposure to a carcinogen over a short period of time may be a greater risk than the same total exposure spread over a much longer time period. In addition, it is inappropriate from a public health perspective to allow a lifetime acceptable risk to accrue in a short period of time (e.g., a very high exposure to a carcinogen over a short period of time resulting in a 1 $\times 10^{-5}$ cancer risk). Thus, consideration should be given for very short term projects to using a lower cancer risk trigger for permitting decisions.

3-42 (cont)

The IS/MND and Application do not contain the type of information normally relied upon to determine if the OEHHA risk assessment guidance is complied with, including a detailed construction schedule and maps that locate each project construction site and identify all nearby sensitive receptors, as well as their distance from construction work and duration of exposure.

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[18] *Ibid.*

Instead, one must rely on the noise analysis to locate sensitive receptors, with no assurance that it is complete and accurate for health risk assessment. The noise analysis, which does locate some sensitive receptors, fails to disclose the duration of exposure or include maps showing the location of all sensitive receptors, as would be required for an HRA. The IS/MND and Application fail to disclose any information about TAC sensitive receptors at any of these locations (e.g., residents, young children).

Health risk assessments are routinely performed for construction projects. The proximity of identified sensitive receptors and the duration of construction indicate that a health risk assessment should have been prepared for this Project. Based on my experience, I expect that cancer and acute health impacts from DPM would be significant.

Further, the IS/MND and Application fail to recognize that Project construction emissions would occur concurrently with and subsequent to countless other construction projects elsewhere in the air basin. The Application and IS/MND also failed to evaluate cumulative health impacts of construction, which are also likely significant.[19] These impacts could be mitigated by requiring catalyzed diesel particulate traps and diesel oxidation catalysts on construction equipment. These emissions could be further reduced by

- using alternative fueled equipment (e.g., propane), where available;
- limiting engine idling to two minutes for delivery trucks and dump trucks;
- suspending construction activities during smog alerts;
- purchasing local GHG offsets that provide PM2.5 benefits; and
- employing a construction site manager to verify that engines are properly maintained and to maintain a log.

3-42 (cont)

The IS/MND and Application's categorical dismissal of the requirements for an analysis of health impacts to adjacent residents during Project construction is not justified. The IS/MND and Application should be revised to include a proper health risk assessment for TAC emissions. As the Application and IS/MND did not include a health risk assessment for Project construction, did not identify or quantify TAC emissions, and did not include any analysis to verify that none is required (LSTs are not applicable to health risks, only to ambient air quality), the IS fails as an informational document under CEQA and its conclusions are not supported by substantial evidence.

3.0 ODOR IMPACTS WERE NOT EVALUATED

The IS/MND admits that "[o]dors would be potentially generated from vehicles and analysis that they would be "attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment. Such odors would disperse rapidly from the Project site and generally occur at magnitudes that would not affect substantial numbers of people.

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[19] Don Anair, Union of Concerned Scientists, Digging Up Trouble: The Health Risks of Construction in California, 2006; available at http://www.ucsusa.org/sites/default/files/legacy/assets/documents/clean_vehicles/digging-up-trouble.pdf.

Further, Project operations do not include uses or activities associated with the creation of objectionable odors. Therefore, impacts associated with the generation of objectionable odors would be less than significant."[20] This is unsupported and inconsistent with my experience.

This is wrong for many reasons. First, the major source of odors during construction is diesel exhaust, not "unburned hydrocarbons." Second, the odors would not disperse rapidly on days with low wind velocities. Third, substantial numbers of people do not have to be exposed for odors to be significant to affected parties. The exposure of a single person to adverse odors is significant.

Construction noise impacts are similar to construction odor impacts, in that noise would also be "temporary" and would affect the same receptors. Both noise and odor would impact local residents. The Application includes a noise analysis[21] but does not include any odor analysis. Based on my personal experience at construction sites, residential areas are close enough to Project construction sites for residents to smell noxious diesel and other exhaust fumes. This is a significant odor impact.

The odors and accompanying eye and nose irritation associated with diesel exhaust—smoky, burnt, oily, kerosene—have been documented for decades.[22] A 1970 EPA report noted that "exhaust gases emitted by diesel engines are characterized by offensive odors, which can be rated by human judges." Elsewhere, the EPA noted that "odor is undoubtedly the prime sensory attribute of diesel exhaust under the typical circumstances of human exposure."[23]

The IS/MND and Application fail to include a map locating residents in the vicinity of the various construction sites—a serious omission. The only way to conclude that odor impacts

3-42 (cont)

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[20] IS, pdf 28.

[21] Application, pdf 995-1048.

[22] Arthur D. Little, Inc., Chemical Identification of the Odor Components in Diesel Engine Exhaust, June 1971; available at https://nepis.epa.gov/Exe/ZyNET.exe/9101G0ZG.TXT?ZyActionD=ZyDocument=&Client=EPA&Index=Prior+to+1976&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C70thru75%5CTxt%5C00000021%5C9101G0ZG.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&Maximum=Documents=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL.

[23] Amos Turk and others, Sensory Evaluation of Diesel Exhaust Odors, U.S. Department of Health, Education, and Welfare Report; available at https://nepis.epa.gov/Exe/ZyNET.exe/=9100HJM4.TXT?ZyActionD=ZyDocument&Client=EPA&Index=Prior+to+1976&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C70thru75%5CTxt%5C00000012%5C9100HJM4.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/=x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL#

are insignificant is to use air dispersion modeling to estimate ambient concentrations of DPM (and other odoriferous compounds) at nearby residences and compare the resulting concentrations to odor thresholds. The dismissal of potential odor impacts of diesel exhaust emissions due to their temporary nature is not acceptable. Most odors are temporary, but their temporary nature does not render them insignificant or excuse a lead agency from evaluating them under CEQA. Noise is also temporary, but noise impacts are routinely evaluated in CEQA documents and were evaluated in the Application.

The odor of diesel exhaust is considered by most people to be objectionable. The EPA found that, at high intensities, diesel exhaust may produce sufficient physiological and psychological effects to warrant concern for public health.[24] The nearest sensitive receptor to the Project site is a residence located about 600 feet from construction.[25] A fleet of heavy-duty, diesel-fueled construction equipment, located as close as 600 feet from a home would certainly result in significant odor impacts for the home's occupants and likely result in accompanying physiological and psychological effects. Further, clouds of soot from diesel-powered equipment when working and idling at the Project site can travel downwind for miles and drift into more heavily populated areas.[26]

The IS/MND and Application fail to evaluate construction odor impacts. The analysis of odor is no different than the analysis of construction air quality impacts. One identifies the odoriferous compounds that would be present (in this case diesel exhaust, represented by PM2.5 or another surrogate, such as aldehydes),[27] estimates their emission rates, and uses an air dispersion model to estimate ambient concentrations of the odoriferous compounds at the location of sensitive receptors. The modeled ambient concentrations are then compared to published odor thresholds.[28]

3-42 (cont)

Although the County has no specific odor guidance, the absence of specific guidance does not mean odor impacts can be ignored. It is standard practice in such situations to review and adopt policies and procedures adopted by other jurisdictions. Design criteria, for example, have been developed for diesel-fueled equipment based on the 1:2000 odor dilution threshold, including for a 400-hp diesel truck, a 250-kW diesel generator, and a 2,000-kW diesel generator.

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[24] EPA, Health Assessment Document for Diesel Engine Exhaust, EPA/600/8-90/057F, May 2002; available at https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=29060.

[25] Application, pdf 443.

[26] Union of Concerned Scientists, Digging Up Trouble: The Health Risks of Construction Pollution in California, 2006; available at: http://sandiegohealth.org/air/ucsusa/Digging-up-Trouble.pdf.

[27] M. M. Roy and N. N. Mustafi, Investigation of Odorous Components in the Exhaust of DI Diesel Engines, International Conference on Mechanical Engineering, December 26-28, 2001, pp. II 31-36; available at https://me.buet.ac.bd/icme/icme2001/cdfiles/Papers/Environment/6_Final_en01(31-36).pdf.

[28] See, for example, J. E. Alpert and N. T. Wu, Odor Modeling as a Tool in Site Planning, *BioCycle Magazine*, 2012; available at https://pdfs.semanticscholar.org/74fe/73042013cfb465539def89ec97328a89eb2a.pdf.

The resulting design criteria are 5,293 $\mu g/m^3/g/s$; 492 $\mu g/m^3/g/s$; and 66 $\mu g/m^3/g/s$, respectively, for this equipment.[29]

The IS/MND and Application do not contain any analysis at all to support the conclusion that odor impacts would not be significant. Thus, the IS/MND fails as an informational document under CEQA and its conclusions are not supported by substantial evidence. In my opinion, construction odor impacts would be significant. Mitigation is available to reduce diesel particulate matter emissions, the major source of construction odors, and should be required for all construction equipment within at least 1,000 feet of sensitive receptors. Construction equipment that operates near sensitive receptors, for example, can be equipped with a diesel oxidation catalyst, which eliminates odors.[30]

4.0 WASTE DISPOSAL IMPACTS WERE NOT EVALUATED

The Project involves the decommissioning of 291 existing, antiquated turbines from the Project site.[31] The blades, towers and nacelles would be cut up on site to facilitate movement off site to recycling facilities.[32] The IS and Application fail to disclose the materials in the shells of the wind turbine blades, which determine impacts to workers dismantling and cutting them up as well as the impacts of their ultimate disposal. Blade material, for example, includes plastics and organic material which would release hazardous materials on cutting up and disposal.[33] The IS and Application also failed to disclose worker health impacts from dismantling the existing turbines. However, other studies indicate the hub, nacelle, and tower are steel and the blades glass reinforced plastic.[34]

3-42 (cont)

Cutting up the blades on site would produce small fiber particles that create occupational health and safety risks for workers. Inhalation, as well as skin and eye contact, can produce moderate irritation to mucous membranes, skin, and eyes, as well as coughing. Further, particles can produce alterations in the cellular and enzymatic components of the deep

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[29] U.S. EPA and U.S. DOE (Laboratories for the 21st Century: Best Practices), Modeling Exhaust Dispersion for Specifying Acceptable Exhaust/Intake Designs, May 2005, Table 1; available at http://labs21.lbl.gov/DPM/Assets/bp_modeling_508.pdf.

[30] W. Addy Majewski, Diesel Oxidation Catalyst, 2012; available at https://www.dieselnet.com/tech/cat_doc.php.

[31] Application, pdf 75.

[32] IS, pdf 5; Application, pdf 91-92, 447.

[33] Niklas Andersen, Wind Turbine End-of-Life: Characterization of Waste Material, 2015, Section 7.3; available at: https://www.diva-portal.org/smash/get/diva2:873368/FULLTEXT01.pdf;

[34] Tyer R. Fox, Recycling Wind Turbine Blade Composite Material as Aggregate in Concrete, Master of Science Thesis, Iowa State University, Table 1; available at: https://www.imse.iastate.edu/files/2014/03/Fox-Tyler-Recycling-wind-turbine-blade-composite-material-as-aggregate-in-concrete.pdf.

lung.[35] These smaller pieces are then generally further crushed, shredded and milled down until the resulting material can be divided into fibers and resins and the copper elements can be sifted out. The IS/MND and Application are silent on this second step and does not disclose where it occurs or include any emissions from these shredding operations.[36] Regardless, the impacts must be considered.

The IS/MND and Application assert that the cut-up blades would be recycled and that a nearby landfill would be used, classifying the impact as less than significant.[37] However, the blades, which are made of composite, are currently regarded as unrecyclable.[38] The currently known available disposal methods all have significant environmental impacts, as summarized in Table 1.[39] Landfill disposal, for example is known to release methane and volatile organic compounds that could result in significant local impacts. The IS/MND and Application fail to disclose the impacts of landfill disposal and worker health impacts from cutting up the blades. Thus, the IS fails as an informational document under CEQA.

3-42
(cont)

[35] K. Ramirez-Tejeda, D. A. Turcotte, and S. Pike, Unsustainable Wind Turbine Blade Disposal Practices in the United States: A Case for Policy Intervention and Technology Innovation, Table 1, *New Solutions: A Journal of Environmental and Occupational Health Policy*, v. 26, no. 4, pp. 581-598, 2017, Exhibit 2.

[36] Andersen, 2015, p. 15.

[37] IS, pdf 75.

[38] P. Liu and C. Y. Barlow, Wind Turbine Blade Waste in 2050, *Waste Management*, v. 62, pp. 229-240, 2017; abstract available at https://www.ncbi.nlm.nih.gov/pubmed/28215972.

[39] Ramirez-Tejeda et al., 2017; Andersen 2015, p. 14 ("Composite material on the other hand have proven challenging to recycle.")

Table 1: Existing Turbine Blade Disposal Methods and Associated Impacts

Disposal method	Economic	Environment and occupational exposure
Landfill	Opportunity cost of unrecovered material and concerns of long-term space availability	Release of methane and other volatile organic compounds from wood and other organics in the blades
Incineration with energy and/or material recovery	Significant energy and machinery requirements to cut and transport the blades to the incineration plant	Pollutant ash after the incineration process, possible emissions of hazardous flue gasses, and potential hazards from mechanical processing
Pyrolysis	Low economic viability because of degradation of resulting fibers	Emission of environmentally hazardous off-gasses and potential hazards from mechanical processing
Fluidized bed combustion	Low economic viability because of degradation of resulting fibers	Potential hazards from mechanical processing
Chemical	Economic viability dependent on chemical process used	Use of hazardous chemicals and dust from mechanical processing of the blades
Mechanical	Low market value of both the resulting fibers and substitute virgin material	Dust emission during the grinding process of glass fiber thermoset composites

3-42 (cont)

5.0 IMPACTS TO MWD AQUEDUCT WERE NOT EVALUATED

The Colorado River Aqueduct, a subsurface water pipe owned and operated by the Metropolitan Water District (MWD), bisects the Project site from east to west.[40] The IS/MND and Application assert with no support that construction would not impact this aqueduct.[41] However, the IS/MND and Application failed to evaluate the impact of soil borne vibration during decommissioning and construction, which could adversely affect the Aqueduct. The vibration analysis only considered impacts on the nearest residence and ignored impacts on the much closer aqueduct. Thus, the IS/MND fails as an informational document under CEQA.

6.0 TRANSPORTATION IMPACTS WERE NOT EVALUATED

The Project will decommission and remove about 291 existing small wind turbines and install up to 14 new substantially larger wind turbines. The new turbines would be up to 500 feet high (blade tip to base) with rotor diameters of up to 427 feet.[42] These large wind turbines are heavy and extremely difficult to transport. It is well known, for example, that the size and weight of these large turbines often exceed the limits of U.S. infrastructure, making them

[40] IS, pdf 9, 38.

[41] See, for example, IS, pdf 39, 72.

[42] Application, pdf 88, Figure 1.

difficult to transport from the manufacturing facilities (which are not identified) to the site,[43] a remote desert location with only rural road access. The dimensions and weight of turbine components place limits on the feasible routes, due to the larger turning radius, tall clearance requirements, and road weight restrictions.

The IS/MND and Application are silent on how these very large turbines would be transported to the site.[44] The Application admits that transporting turbine components to the site is part of Project construction,[45] but is silent on how the turbine components will arrive. Further, the air quality analysis does not include emissions from the types of vehicles that would be required to transport them. It is, for example, unknown whether ship, barge, rail, truck—or some combination—would be used to deliver the turbine components to the site. The transportation mode determines the air quality and transportation/traffic impacts. It is impossible to evaluate the transportation and construction air quality impacts of delivering the new turbines without transportation mode and route information. Thus, the IS fails as an informational document under CEQA. The available turbine information indicates that traffic and air quality impacts would be significant.[46]

7.0 CONSTRUCTION IMPACTS ARE UNDERESTIMATED

The IS and Application estimated criteria pollutant emissions during Project construction[47] using the CalEEMod Version 2016.3.2 model.[48] The IS/MND concluded, based on the CalEEMod analysis in the Application,[49] that emissions during construction would not exceed SCAQMD significance thresholds and thus were not significant.[50] However, construction emissions were underestimated by using default and other assumptions that are not applicable, especially with respect to the unique challenges posed by this Project – the

3-42 (cont)

[43] Lockheed Martin Corporation, Solving the Challenge of Transporting Wind Turbine Blades, December 2017; available at https://www.lockheedmartin.com/content/dam/lockheed-martin/eo/documents/webt/transporting-wind-turbine-blades.pdf.

[44] IS, pdf 68-71; Application, pdf 87-93.

[45] Application, pdf 162.

[46] See, for example, Transportation of Large Wind Components: A Review of Existing Geospatial Data, September 2016; available at https://www.nrel.gov/docs/fy16osti/67014.pdf; Inbound Logistics, Transporting Wind Turbines: An Oversized Challenge, January 31, 2012; available at https://www.inboundlogistics.com/cms/article/transporting-wind-turbines-an-oversized-challenge/; LM Wind Power, World's Longest Wind Turbine Blade Successfully Completes Its First Journey; available at https://www.lmwindpower.com/en/stories-and-press/stories/news-from-lm-places/transport-of-longest-blade-in-the-world; James Osborne, As Wind Turbines Grow, So Does Transportation Challenge, Houston Chronicle, February 20, 2016; available at https://www.houstonchronicle.com/business/energy/article/As-wind-turbines-grow-larger-so-does-the-6840315.php.

[47] Application, Table 7, pdf 452.

[48] Application, pdf 510, Appendix A, CalEEMod Output Files.

[49] Application, pdf 510, Appendix A.

[50] IS, pdf 25, Table 1 and Application, pdf 452, Table 7.

transport of very large wind turbines and the on-site dismembering and ultimate disposal of the retired wind turbines. Further, the CalEEMod analysis omitted major sources of emissions. Thus, the IS/MND fails as an informational document under CEQA.

7.1 The CalEEMod Analysis Underestimates Construction Emissions

First, the Application exclusively used the CalEEMod model to estimate construction emissions. However, this model does not include all sources of PM10 and PM2.5 "conventional" construction emissions, let alone from the unique aspects of this Project. It omits windblown dust from graded areas and storage piles and fugitive dust from off-road travel:[51]

> **Fugitive dust associated with grading, demolition, truck loading, and on-road vehicles traveling along paved and unpaved roads. (Fugitive dust from wind blown sources such as storage piles and inactive disturbed areas, as well as fugitive dust from off-road vehicle travel, are not quantified in CalEEMod, which is consistent with approaches taken in other comprehensive models.)**

These emissions must be separately calculated using methods in AP-42[52] and added to the CalEEMod total. The Application did not calculate these emissions. Based on calculations I have made in other cases, these are the major sources of PM10 and PM2.5 emissions from construction projects. These emissions taken alone frequently exceed the PM10 and PM2.5 significance thresholds. Thus the IS/MND, which relied on the CalEEMod emission calculations, fails as an informational document.

3-42 (cont)

Windblown dust from Project disturbed soils is a particular concern at this site due to desert winds, which occur in the area. These winds are strong, extremely dry, and reach speeds of 30 to 60 mph.[53] In comparison, the CalEEMod analysis assumed a wind speed of 7.5 mph, thus underestimating PM10 and PM2.5 emissions.[54] These winds can raise significant amounts of dust, even when conventional dust control methods are used, often prompting alerts from air pollution control districts.[55] If these winds occurred during grading, cut and fill, or soil movement, or from bare graded soil surfaces (even if periodically wetted), significant amounts of PM10, PM2.5, and associated Valley Fever spores as well as silica dust would be released. These emissions could result in public health impacts from the silica and Valley Fever spores

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[51] CAPCOA 2016, pdf 8. This same language appears in CAPCOA 2017, pdf 7.

[52] U.S. EPA, Compilation of Air Pollutant Emission Factors, Report AP-42; available at https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emission-factors#Proposed.

[53] DesertWeather.com, Live Weather Information for the Coachella Valley, 2004-November 2018; available at https://desertweather.com/windsummary.php.

[54] Application, pdf 511, wind speed = 3.4 m/s = 7.5 mph.

[55] SCAQMD Issues Dust and Ash Advisory Due to Strong Winds in the Southland; available at https://lasentinel.net/scaqmd-issues-dust-and-ash-advisory-due-to-strong-winds-in-the-southland.html.

and/or violations of PM10 and PM2.5 CAAQS and NAAQS. These potential impacts were not evaluated.

Wind erosion emissions are typically calculated using methods in AP-42,[56] which require detailed information on site topography, wind profiles, and dispersion modeling. This information is not cited or included in the IS/MND or Application. Generally, wind erosion impacts are estimated using AERMOD. The Application and IS/MND do not include any calculations of wind erosion emissions but rather tacitly assume that compliance with conventional construction mitigation measures and regulations are adequate wind erosion control, without any analysis at all or without acknowledging the added risk of high-velocity desert winds.

Second, construction emissions depend upon the conditions at the site. The CalEEMod uses default emission factors.[57] However, the site is desert land in Coachella Flats, an area where sandy[58] soil conditions will generate significantly more PM10 and PM2.5 than assumed in the CalEEMod calculations. The default emission factors should have been adjusted to increase emissions to account for desert conditions.

Third, the Project involves the decommissioning of 291 existing, antiquated turbines from the Project site.[59] The towers, blades, and nacelles would be cut up on site to facilitate movement off site to recycling facilities.[60] The Application fails to disclose the wind turbine materials and how they would be cut up. CalEEMod does not include any emissions from decommissioning these turbines, including on-site cutting up of the towers, blades, and nacelles. The CalEEMod inputs for "turbine decommissioning," for example, show that no concrete/industrial saws will be used and do not list any equipment that could be used to cut up the towers, blades, and nacelles.[61] The only emissions from "turbine decommissioning" are off-road emissions.[62] Thus, a major source of construction emissions has been omitted from the construction air quality impact analysis.

3-42 (cont)

Fourth, the Application asserts that the cut-up blades would be recycled. However, the blades, which are made with composite, are currently regarded as unrecyclable.[63] The

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[56] U.S. EPA, AP-42, Section 13.2.5 Industrial Wind Erosion; available at https://www3.epa.gov/ttnchie1/ap42/ch13/final/c13s0205.pdf.

[57] H. Fan, A Critical Review and Analysis of Construction Equipment Emission Factors, *Procedia Engineering*, v. 196, 2017, pp. 351-358, Sec. 3.4; available at https://www.sciencedirect.com/science/article/pii/S1877705817330801.

[58] Application, pdf 655.

[59] Application, pdf 75.

[60] IS, pdf 5; Application, pdf 91-92.

[61] Application, pdf 569.

[62] Application, pdf 631.

[63] P. Liu and C. Y. Barlow, Wind Turbine Blade Waste in 2050, *Waste Management*, v. 62, pp. 229-240, 2017; abstract available at https://www.ncbi.nlm.nih.gov/pubmed/28215972.

CalEEMod analysis does not include any emissions from disposing of the cut-up turbine blades nor disclose their likely destination—that is, if they would be hauled to an appropriate recycling facility,[64] which is not identified. The distance from the Project site to the final disposal site determines emissions. The off-site disposal location and its distance from the site are not disclosed and the associated emissions are omitted from air quality analyses although emissions from other recycled components are included.[65]

Fifth, emissions from importing the new turbines are significantly underestimated. The very large new turbines would require non-standard heavy-duty transport methods, which are not disclosed. The IS/MND and Application are silent on how these very large turbines would be transported to the site.[66] It is, for example, unknown whether ship, barge, rail, truck—or some combination—would be used to deliver the turbine components to the site. Emissions from ships, barges, rails, and the huge on-road transports are not included in the CalEEMod analysis.[67]

7.2 Localized Significance Thresholds

The Application also used localized significance thresholds (LSTs) to evaluate the impact of construction emissions on air quality.[68] An LST is the maximum emissions from a project that is not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard.[69]

The LST methodology does not apply to project sites larger than 5 acres or where emissions are distinctly non-uniform across the site.[70] The Project site is significantly greater than 5 acres.[71] The Application argues that the Project is estimated to disturb about 80 acres or less over a 17-month period, or less than 1 acre per day, and that it is thus appropriate to use the LST lookup tables.[72] The rejection criteria are expressed in terms of "acres," not acres per day.

3-42 (cont)

[64] IS, pdf 5.

[65] Application, pdf 631-634 ("off-road"). The CalEEMod outputs are silent on what is included in this estimate.

[66] IS, pdf 68-71; Application, pdf 87-93.

[67] See photos and video at https://www.lmwindpower.com/en/stories-and-press/stories/news-from-lm-places/transport-of-longest-blade-in-the-world.

[68] Application, Section 2.5.4, pdf 454.

[69] SCAQMD, Localized Significance Thresholds, accessed November 23, 2018; available at http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/localized-significance-thresholds.

[70] SCAQMD, Final Localized Significance Threshold Methodology, June 2003, Revised July 2008, Table 3-2; available at http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf?sfvrsn=2.

[71] Application, pdf 179, 227.

[72] Application, pdf 443.

Further, emissions will be non-uniform across the site. Finally, there is no evidence that construction will be uniform over its duration, disturbing only 1 acre per day. It is entirely plausible that some days will disturb substantially more than the average. The Application did not include a detailed construction schedule, so the assumption of uniform disturbance is unsupported and inconsistent with my experience with similar projects. Thus, the LST methodology does not apply.

For projects greater than 5 acres in area, the SCAQMD recommends the use of air dispersion modeling to determine localized air quality impacts.[73] The Application does not contain any air dispersion modeling calculations. Thus, the analysis of air quality impacts of construction is incomplete and does not support a no-impact conclusion.

7.3 Off-Site Emissions Are Excluded

The LST analysis excluded off-site mobile source emissions because "[h]auling of soils and construction materials associated with the Project construction are not expected to cause substantial air quality impacts to sensitive receptors along off-site roadways."[74] The CalEEMod analysis also excluded off-site emissions from importing the new turbines.

These omissions ignore the challenge of importing the gigantic turbines that will be used by the Project and cutting up 291 turbines on site. The Project will decommission and remove about 291 existing small wind turbines and install up to 14 new substantially larger wind turbines. The new turbines would be up to 500 feet high (blade tip to base) with rotor diameters of up to 427 feet.[75] These large turbines would require very large delivery vehicles that would emit significant amounts of greenhouse gases (GHG) and criteria pollutants.[76]

3-42 (cont)

The Application and IS/MND are silent on where these turbines would be manufactured and how they would be transported to the site. Thus, the IS/MND fails as an informational document. Based on my experience, it is reasonable to assume that emissions from transporting the very large and heavy components of the proposed turbines would generate significant amounts of criteria pollutants, resulting in a significant air quality impact.

8.0 THE IS AND APPLICATION FAIL TO ANALYZE POTENTIALLY SIGNIFICANT HEALTH IMPACTS DUE TO VALLEY FEVER

The IS/MND asserts with respect to Valley Fever:[77]

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[73] *Ibid.*

[74] Application, pdf 454.

[75] Application, pdf 88, Figure 1.

[76] Electrek, The Art of Transporting Spain's Largest Wind Turbine Blade, November 5, 2017; available at https://electrek.co/2017/11/05/transporting-largest-wind-turbine-blade/.

[77] IS, pdf 28.

Exposure to Valley Fever

Valley fever is not highly endemic to the County, and within the County, the incident rate in Desert Hot Springs is very low, accounting for only 0.9% of the County's incidents in 2015 (Appendix B). The Project would also employ dust mitigation measures by watering three times per day and limiting speed on unpaved roads to 15 miles per hour. The Project would also be constructed in accordance with the SCAQMD Rules 403 and 403.1, which limit the amount of fugitive dust generated during construction. As previously mentioned, the nearest sensitive-receptor land use (an existing residential use) is located approximately 600 feet from the closest area of disturbance. Therefore, health impacts associated with Valley Fever exposure would be less than significant.

The cited study indicates that only 0.9% of the Valley Fever cases in Riverside County occurred in Desert Hot Springs. However, the Project site is not in Desert Hot Springs, but rather 2.2 miles northeast (elsewhere, 6 miles southwest[78]) in a remote area of the county where conditions are ideal for Valley Fever, as discussed below. The IS/MND and Application present no evidence that Valley Fever is absent at the Project site itself. As discussed below, on-site monitoring is required to draw this conclusion.

Elsewhere, the Application asserts that "Riverside County is not considered a highly endemic region for Valley Fever as the latest report from the California Department of Public Health listed Riverside County as having 2.7 cases per 100,000 people."[79] However, this is outdated information from 2016.[80] The most recent report shows the number of cases of Valley Fever in Riverside County has doubled, to 5.6 cases per 100,000 people.[81] In fact, the number of Valley Fever cases in Riverside County has been rising countywide since 2015. See Table 2.[82] Even though the number of reported cases in Riverside County is low compared to other endemic counties, the incident rate among exposed workers could be substantially higher than in more highly endemic counties, as discussed below.[83]

3-42 (cont)

[78] Application, pdf 227.

[79] Application, pdf 423.

[80] California Department of Public Health, Epidemiologic Summary of Coccidioidomycosis in California, 2016, p. 8; available at https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CocciEpiSummary2016.pdf.

[81] California Department of Public Health, Epidemiologic Summary of Coccidioidomycosis in California, 2017, Table 1; available at https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CocciEpiSummary2017.pdf.

[82] Epidemiologic Summary of Coccidioidomycosis in California, 2016, Figure 1; available at https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CocciEpiSummary2016.pdf, and Coccidioidomycosis in California Provisional Monthly Report, January-October 2018 (as of October 31, 2018); available at https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CocciinCAProvisionalMonthlyReport.pdf.

[83] Rebecca L. Law and others, Coccidioidomycosis Outbreak Among Workers Constructing a Solar Power Farm—Monterey County, California, 2016–2017; *Morbidity and Mortality Weekly Report*, v. 67, no. 33, pp. 931–934, August 24, 2018; available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6107319/

Table 2: Reported Cases of Valley Fever in Riverside County

Year	No. of Cases
2015	63
2016	94
2017	130
2018	221

As I demonstrate below, the impacts from Valley Fever are significant and must be mitigated.

Valley Fever, or coccidioidomycosis (abbreviated as cocci), is an infectious disease caused by inhaling the spores of *Coccidioides ssp.*,[84] a soil-dwelling fungus. The fungus lives in the top 2 to 12 inches of soil. When soil containing this fungus is disturbed by activities such as digging, vehicles, construction activities, dust storms, or during earthquakes, the fungal spores become airborne.[85] Valley Fever outbreaks during construction of solar plants have been reported.[86,87]

The Valley Fever fungal spores are too small to be seen by the naked eye.[88] The California Department of Public Health has concluded:[89]

3-42 (cont)

[84] Two species of *Coccidioides* are known to cause Valley Fever: *C. immitis*, which is typically found in California, and *C. posadasii*, which is typically found outside California. See Centers for Disease Control, Coccidioidomycosis (Valley Fever), Information for Health Professionals; available at https://www.cdc.gov/fungal/diseases/coccidioidomycosis/health-professionals.html.

[85] California Department of Public Health, Valley Fever Fact Sheet, January 2016; available at https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/ValleyFeverFactSheet.pdf.

[86] Jason A. Wilken et al., Coccidioidomycosis among Workers Constructing Solar Power Farms, California, USA, 2011–2014, *Emerging Infectious Diseases*, v. 21, no. 11, November 2015; available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4622237/.

[87] The Associated Press, Valley Fever Hits 28 at Calif. Solar Plant Sites, *The San Diego Union-Tribune*, May 1, 2013; available at http://www.sandiegouniontribune.com/sdut-valley-fever-hits-28-at-calif-solar-plant-sites-2013may01-story.html.

[88] California Department of Public Health, Preventing Work-Related Coccidioidomycosis (Valley Fever), June 2013; available at https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/OHB/HESIS/CDPH%20Document%20Library/CocciFact.pdf.

[89] California Department of Public Health, Preventing Work-Related Coccidioidomycosis (Valley Fever), June 2012; available at https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/OHB/HESIS/CDPH%20Document%20Library/CocciFact.pdf.

Valley Fever is an illness that usually affects the lungs. It is caused by the fungus *Coccidioides immitis* that lives in soil in many parts of California. When soil containing the fungus is disturbed by digging, vehicles, or by the wind, the fungal spores get into the air. When people breathe the spores into their lungs, they may get Valley Fever.

Is Valley Fever a serious concern in California? YES!

Often people can be infected and not have any symptoms. In some cases, however, a serious illness can develop which can cause a previously healthy individual to miss work, have long-lasting and disabling health problems, or even result in death.

8.1 Riverside County Is Endemic for Valley Fever

The disease is endemic (native and common) in the semiarid regions of the southwestern United States.[90] Riverside County, including the Project site, is located within the established endemic range of Valley Fever,[91] as shown in Figure 1.[92] The site itself contains conditions that could harbor Valley Fever, including areas with sparse vegetation and areas that have been undisturbed for long periods.

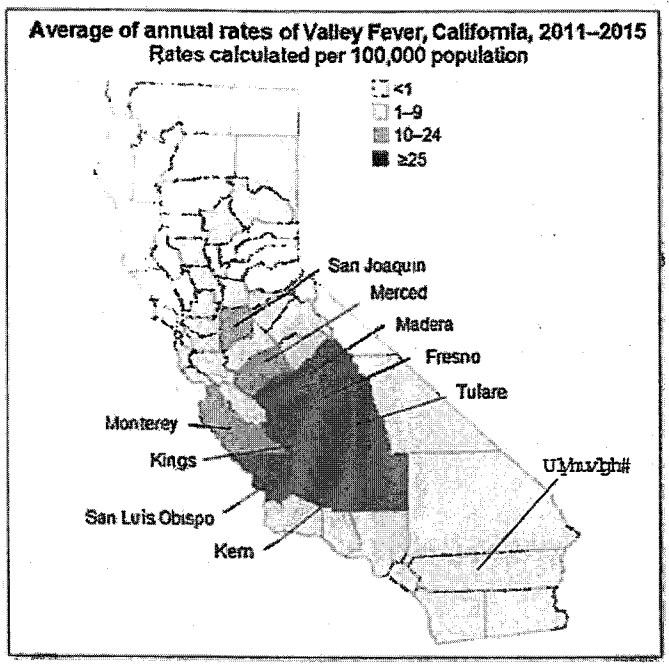
3-42
(cont)

[90] San Luis Obispo County Public Health Department, Valley Fever in San Luis Obispo County (undated); available at http://www.slocounty.ca.gov/health/publichealth/commdisease/Cocci_in_SLO_County.htm.

[91] See, for example, K. Schmitt, R. Plevin and T. Wood, Just One Breath: Valley Fever Cases Reach Epidemic Levels, But Harm Remains Hidden, September 8, 2012 ("The cocci fungus is common in much of the southwest and in northwestern Mexico, especially in the dry earth of California's Central Valley and in the areas around Phoenix and Tucson in Arizona. It can be found, however, in soils of the beach haven of San Diego, the wine country of Sonoma County and inland in the Sierra foothills."); available at https://www.centerforhealthjournalism.org/content/just-one-breath-valley-fever-cases-reach-epidemic-levels-harm-remains-hidden.

[92] Medical Board of California Newsletter, v. 141, Winter 2017, pdf 21; available at http://www.mbc.ca.gov/Publications/Newsletters/newsletter_2017_01.pdf.

Figure 1: Endemic Areas for Valley Fever in California



The removal of established vegetation, biological soil crusts and centuries-old desert pavement during construction creates opportunities for dust to be airborne every time the wind blows. Not only does fugitive dust create problems for visual and biological resources, it creates issues for public health as well.

3-42 (cont)

8.2 Construction Workers Are an At-Risk Population

The CDPH specifically notes that construction workers in endemic areas, such as those that will build the Project, are at risk.[93] Project construction will disturb 80 acres.[94] Thus, significant opportunity exists to expose both on-site workers and off-site sensitive receptors to Valley Fever spores.

[93] CDPH, June 2012.

[94] Application, pdf 443.

Figure 2: Valley Fever Risk to Construction Workers

➢ In October 2007, a construction crew excavated a trench for a new water pipe. Within three weeks, 10 of 12 crew members developed coccidioidomycosis (Valley Fever), an illness with pneumonia and flu-like symptoms. Seven of the 10 had abnormal chest x-rays, four had rashes, and one had an infection that had spread beyond his lungs and affected his skin. Over the next few months, the 10 ill crew members missed at least 1660 hours of work and two workers were on disability for at least five months.

Dust exposure is one of the primary risk factors for contracting Valley Fever.[95] Specific occupations and outdoor activities associated with dust generation—such as construction, farming, road work, military training, gardening, hiking, camping, bicycling, or fossil collecting—increase the risk of exposure and infection. The risk appears to be more specifically associated with the amount of time spent outdoors than with doing specific activities.[96] As the area surrounding the Project site is rural, locals and visitors who participate in outdoor activities could be exposed during construction.

The most at-risk populations are construction and agricultural workers.[97] Construction workers are the very population that would be most directly exposed by the Project. A refereed journal article on occupational exposures notes that "[l]abor groups where occupation involves close contact with the soil are at greater risk, especially if the work involves dusty digging operations."[98] One study reported that at study sites, "generally 50% of the individuals who

3-42 (cont)

[95] Rafael Laniado-Laborin, Expanding Understanding of Epidemiology of Coccidioidomycosis in the Western Hemisphere, *Annals of the New York Academy of Sciences*, v. 111, 2007, pp. 20–22, available at https://nyaspubs.onlinelibrary.wiley.com/doi/abs/10.1196/annals.1406.004; Frederick S. Fisher, Mark W. Bultman, Suzanne M. Johnson, Demosthenes Pappagianis, and Erik Zaborsky, Coccidioides Niches and Habitat Parameters in the Southwestern United States, a Matter of Scale, *Annals of the New York Academy of Sciences*, v. 111, 2007, pp. 47–72 ("All of the examined soil locations are noteworthy as generally 50% of the individuals who were exposed to the dust or were excavating dirt at the sites were infected."), available at https://nyaspubs.onlinelibrary.wiley.com/doi/abs/10.1196/annals.1406.031.

[96] Kern County Public Health Services Department, Prevention ("The risk appears to be more specifically associated with the amount of time spent outdoors than with doing specific activities"); available at http://kerncountyvalleyfever.com/what-is-valley-fever/prevention/.

[97] Lawrence L. Schmelzer and R. Tabershaw, Exposure Factors in Occupational Coccidioidomycosis, *American Journal of Public Health and the Nation's Health*, v. 58, no. 1, 1968, pp. 107–113, Table 3; available at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1228046/?page=1.

[98] *Ibid.*, p. 110.

were exposed to the dust or were excavating dirt at the sites were infected."[99] A recent Valley Fever outbreak during construction of a solar plant in Monterey County found a worksite incidence rate of 1,095 per 100,000 persons/year, compared to the 2016 incidence rates in Monterey and five surrounding counties that ranged from 4.4 to 210.6, demonstrating the significant risk to construction workers who disturb soils with Cocci spores.[100]

The disease debilitates the population and thus prevents them from working.[101] The longest period of disability from occupational exposure in California is to construction workers, with 62% of the reported cases resulting in over 60 days of lost work.[102] Another study estimated the average hospital stay for each (non-construction work) case of coccidioidomycosis at 35 days.[103]

8.3 Sensitive Receptors Near the Project Site Are an At-Risk Population

The California Department of Public Health and the State Health Officer have warned that "[p]eople who live, work or travel in Valley Fever areas are also at a higher risk of getting infected, especially if they work or participate in activities where soil is disturbed."[104] Thus, those living, working, or recreating in the vicinity of the Project site during construction are also at risk of being affected from windblown dust, both during construction and after soils have been disturbed but lie fallow until mitigation has been implemented and/or the Project is built out.

The potentially exposed population in surrounding areas is much larger than construction workers because the nonselective raising of dust during Project construction will carry the very small spores, 0.002–0.005 millimeters ("mm") (Figure 3),[105] into nonendemic areas, potentially exposing large non-Project-related populations.[106,107] These very small particles are not controlled by conventional construction dust control mitigation measures.

3-42 (cont)

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[99] Fisher et al., 2007.

[100] Law et al. 2018, Table 2.

[101] Frank E. Swatek, Ecology of *Coccidioides Immitis*, *Mycopathologia et Mycologia Applicata*, v. 40, no. 1–2, pp. 3–12, 1970.

[102] Schmelzer and Tabershaw, 1968, Table 4.

[103] Demosthenes Pappagianis and Hans Einstein, Tempest from Tehachapi Takes Toll or Coccidioides Conveyed Aloft and Afar, *Western Journal of Medicine*, v. 129, Dec. 1978, pp. 527–530; available at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1238466/pdf/westjmed00256-0079.pdf.

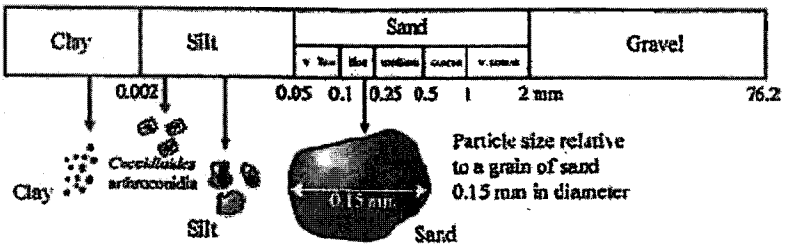
[104] California Department of Public Health, State Health Officer Warns About Dangers of Valley Fever, Number 15-055, August 4, 2015; available at https://www.cdph.ca.gov/Programs/OPA/Pages/NR15-055.aspx.

[105] Fisher et al., 2007, Fig. 3.

[106] Schmelzer and Tabershaw, 1968, p. 110; Pappagianis and Einstein, 1978.

[107] Pappagianis and Einstein, 1978, p. 527 ("The northern areas were not directly affected by the ground level windstorm that had struck Kern County but the dust was lifted to several thousand feet elevation

Figure 3: Size of Cocci Spores Compared to Soil Particles (in mm)



Valley Fever spores have been documented to travel as far as 500 miles,[108] and thus dust raised during construction could potentially expose a large number of people hundreds of miles away.

8.4 Valley Fever Symptoms

Typical symptoms of Valley Fever include fatigue, fever, cough, headache, shortness of breath, rash, muscle aches, and joint pain. Symptoms of advanced Valley Fever include chronic pneumonia, meningitis, skin lesions, and bone or joint infections. The most common clinical presentation of Valley Fever is a self-limited acute or subacute community-acquired pneumonia that becomes evident 13 weeks after infection.[109] No vaccine or known cure exists for the disease.[110] However, the FDA recently granted Fast Track designation for a proposed treatment.[111] Between 1990 and 2008, more than 3,000 people died in the United States from Valley Fever, with about half of the deaths occurring in California.[112] Between 2000 and 2013 in

3-42 (cont)

and, borne on high currents, the soil and arthrospores along with some moisture were gently deposited on sidewalks and automobiles as 'a mud storm' that vexed the residents of much of California." The storm originating in Kern County, for example, had major impacts in the San Francisco Bay Area and Sacramento).

[108] David Filip and Sharon Filip, *Valley Fever Epidemic*, Golden Phoenix Books, 2008, p. 24.

[109] See, *e.g.*, Lisa Valdivia, David Nix, Mark Wright, Elizabeth Lindberg, Timothy Fagan, Donald Lieberman, Prien Stoffer, Neil M. Ampel, and John N. Galgiani, Coccidioidomycosis as a Common Cause of Community-Acquired Pneumonia, *Emerging Infectious Diseases*, v. 12, no. 6, June 2006; available at https://wwwnc.cdc.gov/eid/article/12/6/06-0028_article.

[110] Rebecca Plevin, National Public Radio, Cases of Mysterious Valley Fever Rise in American Southwest, May 13, 2013; available at http://www.npr.org/blogs/health/2013/05/13/181880987/cases-of-mysterious-valley-fever-rise-in-american-southwest.

[111] Mathew Shanley, Valley Fever Treatment Granted FDA Fast Track Designation, July 14, 2017; available at http://www.raredr.com/news/valley-fever-drug-fast-track-designation.

[112] Jennifer Y. Huang, Benjamin Bristow, Shira Shafir, and Frank Sorvillo, Coccidioidomycosis-Associated Deaths, United States, 1990–2008, *Emerging Infectious Diseases*, v. 18, no. 11, November 2012; available at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3559166/.

California, 1,098 deaths were attributed to Valley Fever.[113] In recent years, reported Valley Fever cases in the Southwest have increased dramatically.[114]

Infections by *Coccidioides ssp.* frequently have a seasonal pattern, with infection rates that generally spike in the first few weeks of hot dry weather that follow extended milder rainy periods. In California, infection rates are generally higher during the hot summer months, especially if weather patterns bring the usual winter rains between November and April.[115] The majority of cases of Valley Fever accordingly occur during the months of June through December, which are typically periods of peak construction activity.

Typically, the risk of catching Valley Fever begins to increase in June and continues an upward trend until it peaks during the months of August, September, and October.[116] Drought periods can have an especially potent impact on Valley Fever if they follow periods of rain.[117] It is thought that during drought years the number of organisms competing with *Coccidioides ssp.* decreases and the fungus remains alive but dormant. When rain finally occurs, the arthroconidia germinate and multiply more than usual because of a decreased number of other competing organisms. When the soil dries out in the summer and fall, the spores can become airborne and potentially infectious.[118]

The recent drought conditions in southern California may well increase the occurrence of Valley Fever cases. Thus, major on-site and off-site soil-disturbing construction activities should be timed to occur outside of a prolonged dry period. After soil-disturbing activities conclude, all disturbed soils should be sufficiently stabilized to prevent airborne dispersal of cocci spores.

3-42 (cont)

The IS dismisses the potential existence of Valley Fever in the area or of the health risks posed by Valley Fever from construction and/or operation of the Project and does not require any mitigation to limit the public's or workers' potential exposure to cocci. As discussed below, conventional mitigation for construction impacts is not adequate to protect construction workers or offsite sensitive receptors from Valley Fever. Thus, the IS/MND utterly fails to

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[113] G. L. Sondermeyer et al., Coccidioidomycosis-Associated Deaths in California, 2000–2013, *Public Health Reports*, v. 131, no. 4, 2016; available at http://journals.sagepub.com/doi/10.1177/0033354916662210.

[114] See Centers for Disease Control; Fungal Pneumonia: A Silent Epidemic, Coccidioidomycosis (Valley Fever); available at http://www.cdc.gov/fungal/pdf/cocci-fact-sheet-sw-us-508c.pdf.

[115] *Ibid.*

[116] Kern County Public Health Services Department, What Is Valley Fever, Prevention, Valley Fever Risk Factors; available at http://kerncountyvalleyfever.com/what-is-valley-fever/risk-factors/.

[117] Gosia Wozniacka, Associated Press, Fever Hits Thousands in Parched West Farm Region, May 5, 2013, Updated April 29, 2016, citing Prof. John Galgiani, Director of the Valley Fever Center for Excellence at the University of Arizona; available at http://www.denverpost.com/2013/05/05/valley-fever-hits-thousands-in-parched-west/.

[118] Theodore N. Kirkland and Joshua Fierer, Coccidioidomycosis: A Reemerging Infectious Disease, *Emerging Infectious Diseases*, v. 3, no. 2, July–September 1996; available at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2626789/pdf/8903229.pdf.

inform the public of these potential significant consequences of Project construction. The County should prepare an EIR to provide an adequate assessment of Valley Fever and other issues discussed elsewhere in these comments and propose adequate mitigation.

8.5 Pre-Construction, On-Site Monitoring Should Be Required

As the proposed site has the potential to contain Coccidioidomycosis spores and it is well known that they can easily become airborne when soil is disturbed,[119] the Project construction site should be tested well in advance of construction to determine if spores are present. Accurate test methods have been developed and used in similar applications.[120,121] A study conducted in the Antelope Valley, slated for six solar ranches of varying sizes, concluded that soil analyses should be conducted before soil disturbance in endemic areas, noting: "Based on the findings of this study, we recommend that EIRs include soil analyses for *Coccidioides* spp. on land destined for construction of any type in endemic areas of the pathogen."[122] An Environmental Assessment for a solar project in a nearby area has required soil testing.[123]

8.6 The IS Fails to Require Adequate Mitigation for Valley Fever

A conventional dust control plan is inadequate to address potential health risks posed by exposure to Valley Fever. The IS?MND's proposed fugitive dust mitigation is wholly inadequate to control fugitive dust, let alone tiny cocci spores. Conventional dust control measures such as those included in the mitigation measures for the Project[124] are not effective at

3-42
(cont)

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[119] Colson et al. 2016, p. 11; Colson et al. 2017, p. 451 ("A correlation between soil disturbances due to large-scale renewable energy construction projects, agricultural management practices and PM10 fugitive dust emission with increased incidence of coccidioidomycosis was clearly indicated by results of this study."), p. 456 ("One such danger is Coccidioides spp. arthroconidia becoming airborne when soil is disturbed and dust mitigation measures are inefficient or absent.").

[120] J. R. Bowers and others, Direct Detection of Coccidioides from Arizona Soils Using CocciENV, a Highly Sensitive and Specific Real-time PCR Assay, *Medical Mycology*, 2018. Exhibit 3 and Proceedings of the 60th Annual Coccidioidomycosis Study Group Meeting, April 8–9, 2016, Fresno, CA; available at http://coccistudygroup.com/wp-content/uploads/2016/10/CSG-60th-Annual.pdf.

[121] A. J. Colson and others, Large-Scale Land Development, Fugitive Dust, and Increased Coccidioidomycosis Incidence in the Antelope Valley of California, *Mycopathologia*, v. 182, pp. 439–458, June 2017. Exhibit 4.

[122] Colson et al. 2016, p. 11; Colson et al. 2017, p. 456.

[123] Final Environmental Assessment for Construction, Operation, and Decommissioning of a Solar Photovoltaic System at Marine Air Ground Task Force Training Command Marine Corps Air Ground Combat Center, Twentynine Palms, California, November 2015, Table ES-1, AQ-17, available at https://www.29palms.marines.mil/Portals/56/Docs/G4/NREA/Environmental%20Assessment%20Construction%20and%20Operation%20of%20Solar%20Photovoltaic%20System%20at%20MAGTFTC,%20MCAGCC%20(Final)%20November%202015.pdf.

[124] Application, Exhibit I: Dust Control Management Plan *et seq*, pdf 157-168.

controlling Valley Fever[125] because they largely focus on visible dust or larger dust particles—the PM10 fraction—not the very fine particles where the Valley Fever spores are found. While dust exposure is one of the primary risk factors for contracting Valley Fever and dust-control measures are an important defense against infection, it is essential to note that PM10 and visible dust, the targets of conventional control mitigation, are only indicators that *Coccidioides ssp.* spores may be airborne in a given area. Freshly generated dust clouds usually contain a larger proportion of the more visible coarse particles, PM10 (</=0.01 mm), compared to cocci spores (0.002 mm). However, these larger particles settle more rapidly and the remaining fine respirable particles may be difficult to see and are not controlled by conventional dust control measures.

Spores of *Coccidioides ssp.* have slow settling rates in air due to their small size (0.002 mm) and low terminal velocity, and possibly also due to their buoyancy, barrel shape, and commonly attached empty hyphae cell fragments.[126] Thus spores, whose size is well below the limits of human vision, may be present in air that appears relatively clear and dust free. Such ambient airborne spores with their low settling rates can remain aloft for long periods and be carried hundreds of miles from their point of origin. Thus, implementation of conventional dust control measures, such as those proposed for this Project, will not provide sufficient protection for both on-site workers and the general public.

In response to an outbreak of Valley Fever in construction workers in 2007 at a construction site for a solar facility within San Luis Obispo County, its Public Health Department, in conjunction with the California Department of Public Health,[127] developed recommendations to limit exposure to Valley Fever based on scientific information from the published literature. The recommended measures go far beyond the conventional dust control measures recommended in the Application to control construction emissions, which primarily control PM10. They include the following measures that are not required in the Application to mitigate construction emissions from the Project:

3-42 (cont)

1. Reevaluate and update your Injury and Illness Prevention Program (as required by Title 8, Section 3203) and ensure safeguards to prevent Valley Fever are included.
2. Train all employees on the following issues:
   - The soils in Riverside County may contain cocci spores;

[125] See, e.g., Cummings and others, 2010, p. 509; Schneider et al., 1997, p. 908 ("Primary prevention strategies (*e.g.*, dust-control measures) for coccidioidomycosis in endemic areas have limited effectiveness.").

[126] Frederick S. Fisher, Mark W. Bultman, and Demosthenes Pappagianis, Operational Guidelines (version 1.0) for Geological Fieldwork in Areas Endemic for Coccidioidomycosis (Valley Fever), U.S. Geological Survey Open-File Report 00-348, 2000; available at https://pubs.usgs.gov/of/2000/0348/.

[127] CDPH June 2013, pp. 4-6. See also Wilken et al., 2015, and Sondermeyer et al., Dust Exposure and Coccidioidomycosis Prevention Among Solar Power Farm Construction Workers in California, *American Journal of Public Health*, 2017, abstract available at https://www.ncbi.nlm.nih.gov/pubmed/28640687.

- Inhaling cocci spores may cause Valley Fever;
- How to recognize symptoms of Valley Fever; these symptoms resemble common viral infections, and may include fatigue, cough, chest pain, fever, rash, headache, and body and joint ache;
- Work with a medical professional with expertise in cocci as you develop your training program and consult information on public health department websites;
- Workers must promptly report suspected symptoms of work-related Valley Fever to a supervisor;
- Workers are entitled to receive prompt medical care if they suspect symptoms of work-related Valley Fever. Workers should inform the health care provider that they may have been exposed to cocci;
- To protect themselves, workers should use control measures as outlined here.

3. Control dust exposure:

   - Consult with local Air Pollution Control District Compliance Assistance programs and with California Occupational Safety and Health Administration ("Cal/OSHA") compliance program regarding meeting the requirements of dust control plans and for specific methods of dust control. These methods may include wetting the soil while ensuring that the wetting process does not raise dust or adversely affect the construction process;
   - Provide high-efficiency particulate ("HEP")-filtered, air-conditioned enclosed cabs on heavy equipment. Train workers on proper use of cabs, such as turning on air conditioning prior to using the equipment and keeping windows closed.
   - Provide communication methods, such as 2-way radios, for use in enclosed cabs.
   - Employees should be medically evaluated, fit-tested, and properly trained on the use of the respirators, and a full respiratory protection program in accordance with the applicable Cal/OSHA Respiratory Protection Standard (8 CCR 5144) should be in place.
   - Provide National Institute for Occupational Safety and Health (NIOSH)-approved respirators for workers with a prior history of Valley Fever.
   - Half-face respirators equipped with N-100 or P-100 filters should be used during digging. Employees should wear respirators when working near earth moving machinery.
   - Prohibit eating and smoking at the worksite, and provide separate, clean eating areas with hand-washing facilities.
   - Avoid outdoor construction operations during unusually windy conditions or in dust storms.

3-42 (cont)

- Consider limiting outdoor construction during the Fall to essential jobs only, as the risk of cocci infection is higher during this season.

4. Prevent transport of cocci outside endemic areas:

   - Thoroughly clean equipment, vehicles, and other items before they are moved off-site to other work locations.
   - Provide workers with coveralls daily, lockers (or other systems for keeping work and street clothing and shoes separate), daily changing and showering facilities.
   - Clothing should be changed after work every day, preferably at the work site.
   - Train workers to recognize that cocci may be transported offsite on contaminated equipment, clothing, and shoes; alternatively, consider installing boot-washing.
   - Post warnings onsite and consider limiting access to visitors, especially those without adequate training and respiratory protection.

5. Improve medical surveillance for employees:

   - Employees should have prompt access to medical care, including suspected work-related illnesses and injuries.
   - Work with a medical professional to develop a protocol to medically evaluate employees who have symptoms of Valley Fever.
   - Consider preferentially contracting with 1-2 clinics in the area and communicate with the health care providers in those clinics to ensure that providers are aware that Valley Fever has been reported in the area. This will increase the likelihood that ill workers will receive prompt, proper and consistent medical care.
   - Respirator clearance should include medical evaluation for all new employees, annual re-evaluation for changes in medical status, and annual training, and fit-testing.
   - Skin testing is not recommended for evaluation of Valley Fever. [128]
   - If an employee is diagnosed with Valley Fever, a physician must determine if the employee should be taken off work, when they may return to work, and what type of work activities they may perform.

3-42 (cont)

In a more recent Valley Fever outbreak among solar plant construction workers in Monterey County, public health officials conducted a site visit to the solar farm to observe and interview workers and employers about work practices, dust control and use of protective equipment; review training materials; and discuss prevention strategies. The visit confirmed

[128] Short-term skin tests that produce results within 48 hours are now available. See Kerry Klein, NPR for Central California, New Valley Fever Skin Test Shows Promise, But Obstacles Remain, November 21, 2016; available at http://kvpr.org/post/new-valley-fever-skin-test-shows-promise-obstacles-remain.

dust control issues, serious lapses in use of respiratory protection, insufficient coccidioidomycosis employee training, and no system for tracking or reporting illness. Thus, in November 2017, the CDPH issued prevention recommendations before the start of the second construction phase, which is scheduled to continue through the end of 2018. Recommendations for employers included:[129]

1) reducing dust exposure by ensuring ample and efficient water truck capacity to wet soil;

2) using only heavy equipment with enclosed cabs and temperature-controlled, high efficiency particulate air-filtered air;

3) providing clean coveralls daily to employees who disturb soil;

4) implementing a mandatory respiratory protection program (8 CCR §5144, Respiratory Protection: https://www.dir.ca.gov/title8/5144.html) that specifically requires National Institute for Occupational Safety and Health-approved respirators be worn while performing or in the near vicinity of job activities that create airborne dust;

5) developing effective Valley fever training for all employees, including ways to reduce exposure, how to recognize symptoms, and where to seek care; and

6) tracking and reporting of all suspected Valley fever illnesses that occur at the worksite to the Monterey County Health Department.

The study concluded that prevention methods need to be better incorporated into the planning and monitoring of construction projects in areas with endemic *Coccidioides* (e.g., by involving public health practitioners in pre-project reviews). Specifically, the following was recommended: "Outdoor workers in these areas should be trained by employers about the potential for infection, how to limit dust exposure, how to recognize symptoms, where to seek care, and how to ask a health care provider to assess them for coccidioidomycosis. Clinicians should inquire about occupational history and should suspect coccidioidomycosis in patients who are outdoor workers in areas with endemic *Coccidioides* and who have a clinically compatible illness."[130]

3-42 (cont)

Two other studies have developed complementary recommendations to minimize the incidence of Valley Fever. The U.S. Geological Survey ("USGS") has developed recommendations to protect geological field workers in endemic areas.[131] An occupational study of Valley Fever in California workers also developed recommendations to protect those

[129] Laws et al., 2018.

[130] *Ibid.*

[131] Fisher et al., 2000.

working and living in endemic areas.[132] These two sources identified the following additional measures:

- Evaluate soils to determine if each work location is within an endemic area.
- Implement a vigorous program of medical surveillance.
- Implement aggressive enforcement of respiratory use where exposures from manual digging are involved.
- Test all potential employees for previous infection to identify the immune population and assign immune workers to operations involving known heavy exposures.
- Hire resident labor whenever available, particularly for heavy dust exposure work.
- All workers in endemic areas should use dust masks to protect against inhalation of particles as small as 0.4 microns. Mustaches or beards may prevent a mask from making an airtight seal against the face and thus should be discouraged.
- Establish a medical program, including skin tests on all new employees, retesting of susceptibles, prompt treatment of respiratory illness in susceptibles; periodic medical examination or interview to discover a history of low grade or subclinical infection, including repeated skin testing of susceptible persons.

The Application's construction mitigation does not include any of these measures. The mitigation measures identified in this comment, based on actual experience during construction of solar and wind projects in endemic areas, should be required for the Project.

3-42 (cont)

In addition ~~to the above discussed~~ measures, I ~~recommend the following~~ mitigation measures to protect workers and off-site sensitive receptors:

- Continuously wet the soil before and while digging or moving the earth. Landing zones for helicopters and areas where bulldozers, graders, or skid steers operate are examples where continuously wetting the soil is necessary.
- When digging a trench or fire line or performing other soil-disturbing tasks, position workers upwind when possible.
- Place overnight camps, especially sleeping quarters and dining halls, away from sources of dust such as roadways.
- Minimize the amount of digging by hand. Instead, use heavy equipment with the operator in an enclosed, air-conditioned, HEPA-filtered cab.

In sum, construction mitigation measures in the Application are not adequate to control Valley Fever. Projects that have implemented conventional PM10 dust control measures, such

[132] Schmelzer and Tabershaw, 1968, pp. 111–113.

as those proposed in the Application, have experienced fugitive dust issues and reported cases of Valley Fever.

For example, construction of First Solar's Antelope Valley Solar Ranch One ("AVSR1") was officially halted in April 2013 due to the company's failure to bring the facility into compliance with ambient air quality standards, despite conventional dust control measures more aggressive than those required for the Project. A dust storm in Antelope Valley on April 8, 2013 was so severe that it resulted in multiple car pileups in the sparsely populated region, as well as closure of the Antelope Valley Freeway. The company was issued four violations by the Antelope Valley Air Quality Management District. Dust from the project led to complaints of respiratory distress by local residents and concern about Valley Fever. [133]

At two photovoltaic solar energy projects in San Luis Obispo County, Topaz Solar Farm and California Valley Solar Ranch, 28 construction workers contracted Valley Fever. One man was digging into the ground and inhaled dust and subsequently became ill. A blood test confirmed Valley Fever.[134]

All of the above health-protective measures recommended by the San Luis Obispo County Public Health Department, Monterey County Health Department, and the California Department of Public Health are feasible for the Project and must be required in an enhanced dust control plan to reduce the risk to construction workers, nearby residents, and the public of contacting Valley Fever. Many of these measures have been required by the County of Monterey in other EIRs.[135] They are also required in the EIR for the California High-Speed Train.[136] Even if all of the above measures are adopted, an EIR is required to analyze whether these measures are adequate to reduce this significant impact to a level below significance.

3-42 (cont)

[133] Herman K. Trabish, Green Tech Media, Construction Halted at First Solar's 230 MW Antelope Valley Site, April 22, 2013, available at http://www.greentechmedia.com/articles/read/Construction-Halted-At-First-Solars-230-MW-Antelope-Valley-Site.

[134] Julie Cart, Los Angeles Times, 28 Solar Workers Sickened by Valley Fever in San Luis Obispo County May 01, 2013; available at http://articles.latimes.com/2013/may/01/local/la-me-ln-valley-fever-solar-sites-20130501.

[135] County of Monterey, California Flats Solar Project Final Environmental Impact Report, December 2014; available at https://www.co.monterey.ca.us/planning/major/California%20Flats%20Solar/FEIR/FEIR_PLN120294_122314.pdf.

[136] California High-Speed Rail Authority and U.S. Department of Transportation, California High-Speed Train Project Environmental Impact Report/Environmental Impact Statement, Fresno to Bakersfield, Mitigation Monitoring and Enforcement Program Amendments, September 2015; available at

EXHIBIT B

Phyllis Fox, PhD, PE
745 White Pine Ave.
Rockledge, FL 32955

12/13/2018

Kyle Jones
Adams, Broadwell, Joseph & Cardozo
520 Capitol Mall, Suite 350
Sacramento, CA 95814

Re: Comments on the Responses to Comments on the Painted Hills Wind Energy Repowering Project Initial Study/Mitigated Negative Declaration

As you requested, I have reviewed the responses[1] to my comments[2] (RTC) on the Initial Study/Mitigated Negative Declaration (IS/MND)[3] for the Painted Hills Wind Energy Repowering Project in Riverside County (Project). My responses are summarized below. 3-43

Construction Health Risks Were Not Evaluated and Are Significant

I commented that the IS/MND did not evaluate the impact of construction emissions on construction workers and nearby sensitive receptors and that these impacts could be significant.[4]

First, the RTC argues that the South Coast Air Quality Management District (SCAQMD), where the Project will be located, "does not have a recommendation or threshold at which a construction health risk assessment should be performed."[5] However, the SCAQMD is not the agency charged with health risk assessments, but rather the Office of Environmental Health Hazard Assessment (OEHHA). The OEHHA does have guidance for when a health risk assessment should be conducted for construction impacts, which I cited in my comments. My comments demonstrate that construction of several phases of the Project trigger OEHHA's formal health risk assessment requirement. 3-44

[1] Memorandum from Adam Poll, Dudek and Michael Green, Dudek to Jay T. Olivas, Riverside County Planning Department, Re: Painted Hills Wind Energy Repowering Project – Response to Comments, November 27, 2018 (RTC).

[2] Phyllis Fox, Comments on the Initial Study for the Painted Hills Wind Energy Repowering Project, Riverside County, California, November 26, 2018 (Fox Comments).

[3] County of Riverside, Environmental Assessment Form: Initial Study and Notice of Public Hearing and Intent to Adopt a Mitigated Negative Declaration, November 28, 2018; available at https://planning.rctlma.org/Portals/0/hearings/pc/2018/11-28-18%20WCS180001%20PC_1.pdf?ver=2018-11-09-083619-600 (IS/MND).

[4] Fox Comment 2.

[5] RTC, p. 1.

Second, the RTC cites the results of a "screening health risk assessment" that was not part of the IS/MND and has not been subject to public review. The produced "screening health risk assessment" is not accompanied by a written HRA report that discloses and discusses the inputs and outputs, nor even the output files of an HRA. Rather, the produced "screening health risk assessment" is 1,172 pages of various unannotated model inputs and outputs, including: (1) a CalEEMod run to determine diesel particulate emissions;[6] (2) AERMOD inputs and outputs;[7] (3) HARP2 inputs; and (4) a list of files that contain the HARP2 outputs,[8] presumably the results of the HRA. The results of the HRA are in the list of output files that were not produced.[9] The produced 1,172 pages cannot be reviewed and corrected in the allotted time and are completely inaccessible to the affected public. Further, HRAs are normally supported by a written report and electronic copies of all input and output files. Both of these essential elements of an HRA are missing from this record. Thus, the 1,172 pages of unannotated model inputs and outputs do not constitute substantial evidence that construction health impacts are not significant. 3-45

Third, the OEHHA's risk assessment guidelines for short-term construction exposures[10] require a formal health risk assessment, not a "screening health risk assessment." Further, the OEHHA risk assessment guidelines recommend the use of a lower cancer significance threshold than the 10 in 1 million relied on in the RTC. OEHHA guidelines specifically require the use of an excess lifetime cancer risk of 1 in 1 million in screening analyses.[11] This significance threshold is fully embedded in current regulations and guidance and practiced at sites throughout the United States.[12] The cited "screening health risk assessment" found a risk of 2.09 in 1 million, which is significant based on the applicant's unsupported HRA. 3-46

Fourth, the RTC alleges that this screening analysis shows cancer and chronic health impacts of construction are not significant. However, many of the input assumptions were apparently selected to understate impacts. For example, fraction of time at home excluded third trimester to 16 years,[13] thus significantly underestimating cancer risks. Further, as noted above, 3-47

[6] HRA, CalEEMod Run, pdf 1-43.

[7] HRA, AERMOD input, pdf 44-1170.

[8] HRA, pdf 608 and 1172.

[9] HRA, Tier 2 Settings, pdf 1172.

[10] Office of Environmental Health Hazard Assessment (OEHHA), Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments, February 2015 (OEHHA 2015), Section 8.2.10: Cancer Risk Evaluation of Short Term Projects, pp. 8-17/18; available at https://oehha.ca.gov/air/crnr/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-0.

[11] OEHHA, California Human Health Screening Levels; available at https://oehha.ca.gov/risk-assessment/california-human-health-screening-levels-chhsls.

[12] See discussion of history of use of the 1 in 1 million cancer significance criterion in Cheryl Niemi, "Acceptable" Risk Levels for Carcinogens: Their History, Current Use, and How They Affect Surface Water Criteria, Policy Forum #3, February 8, 2013, pdf 15-21; available at http://www.tmw-law.com/news-pdf/SWQSPolicyForumRiskLevel%2002-08-213.pdf.

[13] HRA, Exposure Duration Parameters for Cancer, pdf 1171.

the cancer risk significance level of 10 in 1 million is the wrong level for short-term construction exposures. 3-47 (cont)

Fifth, the RTC only evaluated DPM. Diesel exhaust contains many other TACs as noted in my comments, including benzene and aldehydes. These would significantly increase cancer, chronic, and acute risks if included in the HRA. 3-48

Sixth, the unit risk factor used for DPM in the HRA was 3.0 E-4 $(ug/m^3)^{-1}$. However, the range of unit risk factors for DPM is 1.3 E-4 to 2.4 E-3 $(ug/m^3)^{-1}$.[14] If the upper end of the range were used, which is appropriate for a screening risk assessment, the cancer risk would increase from 2.09 in 1 million to 16 in 1 million,[15] which exceeds the SCAQMD's cancer risk significance threshold of 10 in 1 million for longer-term exposures. 3-49

Seventh, the screening health risk assessment did not include health impacts from short-term (acute) exposures because "there is no acute Reference Exposure Level (REL) for DPM and thus you can't evaluate the acute health impacts of DPM."[16] While it is true that OEHHA has not established an acute REL for DPM, the last OEHHA evaluation of DPM was in 1998.[17] Since then, substantial additional research has been conducted on acute health impacts of DPM.[18] Canada recently established an acute REL for DPM of 10 ug/m^3.[19] The record contains no analysis of acute health impacts. 3-50

Eighth, I commented that the IS/MND failed to evaluate cumulative health impacts of construction and provided a California report demonstrating why it is important for this Project. The RTC fails to address cumulative health impacts of Project construction 3-51

Ninth, I commented that the IS/MND failed to evaluate health impacts to construction workers. The RTC fails to address health impacts to construction workers. 3-52

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[14] OEHHA, Hot Spots Unit Risk and Cancer Potency Values, footnote D; available at https://oehha.ca.gov/media/CPFs042909.pdf.

[15] Revised cancer risk: (2.09 in 1 million)(2.4 E-3/3.0 E-4) = 16.7 in 1 million.

[16] RTC, p. 1.

[17] Findings of the Scientific Review Panel on the Report on Diesel Exhaust, 1998; available at https://www.arb.ca.gov/toxics/dieseltac/de-fnds.pdf.

[18] See, for example, A. A. Mehus and others, Comparison of Acute Health Effects from Exposures to Diesel and Biodiesel Fuel Emissions and references cited therein, *J. Occup. Environ. Med.*, v. 57, no. 7, pp. 705-712, July 2015; available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4479787/.

[19] Canada, Human Health Risk Assessment for Diesel Exhaust – Summary; available at https://www.canada.ca/en/health-canada/services/publications/healthy-living/human-health-risk-assessment-diesel-exhaust-summary.html and Health Canada, Human Health Risk Assessment for Diesel Exhaust, March 2016; available at http://publications.gc.ca/collections/collection_2016/sc-hc/H129-60-2016-eng.pdf.

Finally, due to all of the flaws and missing information required to support the RTC's screening health risk assessment, I commissioned Ray Kapahi[20] of EPS to prepare a screening health risk assessment using the DPM emissions estimated in the applicant's HRA.[21] This analysis used CAPCOA's facility prioritization guidelines to prioritize facilities for formal risk assessment under the Air Toxics "Hot Spots" Information and Assessment Act of 1987.[22] This spreadsheet model calculates a Prioritization Score that falls into one of three categories: Low, Intermediate and High. For facilities that are designated as High Priority, the next step is a detailed health risk assessment.[23]

The results of this screening HRA, included in Exhibit A,[24] show that cancer risk is a "High Priority" up to 500 meters (1,640 feet) from the site and a Medium Priority up to 1,500 meters (4,921 feet) from the site, depending on the location of construction activities. There are homes within these distances.[25] Under CAPCOA guidelines, the "High Priority" designation requires a formal health risk assessment, which is missing from the record. 3-53

In sum, I reiterate my conclusion that the IS/MND fails as an informational document under CEQA. Further, based on the late-produced screening health risk assessment, and the screening health risk assessment in Exhibit A, construction of the Project would likely result in significant cancer impacts at nearby sensitive receptors as well as to construction workers. The screening level HRA produced in the RTC is not substantial evidence of no construction health impacts.

Odor Impacts Were Not Evaluated

The RTC asserts that "the odors anticipated from the project were evaluated in accordance with the CEQA Guidelines and the South Coast Air Quality Management District's (SCAQMD) significance criteria (SCAQMD 2015). However, as I pointed out in my comments, the record does not contain any odor analysis at all. SCAQMD 2015 cites to Rule 402, which prohibits the "discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of 3-54

[20] See resume of Ray Kapahi, Exhibit D.

[21] HRA, pdf 8, mitigated construction, exhaust PM2.5 (DPM) = 0.3349 ton/yr.

[22] CAPCOA, Facility Prioritization Guidelines, August 2016; available at http://www.capcoa.org/wp-content/uploads/2016/08/CAPCOA%20Prioritization%20Guidelines%20-%20August%202016%20FINAL.pdf.

[23] CAPCOA 2016, pdf 5.

[24] Memorandum from Ray Kapahi, Environmental Permitting Specialists, to Phyllis Fox, Re: Review of Impacts to Health Risk from Construction Emissions, Painted Hills Wind Energy Repowering Project, December 13, 2018 (Exhibit A).

[25] Exhibit A, Figure 1.

persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public..."[26]

This rule is implemented AFTER a project is built by filing odor complaints with the District. However, before a project is built, an analysis must be conducted to determine if nuisance or annoyance will occur. The IS/MND does not contain any odor analysis. The SCAQMD's CEQA Guidelines specifically require an odor analysis: "When odors are an issue, the air quality analysis should include a quantitative assessment of potential odors and meteorological conditions..."[27] The IS/MND does not include a quantitative assessment of potential odors and meteorological conditions during construction and thus fails as an informational document under CEQA.

3-54 (cont)

The RTC also asserts that the major component within diesel exhaust that is odorous is sulfur dioxide, citing "U.S. Department of Labor n.d."[28] This report is not cited in the references to the RTC. More recent government reports note "Diesel exhaust is typically black in color with a low odor threshold (odors easily detected at low concentrations) and contains more than 40 toxic compounds...."[29]

The RTC then argues that diesel exhaust emissions will not result in significant odor impacts because regulations have reduced sulfur compounds in diesel exhaust and emissions of sulfur dioxide are less than the significance threshold in EA-IS Table 1 for construction.

3-55

These arguments are not relevant because sulfur dioxide is not the source of diesel exhaust odors. Research published in a peer-reviewed scientific journal has demonstrated that the components responsible for the odor of diesel exhaust are not sulfur oxides, but rather aldehydes.[30] Other noted changes in diesel exhaust—for example, lubricity requirements—would not have any impact on odor.

Finally, the RTC cites CARB anti-idling policy, implying without any support that it would reduce diesel odors. However, the major source of diesel odors is running emissions, not idling emissions. No mitigation is proposed for diesel odors from running emissions.

3-56

[26] SCAQMD Rule 402.

[27] SCAQMD, *CEQA Air Quality Handbook*, April 1993, p. 5-5 (Exhibit B).

[28] Presumably, n.d. = no date.

[29] Jessica F. Li and Gregory Burr, Evaluation of Diesel Exhaust Exposure at Two Fire Stations, National Institute for Occupational Safety and Health, February 2017, pp. 10-11; available at https://www.cdc.gov/niosh/hhe/reports/pdfs/2016-0094-3267.pdf.

[30] P. A. Partridge and others, Characterization and Analysis of Diesel Exhaust Odor, *Environ. Sci. Technol.*, 1987, v. 21, no. 4, pp. 403-408 (Exhibit C).

Construction Emissions Are Underestimated

I commented that the IS/MND underestimated PM10 and PM2.5 emissions because it used an anomalously low wind speed and failed to include fugitive dust emissions from grading, demolition, truck loading, and on-road vehicles traveling along paved and unpaved roads.

First, the RTC admits that Santa Ana winds can easily exceed 50 miles per hour (mph), which is significantly higher than the wind speed assumed in the CalEEMod analysis (7.5 mph) and would thus result in much higher PM10 and PM2.5 emissions than assumed in the construction emission calculations. The RTC argues that construction work would not occur during these high winds as the contractor would have to comply with SCAQMD Rules 403 and 403.1.[31] However, Rule 403 only requires cessation of construction work or other mitigation when wind gusts exceed 25 mph.[32] Rule 403.1 does not require cessation of construction work when wind gusts exceed 25 mph. Thus, PM10 and PM2.5 emissions would exceed the estimated IS/MND emissions, which were based on 7.5 mph, for all wind speeds greater than 7.5 mph, up to 25 mph. Based on my experience, these exceedances could result in violations of the PM2.5 and PM10 ambient air quality standards. 3-57

Second, I commented that the major source of fugitive dust during construction—fugitive dust associated with grading, demolition, truck loading, and on-road vehicles traveling along paved and unpaved roads—is not included in the CalEEMod model and must be separately calculated. Thus, the IS/MND underestimated construction PM2.5 and PM10 emissions and their air quality impacts. 3-58

The RTC ignores the unrebutted fact that the most recent version of the CalEEMod model's user's manual[33] explicitly states that these sources are excluded from the model. The RTC instead cites a different section of the manual that indicates other sources of fugitive dust are included. The cited sections do not mention the excluded sources, such as demolition, the major source of PM10 emissions for this project due to the need to remove and cut up 291 wind turbines. Instead, the RTC quibbles over a method I suggested for estimating a portion of them.[34] 3-59

The applicant could select an alternate method to estimate fugitive dust emissions, but cannot exclude these emissions from its analysis, as it has done. In fact, the method I cite for windblown fugitive dust emissions yields results at the lower end of the range. AP-42 includes other construction fugitive dust emission estimating methods in Section 13.2, including

[31] RTC, p. 2.

[32] SCAQMD Rule 403(g)(2)(A).

[33] User's Guide for CalEEMod Version 2016.3.2, November 9, 2017; available at http://www.aqmd.gov/caleemod/user's-guide.

[34] RTC, p. 2.

specifically for paved roads, unpaved roads, heavy construction operations, and storage piles.[35] Further, the record in this case is totally silent on emissions from removing and cutting up 291 wind turbines.

In fact, the method I recommend, AP-42, is the only recognized source for estimating conventional construction fugitive dust emissions and is widely used for this purpose in CEQA documents. The fugitive dust sources that are included in the CalEEMod model are in fact estimated using AP-42. Regardless of the method selected to estimate fugitive PM2.5 and PM10 emissions, the unrebutted fact remains that the IS/MND failed to include all fugitive dust emissions in its analysis of construction air quality impacts. Thus, air quality impacts of construction are underestimated.

3-59 (cont)

Valley Fever Impacts Are Significant And Unmitigated

I presented substantial and unrebutted evidence that all of Riverside County is endemic for Valley Fever, including the Project site, and that the number of cases in the county has been steadily rising since 2015.[36] The RTC does not respond to these facts but instead argues that Riverside County is not "highly endemic" and that only 0.9% of the reported cases were in the project area.[37]

It is undisputed that all of Riverside County is endemic. The degree to which it is endemic is irrelevant. The fact that "only 0.9% of the cases were in the project area..."[38] is further evidence that the Project site is endemic and may contain Valley Fever spores. Given this evidence of the presence of Valley Fever in the area, the burden is on the applicant to demonstrate that the site is free of Valley Fever spores. The only way to make this demonstration is to sample the soils at the Project site, using methods identified in my comments.[39] Commenters do not have access to or permission to sample the Project site. The burden is the Applicant's to demonstrate the absence of Valley Fever spores, given the undisputed fact that the whole county, including the Project site, is endemic. My comments demonstrate that methods exist to measure Valley Fever spores in soils and have been used for this purpose at other nearby construction sites.[40]

3-60

The RTC also argues that compliance with SCAQMD Rules 403 and 403.1, which establish fugitive dust abatement measures, would minimize adverse Valley Fever impacts.[41]

3-61

[35] AP-42, Section 13; available at https://www3.epa.gov/ttn/chief/ap42/ch13/index.html.

[36] Fox Comments, Figure 1 and Table 2.

[37] RTC, p. 3.

[38] RTC, p. 3.

[39] Fox Comment 8.5.

[40] Fox Comment 8.5.

[41] RTC, p. 3.

However, my comments explain why these conventional dust control measures would not eliminate Valley Fever spores.[42] In a nutshell, Valley Fever spores are very tiny,[43] much smaller than the dust particles that are the target of conventional dust control programs and much less dense. These spores are not controlled by Rules 403 and 403.1 because they are too small. Much more aggressive measures are required to eliminate the risk of Valley Fever, such as those developed by the San Luis Obispo Air Pollution Control District and summarized in my Comment 8.6, which remains unrebutted in the record.

3-61 (cont)

Finally, the RTC argues that regulations in Title 8 of the California Code of Regulations (CCR) would protect workers, but fails to provide a citation to the section(s) of the CCR that contain responsive regulations. The RTC also cites "California Department of Industrial Relations 2018," but fails to include this citation in the references. My research indicates that several sections of CCR Title 8 provide general guidance for various types of conventional worker exposure.[44] However, my comments demonstrate that actual experience at construction sites in California where these Title 8 CCR regulations applied had significant Valley Fever outbreaks.[45]

3-62

Transportation Impacts of New Turbines Were Not Evaluated

I commented that the IS/MND had failed to evaluate the challenges of transporting the new, very large wind turbines to the site. In fact, the RTC and IS/MND do not even disclose where the new turbines are manufactured (which ultimately determines transport emissions), the entire transport mode (rail, truck, ship), or the route. They also fail to include emissions from the oversized vehicles that would be required to transport the oversized turbine blades.[46] I presented substantial evidence that the size of these turbines would present challenges to transporting them over local roads and result in higher emissions that were not included in the air quality and HRA analyses.[47]

3-63

The RTC ignores all of these issues and all of my evidence and instead argues that all components would be transported by truck, without disclosing that standard trucks assumed in the traffic and CalEEMod emission calculations would not be able to transport the oversized turbine components and without disclosing the route. Thus, the IS/MND fails as an information

[42] Fox Comment 8.6.

[43] Fox Comments, Figure 3.

[44] The following sections in California Code of Regulations, Title 8 may help protect construction workers from Valley Fever: 342 (reporting work-connected fatalities and serious injuries), 3203 (injury and illness prevention), 5141 (control of harmful exposures), 5144 (respiratory protect), and 14300 employer records – log 300). See https://www.dir.ca.gov/dosh/valley-fever-home.html.

[45] Fox Comments 8.2 and 8.6.

[46] See supporting evidence in footnotes 43 and 46 of my Comment 6.0.

[47] Fox Comment 6.0.

document under CEQA. The potential impacts of transporting the oversized turbine blades raised in my comments stand unrebutted. 3-63 (cont)

Waste Disposal Impacts Were Not Evaluated

I commented that turbine blade material, which would be cut up on site, includes plastics and organic material which would release hazardous materials on cutting up and disposal, based on published scientific research. I further commented that the IS/MND failed to disclose worker health impacts associated with turbine dismantling and blade cutting.[48] The response fails to include a Material Safety Data Sheet (MSDS) or any chemical composition data for the turbine blades and emissions from cutting them up. This information is required to determine their composition, emissions from cutting them up and disposing of the pieces, and potential impacts to workers and nearby sensitive receptors. 3-64

Rather, the response speculates without disclosing any information about the turbine blades, that compliance with unidentified OSHA and Cal OSHA regulations would adequately protect workers. However, emissions from cutting up wind turbine blades is a new source not specifically covered by existing OSHA and Cal OSHA regulations. Further, OSHA and Cal OSHA regulations would not protect nearby, off-site sensitive receptors who would be exposed to the turbine blade-cutting emissions. 3-65

I also commented, based on published studies, that wind turbine blades are regarded as unrecyclable and that their disposal could result in the release of methane and other chemicals from the blades. The RTC speculates, without any support, that the turbine blades are composed of only steel and glass and thus would not release methane or VOCs. This unsupported assumption is inconsistent with published literature that indicates wind turbine blades and nacelles are made of composite materials that include resins, glass, fabrics, fibers, and various bonding materials that indeed can biodegrade on disposal, releasing methane and VOCs.[49] 3-66

The RTC also asserts that the solid waste generated by the Project would "likely" be disposed at the Lamb Canyon Landfill or the Badlands Landfill. However, the RTC fails to present any information, such as a contract or letter of agreement, that these two landfills would accept the Project's turbine component waste. The published literature I presented indicates wind turbine waste material is regarded as "unrecyclable" and is known to release methane and VOCs. 3-67

In sum, my 11/28/18 comments on the IS/MND stand unrebutted in the record as to construction worker health impacts, odor impacts, underestimated construction particulate matter emissions, transportation impacts, and waste disposal impacts. The RTC does not present any 3-68

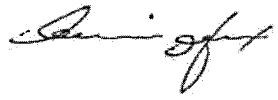
[48] Fox Comment 4.0.

[49] L. Mishnaevsky and others, Materials for Wind Turbine Blades: An Overview, *Materials* (Basel), v. 10, no. 11, November 2017; available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5706232/.

substantial information to rebut these comments. The Project as described in the IS/MND will result in significant worker and public health impacts, air quality impacts, transportation impacts, and waste disposal impacts.

3-68 (cont)

Sincerely,



Phyllis Fox, PhD, PE

EPS
ENVIRONMENTAL PERMITTING SPECIALISTS
Air Quality • Permitting • OHSA • RMP/PSM

TECHNICAL MEMORANDUM

To: Phyllis Fox, PhD, PE **Date:** December 13, 2018

From: Ray Kapahi RK
Environmental Permitting Specialists
Tel: 916-687-8352
E-Mail: ray.kapahi@gmail.com

Subject: Review of Impacts to Health Risks from Construction Emissions
Painted Hills Wind Energy Repowering Project

3-69

I received four documents related to this project. The documents were:

1. County of Riverside Environmental Assessment/Initial Study (EA/IS)
2. Response from Dudek (Memorandum from Adam Poll November 27, 2018)
3. HRA (undated)
4. Comments on the Initial Study (Phyllis Fox Dated Nov 26, 2018)

My focus was primarily on documents 1 and 3.

Review of County of Riverside EA/IS

I reviewed this document to obtain background information on the Project and its location. The EA/IS does not include any analysis of the health impacts from exposure to toxic air contaminants (TACs) during construction. The air quality section identifies residences within 600 feet of the construction disturbance. See Figure 1, which is annotated to show the location of homes adjacent to the Project site. This figure is based on EA/IS Figure 2. There are additional homes to the east all the way up to Route 62 (1,800 meters from the Project site).

The air quality section of the EA/IS related to public health concludes that health impacts from TACs are less than significant without presenting any TAC emission rates or HRA analysis. The fact that residences are so close to the project (600 feet) suggests there is a high probability of significant health impacts during Project construction.

Review of HRA

The file labeled "HRA" is a 1,172 page document consisting of 5 separate files that were been consolidated into a single document.

1. A CalEEMod run dated 11/27/2018 that presents annual construction and operational emissions
2. An AERMOD output file that presents annual and hourly PM-10 concentrations
3. A HARP2 output log file confirming the HAPR2 risk assessment model was run
4. An AERMOD output file
5. A HARP2 risk assessment output log file confirming the HARP2 model was run

No explanation is provided as to what these files signify or the connection between the files. This collection of files is not a health risk assessment. No risk results from the HARP2 HRA model are provided. The risk levels asserted in Dudek's response to comments are not present in this collection of files. A mere collection of names of model output files does not constitute an HRA and does not support Dudek's conclusions as to construction health risks.

3-69 (cont)

Evaluation of Health Risks from Construction

I evaluated the cancer risk of Project construction at the nearby residences shown in Figure 1 based only on diesel particulate matter (DPM, assumed to equal PM2.5) using a screening level HRA.[1] This screening level HRA is based on risk prioritization and was established under the AB-2588 "Hot Spots" Program.[2] "Screening Level" refers to a conservative estimate of probable risk. The "HRA" produced by Dudek contains a CalEEMod run that provides annual particulate exhaust emissions, which were used in my analysis.

The results of my analysis are summarized in Table 1. A score below 1 is "Low Priority"; a score between 1 and 10 is "Medium Priority;" and a score above 10 is "High Priority.[3] The risk score (and priority) varies with distance from source to receptor.

For the current Project, the annual DPM emission rate is estimated to be 0.3349 tons/yr.[4] This equates to 669.8 lbs of DPM/year. Using this emissions rate in the risk prioritization spreadsheet yields the risk versus distance information summarized in

[1] See: http://www.valleyair.org/transportation/ceqa_idx.htm.
[2] See: https://www.arb.ca.gov/ab2588/riskassess.htm.
[3] Ibid.
[4] HRA, pdf 8, corresponding to page 8 of CalEEMod report.

Table 1 The results show the Project's impact to public health could be significant for homes within 500 meters (1,640 feet) of the project site.

The cancer risk score is 85.4, which is considered to be "High Priority." The cancer risk score is very high because there are homes within 600 feet (183 meters) of the Project site. This means a refined HRA is required to confirm the actual cancer risk. In the absence of a formal health risk assessment from the Applicant, this method demonstrates that construction of the Project presents a high risk of significant cancer impacts to the public.

Table 1. Results of Screening Construction Health Risk Analysis

Table 1 Results of Facility Prioritization		
Distance to Receptor (meters)	Carcinogenic Risk Score	Facility Ranking
0 to 100	341.6	High Priority
101 to 250	85.4	High Priority
251 to 500	13.7	High Priority
501 to 1,000	3.76	Medium Priority
1,001 to 1,500	1.02	Medium Priority
1,501 to 2,000	0.68	Low Priority

3-69
(cont)

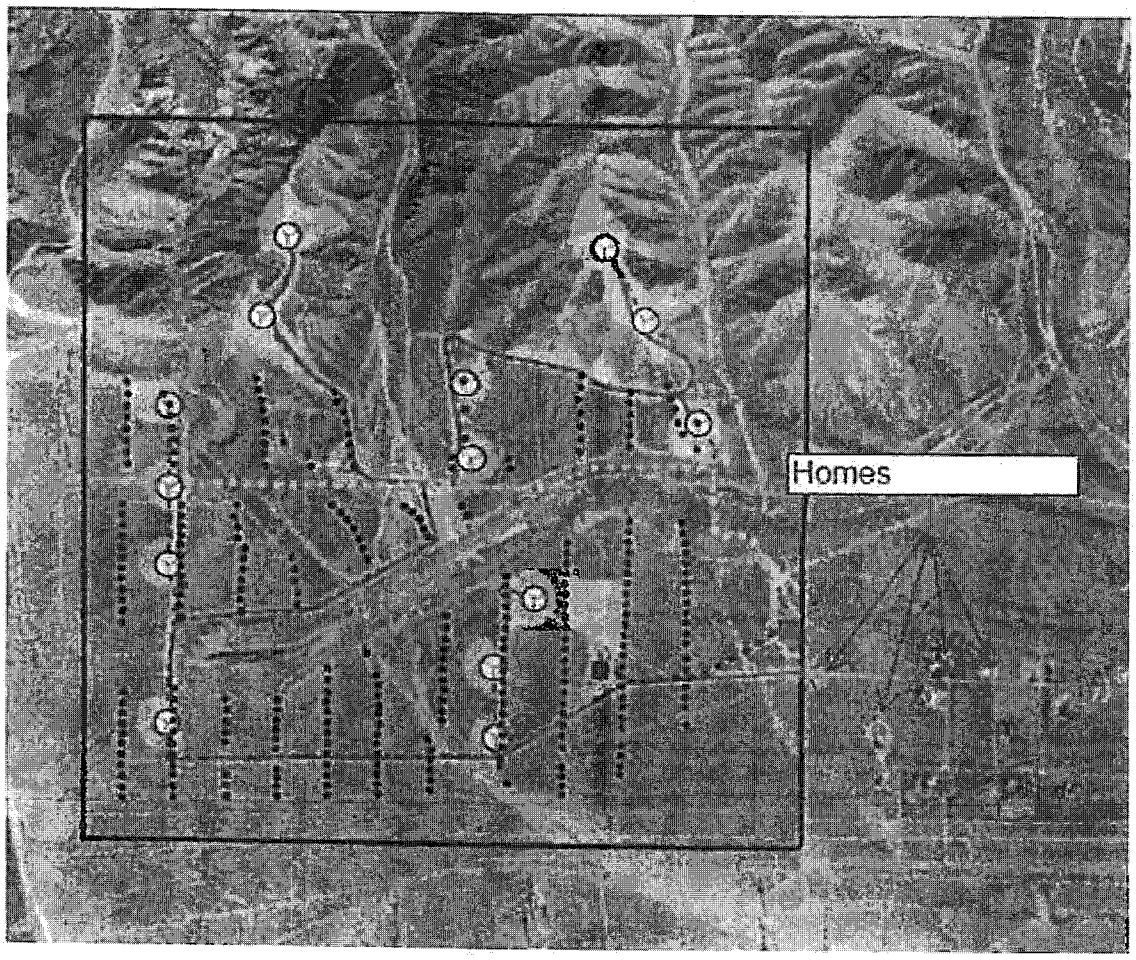
Name	Air Toxics "Hot Spots" Information and Assessment Act of 1987 Facility Prioritization Scores Prioritization 2.0 SJVAPCD						
Applicability	Use this spreadsheet to generate a Prioritization when emission rates of HAPs are known. Entries required in yellow areas, output in grey areas.						
Author or updater	R Kapahi	*Last Update*	March 10, 2015				
Facility:	Painted Hills Wind Energy Re-Powering Project						
ID#:	0.3349 tons/yr or 669.8 PM-2.5 [Exhaust]						
Project #:	Screening Level Risk Score Calculation						
Data Entered by:							
Data Reviewed by:							
Location	Operating hrs/year do not affect cancer risk score.						

Inputs	Operating Hours hr/yr	Release Height (m)
	8760	5

	Receptor Proximity & Proximity Factors (Meters)		Emissions Potency Method			Dispersion Coefficient		
			Cancer Scores	Non-Cancer Scores	Facility Ranking	Cancer Scores	Non-Cancer Scores	Facility Ranking
	0< R<100	1.000	341.60	2.29	High Priority	337.57929	2.28384	High Priority
	100≤R<250	0.250	85.40	0.57	High Priority	84.39480	0.57346	High Priority
	250≤R<500	0.040	13.66	0.09	High Priority	13.50317	0.09175	High Priority
	500≤R<1000	0.011	3.76	0.03	Medium Priority	3.71937	0.02523	Medium Priority
	1000≤R<1500	0.003	1.02	0.01	Medium Priority	1.01274	0.00688	Medium Priority
	1500≤R<2000	0.002	0.68	0.00	Low Priority	0.67516	0.00459	Low Priority
	2000<R	0.001	0.34	0.00	Low Priority	0.33758	0.00229	Low Priority
62737	Dichlorovos (DDVP)				0.00E+00	0.00E+00	0.00E+00	0.00E+00
9901	Diesel engine exhaust, particulate matter (Diesel PM)	6.70E+02			7.65E-02	5.63E+00	3.42E+02	2.29E+00
111422	Diethanolamine				0.00E+00	0.00E+00	0.00E+00	0.00E+00
79447	Dimethyl carbamoyl chloride				0.00E+00	0.00E+00	0.00E+00	0.00E+00

3-69
(cont)

Figure 1
Project Site Map



Note: Base map from EA/IS, County of Riverside.

3-69
(cont)

CEQA

air quality handbook

Prepared by:

South Coast Air Quality Management District

April, 1993

of receptors to different odors. By contacting either the District's Office of Stationary Source Rule and Compliance or the jurisdiction's code enforcement department, a planner can learn if an complaints about odors have been filed by property owners/occupants in the general vicinity of th proposed project site and thereby determine if a sensitive receptor could be affected by odor Additionally, if the proposed project is in close proximity to a use identified in Figure 5-5 or is one o these uses, then potential odor impacts should be addressed.

For sensitive receptors, mitigation measures are limited. In fact, in some instances the only mitigatio available to sensitive receptors is to relocate upwind or further downwind from the source. The facilit that is, or will be, producing the odor can also relocate equipment so that fumes can be emitted a locations to take the best advantage of wind patterns. Projects that may cause odors can also chang stack heights and add additional control technology. In some cases, a project proponent fo development of a sensitive receptor may be able to mitigate potential impacts by paying for mitigatio at the source.

When odors are an issue, the air quality analysis should include a quantitative assessment of potentia odors and meteorological conditions. A method of quantitatively assessing odors has been devised b the American Society of Testing Materials (ASTM, Standard Method D 1391), which considers hov many times an air sample must be diluted with "clean" air before the odor is no longer detectable to ar average adult with average odor sensitivity. The number of dilutions needed to reach this threshol level is referred to as a "dilution to threshold" (D/T) factor. An odor with a D/T of 2 (2 parts of fres air to one part of odorous air) becomes faintly detectable to almost all receptors. At 5 D/T, people become consciously aware of the presence of an odor, and at 5 to 10 D/T, the odor is strong enough tc evoke registered complaints. The standard to utilize in assessing off-site odor exposure is preferably below 5 D/T and acceptable below 10 D/T. 3-7(

In addition, ASTM, standard method E679-79 can be used to analyze odors. This method relies on the sensory responses of a selected group of individuals called panelists. The threshold used in this method ranges from only detection that a very small amount of added substance is present but not necessarily recognized to recognition of the nature of the added substance. Other recognized test methods to determine odor impact may be used in addition to ASTMD 1391 and E 679-79.

Determining which properties will be subject to odors requires meteorological data, including a wind rose. A wind rose illustrates the different speeds and directions taken by the wind at different times during the day. With the information from the wind rose, measurements using the ASTM methods are to be taken from surrounding properties to assess the impact. Refer to Chapter 8 for information on developing meteorological information.

5.5 Site Plan Design and Building Design Mitigation Measures

All projects should integrate mitigation measures that facilitate trip reduction, reduce energy use, and reduce PM10 by modifying the following project factors:

- Site plan design
- Building design
- Land use/densities
- Landscape design

This Handbook provides a listing of mitigation measures that planners should make project proponents aware of before projects are designed. Ideally, these mitigation measures are discussed during an initial consultation between planners and the project proponents, as outlined in Chapter 4. Table 5-5 identifies the site plan/building design mitigation measures by type of land use. The District recommends that these mitigation measures be employed by all projects to the extent feasible and consistent with local land use policies.

Environ. Sci. Technol. 1987, 21, 403–408

Characterization and Analysis of Diesel Exhaust Odor

Patricia A. Partridge,† Francis J. Shala,† Nicholas P. Cernansky,‡ and Irwin H. (Mel) Suffet*,†

Departments of Chemistry and Mechanical Engineering, Environmental Studies Institute, Drexel University, Philadelphia, Pennsylvania 19104

■ An analytical method was developed to determine which compound or compounds in the oxygenated fraction of diesel exhaust were changing in intensity and number with respect to the odor correlation between human sensory panels and diesel exhaust samples as developed at Arthur D. Little, Inc. A sample fractionation with silica Sep-Pak cartridges and gas chromatography analysis procedures were developed to analyze exhaust odor samples. By use of a chromatographic computer profiling method, correlations were developed indicating a linear relation between log (odor intensity) and log (concentration) of specific character impact peaks (which may or may not be odorous themselves). Excellent correlations were obtained with the character impact peaks identified as benzaldehyde and a methylbenzaldehyde isomer in this study. Correlation coefficients of 0.97 and 0.90, respectively, were obtained for the sample set.

Introduction

Due to an increasing demand on the remaining finite national and worldwide petroleum reserves, there is great impetus to find more efficient uses of petroleum-derived fuels. The diesel engine is a viable alternative to the current gasoline-powered engine for increased fuel economy and reduced hydrocarbon and carbon monoxide emissions levels. However, with the increased use of the diesel engine, there exists the potential for regulation of the offensive odor associated with the exhaust gases. Therefore, it is necessary to have a reliable and quantitative method of analysis for odor assessment.

Depending on the environment, method of odor presentation, panelist disposition, etc., odor panels (unless rigorously trained) can sometimes yield widely scattered and inconsistent results. For this reason and other health concerns, an instrumental method to quantify odorous compounds is preferred.

Currently, the only generally accepted instrumental method of diesel exhaust odor analysis is the one developed at Arthur D. Little, Inc., and known as the Diesel Odor Analysis System (DOAS) (*1*, *2*). The DOAS provides for liquid chromatographic measurement of organics present in diesel exhaust odor samples that have been correlated with human sensory panels. The overall methodology of the DOAS involves the use of the exhaust sampling system to trap odorous compounds on a Chromosorb 102 trap, elution from the trap with cyclohexane, and analysis of the eluate on a liquid chromatograph.

The sampling system used in the collection of the odor in diesel exhaust is shown in Figure 1. The exhaust is first drawn through heated sample lines and into an oven where it is hot filtered of particulates. There is no loss of odorous compounds in this step, since there is no condensation of organic material as confirmed by soxhlet extraction and analysis of the filters (*3*). The exhaust then passes through a Chromosorb 102 trap immediately outside the oven and finally through a gas drier and a dry test meter for the measurement of the total exhaust volume sampled. The Chromosorb 102 traps are eluted with cyclohexane to yield odor samples or total organic extracts (TOE).

The liquid chromatograph or "odormeter" utilizes a 15-cm Corasil II silica column to separate the TOE into two fractions: oxygenates (LCO), which typically have a smoky-burnt odor quality, and aromatics (LCA), which typically have an oily-kerosine odor quality. Cyclohexane is used to elute the LCA fraction, which is not retained on the column. After the LCA elution, the retained LCO fraction is eluted with an automated injection of 2-propanol. The fractions are quantified by their UV response at 254 nm and related to a total intensity of aroma (TIA) value. External standards with appropriate UV responses are used for odor calibrations for LCA and LCO. The LCA fraction does not enhance the LCO odor and has, by itself, a much lower TIA than that of the exhaust TIA. Therefore, the relevant diesel exhaust odor has been attributed to the oxygenate species in the LCO fraction (*4*). On the basis of an odor panel correlation established at Arthur D. Little, Inc., TIA is given by

$$\text{TIA} = 1.0 + 1.0 \log_{10} [\text{LCO } (\mu g/L)] \qquad (1)$$

The numerical scale and intensity rating for the TIA scale ranges from 0.5, which represents very slight odor, to 3, which signifies strong odor.

Attempts have been made to chemically characterize the exhaust odor components (*5*, *6*). However, this has not been fully realized due to the extreme complexity in the number and type of compounds composing the exhaust sample matrix. Classes of compounds and a number of specific compounds have been identified in the exhaust odor, but no specific compound or group of compounds have been found to adequately describe or measure exhaust odor except the general oxygenate class used in the DOAS. However, since the DOAS uses the UV response of the total oxygenate fraction of the exhaust to measure odor, this bulk (nonspecific) measurement does not indicate how the odorous compounds are changing. For example, an increase in odor intensity could imply an increase in the concentration of the same compounds and/or the generation of different compounds that can contribute to the total UV response. Different exhaust odor qualities can yield the same odor intensity as it is measured as combined total UV absorption. These factors must be considered when comparing results from different odor panels and may, depending on what is being quantified, result in apparent discrepancies in results.

Therefore, an approach was needed to observe and understand how the intensity and number of chemical constituents of the odorous fraction of the exhaust were changing with respect to the odor value as measured by the DOAS. For this purpose, a broad-spectrum analytical approach was developed to investigate how these odorous compounds were changing and to determine which compounds, if any, were indicative of the overall odor in the oxygenate fraction. This approach entailed the use of a chromatographic profiling technique, which allows differences and/or similarities between samples to be easily seen. This technique has been successfully applied in such areas as petroleum products (*7*), oil spills (*8*), and organic

*Author to whom correspondence should be addressed.
†Department of Chemistry.
‡Department of Mechanical Engineering.

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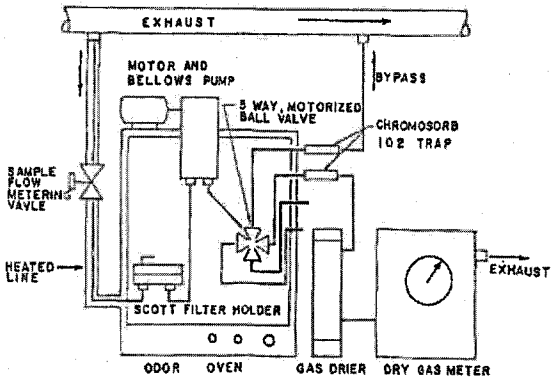

Figure 1. Diesel odor sampling system component parts.

Table I. Diesel Engine Operating Conditions

engine type	IDI-CFR single-cylinder diesel engine
fuel	Isopar-M
compression ratio	17.4:1 and 23.0:1
air to fuel ratio	15.4–53.9
load, lb[a]	0.8–16.8
speed, rpm	900, 1200, and 1500

[a] Represents zero or idle to full load conditions.

compounds in drinking water (*9*) and tobacco smoke (*10*). It is important to note that the sampling and analysis of specific compounds indicative of the odor could result in a much more consistent and reliable odor measurement method than that obtained from the aforementioned odormeter.

Experimental Section

Odor Source. The sample odor source for this study was the exhaust from an indirect-injection CFR diesel engine. This engine is a single cylinder, four-stroke cycle test engine utilizing a variable compression ratio and split combustion chamber. The engine fuel used to generate the odor samples was Isopar-M, a paraffinic fuel similar to diesel No. 1 fuel in boiling point range. For all odor samples, the exhaust was collected with the engine running under a steady-state operating condition. Table I shows the wide range of engine operating conditions chosen for this study. Details of the engine have been published elsewhere (*3*).

Diesel Odor Analysis System (DOAS). The diesel exhaust was sampled by absorption onto a trap, containing approximately 1 g of Chromosorb 102 in a $^3/_8$-in. stainless steel tube with Swagelok union end fittings. The Chromosorb 102 was cleaned by the Arthur D. Little, Inc., procedure with methanol and pentane washes (*4*). However, it was found that hot 2-propanol was more effective than methanol in this step. The raw hot exhaust was collected, as previously described, with the sampling system shown in Figure 1. The sampling system was not cleaned between engine runs, but blanks were sampled and no odor was detected. The particulate filter was changed between each sample run. All the sampling lines were kept at elevated temperatures (180–200 °C) to prevent condensation.

Initially, work was done to determine the breakthrough and recovery effects for the collection of diesel exhaust odor on the Chromosorb 102 traps. Odorous compounds as measured by the DOAS exhibited trap breakthrough effects dependent upon sample volume and sampling rate. Various types of tracer compounds yielded different breakthrough patterns. This indicated that nonlinear absorption was occurring on the Chromosorb 102. Therefore, the need for a uniform and consistent sampling condition was required (*3*).

A series of breakthrough experiments were performed with backup traps. By use of moderate exhaust sample flow rates with Isopar-M fuel, the backup trap collected more odor than the front trap. At lower flow rates, the level of odor on the backup trap was reduced and the crossover point shifted to higher sample volumes. Thus, it appears that both sample volume and sample rate must be controlled for quantitative reproducibility of odor measurements. In order to obtain repeatable and consistent odor data, a fixed 25-L sample volume and a 5 L/min sampling rate have been adapted for all odor testing (*11*).

Chemical tracer experiments using [^{14}C]acetophenone also were performed to quantify breakthrough and recovery effects on odor intensity. At 25 L and a flow rate of 5 L/min, 73.2% of the [^{14}C]acetophenone was retained on the front trap with 13.7% contained in the eluate from the backup trap. This corresponds to an odor value of 1.50 TIA when only the front trap is considered and a value of 1.29 TIA when both traps are considered. Thus, a single trap is satisfactory for general odor measurements, and a sample volume of 25 L can be used as a reasonable standard condition (*11*).

The total organic extracts (TOE) of the sample traps were obtained by elution with cyclohexane (Burdick & Jackson Laboratories, Inc.) in the reverse direction of sample flow to prevent band-broadening effects. The TOE was analyzed by the odormeter to yield the TIA of the sample. The lower limit of detection of this method is 0.8 μg/L of LCO (TIA = 0.9). Reproducibility and duplicability for odormeter operation, sampling system operation, and experimental system operation was good, with all data falling within ±0.1 TIA unit of the mean at high odor levels (2.0 TIA) and within ±0.2 TIA unit of the mean at low odor levels (1.5 TIA). A more detailed description of the above procedure can be found elsewhere (*2*, *10*). This TOE was then used for the gas chromatography (GC) sample preparation.

GC Sample Preparation. In order to develop capillary GC profiles of the odorous fraction, the LCO must be separated from the LCA in the TOE of the diesel exhaust. This fractionation is necessary due to the complexity and number of compounds present in the exhaust as well as the masking effect resulting from the unburnt fuel (*12*). The silica cartridges allow a fractionation of the sample between aromatics and oxygenates to be made similar to that which occurs in the odormeter analysis. The sample TOE was fractionated with cyclohexane and 2-propanol according to the steps in Table II. The solvents were slowly pushed through the cartridge with a 5-mL Luer-tip glass syringe and collected in small vials. After each solvent addition, about 15 mL of air was used to purge the cartridge of any remaining solvent.

Gas Chromatography and Gas Chromatography/Mass Spectrometry (GC/MS). A Varian Model 3700 gas chromatograph equipped with a flame ionization detector and a 60 m by 0.25 mm i.d. SE-30 glass capillary column (J & W Scientific, Inc.) was utilized for all analyses. For each run, 2.7 μL of sample was injected with a split of 9.3:1 at 50 °C. The initial temperature was held for 10 min and then linearly programmed at 3 deg/min to 250 °C, where it was held for 25 min. The FID signal was recorded and integrated by a Spectra-Physics Model 4100 programmable integrator. Gas chromatography of the oxygenate fraction of the exhaust was run with and without

3-71 (cont)

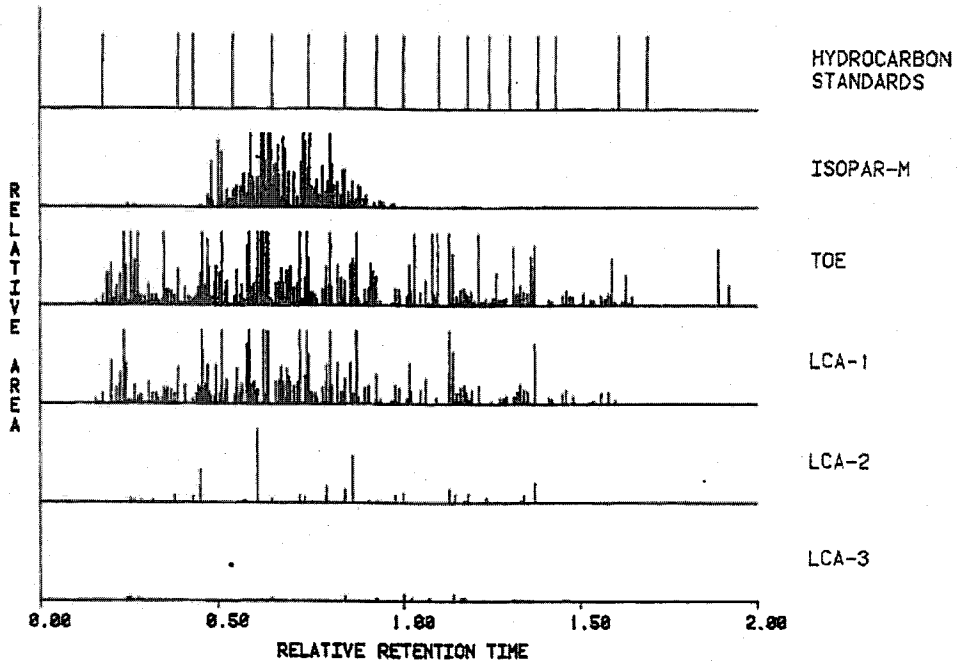

Figure 2. Chromatographic computer profiles of the Isopar-M fuel, the TOE, and the LCA fractions of an engine exhaust sample. *n*-Alkane standards of C_9–C_{28} (except C_{24}) standards are included for reference.

a mixture of internal standards of *n*-C_{10}, *n*-C_{12}, *n*-C_{14}, and *n*-C_{16} alkanes spiked at a level of 5 ppm of each alkane.

A Finnigan Model 4021 automated gas chromatography/mass spectrometry system operated in the electron-impact mode was used for compound separations and identifications. The GC employed a 60-m DB-1 fused silica column (J & W Scientific, Inc.) to produce a total ion chromatogram similar to the GC profiles.

Data Reduction and Computer Profiling. Data reduction and computer profiling were performed on a Tektronix 4051 graphics system computer equipped with a 64-kilobyte memory-expansion module and a Tektronix 4662 interactive digital plotter. Retention time and area data were obtained from the integrated GC-FID signal. These data were then transferred via a current loop to RS232C interface to the computer where the data were stored on magnetic tape files. These data files were then used to generate computer profile spike plots representative of the original chromatograms. Relative retention times and areas were used to normalize each chromatographic spike plot for comparative purposes.

Initial versions of the complete GC computer profile system have been previously described (*13*). An updated version of the GC profile-plotting program can read either ASCII or binary data files from magnetic tape and provides for profile plot previewing with quick parameter (e.g., relative time and area, plotting range, etc.) change capability before plotting on the digital plotter. A detailed discussion of this profiling program is available from the author (*12*).

A statistical analysis package written in BASIC containing regression programs was used for the development of correlations. The program outputs included correlation statistics with analysis of variance and a scatter plot.

Results and Discussion

Due to the chemical complexity of diesel exhaust, it was advantageous to first isolate the odor-significant LCO fraction from the total organic extract (TOE) of the exhaust. This was done so that the LCO fraction could be analyzed by capillary GC without interference from the remaining bulk of compounds in the exhaust (*12*).

Preliminary experiments were performed to collect the LCO fraction of the TOE by using the methodology described for the odormeter. Initially, the odormeter itself was used to collect the LCO fraction. Capillary GC analysis of the LCO fraction yielded only a few peaks. This was apparently due to the limiting sample size (10 μL) used in the LC separation and the subsequent sample dilution during the LC process. A second approach was made by a Spectra-Physics preparative high-pressure liquid chromatograph with a 0.9-mL sample of TOE. The capillary chromatogram of this LCO fraction contained fewer than 12 peaks, presumably due to the resulting band broadening and, thus, sample dilution in the LC process.

However, the use of a silica cartridge was found to minimize the dilution of the LCO fraction and greatly reduce the sample fractionation time. For sample loading considerations, a high odor sample (TIA = 3.2) generated from the engine was used to develop the fractionation procedure given in Table II. The capillary GC profiles of these fractions were compared to ensure complete separation of aromatics and oxygenates. The capillary GC profile of each fraction used the retention time of the major impurity peak in each Sep-Pak cartridge as the reference peak time for calculation of relative retention times (since the cartridges used were from the same lot number). The retention time of this peak is 53.5 min. The reference area was arbitrarily chosen to scale the profiles.

The capillary GC profiles of the LCA fraction are shown in Figure 2 with a set of C_9–C_{28} (except C_{24}) *n*-alkane standards, Isopar-M (Exxon Corp.) fuel, and the TOE included for reference. *n*-Alkanes were used as internal standards, since they are not present in the oxygenate fraction. It is observed that the "cleanup" of LCA hydrocarbon and aromatic species by the Sep-Pak cartridge is essentially completed by the LCA-3 fraction. The majority of the LCA-type species elute in the first fraction, LCA-1, which contains most of the unburnt fuel. The complexity of this fraction (the peak number and their

3-71
(cont)

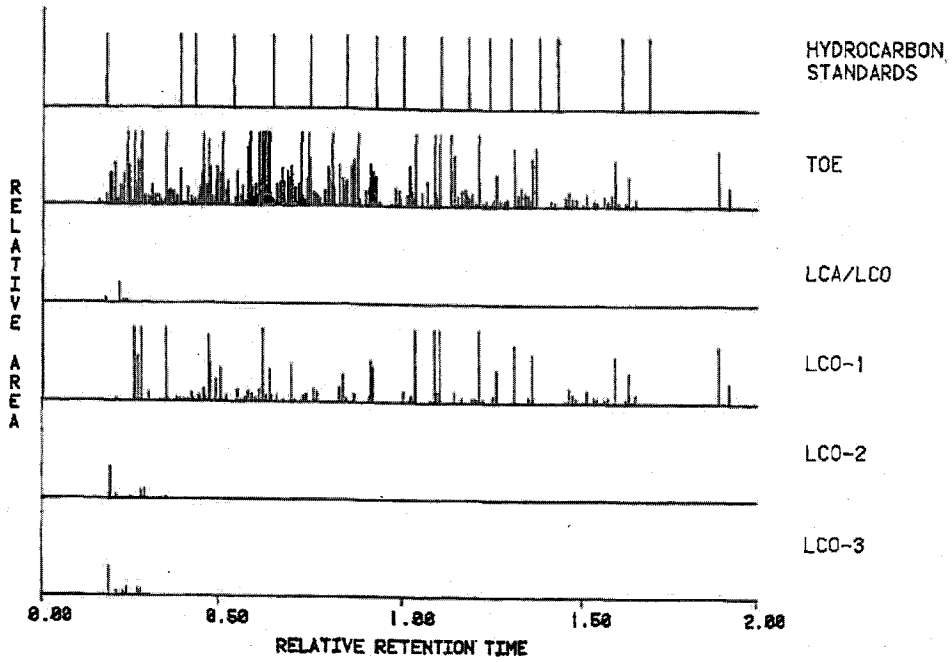

Figure 3. Chromatographic computer profiles of the TOE, the crossover fraction, and the LCO fractions of an engine exhaust sample. *n*-Alkane standards of C_9–C_{28} (except C_{24}) standards are included for reference.

Table II. Sep-Pak Fractionation Scheme[a]

step	material placed on silica Sep-Pak cartridge	fraction collected
1	1 mL of sample TOE initial	
2	2 mL of cyclohexane added	LCA-1
3	4 mL of cyclohexane added	LCA-2
4	4 mL of cyclohexane added	LCA-3
5	1 mL of 2-propanol added	LCA/LCO
6	1 mL of 2-propanol added	LCO-1
7	1 mL of 2-propanol added	LCO-2
8	1 mL of 2-propanol added	LCO-3

[a]Note: 15 mL of air is used to purge the cartridge after each solvent addition.

intensity) indicates that it is necessary to separate it from the odor-relevant LCO fraction (*12*).

Figure 3 shows the GC profiles of the hydrocarbon standards, the TOE, and the LCO fractions. The LCO/LCA fraction represents the solvent crossover fraction from cyclohexane to 2-propanol. The LCO-1 fraction contains the majority of the oxygenated species with little remaining in the LCO-2 and LCO-3 fractions. Therefore, the LCO-1 fraction was chosen to represent the total LCO from the TOE.

Subsequently, state-of-the-art capillary gas chromatography and computer profiling techniques were used to observe if common GC peaks or peak patterns could be observed in samples of varying odor intensity. "Character impact peaks", which are indicative of the significant differences between samples, can easily be selected from the computer profiles and correlated with odor as measured by the DOAS. Gas chromatography/mass spectrometry can then be used to identify only the statistically significant character impact peaks. The odor relevant properties of the identified compounds can be evaluated to determine their significance in the diesel exhaust odor complex. However, if the compounds do not exhibit exhaust odor properties, they may still be used as quantitative indicators of the total exhaust odor. These compounds can be considered as character impact peaks, as their behavior is similar to the odor behavior. The compounds can be selectively and more efficiently sampled and analyzed, thereby allowing a more consistent and reliable method of odor measurement than that of the DOAS. Hence, their use as a secondary standard in odor measurement would be of considerable importance.

This broad spectrum approach utilizing Sep-Pak fractionation and GC profiling thus allows one to easily extract the most pertinent information from a complex sample matrix such as diesel exhaust. Thus, it is of interest to determine which compound or compounds in the oxygenate fraction of the exhaust are primarily responsible for the odor correlation as developed at Arthur D. Little, Inc.

Oxygenate Effects and Odor Correlation. Twenty-one odor samples were chosen from those previously collected from the engine for LCO profile analysis. The samples represented a wide range of engine operating conditions. The range of sample odor values was from 1.20 to 3.27 TIA units or 1.58–186 μg/L in LCO as measured by the DOAS. The LCO fractions of these samples were obtained as previously described.

Initially, these fractions were profiled without hydrocarbon standards to eliminate any possible masking effects due to the standards. The resulting profiles from this analysis were quantitatively processed on a per microliter injected basis. Twelve of the 21 fractions were later spiked with hydrocarbons and quantitatively analyzed relative to the response of the response of *n*-dodecane to verify the initial results.

A series of sample profiles of increasing LCO value and a reference blank are shown in Figure 4. These samples also contain the hydrocarbon internal standards. The numbered peaks are those that follow a trend in area similar to that of increasing LCO value and, thus, were chosen as candidate peaks for followup statistical correlation analysis. None of these peaks were observed in the blank (see Figure 4, blank). Of the numbered peaks, only peak 1 was consistently detected in all 21 samples. The reproducibility of a number of samples collected at a low

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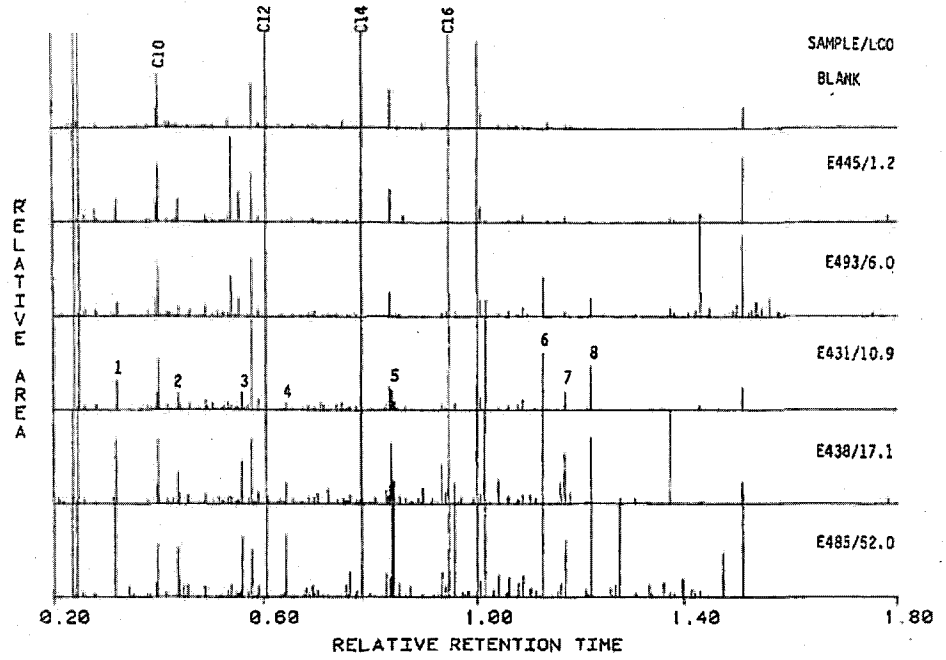

Figure 4. Chromatographic computer profiles of the LCO-1 fractions for engine exhaust samples with increasing LCO values (μg/L) and a reference blank with hydrocarbon standards. Numbers in center profile denote character-impact peaks (1 = benzaldehyde; 2 = methylbenzaldehyde isomer).

odor level (TIA = 1.7) yielded a relative retention time variation of 0.6% RSD for peak 1. The relative area variation was found to be 40% RSD, but this represents only 5% RSD on the log odor scale. Therefore, a simple linear regression analysis was performed on the log of the area per microliter injected vs. TIA for peak 1 in the set of 21 samples. The log of the peak area was used, since TIA, like odor, is a logarithmic function of the molecular concentration (*14*). A correlation coefficient of 0.97 was obtained for the sample set. A scatter plot of the linear regression with confidence limits for TIA vs. the log of the area per microliter injected for peak 1 is shown in Figure 5. The null hypothesis of zero slope is rejected by a t test on the slope at the 95% confidence level; thus, the correlation is probably significant. Quantification with the use of the hydrocarbon internal standards increased the correlation coefficient to 0.98.

Peak 2 in Figure 4 was also detected in the 12 samples containing the hydrocarbon internal standards. Again, performing simple linear regression analysis produced a significant correlation between TIA and the log of peak 2 divided by the log of the peak area of the dodecane hydrocarbon standard. A correlation coefficient of 0.90 was obtained. Most of the other numbered peaks in Figure 2 also followed the trend of increasing peak area with increasing LCO; however, these peaks were only observed in the relatively few high-LCO samples. This indicates that these peaks may be useful for discriminating high, medium, and low odor samples, but a statistically significant number of samples to develop a correlation are not available at the present time.

GC/MS Analysis. The GC profile approach averts the need to identify all the species present in the exhaust by allowing the selection of only the "statistically significant" character impact peaks. These character impact peaks, once identified by GC/MS, are used to determine their significance with respect to the exhaust odor and combustion process.

The most odor-relevant peak (not necessarily odorous itself), peak 1, was identified as benzaldehyde. The gas

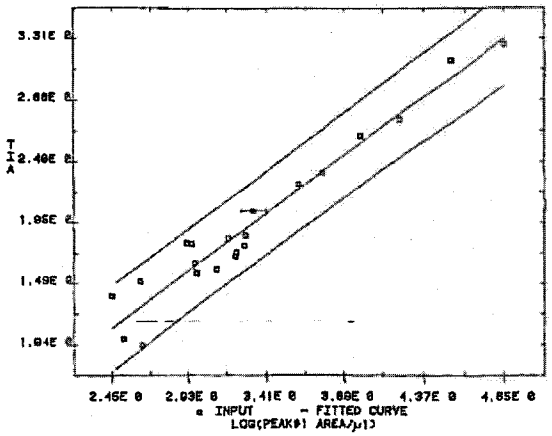

Figure 5. Linear regression plot of TIA with log of the normalized benzaldehyde concentration, including the 95% prediction interval. Normalization was calculated as peak $1/C_{12}$ areas. Correlation coefficient is 0.97.

chromatographic retention time of the pure compound also confirmed this assignment. A quantitative relationship between exhaust odor as measured by TIA and the concentration of benzaldehyde in the exhaust by calibration of the FID with a series of standard solutions was determined as

$$\text{TIA} = 1.11 \log_{10} [\text{B}] + 4.10 \qquad (2)$$

where [B] is the concentration of benzaldehyde in ppm in the exhaust.. The application of this correlation is dependent on using data obtained under the same sampling and analysis conditions used to develop this correlation. Peak 2 was tentatively identified as an isomer of methylbenzaldehyde. Other character-impact compounds that were tentatively identified from Figure 3 with their corresponding peak number are: cinnoline (3), 1-indanone (4), benzo[c]cinnoline (6), pyrene (8), and 9-fluorenone (9). These compounds appear only at high LCO values. Peaks

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(cont)

numbered 5 and 7 were not identified.

In this study, benzaldehyde concentrations in the exhaust ranged from 0.002 to 0.175 ppm. This is comparable to literature data on benzaldehyde found in diesel exhaust. Swarin et al. (*15*) found 0.009 ppm of benzaldehyde in diluted (room air; 10:1) diesel emissions. Creech et al. (*16*) found 0.037–0.07 ppm of free benzaldehyde in diesel exhaust. A concentration of 3.5 mg/m^3 was obtained by Johnson et al. (*17*). These data indicate that the laboratory engine used in this study is consistent with vehicular engines.

Summary

An analytical method was developed to understand how the intensity and number of chemical compounds of the odorous fraction of diesel exhaust were changing with respect to the odor value by the DOAS. Sample fractionation with silica Sep-Pak cartridges and GC analysis procedures were developed to analyze the exhaust odor samples. The combined application of the above approach and a chromatographic computer profiling method to the analysis of diesel exhaust odor has resulted in the development of linear–log correlations between the DOAS odor system and specific character-impact peaks, which may or may not be odorous themselves. Excellent correlations were obtained with the character-impack peaks identified as benzaldehyde and a methylbenzaldehyde isomer in this study.

Registry No. C_6H_5CHO, 100-52-7.

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3-71
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EXHIBIT C

EPS
ENVIRONMENTAL PERMITTING SPECIALISTS
Air Quality • Permitting • OHSA • RMP/PSM

TECHNICAL MEMORANDUM

To: Phyllis Fox, PhD, PE **Date:** December 13, 2018

From: Ray Kapahi RK
Environmental Permitting Specialists
Tel: 916-687-8352
E-Mail: ray.kapahi@gmail.com

Subject: Review of Impacts to Health Risks from Construction Emissions
Painted Hills Wind Energy Repowering Project

I received four documents related to this project. The documents were:

1. County of Riverside ~~Environ~~mental Assessment/Initial Study ~~(EA/IS)~~
2. Response from Dudek (Memorandum from Adam Poll November 27, 2018)
3. HRA (undated)
4. Comments on the Initial Study (Phyllis Fox Dated Nov 26, 2018)

My focus was primarily on documents 1 and 3.

Review of County of Riverside EA/IS

I reviewed this document to obtain background information on the Project and its location. The EA/IS does not include any analysis of the health impacts from exposure to toxic air contaminants (TACs) during construction. The air quality section identifies residences within 600 feet of the construction disturbance. See Figure 1, which is annotated to show the location of homes adjacent to the Project site. This figure is based on EA/IS Figure 2. There are additional homes to the east all the way up to Route 62 (1,800 meters from the Project site).

3-72

The air quality section of the EA/IS related to public health concludes that health impacts from TACs are less than significant without presenting any TAC emission rates or HRA analysis. The fact that residences are so close to the project (600 feet) suggests there is a high probability of significant health impacts during Project construction. 3-72 (cont)

Review of HRA

The file labeled "HRA" is a 1,172 page document consisting of 5 separate files that were been consolidated into a single document.

1. A CalEEMod run dated 11/27/2018 that presents annual construction and operational emissions
2. An AERMOD output file that presents annual and hourly PM-10 concentrations
3. A HARP2 output log file confirming the HAPR2 risk assessment model was run
4. An AERMOD output file
5. A HARP2 risk assessment output log file confirming the HARP2 model was run

3-73

No explanation is provided as to what these files signify or the connection between the files. This collection of files is not a health risk assessment. No risk results from the HARP2 HRA model are provided. The risk levels asserted in Dudek's response to comments are not present in this collection of files. A mere collection of names of model output files does not constitute an HRA and does not support Dudek's conclusions as to construction health risks.

Evaluation of Health Risks from Construction

I evaluated the cancer risk of Project construction at the nearby residences shown in Figure 1 based only on diesel particulate matter (DPM, assumed to equal PM2.5) using a screening level HRA.[1] This screening level HRA is based on risk prioritization and was established under the AB-2588 "Hot Spots" Program.[2] "Screening Level" refers to a conservative estimate of probable risk. The "HRA" produced by Dudek contains a CalEEMod run that provides annual particulate exhaust emissions, which were used in my analysis. 3-74

The results of my analysis are summarized in Table 1. A score below 1 is "Low Priority"; a score between 1 and 10 is "Medium Priority;" and a score above 10 is "High Priority.[3] The risk score (and priority) varies with distance from source to receptor.

For the current Project, the annual DPM emission rate is estimated to be 0.3349 tons/yr.[4] This equates to 669.8 lbs of DPM/year. Using this emissions rate in the risk prioritization spreadsheet yields the risk versus distance information summarized in

[1] See: http://www.valleyair.org/transportation/ceqa_idx.htm.
[2] See: https://www.arb.ca.gov/ab2588/riskassess.htm.
[3] Ibid.
[4] HRA, pdf 8, corresponding to page 8 of CalEEMod report.

Table 1 The results show the Project's impact to public health could be significant for homes within 500 meters (1,640 feet) of the project site.

The cancer risk score is 85.4, which is considered to be "High Priority." The cancer risk score is very high because there are homes within 600 feet (183 meters) of the Project site. This means a refined HRA is required to confirm the actual cancer risk. In the absence of a formal health risk assessment from the Applicant, this method demonstrates that construction of the Project presents a high risk of significant cancer impacts to the public.

Table 1. Results of Screening Construction Health Risk Analysis

3-74 (cont)

Table 1 Results of Facility Prioritization		
Distance to Receptor (meters)	Carcinogenic Risk Score	Facility Ranking
0 to 100	341.6	High Priority
101 to 250	85.4	High Priority
251 to 500	13.7	High Priority
501 to 1,000	3.76	Medium Priority
1,001 to 1,500	1.02	Medium Priority
1,501 to 2,000	0.68	Low Priority

Name	Air Toxics "Hot Spots" Information and Assessment Act of 1987 Facility Prioritization Scores Prioritization 2.0 SJVAPCD	
Applicability	Use this spreadsheet to generate a Prioritization when emission rates of HAPs are known. Entries required in yellow areas, output in grey areas.	
Author or updater	R Kapahi	*Last Update* March 10, 2015

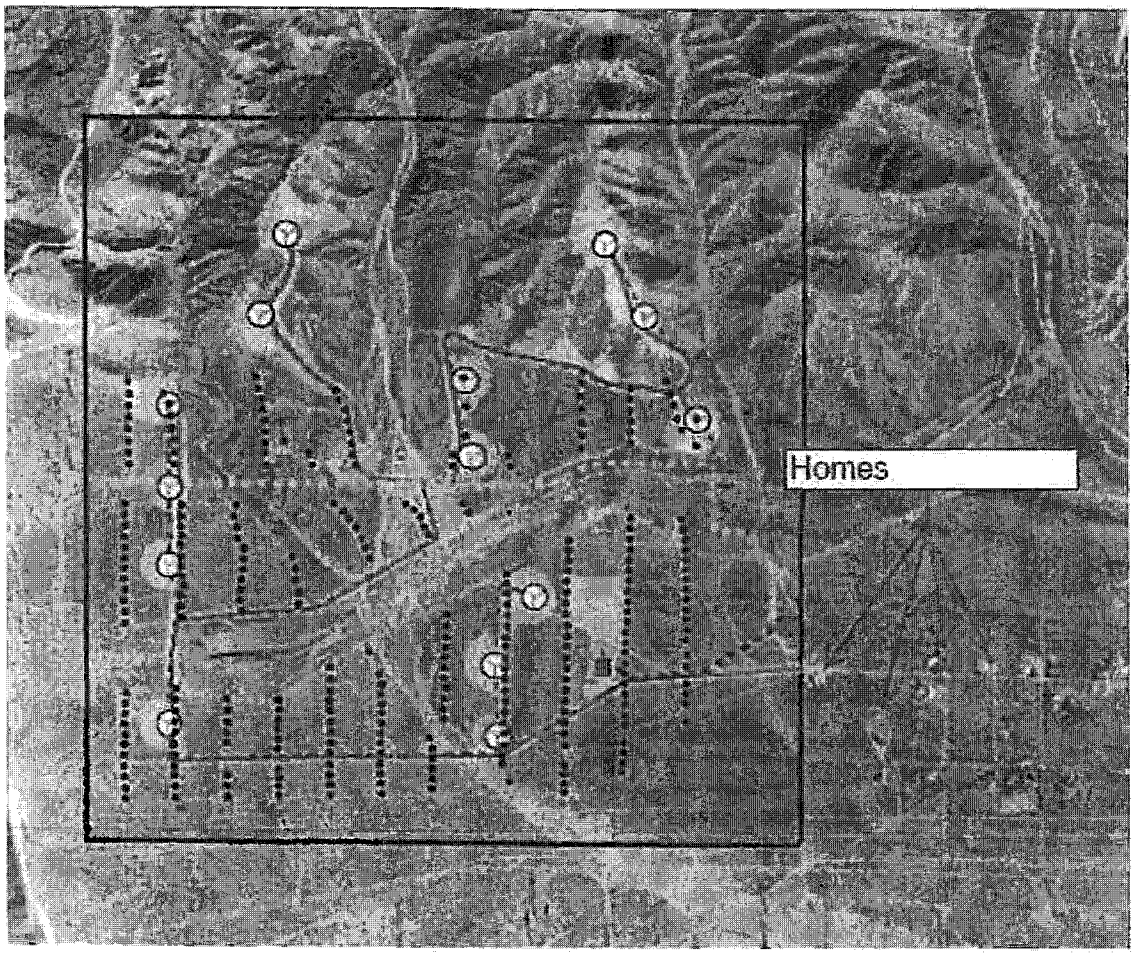
Facility: Painted Hills Wind Energy Re-Powering Project
ID#: 0.3349 tons/yr or 669.8 PM-2.5 [Exhaust]
Project #: Screening Level Risk Score Calculation
Data Entered by:
Data Reviewed by:
Location Operating hrs/year do not affect cancer risk score.

Inputs	Operating Hours hr/yr	Release Height (m)
	8760	5

	Receptor Proximity & Proximity Factors (Meters)		Emissions Potency Method			Risk [illegible] Method		
			Carc Scores	Non-Carc Scores	Facility Ranking	Carc Scores	Non-Carc Scores	Facility Ranking
	0< R<100	1.000	341.50	2.28	High Priority	337.57820	2.29384	High Priority
	100≤R<250	0.250	85.40	0.57	High Priority	84.39480	0.57346	High Priority
	250≤R<500	0.040	13.66	0.09	High Priority	13.50317	0.09175	High Priority
	500≤R<1000	0.011	3.76	0.03	Medium Priority	3.71337	0.02523	Medium Priority
	1000≤R<1500	0.003	1.02	0.01	Medium Priority	1.01274	0.00688	Medium Priority
	1500≤R<2000	0.002	0.68	0.00	Low Priority	0.67516	0.00459	Low Priority
	2000<R	0.001	0.34	0.00	Low Priority	0.33758	0.00229	Low Priority
62737	Dichlorovos (DDVP)				0.00E+00	0.00E+00	0.00E+00	0.00E+00
9901	Diesel engine exhaust, particulate matter (Diesel PM)		6.70E+02		7.65E+02	5.53E+00	2.42E+02	2.29E+00
111422	Diethanolamine				0.00E+00	0.00E+00	0.00E+00	0.00E+00
79447	Dimethyl carbamoyl chloride				0.00E+00	0.00E+00	0.00E+00	0.00E+00

3-74
(cont)

Figure 1
Project Site Map



Note: Base map from EA/IS, County of Riverside.

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EXHIBIT D